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Before the Committee on Appropriations

Department of the Interior and Related Agencies Appropriations

Fiscal Year 1981

96th CONGRESS, SECOND SESSION

H.R. 7724

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Part 4 (Pages 1–529)

DEPARTMENT OF ENERGY
DEPARTMENT OF THE INTERIOR
FEDERAL STEEL SHOT REGULATIONS
NATIONAL ENDOWMENT FOR THE ARTS

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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

NINETY-SIXTH CONGRESS

SECOND SESSION

ON

H.R. 7724

AN ACT MAKING APPROPRIATIONS FOR THE DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1981, AND FOR OTHER PURPOSES

PART 4—(Pages 1–529)

Department of Energy
Department of the Interior
Federal Steel Shot Regulations
National Endowment for the Arts

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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

MONDAY, MAY 19, 1980

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9 a.m., in room 1114, Everett McKinley Dirksen Senate Office Building, Hon. Robert C. Byrd (chairman) presiding.

Present: Senators Byrd, Huddleston, and Young.

DEPARTMENT OF ENERGY

FOSSIL ENERGY RESEARCH AND DEVELOPMENT

STATEMENT OF GEORGE FUMICH, JR., ASSISTANT SECRETARY FOR FOSSIL ENERGY, DEPARTMENT OF ENERGY

ACCOMPANIED BY CARL GUIDICE, ACTING DEPUTY ASSISTANT SECRETARY FOR FOSSIL ENERGY, DEPARTMENT OF ENERGY

BUDGET REQUEST

Senator BYRD. The subcommittee will come to order.

This is the time scheduled to review the budget estimates for the Department of Energy's fossil energy research and development and construction accounts. The total amended budget request for fiscal 1981 is $1.1 billion which is $360 million greater than appropriations to date for fiscal 1980. Additionally, the Department has requested a supplemental appropriation of $24 million for fiscal 1980, along with a rescission of $22 million.

The justification for the January budget request has been printed in the House hearing record. We will ask the Department to insert justifications for the fiscal 1980 supplemental appropriation request and the fiscal 1981 budget amendment, together with the President's 1980 rescission message, in the record at this point.

[The information follows:]

JUSTIFICATIONS

FY 1980 SUPPLEMENTAL REQUEST
SUMMARY TABLE
(BUDGET AUTHORITY IN THOUSANDS)
FOSSIL ENERGY RESEARCH AND DEVELOPMENT

	PRESENTLY AVAILABLE	REVISED ESTIMATE	PROPOSED SUPPLEMENTAL
Coal			
Operating Expenses			
Combustion Systems	$ 50,850	$ 57,350	$ 6,500
Magnetohydrodynamics	75,000	92,500	17,500
Program Direction	11,387	11,387	----
Other Coal	510,156	510,156	----
Total Operating Expenses	647,393	671,393	24,000
Plant and Capital Equipment	106,250	106,250	----
Total Coal	$753,643	$777,643	$ 24,000

Combustion Systems:

Coal-oil mixture (COM) combustion technology is primarily a retrofit technology with a high near-term application potential. For example, over 1.5 million barrels of oil per day are currently being consumed by utilities. If COM were used to displace oil in only 20 percent of this market, over 100,000 bbl/day would be saved. In addition, there is a substantial market in the industrial sector where over one million barrels per day of oil are consumed in boilers capable of converting to COM.

The DOE COM program is currently obtaining data on COM use in a utility boiler that was originally designed for coal firing but has been converted to oil. The information gathered from this activity will allow the private sector to adequately assess the economic, technical, and environmental parameters that are critical to commercial adoption of COM technology in boilers of that generic design. In addition, this information will provide the Department's Economic Regulatory Administration with the foundation it requires to adequately enforce the Fuel Use Act for those types of boilers. The information being gathered by the current program is applicable only to utility oil-firing boilers originally designed for coal use. In order to broaden the market base and increase the rate at which oil can be backed out of both the utility and industrial sectors in the near term, the Department proposes, under this supplemental request, to demonstrate the feasibility of COM use in boilers originally designed to burn oil. This would increase the potential market for COM significantly. Recognizing the limited application of the data being collected under the current program (boilers originally designed for coal use), ERA has specifically requested that tests take place on COM in a broader range of boilers. Thus the expanded program will provide important information to both the private sector and for the regulatory process. To carry out this expanded program the Department will initiate a Program Opportunity Notice (PON) to accelerate the COM program in FY 1980. The accelerated program will include four additional COM demonstration projects. The additional funds would provide for converting to COM firing two utility boilers of approximately 100 MWe each that were originally designed to burn oil and two major industrial boilers (greater than 100 million Btu per hour). One of the industrial boilers will be an existing unit designed for oil firing, while the other industrial unit will be a new boiler designed for COM as a primary fuel.

The accelerated program will be conducted over a thirty month period with an estimated completion date of FY 1983. In FY 1980 it is anticipated that contracts will be signed, preliminary designs will be initiated, and long-lead commitments made. Construction is tentatively scheduled for FY 1981 and the one year test demonstrations will begin in mid FY 1982.

Magnetohydrodynamics (MHD):

The current MHD program, for which $75,000,000 was appropriated in FY 1980, focuses on continued development work for MHD test hardware with emphasis on an initial Component Development and Integration Facility (CDIF) power train. Startup of both the CDIF and the Coal Fired Flow Facility (CFFF) are anticipated. Balance-of-plant development activities are included through design and development testing of critical elements of the heat and seed recovery subsystems. Additional MHD technology activities include work on high- and low-ash carry-over generator experiments, air heater development, combustor development and superconducting magnet technology. Also included are elements under the U.S.-U.S.S.R. Cooperative Agreement in MHD such as the large-scale U-25 generator. In addition, important systems engineering and supporting research are to be carried out. Engineering Test Facility (ETF) activities include environmental and site studies.

Recent studies have indicated that oxygen enrichment for air preheating has major systems advantages of both technical and economic nature as compared with the indirectly fired heat exchanger. Thus, without the burden of the additional technological development of the indirectly fired heat exchanger, the oxygen enriched Engineering Test Facility (ETF) system not only will allow an earlier market penetration of the ETF but will also be prototypic of the early commercial power plant. It is now considered that the performance of the oxygen enriched ETF will demonstrate efficiency and cost of electricity that would be attractive to the end user, i.e. the utilities. To carry out this concept will require additional testing capability at the CDIF.

The supplemental request for FY 1980 of $17,500,000 will provide for maintaining the current pace of MHD technology development and increase the confidence of maintaining the FY 1984-1985 start of Title I efforts on the Engineering Test Facility. The increased funds would be allocated as follows:

1. CDIF Project, $10,000,000: Recent studies have indicated that major systems advantages could be derived through the use of oxygen enrichment in the early commercial MHD plants with cost-of-electricity and performance superior to systems with indirectly fired air heaters. Directly-fired, high-temperature air-heaters may offer further performance economic benefits, but in the timeframe more appropriate to second-generation or mature commercial plant development. In this context, priority CDIF project activities are (1) augment iron-core and superconducting magnet development, (2) increase operations efforts to maintain present facility start-up schedule and to gain higher confidence through an increased data base (including acceleration of coal-fired tests and advanced test support), (3) augment/expand activities in the development of first and second-generation test trains. The benefits to the program would be to increase the capability for testing, to assure the timely delivery of key test components and to maintain the level of development activity for alternate designs, thereby providing the needed data base for ETF design. The result would be a higher confidence level and reduced risk in the ETF.

   Specific current priorities for the CDIF Project are:

Augment iron-core and superconducting magnet development	$ 4,000
Increase operation of the CDIF	4,000
Augment first-and second-generation flow train development	2,000
TOTAL	$10,000

2. Engineering Development, $5,800,000: Facility modification at the CFFF to accept low slagging Heat Recovery/Seed Recovery and power train subsystems (operating on both eastern and western coals). Increased coal combustor and generator development (at both 20 MWt and 50 MWt levels) at key U.S. facilities. The benefits to the program will be increased activity in component/subsystems development (including augmentation of scaling confirmation tests) as well as more intensive testing in the CFFF facility. Greater depth of development of MHD components will be provided, thereby reducing the risk associated with the ETF design. Funding is required to maintain the present delivery schedule for the U.S. channel to the U.S.S.R. U-25 Pilot Plant under the U.S./U.S.S.R. Cooperative Program in MHD.

   Specific priorities for Engineering Development are:

CFFF Facility modifications	$ 1,800
Increased generator development	1,500
Increased coal combustor development	1,000
U.S./U.S.S.R. Cooperative Program	1,500
TOTAL	$ 5,800

3. Systems Engineering, Supporting Research and Engineering Test Facility (ETF), $1,700,000: Augment ETF conceptual design to assure scheduled completion, augment the analytical modeling to provide required support for engineering development and systems engineering. Increased level of activities will be used for a cross spectrum of MHD support activities including work on generators and electrodes together with investigation of high magnetic field interaction effects in MHD channels. Additionally, efforts will include the study of seedslag properties, special diagnostic techniques and materials development and analysis.

   Specific priorities for Systems Engineering, Supporting Research and ETF are:

Systems Engineering, including ETF	$ 700
Supporting Research	1,000
TOTAL	$ 1,700

Department of Energy
FY 1980 Request for Rescission
Fossil Energy Research and Development
Fossil Energy Construction

(Dollars in Thousands)

	Presently Available		Revised Appropriation		Proposed Rescission	
	BA	BO	BA	BO	BA	BO
Coal						
Operating Expenses						
Mining Research and Development	$ 68,650	$ 65,740	$ 54,650	$ 61,740	$-14,000	$-4,000
Coal Liquefaction	170,006	147,555	168,606	146,555	-1,400	-1,000
In Situ Coal Gasification	9,900	9,350	8,300	8,350	-1,600	-1,000
Other Coal	398,837	415,912	398,837	415,912	---	---
Total Operating Expenses	647,393	638,557	630,393	632,557	-17,000	-6,000
Capital Equipment	3,000	3,410	3,000	3,410	---	---
Construction	103,250	139,301	103,250	139,301	---	---
Total Coal	753,643	781,268	736,643	775,268	-17,000	-6,000
Petroleum						
Operating Expenses	58,881	67,531	58,881	67,531	---	---
Capital Equipment	2,200	1,750	2,200	1,750	---	---
Total Petroleum	61,081	69,281	61,081	69,281	---	---
Gas						
Operating Expenses						
Enhanced Gas Recovery	35,186	40,086	30,186	38,086	-5,000	-2,000
Capital Equipment	400	300	400	300	---	---
Total Gas	35,586	40,386	30,586	38,386	-5,000	-2,000
TOTAL FOSSIL ENERGY	$850,310	$890,935	$828,310	$882,935	$-22,000	$-8,000

Mining Research and Development: The objective of the Mining Research and Development program is to develop the technology to meet the Nation's coal demands at reduced economic, environmental, and social cost.

The Mining R&D experienced a carryover of $8.6 million in obligated funds from FY 1979 primarily due to a transition of the program from one executed and managed from headquarters to one decentralized to the Pittsburgh and Carbondale Mining Technology Centers. This unobligated balance will be applied to partially offset the proposed rescission.

Additionally, there has been a continuing perception that mining programs in DOI and MSHA may be duplicative of the DOE program. Further, there has been some uncertainty that the DOE program is attuned to the needs of the mining industry. To insure that the program is responsive to the National needs, we have been actively soliciting the views of industry and trade unions and have secured interagency agreements with DOI and MSHA to ensure that the programs are supportive but not duplicative. This has resulted in a delay in placing awards of several mining R&D contracts which will not be awarded until late in FY 1980.

Therefore, the FY 1980 reduction of $14.0 million is not expected to hamper progress in the major thrusts of the program. However, it will be accommodated by: (1) slowing and curtailing some technology development efforts in both underground and surface coal mining; and (2) deleting less critical research efforts in the physical and the chemical coal preparation areas. In addition, research efforts directed toward facilitating the Nation's mining and use of anthracite and peat will be continued at a constrained level.

Coal Liquefaction: The overall objective of the Coal Liquefaction program is to promote commercialization of technology to produce environmentally acceptable liquid fuels from coal in an economically feasible manner. This is being accomplished by sponsorship of major efforts in both direct coal liquefaction and in indirect liquefaction of coal via gasification.

The proposed rescission of $1.4 million will affect Third Generation Processes such as the M-Gasoline project. This is a bilateral project to build a 100 barrels/day plant in the FRG to test Mobil Oil's process for converting methanol to gasoline. The proposed rescission would reduce the total funds initially provided to the project and may result in a slight project delay.

In Situ Coal Gasification: The major objective of the in situ coal conversion program is to accelerate the development of technical, economic and environmentally acceptable in situ technologies for converting currently unmineable coal into liquid and/or gaseous fuels. This is accomplished through in-house R&D activities at the Energy Technology Centers and National Laboratories to develop the technical data base necessary for the advancement of the technology and through cooperative projects with industry to insure maximum transfer of the technology base.

In November 1979 the Department issued a Program Opportunity Notice (PON) for proposals on a phased R&D program leading through a pilot-scale demonstration of underground coal gasification. The PON was not well received, therefore the Department will reassess the program needs and if warranted, reissue a solicitation late in FY 1981.

The proposed rescission of $1.6 million in budget authority in FY 1980 reflects a retrenchment of the in situ gasification program back to a technology base support activity.

Enhanced Gas Recovery: The Enhanced Gas Recovery program is developing technology that will accelerate production from the Nation's natural gas resources. Major emphasis for developing new recovery technology will be to better utilize presently underdeveloped gas resources such as the gas-bearing Devonian shales of the eastern United States, the low-permeability (tight) sandstones of the United States, and the free methane present in coalbeds.

The impact of the rescission will be to extend the completion of planned field technology testing and verification experiments in the Eastern Gas Shales and the Western Tight Gas Sands Projects by 6-12 months, assuming funding proposed in the President's budget in FY 1981 is made available. This impact represents a relatively minimal disruption of the remaining 8-10 year planned effort.

Department of Energy
FY 1981 Budget Amendment
Fossil Energy Research and Development
Fossil Energy Construction

(Dollars in Thousands)

	Pending Request		Proposed Amendment		Revised Request	
	BA	BO	BA	BO	BA	BO
Coal						
Operating Expenses						
Mining Research and Development	$ 45,000	$ 41,850	$ —	$ -8,000	$ 45,000	$ 33,850
Surface Coal Gasification 3rd. Generation	30,000	25,077	-10,000	-10,000	20,000	15,077
In Situ Coal Gasification	9,900	10,280	-5,000	-5,000	4,900	5,280
Heat Engines/Heat Recovery	43,400	45,136	-7,000	-7,000	36,400	38,136
Combustion Systems - Rivesville	3,100	4,239	-3,000	-3,000	100	1,239
Fuel Cells	25,000	29,524	-5,000	-5,000	20,000	24,524
MHD	71,500	71,485	-1,000	-1,000	70,500	70,485
Other Coal	364,571	372,986	—	—	364,571	372,986
Total Operating Expenses	592,471	600,577	-31,000	-39,000	561,471	561,577
Capital Equipment	4,600	4,600	—	—	4,600	4,600
Construction						
Combustion Systems - PFB Pilot Plant	9,200	6,500	-4,000	-3,000	5,200	4,600
Other Coal	440,635	203,200	—	—	440,635	203,200
Total Construction	449,835	209,700	-4,000	-3,000	445,835	207,800
Total Coal	1,046,906	814,877	-35,000	-42,000	1,011,906	773,977
Petroleum						
Operating Expenses	61,288	58,673	—	—	61,288	58,673
Capital Equipment	2,470	2,470	—	—	2,470	2,470
Total Petroleum	63,758	61,143	—	—	63,758	61,143
Gas						
Operating Expenses						
Enhanced Gas Recovery	30,321	31,173	—	-3,000	30,321	28,173
Capital Equipment	500	500	—	—	500	500
Total Gas	30,821	31,673	—	-3,000	30,821	28,673
TOTAL FOSSIL ENERGY	$1,141,485	$907,693	$-35,000	$-45,000	$1,106,485	$863,793

Surface Coal Gasification - Third Generation Processes: The Third Generation Processes budget category is comprised of catalytic gasification, hydrogasification, and research and technology development in support of the Hi-Mass Flux (HMF) gasifier and the Molten Salt gasifier. All of these third generation coal gasification techniques offer the potential to become an attractive method to gasify coal that can substantially improve the efficiency and economics of prior generation coal gasification processes. Tests to date have been very successful and each technique of the several under review merits further development. The currently proposed FY 1981 budget request as adjusted for the amendment represents the minimum level required to continue process development.

The reduction of $10 million proposed by the FY 1981 budget amendment will delay the following work:

- Catalytic Gasification
  - Planned action to acquire the services of a technology transfer agent.
  - Initiation of long-lead material procurement.

- Start of construction of a second PDU facility.

o Hydrogasification
  - Start of construction of an integrated PDU.
  - Completion of engineering support studies.

The reduction will primarily impact catalytic gasification whereby the planned schedule for the "grass roots" pilot plant demonstration will be delayed by a minimum of one year. In addition, the demonstration of the Rockwell reactor program will slip by approximately one year.

The reduced FY 1981 budget request of $20 million will permit the following work to be continued:

o Catalytic Gasification
  - Continue the current PDU program at Exxon.
  - Continue process design and initiate detail design of a pilot plant that will operate in a commercial mode.

o Hydrogasification
  - Perform extended duration tests at the Rockwell 3/4 TPH facility.

o Research and Technology Development
  - Complete facility preparation and start-up of the Bell HMF gasifier.
  - Operate Rockwell Molten Salt gasifier in extended runs and start the modification of the facility for operation on steam oxygen.

In essence, continuation of the primary developmental tasks of all programs will be possible with the reduced level of funding.

In Situ Coal Gasification: The major objective of the in situ coal conversion program is to accelerate the development of technical, economic and environmentally acceptable in situ technologies for converting currently unmineable coal into liquid and/or gaseous fuels. This is accomplished through in-house R&D activities at the Energy Technology Centers and National Laboratories to develop the technical data base necessary for the advancement of the technology and through cooperative projects with industry to insure maximum transfer of the technology base.

In November 1979 the Department issued a Program Opportunity Notice (PON) for proposals on a phased R&D program leading through a pilot-scale demonstration of underground coal gasification. The PON was not well received, therefore the Department will reassess the program needs and if warranted, reissue a solicitation late in FY 1981.

The revised budget estimate for FY 1981 of $5.0 million, a reduction of $5.0 million from the previous request, will continue the technology base support activities by providing only for postburn analysis, required environmental monitoring and site abandonment activities at Hoe Creek and Hanna, Wyoming; Pricetown, West Virginia; and Rawlins, Wyoming and for essential program support activities.

Heat Engines and Heat Recovery: The Heat Engines and Heat Recovery program is developing technologies that will enhance the direct utilization of coal by developing high efficiency utility power systems and advanced dispersed power systems. Technologies are also being developed to allow cost-effective recovery of waste heat. The proposed reduction in this program will require a stretch out in the technology development of dispersed power systems such as large and small stirling engines, small steam turbine and open cycle gas turbines (combustor and materials). Diesel testing will also be reduced. Development will continue in the area of materials-coatings development, low NOx combustor technology development, and gas turbine cooling technology. The major emphasis for the overall program for FY 1981 will be on maintaining the schedule of development for the high temperature turbine technology effort.

Combustion Systems - Rivesville: The objective of the current DOE Fossil Energy 30 MW AFB boiler task is to design, construct, test, and evaluate a 300,000 lb/hr capacity multi-cell fluidized-bed boiler (MFB) as a pollution-free method of burning high-sulfur content or slagging coals in a practical manner under actual electrical utility conditions. Steam pressure, temperature, and circuitry of the boiler, therefore, were designed to meet requirements of the selected Monongahela Power Company (Allegheny Power System), Rivesville, West Virginia, power station. Successful development of the atmospheric fluidized-bed boiler is seen as a necessary first step toward the better use of high-sulfur and slagging coals. Based on the successful performance of this first 30 MW unit and a subsequent demonstration plant, it is expected that several electric util-

ities will commit to the installation of atmoshperic fluidized-bed boilers in the 200 to 800 MW capacity range. Between April 12, 1978 and August 9, 1978, 1,054 hours of test operation were obtained. Current plans were to phase close-out of the Rivesville AFB Boiler during FY 1981. The reduction of operating funds will require that all further planned testing of the Rivesville AFB Boiler for FY 1980 be terminated immediately and remaining contract funds utilized for "moth-balling" the facility. The technology for AFB in utility applications will be demonstrated by TVA in their 20 MW pilot plant and their planned 200 MW demonstration. These are more modern designs based on the experience at Rivesville and thus obviate the need for furthur data from the Rivesville Facility. The remaining $100,000 in the project is needed for an orderly mothballing procedure.

Combustion Systems - PFB Pilot Plant: The PFB process is one which has demonstrated superior efficiency, SO_2 removal and NO_x reduction at the subscale system level. The alternative gas turbines and last stage cleanup equipment are believed to have features that make them exceptionally well suited for operation with uncleaned PFB combustion products. The PFB program is coordinated with the commercialization plans of the private sector equipment developers/suppliers whereby commercialization of the PFB process is dependent upon obtaining performance, durability, reliability, materials and operations data on the gas cleanup equipment and its consequential effects in the gas turbine. The schedule for the pilot plant has slipped about 2 months due to delays in obtaining an Environmental Assessment. The impact of the $4.0 million reduction will be a slippage of an additional 4 months. These slippages will add an estimated $2.5 million to the total estimated cost of the project as shown on the attached construction project data sheet. The date at which we can commence testing and evaluating alternative gas turbines and last stage cleanup equipment will be postponed accordingly thereby delaying commercialization of PFB technology for utility application.

Fuel Cells: The Fuel Cell program is developing technology to establish the commercial feasibility of fuel cell power plants for electric utility applications and industrial cogeneration. The reduction in this program will necessitate a schedule stretchout for the molten carbonate fuel cell development ($-3.0M) as well as selective reduction in pursuing advanced concepts ($-2.0M). With $20.0 million in FY 1981, the phosphoric acid utility system program ($9.0M) can be pursued at a modest pace (no competition at Westinghouse/Energy Research Corporation (ERC) can be supported). The 40 KW field test program will not require funding in FY 1981 due to its initiation late in FY 1980 using existing appropriations. The 40 KW technology development program ($2.0M) at United Technologies Corporation (UTC) will be continued at a minimum level (no competition at Westinghouse/ERC or Englehard Industries); combined funding for solid oxide and thermionic R&D will be sustained at a minimum of $1.0 million. The two carbonate contracts now in force will be partially funded ($8.0M).

Magnetohydrodynamics (MHD) - Closed Cycle Systems: The current closed cycle MHD program addresses several technology issues associated with the viability of the noble gas (argon) closed cycle approach. This is achieved through systems analysis, testing, and development of laboratory scale closed cycle equipment. A reduction of $1.0 million will amount to a 50 percent reduction in the closed cycle MHD (CCMHD) program budget (which was projected to be $2.0 million for FY 1981). This will reduce the program to primarily a systems engineering/analysis activity, with limited experimental work. The development effort for the "slag meltout" heat exchanger, identified as one of the pacing items for CCMHD, would be greatly reduced. Overall CCMHD heat exchanger activities (which also partially support the open-cycle MHD air heater program) would be significantly reduced and delayed.

The remaining $1.0 million allocated to CCMHD will permit the following activities to continue:

- Systems engineering studies for small CCMHD power plants.
- Systems engineering studies on the applicability of CCMHD to cogeneration system.
- Continuation of shock-tube generator testing under the Closed Cycle MHD Cooperative Program with the Netherlands.

PREPARED STATEMENT

Senator BYRD. We welcome before the committee this morning Mr. George Fumich, and if you would like to have us insert your statement in the record we would be glad to do that, and you can proceed to summarize the statement and introduce any associate or associates you may wish to.

[The statement follows:]

STATEMENT OF GEORGE FUMICH, JR.

I am pleased to appear before you this year, particularly as the Department of Energy's first Assistant Secretary for Fossil Energy, and to present what we believe is a strong fossil energy budget for fiscal year 1981.

As Members of the Committee may know, since we appeared before you last year, the Department has been restructured with the fossil energy research, development and demonstration programs being elevated to the level of an Assistant Secretary.

Mr. Chairman, the revised budget we will be discussing today, along with this organizational realignment, continues to reflect the strong commitment the Administration places on the role of fossil energy in this Nation's energy future. It reflects the realization that fossil energy resources — which today supply almost 94 percent of the country's energy — must continue to provide the dominant share of the Nation's fuel needs well into the twenty-first century.

This need to place increasing reliance on the domestic energy supplies we have in abundance has been reinforced by the recent impact of international events. The instability in the Middle East, the price uncertainty within OPEC, the increasingly frequent use of oil as a measure of political influence — all directly affect our ability to meet our energy needs and to maintain our economic and national security.

Removing our dependency on unreliable energy sources will require a wide variety of complementary efforts in both fossil and non-fossil technologies. Energy conservation must continue to be vigorously pursued, energy pricing and regulatory policies must be oriented to allow market forces to play increasingly greater roles, and improved technology must be developed and deployed to provide fuels in a form that can ensure our continued economic growth and prosperity while minimizing adverse impacts on the environment.

The role of fossil energy technology is critical in this major national shift toward more abundant domestic fuel resources.

Oil imports can be reduced by directly substituting coal for oil or gas in utility or industrial boilers, but to achieve this conversion may require a significant portion of existing equipment to be replaced and new pollution control equipment may be required. Therefore, new direct coal burning equipment and environmental control technology must be developed to meet regulatory needs and provide the basis for incentive programs designed to encourage such conversion.

Liquid fuels are required for transportation and for stationary applications where direct combustion of coal is either physically impossible (lack of adequate space), environmentally unacceptable (sensitive urban areas), or economically impractical (residential, commercial, and small industrial applications).

Converting coal and oil shale into gas or liquid products can help meet these needs. But while a variety of technologies are commercially available today and will be deployed under the financial incentives to be provided by the Energy Security Corporation, new technology will be needed to ensure the widest range of applications and resource utilization along with improvements in efficiency, economics and environmental acceptability.

As increased domestic production of oil and gas is encouraged through regulatory, pricing and other financial incentives, it is important to avoid the widespread use of less efficient technology that is economically attractive in the near term but could reduce ultimate recovery. That is why technology development in enhanced oil and gas recovery for high risk and high payoff processes continues to be important even as other incentives begin to play a greater role.

Therefore, we see as our primary mission accelerating the development of technologies that will:

- o reduce petroleum imports as rapidly as possible by substituting coal through:
  - environmentally-acceptable combustion in applications which today depend heavily on oil;
  - conversion to clean synthetic liquids and gases using both eastern and western coals.
- o increase domestic production of coal, and production of oil and gas as well as oil from shale and tar sands;
- o allow more efficient, environmentally acceptable and economically attractive use of fossil energy resources so that fuel use and corresponding environmental impacts can be reduced without adversely affecting economic growth.

We believe our Nation has sufficient fossil fuel reserves to permit us to regain our energy security without unduly disruptive impacts on either the economy or the environment if we move aggressively without delay.

Therefore, our primary emphasis is on coal, our largest fossil energy resource and the one that can play an increasingly significant role immediately. Almost 90 percent of the coal we use today is burned directly, and we have every reason to believe that, at least for the rest of this century, the great majority of coal we use in this country will continue to be burned directly. However, increasingly stringent environmental regulations must be observed in coal combustion, and this could be prohibitively expensive unless technology development in new combustion and clean-up techniques is successful.

One of our most urgent national needs is the development of liquid fuels, for both transportation and petrochemical applications. As I have mentioned, some synthetic fuel technologies are ready for commercial deployment today, and several new techniques are approaching the commercial threshold. This Committee has been instrumental in the progression of these technologies from the laboratory through increasingly larger scales of development, and in FY 1981, the start of construction of several large-scale synthetic fuel facilities will be solid proof that we are today seeing the fruits of a long and often arduous development process.

Over $420 million, or approximately 40 percent of our request for funding in the coal area would go for the construction of these major facilities in FY 1981. This is a clear signal that the Administration is committed to providing the large sums of funding that will be necessary to complete the final steps in the development process and to ready these technologies for commercial deployment. In addition, we are continuing to conduct work on more advanced liquefaction and gasification processes that promise significant cost and efficiency improvements further into the future.

Concurrent with these efforts, we are also working on technologies that use coal more efficiently, especially in electric power generation, since this is another way of reducing the delivered cost of coal-fired energy and reducing the environmental impact of coal production and transportation. Work in this area includes magnetohydrodynamics (MHD), fuel cells, and heat engines and heat recovery.

The final focus of the Fossil Energy Program is on extending our supply of petroleum and natural gas by developing new supply technologies to permit the economic extraction of more of our domestic oil and gas sources, by developing our oil shale and tar sand resources and by assisting in the development of technologies that can tap these energy reserves more efficiently and with less environmental intrusion.

In reviewing this budget submission, it is important to keep in mind that the importance we place on a technology cannot be judged solely by the budget figure placed beside it. While there are several key technologies whose technical and economic uncertainties are currently too great for substantial private sector investment — these are programs for which direct federal support is justified — there are other technologies that are today becoming nearly competitive and the Administration's support is better exemplified in areas outside of research and development.

The Proposed Budget Revisions

Before I describe the major components of the Department's fossil energy technology budget, I would like to comment briefly on the recently announced reductions in some of the funding levels. There is no need to dwell extensively on the grave harm that will impact American society and its economy if inflationary pressures are permitted to continue unabated. The sharp jump in the inflation rate that occurred during the first two months of this year has underscored the serious magnitude of the situation. To reverse these dangerous trends and to break the current inflationary spiral, the President announced on March 14, 1980, a five-point program.

At the core of this program is a revised FY 1981 budget request to Congress along with proposed Federal spending cuts in FY 1980. Approval of this program would result in the first balanced budget our Nation has had in 12 years. Alone, a balanced budget will not solve our economic problems, but by these spending cuts, the President is assuring that the Federal Government take the lead in stopping the recent surge in inflationary expectations.

With respect to the Fossil Energy-related portion of the Federal budget, we have identified in the more detailed descriptions that follow those specific programs where budget reductions — either in the form of FY 1980 rescission requests or FY 1981 budget amendments — are included. A table is included at the conclusion of this statement that summarizes both the original budget request of January 1980 and the revised request announced in March 1980.

I might point out that these spending reductions were carefully weighed, and while impacting worthwhile programs, they have not lessened the Administration's commitment to increasing the production and use of domestic fossil fuels as substitutes for foreign oil.

ORGANIZATION

Office of the Assistant Secretary for Fossil Energy

The elevation of the Fossil Energy office within the Department has resulted in a substantial restructuring of the major program and management areas. As shown in the accompanying chart, the organization as proposed consists of four line offices, five Technology Centers (ETCs), and two Mining Technology Centers.

The management concept employed is one of matrix management and team participation for more effective and efficient operation. Under the DOE policy of decentralization of project management to the field organizations, two distinct functional roles have been delineated: (1) Headquarters is responsible for developing overall policy and programs; (2) field organizations, including operations offices and national laboratories, are responsible for implementing fossil projects and technology base activities.

Reading from left to right across the organization chart, the Program Director for Project Management is responsible for the management of major systems acquisitions and major projects including their design, construction, checkout and operation. This office will also maintain the Fossil Energy liaison with the Office of the Assistant Secretary for Resource Applications.

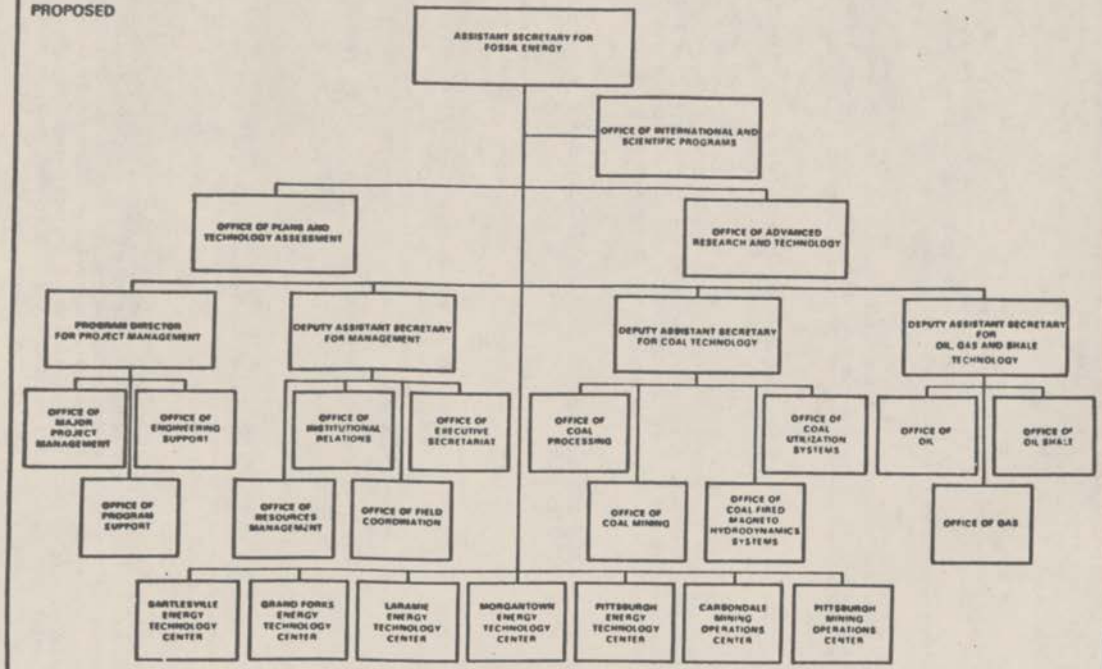
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U.S. DEPARTMENT OF ENERGY

OFFICE OF ASSISTANT SECRETARY FOR FOSSIL ENERGY

PROPOSED



The Fossil Energy organization is supported by an Office of Management, with the Deputy Assistant Secretary for Management responsible for budget and administrative functions as well as institutional relations and field coordination.

The Deputy Assistant Secretary for Coal Technology directs and manages the research, and technology development program involving all aspects of coal technology, including synthetic fuel processes for conversion of coal into liquids and gases. The office is divided into four major program areas: coal utilization, coal processing, mining and MHD.

The Deputy Assistant Secretary for Oil, Gas and Shale Technology directs and manages a research and technology program involving all aspects of oil, gas, shale and in situ coal gasification technology including development of technologies for processing of synthetic liquid or gas products.

The line offices are supported by three additional offices. The Office of Plans and Technology Assessment is responsible for long-range strategic planning, environmental policy and guidance, cost estimating guidelines and independent program evaluation. The Office of Advanced Research and Technology develops an integrated Fossil Energy advanced research program and initiates advanced technology concepts. The Office of International and Scientific Programs is responsible for negotiation and coordination of all international Fossil Energy agreements and for foreign technology assessment.

Fossil Energy Technology Centers, Operations Offices, and National Laboratories

The Fossil Energy technology and mining operations centers, the DOE operations offices, and national laboratories play an important role in achieving the DOE goals and objectives in fossil energy research, development and demonstration. This role is currently being expanded through the decentralization of project management to these institutions. Staff at these field facilities is made up of highly skilled scientists, engineers and technicians, many with long histories of accomplishments in production, conversion, and use of fossil fuels. They are relied on for new ideas, information and process development to better utilize our fossil energy resources with greater efficiency and environmental acceptability.

COAL PROGRAM

I would like to turn now to the Coal RD&D program. This program is the cornerstone of our energy development efforts. Coal provides an abundant domestic storehouse of energy for direct use as a fuel in an efficient and environmentally acceptable manner and for processing into substitutes for oil and natural gas.

Coal is the Nation's most plentiful fuel resource, with enough reserves to last several centuries. It offers the greatest potential in the 1980s for relieving or minimizing the current U.S. dependence on imported energy sources. The United States has reserves estimated at 3.2 trillion tons of unmined coal, whereas supplies of oil and natural gas are becoming rapidly depleted. Coal constitutes about 77 percent of U.S. conventional energy reserves, but currently supplies less than 20 percent of energy consumption.

Coal is capable of supplying energy for all demand sectors since it can be burned directly or transformed into liquids, gases or chemical feedstocks. But the full potential of coal cannot be realized until a number of problems are solved. Coal is bulky and therefore is more difficult to transport and burn than liquid and gaseous fuels, the transportation system for increased quantities may be inadequate, and coal burning is a source of pollution. The processes for making liquids and gas from a wide variety of U.S. coals have yet to be fully developed to meet rigorous environmental standards and marketplace competition.

To surmount these problems, DOE's coal resource program focuses on the following major areas:

- o Mining R&D
- o Coal Liquefaction
- o Surface Coal Gasification
- o In Situ Coal Gasification
- o Advanced Research & Technology Development
- o Advanced Environmental Control Technology
- o Combustion Systems
- o Heat Engines & Heat Recovery
- o Fuel Cells
- o Magnetohydrodynamics

For these activities, the Administration originally requested $1,046,906,000 for Fiscal Year 1981. The amended budget request is $1,011,906, a reduction of $35,000,000. Even with this proposed reduction this marks the first time that the coal R,D&D budget has topped $1 billion. Concurrently with the revised budget submission, the Department is requesting a rescission of $17,000,000 in the current FY 1980 budget. The following describes briefly the objectives of each of the activities within the program and lists the major ongoing projects.

MINING RESEARCH AND DEVELOPMENT (FY 1980 - $68,850,000 (proposed rescission - $14,000,000); FY 1981 Request - $46,500,000)

The National Energy Plan (NEP-2) states that "coal... should be used in place of oil and gas wherever economically and environmentally feasible." Since coal must be mined before it can be used in either direct combustion or as a synthetic fuels feedstock in the relatively near term, underlying this goal is the need to develop technologies to improve the economics of mine production and maximize resource recovery while protecting the environment and the health and safety of miners.

From 1945 to 1968, the mining industry experienced increasing productivity, but beginning in 1969, the trend took an abrupt downturn in both underground and surface mining. Productivity dropped by 50 and 30 percent respectively, attributed mostly to more stringent safety, health and environmental procedures.

To reverse this trend, a composite effort of several federal agencies working with the mining industry will be needed. In addition to the mining program in DOE, these agencies (Office of Surface Mining Reclamation and Enforcement, Bureau of Mines, and the Mine Safety and Health Administration) have a combined FY 1980 budget of $103 million for mining-related activities.

The Mining R&D program in DOE necessarily includes many technological approaches to cover the spectrum of requirements for different equipment, techniques, and applications. Of roughly 6,200 producing mines in the U.S., only 11 of the companies involved can be considered large. Equipment manufacturers are generally unable to find mine operators who are willing to accept the risk of trying new equipment, and many of the equipment manufacturers are too small to afford extensive R&D on their own. Therein lies the basis for the Federal role in mining R&D.

Underground Mining

The underground coal mining program is structured to address each of the basic elements of the mining cycle: mine planning and development; production systems; and transport and supporting systems.

Mine planning can have decisive influence on productivity, safety, economics and environmental impacts both during mining and long after mining has ceased. To provide the mining industry with new tools for more effective mine planning, DOE is working to improve existing geophysical analysis, engineering, computer modeling, and other techniques. Attention is also being focused on improving the mine operators' ability to predict the quantity or quality of underground fluids and coalbed methane as a function of mine layout, sequencing of operations and mining method. Research is also being done to develop a computer simulation model that would link mining operations to economics, thereby permitting mine operators to gauge the cost impacts of changing various mining operations.

Mine development encompasses both (1) coal seam access and (2) in-mine development of entries to establish production centers. Because of the enormous investments required to open a mine — currently $40 or more per annual ton of production — accessing and developing coalbeds quickly is key to reducing coal production costs. As part of this effort, DOE is developing mechanized shaft-sinking systems to reduce the time and cost associated with current methods and is also currently evaluating the test results of a modified tunnel boring machine, similar to that used in the construction industry, to determine the potential of designing a similar system specifically for coal operations.

The predominant production system used in the U.S. is room-and-pillar mining, a name derived from the pattern of excavated areas interspaced between supporting columns of coal. Productivity from room-and-pillar mining is hampered by the inability of current mining machines to cut coal continuously. In fact, so-called "continuous miners" actually mine during only 25 percent of a shift, the remaining time is spent installing roof supporting bolts or positioning extraction equipment. Therefore, the development of a combination miner/bolter — a single machine capable of performing both mining and roof bolting — is a major priority in this effort as are continuous face haulage systems which are necessary for the miner/bolter to realize its full productive capabilities.

Alternatives to the "room-and-pillar" mining technique are also under development in the Mining R&D program. Principal efforts in this area focus on the "longwall" mining method, a technique where one side of a rectangular block of coal is sheared in long successive slices.

Research to improve methods of transporting men, coal, supplies and materials to and from the working face within a mine area makes up the transport and supporting services activity. Automated rail haulage systems and hydraulic transport are being developed in this effort.

Surface Mining

Surface mining activites are organized into: mine planning and development; production systems; and logistics.

With the advent of new mining regulations, mine planning has also taken on increased importance in surface mining. DOE's program is focusing on (1) developing methods for characterizing coal reserves, including the use of aerial and other remote sensing techniques, and (2) development of improved methods and guidelines to facilitate mine design using simulation models.

The major R&D thrusts in surface mining production systems are to develop new equipment and systems to increase production resource recovery and productivity, improve mining methods using existing equipment to increase resource recovery, and modify existing equipment and improve operating and maintenance techniques. Activites involve both area mining which is generally employed in the relatively flat terrain of the Midwest and West, and contour mining which is applicable to the mountainous terrain of Appalachia.

Logistics research and development is intended to ensure that good auxiliary support operations are available to permit a surface mining operation to operate at full capability. Emphasis is on the development of electrical power distribution systems concepts, mine-wide maintenance systems based on on-board diagnostic equipment, training systems, and improved supervisory control systems, including communications, production and environmental monitoring and data reporting.

The Office of Coal Mining has also developed an adjunct program in alternative coal mining technologies as specified in Section 908 P.L. 95-87, the Surface Mining Control and Reclamation Act of 1977. As identified in the initial 1979 program, primary activities in this area are: the mining of unusually thick seams; in-mine underground waste

disposal; and health and safety projects associated with alternative mining technologies.

Coal Preparation

Coal preparation is the process by which raw coal containing such impurities as sulfur, ash, and trace elements is cleaned into a salable product. Through various coal cleaning operations, increasing amounts of coal are being prepared annually at preparation plants at most modern mining operations.

One factor contributing to this increase in coal cleaning is the expanded use of continuous mining techniques, which introduce larger amounts of impurities into the raw coal feed. Another is the Clean Air Act of 1977 which limits sulfur content.

DOE's R&D program involves both physical coal preparation, which separates coal and impurities by taking advantage of their specific gravity differences and chemical cleaning, which produces a product whose physical and chemical properties have been modified from those of the feed. All commercial coal cleaning techniques today rely on physical preparation.

Key aspects of this program involve characterizing the coal by gaining a better understanding of the quantity and quality of coal contained in the waste piles of coal cleaning plants, research into the geochemistry of trace elements in coals of specific geological regions, and studies of the microstructure of coal.

Physical beneficiation techniques under study involve high-gradient magnetic separation and dense-medium cycloning to separate the fine particles of coal from those of ash and pyrite.

Chemical preparation techniques include oxydesulfurization, which oxidizes the organic sulfur impurities so they can be separated from the coal; low temperature chlorinolysis being developed jointly with NASA's Jet Propulsion Laboratory; and several others.

DOE has also successfully demonstrated a new process for drying and compressing lignite into more economical and easily transportable pellets. Commercial demonstration of this process, called "Lignipel", will begin in FY 1981.

Major research areas/projects are shown in Table 1.

TABLE 1

MINING RESEARCH AND DEVELOPMENT

Research Area/Major Projects	FY 1981 Request
UNDERGROUND COAL MINING	$26,000,000
o Mine planning and development o Development of Improved mining equipment and systems o Novel mine systems for thick, multiple and steeply pitching seams o Improved transportation systems for men, supplies, and coal	

SURFACE COAL MINING $ 8,000,000

- o Area mining systems
- o Contour mining systems
- o Reclamation practices to minimize environmental impact

COAL PREPARATION AND ANALYSIS $11,000,000

- o Physical coal preparation
- o Chemical coal cleaning
- o Improved ancillary unit operations

The reduction in FY 1981 funding from FY 1980 reflects a decision to emphasize more basic R&D to solve fundamental mining problems, to phase out marginal programs and to stretch out certain elements of this program until a review of project priorities and commitments in the context of needed Federal involvement can be evaluated and a determination made of future program direction.

The Administration is also proposing a rescission of $14 million for the FY 1980 Mining R&D budget, reducing the budget level to $54.85 million. The decrease is offset in part by a carryover of $8.6 million that was not spent in FY 1979. However, some slowing and curtailing of technology development efforts in both underground and surface mining will be incurred, as well as deletion of less critical research efforts in the physical and chemical coal preparation areas. Research efforts to improve the mining and use of anthracite and peat will be continued at a constrained level.

LIQUEFACTION (FY 1980 - $250,306,000 (proposed rescission - $1,400,000); FY 1981 Request - $523,900,000)

The development of commercial coal liquefaction will provide a route, within environmental guidelines, to increase domestic production of clean fossil fuels and feedstocks. Synthetic fuels derived from coal liquefaction processes can replace petroleum-refined products most effectively in two distinct markets. One market uses low-ash, low-sulfur boiler fuels suitable for clean generation of electric power and industrial steam. The other uses high-grade fuels such as jet and diesel fuel, gasoline, heating oil and chemical feedstocks.

The initial commercial coal liquefaction facilities for western coals will probably be based on western coals and indirect liquefaction technology, where coal is first gasified and the gases are recombined into a variety of liquid products. Such techniques, which include the Fischer-Tropsch process currently in commercial use outside the U.S. or a coal-to-methanol/methanol-to-gasoline process route, are prime candidates today for funding by the Energy Security Corporation. However, supporting R&D is still needed to enhance their commercial prospects in the U.S. Specific areas where such support is most needed are equipment for environmental control and for product slate upgrading, and instrumentation for process monitoring and control. Additional work on indirect coal liquefaction is proposed for funding from the revenues generated from the President's windfall profits tax (see page 32).

There are also several coal liquefaction technologies currently under development for both eastern and western coals that can be ready for commercial deployment within the next few years. These technologies include processes for indirect liquefaction through the gasification of eastern coals and the more efficient direct liquefaction processes, where coal is converted directly into a liquid without the gasification step. Commercial facilities based on these more advanced technologies would offer improved economic and environmental performance and could be operating commercially in the late 1980s or early 1990s.

Therefore, the Liquefaction Activity is planned to:

- Demonstrate the technical capability to produce commercially clean liquid and solid fuels from coal by at least four direct liquefaction processes (Solvent-Refined-Coal I, Solvent-Refined-Coal II, H-Coal, and Exxon Donor Solvent) by the late 1980s;

- Develop improved indirect liquefaction processes to produce liquid fuels from synthesis gas made from coal by the late 1980s; and

- Promote the development of more advanced third-generation coal liquefaction processes which can be demonstrated to be commercially viable in the 1990-2000 time frame.

The general strategy of the liquefaction program is to support several liquefaction processes in parallel from laboratory scale through process development unit. The most promising candidates are selected to advance to the pilot plant stage, and only those processes identified as meeting commercial market needs are considered for major scale-up.

This approach is based on several considerations. First, market requirements for a wide range of fuels produced from a variety of coals, coupled with the need for a large number of plants to produce significant quantities, may require scaling up several liquefaction processes. This variety of processes is evident in today's crude oil-based liquid fuels industry. A future national synthetic fuels industry, which will replace a large share of this fuel market, cannot rely on any single process configuration. Second, the processes under development provide complementary support to each other in many ways. Third, all processes under development require supporting research to improve overall operability, increase efficiency, and reduce costs.

We can point to significant progress in this program:

- In the Solvent-Refined-Coal program, five years of test runs at 6 and 50 ton-per-day pilot plants have given us the technical confidence to proceed toward the construction of two 6000 ton-per-day demonstration modules, each testing a variation of the technology. Last year, our industrial partners completed the preliminary designs (Phase 0) and are currently well into the detailed design phase. In FY 1981, we will begin construction of these facilities and have budgeted a total of $365 million ($175 million for SRC-I, $190 million for SRC-II) for this activity;

- We dedicated the 250-ton per day Exxon Donor Solvent pilot plant in February at Baytown Texas, signifying the completion of two years of construction. First coal input is expected to begin by the end of May and we will be operating the facility and continuing laboratory and engineering research support for the rest of this year and throughout FY 1981;

- We have also completed construction of the 600-ton per day H-Coal pilot plant at Catlettsburg, Kentucky and have begun start up operations. Full operations will begin this year and continue into FY 1981 at both the pilot plant and the 3 ton-per-day process development unit.

Although these direct liquefaction technologies differ in many important aspects, their successful commercialization is largely dependent on the development of a common technology base. Therefore, demonstration plants are not planned for the H-Coal and Exxon Donor Solvent processes; rather it is considered that these two processes will be able to proceed directly from the large pilot plants to the design of pioneer size commercial facilities with the safety, environmental, licensing, and performance assurance and management experience gleaned from the Solvent-Refined-Coal demonstration.

Supporting research and development activities provide critical backup to these and other specific processes with improvements in the technology which in turn can provide significant improvements in process economics. Two major problem areas common to most liquefaction processes are under study: utilization of bottoms containing ash and unreacted coal for hydrogen production; and durability of auxiliary equipment. Significant effort is devoted to engineering studies and analyses which are required to guide and evaluate process development work.

A major effort is also being directed towards environmental concerns associated with coal liquefaction processes. Of particular concern is the presence of potentially toxic and carcinogenic organic compounds in coal liquid products and residues. The presence of potentially toxic trace minerals in the products and byproducts is also under investigation. The environmental impact of coal liquefaction processes is being investigated and studies are being conducted at the pilot plant level to develop adequate health and safety procedures for worker protection.

Major activities funded under this heading are shown in Table 2.

TABLE 2

LIQUEFACTION

Research Area/Major Projects	FY 1981 Status	FY 1981 Request
H-Coal Pilot Plant Catlettsburg, KY	Operational	$ 57,000,000
Exxon Donor Solvent Pilot Plant Baytown, TX	Operational	$ 32,000,000
SRC Pilot Plant (50 tpd) Ft. Lewis, WA	Operational	$ 28,000,000
SRC Demonstration Plant Newman, KY (SRC-I)	Phase I Detailed Design; Start of Construction	$175,000,000 (construction) $ 5,000,000 (operating exp.)
SRC Demonstration Plant Morgantown, WV (SRC-II)	Phase I Detailed Design; Start of Construction	$190,000,000 (construction) 5,000,000 (operating)
Third Generation Processes	Operational	$ 19,200,000
Environmental Studies & Other Support	Ongoing	$ 12,000,000

A rescission of $1.4 million for the FY 1980 budget is being requested concurrently with the above FY 1981 request. This proposed decrease will come from supporting research, a portion of it dealing with the scale-up of the Mobil methanol-to-gasoline process. A bilateral project to build a 100-barrel per day pilot plant in the Federal Republic of Germany to test this process could be delayed.

SURFACE GASIFICATION (FY 1980 - $115,850,000; FY 1981 Original Request - $138,500,000; Amended FY 1981 Request - $128,500,000)

The overall objective of the Surface Gasification Activity is to develop and demonstrate, in cooperation with industry, advanced environmentally acceptable technology needed to gasify coal.

Successful development of this technology will enable the United

States to use its large deposits of coal to produce a wide variety of energy products and chemical feedstocks, not only as gases but because gasification is the critical first step of indirect liquefaction, useful liquids as well. Applications of coal gasification are shown on the next page.

Coal Liquefaction
- Indirect (synthesis gas)
- Direct (synthesis gas to hydrogen)

Synthetic Pipeline Gas
- High Btu Gas (Methane)

Industrial and Utility Fuel Gas
- Medium Btu Gas
- Low Btu Gas

Combined Cycle Systems
- Fuel Cells — synthesis gas/hydrogen
- Turbines — low or medium Btu gas

Chemical Feedstocks
- Synthesis Gas

Technical confidence in today's commercially available gasifiers is highest when applied to western, non-caking coals. Therefore, in considering the various applications and the limitations of currently available gasifiers, it is apparent that the greatest need is for a gasifier capable of accepting a wider range of U.S. coals, including the caking coals of the Midwest and Applachian regions.

In the high-Btu gasification program, the Government-supported activity includes four major second-generation projects for manufacturing pipeline quality substitute natural gas (SNG) from coal and the evaluation of peat as a potential feedstock. Two of the processes, BiGas and Hygas, are currently being tested at pilot plant scales. The other two, British Gas/Lurgi slagging gasifier and the COGAS process, are currently being used in the designs of demonstration plants. DOE anticipates selecting one of the two demonstration projects to proceed toward actual construction, slated to begin in FY 1981.

In the medium-Btu gasification area, a decision has been made to continue design of a demonstration plant proposed by Memphis Light,Gas and Water Division, contingent upon the successful negotiation of cost-sharing terms, a finding by the Secretary of the suitability of the proposed site, and the completion of an environmental impact statement. Fifty million dollars in deferred prior year funds will carry the demonstration project through FY 1980 and into FY 1981. Should construction be authorized, additional funds may be required in FY 1981 to maintain the schedule.

DOE has also decided to fund the initial design of a commercial scale facility proposed by W.R. Grace to process coal first into medium-Btu gas which would then be converted into methanol and ultimately to gasoline. The Fossil Energy office is currently developing an appropriate approach for providing the required funding.

In the low-Btu gasification activity, promising new concepts for improved gasification techniques are being developed at the process development unit and pilot plant levels. These include fixed-bed, entrained-bed, fluidized-bed and molten salt systems. In addition, the Department is preparing to reopen negotiations for the design of a low-Btu gasification demonstration plant that would feed an adjacent utility boiler.

More advanced gasification techniques, so-called "third generation" processes, are also being developed. Although longer term and of greater technical risk, these concepts offer the possibility of substantially improved overall process economics, especially for the production of pipeline quality gas. For pipeline applications, catalytic coal gasification, hydrogasification, and high mass flux gasifiers are under development. In a similar manner, a molten salt gasification process is being developed for medium-Btu or synthesis gas applications.

It is in the "third generation" program where DOE proposes a $10 million reduction from its original FY 1981 request of $30 million. The reduction will slow down on-going efforts in catalytic coal gasification, delaying the planned "grass roots" pilot plant by a minimum of one year. Also, the hydrogasification program is expected to slip by about a year.

Environmental control is an integral part of the Surface Gasification Activity and is accorded a high priority with each development project. Early identification and characterization of potential environmental contaminants is necessary to minimize ultimate impacts.

A listing of major development efforts is shown in Table 3.

TABLE 3

SURFACE GASIFICATION

Research Area/Major Projects	FY 1981 Status	FY 1981 Revised Request
High Btu Demonstration Plant site undetermined	Detailed design and Construction	$55,000,000 (construction) $ 1,000,000 (operating expenses)
Medium Btu Demonstration Plant	Detailed design; possibly construction	see text
BiGas Pilot Plant Homer City, PA	Operational	$10,000,000
Peat Gasification	Study and possible modification of Hygas pilot plant	$13,000,000
Fixed Bed Gasification Morgantown, WV; Grand Forks, ND	Operational	$ 7,000,000
Fluidized Bed Gasification Monroeville, PA (2), Trenton, NJ	Operational	$ 9,000,000
Entrained Bed Gasification Windsor, CN	Operational	$ 3,000,000
Third Generation Processes	Operational	$20,000,000
Gasifiers in Industry (4) PA (2), MN, KY	Operational or Construction	0
Technical Support		$10,000,000

IN-SITU COAL GASIFICATION (FY 1980 - $10,000,000 (proposed rescission - $1,600,000); FY 1981 Original Request - $10,000,000; Amended FY 1981 Request - $5,000,000)

The objective of the In-Situ Coal Gasification activity is to develop commercially viable underground coal conversion processes for extracting energy from coal resources which might otherwise be considered marginally attractive. Approximately 93 percent of the Nation's vast coal resource is not technically or economically recoverable by conventional underground or surface mining. Converting coal underground to useful fuels could increase the recoverable portion by almost four-fold. As a complement to mining plus surface-based synthetic fuel production, the development of underground conversion processes could significantly expand the economic extraction of energy from coal in environmentally acceptable ways, and may provide a viable domestic source of competitively priced transportation fuels.

Through joint participation by government and industry, the technology will be developed, proven on a large scale, and transferred to the private sector. Data will also be provided to predict the economics of commercial operations. The near-term goal is to develop at least one commercial underground process by 1985 to 1987 and assure transfer of the technology to the industrial sector. The mid-term goal is to develop advanced concepts, i.e., increased resource recovery, reduced water usage, and reduced dependence on underground characteristics.

The four major underground coal gasification process options being developed address the wide range of chemical and physical properties of U.S. coal seams and surrounding geology:

- o A low-Btu gasification project is concentrating on gasifying subbituminous coal using air after linking pairs of wells with reverse combustion;
- o A medium-Btu gasification project is concentrating on gasifying bituminous or subbituminous coal with oxygen and steam injection after linking pairs of wells using directionally drilled holes;
- o A Steeply Dipping Bed project is concentrating on gasifying coal seams which dip more than 35 degrees and are not commercially exploitable with conventional mining technology;
- o A project is concentrating on gasifying swelling bituminous coals using the best available technology.

The Environmental Support and Supporting Research projects contribute to all four major projects by determining the true impact of environmental problems associated with in situ coal gasification and methods for their control and by developing new technology with general applications. One example is the development of inverted thermocouples to monitor the growth of the underground cavity as gasification progresses.

Under the revised budget levels proposed for both FY 1980 and FY 1981 the In Situ Coal Gasification program will focus on a limited technology base support activity, rather than embarking on a phased program leading to a pilot-scale demonstration. The demonstration program was the subject of a November 1979 notice issued by the Department which received little response from industry. DOE is now reassessing the program and if warranted, will reissue a solicitation late in FY 1981.

Major areas of research are shown in Table 4.

TABLE 4

IN SITU GASIFICATION

Research Area/Major Project	FY 1981 Status	FY 1981 Revised Request
In Situ Coal Gasification		$ 5,000,000
Western Low-Btu Gas (Hanna, WY)/Steeply Dipping Beds (Rawlins, WY)	Post-burn evaluation/ Complete demonstration of larger-scale feasibility test	
Western Med-Btu Gas Hoe Creek, WY	Evaluation of Hoe Creek III field test	
Supporting Research	Ongoing	
Environmental Support	Ongoing	

ADVANCED RESEARCH AND TECHNOLOGY DEVELOPMENT (FY 1980 - $56,150,000; FY 1981 Request - $64,461,000)

Advanced Research and Technology Development (AR&TD) covers a diverse group of activities ranging from applied research to research and development supporting activities. Major categories of activity include:

- o Processes -- where the objective is to develop basic chemical and engineering knowledge to speed development of synthetic fuel technologies; determine the technical feasibility of new process concepts; and conduct supporting research in areas such as catalyst research to complement or improve on-going process development;

- o Direct Utilization -- where emphasis is in the areas of fundamental coal and synfuel combustion research, combustion system control technologies; and generic heat exchanger technology;

- o Materials and Components -- where elements include failure analysis of pilot plant materials; studies of erosion, corrosion, abrasion, fatigue and other forms of deterioration; selection and development of economical and durable materials; operation materials test facilities; and investigation of extra-strong and weldable steels for thick-walled pressure vessels.

- o Program Development and Integration -- including budget and administration, engineering analysis, environmental activities, and planning and policy.

- o University Research -- with a focus on a national and regional program of university research on coal conversion and utilization.

Approximately 50 percent of AR&TD projects are conducted by industry, 25 percent by the Energy Technology Centers, National Laboratories, and other Government agencies, and 25 percent by universities. Major areas of research and/or support are shown in Table 5:

TABLE 5

ADVANCED RESEARCH AND TECHNOLOGY DEVELOPMENT

Research/Area/Major Projects	FY 1981 Request
Processes	$20,400,000
Direct Utilization	$11,000,000
Materials and Components	$ 9,000,000
Program Development and Coordination	$ 7,861,000
University Coal Research	$ 5,000,000
General Plant Projects and Construction at Fossil Energy Technology Centers	$10,700,000

ADVANCED ENVIRONMENTAL CONTROL TECHNOLOGY (FY 1980 - $38,250,000; FY 1981 - $42,500,000)

If coal is truly to play an increasingly important role in decreasing the Nation's dependence on imported oil, technology must be developed to

minimize the environmental impacts of coal combustion. These environmental concerns today pose the greatest constraint on increasing direct coal use.

Sulfur, nitrogen, alkali and halogen compounds, and volatile trace metals are found in varying amounts in coal and are released by gasification and combustion processes. These substances, besides having harmful effects on health and the environment, can also degrade the performance of energy-producing systems such as turbines and fuel cells.

Therefore, the Advanced Environmental Control Technology program is developing engineering approaches that can remove pollutants or undesirable components at the back end of the system (flue gas cleanup), during the combustion process, or from the process stream prior to utilization (gas stream cleanup) and management of associated fossil energy wastes.

This program is a new effort in DOE which began in FY 1979, although certain related efforts had been conducted previously in other Fossil Energy programs. In conjunction with such organizations as EPA, EPRI, TVA, and others, DOE will be involved in FY 1981 in activities such as:

- a full-scale demonstration of a lime/limestone scrubber using chemical additives to enhance performance (in cooperation with EPA);
- characterization of two operational utility lime/limestone scrubbers (coordinated with EPRI's efforts);
- support of TVA's 10-megawatt experimental scrubbers at the Shawnee power station;
- continuation of major dry-scrubbing efforts for both low- and high-sulfur coal applications;
- selection of advanced flue gas desulfurization system for full-scale, cost-shared utility demonstration;
- monitoring of full scale utility baghouse applications using western coals;
- pilot-scale evaluations of advanced combined NOx/SOx scrubber processes;
- small-scale testing of hot-gas cleanup equipment for pressurized fluidized bed coal combustors;
- evaluation of gas cleanup requirements for the molten carbonate fuel cell; and
- completion of a pilot effort to characterize fossil energy waste streams and assessments of the impact of the Resource Conservation and Recovery Act.

Major areas of research and/or support are shown in Table 6.

TABLE 6

ADVANCED ENVIRONMENTAL CONTROL TECHNOLOGY

Research Area/Major Projects	FY 1981 Request
Flue Gas Cleanup	$21,000,000
Gas Stream Cleanup	$13,000,000
Cleanup Base Technology	$ 8,000,000

HEAT ENGINES AND HEAT RECOVERY (FY 1980 - $50,500,000; FY 1981 Original Request - $43,400,000; Amended FY 1981 Request - $36,400,000)

The Heat Engines and Heat Recovery Activity focuses on three major areas where improved coal derived fuel technology will permit savings in critical fuels consumption:

Central Power Systems -- new technology applied to base and intermediate load central station utility power plants*;

Dispersed Power Systems -- new technology applied to small municipal utility & cogeneration plants**;

Heat Recovery Component Technology -- new technology applied to utility/residential commercial, or industrial applications.

Today's utilities consume almost three and a half times as much fuel energy as they produce in electrical energy, with the unused portion usually rejected as waste heat. Likewise, a substantial portion of the energy consumed by the Nation's residences, businesses and industries is also rejected without extracting any useful work. The opportunities for improving these wasteful energy patterns provides the impetus for the Heat Engines and Heat Recovery program.

In the central power systems activity, R&D is carried out to increase the efficiency of utility power generation. For instance, the integrated high temperature turbine/gasification combined-cycle system offers substantial potential for improved economics, higher efficiency and lower emission levels, particularly when compared to today's conventional powerplants with scrubbers.

The R&D efforts in the Dispersed Power Systems activity focus on smaller systems, typically industrial or small utility size stationary heat engine systems. In these applications, simultaneously producing both electricity and heat, a concept called "cogeneration", can be one of the most efficient means of improving fuel use.

Studies have shown that the best coal-derived liquid fuel cogeneration options are stationary diesels for residential/commercial total energy systems and stationary gas turbines for industrial cogeneration. The heat engine systems offering the greatest fuel flexibility and economic attractiveness for solid coal use in cogeneration are those based upon the atmospheric fluidzed bed coal combustor. Expanding the atmospheric fluidized bed combustor option to include gas turbines (both open and closed cycle) as well as steam turbine systems can more than double the market development for advanced coal cogeneration.

Heat recovery component technology can offset fuel now burned to produce work by tapping previously rejected heat and converting it to useful purposes. Technology developed in this program would have applications in utilities, industries, and residential/commerical installations. Residual energy applications of the heat currently being rejected by the coal-fueled DOE-owned gaseous diffusion plants and nuclear weapons processing facility have been determined to be the most efficient and expedient way for the government to cost share demonstrations of these technologies with the private sector.

Major projects are shown in Table 7.

* Previously called "Integrated Coal Conversion and Utilization Systems"

** Previously called "Advanced Cogeneration Systems"

TABLE 7

HEAT ENGINES & HEAT RECOVERY

Research Area/Major Projects	FY 1981 Status	FY 1981 Revised Budget
Central Power Systems		$22,200,000
-- Closed Cycle Coal Fired Primary Heater	Continue Phased Technology Devel.	
-- Open Cycle Systems (includes High Temp. Turbine Technology)	Complete Phase II Testing; Initiate Phase III, Verification Testing	
Dispersed Power Systems		
-- Directly fired heat cycles (low NOx combustors and ceramic coatings)	Phase II Full Scale Development	9,900,000
-- Externally fired heat cycles	Detailed design evaluation of open cycle gas turbine; complete high efficiency small steam turbine test; design of stationary Stirling engine;	
-- Prototype Systems Assessment	Site specific industrial cogeneration designs	
Heat Recovery Component Tech.		4,300,000
-- Low grade heat recovery from Federal facilities	Initiate	
-- High grade heat recovery	Complete 6 field tests	

Principal causes for the reduction in the original FY 1981 budget request were a stretch-out of the high temperature turbine technology program from the originally estimated six years to the present schedule for completion in about 10 years, and the use of $4.5 million carried over from FY 1980 Congressional appropriations for low-grade heat recovery. In 1980 the high-grade heat recovery program will be completed and no further funds will be required. The reduction of $7 million proposed in the amended FY 1981 budget will lengthen development of the stirling engine, small steam turbine and open cycle gas turbines (combustor and materials) Diesel testing will also be reduced, while development will continue in materials/coatings, low nitrous oxide combustor technology, and gas turbine cooling technology. The major emphasis for the overall program in FY 1981 will be to maintain the development schedule for the high temperature turbine technology effort.

COMBUSTION SYSTEMS (FY 1980 - $50,850,000; Original FY 1981 Request - $68,500,000; Amended FY 1981 Request $61,500,000)

The primary objectives of the Combustion Systems activity are to:

- Develop fluidized-bed combustion systems capable of burning high-sulfur and other coals of all ranks and qualities while removing major sulfur pollutants in the boiler before they can escape up the stack;
- Develop technology to substitute coal for a substantial portion of oil in combustors capable of firing coal-oil or other coal-based mixtures.

The initial commercial target of fluidized bed combustion technology is industrial application of units that operate at atmospheric

pressure, typically generating less than 250,000 pounds of saturated steam per hour.

The program to develop systems for this market has resulted in several significant accomplishments during the last year. An atmospheric fluidized bed boiler began providing steam to the Washington, D.C. campus of Georgetown University in July 1979. Since then, the 100,000 lb/hr boiler has accumulated over 1500 hours of run time, and stringent District of Columbia environmental standards are being met for sulfur dioxide, NOx, and particulates.

Construction of the 50,000 lb/hr atmospheric fluidized bed boiler at the Great Lakes Naval Training Center, near Chicago, started in early 1979 and will be completed by the end of fiscal 1980. Construction of two atmospheric fluidized bed boilers designed to burn anthracite culm (waste material from coal cleaning operations) has begun in FY 1980. One unit, capable of generating 20,000 lb/hr steam is located at Shamokin, PA; the second, consisting of a 100,000 lb/hr boiler, is part of the Cityof Wilkes-Barre, PA, central heating and air conditioning system. A third such boiler design is awaiting site selection.

For utility applications, the Tennessee Valley Authority (TVA) has undertaken a major program to demonstrate atmospheric fluidized bed technology at a size suitable for baseload power generation. DOE's Fossil Energy program will support this effort by providing technical data from current and planned projects that benefit both industrial and utility applications.

In view of TVA's involvement in developing atmospheric fluidized bed units for utility power generation, DOE will focus its efforts in utility applications on the pressurized concept.

Pressurizing the fluidized bed combustor permits higher efficiency combined cycle applications as well as increased sulfur retention and therefore better environmental performance. Following significant successes in turbine materials tests at Curtiss-Wright's Wood-Ridge, NJ facility and at Leatherhead, England, DOE is preparing to begin construction of a 13-MWe pressurized fluidized bed/ combined cycle power plant in FY 1980 with testing slated to begin in FY 1982.

Engineering analysis will also be started in 1980 to determine whether early system configurations of pressurized fluidized bed and combined cycle gasification systems can be demonstrated at commercial scale by the mid 1980s.

The coal-oil mixture program represents the largest budget increase in the combustion program, primarily since the technology is considered to be one of the nearest term ways of substantially reducing utility and industrial oil consumption. The first long-term test burn of coal-oil mixtures in a utility boiler (originally designed to burn coal) began in 1979 at New England Power Co.'s Salem, MA power plant, and testing of coal oil mixtures in a blast furnace is about to begin at the Interlake, Inc. steel plant in Chicago.

In addition to these two demonstrations, DOE is asking prospective contractors to submit proposals for additional demonstrations of retrofitting for coal-oil mixtures in:

- an existing utility boiler, originally designed to fire oil, 100 MWe minimum capacity;
- an existing utility boiler, designed to fire oil with intended conversion to coal, 100 MWe minimum capacity;
- existing industrial boiler designed to fire oil, greater than 100 million Btu/hr energy input;

- o new industrial boiler designed to fire coal-oil mixtures as the primary fuel, greater than 100 million Btu/hr energy input.

Additionally, coal-oil mixture fuel for these demonstrations will be purchased under contract by the selected offeror who is expected to construct, if necessary, and operate a preparation plant at his own expense. To stimulate such ventures, DOE will reimburse a portion of the price of the fuel if circumstances warrant.

These demonstrations, along with continued testing on smaller units at DOE's Pittsburgh Energy Technology Center, should provide the information needed by the Department's regulatory arm to enforce the provisions of the Fuel Use Act as they apply to coal-oil mixtures. If industry's confidence can be built in this fuel, significant proportions of oil could be saved in both the utility and industrial markets beginning in the early part of this decade. In the utility sector alone, coal-oil mixtures could potentially displace one-third of the approximately 1.8 million barrels of fuel oil now used daily. That amounts to some 600,000 barrels per day -- or to place that in perspective, slightly less than we once imported from Iran. Even if we can achieve only 50 to 60 percent of the potential market, coal-oil mixtures can play a significant near-term role in removing our dependence on foreign oil.

Major projects in this area are listed in Table 8.

TABLE 8

COMBUSTION SYSTEMS

Research Area/Major Projects	FY 1981 Status	FY 1981 Revised Request
Atmospheric Fluidized Bed		
— AFB Boiler, 30 MWe Rivesville, WV	Complete Operations	$ 100,000
— AFB Industrial Operations Various locations	Operational	$ 5,200,000
— AFB Component Test & Integration Unit Morgantown, WV	Installation of Equipment	$10,000,000
— AFB Anthracite Applications, PA (2)	Start-up	$ 3,500,000
— AFB Support	Ongoing	$ 1,000,000
Pressurized Fluidized Bed		
— PFB Combined Cycle Pilot Plant Wood-Ridge, NJ	Complete Construction	$ 9,200,000
— PFB Support/IEA Grimethorpe, Eng.	Complete Construction	$ 8,200,000
Alternative Fuel Utilization		
— Coal-Oil Mixtures	Support Program Opportunity Notice; Continue R&D	$22,000,000
Advanced Combustion Technology		
— Engine combustion tech. (managed by DOE's Office of Conservation & Solar)	Ongoing	$ 2,000,000

Originally, DOE had requested $3,100,000 in FY 1981 funding for the Rivesville (WV) fluidized bed program. The reduction contained in the revised budget request will result in an earlier-than-planned shutdown of the experimental facility. The unit has achieved its basic goals, including both 132-hour and 200-hour sustained runs. Future designs of fluidized bed units will build on much of the information generated by the

Rivesville facility, although the newer concepts have advanced considerably over the Rivesville design.

In the pressurized fluidized bed program, a $4 million reduction in the revised FY 1981 budget request would slip by four months the schedule for construction of a pilot plant planned for Wood-Ridge, NJ.

FUEL CELLS (FY 1980 - $26,500,000; Original FY 1981 Request - $25,000,000; Amended FY 1981 Request - $20,000,000)

By electrochemically converting hydrocarbon fuels into electricity, fuel cells offer the potential of high efficiencies well beyond combustion based technologies and little to no environmental impact. The high efficiency of fuel cell power plants, and the ability to operate on a wide range of hydrocarbons will provide for use of higher priced coal derived and other unconventional fuels with the least possible inflationary impact on the economy.

This technology has a wide range of applications including utility and on-site systems for industrial, commercial and residential applications. Fuel cell power plants can be factory built and then located close to the point of electricity demand, thereby avoiding energy losses presently associated with power transmission and distribution. Waste heat from a fuel cell can be channeled into additional applications, such as space heating. The modular construction provides a size flexibility ranging from kilowatt to megawatt capacities.

The objective of DOE's Fossil Energy Fuel Cells activity is to establish the commercial feasibility of fuel cell power plants for electric utility applications, industrial cogeneration, and onsite total energy systems in the near term, and to develop advanced, higher efficiency, economically competitive fuel cell technologies for all end-use applications in the longer term.

The Fuel Cell program is assisting, over the next three to seven years, the development of a fuel cell industry with its associated significant national benefits. Activities are divided into four main categories:

- 4.8 MW Electric Utility Power Plant Demonstration: On a utility grid, test the operational feasibility and full-scale system integration of early design (1976) electric utility fuel cells; Currently being installed on Manhattan Island; testing to begin in early 1981;

- Phosphoric Acid Systems Development: Develop fuel cell systems for on-site, cogeneration applications and provide technology to lower cost and increase reliability of phosphoric acid fuel cell systems for both electic utility service and on-site cogeneration applications. Program focuses on developing components and system configurations amenable to mass production manufacturing methods, and use of coal derived and unconventional hydrocarbon fuels.

- Molten Carbonate Systems Development: Advance the state of the art of molten carbonate fuel cells to achieve the earliest possible commercialization of coal-fueled power plants in electric utility baseload and industrial cogeneration applications. Development will continue at the cell and small stack level until it can be determined that operations at commercial scales are viable;

- Fuel Cell Advanced Systems: Support emerging systems with a sufficient technology base, examine advanced fuel cell systems such as solid oxide fuel cells and thermionics, and broaden the spectrum of acceptable fuels.

Major areas of research are shown in Table 9.

TABLE 9

FUEL CELLS

Research Area/Major Projects	FY 1981 Status	FY 1981 Revised Request
4.8 MW Utility Demonstration	Testing Operations	0
Phosphoric Acid Systems Development	Continue program to design, fabricate, and test full size integral cell stacks for utility power plant	$11,000,000
Molten Carbonate Systems Development	Exploratory development	$ 8,000,000
Advanced Concepts	Ongoing R&D	$ 1,000,000

The $5 million reduction in the revised fuel cell budget is divided into a $3 million reduction in the "second generation" molten carbonate fuel cell efforts, which will stretch out development schedules, and a $2.0 million reduction in advanced fuel cell concepts.

MAGNETOHYDRODYNAMICS (FY 1980 - $75,000,000; Original FY 1981 Request - $72,000,000; Amended FY 1981 Request $71,000,000)

As part of the national drive to use coal more efficiently as a replacement for oil in electrical generation, DOE's MHD development offers the potential of using coal at less cost and environmental intrusion, and at higher efficiencies than any other directly-fired coal system.

MHD systems generate electricity directly from the movement of hot, electrically conductive combustion gases through an intense magnetic field. The systems can be coupled to a steam electric generator so that the hot exhaust can be used to power a conventional steam-cycle generating system, thereby improving the overall efficiency of a baseload plant. Environmentally, MHD systems remove sulfur as an inherent part of the process, thus reducing the need for extensive clean-up equipment such as scrubbers. Recent experiments further indicate that NOx formation can be effectively suppressed. Another environmental advantage is that, because at least 50 percent more power is produced from a given quantity of coal, less heat is wasted, less cooling water is required, and less coal must be mined, transported, and processed.

The immediate objective of the MHD program is to facilitate the commercial application of the advanced coal-burning system through the design, construction and operation of a commercial prototype MHD power plant, designated the Engineering Test Facility. Operation of this plant would demonstrate the commercial readiness of MHD as a future source of low cost, coal-fired central-station electric power without need of a larger commercial demonstration plant.

The program uses numerous facilities at various locations in 15 states. Two major government test facilities are also being completed to accomodate key development and integrated engineering tests at larger scales than are available elsewhere in the U.S.

One of the facilities is the Component Development and Integration Facility, currently nearing completion in Butte, Montana. This facility will be the principal facility within the MHD program for continuous

testing of engineering scale power trains. Initial testing will be at the 50 MW (thermal) level.

The second facility is the Coal Fired Flow Facility located adjacent to the University of Tennessee Space Institute near Tullahoma, Tennessee. It will be capable of continous operation at a nominal input of 20 MW (thermal) and short duration testing at higher levels. Construction is presently over 95 percent complete, and the facility will be activated in FY 1980.

While the prime activity in the MHD program is on the open-cycle system, DOE is also working on a closed-cycle concept, where a noble gas is cycled through the MHD flow-train and steam system, then recompressed and recirculated. Under a recently-signed agreement with the Netherlands, the U.S. will design and fabricate a channel to be tested in a 5 MW (thermal) facility at the Technical University of Eindhoven.

The reduction of $1 million in the amended FY 1981 budget would be applied to the closed-cycle approach and could reduce the program to primarily a systems engineering/analysis activity, with limited experimental work.

TABLE 10

MAGNETOHYDRODYNAMICS

Research Area/Major Projects	FY 1981 Revised Request
CDIF Project, Butte, Montana	$17,200,000
Engineering Development Technology	$31,800,000
Systems Engineering	$ 8,700,000
Engineering Test Facility	$ 400,000
Supporting Research	$11,400,000
Closed Cycle Systems	$ 1,000,000

PENDING BUDGET ADJUSTMENT

In the President's budget submitted to the Congress in January 1980, the Department signaled its intentions to request under separate legislation additional funding out of crude oil windfall tax revenues for indirect coal liquefaction programs. The primary thrust of the proposed program is to achieve substantial improvements over existing technology such as that used commercially in South Africa's SASOL plant and to adapt this technology to United States Coals.

Because of the near term potential of this technology, the Department now intends to submit a request for supplemental funding in both FY 1980 and FY 1981 to implement this important program.

PETROLEUM PROGRAM

Petroleum will continue to be one of the Nation's major energy sources for many years with domestic petroleum demand expected to be about 18 million barrels per day in 1980.

The President has set a U.S. ceiling of 8.2 million barrels per day for oil imports and has issued a challenge to reduce oil imports to 7 million barrels per day by 1990. Achieving these goals will be a major challenge in that the U.S. faces a declining base of its own oil reserves. U.S. proved reserves have declined from 39 billion barrels

in 1971 to below 28 billion barrels in 1979. The severity of the decline in reserves has been masked by the steady increase of production from the Alaskan North Slope; however, the Alaska pipeline and the Prudhoe Bay Field are now near peak capacity at 1.6 million barrels per day. To reach the 1990 import reduction goal, the U.S. will need to replace three million barrels per day of domestic oil production and over one million barrels per day of oil imports.

The goal of the Petroleum R&D program is to increase the production of oil from domestic sources by developing new and improved techniques of recovering oil from existing and potential oil reservoirs, from both on and offshore areas, as well as non-conventional sources such as oil shale and tar sands.

The strategy for implementing the program is to encourage and support industry efforts by:

- o Determining critical technology needs;
- o Identifying and setting priorities for R&D efforts and determining the appropriate government role based on the above needs;
- o Establishing and implementing cost-shared development and demonstration projects where appropriate;
- o Maintaining an aggressive research program; and
- o Providing for documentation and dissemination of data obtained from the DOE-sponsored activities.

The FY 1981 request in this program area is $63,758,000. The decrease from FY 1980 reflects lower requirements for the Enhanced Oil Recovery activities due to the implementation of new regulations aimed at encouraging commercialization of near-term technologies.

ENHANCED OIL RECOVERY (FY 1980 - $23,100,000; FY 1981 Request - $19,400,000)

Currently in the U.S., there are over 300 billion barrels of oil known to exist that cannot be recovered by conventional techniques. The research effort in the Enhanced Oil Recovery program is designed to assist in the development of the technology to recover a significant proportion of this oil, perhaps as much as 52 billion additional barrels

The most mature enhanced oil recovery technologies are thermal (steam) processes which are applicable to heavy oils found in high permeability, thick reservoirs at shallow depths. Technology is currently under development to enable recovery at greater depths, from the more difficult reservoirs and to improve recovery efficiency. This technology can be brought to commercial readiness within a few years. Not only is one-third of the oil remaining in the U.S. heavy oil, but vast quantities of heavy oil resources exist in the Western Hemisphere in Canada, Mexico and Venezuela.

The other two thirds of the remaining oil in the U.S. is light oil. Light oils are more easily refined than heavy oils, are compatible with our existing refinery base and produce a product slate which emphasizes transportation fuels. The most mature technologies for light oil recovery are polymer flooding and carbon dioxide gas flooding, yet both are limited by technical factors which constrain their effectiveness and lead to low incremental improvements over recovery by waterflooding.

Examination of 1978 production data indicates that industry is only conducting pilot tests of the chemical approach, while carbon dioxide injection is being applied in commercial practice in only one field and in a secondary, not a true tertiary application. Industry has indicated plans, however, to undertake several carbon dioxide injection projects.

Producing bitumen from tar sands presents the most challenging problems. Until recently, limited public and private interest existed in the development of technology to open up the resource, even though U.S. companies actively helped develop the Canadian tar sands resource, estimated to be in the range of 1 to 2 trillion barrels. The U.S. resource, by comparison, is estimated to be roughly 30 billion barrels, with 10 to 20 percent thought to be recoverable, largely by in situ technology.

DOE currently has 22 major field projects underway which are targeted to these different process/reservoir combinations. They include:

Recovery Process	Field Projects	Total Value	Gov. Value
Heavy Oil			
- Thermal	7	$ 53,500,000	$ 18,000,000
Light Oil			
- Chemical	10	$136,800,000	$ 47,700,000
- Miscible (CO_2)	4	$ 14,900,000	$ 6,600,000
Tar Sands			
- Thermal	1	$ 1,500,000	$ 1,500,000
University-Type Support	___	$ 10,000,000	$10,000,000
Total	22	$216,700,000	$83,800,000

Nearly all projects will be completed in the early 1980s with the latest ones in the 1986-87 period.

In August 1979, DOE announced an incentive program to bring about more rapid commercialization of enhanced oil recovery techniques. This incentive program permits a producer to sell controlled oil at world oil prices if an approved enhanced oil recovery technique is used. A limit of $20 million per project was placed on the incentive, with the intent of encouraging similar types of pilot projects now in progress under the cost-shared program. Up to 100 projects are expected to be started at a cost of up to $2 billion. As of earlier this month, some 61 applications had been received under this program.

In addition, the President has issued an executive order which allows heavy oil to be sold at world prices and has adopted a policy that would exempt some heavy oils from the proposed windfall profits tax.

With these "front-end" incentives designed to encourage field testing of technologies and subsequent production, along with decontrol of heavy oil prices, DOE's FY 1981 R&D program will maintain the same general philosophy as in FY 1980, namely an emphasis on collecting and analyzing data from ongoing field tests (both directly funded and through the new regulations).

Research will continue to develop new and improved recovery techniques, and small field experiments will be conducted as new techniques are developed to identify problem areas where further research is necessary.

One emerging new area is the investigation in FY 1980 of the mining of heavy oil and tar sands.

The major projects in this activity are shown in Table 12.

TABLE 12

ENHANCED OIL RECOVERY

Research Area/Major Projects	FY 1981 Request
Heavy Oil	$ 7,900,000
Light Oil	$ 5,000,000
Tar Sands	$ 5,900,000

OIL SHALE (FY 1980 - $28,200,000; FY 1981 Request - $36,048,000)

The oil locked in the Nation's abundant reserves of oil shale are a major potential source of energy. Oil from shale is expected initially to be the lowest cost non-petroleum synthetic liquids source. Technology for conventional mining and surface processing of oil shale is believed ready for commercial application, particularly when applied to the 25-gallon-per-ton or greater shales in the rich Western deposits. Commercial development in this area is expected to be encouraged by financial and regulatory incentives.

Present DOE R&D activity is therefore focused mainly on engineering design of commercial-scale surface retort processes to assure the near-term commercial development. The Department is currently negotiating with three firms (Paraho Development Inc., Superior, and TOSCO) for the design of a surface retort module of a full-size commercial oil shale facility.

The principal R&D thrust is to develop underground, or "in-situ", processes which are capable of tapping the leaner and deeper shales with potential cost-savings and lower environmental impact. Priority is given to modified in situ processes, where between 20 and 40 percent of the shale is mined and processed on the surface, with the remainder heated underground.

In addition to the technology base program, including a vigorous effort in environmental R&D, three major in situ field tests are underway via government/ industry cost sharing contracts:

- o Occidental Oil Shale, Inc., Debuque, CO -- Preliminary calculations indicate that about 47,000 barrels of shale oil were produced by retort #6, the last test of Phase I. Preliminary mining is underway for access to Phase II, a twin retort test planned for ignition in September 1981, at the same site.

- o Geokinetics, Inc, Uintah County, UT -- Retort #17, the largest to date in this project, will be completed in FY 1980 with expected production of at least 4,500 barrels of shale oil. Present plans for FY 1980-81 include two full scale retorts under as much as 90 feet of overburden and a three retort cluster at staggered depths. These would achieve all contract goals.

- o Equity Oil Company, Rio Blanco County, CO -- Process adapted to the leached zone in Colorado where normal heating techniques are impractical. Injection of superheated steam to achieve retorting temperatures began in mid-FY 1979, with up to 300,000 barrels of oil expected to be produced during FY 1980 and 1981.

DOE is also working on more novel retorting techniques that are still in the early stages of development, but hold potential for improving current techniques of extracting energy from shale. In cooperation with the Office of Energy Research, the Fossil Energy program is sponsoring work

by the IIT Research Institute to adapt radio-frequency heating techniques to oil shale and tar sands. In addition, the Oil Shale R&D program is funding work by the Institute of Gas Technology to develop the HYTORT process, which heats shale in the presence of hydrogen and holds potential for extracting sizeable amounts of synthetic fuels from the lower grade shales.

Major ongoing projects supported by this budget are shown in Table 13.

TABLE 13

OIL SHALE

Research Area/Major Projects	FY 1981 Request
In Situ Conversion	$34,298,000
- Vertical Modified In Situ Debeque, Colorado	
- Horizontal Modified In Situ Uintah County, Utah	
- Solution Mining, Modified In Situ; Rio Blanco County, Colorado	
- Supporting Research	
Surface Conversion	$ 750,000

DRILLING AND OFFSHORE TECHNOLOGY (FY 1980 - $3,000,000; FY 1981 Request - $2,370,000)

The near-term objective of this activity is to increase significantly the domestic drilling rate and to provide instrumentation for Outer Continental Shelf seafloor hazard measurements. This activity will accelerate the commercialization of high performance bits and improved drilling technology and systems, accelerate ongoing seafloor instrumentation data acquisition and dissemination activity to provide useful information to industry and government agencies, and permit initial efforts to determine Arctic onshore and offshore technology requirements.

Drilling and Offshore Technology research activities address the following program objectives:

- o Improve the productivity of conventional drilling systems to increase average penetration rates and thus increase the total footage drilled per year by the U.S. drilling rig fleet;
- o develop longer lived, more efficient, advanced ("revolutionary" as opposed to "evolutionary") drilling concepts;
- o Develop required technology to drill and produce fossil fuels from both on shore and offshore "frontier" areas:
  - very deep formations (greater than 30,000 feet)
  - deep offshore waters (greater than 1,000 feet)
  - Arctic environments
- o Reduce or eliminate any adverse health, safety and environmental impacts of both new and existing technology applications;
- o Coordinate and/or provide direct research support to other development programs both within Fossil Energy, DOE (Geothermal, Energy

Research, and Environment) and other Federal agencies (Departments of Interior and Commerce).

Major projects included in this activity are shown in Table 14.

TABLE 14

DRILLING AND OFFSHORE TECHNOLOGY

Project or Research Area	FY 1981 Request
Drilling Research	$ 500,000
Offshore Technology and Seafloor Measurements	$1,300,000
Environmental and Supporting Research	$ 200,000

ADVANCED PROCESS TECHNOLOGY (FY 1980 - $6,000,000; FY 1981 Request - $5,000,000)

The Advanced Process Technology Program has been organized into three principal categories:

- o Advanced Exploratory Research — including developments in rock mechanics and fragmentation, hydrology studies (the flow and composition of water in an underground formation, and new process concepts such as the use of microorganisms to break down the structure of kerogen in shale and heavy oil into more valuable forms;
- o Product Characterization and Utilization — focusing on the analysis and characterization of crude oil, heavy oil, and tar sands, including analysis of asphalt as a function of road life;
- o Shale Oil Refining and Utilization — continuing studies to enhance the ultimate use of liquid products derived from shale oil and heavy oil, including defining capabilities of existing technology, developing a lower pressure hydrotreating, hydrocracking catalyst; evaluating hydrotreating-physical separation processing schemes, and determining the performance of the fuel products from these refining modifications.

The major projects and funding levels are shown in Table 15.

TABLE 15

ADVANCED PROCESS TECHNOLOGY

Project or Research Area	FY 1981 Request
Advanced Exploratory Research	$2,200,000
Product Characterization & Utilization	$1,300,000
Shale Oil Refining and Utilization	$1,000,000

GAS PROGRAM

Natural gas, despite a 15 percent decline in production in the past five years, remains a major contributor (25 percent of all energy) to domestic energy supply. Continued decline in gas production will increase reliance on imported oil and gas. If more of this clean, versatile fuel becomes available, the decline could be offset and gas could be diverted to industrial users of oil, thus reducing oil imports.

The producible, proven U.S. natural gas reserves are about 200 trillion cubic feet. There is a large degree of uncertainty about the extent of the remaining undiscovered conventional, high cost gas in the U.S. Resolution of this uncertainty during the 1980s will evolve slowly. But a potentially significant impact on proved reserves additions can be made if the technical constraints and risks which deter private investments in the already discovered unconventional resources can be mitigated.

Four large unconventional gas resources have been identified as having significant potential for development and positive impact on future supplies. These are:

- o Tight gas-bearing sandstone and limestone formations. Existing in blanket and lenticular formations in the Rockies, Northern Great Plains, and the Southwest. Estimates of the gas in place range from 400-1,000 trillion cubic feet, about one-fourth to one-half of which might be recoverable. Almost 90 percent is in lenticular formations which cannot be produced with current technology;

- o Gas-bearing Devonian and Mississippian shales. Located in the Applachian, Michigan and Illinois Basins, with an estimated resource size between 200 and 2,000 trillion cubic feet (depending on whether free gas or absorbed gas is counted), about 10-20 percent of which might be recoverable;

- o Natural gas trapped in coalbeds. Technologies for recovering methane from coalbeds in conjunction with mining are relatively well-developed; however, the more attractive, longer term target is recovery from unmineable coal seams, for which considerable technology development and increased fundamental knowledge is required;

- o High-temperature, high-pressure (geopressured) aquifers. Existing in the Gulf Coast region. Geopressured aquifers are not included in this discussion because they are the responsibility of the Assistant Secretary for Resource Applications.

The Enhanced Gas Recovery program in Fossil Energy is a relatively recent program which grew from as little as $3.9 million in FY 1975 to its current level for FY 1980 of $30.6 million. Throughout this period, the major portion of the R&D has been directed at the Eastern Devonian shale, and as recently as 1977 the R&D programs funds devoted to coalbed methane were very small and primarily focused on recovery in conjunction with mining.

During the past two years, based on the findings of recent studies of the potential of these resources and the Natural Gas Pricing Act, DOE has developed a regulatory and incentives program for these resources. Eastern Gas Shales and coalbed methane are completely deregulated and Tight Gas Sands will receive a high cost gas incentive price per the pending FERC regulations. These incentives could lead to a number of privately financed projects.

Therefore, the Federal role in R&D is to foster activities which enhance understanding of the basic reservoir behavior and stimulation processes, improve predictability and reliability of results and to provide for effective information transfer. Specific focus will be on developing the tools to better define gas-bearing reservoirs and the development of advanced, high efficiency fracturing and recovery techniques.

Original funding requests for the Gas R&D activities included in the FY 1981 budget totaled $30,821,000. The gradual decrease in this area is due to concentration upon completion of basic resource characterization studies and therefore, a reduction in the number of field demonstrations planned for the coming fiscal year. In addition, DOE has proposed a rescission of $5 million in FY 1980 which will extend the completion of planned

field tests and verification experiments in the eastern gas shales and western tight sands projects by 6-12 months.

Major projects are shown in Table 16.

TABLE 16

ENHANCED GAS RECOVERY

Research Areas/Major Projects	FY 1981 Revised Request
Eastern Gas Shales (OH, WV, KY, VA)	$ 12,400,000
Western Gas Sands (UT, CO, TX)	12,400,000
Methane from Coalbeds (PA, UT, AL, WV)	5,000,000
Environmental Support	248,000

INTERNATIONAL PROGRAMS

The Office of Fossil Energy, through joint international activities, seeks to accelerate the development of fossil energy technologies worldwide. In the near future the conversion of coal and oil shale fossil resources to synthetic fuels can provide one attractive practical solution to worldwide energy shortages. Additional contributions can be made by improving technology for the clean combustion of coal, enhanced oil and gas recovery, new mining techniques, as well as more efficient generation of electricity by MHD or fuel cells.

Fossil Energy's International Programs establish a vital link between foreign and domestic technologies, providing opportunities for early and economical introduction of new and promising (and possibly unproven) fossil energy technologies in the U.S. Joint exchange of information prevents unnecessary duplication of technical activities and gives insight into choices of technologies that have had varying degrees of success or acceptance abroad. Cooperative international programs permit the acceleration of Fossil Energy R&D by participation in the development of untried technologies, with a sharing of both the technological risks and the costs of participation. Joint R&D activities accelerate a technology's transition to commercial practice either in the U.S. or for U.S. industry abroad. Moreover, by evaluating foreign technologies, their potential for commercial survival in the U.S. economy can be established.

Cooperation may be bilateral, multilateral, or government/industry. International cooperative agreements range from information exchange to major demonstration projects. Many are carried out in cooperation with the International Energy Agency (IEA). The joint technology development and demonstration projects are significant in that they allow for substantial participation by private industries. The participation of U.S. personnel in joint projects abroad not only gives the U.S. the opportunity to assess foreign technologies in their own social and economic environments, but also provides proven means for technology transfer to the U.S.

Major international projects are:

Project	International Participants
Coal	
o Solvent Refined Coal-II Demonstration Plant	Federal Republic of Germany Japan

o Exxon Donor Solvent Pilot Plant	Federal Republic of Germany Japan
o Pressurized Fluidized Bed Combustion of Coal (IEA Agreement)	United Kingdom Federal Republic of Germany
o Magnetohydrodynamics	Poland, U.S.S.R., Netherlands
o Coal Oil Mixtures (IEA activity)	Canada
o Coal Mining and Utilization	Australia Federal Republic of Germany United Kingdom U.S.S.R. Poland
o Mining Technology Clearinghouse (IEA Activity)	Seven IEA countries
o Economic Assessment Service (IEA Activity)	Nine IEA countries
o Technical Information Service (IEA Activity)	Eleven IEA countries

Oil

Enhanced Oil Recovery (IEA Activity)	Six IEA countries
Enhanced Oil Recovery	U.S.S.R.
Tar Sands	Canada

Natural Gas

Enhanced Gas Recovery	U.S.S.R.

Combustion

Energy Conservation in Combustion (IEA Activity)	Italy Sweden United Kingdom

Heat Transfer

Heat Transfer Systems (IEA Activity)	Sweden Switzerland United Kingdom

With respect to ongoing agreements with the U.S.S.R., the Office of Fossil Energy is cooperating in carrying out the President's policy in the area of exchange of technology. We shall not resume "business as usual" until the President confirms improvement in the political situation.

BUDGET SUMMARY

To assist in the review of the Fossil Energy Program, summary tables are attached that summarize both the proposed FY 1980 rescissions and the FY 1981 amended budget request.

Department of Energy
FY 1980 Request for Rescission
Fossil Energy Research and Development
Fossil Energy Construction

(Dollars in Thousands)

	Presently Available		Revised Appropriation		Proposed Rescission	
	BA	BO	BA	BO	BA	BO
Coal						
Operating Expenses						
Mining Research and Development	$ 68,650	$ 65,740	$ 54,650	$ 61,740	$-14,000	$-4,000
Coal Liquefaction	170,006	147,555	168,606	146,555	-1,400	-1,000
In Situ Coal Gasification	9,900	9,350	8,300	8,350	-1,600	-1,000
Other Coal	398,837	415,912	398,837	415,912	---	---
Total Operating Expenses	647,393	638,557	630,393	632,557	-17,000	-6,000
Capital Equipment	3,000	3,410	3,000	3,410	---	---
Construction	103,250	139,301	103,250	139,301	---	---
Total Coal	753,643	781,268	736,643	775,268	-17,000	-6,000
Petroleum						
Operating Expenses	58,881	67,531	58,881	67,531	---	---
Capital Equipment	2,200	1,750	2,200	1,750	---	---
Total Petroleum	61,081	69,281	61,081	69,281	---	---
Gas						
Operating Expenses						
Enhanced Gas Recovery	35,186	40,086	30,186	38,086	-5,000	-2,000
Capital Equipment	400	300	400	300	---	---
Total Gas	35,586	40,386	30,586	38,386	-5,000	-2,000
TOTAL FOSSIL ENERGY	$850,310	$890,935	$828,310	$882,935	$-22,000	$-8,000

Department of Energy
FY 1981 Budget Amendment
Fossil Energy Research and Development
Fossil Energy Construction

(Dollars in Thousands)

	Pending Request		Proposed Amendment		Revised Request	
	BA	BO	BA	BO	BA	BO
Coal						
Operating Expenses						
Mining Research and Development	$ 45,000	$ 41,850	$ ---	$- 8,000	$ 45,000	$ 33,850
Surface Coal Gasification						
3rd Generation	30,000	25,077	-10,000	-10,000	20,000	15,077
In Situ Coal Gasification	9,900	10,280	-5,000	-5,000	4,900	5,280
Heat Engines/Heat Recovery	43,400	45,136	-7,000	-7,000	36,400	38,136
Combustion Systems - Rivesville	3,100	4,239	-3,000	-3,000	100	1,239
Fuel Cells	25,000	29,524	-5,000	-5,000	20,000	24,524
MHD	71,500	71,485	-1,000	-1,000	70,500	70,485
Other Coal	364,571	372,986			364.571	372,986
Total Operating Expenses	592,471	600,577	-31,000	-39,000	561,471	561,577
apital Equipment	4,600	4,600	---	---	4,600	4,600
Construction						
Combustion Systems - PFB Pilot Plant	9,200	6,500	-4,000	-3,000	5,200	3,500
Other Coal	440,635	203,200	---	---	440,635	203,200
Total Construction	449,835	209,700	-4,000	-3,000	445,835	206,700
Total Coal	1,046,906	814,877	-35,000	-42,000	1,011,906	772,877
Petroleum						
Operating Expenses	61,288	58,673	---	---	61,288	58,673
Capital Equipment	2,470	2,470	---	---	2,470	2,470
	63,758	61,143	---	---	63,758	61,143
Gas						
perating Expenses						
Enhanced Gas Recovery	30,321	31,173	---	-3,000	30,321	28,173
Capital Equipment	500	500	---	---	500	500
Total Gas	30,821	31,673	---	-3,000	30,821	28,673
TOTAL FOSSIL ENERGY	$1,141,435	$907,693	$-35,000	-45,000	$1,106,485	$862,693

Biography of George Fumich, Jr.

George Fumich, Jr. is the Assistant Secretary for Fossil Energy, a newly created office within the Department of Energy (DOE). His nomination was submitted by the President on November 7, 1979, and confirmed by the Senate on December 19, 1979. He was sworn in on January 4, 1980.

Prior to his present appointment, he served as the Department's Program Director for Fossil Energy in the Office of Energy Technology, assuming that position upon the establishment of the DOE in October 1977.

From 1975 until October 1977, Mr. Fumich was the Acting Director, Senior Staff, Division of Fossil Energy, within the Energy Research and Development Administration (ERDA), a predecessor agency of the DOE. From 1963 to 1975, he served as the Associate Director and Director of the Office of Coal Research (which was merged into ERDA as the Division of Fossil Energy). During the period 1961 to 1963, he was Director of the Office of Minerals Exploration within the Department of the Interior.

Prior to his appointment to the Office of Minerals Exploration, Mr. Fumich was an attorney for the Christopher Coal Company in Osage, West Virginia, joining that organization in 1948. He has an extensive background in coal and comes from a coal mining family.

Mr. Fumich was born on December 8, 1917, in Calamady, Pennsylvania, moving with his parents to Pursglove, West Virginia at an early age. He received an A.B. degree from West Virginia University in 1941 and a J.D. degree from West Virginia University College of Law in 1948. He was president of the student body in 1946. During World War II, he received both the Bronze and Silver stars for Gallantry in Action while serving with the Fifth Army in Italy.

He is married and has three children.

Biography of Carl W. Guidice

Carl W. Guidice is currently the Acting Deputy Assistant Secretary for Management in the U.S. Department of Energy's Office of Fossil Energy.

Mr. Guidice joined the Federal government in 1966 as a budget and management officer in the Bureau of Budget. Two years later, he became Chief of the Division of Fiscal Service in the U.S. Department of the Interior, a position he held until 1972 when he became Chief of DOI's Budget Division.

With the reorganization of Federal energy functions in 1974, a portion of the Department of the Interior was transferred to the newly-formed Energy Research and Development Administration. Following the transfer, Mr. Guidice was Chief of Resources Management in ERDA's Office of Fossil Energy.

In 1975, he was named Assistant Director for Planning and Budget in the Office of Fossil Energy. In 1977 he became Director of Program Control and Support in the Office of Fossil Energy, which was now a part of the U.S. Department of Energy. Mr. Guidice held this post until the Fossil Energy office was elevated to the level of an Assistant Secretary within the Department in 1979, at which time he was named to his current position.

Mr. Guidice is a graduate of St. Vincent College in Latrobe, Pennsylvania, his hometown. In addition to a B.S. degree in Business Administration, he has also done graduate work in Financial Management at American University in Washington, D.C., and in 1973 was awarded a Princeton Fellowhip in Public Affairs from Princeton University.

Prior to entering the Federal government, Mr. Guidice was a district office supervisor for American Telephone & Telegraph from 1963 to 1966 and an administrative officer for the Social Security Administration from 1960 to 1963.

Mr. FUMICH. Thank you, Mr. Chairman.

I'm not going to take very much time this morning. I know that you're quite busy with some of your other responsibilities but I will summarize what I think are the key points of the program that we are developing which we believe will make a big impact in 1985 and in 1990, a program which you have had a lot to do with developing. You were one of the champions—in fact, its main supporter—and introduced the legislation setting up the Office of Coal Research on July 7, 1960. You had a lot of vision in those days and that continues today. Those acorns that you planted have now become saplings in my opinion, and I think within the next 5 years they are going to become strong oaks.

The program started, as you know, with $1 million back in 1961. The next year it was $1 million, and then it went to $3.5 million in 1963 and to $5.1 million the following year. It took 8 years—a milestone as you mentioned to me at the time—to reach the figure of $10 million. That was back in 1968.

Well, because of your support and perseverence and the support of other members of the committee and others, we have now reached another plateau which, in my opinion, is another tremendous milestone, and that's $1 billion for coal research alone. I don't think that even you could have envisioned that level of funding at that time. Thanks to your efforts—and you alone. I remember I used to come up here each year and talk to you before our budget presentation and you were the only one interested in what we were doing. Because of your efforts this program has moved along from that small beginning. I do believe right now we are flexing our muscles and we will be reaching a payoff in the very near future. We won't have to wait another 10 years.

We are right on the verge of some major accomplishments. Some of these programs that we are moving ahead on on a massive scale today were programs that you initiated back in the days of the sixties. One of the programs, the low ash coal project, started with the Spencer Chemical Co. They had a few hundred thousand dollars in it at that time. As a result of some evolutionary developments that process is now our solvent refined coal technology. As you know, we are moving ahead with a 6,000-ton per day demonstration of two different versions of the technology. The two versions are completely different and we believe both must be developed and pushed ahead.

At that time, you also were involved in funding and supporting the H-coal technology which we started inthe midsixties. Again, this is one of our major pilot facilities which we believe will be on the front line of commercialization within the next 2 or 3 years.

Incidentally, we are going to start feeding coal into that facility within a week and I will be bringing you some advance reports. Hopefully they will be the kind of reports that you will want to hear.

Also, in the early seventies, we started work on the EDS process. It was on a PDU level, very small. But it has matured and we have now completed the pilot plant and are starting to shake down and operate it. This summer sometime around July we ought to be putting coal into the pilot plant. In fact, there is friendly competition between the H-coal people and the Exxon Donor Solvent people as to which of those technologies will be on line first.

Another technology that we will be talking more about this morning is the fluidized bed combustion technology. As you know, we started the PDU facility at Alexandria, Va. You came and visited it to see how it was developing. We believe that that technology is now on the verge of commercialization. The fact is, we understand that the manufacturer is already selling the smaller type boilers.

Our program today is to develop the medium and larger sized boiler units. We still need more information and more development before private industry will take the added risk and put their money in it to push ahead the technolog.

Where are we today? We believe that we are right where we should be as far as successful development of a research and development program is concerned. As we've mentioned many times in the past, it takes about 20 years to develop a gleam in the eye into commercial technology. We started many of these technologies in the early sixties which you can see we are on the verge of developing on a major scale today and which hopefully will be commercially ready in the mideighties.

The two SRC plants we believe are critically important projects in the vanguard of this technology development effort. Without these two facilities I believe that the development of the EDS and the H-coal projects would be delayed for some time and would cost much more money. This is because in each case, we would require another intermediate demonstration step to develop the information and technology so that others could move ahead with that technology.

So I think what we need is that the program we have put together be allowed to move forward—and this is where your support has been vital. We have had that support in the past and I know we have it right now—we must push ahead with this technology if we expect to have a nationally based synthetic fuels industry on line by the late eighties. Each of the major projects that we have has had about 4 or 5 years leadtime behind it. In any major project, it takes 18 months for a feasibility phase zero effort which you have to do before you can do anything. It then takes 2 or 3 years, based on our experience, to select a site, get all the permitting out of the way and finally develop your EIS. So no matter what we do with the alternative fuels program today or the Energy Security Corp., these programs are going to be at least 5 years behind what we have developed right now. So, I think it's critical that we move ahead with the program that we have developed and we know that we have the committee's complete support.

Thank you, Mr. Chairman.

SRC PRODUCTS

Senator BYRD. Thank you.

You referred to the SRC demonstration plant. In previous testimony the SRC II products have been described as boiler fuel, low sulfur content, liquid boiler fuel, but a variety of products will be produced by this demonstration plant; isn't that correct?

Mr. FUMICH. Mr. Chairman, you raised a very valid point. In the past, I think we made a mistake in describing the SRC II product as a boiler fuel because many people thought that was all the product would be used for. That is not the case.

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The SRC II technology is a synthetic fuels technology. It is a technology with which we can produce liquids for the transportation market. We are not going any farther than the so-called boiler fuel in the demonstration plants because with known technology today you can upgrade that particular product, which is a distillate product. It is a distillate product which you incidentally can use for boiler fuel if you want but which we believe in commercial plants would be upgraded to transportation fuel.

This is the same with each of our mainline synthetic fuel projects—SRC I, SRC II, EDS, and H-coal. Each one can be reconfigured, depending on the requirements of the particular region or locality where the facility is built, to meet the requirements of the Nation in a critical area; for example, liquid fuels for the transportation markets.

Senator BYRD. Would you say something about the variety of products that will produced by this demonstration plant?

Mr. FUMICH. Yes, sir. There are a variety of products. The facility at Morgantown is designed to produce about 2,300 barrels of propane and about 1,300 barrels of butane—these are lighter products used in the chemical industry; about 3,850 barrels of naphtha which can be upgraded very easily into high quality gasoline and about 8,000 barrels of distillate. Then you would have also produce a quantity of high Btu gas. This is what the demonstration plant is designed to produce. In my estimation a commercial plant could be completely different.

IMPACT ON TRANSPORTATION FUEL PROBLEM

Senator BYRD. How will the project help our transportation fuel problem?

Mr. FUMICH. Sir, if we can go ahead with the programs that we have developed using a cost-sharing approach with Government and industry cofunding, I believe that these programs alone can give us approximately 700,000 barrels of production by around 1990. That is, if we go with the SRC I and SRC II demonstrations and if the industry is confident enough to start designing commercial plants after the preliminary phases even before we really start operating the demonstration plants themselves—and this is normal industry practice—then we could have commercial size plants on line before 1990 using SRC technology.

Also, we have two gasification projects which are in competition to produce high Btu gas. We also have the Memphis project which we will be announcing in a few days which produces a medium Btu gas and we also have the Grace project.

Again, if industry were to begin picking sites and, using the Energy Security Corp., because these projects would be on a commercial basis after demonstration, I believe we could easily reach a figure between 600,000 to 700,000 barrels per day by around 1990.

This does not take into account other technologies that we understand are being planned, and in some cases have reached the serious stage as far as site selection is concerned.

Senator BYRD. How does this help our transportation fuel problem?

Mr. FUMICH. Sir, as of right now, we are importing about 50 percent of our liquid requirements in this country to the tune of about $88 billion a year or about $10 million an hour. Most of this is used in the

transportation market. The transportation market is the critical area. We do not have an energy problem in this country; we have a liquids problem, sir, and this is what the technologies we have been talking about will produce. They can produce a transportation liquid.

This would be one of the major ways of resolving this problem.

Now the oil backout legislation, in my opinion, is also a major way to resolve the transportation fuels problem. If we were to use coal in direct combustion in the utility and industrial market rather than using liquids, we could get liquids back into the transportation market from these other uses. This, along with converting coal into liquids, which is what these liquefaction processes would do, would be the major solutions to the transportation fuels problem.

SRC PRODUCT SLATES

Senator BYRD. Will the product slates of the commercial SRC plants be essnetially the same as the demonstration plants, or could each plant be tailored toward a particular regional fuel requirement?

Mr. FUMICH. Product slates of commercial SRC plants will be driven by market forces expected to prevail when the plants start operating. Both SRC I and SRC II provide the flexibility required to respond to these market forces on a regional basis. The product slate of commercial plants could, but need not be, the same as the demonstration plants.

SRC CONTRACTS

Senator BYRD. When do you expect the contracts to be signed for the SRC plants?

Mr. FUMICH. Sir, the contracts for the current efforts have already been signed, but up to now the projects have been Government funded. The next phase will be a cost-shared phase.

Since last September we have been negotiating on both SRC I and SRC II. On the SRC I project we hope to have the information up on the Hill in the next 2 or 3 weeks so Congress can take a look at it. In the case of the SRC II project, I received a call from Germany over the weekend on the status of the negotiations with the Germans and also talked during the past week with the Japanese. Our understanding now is that a contract will be signed in the middle of July. We were hoping for July 4.

Those negotiations are very complex, very sensitive, and I would rather not comment too much on them in a public hearing. I can talk to you privately if you wish and give you more up-to-date information, but as of right now we stil have a green light in both cases.

Senator BYRD. What is the present construction schedule?

Mr. FUMICH. Sir, we will put our environmental impact statements out on the street in about another month. If we make that schedule and allowing about 45 days for public comment, environmental impact statements for both SRC I and SRC II would be approved sometime in the fall.

Now if that is the case, we would then start the site activities and begin construction in the spring of 1981.

Senator BYRD. What is the estimate of the cost of the SRC II plant?

Mr. FUMICH. Sir, the current estimate—still not a firm commitment—is around $1.4 billion. This is, as you know, quite a bit more than our original estimate of about $700 million, but there were a lot of things that happened with respect to the cost.

Senator BYRD. Do the Germans and the Japanese still expect to contribute 25 percent?

Mr. FUMICH. Yes, sir. They understand the reason for the cost and they have each agreed to fund 25 percent of the $1.4 billion.

Senator BYRD. Do you believe these cost-sharing agreements will hold together if the project is delayed by U.S. funding restraints?

Mr. FUMICH. I would say that the chances will always be better if we can keep our current schedule, sir, because it's a very delicate negotiating matter not only with the German industry but also with the German Government. This is also true with the Japanese industry and the Japanese Government.

H-COAL AND EDS PLANTS

Senator BYRD. You are about to start operations of the H-coal and Exxon Donor Solvent—EDS—pilot plants. How do these plants differ from the SRC efforts, and how will the commercialization of the H-coal and EDS processes be supported by the solvent refined coal demonstration plants?

Mr. FUMICH. Since H-coal and EDS are pilot plants, there will be considerable risk in scaling to a commercial plant. The SRC plants are commercial scale designs so only expansion to commercial capacity is involved. The processes are considerably different on a technical basis as well.

The H-coal reactor consists of a catalyst bed which is fluidized by the upward flow of a mixture of coal, slurry oil, and hydrogen. H-coal is an extension of "H-oil," a currently practices refinery upgrading process. H-coal, a single step process, can be operated over a wide range of conditions to produce both heavy and light oil-displacing products.

With the EDS pilot plant, coal slurry is reacted with a solvent that donates hydrogen to the coal to produce liquid. Hydrogen is restored to the solvent with a catalyst in a second step and then recycled. This process applies petroleum refining technology to the liquefaction of coal to achieve economy in catalyst use. The oil displacing product is a distillable liquid.

The SRC I process, although also utilizing coal slurry, is different in that it is reacted with hydrogen in a single pass through a reactor to produce primarily a solid fuel. hydrocracking, a step to convert the solid to liquids, is included to provide a version of two-stage liquefaction and provide flexibility to respond a wide range of market demands.

The SRC II process is again slightly different in that coal slurry is reacted with hydrogen, light products are separated and part of the stream is recycled through the reactor to increase the time of the mixture in the reactor. The result is to produce primarily a distillable liquid or clean burning fuel. The liquid may be upgraded to gasoline and higher grade fuel to displace oil.

Commercialization of H-coal and EDS will be supported substantially by generic technologies brought to commercial readiness which in-

cludes: coal grining; slurrying; preheater design; system valving and pumping; distillation, stripping, and absorption systems; water treatment; and environmental control. Specific SRC I technology applicable to H-coal is solvent deashing. Specific SRC I and SRC II gasification steps to convert residual carbon in the ask to produce hydrogen for the process—bottoms processing—are applicable to any coal liquefaction plant.

Senator BYRD. How do the Exxon Donor Solvent, H-coal, SRC I, and SRC II proceses support and lead to the construction of the many synthetic fuel plants that will be required to reduce oil imports?

Mr. FUMICH. Commercialization needs will dictate how fast synthetic fuel plants will be constructed. Establishing a synthetic fuel industry of 1.5 million barrels per day from coal by 1992 requires massive commitments of resources. Efficient use of these resources to meet the national timetable depends upon a research, development, and demonstration strategy which takes into account many factors.

The strategy in supporting the EDS, H-coal, SRC I, and SRC II projects is to concentrate resources and effort in the direct liquefaction area where economic payoff is greatest but where the technology has not advanced sufficiently to result in private sector movement to build commercial plants. Furthermore, industry is provided with enough processing options and flexibility to respond to a wide and shifting market.

INDIRECT LIQUEFACTION

Senator BYRD. The South Africans are producing gasoline from coal using the Sasol indirect liquefaction technology. The South Africans have been successful in this. Why do we have to develop other synthetic fuel technologies in the fossil research and development program?

Mr. FUMICH. Sir, that's a question we get asked many times. On the surface it seems like a very valid question; but based on our experience in working with the technology through the years, we believe that direct liquefaction technology will be more efficient and less costly. The reason for this is that the indirect liquefaction technology is really two technologies. You really build two plants. In fact, Bechtel did a study for us recently in which they found that an indirect liquefaction plant would require 38 million man hours to construct; that an indirect liquefaction plant would be three times more complex than a regular refinery today and that it would require three times as many engineering man hours. A direct liquefaction plant would require only 1½ times as many man hours as a modern refinery.

Also, we believe that the products from indirect liquefaction, as practiced in South Africa, would have to be modified somewhat to meet the needs of this country. In other words, we feel that a direct liquefaction plant would be cheaper to build and as a result the product cost would be much less.

As far as product slate, Sasol technology would produce about 1.7 barrels of oil per ton of coal. This is Sasol II. The original Sasol I would produce only 1 barrel of product for each ton of coal. Direct liquefaction technology will produce a minimum of 2.5 barrels and in most cases 3 barrels of liquid from each ton of coal.

Senator BYRD. Is the Sasol technology suitable for all U.S. coals?

Mr. FUMICH. No, sir. Another drawback in the Sasol technology is the fact that, at least at the present time ,it will only work on the more reactive Western coals and not the agglomerating less reactive Eastern coals.

This is a major problem because most of the coal reserves are east of the Mississippi. Thirty percent are in the Midwest area, 20 percent in the Appalachian area; but they have a higher caloric value, so most of that would still be east of the Mississippi. If you can't use the Eastern coals, there's no way, in my opinion, that you can get a national synthetic fuels industry started.

Senator BYRD. If the funding level were to be reduced at this time, would this adversely affect the construction schedules for the two SRC plants?

Mr. FUMICH. Yes, sir; it would.

Senator BYRD. Would you like to elaborate a bit?

Mr. FUMICH. Sir, our schedules and funding requests are put together usually about 2 years ahead of time and because of the budget constraints through the years we just don't have the luxury of trying to request more than we think we are going to need. So we try to arrive at a realistic figure. Even with the inflationary trend, we believe that the request that we have right now is just what we need. If it's cut at all, it will delay ordering leadtime equipment and it could delay construction, depending on what the reductions would be.

Senator BYRD. Could we reach our alternative fuels program goals if the schedules for the SRC plants are slipped?

Mr. FUMICH. There's no way, in my opinion, that we could meet the goals on time.

CRESAP

Senator BYRD. What is the status of the feasibility study for the Cresap test facility which is due to reach Congress on June 1?

Mr. FUMICH. Sir, as you know, that was supposed to have been completed on June 1. As a result of some inquiries we have had from industries concerning the future status of the plant and request by UOP, our contractor on the study, for a couple months extra to investigate whether Cresap can be used for two-stage liquefaction or the Lummus technology, which is another clean fuel technology. UOP is also trying to determine whether there are any nonliquefaction uses for the technology.

So, since we have a $75 million investment in the facility, we want to make sure that we look at all the possibilities. We thought we should request a 2-month extension.

Senator BYRD. Which would put it up to August?

Mr. FUMICH. Yes, sir.

Senator BYRD. Do you have any preliminary conclusions from your study to date?

Mr. FUMICH. No, sir. I would rather not comment on any of the preliminary conclusions because they haven't progressed far enough to come up with any firm conclusions. I have told them that we want a strong report and there shouldn't be too many gray areas. We want some good recommendations on the use of that facility.

Senator BYRD. So you don't have any preliminary conclusions at this point?

Mr. FUMICH. No, sir.

RIVESVILLE

Senator BYRD. The President's amended budget for fiscal year 1981 deletes $3 million planned for the Rivesville utility atmospheric fluidized bed demonstration and now assumes the facility will be closed. What additional data would be generated by the $3 million planned for fiscal year 1981?

Mr. FUMICH. As you know, sir, the money that we requested for fiscal year 1981 would have been used for additional testing which would have given us some more data which we consider important for the atmospheric fluidized bed industry. It could have provided for a better characterization of performance of the Rivesville facility because we have just recently had one good run. We had some other reasons for operating the facility before that, but we could have gotten some more information. We could get some more materials information at Rivesville because performance of materials is a problem in both atmospheric fluidized bed and pressurized fluid bed applications. We also could gain information on the carbon burnup unit. In other words, you have so many fluidized bed cells, but you still have carbon which you want to utilize to be more efficient. There are several ways you can do this. One is by ash reinjection. The carbon burnup cell is an alternative.

So we were trying to get some more experience. Also, the unit has electrostatic precipitators on it. We feel that on information electrostatic precipitator operation is very important in using atmospheric fluid bed technology, particularly for the utility application. Also, load following is another area of activity that we learned a lot from the Rivesville facility, but we still feel we could get some more additional information from it. And, as usual, coal feeding is always a problem, no matter what technology we're talking about. With the Fuller-Kenyon feeding system we've got there we believe we could probably get some more information on its operation, sir.

Senator BYRD. Has the Environmental Protection Agency requested the information from this facility?

Mr. FUMICH. Sir, they have requested some. They put $250,000 into the program to test out the level one and level two areas of environmental concern and when we got ready to do that, of course, a part of the facility burned and we had to reconstruct it. As a result, we haven't been able to do that project, sir.

Senator BYRD. Where will they get the information if the Rivesville facility were closed?

Mr. FUMICH. Sir, they were going to get that at another unit at Alliance, Ohio, with a 6 by 6 foot bed. Battelle did a level one and two test, but the organization that's going to do this for EPA has only done a level one test. They would have to reconfigure the Alilance facility before they could get the rest of the level two type information suitable for EPA. Level one test data could be gotten at the Rivesville facility.

Senator BYRD. I have a letter from Paul F. Fennelly of GCA Corp. dated May 8, 1980 that is addressed to John Byam at the Morgantown Energy Technology Center. Mr. Fennelly states that GCA is very inter-

ested in scheduling environmental tests for EPA if the Rivesville facility will be kept open. Doesn't this underscore the need for the facility?

Mr. FUMICH. Sir, this would be very useful information; yes, sir.

Senator BYRD. Well, that doesn't answer my question. Doesn't this underscore the need for the facility?

Mr. FUMICH. Yes; the facility could be utilized for that purpose.

Senator BYRD. Suppose the facility is closed. From where would the information be gotten?

Mr. FUMICH. As I mentioned before, they have been trying to get that information from the Alliance, Ohio facility, a 6-by-6 foot unit. That unit would have to be modified to get the level two type information which they think is needed.

Senator BYRD. I have another letter from E. G. Kispert of Stone and Webster Engineering Corp. from Boston, Massachusetts dated April 23, 1980 in which Mr. Kispert, the vice president and engineering manager, identifies the importance of the Rivesville facility to subsequent utility atmospheric fluidized bed combustion projects. Do you agree with the points outlined in his letter to you or disagree?

Mr. FUMICH. I think they are pertinent points.

Senator BYRD. What are the points in his letter?

Mr. FUMICH. Well, he thinks that the information on materials would be helpful that the size of the facility—it's 20 megawatt—would be helpful and that the timing would be helpful.

Senator BYRD. So you would state, then, that the original program at Rivesville has merit?

Mr. FUMICH. Yes, sir.

AFB CTIU

Senator BYRD. What specific factors influenced the Department's decision to terminate the atmospheric fluidized bed component test and integration unit at Morgantown?

Mr. FUMICH. Sir, that project was originally scheduled to cost around $49 million, and as a result of the latest estimate, we found it was going to cost at least a minimum of $59 million and probably more. That was one basis from which we had to take another look at it.

After reviewing the road that we were traveling—in other words, it was primarily directed toward utility applications and after talking to the different people involved in the technology, we felt that the window for that had already been bypassed because of the rapid acceleration of the technology development in that area.

That being the case, we decided that we needed to find another valid use for the facility because we already had $17 million sunk in it. The walk-away cost would have been another $7 million, and we felt that the Government investment there should be cost-beneficial and that the technology development as far as the industrial area was concerned merited a further look in this area.

As a result of the different options that we looked at and after discussing the future of the project with West Virginia University officials, we agreed together that the best way to go was with a 20-square foot test facility with an atmospheric fluidized bed configuration aimed mainly toward the industrial market, mainly toward the large size energy intensive industries that would be using the technology. This is

an area that still needs more development. We feel that this is a very fertile area of activity and we need more information in this area and this is what this facility will be designed to do.

We still don't know what the final costs will be but we will get this information, I think, in the next couple weeks. However, we feel that we have found a very good use for the facility and are very anxious to move ahead.

Senator BYRD. Even though the component test and integration unit may not be completed in time to make a substantial contribution to the Tennessee Valley Authority's immediate atmospheric fluidized bed program, won't this test facility be able to make valuable contributions to other, later fluidized bed programs?

Mr. FUMICH. We expect that the atmospheric fluidized bed will be used by industry to burn coal for process heat and space heating since it is a cheaper, cleaner, and more versatile process than current technology. Since coal will be burned as the dominant fuel for new industrial and large institutional users, they will use the most cost-effective equipment consistent with environmental protection. The atmospheric fluidized bed is fast becoming such a process of choice. Already over a dozen small coal-fired atmospheric fluidized-bed boilers have ben sold. The component test and integration unit will enable manufacturers to develop and test ways of making this process one of lower cost, greater efficiency, reduced limestone requirements, and less SO and NOx emmissions while using our abundant natural resource, coal.

The current design of the atmospheric fluidized bed process is adequate for commercialization but by no means is it without many areas of expected process improvement. As the useful lives of existing inventory of oil- and gas-fired boilers expire, we will have coal-fired atmospheric fluidized-bed boilers developed to replace them. This technology has just been born, and while we have a viable child, this offspring of our research and development can benefit us all by maturing into a technology with additional improvements.

Senator BYRD. Are there any other options that are being considered?

Mr. FUMICH. Sir, one option was to finish the building and let the university have it and another option was to finish the building and let the Morgantown Energy Technology Center use it. Another option was to leave the facility as is with the boiler and other equipment for university use.

We also consider reconfiguring it to a smaller type test facility, and have all of these have certain advantages, they have more disadvantages. Then too, the university frowned on any other option that we developed. This is an option that we feel is a positive option for the AFB community, for our people at METC and at headquarters, and for the people at West Virginia University, sir.

Senator BYRD. Without objection, I will include in the record the two letters to which I earlier referred; a letter from Mr. Paul B. Fennelly of the GCA Corp.; and the letter from Stone and Webster Engineering Corp., both which had to do with the Rivesville facility.

[The statement follows:]

LETTER FROM PAUL F. FENNELLY, GCA CORPORATION

8 May 1980

Mr. John W. Byam, Jr.
Project Manager - AFB/CTIU
U.S. Department of Energy
P.O. Box 880
Collins Ferry Road
Morgantown, WV 26505

Dear John:

As we've discussed recently on the telephone, I was very pleased to hear at the Atlanta meeting of the two successful runs at Rivesville this past Spring.

GCA would be very interested to schedule environmental emission tests at Rivesville under our contract with the U.S. Environmental Protection Agency if future FBC runs are planned. A run of 100 to 200 hours' duration would allow us to gather some valuable emission data. Currently, the Rivesville unit is unique in its size and in its use of an electrostatic precipitator. We are quite familiar with the unit and our test plans have already been prepared per our activities in 1978-79. If the situation called for it, we could mobilize very quickly.

I hope some arrangements can be made within DOE's budget to keep the unit running at least for the near future.

Please keep me informed of any developments.

Best wishes,

Paul F. Fennelly, Ph.D.
Manager
Fluidized-Bed Combustion Program

LETTER FROM E. G. KISPERT, VICE PRESIDENT AND ENGINEERING MANAGER, STONE & WEBSTER ENGINEERING CORPORATION

Mr. George Fumich, Jr.
Assistant Secretary for Fossil Energy
U. S. Department of Energy
Germantown Building
Germantown, MD 20454

April 23, 1980

Dear Sir:

RIVESVILLE DEMONSTRATION PROJECT

As a subcontractor to Pope, Evans and Robbins, Inc., Stone & Webster Engineering Corporation has performed engineering support services for the Rivesville Project since May 1977. During that period, we have had the opportunity to assess the original design concept of that facility, the principal causes of the difficulties encountered in operation, and the various corrective measures that have been undertaken. We have participated in a sustained engineering effort aimed

at improving the operability and reliability of this demonstration plant.

Based on this direct experience, we would like to express our thoughts on the future of the Rivesville facility. As we see it, this project can still play a significant role in the over-all commercialization of Atmospheric Fluidized Bed Technology. In spite of all the difficulties encountered to date, this facility is presently the largest operating fluidized bed boiler in the world and, therefore, represents a resource that should not be discarded at this time.

While certain design features of the Rivesville AFB boiler have become somewhat obsolete in view of recent developments in this technology, the facility can definitely fulfill usefull functions.

Much still remains to be learned about large bed behavior such as wall effects, homogeneity of the combustion and sulfur capture process, formation of hydrocarbons and combustion efficiency. This can be accomplished at Rivesville.

Currently the inbed or underbed feed concepts proposed involve either semi dilute or dense phase transporting of solids. Rivesville can evaluate and verify the validity of both concepts.

High carbon ash reinjection is believed to be a way to improve carbon utilization. The viability of this concept as well as the rates at which this recycle should take place can qualitatively be determined at Rivesville.

During the past 200 hour run, the electrostatic precipitator performed well. However, its performance needs to be verified at various Ca/S mole ratios. Verifying that an electrostatic precipitator is a viable particulate collection device for the AFB technology will offer the plant designer an alternative to a baghouse which have their own problems.

All of the information obtained from Rivesville can and should be used to support the proposed TVA 200 MW demonstration and any other demonstration programs planned by the Department of Energy.

Finally, the Rivesville facility can and should be used to train operators. From experience, we know that a large AFB boiler "feels" different than a conventional boiler. The operator training function can support the TVA Pilot Plant project and would be of benefit to all AFB users in the next few years.

The message of the users at the 6th International Fluidized Bed Symposium was loud and clear, "Demonstrate that Fluidized Bed Combustion is a reliable alternative and we will buy it". Repeatable trouble free operation of Rivesville in conjunction with the information to be gained can only decrease the time required for commercialization.

For these reasons, we strongly believe that the Department of Energy should continue to support the Rivesville Project as an interim facility which can play a positive role until an electric utility oriented demonstration plant is operational.

Stone & Webster would be pleased to discuss its views regarding commercialization of the AFB technology and the role Rivesville can play in the process with you at your convenience. Should you deem such discussions appropriate, please contact the writer at (617) 973-8098 or Mr. P. F. Lipari at (617) 973-5536.

Very truly yours,

E. G. Kispert

E. G. Kispert
Vice President and Engineering Manager

MINING R. & D.

Senator BYRD. Since you were named Assistant Secretary for Fossil Energy, Mr. Fumich, you have placed the mining R. & D. functions in a separate office within your coal program. Can you give me a brief background on the reasons for this and how the organization of that office is progressing?

Mr. FUMICH. Sir, we believe that the coal mining research and technology development effort needed more visibility in the Department of Energy.

As you know, for several years the program's budget has been decreasing and we felt that we needed to surface the technology and the office so that industry would get the message that we believe that mining technology is important and that it has a good future in the Department of Energy.

As you know, the program comprises three segments—underground mining, surface mining, and coal preparation. We believe with the new DOE organization and with the new DOE leadership, the coal mining research will have a much better future than it had in the past.

When DOE was formed, most of the people were not fossil energy oriented. They did not have fossil energy backgrounds and, as a result, when the budget crunches came we had a difficult time in trying to support our fossil energy program and particularly the coal mining research program because it was believed by some that coal mining research was not important as far as the Government was concerned.

That message permeated the system and we had a very difficult time trying to defend against it.

But the present leadership is very positive regarding coal mining research and, with our new mining organization which has been approved by the Department, we believe that coal mining research does have an excellent future in the Department.

RESCISSION OF FUNDS FOR MINING R. & D.

Senator BYRD. The President has recently proposed a rescission of $14 million from the fiscal 1980 appropriation for mining R. & D. Isn't this inconsistent with the administration's goal to increase coal utilization?

Mr. FUMICH. Sir, it does seem inconsistent and, frankly, it is.

The main reason for the $14 million rescission is that, along with changing the organization and setting up an independent office of coal mining research, we also decentralized. As you know, we have a Pittsburgh Mining Technology Center which is involved in coal mining research and we also have the Carbondale Mining Technology Center. These people are where the action is. They are right at the locales where the mining research is done. So we have been decentralizing and transferring the responsibilities for these different projects to these offices.

But this took more time than we anticipated. It necessitated some very complicated bureaucratic rearrangements and, as a result, we didn't get all of our fiscal year 1979 research procurements out on time and

were unable to obligate a sum of $8.6 million in fiscal year 1979 program moneys by the close of the year. So, since we didn't get all the mining research obligations out and since we were told to take a budget cut, we felt it would be most orderly to sacrifice this unobligated amount. It had nothing to do with the merits of the technology, sir.

Senator BYRD. What specific projects would be stretched out or terminated?

Mr. FUMICH. Sir, we would curtail spending of about $3 million in the coal preparation area, about $5 million in the surface coal mining area, and about $6 million in underground coal mining technology. Not too much of that would be in underground transportation, I think about $600,000.

TIME SPAN FOR R. & D. PROJECTS

Senator BYRD. How long does it take you typically to develop and commercialize a research and development project in a mining program?

Mr. FUMICH. Usually a regular research and development technology path, as I mentioned previously, takes around 20 years. It depends on what you're striving for. If you're trying to improve present technology, that path is much shorter.

Now we have had a lot of discussions with the coal mining industry since we made some of these cuts in the last 2 or 3 years. We have gotten the strong message from the industry that we shouldn't be in the very near-term technology area because this is their area, particularly some of the larger companies.

As a result, most of the mining R. & D. programs that we have are targeted toward the intermediate and the longer-term, I would say within 5 to 10 years. So we don't believe that the rescission will hurt.

On the other hand, if the mining program continues to go down, I would agree that it would be a deplorable situation. I don't think that is going to happen.

ADEQUACY OF FUNDS

Senator BYRD. Given the leadtime required to develop technology and put it into use, is the administration absolutely confident that it has adequate funds in this budget to produce coal efficiently under President Carter's expanded goals for 1985 and beyond?

Mr. FUMICH. Yes, sir. One of the reasons for that is that, fortunately, we have some help from the industry side. The industry has expanded mine production capacity to at least 100–200 million tons over and above present coal demand levels. Although this over capacity is economically uncomfortable to the industry, this situation alone gives us almost enough capacity to handle expected demand for the next 5 years. Further, in my opinion, the technology that we have at present can be finetuned just a little to take care of demand bulges we're going to have in the following several years.

On the other hand, if we don't move ahead with the technology we are developing on the longer-term basis, then I would say in 1990 we would be facing a far less comfortable coal supply situation.

Incidentally, Mr. Chairman, we have been working on a 5-year plan for our mining program and I can say that with its completion you will have a clearer picture of our overall mining research effort.

Senator BYRD. How much funding has been requested elsewhere in the administration for mining research and development activities?

Mr. FUMICH. Sir, this raises another important element. The Federal coal mining research project is quite a large one. Right now the Bureau of Mines has a program that's on the level of about $60 or $70 million. The Office of Surface Mining has a program of around $5 million or so.

Putting these together and adding our program of about $47 million, you would have a Federal mining research program of over $100 million.

The program that DOE has in place is a large program. We have about 165 contracts out and our present on-going projects add to about $250 million. So with that situation and the fact that our trend is going to be reversed next year, I think that we are going to be in good shape.

COORDINATION OF MINING PROGRAM

Senator BYRD. What efforts have been made to insure that Federal mining R. & D. programs are coordinated in order to avoid duplication and provide mutual support for each other?

Mr. FUMICH. In the last year we have signed an MOU with the Department of Interior, the Bureau of Mines. We have given them descriptions of all of our projects and they have given us descriptions of their projects. In those areas that we were concerned about seeming duplication, we have had further discussion and, as a result we found one project that might have been construed as duplication and we took care of that one.

In the last 2 weeks we also have met with Assistant Secretary Robert Lagather, Mine Safety and Health Administration, DOL. We set out a program of regular coordination meetings with his people. In addition, the Bureau of Mines will participate informally in this DOE/MSHA coordination program. In our first meeting with MSHA we delineated six mining projects as needed priority review with regard to insuring that health and safety aspects were adequately covered, and 11 others that were of lesser priority.

We are also going to be meeting the first week in June with Assistant Secretary Lagather's organization, and with the Bureau of Mines in Pittsburgh, for technical review of these six projects.

As a result of all these consultations and discussions, I do not think that we have any duplication of research at this time.

Senator BYRD. The budget justification indicates that DOE will be participating in a multiagency, Government-wide review of mining research and development in fiscal 1980. What is the status of that review?

Mr. FUMICH. Sir, I understood that the Office of Management and Budget was going to take the lead in getting the review started. We understand that this is still going to happen but we don't have any further information. This is the reason we went out on our own on the

matter of coordinating our mining research program. We decided we would do it ourselves, and as I mentioned before, we have initiated discussions with the Bureau of Mines and MSHA. We also plan to initiate coordinating discussions with the Office of Surface Mining in the Department of the Interior. In summary, we believe we will have put to rest most of the duplication concerns in the very near future.

Senator BYRD. So the review may not be necessary?

Mr. FUMICH. I understand now that the OMB might not bring up a review. We don't know. We think that the heat is off that study.

UNDERGROUND MINING

Senator BYRD. As the demand for coal increases, underground coal mining will inevitably be pushed deeper and deeper, thereby complicating working conditions and inhibiting productivity. What are you doing in your present programs specifically to address the work climate and the logistical problems that are certain to occur down the road?

Mr. FUMICH. Sir, in my opinion, we have two main problems as far as our national coal reserves are concerned; and it's ironic that they are just completely the opposite of each other.

As far as the East is concerned, as you know because you have been involved, most of the easy-to-mine seams have been mined for quite some time because they are more economical. Indeed, I have been involved in northern West Virginia mining and one of the better seams is 6 feet or more in thickness and typically only several hundred feet below the surface. That seam goes all the way through southwestern Pennsylvania and a good part of West Virginia, but there aren't many parts that remain untouched, suitable for new mines. So we believe that the greatest remaining reserves in the East are in much thinner seams than mined historically, and believe further that the best type of technology for such seams could be an adaptation of longwall mining. We do have some projects addressing this area.

As far as the West is concerned, we have a lot of very thick underground coal seams. The present technology that we have developed or the industry has developed cannot economically mine coal seams over 15 to 20 feet deep without forgoing significant coal recovery. Many of those seams are 200 feet thick and you can see the waste of reserves that's involved by employing present technology.

So the underground technology we need in the West is for deep seam mining while in the East it is for thin seam mining.

Senator BYRD. How do you insure that your mining and research development is targeted at the needs of the industry and that industry puts the technology into commercial use once you have developed it?

Mr. FUMICH. Sir, as a result of the reviews that we have had of our whole coal mining research program as part of our coordination efforts and our 5-year planning efforts, this has been addressed through discussions with coal industry, trade groups, and separately with individual coal mining companies. We are also in close contact with members of the Joint Development Committee of the Bituminous Coal Operators Association, and the United Mine Workers.

For the first time in years the United Mine Workers union is getting involved in the mining technology research process. We believe this is a very positive indication because we need their support.

As a result of all these activities, we have joint ventures. We have cost-sharing type projects. We also get together to meet to find out what the status is of specific technologies. For example, we recently met in Pittsburgh with BCOA, coal mining operator groups, and the United Mine Workers. This week I met in Washington with United Mine Workers' representatives and other people from the industry to review various projects that DOE is involved in.

Incidentally, one of the UMW representatives was from southern West Virginia.

MINING R. & D. COSTSHARING

Senator BYRD. Do you have a satisfactory cost-sharing level with industry in your mining R. & D. program?

Mr. FUMICH. Yes, sir. We believe that the best way to get the interest of the industry is through costsharing. It makes it much more difficult in our negotiations because you have patents and proprietary interests that you have to get resolved, but in my opinion, if Government goes it alone in research and development we usually end up with a greater percentage of white elephants than if industry cost shares. If industry cost shares, they have their own interests and before you get to the final stages of your technology development it will have been tailored to their own needs resulting in a more realistic and applicable research product. For this reason we think costsharing is a very necessary requirement in bridging the technology from Government to private industry.

Senator BYRD. Will you provide for the record a list of all significant cost-shared projects planned in the fiscal year 1981 mining R. & D. budget and indicate the private cost-sharing percent along with a brief description of the project?

Mr. FUMICH. We would be very happy to do that, sir.

[The information follows:]

SIGNIFICANT COST SHARE CONTRACT FUNDING FOR FISCAL YEAR 1981

Company and title	Estimate fiscal year 1981 (Thousands)	Approximate Government/ industry
Robbins, blind shaft borer	$1,000	97/3 (fiscal year 1979)
NMS, automated extraction system	1,500	90/10 (fiscal year 1978)
Old Ben Coal Co., longwall mining demo	100	37/63 (fiscal year 1979)
TBD, longwall multiseam (proposed)	200	Between 50–70 percent Government
TBD, boiler test and support (coal preparation)	1,000	Between 30–50 percent Government
Anderson Strathcycle, supportless mining systems	400	50/50 estimate

DESCRIPTION OF PROJECTS

Robbins—A four phased development and demonstration of a blind shaft borer capable of boring a 20–24 feet diameter coal mine shaft to a depth of 1,800 feet.

NMS—Design, fabricate, assemble, and test above and below ground an underground mining system capable of installing permanent roof support while simultaneously mining coal.

Old Ben Coal Co.—Demonstration of longwall coal mining in the Illinois Coal Basin.

Longwall multiseam (TBD)—A trial of longwall mining technology in a seam that underlies or overlays a previously mined room and pillar seam. The ability to mine in the presence of the resulting severe stresses is the focus of this trial.

Boiler test and support (TBD)—Demonstration of cost benefits for electric power production of selected coal prep schemes for selected coals under specific user defined conditions.

Anderson Strathcycle—Completion of phase I development work required for the design and development of a supportless mining system. Phase I calls for completion of design, fabrication, testing and analyses required to characterize the performance of the conveyor angle station, push rod assembly and push rod feed mechanism; identify and illustrate suitability of coal interface detector; identify extent of coal extraction amenable to supportless mining; identify sites; secure MSHA approval and economic studies.

Senator BYRD. Why are you developing reclamation and environmental control techniques in your surface mining program? Does this differ from the same activities of the Office of Surface Mining, the Bureau of Mines, and the Forest Service?

Mr. FUMICH. In our mining research program we are trying to develop improved techniques for mining which assure reduced economic and social costs of mining. It is impossible to work on improved surface mining techniques without considering the reclamation/environmental control aspects because reclamation is an integral part of the mining operation. In virtually every instance, at least the bulk of the reclamation operation takes place in the midst of the coal excavation process. Often the same people and equipment are used for both functions.

While the work of DOE and the other Federal agencies appear similar at the program level, at the project level there are differences. In other agencies, there is more emphasis on the final stages of reclamation, for example, establishment of permanent vegatative cover, and research in support of regulations, which is entirely absent in DOE's research. The areas where there is potential for duplication are handled by detailed project-by-project review of the respective programs by the agencies under our interagency research coordination agreements.

COAL PREPARATION

Senator BYRD. Your physical and chemical coal cleaning research to date has concentrated primarily on direct coal combustion application, has it not?

Mr. FUMICH. Yes, sir.

Senator BYRD. What specific coal cleaning results to date lead you to think this technology will encourage significantly greater direct usage of coal in the next 5 years?

Mr. FUMICH. Sir, as far as chemical coal cleaning is concerned, we have been disappointed. This is a new technology area. We felt that this was a very important technology area because, as you know, there are

different types of sulfur in coal. You have pyritic sulfur that is inorganic and you also have organic sulfur. In the Eastern part of the country you have a combination of both. If you remove only one, in most cases you can't meet the environmental pollution regulations. So you have to have something that will work on both. Our inorganic sulfur removal by magnetic and physical separation is very successful. On the other hand such processing has little effect on the coals organic sulfur.

So we felt some chemical processes might alleviate this removal problem and initiated chemical-coal-cleaning research.

So far, in this effort we have not gotten any breakthroughs. We have one or two possibilities that are still of interest. We haven't given up hope, because in many cases where we started in new areas and the work hadn't been that promising, after a period of time we have succeeded in getting breakthroughs. So I do believe we should still pursue a strong effort in this area because the sulfur reduction problem is critical for environmentally safe direct burning of coal.

Now on the physical cleaning side, we have had successes and I think as far as the Eastern coals are concerned we have about 5 percent of the Eastern coals that can meet environmental pollution standards just with physical coal cleaning alone.

I also think we can do more in that area and that is why we are moving ahead in the physical coal cleaning area as well.

Senator BYRD. Won't this coal cleaning research also have applications for synthetic fuel projects as well because pretreated coals require less volume to be put through the reactor to achieve a given output?

Mr. FUMICH. Yes sir. In addition, it is possible that the coal can be prepared to produce a custom feedstock—one with consistent Btu content and optimal size, levels of sulfur, and levels of moisture for the particular reactor being fed.

MINING SAFETY

Senator BYRD. Has the report of the President's Commission on Coal caused you to reorient your mining research and development programs or any of your other coal programs in any way?

Mr. FUMICH. The report of the President's Commission, sir, emphasized health and safety in mining operations and there are various ways you can address health and safety in areas of the operations. One area is at the coal face in room and pillar mining. Now we have several prospective technologies that we believe will be of great assistance in this area of concern.

Based on present regulations, you can't operate within 20 feet of the face of the seam in which you are cutting coal without putting up roof support bolts. In today's modern mining machinery, such as a continuous miner, you have to hold that machine idle while you are installing roof bolts. As a result, you are really cutting down on efficiency and production because these continuous miners can really cut out a lot of coal. So what we have is several projects that could sharply reduce the idle time by combining the mining and bolting capabilities in one machine—the miner bolter. This was one of the projects we were discus-

sing this week with the United Mine Workers. Here with remote control, the operator presses the buttons while sitting under a protected part of the miner bolter and the roof bolter would put up bolts in the seam and then resume mining until time to bolt again, all without the inefficiencies of moving out one piece of equipment and moving in another. We are still in the developmental phases of these miner bolters, and haven't completely reduced idle machine time to minimum potentials but we believe prospects are very good in this area.

As far as longwall mining is concerned, one of the major problems is dust control. This is of great concern to MSHA and in my meeting with them we have found ways we can coordinate our activities with them. Also, as a result of the renewed interest by the United Mine Workers, we have been discussing with them areas of interest that they want us to follow. As a result, while I don't think we have reoriented our program, we are reemphasizing certain aspects of it.

GASIFICATION R. & D.

Senator BYRD. The justification scheduled a selection by last March or April for the high Btu gas demonstration project, but apparently none has been made to date. What is the Department's position on this demonstration at the present time?

Mr. FUMICH. Sir, as you know, we have two major high Btu gasification projects or technologies that are in competition. The administration position is that this is still the path we are going to pursue.

We discussed the possibility of making a decision at this point in time. We wanted to do that because under the contractual provisions some of the information that we felt was required to make a decision would not be due until July 1981, but we felt that if one of the projects or technologies faltered we could save some time and make a decision before then.

However, both technologies have so far been very successful and as a result there's no way we could make a decision based on that fact alone.

So my opinion is that when this decision is made, it will be to postpone the selection until around July 1981 because this is when under the contracts the business partners will be required to come in with their cost-sharing percentage and do the other necessary things such as getting their regulatory decision approved. In one case it will involve intrastate approval.

There are several items that are not required under the contracts until that time. Without that information, we could be in a situation where we would be selecting one contractor and if that contractor decided that he didn't want to put up the money that we required DOE could end up with a pig in the poke, because by that time the other contractor would be gone. So we feel in order to have a legitimate basis for a decision the decision should not be made to select any contractor until July 1981.

Senator BYRD. Would you please summarize the advantage of delaying the selection in the high-Btu competition at this time?

Mr. FUMICH. Within current contractural and program agreements, both industrial partners are not required to make a commitment to proceed with construction until the completion of phase I. This commitment includes their financial cost participation. A selection at this time would be with great risk and could possibly result in a poor decision since the selection would be based on incomplete designs and without final cost estimates, detailed schedules, environmental impact statements, construction plans, financial commitments, and regulatory approvals. Completion of phase I is currently scheduled on April 30, 1981 for the ICGG project and June 30, 1981 for the CONOCO project. A selection decision at this time—10 to 12 months prior to phase I completion—would accelerate the overall program schedule by only 2 to 4 months since initiation of construction and longlead procurement et cetera, are dependent upon the final environmental impact statement which will not be completed until the end of December 1980, at the earliest. A selection decision at this time versus the end of phase I would not provide any cost avoidance to the Government due to termination allowable costs. The Department believes that a selection decision must await the completion of phase I, when the aforementioned data will be available to insure a prudent decision.

Senator BYRD. Will the delay in project selection affect your construction schedule for longlead procurement and thereby delay the projected project completion date?

Mr. FUMICH. No, sir. We originally envisioned this might be the case. However, the environmental impact statements will be issued, but they won't be approved until the fall sometime. Also, the prevention of significant deterioration permits with respect to atmosphere quality attainment might not be issued until the spring of 1981. There's no way that we could do anything on construction until after the environmental impact statements are approved and the permits obtained.

So, I don't see how we could start construction until the spring of next year, sir.

Senator BYRD. When are you now planning to make a selection in the high-Btu demonstration program?

Mr. FUMICH. The CONOCO and ICGG contracts provided for two selection points—at the end of the commercial conceptual design and at the end of the demonstration plant design phase—phase I. In January 1979, when the commercial conceptual design was complete, the evaluation determined that both projects were viable and that there was not an adequate basis to select one over the other.

If we had been able to eliminate one of the projects, the other could have proceeded in a noncompetitive mode. We recognize that maintaining these projects in a competition mode is difficult but it is deemed necessary. Therefore, we scheduled another evaluation this spring, to determine whether one or the other could be eliminated and the other could proceed noncompetitively. The results of this evaluation will be announced shortly.

In the meantime, both projects are fully funded and are scheduled to complete the demonstration designs in July 1981. Both contracts provide for the submission of business and financing plans, necessary per-

mits, private share of the funds, firm baseline costs, and schedules as well as market and other data.

If neither project warrants elimination at this time, both will complete the designs, and we will make a selection as provided in the contracts after phase I is completed in July 1981.

Senator BYRD. Is DOE planning to seek a reprograming to keep the second demonstration alive?

Mr. FUMICH. No, sir.

Senator BYRD. It is not?

Mr. FUMICH. No, sir.

Senator BYRD. Will the project delay in the high-Btu construction program affect fiscal year 1981 outlays of $75 million?

Mr. FUMICH. The budget plan is based on the selection of one project for design and construction at the end of phase I, which will occur in midyear 1981. Thus, only a delay in the selection process beyond July 1981 will affect the fiscal year 1981 budget.

Senator BYRD. I will have some additional questions which I will submit for the record, Mr. Fumich. I will yield to Senator Huddleston and then Senator Young.

Mr. FUMICH. Thank you, Mr. Chairman.

SRC DEMONSTRATION PLANTS

Senator HUDDLESTON. Thank you, Mr. Chairman.

Mr. Fumich, what's the status of the SRC I demonstration project?

Mr. FUMICH. Sir, the SRC I demonstration project is moving ahead on schedule. As I mentioned previously, we hope to have negotiations concluded sometime in the next couple weeks. We believe that this is the timeframe, sometime during the first part of June.

Senator HUDDLESTON. Are those negotiations for costsharing?

Mr. FUMICH. Yes, sir. We already have, as you know, contracts in place for the first portion of the project. We have been negotiating since last September on the cost-sharing portion.

Senator HUDDLESTON. How about the environmental impact statements?

Mr. FUMICH. Sir, the environmental impact statements on both the SRC I and SRC II, we hope, will be approved sometime in October or November of this year.

Senator HUDDLESTON. Do you have any anticipation that the construction start might slip some and, if so, how long?

Mr. FUMICH. Sir, at this time there's no serious indication of any construction slip. We feel that if the environmental impact statements are approved in the fall of this year that we should be able to start construction sometime in the spring of 1981.

Senator HUDDLESTON. Mr. Fumich, how do you see the SRC I program fitting into the Nation's energy picture?

Mr. FUMICH. I think the SRC I and SRC II have to be considered jointly. In my opinion, without moving ahead with both of those technologies we will have serious repercussions and impact on the timing of the synthetic fuels industry in this country.

Those two projects will be built, as you know, on a commercial scale, although we would be building only one commercial module. We will be learning a lot of new things at that time. In other words, we have never done anything at that scale before. One of those plants you must remember, at commercial size, produces around 100,000 barrels of liquid a day and that's more than the entire German industry produced in World War II in 1 day with all of their plants.

So we have to look at it and learn a lot of things at that scale. We have to learn how to dissolve coal. We have to learn what to do with preheaters and scaling them up and integrate hydrogen production from residues on that scale. We also have to know what the problems are with liquid/solids separation by the deashing process that will be tested by the SRC I project. We will also be learning how to handle and feed tremendous amounts of coal in a high-pressure and high-temperature atmosphere.

These are very serious problems. Now if we do go ahead, and get that experience, learn about socioeconomic impacts and the impact on the environment, these would be the trailblazers in my opinion for the beginning of the synthetic fuels industry. With that in place, EDS and H-coal, which you also know about, would then be able to leapfrog, in my estimation, from the pilot plant scale and go into large commercial scale.

Without the SRC demonstration plants, in my opinion, those technologies would be delayed. I think that H-coal might go with a smaller size commercial venture. That is what they are talking about. But who else would do that? Nobody else would have the experience to develop either H-coal or EDS or these other projects. So, in my opinion, without the information you would get on a large scale with those two technologies this country would be set back about 5 years. You can start with a project in the energy security fund and you would be delayed about 5 years. We have already in place all the preliminary work for the demonstration plants; we've got the site specific work all underway. We know that these permits and related matters are time consuming.

So I think it's a very critical fact that we must realize. We must push ahead with both of these projects.

Senator HUDDLESTON. So you see it as really a key to our future in the development of synthetic fuels?

Mr. FUMICH. Yes, sir.

GASIFICATION R. & D.

Senator HUDDLESTON. In February you announced funds for a design of a commercial coal to gasoline plant by W. R. Grace. What is the latest cost for this design?

Mr. FUMICH. Sir, as you know, the cost estimate for the feasibility study is around $15 million. We do not have money available to fund that project, although we agreed to fund it at the time of the announcement. At the present time, we would hope to reprogram about $6 million that we have available in our gasification test facility. We would use that for 1980. Then, in 1981, we would see where we could get the difference.

Senator HUDDLESTON. Will this see you through to a signed contract?

Mr. FUMICH. Yes, sir.

Senator HUDDLESTON. Then the expectation is that the full funding will be transferred over to the SFC?

Mr. FUMICH. Sir, the phase zero design would complete our effort because, in my opinion, this would be a commercial technology. However, we know that technologies to develop Eastern coals are critically important and since we would have all the data I would see no reason why we couldn't inform the Synthetic Fuels Corp., in the event this was a successful endeavor. We could recommend that the project should move ahead and provide our phase zero study.

Senator Huddleston. At that point it would be up to the Energy Security Corp. to make a decision whether it ought to proceed to provide the funding?

Mr. FUMICH. That's right.

Senator HUDDLESTON. What are your funding requirements to get it up to that point for fiscal 1980 and 1981?

Mr. FUMICH. For fiscal year 1980, as I said, we would reprogram $6 million, which would take it through 1980, and in 1981 we would need $9 million which we would hope to find somewhere in the system.

HYGAS PROCESS

Senator HUDDLESTON. What's the status of the pending proposal from Ken-Tex for a HYGAS demonstration plant?

Mr. FUMICH. As you know, the Ken-Tex proposal is based on the high Btu, HYGAS project we have been developing in Chicago with the Institute of Gas Technology. We agreed last year to operate the HYGAS facility for another year for the specific purpose of generating information and data for that particular design.

We have received a proposal which we had evaluated by an independent contractor. The view at this time is that we should wait until we get more information from that plant. We should operate the HYGAS pilot plant until September and input that information before we make a final decision on the merits of the Ken-Tex proposal, sir.

Senator HUDDLESTON. How would you see such a plant fitting into DOE's future planning?

Mr. FUMICH. Sir, as of right now, you know we are competing with two high Btu plants based on our instructions from Congress. We would fund a second plant with the $2 million provided for the second plant and then make recommendations based on the situation at that time. Hopefully the money under the windfall profits tax would be used to fund another plant. This is the administration position.

H-COAL PILOT PLANT

Senator HUDDLESTON. What is the status of the H-coal plant?

Mr. FUMICH. The H-coal plant is moving ahead right now, like a lot of our projects are moving ahead. I visited that facility with Under Secretary Worth Bateman last Thursday and we talked to the people down there. It really is a jewel of an effort. We had a lot of problems,

as you know, during construction. We had some cost overruns, but all of that is behind us now. I think it's one of our better technologies. They were telling me they were going to be putting coal in it this week. So keep your fingers crossed. We are going to see what happens.

Of course, it's going to be a small percentage of ground coal first and as operations continue they would add a little bit more and a little bit more and in September hopefully we would have full operation on coal. I hope I can give you some more positive reports at that time.

Senator HUDDLESTON. How long do you anticipate that a pilot plant of this nature would have to operate?

Mr. FUMICH. We originally scheduled 2 years, which is what we schedule most of our operations, but we have to understand we put in $300 million in that facility. We also have to understand that if that technology is successful, and we certainly hope it will be, that the Ashland Oil is already involved in starting commercial activities using that technology. So I would think it would be irresponsible if we didn't get together with the people involved and operate that more than the 2 years. This is what we are considering and discussing to date with our co-partners.

Senator HUDDLESTON. What about the H-coal commercial conceptual design study? What's the status of it?

Mr. FUMICH. You mean the size?

Senator HUDDLESTON. Yes.

Mr. FUMICH. They are talking about a 60,000 barrel plant. I chaired a seminar at the American Mining Congress last week in which Mr. Hoerts, the president of Ashland Synthetic Fuels, made a presentation on the H-coal technologies. They are very optimistic. They feel the cost parameters can be met as far as competition with world oil prices at that particular time. They also have picked out another site at Breckinridge, Ky. and, as you know, we are helping them fund the feasibility phase zero study so they are moving ahead.

Senator HUDDLESTON. Is there any contract signed on this?

Mr. FUMICH. Yes, we have a contract signed with them.

Senator HUDDLESTON. Senator Young, do you have some questions?

ENVIRONMENTAL ASPECTS OF COAL BURNING

Senator YOUNG. How are we going to cope with all this opposition to burning coal? Almost every place you go you hear television programs about acid rain and all the bad effects from the use of coal. What are you doing to cope with that?

Mr. FUMICH. Sir, you're surfacing a real critical problem area. Of course, I'm biased. I'm proenergy but, I'm not antienvironment. I think that you can be that way and have a perfect balance. I think you can be proenvironment and not antienergy. We need more dialog between environmentalists and people involved in energy. You really have to look at our options in the context of both energy and environmental objectives.

In other words, we know for certain that unless we take care of our liquids problem, this country is going to go down the drain. We know that.

The other problems are uncertain. As far as the future is concerned, a lot of people believe that burning coal promotes an acid rain problem, a sulfur problem, or a carbon dioxide problem. We believe we should do things sequentially. My firm conviction is that we can resolve these potential environmental problems with strong R. & D. programs. We must really search and find out what the true situation is. We really don't know what causes acid rain. There are different reports and different inputs, and nobody is really certain about manmade aspects of acid rain. I think a lot of research must still be done. Then we can find out what the real problem is and how to deal with it.

I think this is what you should do before you start thinking about regulations. I just don't believe you should start considering regulations to deal with a problem before you know the causes. So this is what we in the Department are doing, and this is what the administration is mandating.

They are mounting some major efforts to look into the acid rain problem concurrently with developing the technology. We are also examining other areas, like the socioeconomic and surface disturbance problems. We have a lot of studies that are already in force, and currently we are developing technologies to mitigate the impacts in localities where we are going to build big commercial plants.

These plants will be different in the West than they will be in the East, but we are looking at each area. We don't want to just blindly develop a hardware and then find out later on we're not going to be able to use it. By resolving these things concurrently we believe you can minimize the negative factors and optimize the positive factors. That is what we are doing, but I agree that a lot of people don't think that way. They feel we ought to answer the environmental question first.

I don't see how you can answer that question first unless you can also move the technology ahead. Otherwise, we won't develop the technology quickly enough. We are already late as far as our supply of liquids is concerned. If foreign countries stop that pipeline from the Near East, I don't know what would happen to this country. I do know, at a minimum, we would be in real, real serious straits.

So I think that we have to consider that, and at the same time, do everything that's necessary to minimize whatever effects that the technology development path will have on the environment.

Senator YOUNG. You're really involved in a very serious problem. Importing all this oil affects the overall economy, but it also affects the efficiency of production in this country. The Japanese and the Germans seem to burn an awful lot of coal without too much opposition. How do they get by with burning all this coal?

Mr. FUMICH. They are starting to have the same problems we are, sir. I was in Germany last summer and I visited the Ruhrkohle area. When we talk about a strip operation in this country, we are talking about a relatively small operation. In Germany, for example, there is an open pit mine which was developed by first dismembering a complete town. Then, the area was mined, reconstituted and the town was reconstituted again. Actually, the new town looks better than the old town.

However, right now, they are starting to have problems related to the environmentalists' concerns. As a result, they have been moving ahead with new technology to address these new concerns.

The Germans are interested in our direct liquefaction technology, for example. They think our present program has merit, so they are moving ahead in a major way in coal liquefaction as well as in, different types of coal technology, just like we are.

I think we are in the forefront because we have had a major effort for sometime, but the other parts of the free world also see the necessity of trying to use their coal reserves so they can minimize their oil imports.

As you know, we are spending about $88 billion overseas today, $10 million an hour. I don't know how long we can continue that.

BARRIERS TO DIVERSIFICATION OF ENERGY SUPPLY

Senator YOUNG. That's what concerns me. How long can we do that? I was one that voted for the $20 billion for energy a year ago and without any authorization—I was hoping that authorization would pass so we could do something more than we had been about developing synthetics and other substitutes for oil. What more could you do if this energy legislation is approved by Congress than what you are doing now?

Mr. FUMICH. I think that we are doing what we should be doing. It's like putting the components of a major plant together. You have to merge Federal development with the marketplace. In other words, as soon as we build the first commercial modules for our SRC technology, this is as far as the Government should go in directly funding the project on the frontend. But then the Energy Security Corp. should be there waiting to pursue that final step in the marketplace. I think both are desperately necessary.

I also think that the Energy Mobilization Board is necessary because I think we have all found that the maze of regulations is causing delays. The environmental requirements themselves are legitimate, but we do have a lot of duplication in permits at different governmental levels. You have Federal permits that are required. You have state permits that are required. You have local permits required. Sometimes these are "chicken and egg," for example, and it takes a long time to get all of these things resolved.

I know I talked to one company and I think it took about 2 years and over $1 million just to get all of the permits. I don't see how small companies can do that.

Based on experience that I personally had, I do know that during World War II and shortly after, small businesses in the coal industry were very flexible. When the coal market was large and the demand was great, they could go into the business almost immediately and start producing coal.

In my opinion, that capability has to be considered in the past tense. There's no way today that a small entrepreneur can meet the front-end cost of all of these permitting requirements and go into business. It just can't be done.

Senator YOUNG. You mentioned the environmentalists. I feel like you do. The environmentalists, some of them have done some good, but they are going too far, and any movement that goes to extremes I think causes a lot of problems.

Mr. FUMICH. I guess we have proenergy people on this side. Sometimes I'm considered the same way, but I do believe we can get a balance between the two.

OIL SHALE

Senator YOUNG. Somehow we have to be more proenergy than we are.

One more question. What's the future of oil shale? Are we going to realize any production of oil from oil shale?

Mr. FUMICH. If you'd asked me that question several months ago, sir, I would have been very hesitant and very cautious in my reply. Right now I'm gung-ho. Not because of what we have been doing altogether, but because of what is happening out there in industry. One of the biggest oil companies has considered it a wise investment to buy out another venture in oil shale on a major level. I have discussed this venture and other technologies with this particular company, and they have evidenced serious interest in developing oil shale. I believe that we will have a viable oil shale industry starting at the same time we have our coal projects beginning. I think in about 5 years that you will be seeing a lot of progress in the development of a synthetic fuels industry with a valid chance of coming close to meeting that 400,000 barrel goal that the President set for 1990.

Senator YOUNG. I wonder if we can survive for those years.

Mr. FUMICH. That's the problem. I agree.

Senator YOUNG. Thank you.

Senator HUDDLESTON. I thank the Senator from North Dakota.

The question we always seem to be unwilling to face and resolve is whether we are going to continue to be dependent on Mideast oil. If we were not dependent on the oil from the Mideast, there wouldn't be any hostages in the Mideast and we wouldn't have to send the combat ships over there and spend $1 billion more in the next couple years to construct bases to utilize that area. The cost to the country of oil dependence is just tremendous, and even greater than that is the fact that it puts the security of the Nation in jeopardy, at least until we can get enough of our local production and our local resources used.

I don't know what we would do today if we got into a hostile situation and all of the countries in the Mideast decided to stop our oil. That's certainly not an unlikely scenario. It's something we are confronted with every single day, and it could happen. We have all these vast resources but we don't seem to be able to bite the bullet and say while we do have other objectives, a major imperative of the country is our own security; and we ought to do what needs to be done. Maybe that will come. Some of us are still working on it, and I appreciate the fact that you take what I consider to be a very balanced view on that problem.

In the general vein of synthetic fuels, which is one of the areas in which we can help ourselves—you have already referred to the fact that

DOE takes a project up to a certain point and then the Synthetic Fuels Corp., assuming that legislation finally will be enacted and that the funding will be there, then takes it from that point on. What is being done now to work out the method of this transition to be prepared to put it into place once the corporation is formed and is a working agency?

COMMERCIALIZATION

Mr. FUMICH. Assistant Secretary Ruth Davis, as you know, has a responsibility to be the lead in that particular endeavor since her responsibility is resource applications, involves the commercialization of various technologies that either Government or private industry has developed. I do believe that she has the scenarios necessary to allow merger of their activity with that which will be the responsibility of the Synthetic Fuels Corp. I think some of this has been done as a result of her responsibility within the alternate fuels activity. They are funding a lot of projects that will be transferred to the corporation.

Now, fossil energy will also play a major role because I think we are the only organization in DOE that has complete expertise in all these areas. In other words, I feel we have a team that has to be used. I believe that our team is one of the best in the country that is involved in all the technologies that we are talking about, not because I put it together—a lot of these were already in place. We have some of the top people originally from the Bureau of Mines who joined in the years when the Office of Coal Research and the Energy Technology Centers were under the jurisdiction of the Department of the Interior. We have some real top talent and I believe it would be a tragic situation if that talent weren't used in the evaluation of the proposals coming in. I think it will be used.

Senator HUDDLESTON. I think that's a problem we ought to be alert to. Whether or not there's going to be duplication of effort.

ENERGY SECURITY CORPORATION

Mr. FUMICH. Yes, I think that's a serious problem. I remember testifying before one of the other committees and I hazarded an opinion that the corporation would be something like a banking institution. In other words, they would buy the product or guarantee the price of the product, but they wouldn't evaluate the technology. To do that you would get a team of people together, and after evaluating a process, would assess whether that technology could work on a commercial scale, and whether it could produce a product for a certain price. Using liquids, for example, they could come to the corporation and say, "We have a technology here. We are going to build this plant at this location. It's going to cost so much, but we have to sell this product at about $38 a barrel. We need a guaranteed buyer for that price or guaranteed price level." These people would build the plant themselves so they would have to have a lot of faith in that technology. In other words, all they would get from the corporation would be the guaranteed price.

Now, how is this Synthetic Fuels Corp. going to evaluate the technologies? There are various ideas. I understand it's supposed to have a

relatively small staff, but when I mentioned that and said it wouldn't grow, I was pooh-poohed and I think rightly so, because we know things never stop—they keep going, but I think that would be unfortunate. They should use our expertise and keep their staff level at a realistic minimum.

SYNTHETIC FUEL PRICES

Senator HUDDLESTON. Speaking of the price of synthetic fuels, how do you see them comparing with conventional fuel sources by the year 1985 and by the end of the decade?

Mr. FUMICH. Well, you know, last year the Department of Energy came out with three scenarios for imported oil prices in the mideighties when the technologies that the Department of Energy was developing would first be ready for commercialization. The low level was about $15 a barrel. The mid-level was about $20 a barrel, and the high level was about $25 a barrel. Yet in 1 year the world price of oil—you know what happened—it more than doubled, and right now the scenario is obsolete.

We believe that the cost of the products based on our technology, would be in the range of the price of imported oil at that point in time when our technologies are commonly available.

Let me be more specific. Based on the information that I get from my people, we have a range of $25 to maybe $35 a barrel. I'm more cautious. I believe that this range should be changed somewhat. I feel that these could be a little higher. I think it should be from $30 to maybe $45 or $50 a barrel.

I think in the 1985 or 1990 time range, this is what the imported oil cost is going to be.

So, I do believe that they will be competitive, but even more so, what I think we ought to delineate and emphasize is the fact that for national security considerations we must have liquids of our own.

Senator HUDDLESTON. I agree with that. I think too much emphasis is put on the question of cost without recognizing the supply problem. It doesn't help you any if oil is a few cents cheaper if you can't get it. That could very well be our situation some day.

Mr. FUMICH. Sir, I think another aspect which I forgot to mention is we feel that the cost of the synthetics will help to set a lid on the world price of oil. I think this is another major factor that we should not forget.

SYNTHETIC FUEL CONSTRUCTION

Senator HUDDLESTON. I'm sure you're familiar with the estimates by Fluor Corp. and others of the manpower and resource needs to support a massive synfuels effort in this country.

Fluor, I believe, has estimated that the goal of 1 million barrels per day of coal based synfuels would require 3.3 million construction workers nationally, with a likely shortage in key skill areas such as welders and pipefitters.

A substantial portion of U.S. vendor capacity—46 percent of national capacity for compressor manufacture; 33 percent of pump manufacture; 34 percent of heaters/boilers manufacture; and 36 percent of heat exchanger manufacture would be required.

Has the Department of Energy done any in-house studies or contracted for any independent studies on the manpower, manufacturing and socioeconomic infrastructures that will be necessary for a synfuels program of that size?

Mr. FUMICH. Sir, the study you're referring to is a study fossil energy funded. We realized we were going to need some increase in manpower, both professionally trained manpower, semiprofessionals, and blue collar workers. As you mentioned, the requirements between 1985 and 1990 are going to be tremendous.

For instance, the study found that we are going to need 1,300 more chemical engineers. There's no way we can do that at the present time. We know that's a target.

I have been going around to some of the universities to make them aware that this is going to be one of the needs and to ask them to encourage more students to pursue chemical engineering.

Another figure based on that study is that about 85,000 workers of various kinds—welders, steelworkers, pipefitters, blue collar workers of all kinds—will be necessary if we build only 20 plants. The requirements will be even greater if some of these plants are indirect liquefaction plants because an indirect liquefaction plant would require 38 million man hours to construct while a direct liquefaction plant would only require 22 million. So you can see the greater need there.

This goes back to the original question you asked me about the need for SRC I and SRC II. One of the needs that I didn't mention at that time is the fact that when you start building those facilities, companies will realize that we are serious; that we are going ahead; and they are going to start putting their houses in order.

On the other hand, if we delay they are not going to put their money into increasing their production capacity. The schools will not start training the expert people needed.

But this is the reason we funded that study. We wanted to know what we should be doing in this 5-year period. If we started constructing the SRC demonstration plants, people will know we are for real and start putting their house in order to resolve many of the questions that were raised in the study.

Senator HUDDLESTON. Are you taking any specific initiatives other than contacting colleges to deal with these problems?

Mr. FUMICH. As of this time, we haven't because we just received the study.

Senator HUDDLESTON. Is that the purpose of the study, to take some action?

Mr. FUMICH. We are going to start taking actions.

UNIVERSITY COAL RESEARCH LABORATORIES

Senator HUDDLESTON. Does DOE intend to establish University Coal Research Laboratories as outlined in title VIII of Public Law 95–87?

Mr. FUMICH. As you know, we proposed a $5 million fiscal year 1980 budget for that program, the funding for the laboratory program was not approved.

Instead, fossil energy was allocated $5 million for a university research program which we have started, and which we think is a very valuable one. In response to an announcement of this new program we received around 500 proposals involving around 140 universities from 46 different States.

We think this is a very, very good way to approach university projects because awards are placed to support the best research concept regardless of the origin of the proposal. In contrast, the coal lab program, which we also think is a very valuable program, would be restricted to 13 laboratories, 10 of which would be in the major coal producing States and 7 of which would be in the 7 coal provinces, and also including the State of Alaska. So these two approaches would tend to complement each other. Therefore, we think we should go both ways if funds were available.

Senator HUDDLESTON. Is there a plan and a schedule along with cost requirements for the establishment of these laboratories?

Mr. FUMICH. As you know, the Department had plans ready to implement the program, but we were detoured, so to speak. The plans right now are in a dormant stage. We feel that in order to start that particular program we would need $5 million in the first year, $10 million in the second year, and $15 million in the third, fourth, and fifth years.

But as of right now, we have no request for fiscal year 1981 for that program.

Senator HUDDLESTON. As you aptly pointed out, the differences between the House and the Senate delayed that program. The House was under the impression that this program would require a substantial construction program at the universities. I think they have since been assured by the universities that that's probably not a major requirement. Does that conform with the information you have?

Mr. FUMICH. That's very true. I talked with a lot of the university people, and this is my understanding. Really, I think that the requirements there are on the positive side. You must understand that today we have about $40 million in university research projects, $35 million in coal research alone, $5 million of which is in the new university research project area. As you know, university research work is usually at the early stage of the research effort generally stressing pioneering ideas. A significant factor of our university work is that most of this is very long range. In addition, most university projects are funded at a relatively low annual rate compared with other fossil projects. As a result, we don't expect to get much cost sharing involved. In most of our university coal research projects the average cost sharing is less than 15 percent.

On the other hand, the legislation for the university coal laboratories requires 50 percent cost sharing of the operating expenses. I think that's a positive thing. In other words, when you get this commitment from a university—and often the State legislature—you know they are going to be serious in their commitment to the laboratory program. Yet, there are more universities interested. We believe this interest and commitment is very positive and is encouraged.

As I mentioned before, if we get significant cost sharing in an area of effort we always get very serious consideration from the other sectors. We think this is a very positive element in this particular legislation.

GASIFIERS IN INDUSTRY

Senator HUDDLESTON. On another subject a little more provincial, the Pike County Gasifier-in-Industry project still is not under construction. DOE, we understand, planned a major review to prepare a new baseline schedule and cost estimate, which was to be completed around this time. What is the status of that project review and is DOE committed to going ahead with the project?

Mr. FUMICH. Sir, as you know, being interested in that project, the original cost was around $5 million, and then as a result of some delays, part of which we were responsible for, the cost went up to $11 million. Then we found that in order to do that we had to put a scrubber on there which raised the cost to around $16 million.

Our commitment was $11 million and the cofunders was $5 million. Sterns Rogers is still in the process of final evaluation. I understand that the results of the evaluation should be available in the very near future, and we will certainly give them to you as soon as we get them. If the costs turn out to be substantially greater than what they were, I don't know whether the State of Kentucky and the Appalachian Regional Commission, which are our partners in this venture, will cofund the overrun.

The original commitment was that we would cofund 50 percent of any overrun. The economics of the technology is also dependent on the cost, if the new baseline costs are substantially greater, we will have to see what our partners' positions are, and look at the economics of the process, before making any decision on the future of the project.

Senator HUDDLESTON. Is the cofunders' commitment still firm at this time?

Mr. FUMICH. The cofunders' commitment was firm at the $11 million level for the 50 percent of the cost sharing, but now I understand that $11 million is no longer a realistic level.

Senator HUDDLESTON. And you don't know at this time how much further the cofunders would be willing to go?

Mr. FUMICH. No, sir. I don't know what their position is.

Senator HUDDLESTON. And you don't know what your position will be?

Mr. FUMICH. Our position will be based on several factors. One will be the new funding requirement. If the cost were to double, then we would have some reservations. Also, if the cofunders would not go along, we would have serious reservations. Then, the economics of the process would be another major consideration.

Senator HUDDLESTON. How much do you have invested at this point?

Mr. FUMICH. We have $2.9 million obligated in that project.

Senator HUDDLESTON. Senator Young, do you have any other questions?

MINING PROCESS

Senator YOUNG. I might have one question about how many requirements does a coal mining company have to meet to mine coal now. I heard there was some 15 different regulations that they have to meet.

Mr. FUMICH. There would be many, many more regulations than that, sir. You have about 7 or 8 different Federal laws that were passed in the last 10 years. Then you have different kinds of Federal agency regulations. You also have State and local regulations that are involved. One company that I talked to, had 60-some different permits they had to get.

Senator YOUNG. Sixty-some?

Mr. FUMICH. Sixty-some different permits they had to get before they could get approval to move ahead, and they still hadn't gotten complete approval.

Senator YOUNG. Then they would still be subject to court action?

Mr. FUMICH. That's exactly right. That's always superimposed on everything else. This is the reason we feel that in environmental impact statements we want to do the very best we can, so that the public can come in and make whatever requests they want. We would answer all questions and we would try to make sure that we minimized every concern that was involved so we could in fact get approval and minimize the chances of any court action.

Senator YOUNG. And I think you indicated a while ago that a coal company would have to be pretty good sized to get involved in the mining business.

Mr. FUMICH. I don't see how a small coal company right now could get involved in the mining business because of the tremendous front-end costs that would be required.

It used to be, in my day, and, of course, I go back quite a bit, that in the Appalachian area in particular, you could get started with what we call the knothole. That was a small coal reserve that was either set aside or left by some of the major companies. You could, on a rolling basis, rent it for so much a ton. You could do this with maybe three or four people and you could start a venture that way get on your feet and get involved in a major area of activity, particularly when the coal markets were very good and coal was needed desperately. You had no problems with getting signed contracts then and in many cases you would get them in advance.

Today, you can't do that. You just can't do it because it would take you a year or two to get all the environmental permits and other permits that cost you quite a bit of money.

Senator YOUNG. And if they make money, they have to give their Federal Government about half in income tax.

Mr. FUMICH. Well, I won't comment on that.

MAGNETOHYDRODYNAMICS

Senator HUDDLESTON. Getting into the area of MHD——

Mr. FUMICH. One of my favorite subjects.

Senator HUDDLESTON. I thought you might enjoy dealing with that at this particular time because our cooperative efforts with the Soviet Union have been suspended. What's happening to the program?

Mr. FUMICH. All MHD cooperative activities with the U.S.S.R. have been indefinitely postponed. Under the original agreement, we provided a magnet to the U-25B test facility for joint U.S.-U.S.S.R. generator testing for the duration of the program, with its return to the United States upon termination of the program. Since the program has been indefinitely postponed, rather than terminated, we are unable to request its return.

Senator HUDDLESTON. Not terminate it?

Mr. FUMICH. It's not terminated and it's not alive. It's in a comatose stage and, as a result, there's nothing we can do. Now I don't mean to say that we want to bring it back. We do have representatives of the U.S. Embassy in Moscow visit that project frequently to make sure that everything is in order, that they are not using the magnet for any other purpose.

Senator HUDDLESTON. Well, is it reasonable to expect that the program would proceed at the pace contemplated, at $17.5 million supplemental, considering the cooperation of the U.S.S.R. has been suspended?

Mr. FUMICH. Senator, that U.S.S.R. program, of course, will not move the way we had planned. If this delay continues, let's say for several more months, we are already evaluating what we can do as another option. We have a channel here that we were going to fly there for testing that we could use in another one of our own facilities and we could still get valuable information from that. We have other options.

Senator HUDDLESTON. You anticipate there would be some modification of the supplemental request?

Mr. FUMICH. There may to be some modification.

Senator HUDDLESTON. Would you still seek the $1.5 million in funding for the cooperative agreement?

Mr. FUMICH. We will still need the $1.5 million because it would take that much to modify the U-25 MHD channel for testing in a U.S. facility.

Senator HUDDLESTON. How much is budgeted in fiscal 1980 and 1981 for the U.S.S.R. cooperative agreement?

Mr. FUMICH. That level of effort is $3.1 million in fiscal year 1980 and $0.75 million in fiscal year 1981.

Senator HUDDLESTON. I wish you would for the record supply the specific details of the agreement and the status of it.

Mr. FUMICH. Yes, sir.

I would like to mention that part of the $17.5 million we requested in the 1980 supplemental—$10 million—was for the CDIF. As a result, if that money is not forthcoming, we would have to lay off some people and terminate some contracts, which would be a very negative feature.

[The information follows:]

U.S./U.S.S.R. Cooperative Program in MHD Power Generation

The cooperative program between the United States and the Soviet Union in the field of MHD electrical power generation had its origins in the contacts established between technical workers in this field through the international MHD liaison group. These contacts provided the basis for proposing MHD as one of the cooperative activities within the overall agreement for scientific and technical cooperation signed by former President Nixon in Moscow in May 1972, and were instrumental in the success of this program. The outline for an MHD cooperative program was developed at a meeting of the energy working group in Moscow in October 1972, and the program was finally established at the first meeting of the joint U.S./U.S.S.R. Steering Committee in Washington, D.C., July 1973. The program is jointly headed by the MHD Division, U.S. Department of Energy and the Institute for High Temperatures, U.S.S.R. Academy of Sciences.

The program is based on the complementary nature of the development of MHD in the two countries. In the United States, emphasis in MHD has been on gaining a scientific understanding of the process and through this, learning how to predict the behavior of the key components, especially the MHD generator channel itself. In the Soviet Union, emphasis has been on the modeling and construction of plants of increasing size and complexity. A further balancing factor is that in the Soviet Union natural gas is used as a fuel for MHD, while the United States emphasis has increasingly moved toward the use of coal as the primary fuel.

Given these conditions at the beginning of the program, the objectives of the cooperation were to obtain jointly as much engineering experience as possible, utilizing both United States and Soviet facilities where practical for testing components and materials, and to share the techniques developed for the analysis of key MHD components, particularly the generator duct. A determined effort has been made to avoid the program's being limited to a general exchange of information.

Programmatically, the cooperative effort has focused on joint work contributing to the development and operation of the MHD channel, the major component of a commercial MHD powerplant, and on the integration of systems and components that would insure smooth operation of the MHD powerplant as a whole. At the present time, there are two working groups which address these problems, the joint U.S./U.S.S.R. working group on MHD technology development and the joint U.S./U.S.S.R. working group on MHD powerplant systems engineering. Because of the current U.S./U.S.S.R. political climate, all activities with the Union of Soviet Socialist Republics are currently indefinitely postponed.

ADDITIONAL QUESTIONS

Senator Huddleston. Mr. Fumich, we will have some other questions that we want to submit to you for the record. We appreciate your appearance this morning.

Mr. Fumich. It's been a pleasure, sir.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Additional Committee Questions

Coal Policy

Question: You testified before us last year as did Secretary Schlesinger. And I think the concensus at that time was that without expanded utilization of our domestic coal reserves, this country just might not make it. Has anything happened during the past year to change our reliance on coal?

Answer: This past year has seen a number of important developments which we expect to lead to increased utilization of our domestic coal reserves. One of the most important actions was the introduction of the Utility Oil Backout Legislation into both Houses (H.R. 6930, and S. 2470). This proposed bill would mandate the conversion of over 20,000 MW of power plant capacity to coal. The plants specified in the legislation are all facilities which once used coal, but which over the years have been converted to oil. These plants will convert using environmental control equipment now available, and will have a negligible impact, if any at all, on the total output of pollutants nationwide.

This past year has seen important advances in our research and development programs in all areas. We expect to see demonstrations of the gasification of coal both for gas of pipeline quality for general use, and in dedicated gasification plants for use by industry and utilities, within the new few years. The successful demonstration of fluidized bed technology suitable for industrial users has been very encouraging. This past year demonstrations of industrial scale facilities have operated with impressive reliability, and at environmental levels well below that possible with conventional equipment. Fluidized bed technology for utility applications has received significant boost with successful runs at bench-scale facilities of pressurized fluidized bed experiments, and our planned demonstration program in this area should provide utilities with another option for direct combustion of coal, at very high levels of environmental performance, by the end of this decade.

Work has also been continuing in the important area of coal liquefaction. Our ability to convert coal to liquid fuels is one of our highest priorities, and one of the most important contributors to our overall strategy of limiting the importing of liquid fuels. Important progress has been reported -- and is expected this year as well -- in our research and development program, and at the pilot plants operating at several locations in the country. Some of these processes are now being planned for scale-up to demonstration size facilities.

In other areas, the administration has taken several key policy initiatives which strengthen the prospects for increased utilization of coal. The President's statements over this past year have indicated clearly our determination to turn the corner on expanded use of coal. The leasing of federal lands for coal mining is being accelerated so that within the next two to three years additional acreage can be leased to increase coal production by 50 percent. We are hoping to coordinate federal leasing efforts so that some synfuel plants can be built near mining sites. Additionally, the Department has received over 900 proposals for synfuel projects under the alternate fuels program. Grant awards for $200 million will be announced in the coming months for these designs. Finally, the completion of work on the Administration synfuels bill and the establishment of the Energy Security Corporation will have a very large effect on the eventual commercialization of synthetic fuels processes, and is expected to stimulate additional demand for hundreds of millions of tons of coal per year.

In summary, my statement from last year still stands: without expanded utilization of our domestic coal reserves, this country just might not make it. However, I am encouraged by the support which our programs are receiving, and by the progress being made in the development and demonstrations.

Question: You touched on this in your statement, but what do we give up if we do not begin immediately to maximize our domestic coal production?

Answer: The increase in 1979 coal production over production in 1978 was certainly not dramatic. We can do more to increase our production and utilization of coal in the near term. So long as we continue to rely so heavily on oil imports we will be vulnerable to a variety of adverse effects. We have seen tremendous, continuous increases in the price of imported petroleum, and the resulting negative balance of payments which contributes to inflation and unemployment. Recent events have continued to provide lessons of the instability of much of the world's supply of oil. Even if the instabilities of supply can be overcome, I believe we are still operating under the threat of continuing economic turmoil. A greatly increased reliance on our tremendous domestic coal reserves could significantly ameliorate the effects of our dangerous dependence on foreign oil.

Question: So we really have no choice. The programs we will be considering here this morning to expand our efficient production and use of coal and other domestic fossil resources are vital to the interests of this country, isn't that correct?

Answer: The programs underway in the Department to expand our efficient production and use of coal and other domestic fossil resources are most certainly vital to the interest of this country.

Mining R&D

Question: Do you anticipate the decentralization of your mining R&D program will foster a closer working relationship with industry and thereby stimulate commercialization of your research?

Answer: The mining research program came to DOE more decentralized than most of our other programs. In the Bureau of Mines, the project planning and project execution functions had for years been located in the five Bureau mining research centers. Procurements were handled by the Bureau's three contracting offices. Our efforts since the transfer have concentrated on reestablishment of these functions in our two mining technology centers. We believe that the reestablishment of this decentralized mode of operation will now allow the program managers in Headquarters more time to interact with the unions, the various industry associations and the research managers of the other federal programs to assure the program better meets industry needs.

SRC Demonstration Plants

Question: Given the expected establishment of the Energy Security Corporation, is there still a requirement to proceed with the solvent refined coal demonstration plants?

Answer: The development of the SRC technology at a large scale involves considerable economic risk; at this point in time, more than private industry is willing to completely assume. The Energy Security Corporation only grants loans to corporations, and these corporations are not willing to risk even guaranteed loans and the economic incentives normally used by private industry are not high enough at this time to warrant complete industry development. It is important for the country to have available the capability to produce liquid fuels from sources other than conventional petroleum which is an important step in reestablishing an energy independence. Consequently the Government is partially supporting the first large scale plants during the period of particularly high risk in an effort to speedup the development of the technology. Many problems will surface and be solved at the demonstration plant as well as economic studies made to provide a better basis for decisions regarding

commercial size plants. Then it is possible that the Energy Security Corporation will contribute greatly to the "commercialization" of solvent refined coal following a successful demonstration.

Question: You have stated the requirement for the SRC programs is the need to address critical elements which are essential for decisions on commercialization of coal liquefaction plants. Please describe the critical elements and their significance.

Answer: Although direct coal liquefaction was practiced over 40 years ago in Germany, it has never been done in a fully integrated fashion. The SRC demonstration plants will be the first facilities which will gasify the residue materials to produce hydrogen. The economics and environmental acceptability of future commercial plants requires this gasification step. The gasification feed is different in both plants and thus two modes of operation will be demonstrated.

Both plants will also show the ability to scale up the many pieces of equipment from pilot plant to commercial scale. The preheater and dissolvers in both plants are of particular interest.

Solid/liquid separation in the SRC-I plant will be demonstrated for the first time in an integrated fashion. Again pilot plant operation has been successful, but large scale demonstration is needed before commercialization.

Question: What percent of the President's 1990 alternative fuels production goal is dependent on processes being developed in the fossil energy research and development and demonstration program?

Answer: The DOE demonstration plant program includes four gasification projects that provide a technical basis for at least four different indirect liquefaction commercial plant designs and four different direct liquefaction projects that will provide a technical basis for at least four different commercial direct liquefaction plant designs. Further, six of these projects include sites that are suitable for commercial plants and the work that has been accomplished in the last three years would permit early construction of commercial plants on these sites. If these demonstration projects proceed on the present schedule, the commercial viability of the several processes will be demonstrated in the mid-1980's and large commercial plants could be built and in production on these sites before 1990. Provided private industry begins the preliminary design of the commercial plant during the construction of the demonstration plant, production of synthetic liquids by indirect and direct liquefaction process plants on available sites could approach 400,000 barrels per day by 1990. Simultaneously, if selection and development of additional sites is begun in 1980, four or five similar commercial plants could also be producing an additional 3 or 400,000 barrels per day by 1990. Thus, we believe that the demonstration plant program is essential if significant quantities of synthetic fuels are to be produced from eastern and midwestern coals to supplement the four or five indirect liquefaction plants and shale oil plants that may be built in the west. The total of the commercial plants in both eastern and western locations could meet the President's goal.

Question: One of the constraints on the rapid development of an alternative fuels industry in this country is going to be simply the resources required to construct the massive facilities required. How do the manpower and material resources for indirect liquefaction plants compare with those required for a direct liquefaction plant?

Answer: The estimated engineering design manhour requirements for the direct and indirect liquefaction processes are respectively 1.5 and 3 times greater than refinery requirements. Contributing to the greatly increased engineering effort are: process complexity; handling of solid, mixed and liquid phases; high temperatures and pressure; and ash and waste disposal.

Greater engineering manpower is required for the indirect process since it is, in effect, two processes in series, gasification and synthesis, requiring considerably more equipment, piping, and instrumentation engineering.

Question: The Committee is considering certain amendments to the DOE FY 1981 appropriations act which will provide additional authority to the Secretary of Energy with respect to contracts for the solvent refined coal and other major fossil energy projects. One of these amendments would clarify the authority of DOE to enter into cooperative arrangements with foreign as well as domestic entities. Another would permit DOE to retain and utilize revenue from the sale of products and to pay an equitable portion of the revenue to cost sharing participants.

A third amendment would provide the Secretary with P.L. 85-804 authority to make contractual commitments.

Do you believe these amendments are necessary and adequate to enable DOE to conclude its contractual arrangements for three projects?

Answer: In order for DOE to effectively carry out certain Fossil Energy demonstration projects, especially the Solvent Refined Coal (SRC) projects, in cooperation with non-Federal parties, legislation along the lines being considered by the Subcommittees is necessary. Both SRC projects (SRC-I, Project No. 78-2-d and SRC-II, Project No. 79-1-r) have been initiated as Federal projects, being funded incrementally from Congressional appropriations. The costs for these projects are to be shared by domestic concerns, and in the case of SRC-II, foreign governments and industrial concerns. These arrangements, in addition to reducing Federal outlays, are expected to result in better prospects for commercializing the coal liquefaction processes and for speeding up the commercial availability of new technology to help alleviate the energy problems of the free world.

Question: What are the existing laws that stand in the way of concluding the SRC agreements?

Answer: The basic problems arise from the laws which generally prohibit Federal contracting without covering appropriations and which control the disposition of property and revenues occurring from Federal activities. Private participants in the SRC-I and SRC-II projects are unwilling to assume financial exposure in addition to their cost share for the unknown risks of liability to third parties which might result from the operation of SRC facilities producing new products which have not had long-term public exposure to ascertain the range of product liability and other third party liabilities which may arise from the operation of these facilities.

Authority along the lines of that provided in P.L. 85-804 would permit contractual commitments by DOE - such as indemnification against third party liability - to assume unknown risks in advance of appropriations.

With respect to the revenues question, the general legislative rules is that revenues from Federal activities are to be deposited directly into the U.S. Treasury. Where activities are carried out with some portion of non-Federal support, the outside participants are interested in achieving some return on investment. In the SRC Fossil Energy demonstration plants, revenues and other money receipts can be anticipated from such things as plant product sales or use in demonstrations, settlements from claims against useless plant disposition at the conclusion of a demonstration, and the disposition of intellectual property and commercialization rights. At the same time, it is sensible to be able to make use of project revenues and other money receipts to reduce construction and operation costs of the project and possibly some return to cost sharing parties. Existing law, including that found in the Administrative Provisions for DOE in the FY 1980 Interior and Related Agencies Appropriations Act (P.L. 96-126), needs some adjustment to avoid questions of sufficient authority to carry out the SRC agreements presently being negotiated. These include cost sharing agreements with domestic concerns and foreign governments, and subsidiary agreements dealing with such things as funding and termination.

Finally, clarification of the authority provided to DOE in and Administrative Provisions for DOE in P.L. 96-126 to accept contributions from non-Federal

entities, by addition of foreign entities to the scope of the provision, would remove any doubt that foreign sources could be involved.

Question: P.L. 85-804 enables the Secretary to enter into contracts without regard to other laws relating to procurement. What about the laws regarding participation of small and minority business, and laws designed to protect workers under federal contracts? How would the Secretary deal with those laws in connection with these projects?

Answer: There is no intent to avoid application of the laws mentioned. The provision deriving from P.L. 85-804 would also provide authority for contractual options to permit the cost sharing parties to purchase the demonstration plant and upgrade to a commercial size; and for sharing of the revenues and other receipts from the project. Negotiations with non-Federal participants have proceeded on this basis.

Contracts, arrangements or provisions thereof which utilize the P.L. 85-804 authority of this proposal, would be submitted to the Senate and House Committees on Appropriations and would lie before them for 30 days unless the condition or any portion of the 30-day period were waived by the Committees.

Question: Are these amendments apt to set a precedent?

Answer: The amendments with regard to the utilization of revenues instead of depositing them into the U.S. Treasury, are confined in their coverage to the SRC-I and SRC-II projects. Any broadening would require Congressional action. The authority based on P.L. 85-804 would be available for Government-owned Fossil Energy coal conversion projects generally, and would be used where similiar circumstances prevailed.

Medium Btu Gasification Demonstration Plants

Question: Recently the Department selected the Memphis Light and Gas proposal for project 76-1-c, the medium Btu industrial coal gasification demonstration plant. The fiscal 1981 budget request, however, contains no new funding for this project. First, when do you plan to free up the $50 million that is now deferred?

Answer: The $50 million has been released to Fossil Energy and $25 million has been sent to Chicago Operations Office to fund the first portion of the phase II effort.

Question: Will you be able to continue your original construction schedule for this project with the $50 million in prior appropriations? If not, what will be the impact on the project schedule of this funding level?

Answer: The $50 million in prior year appropriations is not sufficient funding to maintain the original construction schedule and a slippage of 9-12 months may be anticipated. However, because the site proposed by Memphis is located in a flood plain and wet land, a determination must be made by the Secretary that no practicable alternative site exists. This determination, along with an approved Environmental Impact Statement must be completed before a final decision to proceed with the Phase II (final design and construction) can be made. Should the go-ahead be given to begin Phase II, the Department will decide whether additional funding will be added.

Question: Is there any reason to believe that delays caused by this funding level will adversely affect the commercialization of the technology?

Answer: The schedule slippage may cause an increase of approximately $100 million in the total estimated cost which may, in turn, impact the economic viability of the project. However, it is anticipated that the Department will request the necessary funding to place the project back on schedule upon a favorable decision by the Secretary to proceed with final design and construction.

Question: We have already discussed with the Secretary the Department's plans to continue funding for the Grace project, which was not selected in the medium Btu gas competition. Where will you find the $12 and $16 million to continue supporting this project?

Answer: Fossil Energy has proposed a reprogramming of approximately $6 million from the gasification test facility to fund the project through FY 80 and partially in FY 81. The Fossil Energy budget is currently under review to identify the possible source for the balance of the required funding.

Question: If the gasification test facility funding is rescinded as proposed by the House, what are your alternatives?

Answer: The alternatives to a recission of the Gasification Test Facility funding are:

a) Delay the commencement of the work pending an amendment to the FY 81 budget.

b) Review the Fossil Programs in FY 1980 for other possible sources for a reprogramming.

c) Terminate the project.

Direct Coal Combustion

Question: The President's amended budget for fiscal 1981 deletes $3 million planned for the Rivesville utility atmospheric fluidized bed demonstration and now assumes the facility will be closed. What additional data would be generated by the $3 million in Fiscal 1981?

Answer: The additional data which could be obtained if the Rivesville facility were operated for a series of runs, during which stable operation was obtained for substantial periods, includes data on the limestone effectiveness over a range of feed rates, fluidizing velocities and bed temperatures, data on the system operation with flyash reinjection into the carbon burnup cell, data on coal feed and flow splitting from coal pumps, data on performance and emissions during part load operation, and additional data on component reliability and component failure mode analysis.

While a comprehensive amount of all of this data is not expected to be obtained for $3 million, the development of the test plan would include an operational plan to get additional data in all of these areas, should an adequate amount of useful data-producing hours be obtained.

University Coal Research Program

Question: Last year this committee recommended $5 million for initiation of a university coal research laboratory program; however, the report from the conference committee redirected this funding to a generic university coal research program. Would you reiterate for the committee, please, the justification for the coal lab request last year and what the purpose of the labs would be?

Answer: The justification of the coal laboratories request last year was multi-faceted. There is an extensive list of technology base and advanced research needs that must be addressed in a very short time if our national dependence on imported fossil fuels is to be reduced. The labs would have utilized the broad talents of universities, primarily in specific coal provinces, to focus on problems of interest to local coal industry. Of course, many of these problems would require long-range studies with interaction with local and national coal utilization industrial labs. The coal labs would have enhanced the expertise of universities in these areas and provided a more stable source of funding to support both

students and staff in addressing these problems. The training of students on questions of coal processing and utilization is absolutely essential in order to provide a base of trained manpower for industrial research and to a lesser degree to provide the future professors and research workers at the national labs and Energy Technology Centers. The labs, along with the current program of university coal research projects, are complementary approaches to help solve these national and regional problems.

Question: Why didn't you ask for a university coal research laboratory program in fiscal 1981? Was it because it was rejected last year?

Answer: When the Conference Committee report on the FY 1980 budget recommended initiation of the university coal research project (UCRP) program in FY 1980 it directed that no funds were to be used for a university coal research laboratory program (UCRL). As evidenced by the receipt of over 530 proposals, this current program (UCRP) has been successfully received by the university community and should meet many of the research objectives of the DOE Fossil Energy program. The mechanism for processing these proposals has proved successful since the total time to award proposals has been cut to about 4 months. Therefore, the Fossil Energy program strongly urges the continuation of the generic university coal research projects program. Although DOE believes that the university coal laboratories program has merit, fiscal constraints make it difficult to justify the laboratory program in FY 1981 along with the current program.

Question: Are the factors which led the Department to request the university coal research program in fiscal 1980 still valid today?

Answer: The rationale and need for the UCRL program by-and-large still exists today. However, the conditions are not entirely the same -- since a new university constituency has begun to form which believes that both the current UCRP program and the UCRL programs are needed and are non-duplicative of each other in their goals. This new attitude is also shared by DOE management, although definitely tempered by the fiscal realities of FY 1981.

Question: Would there be any duplication between the mineral research institutes in the Department of the Interior and the university coal research laboratory program?

Answer: No. The mineral mining research (MMRI) program supports research primarily directed at mineral geology, resource characterization and exploration, and mineral extraction. Only about 20 percent of the MMRI program deals with primarily coal mining. The coal research laboratory program could handle potential duplication problems in a manner similar to that used in the current university coal research projects program, namely, by an exchange of lists of projects which are being considered for funding between the DOE's Fossil Energy program and the DOI's Office of Surface Mining. This approach could be extended to include the UCRL program directors at each university laboratory center.

Question: Please explain how the university coal research laboratories and projects would complement the Mining and Mineral Research Institutes?

Answer: As partially stated in response to the previous question, the DOI's MMRI program primarily stresses the exploration and mining of minerals--primarily non-coal minerals. In contrast, both the UCRL and UCRP programs deal with coal and are directed toward coal characterization, chemistry, liquefaction, gasification, and coal combustion. In summary, the utilization of coal is stressed in the UCRL and UCRP program and, hence, complements the stress on non-coal minerals of the MMRI program.

Question: Last year the House fought to eliminate this program because, they argued, it would lead to expensive investments in university facilities and administrative overhead. From your review of the university applications that were received was much emphasis placed on construction by the universities?

Answer: Of the 26 proposals received from universities and university consortia for the UCRL program last year, two proposals had major emphasis on buildings, facilities, and administrative costs. The majority of the proposals presented relatively modest requests for these overhead costs, generally less than 15 percent of the total R&D costs. In any event, a specific limit could be set by DOE to such requests in any future university laboratory program.

Question: What would be the policy with regard to the transfer of technology to industry under Title VIII?

Answer: One of the policy objectives of the University Coal Laboratory Research program under Title VIII was to promote regional interaction with local industry on problems and questions that universities are normally best equipped to handle. For example, the UCRL's would provide detailed characterizations of local coal deposits and long-range research investigations of problems of interest to local coal firms unable to provide their own complete and sophisticated research facilities. These approaches plus regular research symposium with industrial representation would promote technology transfer.

Question: Would you please explain the differences between the university coal research laboratory program, the present generic university coal research program, ongoing fossil energy university activities, and the fossil energy supported research activities?

Answer: Both the University Coal Research Laboratories and the generic Universities Projects program differ from the current Fossil Energy research activities in that they represent a more fundamental and long-term approach than those represented in specific programs. Additionally, the laboratories and projects are frequently multidisciplinary in nature and thus are less likely to be funded by an ongoing, mainline R&D program in support of national goals for specific coal utilization processes. In contrast to the ongoing research activities (both university and non-university), the research carried out under both of these new programs is expected to form the basis for the development of innovative, new approaches to future coal conversion and utilization technologies and not just lead to the refinement of existing technologies currently being supported by individual fossil energy programs.

The Coal Research Projects differ from the Laboratories in that they permit a broader geographical coverage which is not limited to a specific laboratory or institution. The projects should also encourage new faculty members from a variety of universities to initiate coal related research. A commitment to support the best innovative proposals on a regular competitive basis can lead to an enhanced and balanced fossil energy research program.

The Coal Research Laboratories, although largely limited in regional coverage to major coal provinces, would benefit from a long-term institutional commitment and also should result in a more focused multidisciplinary program. The institutional laboratory program should also permit select universities to address problems on a larger scale than might otherwise be possible through dispersed individual grants and also to promote work in close collaboration with local industry.

Both the University Laboratory and Projects programs would tend to promote long-term university activity related to coal conversion and utilization and to ensure the training of professionals in coal related research areas. The programs would complement one another in terms of breadth from the projects

and critical size from the labs; thus, together, these two programs should form the basis for a healthier, balanced R&D Fossil Energy research base.

Question: Would the proposed university coal research laboratories assist the Department in a manner similar to the national laboratories?

Answer: The national laboratories assist the Department by addressing R&D needs on a national basis. They generally address problems on a contractual basis with the DOE. Because of their extensive, full-time staff, the national labs generally are able to provide a quick turn-around to a given problem. In addition, because of their unique nature and background, the national laboratories are able to secure some of the top scientific and engineering talent in the nation, often competing successfully with large industrial laboratories. On the other hand, the UCRL's probably should be very cost-effective compared to national labs because of the generally lower salaries of faculty and students and the variety of sources of funding for the staff and laboratory facilities.

The UCRL's would have the advantage of providing the broad range of talent that exists on most universities' campuses which can be used to address a wide range of multidisciplinary fossil energy problems. However, the universities by their nature utilize graduate students, working with faculty, to solve many problems, and therefore are subjected to the continual turnover of student manpower. And, since university staff often spend only part-time on a specific problem, faculty and student researchers are often unable to provide the quick turn-around to specific problems that is provided by a national laboratory.

Both approaches represent the utilization and maintenance of highly trained staff to address significant energy problems.

Fiscal 1980 Travel Limitation

Question: We understand that there is a severe travel problem in the Department. How is this affecting your program?

Answer: Yes, there is a very severe travel limitation problem in FE for the current fiscal year. House Joint Resolution 412 (P.L. 96-86), enacted on October 12, 1979, requires a $500 million reduction in obligations for Executive Branch travel and transportation from the amount proposed in the President's 1980 Budget and transmitted in January 1979. The allocation of this to Fossil Energy represents a reduction of 26% from the FY 1979 obligations.

Question: What was the original fossil energy request for travel in the fiscal 1980 budget to OMB, and what is your present allowance given the travel restriction?

Answer: The original request submitted by the Department of Energy in the FY 1980 Budget Appendix was $1,200,000, for travel and $405,000 for transportation or a total of $1,605,000. These FY 1980 Budget Appendix estimates obviously are in error, especially when compared to the FY 1979 actual obligations for travel and transportation of $2,352,000. The current FY 1980 limitation of $1,734,000 does not approach the true needs of the Fossil Energy program.

Question: What steps has fossil energy and the Department taken to minimize the impact of the travel shortfall?

Answer: Fossil Energy has imposed a total moratorium on travel and transportation except for certain case by case essential exceptions in the areas of direct program management, and transportration of things. A reduction of the magnitude imposed is nearly impossible to accomplish with more than one-half of the fiscal year already gone. Every effort

has been made to protect that travel necessary for the ongoing FE programs. However, the limitations have restricted program control and monitoring of very large and critical major projects, reduced important interaction with field and industry personnel in important areas such as cost sharing and contract negotiations, and restricted involvement by FE personnel in international cooperative agreements.

From the Department's perspective, commencing with receipt of the OMB Bulletin 80-3, the Assistant Secretaries and Directors were advised to consider travel and transportation as subject to intensive management scrutiny. In April 1980, all Assistant Secretaries and Directors were assigned a limitation on travel commensurate with these requirements. Many have imposed a moratorium similar to that used by FE.

Question: When was it first clear that a travel shortage existed?

Answer: OMB provided instructions on the reduction of travel and transportation of persons and things in their Bulletin 80-3 on November 16, 1979. In the ensuing collection and analysis of information, it became evident that the base from which the reduction would be made did not reflect accurately all the Departments' needs.

Question: What were the circumstances that led the Department to budget only $28 million for travel in fiscal 1980 after $40 million was budgeted in fiscal 1979?

Answer: The basis for the reduction was the object class estimates published in the Appendix to the President's FY 1980 budget. Some of the amounts intended for travel and transportation of persons and transportation of things were misclassified. The correct amount that should be the basis is $43,115,000.

Question: Why have we seen no formal request from the Department to reprogram funds to meet this shortfall?

Answer: On April 23, 1980, the Secretary submitted to OMB a proposal to correct the understated amounts in the 1980 Budget Appendix for the Department of Energy. The President submitted the proposal along with those of other executive agencies to Congress on May 16, 1980.

Question: Do you plan to submit a formal reprogramming request; and if so, when will the committee receive this request?

Answer: As indicated earlier, a technical amendment was submitted to Congress on May 16, 1980.

Administration

Question: Please provide for the record a distribution of your positions authorized for fiscal 1980, presently filled positions, and positions requested for fiscal 1981 by activity.

Answer: The requested information is provided in the following table.

FOSSIL ENERGY PERSONNEL
Full-Time Permanent Positions

Activities	FY 1980 Authorized	6/01/80 On-Board	FY 1981 Request
AECT	11	10	12
AR&TD	20	19	20
Coal Liquefaction	70	66	76
Combustion Systems	18	15	20
Fuel Cells	9	6	10
Heat Eng. & Heat Rec.	11	10	13
In Situ Coal Gasification	7	6	9
MHD	22	18	26
Mining R&D	24	9	24
Surface Coal Gasification	59	48	59
Enhanced Gas Recovery	10	7	10
Advanced Process Tech.	4	3	4
Drilling & Offshore	2	1	3
Enhanced Oil Recovery	11	8	11
Oil Shale	16	14	18
Total	294	240	315

Question: Please provide for the record an object class distribution for 1979, 1980, and 1981 by activity for headquarters and separately for the field offices.

Answer: In FY 1981 Congressional budget request was not formulated strictly on an object class basis for each activity in Fossil Energy either in the Headquarters or in the ETC's. A Summary of Personnel Resources was provided in the FY 1981 Congressional Budget for fiscal years 1979, 1980 and 1981 for the Coal, Petroleum and Gas programs in Fossil Energy. A copy of this information from the FY 1981 submission is attached.

The remainder of the funding available to Fossil Energy for the three programs both in the Headquarters and in the ETC's, falls primarily in Other Services, Object Class 25. Funds in this object classification are used to fulfill the basic Fossil Energy research and development mission. Expenditures for the funds in Object Class 25 are divided approximately equally between the Headquarters and the ETC's for the fiscal years involved.

Department of Energy
FY 1981 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF PERSONNEL RESOURCES
FOSSIL ENERGY
FY 1979
(Dollar amounts in whole thousands)

	Beginning Year		End of Year		Staff Years		FTP Base Salaries	Other Personnel Compensation	Benefits	Travel of Persons	Total
	FTP	Other	FTP	Other	FTP	Other					
Fossil Energy Research and Development											
COAL											
Headquarters	262	9	233	9	250	9	$ 7,596	$ 551	$ 747	$ 702	$ 9,596
Bartlesville Energy Technology Center	64	6	65	6	64	6	1,100	95	130	13	1,338
Grand Forks Energy Technology Center	70	7	71	7	71	7	1,354	97	153	89	1,693
Laramie Energy Technology Center	29	6	29	6	29	6	582	52	84	41	759
Morgantown Energy Technology Center	201	14	206	14	204	14	4,346	360	539	216	5,461
Pittsburgh Energy Technology Center	429	22	441	22	435	22	10,161	723	1,022	489	12,395
Subtotal	1,055	64	1,045	64	1,053	64	25,139	1,878	2,675	1,550	31,242
PETROLEUM											
Headquarters	15	-	16	-	15	-	385	19	38	55	497
Bartlesville Energy Technology Center	113	3	104	3	111	3	1,733	50	195	155	2,133
Grand Forks Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Laramie Energy Technology Center	128	21	130	21	129	21	2,607	175	368	334	3,484
Morgantown Energy Technology Center	1	-	1	-	1	-	25	-	3	7	35
Pittsburgh Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Subtotal	257	24	251	24	256	24	$ 4,750	$ 244	$ 604	$ 551	$ 6,149

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SUMMARY OF PERSONNEL RESOURCES
FOSSIL ENERGY
FY 1979
(Dollar amounts in whole thousands)

	Beginning Year		End of Year		Staff Years		FTP Base Salaries	Other Personnel Compensation	Benefits	Travel of Persons	Total
	FTP	Other	FTP	Other	FTP	Other					
GAS											
Headquarters	8	-	4	-	7	-	$ 139	$ 8	$ 14	$ 18	$ 179
Bartlesville Energy Technology Center	11	7	6	7	8	7	120	65	20	13	218
Grand Forks Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Laramie Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Morgantown Energy Technology Center	55	-	32	-	37	-	675	-	64	19	758
Pittsburgh Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Subtotal	74	7	42	7	52	7	934	73	98	50	1,155
GRAND TOTAL											
Headquarters	285	9	253	9	272	9	8,120	578	799	775	10,272
Bartlesville Energy Technology Center	188	16	175	16	183	16	2,953	210	345	181	3,689
Grand Forks Energy Technology Center	70	7	71	7	71	7	1,354	97	153	89	1,693
Laramie Energy Technology Center	157	27	159	27	158	27	3,189	227	452	375	4,243
Morgantown Energy Technology Center	257	14	239	14	242	14	5,046	360	606	242	6,254
Pittsburgh Energy Technology Center	429	22	441	22	435	22	10,161	723	1,022	489	12,395
Total	1,386	95	1,338	95	1,361	95	$30,823	$2,195	$3,377	$2,151	$38,546

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Department of Energy
FY 1981 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF PERSONNEL RESOURCES
FOSSIL ENERGY
FY 1980
(Dollar amounts in whole thousands)

	Beginning Year		End of Year		Staff Years		FTP Base Salaries	Other Personnel Compensation	Benefits	Travel of Persons	Total
	FTP	Other	FTP	Other	FTP	Other					
Fossil Energy Research and Development											
COAL											
Headquarters	233	9	272	11	260	10	$ 9,547	$ 495	$1,114	$ 709	$11,865
Bartlesville Energy Technology Center	65	6	62	7	64	7	1,595	167	173	44	1,979
Grand Forks Energy Technology Center	71	7	68	9	70	8	1,744	192	190	192	2,318
Laramie Energy Technology Center	29	6	22	10	27	9	673	216	87	163	1,139
Morgantown Energy Technology Center	206	14	219	18	215	17	5,356	407	566	466	6,795
Pittsburgh Energy Technology Center	441	22	448	26	445	25	11,082	599	1,146	965	13,792
Subtotal	1,045	64	1,091	81	1,081	76	29,997	2,075	3,276	2,539	37,887
PETROLEUM											
Headquarters	16	-	16	-	16	-	658	25	74	54	812
Bartlesville Energy Technology Center	104	3	104	3	104	3	2,729	45	281	175	3,230
Grand Forks Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Laramie Energy Technology Center	130	21	126	30	128	27	3,358	401	382	376	4,517
Morgantown Energy Technology Center	1	-	2	-	2	-	53	-	6	8	67
Pittsburgh Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Subtotal	251	24	248	33	250	30	$ 6,798	$ 471	$ 743	$ 613	$ 8,626

Department of Energy
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SUMMARY OF PERSONNEL RESOURCES
FOSSIL ENERGY
FY 1980
(Dollar amounts in whole thousands)

	Beginning Year		End of Year		Staff Years		FTP Base Salaries	Other Personnel Compensation	Benefits	Travel of Persons	Total
	FTP	Other	FTP	Other	FTP	Other					
CAS											
Headquarters	4	-	6	-	5	-	$ 235	$ 7	$ 27	$ 18	$ 287
Bartlesville Energy Technology Center	6	7	6	8	6	7	151	73	22	59	306
Grand Forks Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Laramie Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Morgantown Energy Technology Center	32	-	30	-	31	-	779	-	78	94	951
Pittsburgh Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Subtotal	42	7	42	8	42	7	1,165	81	127	171	1,545
GRAND TOTAL											
Headquarters	253	9	294	11	281	10	10,440	527	1,215	781	12,963
Bartlesville Energy Technology Center	175	16	172	18	174	17	4,475	285	476	278	5,514
Grand Forks Energy Technology Center	71	7	68	9	70	8	1,744	192	190	192	2,318
Laramie Energy Technology Center	159	27	148	40	155	36	4,031	617	469	539	5,656
Morgantown Energy Technology Center	239	14	251	18	248	17	6,188	407	650	568	7,813
Pittsburgh Energy Technology Center	441	22	448	26	445	25	11,082	599	1,146	965	13,792
Total	1,338	95	1,381	122	1,373	113	$37,960	$2,628	$4,146	$3,323	$48,055

Department of Energy
FY 1981 CONGRESSIONAL BUDGET REQUEST

SUMMARY OF PERSONNEL RESOURCES
FOSSIL ENERGY
FY 1981
(Dollar amounts in whole thousands)

	Beginning Year		End of Year		Staff Years		FTP Base Salaries	Other Personnel Compensation	Benefits	Travel of Persons	Total
	FTP	Other	FTP	Other	FTP	Other					
Fossil Energy Research and Development											
COAL											
Headquarters	272	11	287	12	282	11	$ 9,840	$ 409	$1,196	$ 700	$12,145
Bartlesville Energy Technology Center	62	7	62	9	62	8	1,528	158	160	48	1,894
Grand Forks Energy Technology Center	68	9	68	27	68	20	1,675	393	196	211	2,475
Laramie Energy Technology Center	22	10	22	8	22	10	543	196	70	179	988
Morgantown Energy Technology Center	219	18	216	23	218	22	5,372	432	550	513	6,867
Pittsburgh Energy Technology Center	448	26	443	33	446	31	10,986	609	1,099	1,063	13,757
Subtotal	1,091	81	1,098	112	1,098	102	29,944	2,197	3,271	2,714	38,126
PETROLEUM											
Headquarters	16	-	22	-	20	-	778	10	93	59	940
Bartlesville Energy Technology Center	104	3	99	4	103	3	2,773	46	282	187	3,288
Grand Forks Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Laramie Energy Technology Center	126	30	125	24	125	29	3,366	438	381	402	4,587
Morgantown Energy Technology Center	2	-	2	-	2	-	54	-	6	9	69
Pittsburgh Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Subtotal	248	33	248	28	250	32	$ 6,971	$ 494	$ 762	$ 657	$ 8,884

Department of Energy
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SUMMARY OF PERSONNEL RESOURCES
FOSSIL ENERGY
FY 1981
(Dollar amounts in whole thousands)

	Beginning Year		End of Year		Staff Years		FTP Base Salaries	Other Personnel Compensation	Benefits	Travel of Persons	Total
	FTP	Other	FTP	Other	FTP	Other					
GAS											
Headquarters	6	-	6	-	6	-	$ 222	$ 3	$ 32	$ 16	$ 273
Bartlesville Energy Technology Center	6	8	6	10	6	9	179	84	21	63	347
Grand Forks Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Laramie Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Morgantown Energy Technology Center	30	-	30	-	30	-	892	4	94	100	1,090
Pittsburgh Energy Technology Center	-	-	-	-	-	-	-	-	-	-	-
Subtotal	42	8	42	10	42	9	1,293	91	147	179	1,710
GRAND TOTAL											
Headquarters	294	11	315	12	308	11	10,840	422	1,321	775	13,358
Bartlesville Energy Technology Center	172	18	167	23	171	20	4,480	288	463	298	5,529
Grand Forks Energy Technology Center	68	9	68	27	68	20	1,675	393	196	211	2,475
Laramie Energy Technology Center	148	40	147	32	147	39	3,909	634	451	581	5,575
Morgantown Energy Technology Center	251	18	248	23	250	22	6,318	436	650	622	8,026
Pittsburgh Energy Technology Center	448	26	443	33	446	31	10,986	609	1,099	1,063	13,757
Total	1,381	122	1,388	150	1,390	143	$38,208	$2,782	$4,180	$3,550	$48,720

Morgantown Energy Technology Center

Question: The Morgantown Energy Technology Center has increased in scope over the last five years. Please explain what additional responsibilities/programs have been assigned to METC during this period?

Answer: As a result of the Headquarters' Fossil Energy decentralization effort, much of the day-to-day responsibility for advancing FE technology has been given to technologists in the field. The Morgantown Energy Technology Center has been designated as a lead technology center for the following FE technologies as a result of its past and present expertise:

- Coal Gasification
- Fluidized-Bed Combustion
- Hot Gas Cleanup and Flue Gas Desulfurization
- Component Development for Coal Conversion/Utilization Processes
- Combined Cycle Component Integration
- Unconventional Gas Recovery

The Center has responsibility and authority for developing/maintaining the technology base in these areas. All activities relating to technology base development will be managed by the Center to implement the FE programs. These activities will provide a sound base for the assigned FE technologies including managing multi-project activities performed by contractors, universities, and laboratories; maintaining a supporting in-house research program; and establishing data repositories for the assigned technologies and the technology bases being developed.

Question: METC is currently negotiating for the purchase of additional acreage. What is the status of these negotiations?

Answers: Surveys have been completed, a title company has been engaged to perform a title search and abstract of title, and the appraisal is being updated so that this information can be presented to the Justice Department for approval to proceed with the actual purchase.

Question: Are the funds provided by reprogramming last year adequate for this acquisition?

Answer: $840,000 was provided by reprogramming for purchase of the property. The appraisal update sets the fair market value of the property at $900,000. Therefore an additional $60,000 will be required to proceed with the purchase. These funds will be provided from the existing funding level allocated to the Morgantown ETC. Specific projects to be "taxed" are as yet undetermined. This is in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, P.L., 91-646 84 as amended 42 USC 4621 et. seq., which requires payment of the appraised value as a minimum.

Question: What are your priorities for construction on this new acreage and during what time frame would this development occur?

Answer: Priorities for construction on the newly acquired land will be:

(a) Integrated Coal Storage and Handling Facility - Storage of various types of coal for experimental purposes and for a system to handle and transport the coal between storage and preparation buildings. Storage is needed upon receipt of coal in bulk and again after coal has been processed through preparation buildings. Approximately 20,000 square feet of storage is needed to accommodate coal which is expected in about ten (10) different types. ($3,100,000)

(b) Rail Siding and Transporter - Construction for a Rail Siding and Transporter. The project will include construction of a rail siding, a receiving and storage area at METC, and a transporter to move materials from the

siding to the receiving/storage areas. Handling and storage will utilize methods to prevent degradation, segragation and contamination of materials. ($4,800,000)

(c) Multi-Purpose R&D Experiments Building - A building used to house various size experiments, which due to their size or configuration, cannot be located in a standard laboratory and due to their sensitively, cannot be located out-of-doors exposed to the elements. The building will have a laboratory area of approximately 25,000 feet. ($8,300,000) Development will occur from 1983 through 1986.

Question: Please provide for the record a description of the principal programs being administered at METC. Please indicate the amount of METC's total budget that is performed in Morgantown. The committee would also appreciate a listing of the states in which the balance of that budget is spent and an indication of the dollar total per state.

Answer: Technical direction and planning support responsibilities for the following Fossil Energy lead mission responsibilities have been assigned to METC by the Assistant Secretary for Fossil Energy.

Coal Gasification -- The surface coal gasification mission is management of in-house and contract R&D gasification projects. These range from exploratory laboratory research through pilot - and commercial - scale development. The goal is to develop prototype processes making clean coal-derived gases and liquids for use as fuel and chemical feedstocks. The mission includes three subactivities: high-Btu gasification for clean pipeline quality gas, low-Btu gasification for clean industrial and utility fuel gas, and advanced gasification for advancing the state-of-the-art of both high-and low-Btu technologies. The subactivities are supported by special projects, studies, and demonstration projects.

Component Development for Coal Conversion/Utilization Processes -- The work involves investigation state-of-the-art and advanced techniques for the continuous feeding of coal to reactors in all types of coal conversion/utilization processes, process control valves, and other process equipment. Technical and economic feasibility of the equipment for use in the harsh environments of these processes must be established for reliable coal plant operations.

Fluidized-Bed Combustion -- This mission encompasses the development of both atmospheric and pressurized fluidized-bed combustion aimed at generating acceptance and utilization of these processes by the industrial and utility sectors. This mission is carried forth through contracted demo, pilot plants, and R&D supported by in-house R&D Technology base activities.

Advanced Environmental Control Technology -- The aims of this mission are to identify, research, develop, refine, and demonstrate a range of engineering approaches capable of:

- Removing flue gas pollutants for compliance with emission standards.
- Removing undesirable components (sulfur compounds, particulates, and alkali metals) from process streams produced during gasification and/or combustion, thus protecting utilization equipment such as turbines, fuel cells, and heat exchangers.

Combined Cycle Component Integration -- This mission involves the integration of gasification, gas cleanup, and turbine technology components into a turbine gasification combined cycle system. An important aspect of the mission is to define and obtain data necessary for decisions leading to demonstration and/or commercialization of an integrated coal gasifier-gas cleaning plant-gas turbine combined cycle power plant.

Unconventional Gas Recovery -- This mission involves the development of an improved scientific engineering and economic basis for prompt, orderly development of unconventional recovery technologies to accelerate production

from the Nation's natural gas resources. Target resources for the current program include:

- Gas-bearing, Devonian shales of eastern U.S.
- Low-permeability sandstones of the U.S. (Western Gas Sands, Northern Great Plains, and Southern Tight-Basin Projects).
- Free methane (natural gas) present in coalbeds.

Accurate resource characterization data are being developed and various recovery technologies (advanced hydraulic fracturing, chemical explosive fracturing, and directional drilling techniques) are being perfected.

$10,200,000 of METC's total budget is performed in Morgantown. A listing of expenditures by state is not currently available.

Combustion Systems

Question: How much of the funds appropriated to date for the Component Test and Integration Unit (CTIU) have been obligated? How much has been expended and what is the unobligated balance?

Amount: Appropriations to date total $37.2 million. Cost to date is approximately $17 million. Cost plus commitments is approximately $23 million. Walk-away cost ranges from $26-28 million, the exact figure to be determined during the more detailed assessments of the revised project scope to be made during the next several months. The unobligated balance is $6.567 million.

Question: What are the Department's present plans for the CTIU, and what is the total estimated cost to complete these plans?

Answer: The CTIU program has been redirected. Architectural and Engineering contracts and boiler manufacturing contracts have been terminated. Building construction is scheduled for completion by July 1980.

It is planned that the building will be used to house an AFB research activity with a 20 square foot, well instrumented fluidized bed. While the revised design is not yet complete, the current estimated total cost to design, construct and operate the facility for two years will not exceed the appropriations through Fiscal Year 1980 of a total of $37.2 million.

Question: How much of the total funds now planned for the CTIU are technically operating expense in nature and how much could be classified as construction?

Answer: Of the $10,000,000 request in the FY 1981 budget, $65,000 was for operating expense. The balance was classified as construction. FY 1980 and FY 1979 funding levels were all classified as operating expenses type funds.

Question: What is the reasoning behind closing the Rivesville facility and delaying the construction schedule of the Pressurized Fluidized Bed pilot plant at the same time? Won't these reductions inhibit timely commercialization of utility oriented direct coal combustion technology?

Answer: The Rivesville facility is being closed as it has served to verify the basic scaleup of the atmospheric fluidized bed process to pilot plant scale size. In the eight years since the Rivesville Project was started, the design of atmospheric fluidized-bed boilers has changed significantly and many of the key features of the Rivesville boiler design are now obsolete. Our program focus is in units of designs which boiler manufacturers wish to offer for commercial operation.

The Pressurized Fluidized-Bed (PFB) pilot plant is proceeding. A modest delay occurred during the time when we were reviewing the results of the 1000 hour test. Such a review was needed in order to ensure the success of the pilot plant.

The commercialization of utility oriented direct coal combustion technology is proceeding rapidly. The PFB pilot plant is under construction and is expected to be operating in Fiscal Year 1982, the same time which the TVA atmospheric fluidized bed (AFB) pilot plant will be operating.

Question: Is the Administration relying on the projected TVA 200 megawatt AFB demonstration to take up the slack?

Answer: The TVA is currently engaged in the construction of a 20 megawatt pilot plant which is scheduled to start-up in 1982. Concurrent with this construction activity, TVA is beginning the design of a 200 megawatt demonstration plant. Contingent on favorable performance of the pilot plant, TVA is expected to build the AFB demonstration plant promptly. DOE is providing support for TVA who is engaged in the design and construction of these AFB utility plants.

Question: Does the TVA program offer as much promise for utility applications as might "pressurized" systems?

Answer: The TVA program is currently directed at the development of the atmospheric fluidized-bed (AFB) process. The AFB is in the process of becoming commercial at the industrial scale, with units approximately one-twenty fifth (1/25) of utility scale. The TVA program is to develop coal-fired AFB systems of the scale and design suitable for utility application. TVA feels that AFB technology is to the point where an AFB system can be brought on-line earlier than PFB. DOE is developing the PFB process for utility applications because it offers lower cost, reduced emissions and higher efficiency when compared with both conventional technology and the AFB process. It is our belief that PFB systems will become available for utility commercialization only a few years, at most, after the AFB process can be commercialized.

Question: What is the commercialization schedule for TVA's "atmospheric" process compared with the schedule for DOE's "pressurized" systems?

Answer: The pilot plants for both processes are under construction and are expected to be operational in Fiscal Year 1982. TVA will be designing and performing the environmental assessment for an AFB demonstration plant in parallel with the pilot plant construction and could begin construction of a demonstration plant as soon as their pilot plant produces favorable results. The DOE program is to issue a procurement for competitive designs of alternative plant configurations for PFB demonstration plants this year. Such design work will be in parallel with the pilot plant construction and operation and with private sector PFB development activity. Subsequent to successful completion of such work, and the availability of funds, a decision can be made and a PFB demonstration plant project begun. Both TVA's and DOE's demonstration plant programs are aimed at getting units operating in 1986. Since TVA is its own systems engineers and constructor, and their program only involves competition among boiler manufacturers and gas turbine manufacturers, the selection process of TVA has the potential for being quicker. With successful operation of a demonstration plant, TVA would be in a position to build AFB utility plants on their system with other utilities following in the 1980's. With successful operation of a PFB demonstration plant in the late 1980's, utilities similarly would be able to build PFB plants in the 1990's.

Question: You are requesting supplemental appropriations for fiscal 1980 of $6.5 million to accelerate and expand your combustion demonstrations of coal-oil mixtures. What progress have you made to date with the $2.5 million appropriated for this demonstration in fiscal 1980?

Answer: The $2.5 million appropriated for the coal-oil mixture (COM) program in Fiscal Year 1980 was used to continue the ongoing demonstration and base technology work. Major accomplishments included: the 500 hour run on the 700 HP boiler at 40 percent coal concentration at full steam capacity was completed without boiler fouling or derating, completed construction of the modifications of the 82 MW NEPSCO boiler and the Interlake blast furnace for COM firing, and a Program Opportunity Notice (PON) issued for the demonstration of conversion of utility boilers over 100 MW, which have never fired coal, from oil to COM.

Question: Why was the combustion systems budget activity overspent by $504,000 in fiscal 1979?

Answer: This budget activity was not really overspent, but rather the activity had an apparent overobligation caused by the recording of a duplicate obligation transaction in the accounting system. The actual obligation was $3,260,000; however, since this amount was recorded twice, the resulting unobligated balance was a negative $504,000. This error was identified, corrective action was taken, and the actual unobligated balance of $2.8 million was reflected in the October 1979 accounting reports.

Question: Why wasn't a reprogramming request sent to the Committee in advance?

Answer: A reprogramming request was not sent to the Committee because no obligations were actually made in excess of the Congressional base table controls. If the accounting errors had been identified and corrected before the issuance of the final FY 1979 financial reports, the Combustion Systems activity would have reflected an unobligated balance of $2.8 million.

Question: Why was no letter of explanation sent to the Committee after the fact?

Answer: Fossil Energy provided a detailed explanation on the apparent over obligation to the DOE Controller's office. These explanations were transmitted to three House Committee's based upon their specific requests. In the future, the Department would be glad to transmit the explanations of variances to the Senate Committee.

Question: What steps are the Office of Fossil Energy and the Controller taking to insure this does not happen again?

Answer: Fossil Energy has already initiated regular reconciliations between the records of the Controller's office and the Fossil internal records to insure that any recording errors are disclosed and corrected. Fossil Energy is working closely with the Controller's staff to insure these corrections are reflected in the Official DOE reports and records. The Controller's office is also implementing a program of additional review of accounting transactions to reduce the number of recording errors incurred in the past.

Magnetohydrodynamics

Question: How has the MHD program been reoriented in view of the suspension of cooperative efforts with the USSR? Will work at the Component Development and Integration Unit, for example be delayed?

Answer: The success of the U.S. MHD program, briefly summarized in a fact sheet provided for the Committee files, is not dependent on the availability of data from the US/USSR Cooperative Program in MHD. The program, however, has been providing highly valuable data. When viewed in the context of the overall national MHD program, the US/USSR Cooperative Program offers specific benefits in several areas:

(1) Providing data from MHD test facilities not currently available in the U.S.
   (a) U-25 (250 MWt scale) Integrated, Combined-Cycle, MHD Power Plant.
   (b) U-25B High Magnetic Field (U.S. magnet) MHD Generator Test Facility.
(2) Cost effectiveness, e.g.:
   (a) Duplication of the U-25 plant in the U.S. would cost several hundred million dollars.
   (b) USSR bears all facility operating costs (U-25 costs are about $10K/hour; U-25B costs are about $2 K/hour).
(3) Providing early access to commercial MHD plant data, with the USSR planning to complete construction of a 500 MWe MHD Demonstration Plant by the mid-1980s.

Question: Is it still reasonable to proceed at the program pace contemplated in the $17.5 million supplemental considering cooperation with the USSR has been suspended?

Answer: The potential of coal-fired MHD power plants has long been recognized. However, in the past, MHD systems were considered to be long-range options, with commercial demonstration of combined-cycle MHD plants beyond the year 2000. Nevertheless, the major potential energy-savings and environmental "payoff" of coal-fired MHD always required the assignment of high priority to MHD development, particularly when major industrial studies (EPRI-AF 644) showed that MHD, under a certain set of assumptions, could virtually take over the utility baseload power market.

In the last few years, dramatic progress has been made in MHD developments -- e.g., generator operating times have been increased one-hundred-fold, the availability of superconducting magnet technology has been demonstrated, the capability of meeting stringent environmental standards has been experimentally supported in 10 MWt scale systems, experience with large scale (250 MWt) systems has been very encouraging, the capability of extracting energy from MHD generators at required levels has been demonstrated in short duration tests, etc. In addition, the demonstrated ability to make major use of proven off-the-shelf, industrial technology (e.g., cost-effective air enrichment systems) in lieu of beyond-the-state-of-the-art hardware (e.g., high temperature air heaters), has greatly increased MHD system scale-up confidence.

The major progress has permitted the reconsideration of MHD development strategy from the viewpoint of maximizing its benefits to the national energy problems while minimizing financial and technical risk. The latter effort resulted in the identification and development of a new proposed strategy which will allow accelerated commercialization (as early as 1990) of coal-fired MHD power plants with increased confidence.

At this time, the Cooperative Program has not been terminated, but indefinitely postponed. This program will be constantly reviewed and any change in its status will conform to current administration policy.

Question: How would the nature of the supplemental be modified? Do you still seek $1.5 million in funding for the cooperative agreement?

Answer: The FY 1981 funds for the Cooperative Program are essentially "housekeeping" funds to protect the U.S. investment in the program. It should be noted all funds expended on the US/USSR Cooperative Program remain in the U.S. and are used to support work in U.S. industry and at universities and national laboratories.

If the Cooperative Program were to be terminated, the request for $1.5M would not be withdrawn. It would be redirected toward the modification of the U.S. U-25 channel for testing in a U.S. facility (the total cost for which would be on the order of $3M).

Question: How much is budgeted in fiscal 1980 and 1981 for the USSR cooperative agreement?

Answer: In terms of FY 1980 and FY 1981 funding of activities under the US/USSR Cooperative Program in MHD, they can be presently summarized as follows (the FY 1981 funding has not yet been fully finalized and may vary depending on whether, or at what level, the USSR program is reinstituted):

	FY 1980	FY 1981
U-25 (channel)	$1.9M	$0.2M
U-25B (channel)	0.25	0
U-25B (magnet maintenance)	0.2	0.2
US/USSR (management support)	0.6	0.3
Interpretive Services	0.075	0.025
Receiving Side Pays	0.075	0.025
Total	$3.10	$0.75

Question: What are the unobligated and uncosted balances for this agreement in fiscal 1980?

Answer: All FY 1980 funds for Cooperative Program activities have been obligated. In addition, as mentioned earlier, there is also a $1.5M FY 1980 shortfall in completing the U.S. 30 MWt U-25B channel. We anticipate a minimal uncosted balance for this activity at the end of FY 1980.

Question: Why is an increase of $1.7 million requested for support for the engineering test facility for a fiscal 1980 total of $2.5 million when only $400,000 is requested in FY 1981 estimates?

Answer: The requested increase for the ETF is only $200,000. The $1.7 million request includes increased support for the overall systems engineering and supporting research programs as well as the ETF. The funds are needed to augment ETF conceptual design to assure scheduled completion; augment the analytical modeling to provide required support for engineering development and systems engineering; and increase the level of support for a cross spectrum of MHD research activities, including work on generators and electrodes together with investigation of high magnetic field interaction effects in MHD channels, the study of seedslag properties, special diagnostic techniques and materials development and analysis.

Of the $17.5M requested, $4M is needed for increased CDIF operations to maintain facility activation schedule. Operations costs of the CDIF facility include not only the labor and materials cost of running and maintaining the facility but also include the procurement of special test equipment needed to support specific tests and costs related to the integration of test components into the facility including the design, procurement and installation of piping, instruments and structures related to the test components. The operations costs to be supported by the requested $4.0 million are summarized as follows:

Special test equipment (STE) $1.0 Million

- o Complete installation of subsystems needed to support the first channel test ($1A_1$) and subsequent test set ups ($1A_2$, $1A_3$, and $1B_1$). These include the primary cooling system, the cryogenic system and the power conversion system.

Operations (OPS) $2.0 million

- o Extend the number of checkout and testing hours which can be supported within budget constraints. Costs include support of personnel, provision

of expendables (oxygen, nitrogen, seed, ash and oil) and cost of equipment and spare parts needed to extend testing times.

Test Integration (INTEG) $1.0 million

o Complete installation of piping, instruments and structures associated with the combustor, channel magnet and diffusor of the first test train to be integrated into the facility ($1A_1$).

An additional $4M is needed to maintain present contractually specified delivery schedules and present level of effort on the CDIF iron-core and superconducting magnets, specifically:

CDIF iron core magnet	$ 600,000
CDIF superconducting magnet	3,400,000
Total	$4,000,000

Unavailability of supplementary funds would necessitate a stretch-out of about 9-12 months in the delivery schedule of the superconducting magnet, resulting in some project inefficiencies and a probable increase in total magnet design, construction, installation and checkout costs.

Also, $2M is needed to maintain present development schedules for the first series of CDIF test channels ($1M) and to augment the Advanced Power Train (APT) program ($1M) to assure an adequate funding level to pursue an agressive APT program in FY 1980.

In the area of MHD Engineering Development, supplementary funding of $5.8M is required to provide for:

(1) increased generator development ($1M) to permit increased long duration testing of promising electrode configurations -- in the 500-1000 cumulative hour range -- on a scale of about 20 MWt.

(2) increased combustor development ($1M) to permit increased duration testing of 20 MWt scale coal combustors.

(3) augmentation of scaling confirmation tests ($0.5M) to provide for increased instrumentation at the test site to maximize data quality and quantity in these key tests.

(4) modification of the DOE CFFF test facility ($1.8M) to provide greater operational economy and to prepare the facility for the planned long-duration testing of HRSR subsystems with both eastern and western coals and a variable amount of ash carryover. Total cost of these modifications over a three-year period is projected to be about $7M. Specifically:

(a) Operational Economy:
Addition of Air Compressors, and water tower capacity to reduce operational costs involved in producing oxidant from liquid oxygen-nitrogen combinations and an additional pulverizer for reliability. ($3M).

(b) HRSR Testing:

Inerting and modification of coal feed and preparation systems to handle western as well as eastern coals ($1.8M); and modification for low slag carry over testing -- e.g., direct combustor seed feed systems and combustor slag removal equipment ($2.2M).

The $1.8M supplemental is needed for timely FY 1980 initiation of the cited modifications with the balance to be completed prior to delivery of HRSR in FY 1983.

(5) Augmentation of the U.S. project to complete the design and construction of a 30 MWt scale MHD channel for testing in the Soviet U-25B facility under the US/USSR Cooperative Program in MHD. Unavailability of $1.5M in FY 1980 funds for this project will require an indefinite postponement or termination of the U-25B channel project after the completion of the design phase in June of this year. If the US/USSR program is terminated, additional funds will be required to modify the already completed US U-25 channel for testing in the U.S.

Question: What is the total cost and delivery schedule for the MHD advanced power train identified in the FY 1981 budget justification?

Answer: The APT is a power train (coal combustor, generator, diffuser, and inverter) development program which is being initiated in FY 1980 to focus major industrial resources and capabilities on the critical MHD subsystem. Major industrial teams have been forced to develop and execute a development program leading to the development and test of an MHD power train at the CDIF. The actual cost and development schedules will vary with the schedule for the ETF Title I start, and whether more than one industrial team is selected to participate. In terms of actual estimated costs to complete, a competitive procurement process is now underway for the initial phase of the APT program preventing the Government from discussing its cost estimates for this project outside of the SEB context at this time. We would be pleased to provide the requested cost data upon completion of the competitive procurement process.

Administration

Question: Why is the "benefits" request for coal programs 33 percent of net personnel increase?

Answer: The 33% increase in benefits for Coal Resource program direction for FY 1981 was caused by several factors. Primarily the increase resulted from an increased allowance for personnel benefits in this resource in order to more equally distribute the benefits estimate and a change in the personnel compensation mix among the full-time permanent and other compensation in the FY 1981 request.

Question: Again for coal programs, why does the FY 1981 headquarters travel request decline by $9,000 when the Department has indicated informally the fiscal 1980 travel budget is inadequate?

Answer: The decrease of $9,000 in travel requested in FY 1981 for the Coal resource at Headquarters is not connected to the travel limitation imposed for FY 1980 by P.L. 96-86.

This reduction in FY 1981 travel funds is based on internal DOE guidance which effected a slight reduction in the overall level of travel funds for the Headquarters program direction. In total, the net reduction in travel funds for FE program direction requested for FY 1981 is $6,000, which includes an additional $5,000 for the Petroleum resource and a decrease of $2,000 for the Gas resource. Unlike the more drastic limitation imposed in the current fiscal year, reduction in FE program direction travel funds does not impair the Headquarters operations in any way.

Question: Please supply the permanent and other personnel staff levels and an object class distribution of all funding for each of the field offices.

Answer: The information is provided in the following charts.

FUNDING SUMMARY CROSS-CUT BY OBJECT CLASS [1/]
($ IN THOUSANDS)

29 May 1980

OBJECT CLASS	BETC		GFETC		LETC		METC		PETC	
	FY80	FY81	FY80	FY81	FY80	FY81	FY80	FY81	FY80	FY81
TRANS., COMM., RENTS & UTILITIES (22 & 23)	642	963	106	115	790	910	1300	1900	1677.1	3453.55
PRINTING/REPRO. (24)	120	180	-	-	7	9	100	150	50138.1	284.38
OTHER SERVICES (25)	17830	4576	6366	6240	2900	35652	105400	145810	50269.8	22746.6
SUPPLIES & MAT'L (26)	808	1217	680	750	3506	4800	4040	5940	4972.9	10240.04
EQUIPMENT (31)	558	1207	612	847	717	608	950	1820	1329	2736.73
LAND/STRUC. (GPP) (32)	1443	1166	690	879	3547	885	1750	-	1727.6	3557.54
OTHER	-	-	1026	909	-	-	-	-	217.2	592.35

[1/] Source For Data: FY 81-82 Field Institutional Plan

NOTE: Information on the personnel services and travel object classes for the ETC's is provided separately for FY 1979, FY 1980 and FY 1981.

	FY 1980				FY 1981	
	FTP		Other		FTP	Other
	Ceiling	On Board	Ceiling	On Board	Ceiling	Ceiling
BETC	172	167	18	18	167	23
GFETC	68	68	9	9	68	27
LETC	148	153	40	31	147	32
METC	249	247	18	20	248	23
PETC	448	446	26	24	443	33

Question: Provide a funding matrix by activity and by field office.

Answer: The information is provided in the following chart.

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OPERATING FUNDS SUMMARY FY 80, FY 81
($ IN THOUSANDS)

29 May 1980

ACTIVITY	BETC		GFETC		LETC		METC		PETC	
	FY80	FY81	FY80	FY81	FY80	FY81	FY80	FY81	FY80	FY81
ADV. ENV. CONTROL	-	-	3360	3234	1790	1698	17726	32370	1400	1800
ADV. RES. & TECH.	75	500	1020	1287	130	-	12512	10500	12373	21300
COAL LIQUEFACTION	450	-	1240	1277	-	-	-	-	22274	71382
COMBUSTION SYSTEMS	400	400	900	800	-	-	25090	38060	3035	23060
FUEL CELLS	-	-	-	-	-	-	500	-	-	-
HEAT ENGINES	2020	2210	-	-	-	-	3884	650	-	-
IN-SITU GASIFICATION	-	-	-	-	1928	4550	500	972	-	-
MHD	-	-	-	-	-	-	-	-	3750	3450
MINING R&D	-	-	200	250	-	-	156	-	32196	26030
SURFACE COAL GASIF.	-	-	3217	3500	-	-	10961	60350	11005	750
UNIV. COAL RES.	-	-	-	-	-	-	-	-	5000	5000
ENHANCED GAS REC.	4450	12400	-	-	352	-	14848	16500	-	-
ADV. PROCESS TECHNY.	1345	4500	-	-	722	-	-	-	-	-
DRILL & OFFSHORE	500	1900	-	-	-	-	200	400	-	-
ENHANCED OIL REC.	12464	12900	-	-	5166	5900	2600	1750	-	383
OIL SHALE	-	-	-	-	19157	33618	-	-	-	800
TOTAL	21704	34810	9937	10348	29245	45766	88977	161552	81033	153955

1/ Source for Data: FY80 from 5/17/80 PEP; FY81 Field Institutional Plan

Petroleum

Question: The light oil R&D effort has been reduced by more than 50 percent in fiscal 1981; but why is it necessary for the federal government to be involved in this area at all?

Answer: The Enhanced Oil Recovery program is divided into three subelements: Heavy Oil, Light Oil, and Tar Sands. Because of the extreme technological (and environmental) problems associated with production from heavy oil reservoirs and the tar sands, additional research coupled with economic incentives in those areas appear justified and, in fact, are heavily emphasized.

On the other hand, the only economic incentives for the production of the light oils are for incremental tertiary production. There appears to be a misconception concerning the availability of technology for enhanced recovery of light oils, i.e., that only economic incentives are required. At the present time, only about 20 percent of all enhanced recovery is from light oil reservoirs (75,000 bbl/day out of 385,000 bbl/day total). This fact and the fact that over two-thirds of the 330 billion barrels of "unrecoverable" domestic oil is "light oil" are testimony to the need for a Light Oil Program.

The cut in the light oil program area was based on the assumption that the ERA incentives program for enhanced oil recovery would provide an adequate number of pilot demonstration field tests and that the Federal R&D program could utilize the relatively low-cost "minitest" for testing specific improvements to EOR techniques. Initial analysis of the ERA incentive program field test applications indicates that there will be a large number of tests conducted but the tests may not generate enough data to cause large-scale commercial operations to follow. These tests also heavily emphasize the simpler, better established EOR technologies, such as the use of steam, for the production of heavy oils.

Question: What high risk technology is the government pioneering in this program that industry would not do on its own?

Answer: It is important to remember that the industry that we are discussing is comprised of a few major oil companies, several sizeable "independent" oil companies, and thousands of small independents. Only the major oil companies have the capability for "pioneering" high-risk technologies. The incentives for these companies to develop high-risk technologies are their oil resource holdings. No company is likely to develop a process for recovering a resource that it does not own, and no single company has the diversity of holdings to motivate them to an accelerated R&D effort in high-risk EOR technologies.

An example of a high-risk technology that the Government has undertaken that industry was reluctant to attempt is the injection of quality steam at depths greater than 2500 feet. Recent successes in this project have caused industry to take a closer look. Other examples of activities that are critical to implementation of the high-risk EOR technologies include improvements in the techniques for estimating the residual oil saturation in oil reservoirs (industry has a limited incentive for conducting R&D in this area); interfield analysis of EOR field projects (companies will analyze their own tests but rarely have the resources or inclination to do interfield comparisons with other companies' tests); and improvements in chemical additives for mobility control, process stability, and process efficiency. (Companies have performed R&D activities in these areas to the extent their resource holdings and patent rights justify. Generally speaking, the developments by the industry to date fall far short of the needs for rapid commercialization of the high-risk technologies.)

Question: What is the status of the oil shale surface retorting module for which initial funding was provided in 1979?

Answer: The Source Evaluation Board is to present its findings to the selecting official, Under Secretary C. W. Bateman, in the very near future. The material presented to the selecting official will include the

results of negotiations with each of three proposers, Superior Oil Company, Paraho Development Corporation, and Tosco Corporation. This will permit expeditious contract award(s) if the selecting official judges any or all of the agreements acceptable.

Question: How much has been funded or requested for drilling technology throughout the Department in FY 1979, 1980, and 1981?

Answer: Funding for drilling technology development in DOE is as follows:

	Dollars in Millions		
	FY1979	FY1980	FY1981
FE, Office of Oil	1.5	1.6	.5
RA, Division of Geothermal Energy*	5.4	7.4	8.2
Total	6.9	9.0	8.7

* Includes only funding for development of drilling technology, mostly done at the Sandia National Laboratory; cost of drilling geothermal wells is not included.

Question: Is it the Department's opinion that research and development on syncrude and heavy oil refining should be left to industry?

Answer: There is a definite role for DOE in the upgrading and refining of these two products. Both are similar in that they frequently contain an excess of heavy components that prohibit pipeline movement. Normally, the heavy components and the contaminants would be reduced by coking, thus producing coke and less than maximum transportation fuels, or hydrogenated at high cost because of sulfur, nitrogen and heavy metals contents. The industry does not have the technology completely in hand for either technology, although it is more advanced for heavy crude.

The need for research and development is evidenced by the lack of sophisticated commercial refining capacity, except for coking, which is not ideal. We do not have evidence in DOE that such R&D is being done aggressively by the oil industry; hence the need for a Federal R&D role. This does not mean going into commercial or semicommercial upgrading and/or refining units. The objective is to maximize the production of transportation fuels, especially gasoline.

There is a special concern with respect to the toxicity of liquids from direct hydroliquefaction of coal. The refining work sponsored under the advanced coal liquefaction program has shown that coal liquids can be refined at costs comparable to medium weight sour crudes from the Middle East. Additional work on the mutagenicity of untreated and hydrotreated coal liquids has shown that refined coal liquids have greatly reduced mutagenicity compared to untreated liquids. Additional work is needed towards production of refined coal liquids in which the relationship of refining severity to mutagenicity and carcinogenicity of coal liquids can be determined. It is of particular importance to determine whether a coal derived product such as No. 2 fuel oil or diesel fuel, which meets all performance standards in an end use test, is any more toxic than a corresponding petroleum derived product.

Industry will not have the incentive to do the necessary refining R&D until after there is certainty that commercial quantities of liquids from direct hydroliquefaction will be available. The Government needs this information much sooner in order to properly formulate its strategy relative to direct hydroliquefaction.

Question: Are there any promising novel approaches to syncrude refining which are apt to remain undeveloped or suffer serious commercialization delay if left to industrial research and development?

If so, what would be the size and impact of a federal program to develop and commercialize these novel approaches?

Answer: We believe there are promising novel approaches that have in fact laid dormant for several years, and others on the horizon that will not be commercialized rapidly, in part because of lack of near term incentives. An example is the unique Hydrocarbon Research approach to steam - oxygen refining of heavy syncrude components. This will maximize the production of transportation fuels, and minimize coke.

Syncrude can derive from extra heavy oils, tar sands bitumen, and/or shale oils. The upgrading and refining processes will be somewhat different, for each. Metals are always a problem in the upgrading of very heavy oils. High nitrogen and arsenic are troublesome in crude shale oils. Incomplete and expensive answers are available.

The refining industry has always been independent and there was no need for a federal program so long as light oil, which was easy to refine, was abundant. Heavy oils and shale oil, however, usually require upgrading before they can be refined. Massive deposits of heavy oils are found in California, Vaneruche and Canada which require the removal of metals and sulfur before they can be refined. There are a number of competing processes for upgrading, however, even though not all were tested on a pilot scale. The best selection always depends on the kind of heavy crude, the market for products, financial and environmental considerations. For this reason we feel that federal involvement should be limited largely to ensuring proper incentives for the industry. It would seem premature to ask for funding until we have evaluated the alternatives that are available.

Gas

Question: In what specific ways have you coordinated your methane from coalbeds effort with the mine gas venting activities of the Bureau of Mines under the mine safety program?

Answer: We have maintained open lines of communications between the BOM program manager in Pittsburgh and the DOE technical program managers at the Morgantown Energy Technology Center. Similarly BOM has been invited to participate in all DOE technical workshops and symposia.

Much of the BOM program was transferred to DOE under the Fossil Energy Mining R&D Program. The BOM technical project officers have continued to monitor the progress of those contracts which were in effect at the time of the transfer in October 1977. These BOM personnel report to DOE HQ through the Morgantown ETC. Morgantown is now the focal point for implementing all methane from coalbed research efforts within DOE. The DOE field program manager is an ex-BOM employee who is intimately familiar with both BOM and DOE efforts.

Question: How much is budgeted for environmental support for Eastern Gas Shales, Western Gas Sands, and Methane Recovery in fiscal 1979, 1980 and 1981?

Answer:

	Dollars in Thousands		
	FY1979	FY1980	FY 1981
Eastern Gas Shales	100	100	100
Western Gas Sands	40	70	50
Methane from Coalbeds	30	20	0

Enhanced Gas Recovery (EGR) is one of the least disruptive to the ecosystem of all the technologies being pursued in the FE program. Field operations are of short duration (weeks) and employ drilling, stimulation, and production techniques that are certified and controlled by EPA, OSHA, and state statutes. Consequently, the only funds required are to perform site specific Environmental Assessments. No EGR project has been cited for failure to comply with any environmental control statute.

Major environmental planning documents such as the programmatic Environmental Impact Statement are separately funded by the FE Office of Technology Assessment.

Question: How is this environmental work being coordinated in the Office of Environment in the Department and with similar environmental works in other federal agencies?

Answer: Major environmental R&D plans (Environmental Development Plan and the programmatic Environmental Impact Statement) are jointly written by the Fossil Energy technical staff and representatives of the EV Division of Technology Assessments. The Environmental Development Plan has been signed off on by both the ASFE and ASEV.

All EGR technical planning documents are provided to the EV staff for review and comment. Similarly, the EV staff is invited to participate in all EGR-related technical workshops and symposia.

Informal communication between FE staff and representatives of EPA and OSHA has resulted in reciprocal requests for technical review of those portions of each agency's research program that are complementary to one another.

Questions Submitted by Senator Jim Sasser

Question: A contract is soon to be signed between DOE and Memphis Gas & Water on the Memphis medium-Btu coal gasification demonstration project; you have stated previously that $50 million in prior year appropriations will be made available for this project. Does DOE plan to request additional appropriations in FY81 to facilitate this commitment?

Answer: The site proposed by Memphis is located in a flood plain and wet land which requires a determination to be made by the Secretary that no practicable alternative site exists. This determination along with an approved Environmental Impact Statement must be completed before a final decision to proceed with Phase II (final design and construction) can be made. Should the go-ahead be given to begin Phase II, the Department will decide whether additional funding will be added.

Question: We are concerned that a lack of funding for hardware commitments on long lead time items will delay the overall project 10 to 12 months and could escalate costs $60 million to $70 million. What will DOE do to avoid this problem?

Answer: Because the site proposed by Memphis is located in a flood plain and wet land which requires a determination to be made by the Secretary that no practicable alternative site exists, and because an approved Environmental Impact Statement (EIS) has not yet been completed, it is not prudent to seek additional funding at this time. However, upon a favorable determination by the Secretary to proceed with Phase II (final design and construction) and the completion of an approved EIS, the Department will expedite a request for the necessary funding to initiate long-lead procurement and begin construction in FY 1981 which would put the project back on schedule.

Questions Submitted by Senator Walter Huddleston

Eastern Coal Demonstration Plant Program

The Committee is concerned that an effective mechanism has not been worked out between DOE and the Synthetic Fuels Corporation to ensure that critical fossil energy demonstration plants to prove out the use of Eastern coal will be continued on an expedited schedule. This is of particular concern since the initial plants that can be built under the

Synthetic Fuels Corporation will be limited to processes that can only use Lignite and mildly - caking subbituminous coals. 90% of these coals are located in a few Western states.

Question: What assurance can you give this Committee that the fossil energy demonstration plant program will continue on an expedited schedule so that the Nation has an Eastern synthetic coals option?

Answer: The President is committed to the production of significant quantities of synthetic fuels to offset oil imports in the early 1990's. This commitment is demonstrated by the Administration's strong support of both the SRC-I and the SRC-II demonstration projects as well as a major high Btu gasification plant. Without these projects, it is unlikely that a synfuels industry can be established in the early 1990's because the available technologies are suitable primarily for the production of synthetic fuels from western coals using the more costly and less efficient gasification and indirect liquefaction processes.

Question: What action has DOE taken to ensure that processes development in the demonstation plant program for Eastern coals will be eligible for scale-up to commercial-size plants under authorities of the Synthetic Fuels Corporation?

Answer: The objective of the Fossil Energy demonstration program is to establish a technical, economic and environmental basis for the production of synthetic fuels from eastern coals to supplement the available technologies suitable for western coals and to open up the extensive eastern coal resources for the production of synthetic fuels. Once these objectives are achieved, private interests can be expected to petition the Synthetic Fuels Corporation for financial support to construct and operate private facilities for the profitable production of synthetic fuels. Thus the Fossil Energy program and the SFC synergistically support the development of a synfuels industry to reduce our dependence on imported oil.

Recently a Congressional Committee assembled a panel of experts to review the proposed DOE demonstration plant program as it relates to synthetic fuels production. One of the prime conclusions of the panel was that gasification of Eastern coals was an essential step in not only producing pipeline-quality gas, but also in producing a synthesis gas for indirect liquefaction qualities. Additionally, the panel pointed out that all of the current direct liquefaction processes require gasification as a key process step in order to product hydrogen to upgrade the liquids.

Question: Based on these observations, the panel recommended that DOE assign equal importance to the gasification program as they have to the liquefaction program and to proceed with both high-Btu demonstration plants. Will you please comment on the observations made by the panel.

Answer: DOE recognizes the high importance of the gasification program and its essential role in the production of synfuels which can capitalize on the more mature private gasification development program, such as the available Texaco, Lurgi, and Koppers Topsch processes. The large SRC demonstration projects include the Texaco and the K-T gasifiers as integral elements. Further it is apparent that the Lurgi gasifier will be included in the ANR and other privately sponsored projects. These available gasification processes, in addition to the Memphis (UGas) demonstration project, the Grace commercial coal-to-gasoline conceptual design based on the Texaco gasifier, and the commitment to construct either the ICGG/COGAS or the CONOCO/British Gas-Lurgi Slagging Gasifier High Btu Pipeline Gas demonstration project, as well as current negotiation with Combustion Engineering for a low Btu gasification demonstration project, represent a high priority, well balanced gasification program carefully integrated with the liquefaction program.

DOE recently announced selection of the Memphis project for final

design and construction of a medium-Btu fuel gasification demonstration plant. At the same time, DOE announced that the competing process, W. R. Grace, would be funded at a level of $14 to $16 million to finance a conceptual design for an indirect liquefaction plant.

Question: Why would it not be in the National interest to apply this same approach to funding both of the high-Btu demonstration plant projects?

Answer: Enabling legislation authorizes DOE to construct one high Btu coal gasification plant as a means to demonstrate the process for potential commercial application. The difference between the Grace project and other DOE projects relates to the possible recognition that the Texaco gasifier is already commercial and can be financed for construction under the Energy Security Fund. DOE guidelines are to fund conceptual designs and construct as yet unproven processes.

Question: What additional funds would be required in FY 1981 to proceed with both high-Btu demonstration plants?

Answer: If the decision is made not to compete the two projects (ICGG and CONOCO) and to proceed with an optimum schedule to build both plants, approximately $145 million would be required in addition to the $56 million requested in the amended FY 1981 President's budget. However, if either Environmental Impact Statement is delayed or either project sponsor is unable to make satisfactory and business commitments, it will not be possible to initiate construction of both plants in FY 1981.

Magnetohydrodynamics

Question: Do we understand currently that DOE now plans to use the Engineering Test Facility (ETF) for a 500 Mw commercial demonstration of MHD around 1990?

Answer: As described in two summary papers, "Coal-Fired MHD Power Systems: A Summary Fact Sheet," and "Coal-Fired MHD Electric Power Systems Development: A Program Strategy, " which are being provided for the committee files, engineering progress in the MHD program has resulted in the evolution of a proposed new MHD development strategy that can achieve the demonstration of the commercial readiness of coal-fired MHD power plants by the early 1990's with no significant increase in technical or financial risk and with greatly reduced total cost-to-commercialization. The first (current) phase of this program will provide the critical engineering design base for the second phase -- the design, construction, and operation of an MHD commercial prototype plant (the ETF) of about 500 MW thermal-input of 200 MW electric output in scale.

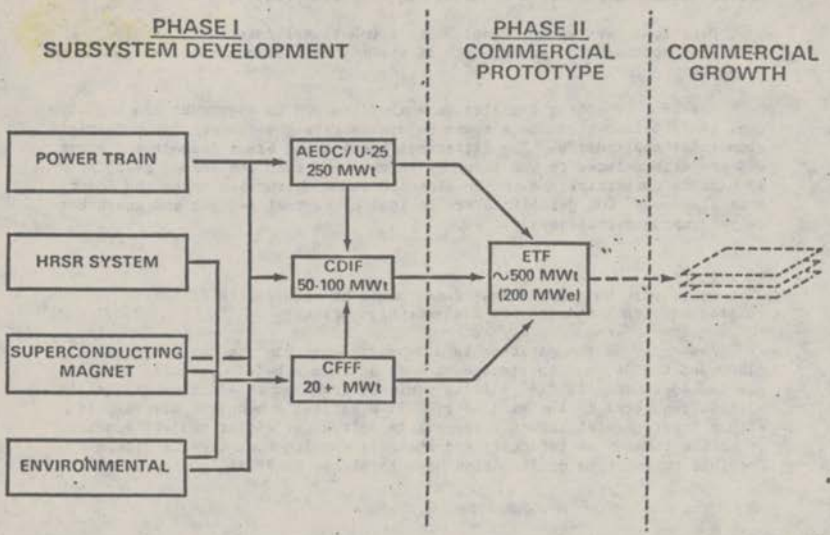
Question: Is the 100 Mw Advance Power Train Development and Test Program at the Component Development Integration Facility (CDIF) intended to develop the answering data base for the MHD topping cycle portion of the ETF?

Answer: See following question and answer.

Question: Is the 20 Mw Co-Fired Flow Facility (CFFF) intended to provide similar data for the steam bottoming plant feed recycling system?

Answer: The MHD program, a structured mission-oriented development program graphically illustrated in the attached two figures, is now focused on large-scale engineering development with major emphasis on integrated subsystem development by major industrial groups. The philosophy of pursuing parallel design paths to minimize risk and maximize development confidence is being applied to subsystem development, as it was previously applied to key MHD component development. The component development pro-

MHD PROGRAM
BASELINE STRATEGY



MHD PROGRAM
MAINSTREAM ACTIVITIES

PHASE I TECHNOLOGY DEVELOPMENT		PHASE II COMMERCIAL PROTOTYPE
COMPONENT AND SUBSYSTEMS ENGINEERING DEVELOPMENT (TO 20 MWt)	DESIGN QUALIFICATION TESTING (20-250 MWt)	COMMERCIAL READINESS DEMONSTRATION (500 MWt)
MHD POWER SYSTEM • COAL COMBUSTOR • CHANNEL/DIFFUSER • MAGNET • INVERTER	CDIF CFFF	ETF → COMMERCIAL GROWTH
STEAM SYSTEM • HEAT RECOVERY • SEED RECOVERY • BALANCE OF PLANT	CFFF	
SCALING TESTS • PERFORMANCE EXTRAPOLATIONS	AEDC	
DEVELOPMENT REQUIREMENTS ↓	TEST SPECIFICATIONS ETF DESIGN QUALIFICATION ↓	PROTOTYPE AND FULL SCALE COMMERCIAL PERFORMANCE REQ. ↑
SYSTEMS ECONOMIC AND PERFORMANCE ANALYSES • COMMERCIAL REQUIREMENTS: POWER LEVEL, COST OF ELECTRICITY, ENVIRONMENTAL • SYSTEMS OPTIMIZATION, ANALYTICAL DESIGN STUDIES, MODELING • SCALE EFFECTS, TRADE-OFF ANALYSES		

jects form the engineering base for the subsystem development projects. This program is guided by system-engineering derived development goals (which reflect utility and industrial inputs); is supported by an aggressive research and technology development effort; and is addressing key environmental issues.

The key MHD plant subsystems are the following: The MHD power train or topping cycle, consisting of the coal-combustor, channel, diffuser, and inverter. The Heat Recovery/Seed Recovery (HRSR) subsystem, consisting of the steam bottoming plant portion of a combined-cycle MHD system. And, the superconducting magnet system, consisting of the magnet, power supply, and cryogenic equipment. As engineering progress warrants, promising 20 MWt power train designs (tested at the CFFF, AERL, and other facilities) will be scaled up to 50-100 MWt and undergo qualification or validation testing at the CDIF facility. The Advance Power Train Program (APT), which will involve the participation of major industrial teams, will be the focal point of this activity. The HRSR is already being developed by industry as a complete subsystem and will involve a comprehensive test program at the CFFF. The development of the superconducting magnet (SCM) subsystem has been continually pursued on an integrated subsystem basis with key tests scheduled at the CDIF, CFFF and Standard facilities. The MHD subsystem development programs are augmented by key scaling confirmation tests at a scale of 250 MWt at the U.S. AEDC facility and the USSR U-25 Combined Cycle Plant. In addition, high priority is placed on utility and industrial participation to assure proper program direction and subsequent commercialization of coal fired MHD power plants.

Question: Are these your top priority MHD programs?

Answer: The activities listed are the key elements of the integrated MHD engineering development program. All of the reviewed elements play an important role and are critical to the successful commercialization of coal-fired MHD electric power systems.

Question: Is it true that the authorized 1980 and requested 1981 MHD funds are required for on-going component development and test work and for CDIF and CFFF construction, and that supplemental funding is necessary for high priority programs like Advance Power Train and Feed Regeneration?

Answer: The MHD development program is an integrated, mission oriented program consisting of a number of key activities, all of which are critical to its success:

(1) Systems Engineering (program guidance/requirements derivation).

(2) Engineering Development with its major subsystem orientation:

(a) Power Train (including APT and others)

(b) HRSR

(c) SCM

(d) Environmental/Emission Control

(3) Major test facilities (with the CDIF being the key facility):

(a) CDIF (50-100 MWt)

(b) CFFF (28 MWt)

(c) AERL (20 MWt)

(d) AEDC/U-25 (250 MWt)

(4) Supporting Research

The authorized funding for FY 1980 and requested fund for FY 1981 are needed to continue the program in an orderly, integrated fashion -- i.e., to continue all of the above activities, to complete the component development activities initiated earlier, to provide the engineering base for further subsystem development activities by major industrial groups (e.g., the APT).

The data base, characterized by the activities listed previously, constitutes the critical ETF engineering design base, which is the focus of the first phase of the MHD program. As available budgets vary, the ETF schedules and the Phase I development schedule will vary but the elements of the critical engineering design base will remain largely unchanged. The $17.5M supplemental request for the MHD program for FY 1980, which was the subject of a separate question and which is itemized in the response, is needed to maintain the FY 1979 program pace which is needed to maintain an early ETF start and to maintain the scheduled CDIF start-up. The FY 1980 supplemental funding request, emphasizes funding requirements for the CDIF (which is consistent with the criticality of the facility) but includes funding requests for all of the program elements described earlier, as required in an integrated program.

SUBCOMMITTEE RECESS

Senator HUDDLESTON. The subommittee will stand in recess until 10 a.m. tomorrow morning.

[Whereupon, at 10:50 a.m., Monday, May 19, the subcommittee was recessed, to reconvene at 10 a.m., Tuesday, May 20.]

DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

THURSDAY, MAY 22, 1980

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m., in room 1223, Everett McKinley Dirksen Senate Office Building, Hon. Dennis DeConcini presiding.

NATIONAL ENDOWMENT FOR THE ARTS

LIVINGSTON L. BIDDLE, JR., CHAIRMAN OF THE NATIONAL ENDOWMENT FOR THE ARTS AND CHAIRMAN OF THE NATIONAL COUNCIL ON THE ARTS

ACCOMPANIED BY:
MARY ANN TIGHE, DEPUTY CHAIRMAN FOR PROGRAMS
DONALD MOORE, DEPUTY CHAIRMAN FOR POLICY AND PLANNING
HENRY PUTCH, EXECUTIVE DIRECTOR OF THE OFFICE OF PARTNERSHIPS
CHARLES ZUCKER, ASSISTANT DIRECTOR OF THE DESIGN ARTS PROGRAM

REVISED BUDGET REQUEST

Senator DECONCINI. The subcommittee will come to order. Today we are scheduled to hear the revised fiscal 1981 budget request for the National Endowment for the Arts.

This request totals $160 million, an increase of $5.6 million over 1980 appropriations to date and $7.9 million below the January estimate.

A $267,000 pay cost supplemental for the current fiscal year is also pending.

We are pleased to have Mr. Livingston Biddle here today. Your full prepared statement will be printed in the record without objection. You may introduce those with you and proceed to highlight your statement.

Mr. BIDDLE. Thank you very much, Mr. Chairman. I am here with Deputy Chairman for Programs Mary Ann Tighe, Deputy Chairman for Policy and Planning Donald Moore, and the Director for the Office of Partnership, which includes State Programs, Henry Putch.

Senator DECONCINI. Welcome.

SUMMARY OF WRITTEN TESTIMONY

Mr. BIDDLE. If I might just highlight some of the points in the statement and interpolate some other brief comments, because that statement was prepared a month ago, when we first were to come before you, I would like to do that.

I am certainly delighted to have the opportunity of being here. The $160,060,000 revised request includes the $965,000 for our projected move to the Old Post Office Building. If we exclude that one-time expense, the increase we are requesting would amount to about 3 percent.

This is a budget, Mr. Chairman, that we have gone over with enormous care and some considerable pain, but we believe it is a budget to emphasize program support and emphasizing especially making quality in the arts available to wider audiences throughout the country. Particularly now, in a time of austerity and fiscal stringency, we believe this is our best approach.

The proposed budget emphasizes the use of media and touring of arts groups so that we can bring the country's greatness in the arts out to as many of our people as we can and help make available that quality in the homes of more and more people through the media.

We believe we have a considerably strengthened agency, Mr. Chairman, and one fully capable now of carrying out the mission that we set forth, capable of carrying it out primarily because of action taken by Congress last year to strengthen our administrative budget.

ADMINISTRATIVE BUDGET

As you know, the administrative budget was increased by $1.5 million in action taken by the House and Senate with respect to our previous year's request and, as a result, we have 25 new positions to combat earlier reductions in staff.

With the increased funds, we have been able to provide much needed equipment for grant review, such as equipment to review visual arts applications and music applications, and we have been able to strengthen our panel review process a great deal for greater fairness and objectivity and esthetic diversity of viewpoint.

In fiscal 1981 we anticipate some 28,000 applications. To summarize briefly for you the impact of increased applications and the increase in the number of grants that we are now involved in making, since 1977 applications have grown by almost 6,000 and grants by well over a thousand. This trend is continuing. The number of applications increases and the number of grants we are able to make increases.

I want to stress that the grants made by the Endowment for the Arts are in a very modest range for the most part. Their average is around $25,000 but in many cases they are lower than that. Therefore, a great, great many organizations are able to be reached.

DEMANDS ON STAFF

It takes over seven hours, we figured out, to process each application and over 25 hours to process and award each grant. The increased workload translates into an additional 29.6 or almost 30 positions needed to accommodate this increased workload since 1977, when I took office.

At the same time during this period of 1977–80, we have provided additional much-needed staff support in other areas, including the challenge grant program, data processing, folk arts, and the Office on Minority Concerns' and Policy and Planning, and in other areas where we had a great need for additional resources.

That total of 20 positions was much needed by the Endowment to be fully responsive and fair and, we believe, efficient. Until the Congress acted last year, during those years 1977 to almost the end of 1979, we were reduced by 15 positions by the administration.

Thus, in very tangible terms, over those 3 years you could say that 65 positions were involved in these three areas: The reduction, the additional workload, and the additional staffing of areas needing attention.

You came to our rescue with an added 25, and we are not asking certainly at this time for any more than that, but I mention it to demonstrate that I think we are still, as an endowment, stretched pretty thin, and yet we are, I believe, making every possible effort to be administratively responsible and frugal.

I particularly mentioned those data today because they have a bearing on our urgent plea to the committee that we be afforded the supplemental pay increase of $267,000 to pay for the pay raise adopted by Congress last October 1. These, in terms of our own budget, are large sums. In terms of other agencies, they may seem small, but $267,000 to us means that without that many of the gains of the past year would have to be eliminated and our efficiency would suffer, and we have been working on this with this committee's help so vigorously since you took action on our administrative needs.

We believe that this budget represents a very strong commitment by the President to our program and to its importance as having a basic value to our country.

As you pointed out, Mr. Chairman, the original request recommended by the administration was $168 million instead of $160 million, as of today, but I want to come back to the 3 percent increase that is now before you.

THREE PERCENT INCREASE

Above all, I think that represents the importance of momentum to this agency. It is very, very crucial to this program, which is still far, far short of meeting all the needs we so clearly perceive.

I, as you know, Mr. Chairman, have been with this program ever since it was first devised, when I worked in the Senate here back in the early sixties, and the momentum really has had an enormous effect on the development of the arts in our country.

If you look at the $2.5 million appropriated to the arts endowment in the beginning and the more than $154 million available to us today, we have seen during those years since 1965—we are now in our fifteenth anniversary year—State funding grow from a total of about $4 million to close to $100 million today. We have seen—your State is an outstanding example of a commitment to the arts—we have seen corporate giving increase from $22 million back in 1965–66 to over $250 million or close to $275 million today.

GROWTH OF ARTS ORGANIZATIONS

So as this process had developed and as the number of arts organizations have grown, the number of people attending the arts, there has been really a very dynamic new attention given to the priority of our cultural life.

Orchestra is more than doubling in number; opera companies the same; theater companies more than quintoupling; dance companies increasing by more than ten-fold; community arts groups at the local level increasing from about 150 in 1966 to close to 2,000 today; a dramatic increase in the availability of the arts and in the number of arts groups and the number of artists involved.

All that, I think, is, in large measure, attributable to the kind of momentum that the Federal Government has provided here. This is an agency very close to the private world and I hope it always will be, guided by private citizens. We have close to 600 panelists from the private world who are experts in the arts guiding us.

I think that there has been such a wisdom in the congressional approach to the agency, itself, to how it should deal uniquely with the development of the arts in America, that is unlike any other country's system but I think it suits very well the needs of the United States.

I think it has been a bellwether for growth and vigor and a burgeoning of people's interest in the arts. People sense that the arts have a great value to them.

To keep this momentum going, it may seem that a 3-percent increase is rather small, but I feel it is absolutely crucial, so in terms of this budget, we have tried to in a time of difficulty and austerity, give it that forward-thrust which we believe most applicable to those concepts that I just mentioned.

PRIORITIES

We have decided that the programmatic needs are more important than the challenge grant needs, although challenge grants have become one of the most successful ways of engendering non-Federal support for the arts, but they apply so often to those institutions that can afford to make the major investment, and they exclude the little groups or those that are struggling to survive.

So we choose painfully between alternatives and present to you today our best thoughts, a program geared to a dynamic period and yet to maintaining progress in the arts.

I have traveled quite a bit in this past year and have had the opportunity of seeing your State and others, and I am impressed by our people attaching an increasing sense of priority to the arts, not only because they can revitalize communities, not only because they have a great economic impact on communities in terms of such things as tourism or the development of business around a center for the arts; a new look at urban development really eminates now from a focal point on cultural facilities.

ARTISTIC ENRICHMENT

Above all, I think the arts reflect on the human spirit and enrich the human spirit. I was very much impressed when I was in Arizona on the Hopi and Navaho reservations to see how deeply our native Americans have the arts as part of their lives. They are not tangential to life. They are not periforal to life. They are at the very basis of the expression of life, itself.

I feel that more and more our countrymen and women are giving the arts that kind of importance in their lives, so I feel that what we pre-

sent to you is of deep significance to our country and of deep significance to the development of a heritage here which will last forever, and I think wherever the arts put down firm roots, we are seeing kind of a magic take place in those settings. It would be tragic to me if that were not to continue.

Thank you.

[The statement follows:]

STATEMENT OF LIVINGSTON L. BIDDLE, JR.

I am very pleased to appear before you today to discuss the request of the President on behalf of the National Endowment for the Arts for Fiscal Year 1981.

Our total revised request is $160,060,000, which includes a one-time request of $965,000 for costs associated with moving the Arts Endowment to its new offices in the Old Post Office Building on Pennsylvania Avenue. If we exclude this one-time expense from our overall request, the additional $4,695,000 which we are seeking represents a three percent increase over our current funding of $154,400,000.

While this increase is indeed modest, we know it must be viewed in terms of economic difficulty and stringency, and in a period when priorities have a special relevance. We would say, therefore, that the increase for the Arts Endowment represents: (1) a continuing and strong commitment by the Administration to a vigorous Federal role in support of the Nation's artistic and cultural life; (2) an understanding that the needs of the field are still well beyond the funding reach of the agency; and (3) a recognition that any flagging in support would transmit a highly negative signal to other arts funding sources — state and local governments, foundations, corporations, and private citizens — whose assistance to the arts is well ahead in dollar terms of Federal efforts, but whose assistance is so frequently motivated by a strong Federal catalyst, and by the traditional catalyst role the Endowment fulfills.

Our amended request for the upcoming fiscal year is allocated among our four accounts in the following fashion: $114,495,000 for programs, an increase of $17,495,000; $18,500,000 for the Treasury Fund, the same as in the current fiscal year; and $14.2 million for the Challenge Grant Program, a decrease of $12,700,000. Excluding funds for our move, our request for administrative purposes is $11,900,000, a decrease of $100,000 from our current year's level.

The budget request which we are presenting to you today clearly indicates, Mr. Chairman, the Endowment's desire in the coming year to emphasize support to its basic program areas in this period of stress.

In part, this emphasis follows from the many administrative reforms and programmatic changes that have occurred at the Endowment in the past two years, changes which now provide us a more solid base from which to broaden our support. These improvements and changes have stemmed in large measure from our hearings before this Committee and we are grateful for the understanding and wisdom you have imparted to us.

Indeed, Mr. Chairman, our confidence to move forward is due to those additional resources of $1.5 million, determined last year and subsequently approved by the Office of Management and Budget. Those resources have made it possible for us to strengthen our administrative capability. Last year, we were rapidly

approaching a crisis in our ability to process applications and in our ability to provide adequate and fair review of those seeking Endowment support.

The additional administrative funds provided us in FY 1980 helped us to accomplish a primary goal of the agency.

We have been able to provide sufficient resources to enable the Endowment to cope with its increasing application and grant work load and to conduct in a far better way its range of important activities.

In 1977 the Endowment received 19,000 applications and awarded 4,300 grants. In 1981 we expect to receive more than 28,000 applications and award 6,100 grants. In FY 1977 our total budget was $99,871,500; today, we are requesting a budget slightly in excess of $160,000,000.

Between 1977 and 1981, the numbers of applications to the Endowment increased by nearly 50%; grants awarded increased by over 42%; and the size of the agency's budget increased by 60%. The number of authorized positions would have declined by nearly five percent had Congress not approved additional personnel last year. This decrease would have occurred during a time when the Endowment also found it imperative to divert approximately 20 positions to new activities, such as Policy Development, a new Office of Minority Concerns, and improved structuring of the program areas.

These added funds have also enabled us to improve the application review process through additional, lengthier, more carefully planned panel meetings and increased involvement by members of the National Council on the Arts. Nearly $1 million of the additional $1.5 million was set aside for these purposes.

As we have previously outlined in both written submissions and oral testimony, the Endowment utilizes and relies on outside experts as members of policy and grants review panels. Most of our panelists are artists or are associated with arts organizations throughout America, and all are highly qualified in their fields. We are convinced that "peer panel" review of applications represents the fairest and most impartial system for the awarding of grants that the agency can devise.

Nevertheless, we recognized the need to reform the panel system, to divide its functioning into grant and policy matters, to broaden the geographic and aesthetic points of view represented by panelists so that they would truly represent the attributes of our cultural diversity. And we realized panelists needed more time if we were to emphasize objectivity and fairness in application review.

In essence, I believe we have made very significant progress in being able to judge an ever-increasing application load in a fairer fashion, in being able

to plan more effectively in the near and long term, and in being able to integrate into this planning process the advice of our panelists and of the members of the National Council on the Arts.

At the same time that we have been markedly improving our administrative side, we have been broadening the number of support categories within the various programs and eliminating a number of criteria, such as budget size, which have arbitrarily excluded a whole range of artistic institutions from applying for Endowment support. Our increased administrative competence now presents us with the opportunity to be more responsive to a wider range of program interests and the artists and institutions that represent those interests. It is important, therefore, that we take advantage of these gains by placing attention first on our program area needs — on the basic framework of the Endowment's mission.

Within this overall context, there is a strong desire on the part of the National Council on the Arts that the Endowment start the new decade by emphasizing, in a fundamental way, efforts which provide broader access to the arts. Primary among the methods for outreach would be the increased use of television and touring. Therefore, a substantial portion of the increase in program funds that we are requesting in FY 1981 would be used for new television series on the arts, both performing and non-performing, and for new and expanded efforts of touring — in dance, in theater, and in opera-musical theater.

Television offers the Endowment an economical way of reaching a mass audience with arts presentations of the highest quality. Though initial costs for television series are substantial, per capita cost for the viewing audience is relatively small, in some cases no more than a few pennies per person. And the pioneering efforts in utilizing the medium of television to bring the arts to the American people have engendered wide critical acclaim and accelerated technological advances which have greatly improved the audio and visual quality of the performances on view.

Television supported by the Endowment is used not only as an excellent "stage" for many art forms, but is also an excellent inducement to attend live performances and exhibitions; a medium for building arts audiences and a medium for bringing recognition to the outstanding artists of this country, so they may be better known and respected and given full appreciation.

As with television, the Endowment's experience in touring the arts has met with great success. Dance touring was one of the first activities sponsored and encouraged by the Endowment more than a decade ago. As a direct result of that encouragement, the number of dance companies and the audience for dance have most significantly increased — in all parts of the country.

We would hope to increase our support for touring activities already underway in dance and in theater, and we would hope to expand touring to opera-musical theater. We would also be allocating new support to the Museum Program to encourage "special exhibitions," those which bring people to museums in numbers, to enjoy not merely the exhibition given particular attention, but the entire collection.

Obviously, Mr. Chairman, our desire to increase allocations to our programs and to emphasize, in particular, the use of television and touring, forced us to make some painful choices both when the budget request was originally formulated and a few weeks ago when the budget was revised.

Initially, Mr. Chairman, we had reduced our request in the Challenge Grant Program by nearly $5 million, and we reduced that allocation even further, by another $7.8 million, in response to the President's desire to balance the Federal budget in the coming fiscal year. The reduction in the Challenge Program contemplated for the coming fiscal year is substantial, a decrease of $12.7 million from the current funding level of $26.9 million. There is no question that we have received excellent applications for what would be the fourth round of Challenge funding next year.

We made the decision to reduce -- at this time -- the Challenge effort because of three principal considerations:

(1) The original purpose of the program was to help stabilize the financial condition of the Nation's major cultural and artistic institutions. Many of these same institutions have received sizable grants, and, as a result, there has been a most heartening upsurge in new and increased private support for these institutions. FY 1981 provides the Endowment with a chance to plan very carefully for the future of the program, and after this hiatus we would hope that funding levels for the Challenge Grant Program, in FY 1982 and beyond, would increase substantially in line with our continuing and long-range commitment to this effort, which has proved to be of immense benefit;

(2) The Endowment continues to feel that in FY 1981 priority should be given to the outreach activities, particularly those in media and touring, that account for so much of the incremental increases in our funding request. Faced with a choice of reducing these efforts, or of further reducing the Challenge Program, the Endowment feels the outreach activities -- and other increases in the program areas -- must remain our foremost priority;

(3) The Endowment was requested by the OMB to sustain a five percent cut in outlays in FY 1981. The ratio of budget authority to outlays in program funds is approximately two to one; in Challenge, the ratio is more nearly one to one. It, therefore, in this context seemed preferential for the Endowment to sustain its reduction in the Challenge Grant Program.

Certainly, we remain firmly committed to the Challenge Grant Program and we look forward to a time when it may once more grow and flourish.

Finally, Mr. Chairman, I would like to add a few words about our request of $965,000 to enable the Endowment to pay for costs associated with our move to the Old Post Office Building on Pennsylvania Avenue.

We are enthused by the prospect of our new home being on the Nation's most renowned ceremonial way and axis. And we are delighted that we will have the opportunity to occupy a major Federal building that has been saved from the wreckers' ball and is now being painstakingly restored.

Some years ago the Arts Endowment testified in favor of a bill in Congress which was shortly thereafter enacted as the Public Buildings Cooperative Use Act. The Act called on the General Services Administration to save and restore architecturally significant buildings for Federal office space, and to provide for a mix of public and private tenants in Federal buildings. The Old Post Office Building is the first major attempt by the General Services Administration to satisfy both purposes of the Act. The plans for the Old Post Office Building not only promise us an exciting new office environment, but offer the promise of the building as a center for lively activity, during the day and at night, on an avenue largely deserted when government workers go home. We are of the opinion that Pennsylvania Avenue should not merely be a ceremonial way, but should also be a lively hub of activity for residents of and visitors to the Nation's Capital. We know that the future of Pennsylvania Avenue is of great concern to this Committee. We would like very much to think that the presence of an agency so concerned with the arts and their values could, in its own way, help to enhance the special environment our Nation's Capital should possess.

All over the United States, and into the far reaches of the Pacific, in Hawaii, out to American Samoa where the Endowment's program extends, and still further west to Guam and the Northern Marianas, I can testify today -- more clearly and passionately than ever before -- to the increasing priority our people are placing on the arts. They have many tangible values. They serve in so many places, in such increasing numbers of places, as focal points for revitalization. They attract business as no other single element in a community can better do. They are labor-intensive. They are anti-inflationary. So often their product is a concert, or a play or a performance in dance -- not a material commodity, but a product for the mind and the heart. And yet, they bring the benefits of tourism, new visitors who often settle where the arts are rooted.

They have their own economic impact -- many related businesses depend on their strength: a photographer's flash bulb, the bricks and mortar of a cultural center.

But most of all they enrich us. They give us a special dimension in our lives -- and once there inside us, they are not replaced.

They give us something special for the human spirit. In a time of difficulty, or adversity, or trouble -- what better investment is there?

TEN PERCENT REDUCTION

Senator DECONCINI. Thank you very much. I thank you also for traveling to Arizona. We appreciate the time constraints and many obligations you have.

We are requesting that all agencies appearing before the subcommittee submit for the record how they would allocate resources based on a 10-percent reduction in the January budget estimates. Will you please provide that for us for the record?

[The information follows:]

The January request of the Endowment was for $167,960,000. Any reduction in this critical request presents the Endowment with very painful choices. We believe the January request was a very modest one allowing the Endowment to advance on some very important fronts. Particularly important, the request represented a forward momentum of government support that signals to non-Federal funders the continuing and serious commitment of the Federal government in this enterprise. The matter of momentum to the Endowment at this stage of its development is most crucial. Funding for the arts from a variety of non-Federal sources has grown substantially and very rapidly since the establishment of the Endowment. Any slackening of government support, as particularly represented in a reduction in FY 1981 funding over amounts provided in FY 1980, would be, in our view, extremely detrimental to the whole system that is developing to support the arts in this country.

As we have said, the initial request to the Congress in January by the Arts Endowment was for an appropriation of $167,960,000 for FY 1981. A ten percent reduction would bring this request down to $151,164,000.

The total reduction of $16,796,000 would necessitate a reduction of regular program funds by $8,896,000, including $1,363,000 in state allocated funds; would reduce the Challenge Grant Program by $7.8 million, and the administrative budget by $100,000.

We feel that an overall reduction in the Endowment's budget request of $160,060,000 as most recently presented to the Committee — and more stringently from today's level of $154,400,000 (which a ten percent reduction from the budget submitted originally to the Congress involves) should be viewed in the context of Endowment growth over 15 years. It should be viewed in terms of the growth of the arts during that period, and the catalyst/effectiveness of the Endowment in stimulating a wholly different approach to the Nation's cultural growth than in the past.

We feel that the effectiveness and impact of Federal support in this area has greatly benefitted the expansion of the organizational network through which artistic activities and services are offered to our citizens. Between 1965 and 1978, the number of professional symphony orchestras has grown from 58 to 144; professional opera companies have increased from 27 to 65; professional dance companies from 37 to 200; and professional theaters, both large and small, from 22 to 270.

At the same time, a solid network of state arts agencies has been established which, in turn, has helped to lift annual state appropriations to the arts from approximately $4 million in 1965 to nearly $100 million today. The number of community arts agencies has risen dramatically from some 150 in 1965 to nearly 2,000 today. The arts, for the first time in our history, are developing all across our country. The growth is not limited to a small number of urban centers as in the past. There are indeed few communities now without some benefits of a new cultural life.

A forward momentum for the Endowment has been in our view responsible for this kind of growth and its immense benefits to the country as a whole. Increasing numbers of our people are placing new priorities on the arts at all economic levels because the arts not only provide special enrichment for the quality of life, but many tangible values. These include the arts serving as focal points for urban renewal and revitalization, and a growing awareness in rural communities that they are no longer excluded from the cultural life of our country.

There is no doubt that a faltering in the forward momentum in the Arts Endowment's funding would cause a diminishing of commitment to the values of the arts by state and local governments and private and corporate philanthropies.

The Arts Endowment has consistently served as the catalyst to stimulate this non-Federal support. Forward momentum in itself thus becomes of the most critical importance if the arts are to continue to serve greater numbers of our people.

The Endowment's budget, as presented to the Senate, focused on making quality in the arts available through two principal methods: touring and the use of the media to bring artistic quality into the homes of our citizens. The budget was prepared following the most careful assessment of needs and minimum requirements in a time of financial stress.

Should the Endowment be compelled to reduce its budget to approximately $151 million, it would not be in a position to move forward in these two important areas, both of fundamental significance to the Endowment's outreach to our people. In addition, assistance to state arts agencies would be reduced by over $1,360,000, since the reductions would relate to the program funding of the Endowment from which state funds are allocated.

We would consider these reductions, therefore, in most serious terms. We

believe that they would reverse 15 years of progress; that they would severely inhibit the Endowment's ability to make quality in the arts available; and that we would see, as a result, a retrenchment among the great numbers of arts organizations which we are now able to assist. Retrenchment in the arts means an abandoning of outreach activities and thus service to a diminishing audience rather than to a growing one.

Most arts organizations operate on a most marginal basis and their ability to expand services rests with a small percentage of their annual budgets -- the very area where support from the Endowment is most crucial. It may seem that a relatively small amount of funding between plus and minus would have less serious results, but our experience has consistently demonstrated that we are here dealing with actualities, and not suppositions. Therefore, we cannot overly stress the profound detrimental effect that a reduction in Federal funding to the level here discussed would have. We believe that the $160 million presented to the Committee, as our revised request, is the sum critical to forward momentum, to a sense of progress. It is a sum critical to the health of the arts. We have arrived at this figure and the allocations involved only after the most painful -- and painstaking -- effort weighing all priorities involved, weighing many alternatives, but always with the outreach of the Endowment most clearly in mind. This budget would allow us to continue to meet, at a difficult time, the arts' most urgent needs with greatest benefit to our people.

In reaching the $160,060,000 figure of our revised budget, we were complying with the instructions of the Office of Management and Budget to reduce outlays by $7.9 million. As we have indicated, $7.8 million of the reductions would be from the Challenge Grant account, and $100,000 from administrative funds. To reduce the Challenge Grant Program further would put this whole program into great jeopardy. It has been reduced, we believe, to the bare minimum of its effective service to the arts.

The Challenge Grant Program, initially authorized in FY 1977, has proved to be the Endowment's key new initiative in the past four years. The intent of the program was to generate substantial new and increased funding for the Nation's cultural institutions. In the first round of grants (combining the appropriations for FY 1977 and FY 1978), the Endowment provided 59 grants totaling $27 million which, in turn, have generated more than $144,800,000.

Second round grantees, in FY 1979, some 102 of them, received $30 million, which has already generated $108 million in matching funds and is still far from completed. The program has obviously been an immense success, and has been an important factor in securing for grantee institutions deeper and broader financial resources in their own communities.

While we clearly recognize the efficacy and value of the Challenge Grant Program, we made reductions in this area for two principle reasons:

(1) The Challenge Program, as first conceived, was thought of as a way to help provide greater stability to the financial condition of the Nation's major artistic institutions. A number of these institutions have now received grants and are in the process of completing them successfully;

(2) The Endowment's FY 1981 budget request emphasizes support for the regular programs. Given highly competing demands, the Endowment feels that, if there is to be a temporary sacrifice, the emphasis on programs should prevail. Treasury funds which generate a higher ratio of match than regular program support should not be reduced. They are an extension of program support. Their prime value is toward maximizing the Federal investment; but they apply most to large organizations. They must be used carefully, especially at a time of economic stress. The $18.5 million figure is essential to the balanced support we present.

The following tables provide the specifics for the figures contained in this response to the Committee:

	Program	Treasury	Challenge	Administrative
Initial Request	$114,495,000	$18,500,000	$22,000,000	$12,965,000
Revised Budget	114,495,000	18,500,000	14,200,000	12,865,000
10% Reduction	105,599,000	18,500,000	14,200,000	12,865,000

PAY COSTS

Senator DECONCINI. The March budget revisions reduced your pay supplemental by $35,000 to a level of $267,000. How many of the additional 25 personnel authorized for this year have you actually hired?

Mr. BIDDLE. We have hired up to our ceiling, Mr. Chairman.

Senator DECONCINI. What is your latest estimate on hiring lapses for fiscal year 1980?

Mr. BIDDLE. As I noted, we have hired all the additional personnel authorized. During the first 6 months of fiscal year 1980, 43 people left the endowment and have been replaced. We estimate that another 40 will leave during the last 6 months and that of those 40, fewer than 10 will not be replaced by the end of the fiscal year.

Senator DECONCINI. Realistically, how much of the pay supplement could you absorb without undue burden?

Mr. BIDDLE. I think, Mr. Chairman, I would have to say that we would need that whole sum. I tried to point out some of the improvements that we have been able to institute with the additional help you have given us. I have tried to show that while we do have 25 new positions, we were short some 65 before that happened.

I just feel that the $267,000 figure is a very crucial one to us at this time in terms of our ability to carry on what we have been able to accomplish with the increase in administrative costs.

Senator DECONCINI. Based on the hiring over the past year, there is no slippage in that amount.

Mr. BIDDLE. I don't see that, Mr. Chairman, quite honestly.

Mr. MOORE. We feel that those moneys will probably have to come out of the actual paneling process and, indeed, it might do—it would slow down, even stop in many instances, the panel process over the next 3 or 4 months.

That's where the other services category funds have principally come from. The decisionmaking process is what would be at stake.

PROGRAM EVALUATION

Mr. BIDDLE. The fiscal 1981 request for regular program funds is $114,495,000, an increase of $17,495,000. With that large increase in grants, there is no increase for program evaluation. This effort is planned to remain at the current level of $300,000.

Senator DECONCINI. What will be the focus of the evaluation effort in the coming year?

Mr. BIDDLE. I think, Mr. Chairman, that our evaluation area is a very important one, but it is still being developed, and we have tried to utilize every dollar in this request in terms of the priorities we see.

I don't think we are going to suffer by holding level the evaluation figure at the $300,000 level. I would hope that would be increased as time goes on, but in terms of making every dollar count in the best possible way, I think we can afford that figure this year and put the money that might otherwise have gone there into the programs.

Those seem to us to have the deepest——

Senator DECONCINI. Do you evaluate every program?

Mr. BIDDLE. No; the evaluation office evaluates broader concepts than just in one particular program, although the example we give in our budget presentation relates to evaluating the challenge grant program.

Senator DECONCINI. By putting more money into the program grants, leaving the same amount, will you evaluate less programs? Is that what you will do?

Mr. BIDDLE. We will have to look at a way of adapting our evaluation to broader concepts than just one program or another.

INCREASES FOR TELEVISION PROGRAMING

Senator DECONCINI. We notice in your budget a $4.1 million increase in television programing. Why should the Endowment have to get so heavily into supporting television arts programing when, according to your own justification, there is considerable support from both the Federal and private sector in other areas?

Mr. BIDDLE. I think that we have just begun, really, to see what we can do with the media in making the arts more available to wider numbers of people. We have had some experience now with much more modest sums.

For example, some of the programs we help support with others, like with PBS, with corporations——

Senator DECONCINI. How much is your total television budget?

Ms. TIGHE. I think it is $4.1 million altogether.

Senator DECONCINI. I understand it was a $4.1 million increase in television programing support. Is that inaccurate?

Mr. MOORE. I think it was $1.6 million or something.

Ms. TIGHE. It will be $6,275,000 so it is a considerable increase.

Mr. BIDDLE. $6,275,000. That's the total amount.

Ms. TIGHE. Yes.

ENDOWMENT ROLE IN TV PROGRAMING

Can I suggest why the Endowment has a special role to play here?

Senator DECONCINI. Certainly.

Ms. TIGHE. If you look at the history of the arts on public television, you will see the Endowment money was there in a relatively small amount compared to the total amount coming from the private sector, for example, but it was there at the beginning.

Think of any major series. "Live from Lincoln Center" or "Dance in America." Those were arts endowment concepts. Our money continues to be in those programs. Even in the programs we started, the arts endowment continues to nudge those programs to expand into new areas.

For instance, "Dance in America" began with a fairly traditional broadcast. We are talking about major ballet companies. With the Endowment's encouragement, again representing only a small portion of their total budget of "Dance," because of our encouragement "Dance in America" will show all over the United States; companies out of the New York area and showing other kinds of dance.

We had a Katherine Dunham program; ethnic dance, folk dances, all different manner of dance the Endowment encouraged.

It is in two areas: First, leadership in getting public television involved in areas of the arts that were not considered before. You will find in our presentation, for example, we are suggesting a series on opera-musical theater; a series on design arts; a series of broadcasts live from regional theaters around the United States. These are things the Endowment's money encouraged, stimulates, really begins.

Then the second area is taking concepts that already exist and expanding them so that people really realize the full variety of the arts in this country. The fund-raising office of a corporation does not have the perspective the Endowment can give.

Senator DECONCINI. You mentioned, for example, "Dance in America." What percentage of the cost is paid by the Endowment?

Ms. TIGHE. The total project cost for "Dance in America" is $1,614,-710. The Endowment gives $500,000.

Senator DECONCINI. Where does the rest come from? Private solicitation?

Ms. TIGHE. Yes, and the Corporation for Public Broadcasting, too. Basically, the largest share comes from corporate support.

INVOLVEMENT IN MEDIA PROGRAMING

Senator DECONCINI. When you contribute to something like that, what role does the Endowment play in the programing decision and policymaking?

Ms. TIGHE. "Dance in America" submits an annual application. What happened before that is the staff of both our "Dance in America" and our media arts program have had informal conversations with the producing entity and those conversations, for example, will say:

> Look, we love the work you have been doing thus far. The reviews have been wonderful. The ratings have been excellent. But we think this might be an opportunity to expose people * * *.

For example, last night "Dance in America" was on channel 26 here and we saw the very avant garde dance. The first time we have seen a major exposure to sort of cutting edge dance in this country. That is the sort of thing that came out of that conversation.

When "Dance in America" submits its application, it tries to submit something a good deal broader. After that, they are on their own.

Senator DECONCINI. You make suggestions but do not mandate.

Ms. TIGHE. That's right. In fact, they feel free to ignore our suggestions.

Senator DECONCINI. For how many years has the Endowment participated in "Dance in America?"

Ms. TIGHE. This is the fifth season.

Senator DECONCINI. In perpetuity?

Ms. TIGHE. It is not the same series. That is a title that encompasses many different things. We are not funding the same group over and over again. It is a variety of different companies.

Compare them last year to this year. We are giving the money in different directions. Our intention is indefinite as long as "Dance in America" continues to be a first quality program or series of programs and also as long as they continue to be innovative in reaching out to different kinds of dance.

Can I say one other thing? We had the very scary experience of finding that when we haven't funded a major television series proposal, the corporate support has not been as forthcoming as it might be. That endowment dollar, though, obviously representing a relatively small portion of the total, seems to encourage the corporate supporters to become involved.

Senator DECONCINI. It doesn't represent a small part. It represents a third.

Ms. TIGHE. Yes, in the case of "Dance."

Senator DECONCINI. Does any corporation give anywhere near that much?

Ms. TIGHE. Exxon, for example, has been giving more than that.

I should point out that of the "Live from Lincoln Center" figures, for example, of $1.6 million—almost $1.7 million—the Endowment contribution is $275,000. It varies.

Dance happens to be something we have given more substantial aid to. There are instances, looking over the list, like Metropolitan Opera at $1.5 million for the broadcast with an Endowment contribution of $150,000.

NATURE OF MEDIA SUPPORT

Senator DECONCINI. Your point is that it is psychological assistance?

Mr. BIDDLE. If I could answer that, Mr. Chairman, in a little different way, I think the resources that we have developed over the years in our different program areas, media being one of them, are very much respected now by those involved all across the country.

When the Endowment thinks something through and has a panel of experts that look at it very carefully and closely, when our program staff reviews it, when it goes before the National Council on the Arts and gets their recommendation, I think people have faith in that process.

Senator DECONCINI. Do you think if you did not contribute $500,000 that Exxon would not contribute or would contribute less?

Mr. BIDDLE. They would be reluctant.

Senator DECONCINI. Even after 5 years? Have they been contributing for 5 years?

Ms. TIGHE. Yes; it is an ongoing partnership.

EXTENT OF TV GRANTS

Senator DECONCINI. What is the total budgeted for television, including the proposed $4.1 million increase? Please supply a breakdown of the total funding by activity.

Ms. TIGHE. The total expenditure for television series is approximately $7.5 million. We will supply the exact breakdown for the record.

[The information follows:]

	In millions
Media arts programing in the arts	$6.3
Design arts	0.2
Opera-musical theater	.5
Theater	.5
Total	7.5

TOURING

Senator DECONCINI. You are also seeking a major $3.4 million increase in touring activities. How many touring projects do you plan to fund in total and how does that compare with the fiscal 1979–80 programing?

Mr. BIDDLE. Those touring increases would be primarily in theater and in dance. Theater would be a relatively new endeavor. Dance would be an extension of what we are doing already.

Ms. TIGHE. The breakdowns appear under the individual programs. I can go into some expansion of it.

"Dance" has been our biggest touring program. Theater, too, has had an active involvement. But we are also talking about opera musical theater touring, the opera touring we do, music in the case of music chamber, and jazz touring.

Support for sponsors, the people who present touring organizations, is really a new effort on our part in the hopes of expanding the amount of touring weeks we can get for our dollar.

Senator DECONCINI. Do you have a breakdown on the dollar amount?

Ms. TIGHE. I don't think we have pulled it together in one place. I think it is scattered through the programs. If you look under the dance category, we can show an increase there. We can present it to you.

Senator, DECONCINI. How about the numbers that you project for touring? And what it was last year.

Ms. TIGHE. All right. Again, we have those scattered. We will supply them.

[The information follows:]

TOURING

[In thousands]

	1979	1980	1981
Dance touring program	$4,027.9	$4,191.4	$5,000.0
Regional tour events	201.3	185.7	185.8
Special exhibitions	[1] 3,024.3	[1] 4,167.8	[1] 5,400.0
Regional touring/opera-musical theater	30.0	185.0	200.0
Presenting organizations	384.6	600.0	1,255.0
Theater touring	651.0	787.5	1,500.0
Total	8,319.1	10,117.4	13,540.8

[1] Includes support for special exhibitions under museums.

MATCHING SUPPORT

Mr. BIDDLE. For example, dance touring would increase by some $800,000 and that would reflect on the number of companies touring and the weeks that they tour.

Senator DECONCINI. Specifically, what kind of matching support do you get for touring?

Mr. BIDDLE. The matching support has to be on a 50–50 basis, at least. That would generally apply here.

In terms of the value to the company, itself—for example, in the area of dance—most dance companies really live and exist well because they

tour. Without touring, they would be greatly diminished in their ability to exist.

Senator DECONCINI. Do you get local support?

Mr. BIDDLE. There is a great deal of developing local support more and more.

Senator DECONCINI. From the private sector or participating government?

Mr. BIDDLE. From the State sector, from the local community sector, and also from the private sector.

Senator DECONCINI. Do you have any formula for how much you will pay of touring? Generally?

Ms. TIGHE. In the case of the dance program, traditionally we have said that 30 percent of the touring company's fee would be paid by subsidy from the Endowment.

But what we have discovered now is that we can do better than that. We can do it with less percentage of the fee and get more weeks, so the same amount of money, by careful negotiaton on the part of the company manager, can be stretched.

A number of companies are now at a point where the 30 percent is perhaps unnecessary and they can take 15 percent subsidy and use that to do 5 more weeks of touring. I would say up to 30 percent; it never exceeds that.

GRANTS TO NATIVE AMERICANS

Senator DECONCINI. You talked about visiting the Navajo and Hopi reservations. What kind of grants have you made or do you anticipate making regarding the native Americans?

Mr. BIDDLE. Through our folk arts program, we are now assisting I think it is in excess of some 60 tribes in various small grants.

With the Hopis in Arizona, for example, we provided a relatively small $15,000 grant, in that range, to enable them to hold a special festival. It varies with the different Indian groups. Preservation of native heritage.

Senator DECONCINI. Is there anything after the festival is over? Do you record it?

Mr. BIDDLE. It is a continuing kind of festival in these cases.

Senator DECONCINI. That would be next year, next season.

Mr. BIDDLE. Yes, and the preparation for it, and a larger and larger developing audience has been the history of those.

Senator DECONCINI. Do you know how many tribes you assisted in Arizona in the last 2 to 5 years?

Ms. TIGHE. We can supply that.

Senator DECONCINI. Would you? I would be interested in knowing it and what the amounts were.

[The information follows:]

SPECIAL PROJECTS PROGRAM

Fiscal year 1979:

Hopi Cultural Center Board, Second Mesa, Ariz., Hopi	$17,500
To support a Hopi festival.	
Xicanindio/ATLATL, Phoenix, Ariz	8,200
To establish network for advocacy of Indian arts.	

FOLK ARTS PROGRAM

Fiscal year 1978:
Navajo Community College, Tsaile, Ariz., Navajo $5,000
Support to conduct and videotape a seminar on the summer healing ceremony.
Fiscal year 1979:
Affiliation of Arizona Indian Centers, Inc., Phoenix, Ariz., Yarapai 5,439
Support to catalog, photograph, and display Yarapai traditional basketry.
Arizona Commission on the Arts and Humanities, Phoenix, Ariz., Apache 7,310
Support for the documentation of the oral history and traditional tales of the Apache Tribe.
Colorado River Indian Tribes Museum, Parker, Ariz., Mojave, Chemehuevi, Navajo, Hopi 6,000
Support for a traveling crafts exhibition of the works of five native American artists (potters, basketweavers, silversmiths) in various locations in the Southwest.
Office of Navaho Economic Oportunity, Fort Defiance, Ariz., Navaho 9,000
Support for Navajo Tribal Elders to teach Navajo children traditional arts, crafts, and music in Headstart school sites.

The Endowment also helps to support the services of a Folk Arts Coordinator for the Southwest region.

Since James Griffith was named Director of the Southwest Folklore Center in 1979, the Center has completed several projects intended to fortify and disseminate the traditional arts of Arizona's ethnic communities: a festival, a book, two concerts, a program on Serbian communities in Arizona, and an LP record of Yaqui ceremonial music.

"Yaqui Fiesta and Religious Music: Historic Recordings from Old Pascua Village" was produced jointly by the Center and by the Heard Museum in Phoenix and issued this year by Canyon Records. The LP contains material selected from two Yaqui recording projects: the first conducted by John Green of General Records on Good Friday and Holy Saturday, 1940, in Pascua Village near Tucson, and the second by Muriel Thayer Painter in April 1966, and June 1967, at her home in Tucson. Taken together, the two recording projects provide the listener with a generous sampling of the repertories of Pascola and Matachini musicians (groups concerned with fiestas held during Lent and Holy Week). Liner notes, written, and edited by James Griffith and Felipe S. Molina, include commentaries by Mrs. Painter and Yaqui informants.

CHALLENGE GRANT REDUCTION

Senator DECONCINI. All but $100,000 of the President's March reduction of $7.9 million was applied to challenge grants, which had already been reduced in the January budget by $4.9 million. The total 1981 reduction for this program amounts to $12.7 million. A few years ago, this was to be the great wave of the future.

Why have challenge grants now become such a low priority?

Mr. BIDDLE. I don't think they have become with us a low priority but they have become a lesser priority than the programmatic grants.

As I said a little while ago, the ability of organizations to meet a challenge grant requirement—that is, the regular challenge grant program, which requires $3 to match $1 Federal—organizations that are able to do that are not the normal arts organizations.

While we can strengthen greatly those who are able to make that kind of a match, it does preclude more general support for the different arts fields across the country.

It is a progarm of enormous value, I think, but it doesn't have quite the same application to the arts fields as do the program areas.

I think we can, in terms of fiscal 1981, maintain the whole concept of challenge while building toward the future. I would hope, Mr. Chairman—I wouldn't want to see this program reduced to the point where it is now any further. I think it should be given every opportunity to grow because if you look at the statistics, in the first round of challenge the requirement is, as I say, a 3 for 1 match. In this case, $3 to capture $1 Federal.

The first round of challenge has been completed and the match was over 5 to 1.

The second round of challenge is now in its final stages.

INSTITUTIONAL ADVANCEMENT GRANTS

Senator DECONCINI. You are talking about the 3 to 1 matching requirement? Is that part of the institutional advancement grants?

Mr. BIDDLE. That is part of the institutional advancement grants, as well.

Senator DECONCINI. I would like to know a little about that. We notice a very general statement was included in last year's justification about supporting organizations and we now see from this statement that you have $1.5 million programed within the challenge grant account called institutional advancement grants. We had no indication what that was in last year's justification.

I would like you to explain that. The justification says these grants are directed to organizations that cannot meet the 3 to 1 match but in the same paragraph on page 192 you state that institutional advancement requires an overall 3 to 1 match consistent with law. Can you explain the difference?

Mr. BIDDLE. I think there is a discrepancy there, perhaps in our wording. The match that applies, or had applied to the challenge grant program in general is not in the law but rather a guideline that the agency setup before I became chairman. I think it was a very wise requirement at the time.

But as I have viewed the Endowment since my arrival, there is an entry to the Endowment that could take place for funding without a matching legal requirement. We do this very, very, very rarely but it is possible to get a nonmatching grant from the Arts Endowment. That is done only in the most-rare instances.

Most of our programmatic money is on a 1 to 1 matching basis.

Senator DECONCINI. The law doesn't require a 1 to 3 match?

Mr. BIDDLE. The law requires a 1 to 3, yes.

Senator DECONCINI. Most of it is 1 to 1?

Mr. BIDDLE. Yes; challenge is different. That is the Treasury money. That relates to section 10(a)(2) of the basic act, which is applied both to the Treasury fund and to the challenge grant program, itself.

The requirement, as I say, was made to require that the $3 non-Federal be new and otherwise not raised previously in the challenge grant program when it began. So it was a 3 for 1 match but with new dollars.

The new institutional advancement program is in a very pilot form to date. We are testing it out. It still requires a 3 for 1 match under the law but the match is not necessarily in terms of new, unraised money.

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Senator DECONCINI. Would you please provide for the record a copy of all press releases, announcements, and solicitations issued from the Endowment on the institutional advancement grants?

Mr. BIDDLE. We will be happy to provide the committee with a copy of the pilot program announcement.

[The information follows:]

Institutional Advancement Grants Pilot Program Announcement

Introduction

The National Endowment for the Arts announces a pilot program, the Institutional Advancement Program, which will highlight and strengthen the artistic work of developing arts organizations. Because the long-term success of any arts organization ultimately depends upon both the quality of its programming and its stability as an institution, this program will provide grant awards as well as administrative consultation. In addition the program is intended to focus public recognition on the grantee organizations.

The Institutional Advancement Program is a pilot effort within the Challenge Grant Program which, since 1977, has been giving funds to cultural institutions of high artistic quality to help increase and broaden their base of contributed support. Challenge Grants require a three-to-one match in new or increased contributed income for each federal dollar. Grantees of this program have been highly successful in meeting their matching commitments. Challenge Grants will continue to be available to those organizations which are ready to meet the rigorous planning and matching requirements.

However, many organizations with a history of proven artistic quality may not be ready to qualify for Challenge Grants because they have not done the necessary planning and cannot secure enough funds to match these grants. The Institutional Advancement Program is designed to assist these organizations. It simultaneously promotes the development of additional resources and improved managerial capability. Further, it aims to assist the development of managerial capability from within in the belief that such competence must never be divorced from -- or adversary to -- the overriding artistic goals of any arts organization.

The Endowment plans to begin this Institutional Advancement Program on a pilot basis in Fiscal 1980. Assuming that sufficient funds will be appropriated in future years, these grants will be awarded on a multi-year basis. The pilot program will provide for up to one year of Endowment-supported assessment, planning, and preparation, followed by up to three years of matching grants. Not all grants will be for three years.

Both earned and contributed income can be used to match a grant, unlike the Challenge Grant Program. However, the first match in any grant year must be in contributed income. How much an institution must match will be determined case by case; the matching requirements may be less stringent than they would be for a Challenge Grant.

During its pilot year, the program will concentrate on organizations which have been associated with the

Endowment's Expansion Arts Program. After this pilot period, more organizations will be eligible. However, the program will make only a limited number of grants in its first two years.

The program's future will depend both on Congressional authorization legislation and appropriation, and on the experience gained during the pilot year.

Differences Between Institutional Advancement and Challenge Grants

Both these grants are designed to help arts institutions become financially and organizationally stable. But each kind of grant is appropriate for an organization at a different stage of fiscal and managerial development.

Challenge Grants help organizations of proven artistic excellence which already have a well-developed fund-raising operation and an adequate financial accounting and planning system to broaden their base of continuing support while building financial reserves (through cash reserve and endowment) and/or strengthening income potential (through facilities improvements, audience development, and expanded fundraising).

Institutional Advancement Grants are for arts organizations which have proven artistic excellence but are not financially and administratively secure enough to receive a Challenge Grant. Candidates are likely to have one or more of the following problems: a too-narrow funding base; regular cash flow crises; insufficient money for fundraising staff, promotion, or audience development; a board without fundraising skill or access to funding sources; underpaid artists and overworked administrative staff; and a rudimentary financial system that hinders cost control and planning. Often the organization has found it hard to develop broad public visibility or become accepted in funding circles. This, in turn, blocks efforts to solve these problems.

While Challenge Grant applicants must demonstrate the ability to raise and manage large amounts of new and increased contributed income, Institutional Advancement applicants must show that they can pinpoint the real barriers to their future development and then develop basic management tools to deal more effectively with those problems. Institutional Advancement Grants will, therefore, consist of a Preparatory Stage and a Matching Stage. See page 3, "How the Pilot Program Will Work."

Eligibility

During the pilot year, arts organizations of major significance in the field will be eligible. They should produce or present artistic programs of high quality which are representative of the nation's cultural and aesthetic diversity. Organizations that emphasize training, rather than producing or presenting, may also

be considered, but producing and presenting organizations will receive priority.

While most grantees will have received funds from the Expansion Arts Program in the past, they may be grantees of other Endowment programs. Challenge Grant recipients, however, are not eligible.

Grant Amounts and Requirements

No matching grant will exceed $150,000 in any year. Most will be substantially less. Endowment funds for the matching stage will never be a disproportionate amount of any organization's total annual budget at the time of application.

For organizations that complete the preparatory stage successfully, the Arts Endowment will commit only one year's funding in the first grant letter. In the following two fiscal years, the Endowment may continue funding at an amount to be specified, depending on the grantee's annual progress in meeting all the program's requirements.

How the Pilot Program Will Work

Eligible organizations wishing to participate in this pilot program will be required to submit a Statement of Interest to the Endowment postmarked no later than October 15, 1979. (See page 9 for an outline of items to be included in this statement). These will be reviewed by a panel composed of Expansion Arts and other Endowment program panelists. Its members will be concerned chiefly with questions of artistic excellence and significance in the field. Organizations will be notified of the results of the first screening by mid-December, 1979.

Those who are chosen for further consideration will be advised to apply formally, and will be sent application forms and instructions. All applications must be postmarked by January 14, 1980. Applications postmarked after this date cannot be considered, and will be returned.

Applications must include a plan showing in detail how the applicant would sustain or improve artistic quality, how it would match the grant, and how it would achieve a continuing and stable level of operation after the grant period has ended. Artistic and management consultants will assess each applicant.

A second panel will then review the applications and supplementary information. This panel will consider the following criteria:

- High quality -- the group's artistic excellence

- Uniqueness of artistic expression - the special qualities of the art involved which makes it of major significance in the field

- Community support - public acceptance, as shown by attendance, contributions, and community stature

- Prior effort to succeed - how hard the group has already worked to meet its artistic and organizational goals

- Validity of objectives - how suitable the stated goals and plans are to the organization

- Ability to implement change - how much the organization demonstrates the talent and will to operate in an improved way

Since this is a pilot program, only a very small number of organizations (no more than fifteen throughout the United States and the territories) will receive grants. Grant awards will be announced on or about June 1, 1980.

Preparatory Stage

Immediately after the announcement of grant awards, the preparatory stage of the grant will begin. The preparatory stage is an intensive period of self-analysis, during which the grantees will chart the best possible plans for their organizations' future. Consultants (designated and paid for by the Endowment) will assist the grantees as much as possible in planning the many short- and long-term artistic and administrative objectives of each organization.

Program development goals and financial development goals must be a part of the organization's plan.

The detailed planning of the preparatory stage will determine the size, specific uses, and matching requirements of the grant, and will constitute the basis of a formal agreement between the grantee and the Endowment.

The preparatory stage will last from three months to a year. In no event will it extend beyond June 1, 1981. After it is completed, grant amounts and terms will be established and grant letters will be sent.

Matching Stage

While grants may be made on a multi-year basis (up to three years), the Endowment will commit funds for only one year at a time, for the amount agreed upon during the preparatory stage. Each grantee will be evaluated at the end of each completed year to determine whether it will actually receive additional funds.

Each grantee must provide at least a dollar-for-dollar match of contributed income for each year in which federal funds are awarded. In the first year, the Endowment will provide advocacy assistance (see page 6) to help grantees raise new or increased contributions. Each year of the grant will require substantial additional matching, in

the form of earned income and, perhaps, additional contributions.

Matching strategies and overall matching ratios will vary from grantee to grantee, depending on the specific plan developed during the preparatory stage. Each grant will be worked out individually to help the grantee as much as possible. Special care will be taken not to inflate budgets in a way that might jeopardize the organization's long-term health or vitality.

Use of Funds

Grant and matching funds may be used for such activities as:

- Improving and sustaining the quality of productions or exhibitions

- Retaining professional management and support personnel

- Improving artistic personnel's salaries

- Improving Board selection and training

- Buying equipment which will result in a better artistic product

- Hiring professional personnel to develop membership/subscription campaigns, marketing systems, and internal financial controls

- Finding ways of increasing both earned and contributed income

- Helping to eliminate accumulated deficits, where the group has a specific plan to keep them from recurring

- Establishing and maintaining a cash reserve

- Initiating capital improvements, including the acquisition of auxiliary spaces to present facilities, the extension of present facilities, the renovation of existing buildings, and the adaptation of older buildings for new purposes. The group will be expected to develop a specific plan dealing with the artistic and financial implications of all capital projects.

The Endowment offers project grants for planning and design aid to groups that want to improve their cultural facilities. For information, contact the Design Arts Program, National Endowment for the Arts, Washington, D.C. 20506. Specify that you are writing in connection with the Institutional Advancement pilot program, whether or not you are planning to apply now.

Advocacy

Since this pilot program is critically important and since the Endowment is committed to each participant's success, Endowment staff will work to develop support for the grantees from foundations, corporations, and other government agencies.

This effort will involve the Chairman, Deputy Chairmen, members of the National Council on the Arts, nationally known artists whose careers began in these institutions, as well as corporation and foundation leaders.

Monitoring

Grantees must submit to the Endowment quarterly and annual reports which will be used to monitor their progress, and to satisfy the Endowment's reporting requirements to Congress. Each grantee may also have its own special reporting requirements.

Within 90 days following the end of each fiscal year of the grant period, grantees must submit a financial statement audited by an independent certified public accountant.

Questions to Consider

Eligible organizations should first consider whether they are ready to take part in this program. It should be recognized that to achieve the objectives of the program, organizations will be expected to re-examine the areas below and to implement such changes as may be necessary to ensure the health and growth of the institution:

- Administrative structure, including need for additional personnel and new tasks for current staff

- Financing, including ratio of earned to contributed income, marketing, and fundraising strategies

- Expenses, including union or contract negotiations, changes in tax structure

- Planning and priority assessment, including long-range financial and programmatic plans, current budgets, monthly financial reports

- Board structure, its involvement in review and oversight of organization's staff and activities

Further, there are questions which should be discussed within organizations considering applying. These questions should be investigated in depth as they are central to the Institutional Advancement Program. <u>These questions do not need to be answered in writing or attached to the Statement of Interest</u>.

Readiness

- Does the staff include a stable core group of artists and professional management?

- Has the audience been growing?

- Is there evidence of support from the community?

- Has the organization received financial support from the private sector as well as from state and local arts councils, and the National Endowment for the Arts?

- Is there a clear sense of artistic direction, a set of goals for two to three years from now, and a plan for achieving them?

- Are these goals practical and feasible?

- What is required in money, staff, and time to achieve those goals?

- What are the weaknesses in systems, skills, and staff? Why?

- What has been done in the past two years to strengthen the organization? What improvements are likely in the next year?

- What are the main areas of strength? Are these at all overtaxed?

- What are the main external barriers to realizing the three-five year goals? What is necessary in further artistic achievement, internal reorganization, and/or public visibility and access to implement these goals?

Future Effort

- Are the artistic and administrative staffs willing to take part in evaluating all aspects of the operation?

- Is the organization willing to work with outside consultants to engage in a process of planning?

- Is the organization prepared to consider suggestions for administrative changes beyond those of which it is already aware?

- Can the board be broadened, allowing for further sharing of authority and increased communication?

- Is the organization prepared to take some risk, even to sacrifice some present projects, in order to invest in long-term development?

- Will the organization set fundraising goals higher than ever before, and be committed to a rigorous timetable for their accomplishment?

How to Proceed

Organizations interested in applying for Institutional Advancement should first submit a written Statement of Interest. No organization will be considered unless it has first submitted a Statement of Interest. The Statement should not be longer than six typewritten pages and must include the following:

Statements of Interest

I. A cover letter signed by the board chairman, managing director, and artistic director.

II. Responses of one to three paragraphs to each of the following questions. Each response should reflect the internal thinking of the organization. Answers to these questions are not expected to be final or detailed.

1. What are the current programs? What is the composition of the audience and constituency? What is the level of audience participation in the programs?

2. What are the most important artistic/program goals of the organization for the next 3 years?

3. What are the main administrative and financial goals for the next 3 years?

4. What are the major internal and external obstacles to be overcome in the realization of these goals?

5. At what level of operation programmatically and financially would the organization be stable? Is this level realistically attainable in the next 3 years? Why or why not?

6. In what ways would an Institutional Advancment Grant contribute to reaching a strong and viable level of operation?

III. A completed "Supplemental Questionnaire," found on pages 11 and 12.

The original and two copies of the entire package should be submitted to:

Institutional Advancement
Challenge Grant Program
National Endowment for the Arts
2401 E Street, N.W.
Washington, D.C. 20506

The statements must be postmarked by October 15, 1979. Statements postmarked after this date cannot be considered and will be returned.

Any questions regarding the Statement of Interest may be addressed to the Challenge Grant Program at the above address, or by calling 202/632-4783.

Supplemental Questionnaire

1. Number of years in operation: 1. ____

2. Number of full-time, paid staff: 2. ____

   a. Average number of hours work per week: 2a. ____

3. Number of part-time, paid staff: 3. ____

   a. Average number of hours work per week: 3a. ____

4. Number of unpaid professional staff: 4. ____

   a. Average number of hours work per week: 4a. ____

5. Number of other volunteers: 5. ____

6. Number of people who left the staff in the last year: 6. ____

   a. Artistic: 6a. ____

   b. Managerial: 6b. ____

   c. Clerical: 6c. ____

7. Number of Board members: 7. ____

8. Number of people involved in fundraising: 8. ____

   a. Average number of hours work per week: 8a. ____

9. Size of audience or of community served: 9. ____

10. Total expenses for last complete fiscal year: 10. ____

11. Total income for last complete fiscal year: 11. ____

12. Total accumulated deficit: 12. ____

13. Operating deficit for last complete fiscal year as a percentage of total expenses: 13. ____

14. Earned income* for last complete fiscal year as a percentage of total income: 14. ____

15. Unearned income** for last complete fiscal year from neighborhood or community sources (such as churches, clubs, merchants, door-to-door solicitations, bazaars, bingos, etc.) as a percentage of total income. 15. ____

16. Unearned income for last complete fiscal year from state and local foundations, individuals and corporations as a percentage of total income: 16. ____

*Earned income includes admission fees, fees for services, ticket sales, concessions, and other ancillary revenue.

**Unearned income includes contributions, grants, and membership.

17. Unearned income for last complete fiscal year from non-governmental national sources (foundations, corporations) as a percentage of total income: 17. ____

18. Number of reviews, articles, radio or TV interviews or programs in past year: 18. ____

    a. Neighborhood publicity: 18a. ____

    b. City or state video publicity: 18b. ____

    c. National media: 18c. ____

19. Number of awards, citations, etc. in past year: 19. ____

    a. Whole organization: 19a. ____

    b. Individual artists: 19b. ____

ORIGINAL THRUST OF CHALLENGE GRANT PROGRAM

Senator DECONCINI. Page 194 of the justification contains a statement that core organizations for whom initial challenge grant regulations were drafted have received grants, thereby reducing the urgency for maintaining the present level.

What was the entire program? Was this a program designed to aid preselected organizations? What is the core organization?

Mr. BIDDLE. In concept—this was before my time—it was envisioned that this program would primarily aid the most important arts organizations in each of the different art forms. The major institutional arts organizations. Major symphonies, major museums. That would be the core.

Senator DECONCINI. Some of those were preselected?

Mr. BIDDLE. Not preselected but fell into certain categories of major size.

Senator DECONCINI. And they have to compete with each other in that category before your review board?

Mr. BIDDLE. Exactly. In the first round of challenge, 59 grants were made. That was before me.

In the second round, 102.

I wanted to begin expanding the outreach of the challenge program and reducing the kind of blockbuster size of some of the grants so the money could be better distributed to more organizations.

Senator DECONCINI. Will the 3 to 1 match be an integral part of the challenge grant program?

Mr. BIDDLE. It always will be.

Senator DECONCINI. You don't plan on changing that.

Mr. BIDDLE. We would have to change the law in order to change the matching.

MATCHING REQUIREMENTS

Senator DECONCINI. I am a little confused. It appears to me that the 3 to 1 match is in the law and yet not all your grants do that. What is it, cumulatively?

Mr. BIDDLE. Just the challenge program is 3 to 1. The normal programmatic is 1 to 1.

Senator DECONCINI. All challenge grants are 3 to 1? You don't make any exceptions?

Mr. BIDDLE. That's right.

Mr. MOORE. One point of confusion might be that with the institutional advancement grantees, in the first year we will be assisting them in developing the capacity to do effective fund-raising. Then, in the second and third years, they will begin to develop the 3 to 1 match. So there is a timelag we may not have explained adequately.

Senator DECONCINI. What do you do about being sure they come up with the funds? Do you open up an escrow account or something that is conditioned upon them depositing their share?

Mr. BIDDLE. They are very carefully monitored, particularly in these new institutional advancement grants. We can terminate the grant.

Senator DECONCINI. Do you not release your money until you are satisfied their money is raised?

Mr. BIDDLE. That's right. We will be especially careful with these because of the pilot nature and the ultimate benefit of the program.

We want to strengthen hitherto marginally financially successful organizations which have great artistic merit but which have been for years going from one financial crisis to another to another and never having a chance to stop and build a stability so they can become more institutionalized.

GEOGRAPHIC DISTRIBUTION OF GRANTS

Senator DECONCINI. The Endowment has yet to comply with the subcommittee's request to include a State by State distribution of Endowment funds as part of the justification. Again this year we would request you supply that to us for the record. Hopefully, that would be included in your justification in the future.

Mr. BIDDLE. Very good. I didn't realize we were in omission of that.

[The information follows:]

GRANT INFORMATION BY STATE—FISCAL YEAR 1979

State	Number of grants awarded	Dollar amoount (Federal dollars only)	State	Number of grants awarded	Dollar amoount (Federal dollars only)
Alabama	36	$799,545	Nevada	15	$436,826
Alaska	19	1,089,006	New Hampshire	41	1,051,825
American Samoa	3	320,000	New Jersey	63	1,489,620
Americans abroad	10	57,850	New Mexico	51	1,105,991
Arizona	56	1,420,675	New York	1,402	34,748,074
Arkansas	11	502,054	North Carolina	79	1,877,453
California	615	12,319,817	North Dakota	14	468,393
Colorado	76	3,078,602	Northern Mariana Islands	1	119,500
Connecticut	93	2,547,777	Ohio	140	5,248,443
Delaware	20	740,940	Oklahoma	19	610,705
District of Columbia	244	10,137,256	Oregon	57	1,576,839
Florida	59	1,353,335	Pennsylvania	204	4,444,570
Georgia	79	2,083,878	Puerto Rico	14	467,315
Guam	2	313,300	Rhode Island	33	947,780
Hawaii	25	976,922	South Carolina	28	969,490
Idaho	18	460,870	South Dakota	8	385,050
Illinois	163	4,479,902	Tennessee	58	1,214,601
Indiana	31	1,583,900	Texas	117	4,750,998
Iowa	36	726,236	Trust Territories	1	38,820
Kansas	22	525,348	Utah	26	1,173,280
Kentucky	45	1,159,533	Vermont	35	672,741
Louisiana	40	1,028,093	Virgin Islands	9	391,000
Maine	36	726,305	Virginia	80	1,407,643
Maryland	73	2,051,209	Washington	104	3,153,373
Massachusetts	252	7,095,345	West Virginia	29	696,508
Michigan	81	2,429,758	Wisconsin	68	1,823,446
Minnesota	92	4,794,459	Wyoming	9	400,207
Mississippi	27	673,634			
Missouri	80	2,515,505			
Montana	12	432,470	Total	5,084	140,737,401
Nebraska	22	643,386			

CONCENTRATION OF GRANTS

Senator DECONCINI. Are arts grants still concentrated among a few States or are they distributed more equitably?

Mr. BIDDLE. I think, as we have progressed over the years, there has been a growth of the arts in all parts of the country and that has been reflected in the grants we made.

Before the Arts Endowment came into being, primarily the arts were concentrated along the east coast, primarily in New York City and New York State, in the middle of the country around Chicago and on the west coast. There were vast areas of the country where there was very little arts activity of a kind of permanent nature going on. With the State involvement, with the communities involved, it would be very difficult to find even a small town without some important arts activity in progress.

Senator DECONCINI. Is it the general direction of the Endowment to spreadout away from the larger metropolitan areas?

Mr. BIDDLE. We have to take care of the institutions that have been traditional to a certain area but, yes, I think we should look at the geographic needs of the arts very seriously. Our panels now reflect a much greater geographic spread of people than in the past.

Senator DECONCINI. Is it accurate to conclude that a large area like New York is more apt to be able to sustain and to grow in the arts and humanities than say a more rural part of the country interested in developing?

Mr. BIDDLE. There are interesting developments along those lines just in the last couple of months. When the New York City arts budget was quite seriously cut, the officials there came to us to help them meet the apparent deficit they were going to face.

My feeling was, supported by everyone connected with the Endowment, that that would not be in the best interest of the future and that a situation like that really related to the ability of that community, which is so rich in the arts, and since that time the mayor has cut and restored the amount and even added to it, but if we had stepped in at the time when they felt they had the greatest emergency, that action would not have been perhaps taken.

Senator DECONCINI. Is that prior to the congressional guarantee of loans? Do you know?

Mr. MOORE. Subsequent to it. Very recently, in the last 2 weeks.

HISTORIC PRESERVATION

Senator DECONCINI. On page 26 your justification discusses Endowment historic preservation activities in several cities. With historic preservation grants available through the Department of the Interior, why are you involved in this also? How many grants do you have in this area?

Mr. BIDDLE. Could I submit for the record a more detailed explanation of how these Endowment grants differ from those of other agencies?

Senator DECONCINI. Yes.

[The information follows:]

There are two Departments of cabinet-level rank—Departments of HUD and Interior—one advsiory body within the executive branch—Advisory Council on Historic Preservation—and a congressionally-chartered corporation—the National Trust for Historic Preservation—that have prime ares of responsibility for historic preservation.

The Department of the Interior, through the National Park Service, operates historic sites and parks that are within Federal ownership. The Heritage, Conservation and Recreation Service—HCRS—also maintains a system of recording significant historic areas and properties throughout the United States. Under the 1966 Historic Preservation Act, HCRS provides yearly grants to each State for preservation programs. These funds are used almost exclusively for State-wide survey activity and capital, brick, and mortar-type projects.

The Department of Housing and Urban Development once had certain categorical preservation grant programs. Now historic preservation is an allowable category of local funding under community development revenue sharing. HUD funds were primarily for capital projects in urban renewal areas and in restoring buildings of exceptional architectural or historical merit. There are also 701 planning funds to remain with HUD after special revenue sharing which could pay for a community survey of historic sites as part of its development of an overall master plan.

The Advisory Council for Historic Preservation is charged by law to monitor compliance by Federal agencies with the various provisions of Federal law and Executive orders on historic preservation. It makes no grants and provides no field services.

The National Trust for Historic Preservation is a body whose full attentions are directed to historic preservation. They have a limited grant program for technical assistance studies, are deeply involved in educational activities, maintain historic properties, and service their membership through conferences, publications, and field offices.

The Endowment stands in a unique relationship to this subject and to these other agencies. We operate no properties and have no capital funds for acquisition or renovation of structures. We are not tied to funding projects in specific geographic areas such as urban renewal districts. We do not monitor or regulate compliance with preservation laws. But we do provide grants for conceptualization studies, design research, and projects which inform people about outstanding design applications. Further, we can support governmental entities, universities, nonprofit corporations, and individuals. No other agency has this range of clients.

In addition, the Endowment is unique in the position from which it views historic preservation. Our concern is for the enhancement of townscapes and landscapes—for the adaptive use of reusable buildings and for developing needed facilities for the arts. If preservation activity is warranted, it is because the revitalization of an area or adaptive use of a building warrants a preservation approach. Our focus is on recycling old buildings for new uses, particularly for arts facilities, and in relating these projects to issues of neighborhood revitalization and livability.

ARTS AND HISTORIC PRESERVATION

Mr. BIDDLE. We are interested in the whole concept of the arts as representing design and the value of design as opposed to pure historic preservation, but if you were to take, for example, one of our grants, a small grant to the city of Savannah, Ga., and take it from the beginning planning grant that was made to Savannah to investigate its historic home and district and see what happened to that grant, it resulted in a whole new look for the city of Savannah and a whole new development of that historic——

Senator DECONCINI. What is different between that and Interior?

Ms. TIGHE. Can we ask the assistant director of our design arts program to speak to it? Charles Zucker.

Mr. ZUCKER. I can answer that.

Senator DECONCINI. What is the difference between your historic preservation program and that of the Interior Department?

Mr. ZUCKER. Essentially, what we have been trying to do here—and in the past have done—is provide seed money for design projects which

develop the basic conceptual and schematic design ideas. We are not as mission-oriented.

Senator DECONCINI. You don't give construction money?

Mr. ZUCKER. No; our program funds are for conceptual and schematic design projects. If someone has a building, for example, they think they want to recycle and is not sure the project is feasible, we will fund a feasibility study, conceptual design, up to and through schematic design, and on very rare occasions through working drawings, because that's when you get into large amounts of money.

Senator DECONCINI. What coordination do you have with the Interior historic program? They do that also but also make construction grants.

Mr. ZUCKER. That's right. We have been working relatively closely with them under our interagency program. I can give you a specific example of what we are doing right now.

There is a potential grant applicant talking to us about a project which may be of interest not only to the Endowment but also to HCRS and also to a couple of other people that deal with recreation under Interior.

We called a meeting for next month to try to coordinate those activities as much as possible. Another example is a grant to Missoula, Mont., to develop a coordinated project of cultural facilities and a park system on the water's edge in Missoula. We are paying for the schematic up-front idea component from the design point of view, using a design competition format. We are involved with trying to pull in people from HUD, HCRS, and others to help Missoula build from our small seed money into the larger mission oriented agencies.

If we can produce an urban design scheme from this design competition, we can partition whatever solutions are developed into compartmental pieces for developmental funds from these other agencies. When it gets beyond our scope of interest, we cut it off and move on to other projects.

MATCHING REQUIREMENTS

Senator DECONCINI. Do you have any requirement that the applicant try private money or private areas first before coming to you?

Ms. TIGHE. They are matching grants.

Mr. ZUCKER. One to one matching grants.

Senator DECONCINI. If somebody wants a feasibility study on an old home in the community, they have to come up with half the money in order to make an application.

Mr. ZUCKER. Absolutely.

Ms. TIGHE. It is also intensely competitive.

Mr. BIDDLE. I don't think it would normally just be an old home in a community. It would be a type of building that would lend itself to the revitalization of a neighborhood rather than an individual building.

EXTENT OF HISTORIC PRESERVATION SUPPORT

Senator DECONCINI. How much money have you in 1979–80 and how much are you projecting in 1981 for this?

Mr. ZUCKER. We dropped from 1979 to 1980 a couple hundred thousand dollars. For the whole program $3.6 million. Just in historic preser-

vation? I gave you the total budget. The exact amount for historic preservation, I would have to get that number to you.

Senator DECONCINI. Would you give it to us for those years?

Mr. ZUCKER. Yes.

[The information follows:]

In 1979, historic preservations grant applications were entertained under the cultural facilities granting category and the livable cities category. For 1980 and 1981, these two granting categories were combined into one category entitled design demonstration.

In 1979, the application load for cultural facilities was 226, of which 61 grants were awarded for a total of approximately $783,000. The livable cities category added 294 applications, of which 65 were funded for approximately $834,000.

Due to a further reduction in program budget for 1980 plus a redistribution of program priorities, the total number of applications was reduced to 368, 48 of which were awarded for a total of $885,000.

In both years, the number of grants offered for historic preservation account for only a small percentage of these totals: usually no more than 10–15 percent of the grants offered under these categories in any 1 year.

In 1981, due to an increased demand from the field for facilities to house the arts, we expect to nearly double the number of design demonstration grants in 1980. The percentage of these grants focusing on historic preservation will likely remain at the 10–15 percent level.

It might be pointed out that while the historic preservation grants account for only 10–15 percent of the demonstration grants category, they actually account for approximately 4 percent of our total program budget.

COMMUNITY DEVELOPMENT ASPECT

Senator DECONCINI. Your efforts in this area also seem to duplicate community development programs supported by HUD. Why are you moving into these activities?

Mr. ZUCKER. Our constituents' needs, especially for facilities for the arts, do not end with the construction of an individual facility, but extend to include the quality of the setting within which a facility resides—the transportation and parking systems, parks and open spaces, restaurants, shops, housing, et cetera which make for exciting cultural districts and neighborhoods. The concept of connectivity between facilities for the arts and their surroundings is important not only because it helps add to the success of a facility, but because of the growing awareness, on the part of many public officials that planning for the arts on a citywide basis in a necessary component in urban economic and cultural revitalization. In short, it makes planning for the arts an important question for urban policymakers.

The two issues of providing design services for specific institutional needs and making these facilities work to improve the livability of cities and towns are a concern of national importance for the Endowment. Public acceptance of the need for facilities for the arts and their power to generate economic and cultural growth in cities have only reached a threshold stage of development in this country. The cautious acknowledgement on the part of organizations such as the National League of Cities and the American Planning Association that planning for the arts is important to community life has just begun to take hold. As the perception that planning for the arts is a viable strategy for increasing economic growth begins to catch on, we can expect the demand for planning and design grants to increase.

Unfortunately, other agencies like HUD, EDA, and DOT, while acknowledging the importance of building for the arts, have not taken active positions to support our constituents. In the past, the design arts program's early leadership around similar issues—for example neighborhood conservation and making cities livable—has pushed these better endowed agencies into activist positions, at which point the Endowment takes a secondary role. For example, the endowment has led the way on concept development for the adaptive use of old railroad stations and the adaptive use of old movie houses and we are initiating projects with the new Department of Education in the adaptive use of old school houses.

Because the design arts program, by its very nature, cuts across agency boundaries, it is not only necessary, but advisable that we collaborate with other Federal agencies responsible for programs complementary to our own. In the past we have worked with agencies such as HUD, DOT, OPM, GSA, NSF, NBS, HCRS, EDA, et cetera on such projects as livable cities, art and architecture in transportation, evaluating graphic design standards for Federal agencies, and other specific multiagency projects requiring the expertise or insight of several agencies at one time, especially when the Endowment uses its seed money to fund pilot projects that would continue our successes in integrating the arts into other Federal programs.

REGIONAL FUNDING FORMULA

Senator DECONCINI. Under the State art agencies' justification for State programs it says a funding formula for regional groups is being refined. Is there presently a regional funding formula?

Mr. PUTCH. In the current year, the funds for regional organizations are allocated in two ways. It is sort of a combination of the Senate principle of equality in that there is an available amount made on the basis of $40,000 per State for the member States.

In the case of the Western States Arts Foundation, for example—the 10 State agencies can designate $40,000 from each State's availability for that purpose. In addition to that, each regional organization is reviewed in terms of programing, priorities, cost effectiveness, and other criteria for a separate fund of money which is competitive.

Senator DECONCINI. For the region.

Mr. PUTCH. Yes.

Senator DECONCINI. How many regions do you have?

Mr. PUTCH. Currently, eight.

Senator DECONCINI. Every State gets a certain amount?

Mr. PUTCH. Texas, for example, is not in a regional organization but they are eligible for $40,000 of money for cooperative collaboration with other States and could do it on an ad hoc basis.

Senator DECONCINI. The eight regions compete for the remaining fund of money?

Mr. PUTCH. Yes.

Senator DECONCINI. How? Based on applications that they have?

Mr. PUTCH. They present plans and applications and inevitably show legitimate needs way beyond the moneys we have and the panel goes through a difficult process in allocating as fairly as it can.

Senator DECONCINI. It is a horrendous job to do it on a regional basis. Is that done here in Washington?

Mr. PUTCH. Those plans are submitted from Denver, for example, for the Western States, to a panel.

Senator DECONCINI. That reviews it here.

Mr. PUTCH. Yes.

I must say those plans have become very sophisticated in the last 3 or 4 years.

Senator DECONCINI. What is the amount of money for regional competition in your 1981 budget?

Mr. PUTCH. I believe the competitive portion of that is less than $1 million.

Senator DECONCINI. Not very large.

Mr. PUTCH. No.

Senator DECONCINI. That's for all the regions to compete for?

Mr. PUTCH. The competitive portion.

STATE AND LOCAL INCENTIVE PROGRAM

Senator DECONCINI. The National Assembly of State Art Agencies and the National Assembly of Community Arts Agencies have proposed a State and local incentive program. Could someone explain this proposal and tell us if the Endowment supports such a concept?

Mr. BIDDLE. The history of that development, I think, goes back to the very earliest days of the Arts Endowment, when established in law were funds for the development of State arts agencies.

Over the 15 years of the development of the Endowment, it is my conviction these State arts agencies have grown in value and sophistication and expertise and in the great wisdom of most of their abilities to support the arts in their particular States.

As I mentioned, State moneys for the arts over the years have grown from about $4 million in 1966 to close to $100 million today, and even last year, when we were looking at proposition 13 and so forth, State moneys increased rather than decreased in total at a healthy rate. In more recent times, there have grown up community arts groups and the State leadership is now focused around the National Assembly of State Art Agencies and the community groups are focused around the National Assembly of Community Arts Agencies.

I have always felt, and have said many times, that States and communities, by working together, could improve the whole quality of the arts throughout the country. I, however, would not want to see community arts groups and State arts groups confronting each other and competing for limited funds.

So it developed whereby States and communities can work together in harmony, each supporting the other. This seems very worthwhile.

Senator DECONCINI. You support the incentive program as long as it is cooperative. Thank you.

The assemblies have suggested initiating a pilot program in fiscal 1981 at a level of $5 million, which would increase to $23 million in fiscal 1983. Since the $23 million is the entire projected level of support for all State agency programs for next year, do you have any more realistic level of funding in mind if this program is authorized?

Mr. BIDDLE. We haven't in our budget presentation put an allocation of funds for this particular project. It is still before the Congress, in the House of Representatives authorizing bill but not the Senate bill. Until such time as that all clarifies itself, I think we will not——

Senator DECONCINI. Do you have any intention of initiating a pilot program for State and local incentive grants in fiscal year 1981?

Mr. BIDDLE. We do not plan to set aside my major funding for a State incentives program in fiscal year 1981, even supposing favorable action on the proposal by our authorizing committees and then the Congress. We might possibly do some preliminary planning for what such a program might look like and how it might be implemented, but that would be the extent of our commitment in the coming fiscal year. We intend to keep the Congress fully informed of our plans in this regard.

MOVING EXPENSES TO OLD POST OFFICE BUILDING

Senator DECONCINI. We have a number of other questions and there is a series of votes coming up so I will have to terminate. I would like to touch on this first:

The Endowment is budgeting nearly $1 million for the cost of relocating to the Old Post Office Building. The Humanities Endowment is also budgeting for this move, which brings the cost to nearly $2 million. In this period of spending restraints, have you looked at the ability to reduce that at all?

Mr. BIDDLE. This is a little out of our hands as of the moment. I think, if the plans were to proceed the way we have understood they would proceed—that is, with a new type of furniture to be used in that Old Post Office Building—we would not see a feasibility to really reduce our request because a great deal of it relates to this systems furniture, the modular furniture, that is attendant. Some $700,000 of that is furniture.

Senator DECONCINI. When Mr. Duffy was here, we asked him about the furniture and he said that was the GSA's desire and plan. He said, quite frankly, he wouldn't mind keeping the same furniture.

How do you feel about that?

Mr. BIDDLE. Well, two ways, really. One is that I think—I have never used modular furniture so I cannot comment on it intelligently, though I have seen it here.

Senator DECONCINI. For $700,000, would you mind continuing to use——

Mr. BIDDLE. I think, actually, this whole subject is still being reviewed by GSA. I am for furniture of any kind.

[Laughter.]

Senator DECONCINI. Seriously, Mr. Biddle——

Mr. BIDDLE. I am not really stuck on what kind.

[Laughter.]

Senator DECONCINI. It troubles me when we see these reports of millions of dollars of furniture warehoused here by GSA and then they are talking about spending $700,000. I believe it is new furniture, from the best information we can get. We don't want to reject it if it will cause some great hardship or hinder ability of your agency to function. On the other hand, if your agency—Mr. Duffy left me with the impression

it would not be a great problem to him. If your agency could do without it, that's a nice saving to make.

Mr. BIDDLE. I think there is another factor here we should mention. That is that the building has been designed for this kind of furniture and that the lighting, the electricity, the heating ducts and everything is all geared toward the use of this kind of furniture. It is to be a kind of demonstration of its effectiveness.

One other Old Post Office Building in Kansas has another example of the use of this type of furniture.

NEED FOR ADDITIONAL SPACE

Senator DECONCINI. Have you outgrown your present facilities?

Mr. BIDDLE. We have.

Senator DECONCINI. You need additional space?

Mr. BIDDLE. Yes.

Ms. TIGHE. It is really a dramatic situation. I wish you could come and walk through the halls of the Arts Endowment right now to see it. People think, when they see the number of applications, that we are talking about individual pieces of paper that have come in.

We are talking about—for example, this is just one instance: Our boxes, portfolios of prints, photographs, films, manuscripts of books, small presses sending in books, the hallways are covered. We don't even have a way of securing these things. People send us their valuable art objects and they can be moved off.

In addition, we cannot get any other space in our present building. Over the last 15 years or so, the storage space was far away so in order to review the applications, it would cost us a good deal of money to keep shuttling these boxes back and forth.

Over the last 15 years, we moved half a dozen times. It cannot be cost-effective to keep moving around. If we had a permanent home with facilities to store and really to cope with the peculiar needs of the arts endowment——

Senator DECONCINI. The space is more important than the furniture.

Ms. TIGHE. There is a second portion to that. The arts endowment is trusted with the precedent now as something we have worked on now to uphold standards of good design in the Government. If we move into a building that requires, by its nature—if it requires systems furniture and we put together a hodgepodge of things that don't relate to one another, we will have an awfully strange environment that does not speak, in fact, to our mandate to represent good design and instruct other Federal agencies in how to do so.

Senator DECONCINI. Do you think that mandate meant spending that kind of money?

Ms. TIGHE. I think what happened was that the decision was made long before anyone realized that sort of thing. GSA made a commitment to open space. I think that commitment then resulted in a situation where much of the furniture they have in storage will prove useless. That's the situation.

Senator DECONCINI. That's unfortunate.

Ms. TIGHE. It is.

Senator DECONCINI. To have a commitment made when you have millions of dollars in storage——

Mr. BIDDLE. There is an alternative cost involved, because if you are going to rewire and put the heating ducts in in a different way throughout the building and put up standard walls——

Senator DECONCINI. There are some limitations in the budget already concerning GSA's purchasing furniture. We don't want a hodgepodge but we would like to have them take a closer look in spending our money.

ADDITIONAL COMMITTEE QUESTIONS

Thank you and your staff. We will submit a host of questions here, if you would reply to them for the record.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Additional Committee Questions

Challenge Grant Program

Question: Under the current Guidelines for Challenge Grants an organization is not eligible to receive more than one grant. Now you indicate the program focus or the regulations will be changed to provide for re-funding organizations. Doesn't that contradict the original Challenge Grant goal of providing seed money to enable arts organizations to attain financial independence?

Answer: We do not believe that this proposed change alters the original Challenge Grant goal. We have learned through a study of the 127 First and Second Round Challenge Grantees that the needs of our constituents are not simply one-time needs.

Our applicants have also indicated that the donor pool is still quite large and that there are many untapped sources which would find a second Challenge Grant an attractive catalyst. Arts organizations have an ongoing need for the kind of stimulus a Challenge Grant can provide. A second Challenge Grant would be seen as another catalyst to further the financial stability and independence of arts organizations.

For example, an organization which used its first Challenge Grant to establish an endowment may, because of increased demands and costs, find it necessary to conduct a major capital campaign to finance additional space for an existing facility. Such a campaign would be consistent with the future needs of the organization and would go towards its long-range stability. And, such a campaign would rightly benefit by a Challenge Grant award.

Another plan under study is the possibility of placing an increased emphasis on planned and deferred giving campaigns. With these and other new features the Challenge Grant Program will continue to promote the long-range stability of arts organizations.

Question: Is the re-drafting of Challenge Grant regulations the first step towards sponsoring entities that are basically Federal arts organizations?

Answer: No. The Challenge Grant Program is still seen as a catalyst for an arts organization's non-Federal support. This is not a program of ongoing entitlement. Organizations are and will continually be expected to compete for these grant awards.

Furthermore, a second grant will be contingent on the following factors: 1) the organization's success in meeting the requirements and in accomplishing its goals under the first Challenge Grant; 2) the organization's continued artistic and managerial viability; and 3) the feasibility of the proposal and the comprehensive nature of the plan submitted in support of any second application.

Question: To what extent do you plan to keep a requirement for a three-to-one match an integral part of the Challenge Grant Program?

Answer: As with first Challenge Grants, any second grant would require at least a three-to-one match. Additionally, and again like the first Challenge Grant, stimulated giving from the private sector will be a primary component of the matching requirements.

The possibility of broadening the components of the match is under consideration. This is because organizations realize the need not only to broaden the base of contributed support, but also to increase the earned income capability. Thus we are hoping to make new sources of earned income allowable as a match.

All grants will be awarded on a three-to-one matching basis with the exception of capital improvements projects (involving construction or renovation) which would require a four-to-one match, if not more.

Question: The average Challenge Grant dropped from $350,000 in the First Round of grants to "core" organizations to a level of $175,000 in the Third Round. If organizations reapply for grants will we be asked to restore the average grant amount to its original level?

Answer: First, the figures cited are median grant amounts, not averages, for the rounds mentioned.

These figures do indicate that the size of the grants has been declining because the relative size of institutions applying and the ability to raise and absorb new contributed income has also been declining.

If first time Challenge Grantees are permitted to reapply, it is expected that the median size will, in the beginning, rise from current levels then fall in a pattern similar to the history cited in the question. This is because the larger institutions, which were funded in the First Round, are the first to finish their grants, and thus, they will become the first to be eligible to apply for Second Challenge Grants.

Growth in the Arts

Question: Your justification notes significant increase in arts support from individuals and business. In real dollars, personal expenditures for the arts have increased 71% in the last 20 years. Even more striking is the more than ten-fold increase in support from business over the past 12 years. While the Endowment certainly deserves much credit for this expression of interest in the arts, is it perhaps time to say you have done your job well and that Federal spending can be decreased or at least leveled off?

Answer: The role of the Endowment has always been to act as a catalyst by stimulating support from the non-Federal sector. In FY 1980, it is estimated that the Endowment's budget of $154.4 million will generate an additional $314.85 million. Any reduction or leveling off in Federal spending is likely to slow the momentum in non-Federal support which the Endowment has carefully built up over its 15 year history. Reports from the field confirm that Endowment grants trigger an increase in other funds which allow arts institutions to develop a more secure financial base. As an example, the New York City Opera recently was awarded a $1 million challenge grant from the Ledler Foundation. The foundation's president said the donation was made because the opera company had successfully met the requirements of a $700,000 Endowment Challenge Grant and "that momentum should be maintained."

It is important to remember that such momentum is engendered by a very small percentage of total Federal spending. The Endowment's FY 1981 request represents only .0231 percent of the total budget proposed by the Administration. This is the same percentage as in FY 1980 and represents a slight decrease from the FY 1979 level of .026 percent.

Partnership Coordination

Question: You have $600,000 budgeted for a partnership coordination program "to develop an effective partnership between the Endowment and the state arts agencies." You say this is distinct from the Federal-State office. How is it distinct?

Answer: The old Federal-State office has divided into: 1) State Programs whose purpose, as stated in Section 5(g) of our enabling legislation, is "to carry out a program of grants-in-aid" to assist the States in supporting existing projects and productions; and 2) Partnership Coordination Program whose purpose is "to encourage mutally supportive relationships among the National Endowment for the Arts, other Federal programs, state and local agencies, regional groups, professional arts organizations, and artists for the benefit of the arts." Primarily, this is carried out through the partnership of the Endowment and the state arts agencies.

Question: Your justification for the partnership coordination program sounds more like program administration than grant support. It discusses technical assistance, evaluation, training and services, planning, and information systems. Why isn't this funded under program administration?

Answer: Partnership Coordination assists the several activities cited through grants that support the development and testing of models and systems. Because these activities largely affect the field in general, not the Endowment internally, they are considered to be properly funded by grants through program funds.

For example, Partnership Coordination has supported the development of a model information system (called the National Information Systems Project) that will enable state arts agencies, regional groups, all programs of the Endowment, and eventually local arts agencies and national arts service organizations, to share information about support for the arts. Partnership Coordination has supported the development and coordination of NISP as a model information system. The various participants in the system — states, the Endowment, others -- will support the operation of the system and the building of a national historical data base with funds other than Partnership Coordination program funds. Regarding evaluation, Partnership Coordination has supported the development of models for assessing public support for the arts through state arts agencies. These models will serve as prototypes for assessment in the states arts agency field. However, Partnership Coordination does not intend to assess all 56 state and jurisdictional arts agencies, but rather to support the development of a small number of models that can be used, perhaps with slight modifications, by any state wishing to undertake such a venture.

Question: To what extent are Endowment staff involved in Partnership Coordination?

Answer: Partnership Coordination is staffed by five persons: a Program Director, an Information Specialist, an Assessment Specialist, a Program Specialist and a Secretary.

One of the Program's chief goals is to develop and strengthen productive, collaborative working relationships between and among numerous agencies, groups, and individuals — including programs and divisions of the National Endowment for the Arts. Therefore, one-third of the Program panelists are Directors for Arts Endowment Program Divisions. They attend Partnership Coordination Panel meetings and participate as part of their Endowment responsibility. For such activities as the recent National Partnership Meeting and Directors' Planning Workshops (involving both state arts agency and Endowment directors), Endowment staff members played key roles as group leaders and participants. Other Partnership staff (Office for Partnership, State Programs, Artists-in-Schools) are involved with the program on a daily basis since much of the work involves a mutual effort. It is truly a network and not isolated groups or individuals working in a compartmented manner.

Question: What portion of 1980 funding allocated to partnership coordination is being expended on grants? On contracts? Please provide details for the record, and include your estimate for 1981 as well.

Answer: The breakdown for 1980 funding is as follows:

Total budget:		$729,150	
Contracts	:	98,160	Center for Responsive Governance
		15,500	Rodney Mapier
Grants	:	615,490	(Estimated as of 9/30/80)

The 1980 budget by percentages is: Grants, 85%; Contracts, 15%.

For 1981, we estimate the percentages of total budget to be: Grants, 80%; Contracts, 20%.

Question: How did you fund partnership coordination in 1980? There was no mention of it in your 1980 justification.

Answer: Partnership Coordination received a regular allocation at the beginning of the Fiscal Year, October 1, 1979. However, the creation of the Office for Partnership in its present format occurred in April 1979. It is most likely that in early budget material both Partnership Coordination and State Programs were combined together as Federal-State Partnership.

Governmental Support Services

Question: The justification for governmental support services is very difficult to track. Last year's justification states that $771,500 would fund "a few major service organizations and number of specific projects. . ." The 1981 justification notes that in the current year, only one grant will be awarded in the amount of $16,400. Can you explain this apparent discrepancy?

Answer: The $771,500 figure is from early material covering the Federal-State Partnership (Partnership Coordination and State Programs). After the division of Federal-State into two programs, the initial budget assignments for governmental support services were:

Partnership Coordination	$715,000
State Programs	16,425*

*The total State Programs budget was $22,096,350, with the funds covering Basic State Operating Grants ($15,125,000), State/National Priorities ($4,203,275), Regional Arts Programming Grants ($2,751,650), and State Support Services ($16,425). There were some minor reallocations among these categories as the actual year's grant-making was implemented and the services category obligations were ultimately $8,745.

Question: The request for 1981 would increase governmental support to a total of $462,000 and would provide 10 grants. What are the major service organizations other than the National Assembly of State Arts Agencies and the National Assembly of Community Arts Agencies which would be eligible under this program?

Answer: Eligible service organizations include NASAA, NACAA, of course, but also the eight regional, multi-state organizations: Affiliated State Arts Agencies of the Upper Midwest (ASAAUM), Consortium for Pacific Arts and Cultures (CPAC), Great Lakes Arts Alliance (GLAA), Mid-American Arts Alliance (MAAA), Mid-Atlantic States Arts Consortium, Inc. (MASAC), New England Foundation for the Arts, Inc. (NEFA), Southern Arts Federation (SAF), Western States Arts Foundation (WSAF), and numerous others, ranging from the American Council on the Arts (ACA) to the National Conference of State Legislatures (NCSL), and the American Symphony Orchestra League (ASOL).

Question: What portion of the $462,000 would be used to fund costs associated with national and regional meetings?

Answer: State Programs governmental support services funds in the amount of $7,500 would be used to assist NASAA with its 1981 Annual Meeting.

Question: Please provide for the record additional details on the contributions of these agencies to the furtherance of the Endowment's goals and the type of assistance they provide to the state and local arts agencies?

Answer: NACAA's goals include: 1) providing timely, relevent and useful information about NEA to the membership; 2) providing annually an opportunity for all members to meet to share experiences, gain new insights, improve skills, and to provide guidance for NACAA; 3) providing leadership in the development of community arts organizations; 4) building a base of data which will be useful for local agencies and for national policy development; and 5) providing a technical assistance program for CAAs.

This organization, in operation with an office and staff for 1-1/2 years,

publishes a semi-monthly newsletter, developed a statistical profile of CAAs, produced and distributed an audio-visual presentation about CAAs, conducted a convention attended by 325 delegates, built an active membership of more than 430, worked with the Office for Partnership and other NEA offices on program and policy issues, and toured the country providing information and support for local arts agencies (23 states). Additionally, it testified before the Congress to provide useful information concerning the reauthorization and appropriations for the Endowment and on other issues.

NASAA's Mission Statement is as follows: In order to enhance the growth and development of the arts, the National Assembly of State Arts Agencies exists to develop and support an informed and skilled membership and to represent the collective needs, concerns and interests of the member agencies by providing forums for the review and development of national arts policy and by serving the membership to strengthen and support their purposes.

NASAA's goals include: 1) to identify and provide opportunities for effective leadership for state arts agency Council/Commission Chairmen, Executive Directors, staff and Council/Commission members; 2) to promote professional practices within state arts agencies; 3) to inform the membership with respect to important trends, issues and developments in the arts, from whatever source, that may affect the Assembly and its membership in any significant way; 4) to provide representation to other organizations for the ultimate furtherance of the purposes of the Assembly's members; and 5) to act as a national policy advocate for state arts agencies on all matters which relate to the purposes of the Assembly's members.

In 1981, the Assembly intends to assist its member agencies to participate through appropriate leadership activities, forums, and services in the development and strengthening of the arts in the United States. The state arts agencies are pivotal in the public arts support network and the collective benefits of their experience and perspective for national policy development are possible from the national level of the network and are critical to the future of balanced, vigorous growth.

Question: In view of the widely divergent figures provided in the justification, will you please provide a five-year funding history for governmental services listing the grantees and the amount of the grants to be included in the hearing record?

Answer: (The information follows:)

As the Partnership Coordination Program is only three-quarters through its initial year as an independent program, it is difficult to provide a meaningful funding history. We have, however, tried to "construct" comparable funding for fiscal years 1976 through 1980. Prior to FY 1979, the similar category was Services to the Field; it also supported a number of programs and projects now assisted by other Partnership and NEA Programs.

Historically, the Partnership has always had a Research & Development area, albeit that it took various forms over the years. In earlier years, Endowment programs as Folk Arts, Expansion Arts, Crafts, and Special Projects received their initial funding under the Partnership Program (and its earlier names---State & Community Operations, Federal-State, Variety of Art Forms, Coordinated Arts, Special Projects). More recently, the development has been in planning, information systems, minority work, and 504 compliance, all fields barely touched a half-dozen years ago. And, it is possible that by the mid-1980's that Partnership Coordination's thrusts may be in areas barely touched today (e.g., work involved with new regulations on the Aging, new communications methods, etc.)

Years 1979 and 1980 are roughly comparable and reflect the Partnership Coordination Program alone.
Years 1976-Transition Quarter-1978-1979 combine the present Partnership Coordination and State Programs.

ABBREVIATIONS USED

ACA	Associated Councils of the Arts
NACAA	National Assembly of Community Arts Agencies
NASAA	National Assembly of State Arts Agencies
CAA	Community Arts Agencies)
LAA	Local Arts Agencies) same
SAA	State Arts Agencies
(C)	Contract
(CA)	Cooperative Agreement
(PO)	Purchase Order

FISCAL 1980

PARTNERSHIP COORDINATION PROGRAM
Category: Partnership Coordination Services
Total Allocation: $829,150 1/

(1) Obligated to Date 7/1/80

a.	Planning	$175,000	NASAA Pilot Planning Year #3
		11,500	NASAA Partnership Consultations (Assessment)
b.	Information	186,115	NASAA Natl. Info Systems (NISP) year #2
c.	Regl/Natl.Meetings	65,750	NASAA Natl. Partnership Meeting) $93,050
		27,300	NACAA Natl. Partnership Meeting)
d.	Research/Development	65,144	Center for Responsive Governance for LAA study/recommendations (CA)
		15,550	Rodney Napier management study (C)

(2) Anticipated (applications for July-August reviews)

a.	Planning	10,000	NASAA Partnership Consultations (Assessment)
b.	Information	82,695	NASAA Natl. Info Systems (NISP) year #3 (additional $96,000 award anticipated in FY 81)
c.	Regl/Natl.Meetings	8,400	NASAA support of Touring/Presenting and Community committees
d.	Resarch/Develop.	33,016	Ctr. for Responsive Governance for LAA study/recommendations (CA amendment).
		25,000	NASAA national craftsmen project (in conjunction with Visual Arts)
e.	Compliance Assistance	100,000	Special Constituencies has transferred monies for a competitive grants program for model projects for the disabled. Anticipated about 10-20 awards to SAAs and LAAs.
f.	Service Organizations	25,000	NACAA LAA 1980-81 technical assistance

1/ $100,000 was transferred to the Program by Special Constituencies

FISCAL 1979

FEDERAL-STATE PARTNERSHIP PROGRAM[1/]
Category : Governmental Support Services
Total funding; $531,353

a.	Planning	$103,025	NASAA Pilot Planning Year #2
		44,850	NASAA Partnership Consultations (Assessment)
		3,800	Western States Arts Fdn (WESTAF) Planning Meeting for Directors of 10 Western SAAs and NEA Directors
		6,100	Project Assocs. (C)) State Plan studies
		6,300	Athyn Group (C))
		6,600	Opinion Research Assocs.(C))
b.	Information	75,000	New Eng. Fdn. for the Arts (NEFA) for Natl. Info. Systems (NISP) year #1 (4-yr. project)
		12,600	NASAA for NEA/NISP coordination
c.	Regl/Natl.Meetings	15,915	NASAA New Directors/Chairmen meeting
		6,930	NASAA Partnership "transition" committee
		5,000	NASAA for NASAA/Natl.Council on the Arts Committee
d.	Research/Development	24,993	Nellum Assocs.minority study/research (C)
		700	Kenneth Fain "Music in the States" study (PO)
e.	Compliance Assistance[2/]	20,000	NASAA 504 Regional Meetings
		12,500	Columbus, Ohio LAA 504 model project
		5,140	ASTC 504 model project
f	Natl. Service Organizations	72,000	NACAA support to LAAs 1978-79
		85,000	NACAA support to LAAs 1979-80
		25,000	NACAA technical assistance to LAAs 1979-80

1/ In FY 1979, Partnership Coordination, along with State Programs, was part of the Federal-State Partnership Program; the total budget was $22,758,058 for both programs' endeavors. The $531,353 shown above would have been implemented by Partnership Coordination had it existed.

2/ This total of $37,640 was transferred to the Program from Special Constituencies.

NOTE:
Among earlier programs/projects now assisted by other Programs:
NASAA general support to State Programs
Regional Representatives to Special Projects
Fellowships to State Programs
ACA to Special Projects

FISCAL 1978

FEDERAL-STATE PARTNERSHIP PROGRAM[1/]
Category: Services to the Field
Total funding: $994,338

a. National Service Organizations ($292,900)

$ 10,000 ACA for NACAA 1978-79 support
20,000 ACA assistance (travel) for NACAA board
15,000 ACA handbook/directory: "CAAs-A Handbook and Guide"
20,000 ACA technical assistance to State, Regional, local arts agencies (5th yr)
82,400 NASAA basic support 1977-78
120,000 NASAA basic support 1978-79
15,500 NASAA management development program
10,000 NASAA amendment to 1st yr. Pilot Planning Program

b. Regional Representatives ($595,464)

56,194 Boston Fdn. (New England)
63,303 Cultural Council Fdn.(Mid-Atlantic)
59,650 Kansas City Assn. Trusts/Fdns. (Gulf)
63,507 Kansas City Assn. Trusts/Fdns. (South Plains)
60,714 Ohio Fdn. on the Arts (Mid-South)
60,600 Oregon Arts Fdn. (Pacific)
56,694 Sangamon State Univ. (Great Lakes)
49,878 Souixland Planning Council (North Plains)
61,852 Western States Arts Fdn. (Southwest)
61,237 Western States Arts Fdn. (Northwest)
1,835 Western States Arts Fdn. (Northwest) Amendment to FY 77.

c. SAA Regional/National Meetings ($56,829)

4,775 NASAA - Endowment Day
2,120 Arizona-Indian Cultural Coordinators meeting (5 SAAs)
4,090 Illinois-Community Coordinators meeting (5 SAAs)
2,335 Iowa staff/council presentation/attendance at panel meeting
4,150 New Mexico- Indian Cultural Coordinators (9 SAAs)
4,060 Ohio - Great Lakes regional planning (4 SAAs)
2,320 Oregon staff/council presentation/attendance at panel meeting
7,734 Southern Arts Federation program to develop CAA leaders
4,630 Arkansas Arts Center)
1,641 Michigan) Regional SAA meetings to discuss basic
3,987 Rhode Island) grant applications and planning; study
8,245 Combined Arts of San Diego) on Music Programs in SAAs.
4,864 Southern Arts Federation)

d. SAA Fellowships ($49,145)

5,000 Charlotte Carver/South Dakota
6,665 James Haseltine/Washington
17,480 Anthony Keller/Connecticut
5,000 Sandra Perry/Arkansas
5,000 Louise Tester/Arizona
10,000 M.J. Zakrzewski/Alabama

1/ Includes both Partnership Coordination and State Programs.

FISCAL 1977

FEDERAL-STATE PARTNERSHIP PROGRAM 1/
Category: Services to the Field
Total Funding: $748,824

a. National Service Organizations ($341,150)

$160,000	ACA basic assistance to states, communities, arts organizations
75,000	ACA support of Federal-State reassessment
5,000	ACA technical support program (amendment to TQ $20,0-0)
41,150	NASAA basic support 1976-77'
60,000	NASAA 1st yr. Pilot SAA Planning to upgrade planning skills

b. Regional Representatives ($385,619)

48,954	Boston Fdn. (New England)
54,130	Kansas City Assoc. Trusts/Fdns. (Gulf)
57,157	Kansas City Assoc. Trusts/Fdns. (South Plains
4,044	Ohio Fdn. on the Arts (Mid-South)
35,000	Ohio Fdn. on the Arts (Mid-South)
55,537	Oregon Arts Fdn. (Pacific)
47,878	Sangamon State Univ. (Great Lakes)
48,657	Western States Arts Fdn. (Northwest)
18,110	Cultural Council Fdn. (Mid-Atlantic)
15,152	Western States Arts Fdn. (Southwest)

c. Regional/National Meetings ($22,055)

4,880	Alaska for Percent for Arts Meeting (5 SAAs)
4,350	Alabama)
4,900	Colorado)
4,200	Connecticut) Regional SAA meetings to discuss basic grant
3,725	Illinois) plans and the Partnership reassessment

1/ Includes both Partnership Coordination and State Programs.

TRANSITION QUARTER

FEDERAL-STATE PARTNERSHIP PROGRAM 1/
Category: Services to the Field
Total Funding: $212,089

National Service Organizations ($212,089)

$ 187,000	ACA basic program of assistance for state, community, and arts organizations
4,215	ACA for ACA/NASAA/NACAA joint community study
11,500	NASAA for NEA/NASAA joint project to develop reporting procedures
334	NASAA travel assistance
9,040	Sangamon State Univ video documentation project for SAAs/CAAs projects

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FISCAL 1976

FEDERAL-STATE PARTNERSHIP PROGRAM 1/
Category: Services to the Field
Total funding: $438,120

a. National Service Organizations ($103,900)

$ 24,625	ACA amendments to 75-6 support/projects grants (FY basic monies)
50,000	NASAA basic support1975-76
17,000	Texas for NASAA national meeting
12,275	Penn State research conferences on "Effective Boards of Directors"

b. State Arts Agencies Internships ($50,000)

10,000	Alabama	5th year of placing interns in arts admin positions
10,000	Alaska	
10,000	Kentucky	
10,000	North Carolina	
10,000	West Virginia	

c. Regional Representatives ($255,760)

51,225	Kansas City Trusts/Fdns. (Lower Plains)
55,010	Oregon Arts Fdn. (Pacific)
47,607	Sangamon State Univ. (North Central)
51,320	Washington Performing Arts Society (Mid-Atlantic)
49,051	Western States Arts Fdn. (Rocky Mountains)
1,547	Boston Fdn. (Northeast)
-	South Carolina Arts Fdn. (Southeast)

basic funds from FY 75

d. SAA Regional/National Meetings ($28,460)

2,100	Alabama -regional arts agency officials presentation to panel.
4,300	Maryland -orientation for New SAA Directors
11,100	Wisconsin - Mid- and Upper Midwest SAA heads attendance at panel meeting
2,500	Massachusetts Fdn.
3,400	Oregon Fdn.
2,160	Texas
2,900	W.Virginia

Regional SAA meetings to discuss basic grant applications

1/ Includes Partnership Coordination and State Programs.

Museums

Question: You plan to allocate $5.4 million to special exhibitions for museums, up $1.3 million from current funding. Last year you budgeted a $3 million level for special exhibitions in the current year instead of the $4.1 million allocated. What caused this significant increase in your original 1980 budget for special exhibitions?

Answer: You will note that within our FY 1980 Congressional Budget Submission, we requested $3.0 million for the Special Exhibitions category in order to support some 158 exhibitions. This figure was based on two assumptions: 1) the applications submitted would be requesting approximately $8.0 million, and 2) there would be less than 370 applications submitted. However, rather than 370 applicants requesting $8.0 million, approximately 390 applicants requested approximately $10.0 million. Thus, 188 grants were awarded at a cost of $4.1 million.

This increase reflects: 1) an increase in the quality and sophistication of the exhibitions proposed, and 2) the fact that the ceiling (funding limit) was removed from this category, thus enabling higher requests for the support of exhibitions.

The quality applications submitted and the Special Exhibitions Panel's priorities, and those of the Museum Program, warranted an increase in this important area of support.

Question: What is the average grant for a special exhibition?

Answer: In FY 1979 the average grant was less than $20,000. In FY 1980 the average grant was slightly over $22,000. In FY 1981 we anticipate that the average grant will be almost $19,000.

Question: Testimony last month by the National Gallery of Art indicated that some of the larger exhibitions for which you have provided support generate substantial amounts of revenue for the museums and commercial enterprises in the cities where the exhibitions are held. In view of this, is it possible that local governments or business in a city may begin to underwrite some of the more popular special exhibitions?

Answer: This is possible and in many cases desirable. However, major exhibitions often need large amounts of money at the early stages of planning whereas money realized from revenues is sometimes eventual, not coming in until the later stages or even after the closing of an exhibition. If local businesses could be made aware of the need for this funding early in the planning stages, it would be an important advance.

Question: What museum activities originally planned for the current year have been reduced in order to provide the additional $1.1 million in support for special exhibitions?

Answer: With the arrival of a new director of the Museum Program and the development and focused input of a policy panel, the Museum Program carefully reevaluated its established distribution of funds by funding category. Resulting from these efforts were numerous changes to the funding category amounts. To accommodate the revised Special Exhibitions category, support for General Services to the Field, Museum Purchase Plan, Museum Training, and Visiting Specialists was reduced.

Question: Please detail the special exhibitions you are supporting in Fiscal Year 1980.

Answer: (The information follows:)

SPECIAL EXHIBITIONS FISCAL 1980

Allentown Art Museum
Allentown, PA — $ 5,000

To support the sharing of THE PHILLIPS COLLECTION, IN THE MAKING: 1920-1930, an exhibition organized by the Smithsonian Institution Traveling Exhibition Service.

Amarillo Art Center
Amarillo, TX — $5,000

To support an exhibition of works by contemporary Texas artist James W. Boynton. (catalogue/tour)

American Federation of Arts
New York, NY — $40,000

To support an exhibition of the arts of the African household. (catalogue/tour)

American Federation of Arts
New York, NY — $80,000

To support THE AMERICAN FIGURATIVE TRADITION, an exhibition of works from the collections of the Museum of Fine Arts, Boston. (catalogue/tour)

and/or service
Seattle, WA — $5,100

To continue support of a series of small exhibitions of contemporary art.

and/or service
Seattle, WA — $10,650

To support the exhibition of works by three artists in downtown Seattle spaces. (catalogue)

Art Institute of Chicago
Chicago, IL — up to $75,000

To support PAINTINGS BY TOULOUSE-LAUTREC, a major retrospective of over 100 paintings and gouaches. (catalogue)

Arts & Science Center
Nashua, NY — $5,500

To support an exhibition of contemporary fiber art. (catalogue/tour)

The Asia Society/Asia House Gallery
New York, NY — $25,000

To support JOURNEY OF THE THREE JEWELS: JAPANESE BUDDHIST PAINTINGS FROM WESTERN COLLECTIONS. (catalogue/tour)

Association of Science-Technology Centers $20,000
Washington, DC

To support BY DESIGN: PERCEPTUAL PUZZLES IN ART AND SCIENCE, an exhibition dealing with the visual arts and human perception. (pamphlet/tour)

Atlanta Arts Alliance/The High Museum of Art $18,000
Atlanta, GA

To support an exhibition of contemporary art of southern California. (catalogue/tour)

Atlanta Arts Alliance/The High Museum of Art $14,930
Atlanta, GA

To support REFORM AND INVENTION, 1850-1930, an exhibition of approximately 150 pieces of decorative art. (catalogue)

The Baltimore Museum of Art $9,930
Baltimore, MD

To support the planning of an exhibition of the work of 19th century French printmaker Felix Buhot (1847-1898)

Bard College/Edith C. Blum Art Institute $5,580
New York, NY

To support an exhibition of 30 early 18th century scripture history paintings, once common decoration in Dutch households. (catalogue/tour)

Brandeis University/Rose Art Museum $20,000
Waltham, MA

To support ECCENTRIC PAINTING AND SCULPTURE, an exhibition examining the diversity and variety of art in centers across the United States. (catalogue)

Brandywine Conservancy, Inc./Brandywine River Museum $16,920
Chadds Ford, PA

To support an exhibition of works produced by American artist Thomas Eakins (1843-1916) during numerous visits to Avondale, PA. (catalogue)

The Bronx Museum of the Arts $12,000
Bronx, NY

To support BLACK PAINTING IN AMERICA, focusing on the social and cultural condition of Afro-Americans in the visual arts during three periods in history. COMMENT: Panel member Lowry Sims, guest curator for this project, will receive $2,000 of the total project cost of this proposed grant.

Brown University/Art Department $10,000
Providence, RI

To support an exhibition tracing the development of architectural ornament in Italy from 1500 to 1600. (catalogue

Buffalo Fine Arts Academy/Albright-Knox Art Gallery $50,000
Buffalo, NY

To support the first retrospective exhibition in the United States of the work of Sonia Delaunay. (catalogue/tour)
COMMENT: Panel member Linda Cathcart, Curator at the Gallery, will receive no remuneration for this proposed grant.

Buffalo Fine Arts Academy/Albright-Knox Art Gallery $35,000
Buffalo, NY

To support an exhibition of the work of contemporary American artist Nancy Graves. (catalogue/tour)
COMMENT: Panel member Linda Cathcart, Curator at the Gallery will receive $4,750 of the total project cost for this proposed grant.

Buffalo State College Fdn./Burchfield Center $5,150
Buffalo, NY

To support an exhibition examining the Buffalo, NY projects of the American architect H. H. Richardson. (catalogue/tour)

Buffalo State College Fdn./Burchfield Center $2,150
Buffalo, NY

To support the planning of an exhibition of watercolors by Charles Burchfield, Edward Hopper, and Reginald Marsh.

California State University/Art Museum
& Galleries Center $20,870
Long Beach, CA

To support an exhibition examining works by Robert Motherwell and Renate Ponsold in relation to the work of the poet Robinson Jeffers. (catalogue/tour)
COMMENT: Panel member Constance Glenn, Director of the Museum, will received approximately $2,700 of the total project cost of this proposed grant.

California, University of/University Art Gallery $48,520
Berkeley, CA

To support an exhibition of Chinese paintings and woodblock printed books by artists of the Anhui School in the late Ming and early Ch'ing periods (17th century). (catalogue/tour)

California, University of/University Art Gallery $25,000
Berkeley, CA

To provide continued support for MATRIX/BERKELEY, a series of exhibitions examining recent developments in the visual arts. (catalogue)

California, University of/University Art Museum $20,000
Berkeley, CA

To support the first major American exhibition of the work of the late Belgian artist Marcel Broodthaers (1924-1976). (catalogue)

California, University of/UCSB Art Museum — $10,000
Santa Barbara, CA

To support EXTENSIONS OF PHOTOGRAPHY, a contemporary survey of works by photographers who deal with photography in combination with other media or in large scale format normally associated with painterly and sculptural modes. (catalogue/tour)

California, University of/UCSB Art Museum — $30,000
Santa Barbara, CA

To support IN HER IMAGE: A CROSS-CULTURAL INQUIRY INTO THE SYMBOLIC MEANING OF THE MOTHERHOOD OF GOD. (catalogue/tour)

Carnegie Institute/Carnegie Museum of Natural History — $16,840
Pittsburgh, PA

To support the showing in Pittsburgh of FEATHER ARTS: BEAUTY, WEALTH, AND SPIRIT, an exhibition organized by the Field Museum of Natural History in Chicago.

Carnegie Institute/Carnegie Museum of Art — $5,000
Pittsburgh, PA

To support the showing in Pittsburgh of the Sonia Delauney retrospective organized by the Albright-Knox Art Gallery in Buffalo.

Carnegie-Mellon University/Hunt Institute — $13,700
Pittsburgh, PA

To support an exhibition of early 19th century Indian botanical paintings commissioned by the East India Company. (catalogue/tour)

Cedar Rapids Art Center — $18,150
Cedar Rapids, IA

To support an exhibition of works by Grant Wood and John Stewart Curry executed between 1920 and 1945, (catalogue)

Center for Inter-American Relations — $25,000
New York, NY

To suuport XALIBE: CHANGING TRADITION IN GUATEMALAN TEXTILES. (catalogue/tour)

China Institute in America, Inc./China House Gallery — $20,000
New York, NY

To support TREASURES FROM THE NEWARK MUSEUM, an exhibition consisting of 50-60 pieces from the Museum's Chinese collection.

Chrysler Museum — $6,000
Norfolk, VA

To support an exhibition documenting the various stylistic trends in American figure painting from 1954 to 1979. (catalogue/tour)

Sterling & Francine Clark Art Institute
Williamstown, MA — $16,850

To support an exhibition of the prints of American artist Helen Frankenthaler. (catalogue/tour)

Cleveland Museum of Art
Cleveland, OH — $50,000

To support an exhibition of 100 Surealist paintings, sculptures and photographs by 22 major Surrealist and Surrealist-related artists. (catalogue)

Cleveland Museum of Art
Cleveland, OH — $10,000

To support the showing in Cleveland of OLD MASTER PAINTINGS FROM THE COLLECTION OF BARON THYSSEN-BORNEMISZA, organized by the International Exhibitions Foundation.

Contemporary Arts Association
Houston, TX — $20,000

To support PERSPECTIVES, an on-going series of exhibitions devoted to individual contemporary artists. (brochures)

Contemporary Arts Association
Houston, TX — $5,000

To support the showing in Houston of THEMES, an exhibition of the work of Richard Artschwager, organized by the Albright-Knox Gallery, the University of Pennsylvania, and the La Jolla Museum of Contemporary Art.

Contemporary Arts Association
Houston, TX — $6,000

To support the showing in Houston of NANCY GRAVES, organized by the Albright-Knox Art Gallery.

Contemporary Arts Center
Cincinnati, OH — $15,000

To support an exhibition surveying the 25-year career of American artist Pat Adams. (catalogue/tour)

Contemporary Arts Center
Cincinnati, OH — $25,000

To support an exhibition of sculpture, drawings, theatre sets and videotapes by artist/designer Robert Wilson. (catalogue/tour)

Contemporary Arts Center
Cincinnati, OH — $10,000

To support WORKS FOR WALLS, an exhibition of works to be commissioned by artists whose previous work has dealt with walls as support, large-scaled spaces, or spaces for subjective statements. (catalogue)

Corcoran Gallery of Art $30,000
Washington, DC

To support an exhibition of works by the 20th century American Realist painter Guy Pene du Bois. (catalogue/tour)
COMMENT: Museum Policy Panel member Jane Livingston, Associate Director of the Gallery, will receive no remuneration from this proposed grant.

Corcoran Gallery of Art $10,000
Washington, DC

To support an exhibition examining contemporary realist art in Washington. (catalogue) COMMENT: Museum Policy Panel member Jane Livingston, Associate Director of the Gallery, will receive no remuneration from this proposed grant.

Corcoran Gallery of Art $50,000
Washington, DC

To support the first retrospective exhibition of the work of the Belgian-born artist Georges Vantongerloo (1889-1965). (catalogue/tour)
COMMENT: Museum Policy Panel member Jane Livingston, Associate Director of the Gallery, will receive no remuneration from this proposed grant.

Cornell University/Herbert F. Johnson Museum $15,000
Ithaca, NY

To support a series of presentations by eight performance artists, each to be executed during a one-week period. (catalogue)

Cornell University/Herbert F. Johnson $5,000
Ithaca, NY

To support an exhibition of 17th century Dutch drawings from the private collection of Emile Wolf. (catalogue/tour)

Cornell University/Herbert F. Johnson $5,500
Ithaca, NY

To support a catalogue to accompany a retrospective exhibition of the work of the Bauhaus-trained potter Marguerite Wildenhain.

Corning Museum of Glass $30,000
Corning, NY

To support TIFFANY'S TIFFANY, an exhibition concentrating on those objects which Tiffany selected for his personal use in his home, Laurelton Hall. (catalogue)

Corpus Christi Art Foundation/Art Museum of South Texas $2,300
Corpus Christi, TX

To support the showing in Corpus Christi of 19TH AND 20TH CENTURY MASTER DRAWINGS AND WATERCOLORS FROM THE BALTIMORE MUSEUM OF ART, circulated by the American Federation of Arts.
COMMENT: Panel member Cathleen Gallander, Director of the Museum, will receive no remuneration from this proposed grant.

Corpus Christi Art Foundation/Art Museum of South Texas $1,900
Corpus Christi, TX

To support the showing in Corpus Christi of an exhibition of photographs by Manuel Alvarez Bravo, organized by the Corcoran Gallery of Art in Washington, DC COMMENT: Panel member Cathleen Gallander, Director of the Museum, will receive no remuneration from this proposed grant.

Corpus Christi Art Foundation/Art Museum of South Texas $5,250
Corpus Christ, TX

To support the showing in Corpus Christi of FERNANDO BOTERO: A RETROSPECTIVE EXHIBITION, organized by the Hirshhorn Museum and Sculpture Garden in Washington, DC.
COMMENT: Panel member Cathleen Gallander, Director of the Museum, will receive no remuneration from this proposed grant.

Cranbrook Academy of Art $7,500
Bloomfield Hills, MI

To support VIEWPOINT, a series of exhibitions of contemporary art selected by the Museum's director. (catalogue)

Creative Time, Inc. $10,000
New York, NY

To support NEW DIRECTION AND INVESTIGATIONS IN ENVIRONMENTAL ART, an exhibition of new works created by eight environmental artists. The works will be executed in a section of the Battery Park City landfill in Lower Manhattan.

E. B. Crocker Art Gallery $6,420
Sacramento, CA

To support an exhibition of Paper Art consisting of 5 works each by 15 artists. (catalogue/tour)

DeEtte Holden Cummer Museum $11,180
Jacksonville, FL

To support an exhibition of the Florida and Tropical paintings by the 19th century American artist Martin Johnson Heade. (catalogue/tour)

Danforth Museum $12,500
Framingham, MA

To support an exhibition of paintings, drawings and prints by the French artist Jean Louis Forain (1852-1931). (catalogue/tour)

Danforth Museum $17,350
Framingham, MA

To support REALISM, a survey of attitude, style and technique among realist artists of the 1970's. (catalogue)

DeCordova and Dana Museum and Park — $10,000
Lincoln, MA

To support ASPECTS OF SEVENTIES' PHOTOGRAPHY, a comprehensive review of the significant developments of fine art photography. (catalogue)

de Young Museum Art School — $10,000
San Francisco, CA

To support an exhibition of Plains Indians drawings and paintings. (brochure)

Denver Art Museum — $27,810
Denver, CO

To support POETS AND PAINTERS, an exhibition examining the major poet/painter relationships of the 1970's. Twelve poets will each select two artists to participate. (catalogue/tour)

Denver Art Museum — $5,000
Denver, CO

To support the showing in Denver of JOURNEY OF THE THREE JEWELS: JAPANESE BUDDHIST PAINTING FROM WESTERN COLLECTIONS, organized by Asia House Gallery.

Essex Institute — $7,770
Salem, MA

To support an exhibition of the works of the marine and landscape painter Charles Edwin Lewis Green (1844-1915), to be jointly organized with the Brockton Art Center. (catalogue/tour)

Fayetteville Museum of Art — $5,000
Fayetteville, NC

To support an exhibition of works by the American Impressionist painter, Frederick Carl Frieseke. (tour)

Fort Wayne Museum of Art — $5,680
Fort Wayne, IN

To support an exhibition of the drawings and paintings of contemporary American artist Alice Neel. (catalogue)

Fort Worth Art Association/Fort Worth Art Museum — $15,000
Fort Wayne, TX

To support FOCUS, a one-year program of eight small-scale, one-artist exhibitions of contemporary art. (brochure)

Fort Worth Art Association/Fort Worth Art Museum — $3,000
Ft. Worth, TX

To support the showing in Fort Worth of JACKIE WINSOR, organized by the Museum of Modern Art.

Founders Society/Detroit Institute of Arts
Detroit, MI $75,000

To support an exhibition of 17th century Dutch paintings, the subject matter of which is based on historical themes, scenes from classical history, religion, alllegory and literary texts. (catalogue/tour)
COMMENT: Council member Dolores Wharton, Trustee of the Institute, will receive no remuneration from this proposed grant. Policy Panel member Dewey Mosby, Curator at the Institute, will receive over a two-year period $14,800 of the total project cost of this proposed grant.

Founders Society/Detroit Institute of Arts
Detroit, MI $75,000

To support AMERICAN ART FROM 1876-1893, THE AMERICAN RENAISSANCE, an exhibition documenting the impact of the Philadelphia Centennial and the World's Columbian Exposition. (catalogue/tour)
COMMENT: Council member Dolores Wharton, Trustee of the Institute, and Museum Policy panel member Dewey Mosby, Curator at the Institute, will receive no remuneration from this proposed grant.

Founders Society/Detroit Institute of Arts
Detroit, MI $10,000

To support the showing in Detroit of an exhibition of 19th century French sculpture. organized by the Los Angeles County Museum of Art. (catalogue/tour)
COMMENT: Council member Dolores Wharton, Trustee of the Institute, will receive no remuneration from this proposed grant. Museum Policy Panel member Dewey Mosby, Curator at the Institute, will receive $4,600 of the total project cost of this proposed grant.

Franklin Furnace Archive, Inc.
New York, NY $10,000

To support ALTERNATIVE SPACES, an anthology of documentation of events and activities in the 1960's and 70's in New York City. (catalogue/tour)

Franklin Institute
Philadelphia, PA $40,000

To support STRUCTURES, an exhibition exploring aspects of the historical and contemporary relationships between materials, scientific and engineering principles, and their aesthetic implications in the design and construction of large public buildings and bridges.

Trustees of the Fuller Memorial/Brockton Art Center
Brokton, MA $20,000

To support ABSTRACT PAINTING AND INDOOR SCULPTURE, an investigation of the continuing role of abstract art as the mainstream of the 1970's. (catalogue)

Solomon R. Guggenheim Museum
New York, NY $50,000

To support an exhibition of major paintings by the Abstract Expressionist painter, Ad Reinhardt. (catalogue)

Solomon R. Guggenheim Museum $150,000
New York, NY

To support the presentation of a definitive exhibition of the German Expressionist movement. To be jointly organized with the San Francisco Museum of Modern Art. (catalogue/tour)

Harvard University/Fogg Art Museum $50,000
Cambridge, MA

To support an exhibition of 100 drawings, watercolors, collages and "papier colles" by Pablo Picasso. (catalogue/tour)

Harvard University/Busch-Reisinger Museum $36,000
Cambridge, MA

To support the organization of the first American museum exhibition of the work of the German artist, Gabriele Munter (1877-1962). (catalogue/tour)

Hawaii-Manoa, University of/Department of Art $12,550
Honolulu, HI

To support an exhibition of furniture made in Hawaii between 1778 and 1920. (catalogue)

Hofstra University/Emily Lowe Gallery $16,000
Hempstead, NY

To support an exhibition of the work of the CoBrA Group, an important European Abstract Expressionists movement. (catalogue/tour)

Honolulu Academy of Arts $50,000
Honolulu, HI

To support EXQUISITE VISIONS: MASTERWORKS OF THE SOTATSU-KORIN TRADITION FROM JAPANESE COLLECTIONS. (catalogue/tour)

Hudson River Museum of Yonkers, Inc. $27,550
Yonkers, NY

To support an exhibition of recent work by American artist Richard Serra. (catalogue)

Indianapolis Museum of Art $50,000
Indianapolis, IN

To support an exhibition of Tz'u-chou wares, ceramics produced in northern China from the 10th century to the present. (catalogue/tour)

Institute for Art and Urban Resources $10,000
Long Island City, NY

To support an exhibition of works by Roger Brown, Robert Gordy and John Tweddle, an in-depth presentation of 3 painters outside the mainstream with relatively little prior exposure in New York. (catalogue)

Institute of Contemporary Art
Boston, MA — $15,370

To support a retrospective exhibition of the work of American artist Florine Stettheimer. To include paintings, models of stage sets and costume studies. (catalogue/tour)

Institute of Contemporary Art
Boston, MA — $21,950

To support an exhibition of approximately 100 works by artists associated with the Dada movement in Germany. (catalogue/tour)

Institute of Contemporary Art
Boston, MA — $19,050

To support an exhibition examining the figurative work of Jackson Pollack produced in 1951 and 1952. (catalogue)

International Center of Photography
New York, NY — $20,000

to support a retrospective exhibition of the work of photographer Gjon Mili widely known as a long-time contributer to Life Magazine. (catalogue/tour)

International Museum of Photography
at George Eastman House
Rochester, NY — $24,300

To support THE LINKED RING, an exhibition of works by photographers of the early secessionist period of the 1890's. (catalogue/tour)

International Exhibitions Foundation
Washington, DC — $100,000

To support an exhibition of 57 Old Master paintings from the collection of Baron Thyssen-Bornemisza in Lugano, Switzerland. (catalogue/tour)

International Exhibitions Foundation
Washington, DC — $30,000

To support an exhibition of 150 Japanese Drawings of the 18th and 19th centuries. (catalogue/tour)

Kansas, University of/Spencer Museum of Art
Lawrence, KS — $8,560

To support AMERICAN SYMBOLIST, an exhibition focusing on American painters of the period 1885 to 1915. (catalogue/tour)

La Jolla Museum of Contemporary Art
La Jolla, CA — $10,500

To support the showing in La Jolla of constructivist works drawn from the collection of the McCrory Corporation.

Los Angeles Institute of Contemporary Art — $49,070
Los Angeles, CA

To support a collaborative exhibition including University of California at Irvine, California Institute of Technology, and Mount St. Mary's College focusing on works by artists who deal with structures/sculptures, stressing architectural references and interior and exterior space.

Maryland Academy of Sciences — $15,000
Baltimore, MD

To support PORTRAIT OF AN ATOM, an exhibition by Kenneth Snelson tracing the artistic development of his new model of the atom based on sculptural and structural experiments. (tour)

Massachusetts Institute of Technology/
Committee on the Visual Arts — $14,870
Cambridge, MA

To support an exhibition of commissioned drawings by Mel Bochner and Richard Serra. (catalogue)

Massachusetts, University of/University Gallery — $8,460
Amherst, MA

To support the exhibition of a steel and wood sculptural environment by George Trakas designed and constructed for the University Gallery's interior spaces. (catalogue)

Metropolitan Museum of Art — $30,000
New York, NY

To support a retrospective exhibition of works by Clyfford Still.
COMMENT: Council member Geraldine Stutz, member of the Visiting Committee of the Museum, and panelist Lowry Sims, curator of the Museum, will receive no remuneration from this proposed grant.

Michigan, University of/Museum of Art — $30,190
Ann Arbor, MI

To support an exhibition of Papal medallions ranging from the 15th to the 18th centuries. (catalogue/tour)

Michigan, University of/Kelsey Museum of Archaeology — $11,040
Ann Arbor, MI

To support an exhibition of Greek sculpture from 600 to 100 B.C. (brochure)

Mid-America Arts Alliance — $15,000
Kansas City, MO

To support MASTERS OF AMERICAN WATERCOLOR, an exhibition tracing the development of American watercolor painting from 1900 to the present. (catalogue/tour)

Mid-America Arts Alliance
Kansas city, MO — $14,000

To support an exhibition of oriental rugs from the collection of the Metropolitan Museum of Art in New York. (catalogue/tour)

Mills College
Oakland, CA — $7,540

To support an exhibition of recent, large-scale paintings by Nathan Oliveira. (catalogue/tour)

Mingei International, Inc./Museum of World Folk Art
La Jolla, CA — $5,000

To support "Village and Ritual Arts of India" an exhibition of historical and contemporary traditional arts of India. (catalogue)

Minneapolis Society of Fine Arts/Minneapolis College of Art and Design
Minneapolis, MN — $12,000

To support an exhibition of "The House of Thomas Jefferson," by Siah Armajani, including the finished work and models. (catalogue/tour)

Minneapolis Society of Fine Arts/Minneapolis Institute of Arts
Minneapolis, MN — $15,000

To support an exhibition documenting the creative process leading to Leger's production of "Grand Dejeuner," one of his most important paintings. (catalogue/tour)

Mint Museum
Charlotte, NC — $15,000

To support an exhibition of paintings and collages produced by Romare Bearden from 1970-1979. (catalogue/tour)

Mississippi Art Association/Mississippi Museum of Art
Jackson, MS — $10,000

To support an exhibition of the work of Thomas Cantwell Healy, a 19th century portraitist who worked primarily in Mississippi. (catalogue/tour)

Mississippi Art Association/Mississippi Museum of Art
Jackson, MS — $10,000

To support an exhibition of contemporary art by Black-Americans to coincide with National Negro History Month. (catalogue/tour)

Montgomery Museum of Fine Arts $20,000
Montgomery, AL

To support a comprehensive exhibition of paintings and three-dimensional constructions by the native Alabama artist Roger Brown. (catalogue/tour)
COMMENT: Council member Maureen Dees will receive no remuneration from this proposed grant.

Morris Museum of Arts and Sciences $6,000
Convent, NJ

To support a series of temporary environmental art projects installed on a nine-acre tract of land around the Museum. (brochure)

Munson-Williams-Proctor Institute $25,000
Utica, NY

To support an exhibition of painting, sculpture, graphics and decorative arts which reflect the beauty of Olympic sports in both ancient and modern times. (catalogue)

Muse-Hopper, Inc. $10,000
University Center, MI

To support an exhibition of folk art from East Central Michigan. (catalogue/tour) COMMENT: The Folk Arts Program has been informed of this proposed grant.

Museum of American Folk Art $5,000
New York, NY

To support an exhibition documenting the artistic vision and craftsmanship of the Shaker folk culture. (catalogue)
COMMENT: The Folk Arts Program has been informed of this proposed grant.

Museum of American Folk Art $5,000
New York, NY

To support exhibitions of works by 19th century portrait painter John Blunt and kinetic carvings used in gardens to frighten birds. (catalogue)
COMMENT: The Folk Arts Program has been informed of this proposed grant.

Museum Associates/Los Angeles County Museum of Art $75,200
Los Angeles, CA

To support an exhibition of 19th century French sculpture, the contents of which will be drawn entirely from American collections. (catalogue/tour)

Museum Associates/Los Angeles County Museum of Art $10,000
Los Angeles, CA

To support the showing in Los Angeles of MASTER PAINTINGS FROM THE COLLECTION OF BARON THYSSEN-BORNEMISZA, organized by the International Exhibitions Foundation.

Museum of Contemporary Art
Chicago, IL — $10,000

To support the first museum exhibition of paintings and drawings by the American artist Ralph Humphrey. (catalogue/tour)

Museum of Contemporary Art
Chicago, IL — $21,900

To support a series of exhibitions featuring one or more artists represented by single projects or a small group of related works.

Museum of Fine Arts
Boston, MA — $65,000

To support an exhibition celebrating the 200th anniversary of the birth of American artist Washington Allston, co-organized with the Pennsylvania Academy of Fine Arts. (catalogue/tour)

Museum of Fine Arts
Boston, MA — $75,000

To support THE GOLDEN AGE OF DUTCH PRINTMAKING, 1588-1701. (catalogue/tour)

Museum of Fine Arts
Houston, TX — $75,000

To support a comprehensive exhibition charting the entire development of French landscape painting friom Valensiennes (1750-1819) to Cezanne. (catalogue/tour)

Museum of Fine Arts
St. Petersburg, FL — $8,970

To support PARIS IN THE BELLE EPOQUE: PEOPLE AND PLACES. (catalogue)

Museum of Modern Art
New York, NY — $40,000

To support the Museum's program of departmental gallery exhibitions and small temporary exhibitions. (tour)

COMMENT: Council members Geraldine Stutz, member of the Business Committee of the Museum, and Dolores Wharton, Trustee of the Museum, and Policy Panel member Richard Oldenburg, Director of the Museum, will receive no remuneration from this proposed grant.

Museum of Our National Heritage
Lexington, MA — $60,000

To support an exhibition of Belter furniture, the form of which is derived from Rococo designs. (catalogue/tour)

National Center for Afro-American Artists
Boston, MA — $20,000

To support an exhibition examining Afro-American art of the 19th century in the context of American art produced during the same period. (catalogue)

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National Center of Afro-American Artists
Boston, MA
$15,000
partially matching

To support BLACK ART TODAY, an exhibition examining the strides made by black artists since the turbulent sixties. (catalogue)

National Trust for Historic Preservation
Washington, DC
$10,000

To support an exhibition of contemporary sculpture on the grounds of Chesterwood, home of American sculpture Daniel Chester French. (catalogue)

Native American Center of the Living Arts
Niagara Falls, NY
$10,000

To support SPIRIT OF THE EARTH, an exhibition of the work of 150 emerging and established Indian artists. (catalogue)

Neuberger Museum, Friends of the
Purchase, NY
$10,000

To support an exhibition of the work of Will Barnet, surveying the themes of his work and the influences which shaped his vision. (catalogue/tour)

The New Museum
New York, NY
$5,000

To support an exhibition using photography in a large creative context, such as assemblages and performance. (catalogue)

The New Museum
New York, NY
$10,000

To support an exhibition of the work of approximately six contemporary artists who have never exhibited in New York. (catalogue)

The New Museum
New York, NY
$13,500

To support a retrospective exhibition of paintings, drawings and installations by the late American artist Ree Morton. (catalogue/tour)

New Orleans Museum of Art
New Orleans, LA
$10,000

To support the showing in New Orleans of CHATSWORTH: THE DEVONSHIRE INHERITANCE, organized by the International Exhibitions Foundation.

New Orleans Museum of Art
New Orleans, LA
$10,000

To support a retrospective exhibition of the work of Louisiana artist Robert Gordy. (catalogue/tour)

New York University/Grey Art Gallery
New York, NY — $5,000

To support the showing in New York City of the Sonia Delaunay exhibition organized by the Albright-knox Gallery in Buffalo.

New York University/Grey Art Gallery
New York, NY — $18,200

To support an exhibition of the work of lesser known but substantial artists who worked in New York City during the late 1950's and 1960's. (catalogue)

New York University/Museum Studies Program
New York, NY — $10,000

To support IMAGES OF POWER: THE ART OF THE ROYAL BENIN COURT, an exhibition of materials from this highly important African culture. (catalogue)

Newport Harbor Art Museum
New Port Beach, CA — $12,000

To support a series of small exhibitions intended to introduce the public to new artists and new art ideas. (catalogue)

Newport Harbor Art Museum
Newport Beach, CA — $9,850

To support a comprehensive survey exhibition of the work of California artist Vija Celmins from 1964 to 1979. (catalogue/tour)

North Carolina Central University
Durham, NC — $8,000

To support AMERICAN LANDSCAPE: EAST AND WEST: 1820-1920, an exhibition co-organized by North Carolina Central University and Montana State University (brochure/tour)

Oakland Museum Association/The Oakland Museum
Oakland, CA — $19,620

To support IMPRESSIONISM IN CALIFORNIA, 1890-1930, to include the work of approximately 50 artists varyingly influenced by the Impressionist movement. (catalogue/tour)

Pierpont Morgan Library
New York, NY — $75,000

To support an exhibition of the Dutch royal collections from William of Orange to Queen Juliana, with a principal focus on the holdings of William and Mary. (catalogue)

Portland Center for the Visual Arts
Portland, OR — $12,000

To support a series of small exhibitions and events held in conjunction with the Center's ongoing exhibitions of contemporary art. (brochure/tour)

Roberson Center for the Arts and Sciences $5,000
Binghamton, NY

To support NATURE AND AMBITION: CHANGING IMAGES OF THE SUSQUEHANNA, an exhibition of paintings of the Susquehanna River. (catalogue/tour)

Rutgers, The State University $15,000
New Brunswick, NY

To support a retrospective exhibition of the work of O. Louis Guglielmi, examining his central role in the neglected style of social surrealism.

The St. Louis Art Museum $5,000
St. Louis, MO

To support the showing in St. Louis of MARSDEN HARTLEY, organized by the Whitney Museum in New York City.

The St. Louis Art Museum $5,000
St. Louis, MO

To support the showing in St. Louis of an exhibition of the photographic works and selected sculptures of Constantin Brancusi.

The St. Louis Art Museum $5,000
St. Louis, MO

To support the showing in St. Louis of JAPANESE DRAWINGS OF THE 18TH AND 19TH CENTURIES, organized by the International Exhibitions Foundation.

The St. Louis Art Museum $5,000
St. Louis, MO

To support the showing in St. Louis of IMAGES OF AN ERA: GERMAN EXPRESSIONIST ART FROM THE R. G. RIFKIND COLLECTION, organized by UCLA.

The St. Louis Art Museum $8,000
St. Louis, MO

To support CURRENTS, a continuing exhibition program of the contemporary arts. (brochure)

San Antonio Museum Association $25,000
San Antonio, TX

To support an exhibition examining realism in contemporary American painting and sculpture of the last 15 years. (catalogue/tour)

San Diego Museum of Art $15,000
San Diego, CA

To support a comprehensive survey exhibition of recent California sculpture. (catalogue/tour)

San Francisco Art Institute
San Francisco, CA — $5,000

To support an exhibition of paintings and works on paper produced by Joan Snyder during the last 10 years. (catalogue/tour)

San Francisco Museum of Modern Art
San Francisco, CA — $10,000

To support an exhibition of the work of the Belgian surrealist painter Paul Delvaux. (tour)
COMMENT: Policy Panel member Henry Hopkins, Director of Museum, will receive no remuneration for this proposed grant.

San Francisco Museum of Modern Art
San Francisco, Ca — $75,000

To support a retrospective exhibition of the work of American artist Philip Guston. (catalogue/tour)
COMMENT: Policy Panel member Henry Hopkins, Director of the Museum, will receive $9,000 of the total project cost of this proposed grant.

Santa Clara, University of/De Saisset Art Gallery and Museum — $15,000

To support a retrospective exhibition of paintings, prints and drawings by American artist John Altoon. (catalogue/tour)

The Schenectady Museum Association
Schenectady, NY — $8,000

To support an exhibition surveying the range of expressive means and subject matter in works of art on paper by American artists from 1850 to 1925. (catalogue)

The Seattle Art Museum
Seattle, WA — $12,500

To support the showing in Seattle of 5000 YEARS OF KOREAN ART, organized by the Asian Art Museum in San Francisco.

The Seattle Art Museum
Seattle, WA — $75,000

To support MASTERS OF JAPANESE NATURALISM: MARUYAMA-SHIJO SCHOOL PAINTING, 1750-1850, co-organized with the St. Louis Art Museum. (catalogue/tour)

Sheboygan Arts Foundation, Inc./John Michael Kohler Arts Center
Sheboygan, WI — $20,000

To support an exhibition examining the aesthetic value of maps and the use of maps as subject matter in contemporary art. (catalogue)

Sierra Nevada Museum of Art — $12,910
Reno, NV

To support an historical survey exhibition of the work of artists who drew inspiration from the desert lands of the Southwest and Great Basin regions of the American West. (catalogue/tour)

Southeastern Center for Contemporary Art — $15,000
Winston-Salem, NC

To support an exhibition of the work of seven artists who receive fellowships under the NEA/SECCA program. (catalogue/tour)

Southern Alleghenies Museum of Art — $4,500
Loretto, PA

To support an exhibition of 19th century Pittsburgh Glass. (brochure)

Southern California, University of/Art Galleries — $10,510
Los Angeles, CA

To support a survey exhibition of the painting, and graphic work of Los Angeles artist Walter Askin. (catalogue/tour)

Springfield Library and Museum Association — $18,420
Springfield, MA

To support an exhibition of the work produced by American artist John Sloan during the years he summered in Gloucester, Mass. (1914-1918). (catalogue/tour)

Stanford University/Stanford Museum — $7,500
Stanford, CA

To support an exhibition of 50 prints by Paul Klee in honor of the 100th anniversary of his birth. (catalogue)

Stanford University/Stanford Museum — $2,440
Stanford, CA

To support the showing at Stanford of PRINTS BY JAMES ENSOR, organized by the International Exhibitions Foundation.

The Textile Museum — $30,000
Washington, DC

To support an exhibition of Turkoman knotted pile weavings, produced primarily during the 19th century. (catalogue/tour)

The Toledo Museum of Art — $10,000
Toledo, OH

To support the showing in Toledo of CHATSWORTH: THE DEVONSHIRE INHERITANCE, organized by the International Exhibitions Foundation.

Virginia Museum of Fine Arts
Richmond, VA
$5,000

To support an exhibition of Chinese export porcelain from the Mottahedeh Collection. (catalogue)
COMMENT: Panelist Peter Mooz, Director of the Museum, will receive no remuneration from this proposed grant.

Virginia Museum of Fine Arts
Richmond, VA
$10,000

To support the showing in Richmond of CHATWORTH: THE DEVONSHIRE INHERITANCE, organized by the International Exhibition Foundation.
COMMENT: Panelist Peter Mooz, Director of the Museum, will receive no remuneration from this proposed grant.

Virginia Museum of Fine Arts
Richmond, VA
$6,300

To support an exhibition examining the sculptural, artistic quality of acient Greek and Roman coins by focusing on a number of outstanding numismatic portraits. (brochure)
COMMENT: Panelist Peter Mooz, Director of the Museum, will receive no remuneration from this proposed grant.

Wadsworth Atheneum
Hartford, CT
$30,000

To support MATRIX, a changing exhibition of contemporary art. The exhibition will include 16 small-scale, one-person exhibitions. (catalogue)

Walker Art Center, Inc.
Minneapolis, MN
$30,000

To support VIEWPOINTS, an exhibition series concentrating on recent work by younger artists.(brochure/tour)
COMMENT: Council member Martin Friedman, Director of the Center, will receive no remuneration from this proposed grant. Panelist Graham Beal, Curator at the Center, will recieve approximately $3,040 of the total project cost of this proposed grant.

Walker Art Center, Inc.
Minneapolis, MN
$100,000

To support a comprehensive exhibition of the De Stijl movement, encompassing the years 1917 to 1931. (catalogue/tour)
COMMENT: Council member Martin Friedman, Director of the Center, will receive no remuneration from this proposed grant. Panelist Graham Beal, Curator at the Center, will receive approximately $3,300 of the total project cost of this proposed grant.

Walker Art Center, Inc.
Minneapolis, MN
$40,000

To support the first comprehensive exhibition of works by the American painter Chuck Close. (catalogue/tour)
COMMENT: Council member Martin Friedman, Director of the Center, and Panelist Graham Beal, Curator at the Center, will receive no remuneration from this proposed grant.

Washington, University of/Thomas Burke Memorial
Washington State Museum $13,110
Seattle, WA

To support SPIRIT OF THE TIGER: FOLK ART OF KOREA and an accompanying lecture series. (catalogue)
COMMENT: Council member Jacob Lawrence will receive no remuneration from this proposed grant.

Washington, University of/Henry Gallery Association $20,000
Seattle, WA

To support the first major showing of important 19th century American Impressionist paintings on the west coast. (catalogue/tour)
COMMENT: Council member Jacob Lawrence will receive no remuneration from this proposed grant.

Washington University/Gallery of Art $25,000
St. Louis, MO

To support an exhibition of paintings, drawings and watercolors by Joan Miro. (catalogue/tour)

Wayne State University/Women's Caucus for Art $8,000
Detroit, MI

To support an exhibition which will explore the theme of autobiography in recent works by American women artists. (catalogue)

Wellesley College/Jewett Arts Center $25,000
Wellesley, MA

To support THE SITED SCULPTURE, an exhibition of environmental works done specifically for interior and exterior sites on the Wellesley Campus. (catalogue)

Western Association of Art Museums $8,000
Oakland, CA

To support an exhibition of quilts made for cradles, cribs, trundle beds and doll beds. (brochure/tour)

Western States Art Foundation $35,000
Denver, CO

To support the planning and organization of the second Western States Biennial Exhibition. (catalogue/tour)
(Regional: AK, AZ, CA, CO, HI, ID, MN, NV, NM, OR, VT, TX, WA, and WY)

Whitney Museum of American Art $75,000
New York, NY

To support a major exhibition of paintings, watercolors, drawings, and prints by American artist Edward Hopper. (catalogue/tour)

Whitney Museum of American Art $3,750
New York, NY

To support the planning of the Whitney Biennial.

Whitney Museum of American Art
New York, NY — $45,000

To support PERCEPTUAL ENVIRONMENTS, an exhibition focusing on artists who create environments using light and space as the active ingredients. (catalogue)

Wichita Art Museum
Wichita, KS — $11,180

To support an exhibition of works by American realist artists produced from 1930 to 1948. (catalogue/tour)

The College of Wooster/Art Center Museum
Wooster, OH — $14,890

To support a retrospective exhibition of the work of contemporary American artist Miriam Schapiro. (catalogue/tour)

Wright State University/University Gallery
Dayton, OH — $10,000

To support a major outdoor laser installation by American sculptor Rockne Krebs. (catalogue)

Music

Question: Along the same lines, you indicated last year that 140 grants would be awarded in the field of jazz for a total of $935,000. Instead you now list 240 grants at a cost of almost $1.4 million. What led you to fund 100 more grants in this area than had been planned?

Answer: This discrepancy is more apparent than real. The FY 1980 budget separated support for jazz organizations from jazz individuals. The FY 1981 budget properly displays the totals for jazz activities.

Question: The budget contains a new category of support for music festivals at a level of $300,000. You state that some festivals have been funded in the past under different categories. What has been the annual level of support in prior years for music festivals?

Answer: In FY 1979, a total of $112,300 was expended for music festivals. We anticipate the total spending level for FY 1980 to be $110,300.

Question: Last year's request included $5.7 million for opera-musical theater in the music category. There is no mention of this program in the 1981 justification. Has it been eliminated?

Answer: Opera-Musical Theater for the past few years has been a program separate from Music. The FY 1980 budget request listed the $5.7 million as a separate budget item and the justification was included on pages 120 through 125 of last year's appropriations request submission. In FY 1981, we are requesting $6.175 million for Opera-Musical Theater and the justification is included on pages 126 through 132 of the FY 1981 appropriations request submission.

Question: How much will actually be spent this year for opera-musical theater?

Answer: In FY 1980 $5.575 million will be spent.

Research

Question: The budget requests $1.2 million for research -- almost double the current level -- in order for you to analyze census data. This is to be done through a series of contracts. What kinds of data will the Bureau of the Census make available to contractors?

Answer: The Bureau of the Census makes extensive data available to the public, as well as to Federal agencies, and offers many kinds of services to facilitate beneficial use of Census data. The Research Division of the National Endowment for the Arts has benefited from this resource and has made extensive use of data collected by the Bureau of the Census in the 1970 Census and has also utilized data collected by the Bureau of the Census for other Federal agencies during the decade of the 1970's, including the Department of Labor and the Department of Health, Education and Welfare. It is the current intention of the Research Division of the Arts Endowment to utilize the resources that are provided by the Bureau of the Census to the extent possible and to avoid duplication and needless expense in conducting research on the American artist population. Specifically, the Bureau of the Census makes available an extensive series of published reports that contain occupational data about approximately 400 broad occupational groups in the American labor force. Nine of these are of special interest to the Arts Endowment, for example: authors, musicians and composers, dancers, architects, designers, etc. In addition, the Bureau of the Census makes available to the public a sample of the information contained on the questionnaires used during the Census. This sample is in the form of magnetic tapes and is called the Public Use Sample. It permits other Federal agencies and the public, with access to their own computers, to construct whatever special tables they desire, which would not otherwise be published by the Bureau of the Census. A third form of data available from the Bureau of the Census are special tabulations of data.

Many public agencies order special tabulations that are not otherwise produced by the Bureau of the Census, but can be economically printed by the Bureau of the Census' computers at the same time the tables that are to be used for the Bureau's regular publications are being generated. Finally, the Bureau of the Census conducts many kinds of special studies for other Federal agencies. In all of these different approaches to the beneficial utilization of Census data, the Bureau of the Census maintains control over the confidentiality of the respondents and does not identify individuals or their addresses.

Question: Specifically, what questions are you looking at on the Census form which relate to the Endowment?

Answer: The Bureau of the Census classifies all persons in the American population with respect to their participation in the labor force. Persons in the labor force are in turn sorted into approximately 400 occupational groups. In the 1980 Census reports to be forthcoming, nine broad occupational groups are of special interest to the Arts Endowment. These are: authors; designers; musicians and composers; actors and directors; painters, sculptors, craft-artists, and artist print-makers; photographers; dancers; architects; and teachers of art, drama, and music in higher education. For these artist occupation groups, the Arts Endowment is interested in the relevant data that has been collected on the 1980 Census form, such as the total numbers of individuals, their ages, sex, minority patterns, education, place of residence, migration between 1975 and 1980, family and household characteristics, education, earnings, etc. This information can then be compared with similar information obtained in the 1970 Census to provide a measure of change in the American artist population during the past decade, contribute to a better understanding of the impact of the Arts Endowment, and point to needs for future activities.

Question: Will these data all be available in the coming fiscal year?

Answer: No. The data collected in the 1980 Census will not begin to become available until sometime in calendar year 1982. Present plans of the Bureau of the Census are to complete the occupational classification and coding sometime towards the end of calendar year 1981. (Follow-up procedures to the mailing of the questionnaires during Census Month, April 1980, will not be concluded much before the end of calendar year 1980 and the work of processing the data will occupy most of the following year.) The occupational sorting is a very lengthy and difficult operation for the Bureau of the Census since it involves individual coding of the questionnaires and classification of each person in the American population into one of the standard occupational classifications. After the occupational classification work has been completed, it becomes possible for the Arts Endowment's contractors to begin the work of generating the tables and the analyses that are required before these data can be interpreted and made useful for the Endowment's work. This should be underway by the end of calendar year 1982 but will not be fully completed for several years.

Question: Would you provide a more complete justification of this request for the record?

Answer: The request for increase in funds to support research associated with the data collected in the 1980 Census is fairly complicated. Actually, the first funding of such expenditures commences in Fiscal Year 1980 with a series of planning studies for one of several projects — a follow-up survey of artists. Additional funding increments are necessary to continue this work through FY 1985. The peak funding years for the efforts currently planned in connection with the 1980 Census are FY 1982 and FY 1983. After this, the required funds will decline in FY 1984 and FY 1985. The several kinds of activities that are planned include the analysis of published data and special tabulations which are to be ordered from the Bureau of the Census and a series of special studies of the Public Use Sample data, which will be available on magnetic tape. The results of these studies will be comparable to what has already been done with data available from the 1970 Census and which has been disseminated broadly in several publications of the Research Division Report series (#1, Employment and Unemployment of Artists: 1970-1975; #5, Where Artists Live: 1970; #7, Minorities and Women in the Arts: 1970; #10, Selected Characteristics of Artists: 1970 (Self-Employment, Migration, and Household

and Family); and the forthcoming #12, Artists Compared by Age, Sex, and Earnings in 1970 and 1976).

For the 1980 Census, the Research Division of the Arts Endowment proposes to conduct an additional study in cooperation with the Bureau of the Census that will require a major part of the funds for our Census studies. This will be a follow-on study of the enumerated artists. It will use a procedure that has been established for several decades for occupational groups such as scientists, engineers, doctors, nurses, dentists, etc., and is utilized by other Federal agencies working in cooperation with the Bureau of the Census. However, it has never been utilized for the American artist population. The procedure involves taking the names and addresses of the artists enumerated in each of the broad artist occupational groups and drawing unbiased national samples to which detailed follow-on questionnaires may then be mailed. This procedure has immense research power to obtain detailed information and offers two important possibilities that go beyond the capabilities of the data that will be available in a regular way from the 1980 Census forms. First, it will become possible through the follow-on surveys to obtain data on finer subdivisions of the broad artist occupational groups and second, it is possible to obtain detailed information that is specific to the artistic interests, aspirations, conditions, careers, and earnings from art. For example, the follow-on survey will make it possible to obtain information on the numbers of musicians engaged in each of the separate genres, such as jazz instrumental performance, and then to learn about the earnings, aspirations, and career achievements of each of these special and uniquely different groups of musicians. Another example is that the broad occupation category of designers can be subdivided into its many areas of specialization with detailed information obtained for such suboccupational groups as graphic designers, commercial designers, display designers, interior designers, cloth designers, set designers, stained glass designers, floral designers, package designers, etc. And for authors, such detailed subclassifications as lyricists, playwrights, poets, novelists, and screen writers may be distinguished and the data reported out separately. The combination of detailed occupational subdivisions and specific artistic career data will represent an immense improvement in the information available on American artists. This information cannot be obtained from the regular data of the 1980 Census, but is possible by means of the follow-on survey. It should be immensely more useful to the Arts Endowment at both a general policy level and for each one of the Endowment's Programs that is concerned with the specific artist occupations.

The follow-on survey will be conducted in cooperation with the Bureau of the Census. The Bureau must control the actual survey work of drawing the samples, questionnaire distribution, and follow-up to protect the confidentiality of the artists. The time is dependent on the completion of the coding and sorting of the 1980 Census questionnaires. The current projected follow-on survey date is the spring of 1982, when the coding will have been completed and the samples can be drawn. In the interim, planning studies will be conducted to determine the size and design of the follow-on survey samples, the specific occupational categories to be included, and the content of the questionnaires. The planning studies will be conducted with the assistance of a series of committees with representation from the National Council on the Arts, the Arts Endowment's Program panels, and the relevent fields. A steering committee will be established to serve as a policy and executive group and to coordinate the work of individual subcommittees for each of the artist occupations. The subcommittees will consider in detail the questions to be asked in the special questionnaires that must be developed for each occupational group.

The survey of a large number of artists in as many as nine broad occupational groups will necessarily be costly. The unit cost per artist will be very small, but the total cost will be quite large because of the large numbers involved. Certain options are available which will be considered during the planning phase. Sample sizes can be smaller if the desired level of data disaggregation can be kept small. However, the more finely divided (disaggregated) the data must be in order to provide the desired information, the larger the sample sizes and the greater the costs. There are many occupation-specific questions to be reviewed in arriving at the decisions that must be made during the planning phase of the project. These decisions will be made jointly with representatives of the artist occupations working together with

the Research Division, the Bureau of the Census, and assisted by a contractor to the Research Division.

Question: The justification for your research activity asserts that it enables the Endowment "to become more responsive to the needs of its constituents in program planning and policy determination." Why should this kind of work be supported by program funds? Isn't this essentially an administrative expense?

Answer: This issue has arisen in the past where the Endowment reached the following determination: support for activities which directly benefit the Endowment in administering the provisions of its enabling statute shall be undertaken using administrative funds; support of activities which directly benefit the arts field shall be undertaken using program funds. Surveys and analyses, such as those undertaken by the Research Division, help to determine the needs of the arts field in order that the Endowment may better respond to those needs. Clearly, this is tied to program expenses, although there is some residual impact with respect to helping the Endowment carry out provisions of our authorizing act.

Question: Research into the condition and needs of the arts field that helps you "become more responsive" is clearly an administrative function. Why can't it be covered in your expanded budget for administrative expenses?

Answer: Administrative funds available to the Research Division, even in the expanded budget, are barely sufficient for staff salaries, travel, and consultant compensation. The conduct of the research necessary for the effective operation of the Arts Endowment and service to the arts fields with program funds is, therefore, considered to be within the intention of Congress within section 5(c) of the enabling legislation which authorizes the agency to carry out a program of grants-in-aid to, or contracts with groups or individuals to provide or support "relevant projects, including surveys, research, planning, and publications relating to the general purposes of the Act."

Evaluation

Question: We might ask the same type of question about your evaluation program. As we have discussed in the past, evaluation activities that support grant administration should be administrative costs, not program. The justification for the evaluation activities states in part, ". . .the Evaluation Division has focused on assessing the effectiveness of program categories." Activity levels of the evaluation office are pegged at "levels in keeping with the needs of the Endowment and its numerous categories." Why isn't this an administrative function?

Answer: We believe it is appropriate for the Endowment to use program funds for the kinds of activities that are actually undertaken in evaluation, such as, surveys and research. The primary beneficiaries of these studies are the arts fields themselves, in which case the cost of obtaining this information is properly charged against program funds. In fact, as of February 13, 1980, the Arts Endowment's Evaluation Division has been merged into the Research Division and evaluation is now one of its broad areas of responsibility.

Question: Your justification makes it plain that all evaluation funding is concentrated on contract studies "which produce data for use in evaluating the effects and impact of Endowment programs, thus allowing for more responsible planning on the part of the Endowment leadership." By its own definition, then, isn't this activity purely administrative?

Answer: Our answer to this question regarding evaluation is similar to answers to the previous questions. The details of work done in evaluation are often identical to the type of work and methodologies utilized in general research which primarily benefit the arts fields we serve.

Administrative Expenses

Question: Last year the Congress generously granted the Endowment a significant increase in its administrative expenses, from less than $10 million to more than $12 million. Why isn't this more than adequate to cover your research and evaluation expenses?

Answer: The additional administrative funds so generously provided by the Congress last year were to assist the Endowment in its efforts to sustain the growing workload, resulting from increased demands placed upon the Endowment. The numbers of applications and grants have been steadily increasing, while the staff has been steadily decreasing. The funds provided were to enable the Endowment to hire additional people (so desperately needed), to increase printing efforts (associated with panel books needed for the review of applications), to increase staff travel, and to enable the Endowment to implement its revised and improved panel system. Therefore, it would be impossible for the Endowment to convert (given the $12 million available) evaluation efforts from program expenses to administrative. Further, given the response to a previous question concerning the legitimacy of using program funds for evaluation efforts, a conversion would be inappropriate.

Question: Why can't your administrative expenses be reduced further in view of the cutback in the challenge load?

Answer: A cutback in the funds available will not result in a cutback in the number of applications received and reviewed. Thus, the workload associated with the applications will not change. The workload associated with the grants will diminish only slightly given a reduced Challenge Grant budget. However, this reduction is minimal since the Endowment will be awarding more grants in FY 1981 than in FY 1980. (This reflects the fact that smaller grants will be awarded.)

Question: What are your total travel cost estimates for both fiscal 1980 and 1981? How do they compare with the actual expenditures in 1979? Please include all travel costs, including those of panelists and others that might be contract.

Answer: (The information follows:)

NATIONAL ENDOWMENT FOR THE ARTS
Travel and Panelist/Consultant Contract Costs
($ in Thousands)

	FY 1979	FY 1980	FY 1981
Staff Travel	264	395	425
Council Travel	37	65	65
Other Travel	10	13	15
Total Travel	311	473	505
Panel Contracts*	364	1,087	1,118
Consultant Contracts*	132	88	105
Total Contracts	496	1,175	1,223

*We cannot provide a break-out of actual travel costs for panelists or consultants. Our system for paying panelists/contractors utilizes a simple "contract system" in which transportation, per diem and compensation costs are all included as a total amount on a contract document negotiated between ourselves and the panelist/consultant. The total amount is obligated as a contractual service, irrespective of how much is included for each expense element.

The primary reason for adopting the "contract system" (which the Humanities Endowment also uses) was to reduce the formidable amount of paperwork involved with the former arrangement: five separate transactions and documents were combined into one with a dramatic savings in time and effort. In our FY

1980 Appropriations Request (pages 182 - 186) we discussed the contract system in order to explain the large increase in contract costs between FY 1979 and FY 1980.

Question: Why do you need a $70,000 increase for "normal promotion and within-grade increases"? Why can't these costs be absorbed through normal attrition?

Answer: The Endowment has, since receiving authorization to hire additional personnel, operated at the ceiling level permitted. There has been little savings through attrition because within a few weeks of anyone announcing their departure, generally another person is hired. In addition, the small amount that would be saved by attrition was taken into account in calculating the $70,000 request; otherwise, the request would be higher.

SUBCOMMITTEE RECESS

Senator DECONCINI. We will stand in recess until next Wednesday at 10 oclock.

[Whereupon, at 11:12 a.m., Thursday, May 22, the subcommittee was recessed, to reconvene at 10 a.m., Wednesday, May 28.]

DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

WEDNESDAY, MAY 28, 1980

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m., in room 1224, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens presiding.

Present: Senators Stevens and Young.

DEPARTMENT OF THE INTERIOR

OFFICE OF THE SECRETARY

STATEMENT OF LARRY E. MEIEROTTO, ASSISTANT SECRETARY, POLICY, BUDGET AND ADMINISTRATION

ACCOMPANIED BY:

WILLIAM L. KENDIG, DEPUTY ASSISTANT SECRETARY, POLICY, BUDGET AND ADMINISTRATION
HEATHER L. ROSS, DEPUTY ASSISTANT SECRETARY, POLICY, BUDGET AND ADMINISTRATION
JUNE BROWN, INSPECTOR GENERAL
DENNIS J. HUBSCHER, FINANCIAL MANAGER, OFFICE OF THE SECRETARY
WILLIAM D. BETTENBERG, DIRECTOR, OFFICE OF BUDGET

AMENDED BUDGET REQUEST

Senator STEVENS. This is the scheduled time to conduct a hearing on the budget estimates for the Office of the Secretary, the Office of Water Research and Technology, and the Office of the Solicitor. We will hear the requests in that order.

Going to the Office of the Secretary, the budget request totals $58.1 million. This is $7.8 million over fiscal 1980 appropriations to date and $500,000 less than the original January budget estimate. The Office of the Secretary also has a $1.7 million pay supplemental pending. The justification for the January budget request has been printed in the House hearings, and we will ask the Department to insert a justification for the President's budget amendment at this point.

[The information follows:]

76-436 O - 81 - 14

JUSTIFICATION

Departmental Management
(In thousands of dollars)

Identification code 14-0102-0-1-306		1981	1981	1981
Budget Appendix Page	Heading	Request Pending	Proposed Amendment	Revised Request
611	Office of the Secretary, Departmental Management	58,637	-500	58,137

Program and Financing
(In thousands of dollars)

Identification code 14-0102-0-1-306	1981	1981	1981
	Request Pending	Proposed Amendment	Revised Request
Program by activities:			
Direct program:			
Departmental direction	6,963	-500	6,463
All other activities	51,674	---	51,674
Total, direct programs	58,637	-500	58,137
Reimbursable program	17,069	---	17,069
10.00 Total obligations	75,706	-500	75,206
Financing:			
11.00 Offsetting collections from: Federal funds	-17,069	---	-17,069
Budget authority	58,637	-500	58,137
Budget authority:			
40.00 Appropriation	58,637	-500	58,137
Relation of obligation to outlays:			
71.00 Obligations incurred, net	58,637	-500	58,137
72.40 Obligated balance, start of year: Appropriation	10,281	---	10,281
72.98 Obligated balance, start of year: Fund balance	6,358	---	6,358
74.40 Obligated balance, end of year: Appropriation	-15,330	+125	-15,205
74.98 Obligated balance, end of year: Fund balance	-6,358	---	-6,358
90.00 Outlays, excluding pay raise supplemental	53,552	-375	53,177
91.20 Outlays from civilian pay raise supplemental	36	---	36

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code 14-0102-0-1-306	1981 Request Pending	1981 Proposed Amendment	1981 Revised Request
Direct Program			
Personnel compensation:			
11.1 Permanent positions	29,240	—	29,240
11.3 Positions other than permanent	1,123	—	1,123
11.5 Other personnel compensation	1,226		1,226
Total personnel compensation	31,589	—	31,589
Personnel benefits:			
12.1 Civilian	3,079	—	3,079
21.0 Travel and transportation of persons	2,467	—	2,467
22.0 Transportation of things	132	—	132
23.1 Standard Level Users Charge	3,154	—	3,154
23.2 Comm., util., and other rent	1,642	—	1,642
24.0 Printing and reproduction	805	—	805
25.0 Other services	14,850	-500	14,350
26.0 Supplies and materials	563	—	563
31.0 Equipment	356	—	356
Total Direct Obligations	58,637	-500	58,137
Total Reimbursable Obligations	17,069	—	17,069
99.0 Total obligations	75,706	-500	75,206

DEPARTMENTAL MANAGEMENT
JUSTIFICATION FOR PROPOSED 1981 AMENDMENT

This proposed amendment reduced the 1981 Budget Request Pending for Departmental Management in the amount of $500,000 and reflects budgetary reductions proposed to aid in balancing the 1981 Budget as part of the President's Anti-Inflation Program.

Reductions below the amounts in the 1981 Budget, transmitted to the Congress in January, are recommended for the Office of Small and Disadvantaged Business Utilization in the contract support area which can be postponed, deferred, or conducted with less funds without serious adverse consequences.

PREPARED STATEMENT

Senator STEVENS. Good morning, Mr. Secretary. Nice to have you back before the committee. Your full statement will be printed in the record as usual.

The statement essentially repeats the budget summary of the justification. We would like to ask you to highlight the main points of the request that you want to emphasize now, and for the record and convenience of the reporter and myself, would you introduce those with you at the table this morning, please.

[The statement follows:]

STATEMENT OF LARRY E. MEIEROTTO

It is a pleasure to appear before you today in support of the Fiscal Year 1981 Appropriation Request for the Office of the Secretary.

The Fiscal Year 1981 request for the two appropriations of the Office of the Secretary total $ 58,137,000, an increase of $ 7,793,000 over the amounts appropriated by this Committee in Fiscal Year 1980. However, over half (53%) of this increase is composed of three base adjustments.

The three base adjustments total $4,944,000 and include (1) an increase of $2,785,000 in transfers from the Bureaus to the Office of the Secretary to eliminate reimbursable funding of audit activities performed for Interior entities by the Inspector General, as recommended by the Comptroller General, (2) an increase of $2,176,000 for general schedule pay raises, and (3) a decrease of $17,000 for Employee's Compensation Fund payments to the Department of Labor.

The net result of these adjustments is a revised base of $55,288,000 and a net increase of $ 2,849,000 in Fiscal Year 1981. These increases are primarily to meet Congressional, OMB, GAO and internal audit recommendations (funds for the Inspector General, data processing, consulting and property management), or to comply with new legislative mandates (Civil Service Reform Act and the Small Business Act).

The requested net increase is as follows:

Departmental Management

The Fiscal Year 1981 Appropriation request for "Departmental Management" is $58,137,000 an increase of $3,849,000 over the adjusted base amount. The elements of the requested increase are:

- $948,000 to provide for normal increased costs of operation such as within-grade increases, career promotions and the additional cost of travel and printing,

- $250,000 to provide for contractual services for the Office of Small and Disadvantaged Business Utilization in implementing requirements of the Small Business Act,

- $702,000 and 30 positions to improve the audit and investigative capabilities of the Inspector General,

- $330,000 and 5 positions to implement recommendations of the General Accounting Office and the House Appropriations Committee's Surveys and Investigation Staff to provide for increased effectiveness of the Department's management of ADP technology. The five computer specialists are to be utilized to assist in establishing standards for such areas as: data base management, office automation, software development and security. The contractual services support requested will supplement the requested positions by providing supporting feasibility studies in the areas of common Departmental computer applications systems and standards, •

- $206,000 and 4 positions for the execution of new personnel management initiatives resulting from passage of the Civil Service Reform Act,

- $148,000 and 1 position for the development and refinement of centralized property management information systems to promote more effective property management,

- $50,000 and 2 positions to augment existing resources responsible for oversight in the financial management area. The two positions will supplement two existing positions and will provide oversight in assisting bureaus in the design and documentation of accounting systems for General Accounting Office approval; developing financial management systems at the Departmental level which will facilitate the budget and program review process; establishing Department-wide payroll policy, and evaluating operating accounting systems and procedures,

- $41,000 and 2 positions to provide for intergovernmental affairs staff support to the Secretary,

- $31,000 and 1 position to strengthen Office of the Secretary contracting services due to increased workload and complexity. For FY 1981, 220 contracts and modifications are estimated to be awarded - an increase of 175% over FY 1977. The contracting function has become more complex as a result of OMB Circular A-76, the Minority Business Enterprise program and Public Law 95-507 (which requires that all contracts under $10,000 be awarded to small businesses),

- $1,671,000 for increased central services operating costs administered on a consolidated basis, including $1,076,000 for Department-wide Senior Executive Service performance awards (bonuses) authorized by the Civil Service Reform Act.

These increases are partially offset by a reduction of $528,000 in technical assistance for facility construction management which is proposed to accommodate other priorities within the Office of the Secretary.

Mr. Chairman, as mentioned previously, the increases being requested, if approved, will be used to implement recommendations of the General Accounting Office, to directly finance several activities formerly funded by the Bureaus on a reimbursable basis, and to improve our operational and management capabilities in areas requiring our immediate attention.

Salaries and Expenses (Special Foreign Currency)

No appropriation is requested for the Special Foreign Currency program in FY 1981. This represents a decrease of $1,000,000 from amounts appropriated last year. The bureaus participating in the program have experienced unexpected delays in the execution of agreements with foreign countries. During the remainder of FY 1980 and FY 1981, every effort will be made to utilize the resources currently available and assess continued use of the program.

My colleagues and I will do our best in answering any questions the Committee may have in regard to our request.

INTRODUCTION OF WITNESSES

Mr. MEIEROTTO. Yes; it's a pleasure to be here before you today for the fiscal year 1981 request for the two appropriations in the Office of the Secretary.

Senator STEVENS. Could you please introduce these people?

Mr. MEIEROTTO. Yes; on my right, Mr. Chairman, is Deputy Assistant Secretary Bill Kendig. To my immediate left is the Chief Officer of Fiscal Services, Office of the Secretary, Dennis Hubscher. To his left is Deputy Assistant Secretary Heather Ross. To her left is the Director of Budget, Bill Bettenberg.

Senator STEVENS. Thank you very much.

SUMMARY OF BUDGET REQUEST

Mr. MEIEROTTO. The total request of $58,137,000 is an increase of $7,793,000 over the amount appropriated by this committee in fiscal year 1980. I would like to point out, Mr. Chairman, that half of this increase is composed of three basic adjustments. The adjustments total $4.9 million and include an increase of $2,785,000 in transfers to eliminate the reimbursable funding for audit activities performed by the Inspector General's Office, an increase of $2,176,000 for the general schedule pay raise, and a decrease of $17,000 for employees' compensation

fund payments. This leaves a revised base of $55,288,000 or a net increase of $2,849,000 for fiscal year 1981.

I would like to point out that these increases are primarily to meet congressional, Office of Management and Budget, General Accounting Office, and our Inspector General's recommendations, and also to comply with new legislative mandates. To highlight the major increases, we have $948,000 for increased costs of operation, within-grade increases, and career promotions, $250,000 for contractual services in the Office of Small and Disadvantaged Business Utilization, $702,000 to improve our audit and investigative capabilities within the Inspector General's Office, $330,000 to implement the recommendations of the General Accounting Office, and the House Appropriations Committee staff on surveys and on investigations regarding the increased effectiveness of our automated data processing technology within the Department, $206,000 to implement the Civil Service Reform Act, $148,000 for the refinement of a centralized property management information system, $50,000 to augment resources for financial oversight and financial management, $41,000 for intergovernmental affairs staff support for the Secretary, $31,000 for increased support for contracting services, and $1,076,000 for Department-wide senior executive service performance awards. We have consolidated the senior executive service bonuses Department-wide; the $1,076,000 does not reflect just the Office of the Secretary.

This is offset by a $528,000 reduction within the Office of the Secretary in the Indian school construction program. We reached a certain point in that program where to stay on schedule we will not need the $528,000. We have also not requested appropriations for the special foreign currency program. That represents a decrease of $1 million in the appropriation. This is due to the bureaus participating in the program experiencing some unexpected delays.

I would be pleased to respond to any questions you may have regarding our request this year.

OFFICE REORGANIZATION

Senator STEVENS. Why have you revised the budget structure of the Office of the Secretary this year?

Mr. MEIEROTTO. Excuse me 1 minute.

[Pause.]

Senator STEVENS. You have some minor organizational changes, but why do you see fit to change the whole budget structure just because of those minor changes?

Mr. MEIEROTTO. I'm not sure we changed the whole budget structure. What I think is being referred to is the fact that we did consolidate the acquisition and procurement functions within the Office of the Secretary; we also consolidated the information resources services—the library services, the management information systems, and the data processing—so we have our information systems in one area. I have to check——

Senator STEVENS. Look at pages 5 and 6 of your justification. You'll see it touches on the 1981 request. Why don't you give us a crosswalk for the 1980 funding, and explain the differences in the allocations for the activities of the Office of the Secretary. Maybe we will understand it better.

Mr. MEIEROTTO. OK. The changes would be, for example, in the policy, budget, and administration area, in the Office of Administrative and Management Policy we had a control problem; we had a situation where 12 people reported to the director. Included were procurement, property management, and the management analysis groups. We moved those functions into three different areas: into administrative services; acquisition and property management; and into the budget office. We moved the financial management systems function into the budget office. We moved the procurement and property management functions into a new office. This organization reflects a more rational alinement of those services being performed.

I think my observation of what happened was the new things that were coming along seemed to get tacked onto the Office of Administrative and Management Policy, and it developed a lack of rationale for why it was organized the way it was. We tried to consolidate all those items that are related to information services, from simple items such as library services and paperwork management, to the most complex data processing, evaluation of various software systems and related components, into one office. Pages 5 and 6 represent the crosswalk for that.

The Office of Inspector General assumed some of the duties that were formerly performed by the Equal Opportunity Office relating to the minority business enterprise program; this work related to the verification that the firms in the program were in fact minority firms. That was a direct transfer.

The other item that did occur was setting out the Inspector General's Office as a distinct line item within the budget, which is pursuant to the General Accounting Office report and is consistent with the Inspector General's Act.

OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION

Senator STEVENS. All right. The President's revision decreased the Office of the Small and Disadvantaged Business Utilization by $500,000. The original request was $750,000. Why can't you give up the whole $750,000? Why do you need an increase in that area at all?

Mr. MEIEROTTO. The $250,000 we requested is in contractual funds. A couple of the contracts are ongoing efforts. We have an advanced procurement planning system we began development on last year. We would like to complete that this year with $100,000 in contract funds. This system allows us to look in advance at what the bureaus and the Department are going to be spending in terms of contractual dollars. We procure about $1.8 billion a year, and to try to avoid the year-end buying problem. We want the bureaus and the Department to spread that out, to better plan how they will spend the dollars.

Senator STEVENS. That's program review. Don't you budget for that normally? Why do you need an increase in that area at all?

Mr. MEIEROTTO. We had $149,000 in fiscal year 1980 to start the project, and $100,000 on the advance procurement planning system will complete that project.

Senator STEVENS. Is it $250,000 to contract out the studies? Is that what you are saying?

Mr. MEIEROTTO. Yes.

Senator STEVENS. How much did you contract out last year?

Mr. MEIEROTTO. We contracted out, about $370,000 last year, Mr. Chairman.

TEN PERCENT REDUCTION

Senator STEVENS. We have asked all of the agencies appearing before this subcommittee, as you know, for submission for the record to indicate how the agency would absorb a 10-percent reduction in the January budget request. Would you please provide us the same type of information?

Mr. MEIEROTTO. Yes, we will, Mr. Chairman.

[The information follows:]

TEN PERCENT REDUCTION IN JANUARY BUDGET REQUEST

The Office of the Secretary would conduct activities at minimum levels in an effort to comply with legislative mandates and departmental policy.

In order to absorb the impact of a 10-percent reduction many issues facing the Department will not be adequately addressed in fiscal year 1981. While the programs of the Department are run by the bureaus, the direction and overall policy comes from the secretariat. Supervision and leadership of the Department will not be adequately staffed to meet current needs, let alone address any new or continuing problems facing the Department. The Secretary fully reviews the operations of the agency and faces many critical decisions concerning Alaska, mineral leasing, water, public lands, and energy in the coming years.

A 10-percent reduction to the January budget for the Office of the Secretary would impact on various secretarial programs as follows: setbacks in the affirmative action program and in the policing of grants recipients for the Office of Equal Opportunity; objectives would not be met for the minority business enterprise program; the Inspector General's efforts regarding fraud and abuse would be impeded; policy initiatives in the coal leasing and synthetic fuel programs would be deferred; and expansion of the minerals information base and improvements for nonfuel minerals policy analysis would be delayed.

In addition the reduction will also disrupt the development of national heritage programs, curtail initiatives in the areas of property management, inventory control, health and safety mandates of the Occupational Safety and Health Administration, hinder implementation of various aspects of the Civil Service Reform Act, and delay systems development for the Indian school construction program and the upgrading of the Department's financial management systems.

The fiscal year 1981 budget request for the Office of the Secretary is very personnel intensive with approximately 60 percent of appropriated resources providing for personnel related costs.

The secretariat must be properly staffed to not only meet the needs of executive direction of the agency, but be responsive to the President, Congress, and the people of the Nation. With a 10-percent reduction of the fiscal year 1981 budget request many programs will not be adequately funded to meet the ever-increasing demands placed upon them.

INCREASE FOR PERSONNEL COMPENSATION

Senator STEVENS. A lot of this increase in the Office of the Secretary is for career promotions and in-grade increases. In a normal, mature Department, attrition would take care of that as people moved up, other people would move out, and new people would come in at the bottom of the ladder. Why do you need an annual increase to take care of this?

Mr. MEIEROTTO. The Department of the Interior has a very low turnover rate. About 6 percent a year Department-wide. For promotions and within-grade increases, we have found historically that is about

what they run. We had about $948,000 in the Office of the Secretary account for that. We do have a low turnover rate. We are experiencing another hiring freeze which—I think this is the third one I have been through in 3 years—and that in itself cuts back the attrition rate.

Senator STEVENS. Hiring freeze cuts back attrition?

Mr. MEIEROTTO. Yes.

Senator STEVENS. When you can't fill vacancies, fewer people leave?

Mr. MEIEROTTO. We can fill vacancies at the present time on one new hire for every two vacancies that occur.

Senator STEVENS. Why wouldn't that mean your actual demand for dollars decreases?

Mr. MEIEROTTO. Because the people who might normally move out of our Department, to another Department, are not doing that because the jobs are not available in other places. The mobility seems to cut down between Departments simply because no other agency is hiring.

TRAVEL INCREASES

Senator STEVENS. Why do you need this half million dollar increase in travel costs for the Office of the Secretary?

Mr. MEIEROTTO. That is reflective of the increased costs. A large portion relates to the Inspector General's Office which is program-related travel. That is necessary so they can do the audits.

Senator STEVENS. We increased that last year, didn't we?

Mr. MEIEROTTO. Yes, Mr. Chairman. At any time, some of the audit people are traveling about 80 percent of their time doing audits, and they simply cannot function without having adequate funds to travel. For the Inspector General's Office, we made a request for 30 additional people, so travel there would be significant.

INSPECTOR GENERAL STAFF INCREASE

Senator STEVENS. Why do you need 30 additional people for that function?

Mr. MEIEROTTO. If you ran a comparison between our Department and the other Departments, in terms of level of effort that they are putting into the Inspector General's area, you will find we are not getting the coverage that they are. We have a tremendous workload in that office. The Inspector General, June Brown, is with us here today. I think she would like to comment on that.

JUSTIFICATION FOR TRAVEL

Senator STEVENS. I will get to her in a minute. In terms of travel, is the function increasing that much in 1 year to require a half million dollar increase in the Office of the Secretary?

Mr. MEIEROTTO. For travel, we had an increase in 1981. The actual increase should only be about 4 percent as compared to the 1980 increase. That would be about $127,000.

Senator STEVENS. For the——

Mr. MEIEROTTO. It would be a 4½ percent increase that I would attribute to general increases in travel costs. The Inspector General's increase would bring about $100,000 in increased travel, and $338,000 of the

$541,000 increase is reflective of the Inspector General's reimbursible funding that was previously in the bureau accounts.

As I mentioned in my opening statement, the——

Senator STEVENS. I am looking at page 84 and it is $1.9 million increased to $2.4 million. Isn't that a half million dollar increase?

Mr. MEIEROTTO. Yes; if I may go back through what the increase consists of, there is $127,000 increase in existing travel that we have going on at the current time, which represents a 4.5-percent increase over last year that is reflective of just the increased cost of travel. The inflationary increase is caused by increased fuel cost, air fare, that type of thing. We have $108,000 that is representative of the 30 new positions we have requested for the Inspector General's Office. The $338,000 is reflective of travel allowances that were transferred to the Inspector General's Office instead of the bureaus reimbursing the Inspector General's Office for services rendered.

Senator STEVENS. Is there a similar reduction in the bureau's requests?

Mr. MEIEROTTO. Yes; it is reflected in the bureau's request.

HOUSE PAY SUPPLEMENTAL REDUCTION

Senator STEVENS. What about this pay supplemental? The House Appropriations Committee has recommended reducing that by 16 percent, $285,000. Can you absorb that type of reduction without any problem?

Mr. MEIEROTTO. Yes, Mr. Chairman, we can absorb that.

Senator STEVENS. Can you absorb it if we just deny the whole thing?

Mr. MEIEROTTO. No, Mr. Chairman.

Senator STEVENS. Somewhere in between there must be a little bit more absorption potential. Where is it?

Mr. BETTENBERG. From our analysis, we thought the figure reduced by the House direction was the limit, perhaps slightly more than we would have hoped. But, we had some lapse in several different offices which will allow us to do that.

We had already absorbed one-third of the pay increase in the departmental management account and the House reduction is stretching that further, which takes account of those positions that are vacant plus requires some cancellation of contracts or other expenses within the Office of the Secretary.

We think we are being pushed quite a bit on that number now.

LAPSE FROM HIRING FREEZE

Senator STEVENS. Why aren't you picking up additional funds with this hiring freeze?

Mr. BETTENBERG. That is what the House was taking into account in making that reduction.

Senator STEVENS. Can you give us a report for the record of the actual and projected personnel lapses as a result of that freeze?

Mr. BETTENBERG. Yes; we will be pleased to do that. I would have to do it for the record because we would have to go back into the analysis that we have done already on that.

[The information follows:]

ACTUAL VERSUS PROJECTED PERSONNEL LAPSES

Since February 28, 1980, 55 full-time permanent employees from the Office of the Secretary and other departmental offices have left full-time permanent employment in the Department and 40 individuals (not previously full-time permanent Department of the Interior employees) have come on board as full-time permanent employees in the Office of the Secretary and other departmental offices.

CONTRACTS FOR EQUAL OPPORTUNITY

Senator STEVENS. There is a $1.8 million request for the Office of Equal Opportunity. Of that, $50,000 is an increase for contract training and discrimination investigation.

Mr. MEIEROTTO. Yes?

Senator STEVENS. How much in total is contracted out by the Office of Equal Opportunity?

Mr. MEIEROTTO. I would estimate, Mr. Chairman, that runs about——

OFFICE OF THE SECRETARY CONTRACTS

Senator STEVENS. Do this for the record, if you would. Tell us how much the Office of the Secretary will contract out this year. In this budget you request, I know you have an indication in general. Is that the total contract figure on page 84 where it says, "Other services, $14.8 million," is that all that would be contracted out?

Mr. MEIEROTTO. That would not be the total. That would be what we would contract out for the——

Senator STEVENS. We would like to see how much you will contract out. We get the impression there is more and more contracting out. The Office of Small Disadvantaged Business Utilization, that is contracted out. The Office of Equal Opportunity increase is for contracting out.

[The information follows:]

CONTRACTING OUT ESTIMATE FOR THE OFFICE OF THE SECRETARY

We are currently estimating $10 million in contracts awarded and $6 million in small purchases awarded.

EQUAL OPPORTUNITY USAGE OF CONTRACTS

Senator STEVENS. Why do you need increased training for discrimination investigations anyway? I would think the people you have in that Office of Equal Opportunity would be trained in the beginning to deal with discrimination.

Mr. MEIEROTTO. Mr. Chairman, the Office of Equal Opportunity does not do the total, full-range of investigations related to equal opportunity complaints.

Senator STEVENS. Why not?

Mr. MEIEROTTO. We think it would be a poor utilization of resources. We have people on collateral duty, equal employment officers in each bureau and in offices around the Department, so when complaints come in, quite often they can be resolved with little effort down at the local office level.

Senator STEVENS. If you contract out, wouldn't the term mean you contract out of the Department?

Mr. MEIEROTTO. Contracting for services with people outside the Department, yes.

Senator STEVENS. Why do you need people outside the Department for a routine function? Isn't the discrimination investigation a routine function?

Mr. MEIEROTTO. Yes, it is.

Senator STEVENS. Then why do we have to have an increase to contract out that routine function?

Mr. MEIEROTTO. We could hire them as employees of the Department, but it would not be efficient because we may have one complaint investigation, say, in Albuquerque, N. Mex., and rather than hire somebody and have them go out for one investigation, we would be better off hiring someone in the local area. Also that $50,000 represents training for people within the bureaus that are handling complaints on an "as needed" basis and not on a full-time basis, so that they are trained in the Equal Opportunity Act.

Senator STEVENS. What is this $1.4 million if it isn't doing what you said? Are these people overseeing people in the bureaus and contracting out if they find something wrong? We presumed they were the Office of Equal Opportunity and performing that function and trained to do it.

Mr. MEIEROTTO. They are the Office for Equal Opportunity. They are performing that function. However, in the interest of efficiency in terms of the amount of dollars we have to operate, rather than increase the size of that office and underutilize those individuals, often it's better to contract with people to do a specific investigation in a specific area, rather than employing that person on a full-time basis.

Senator YOUNG. Mr. Chairman, before you leave that, I would like to have you furnish for the committee these contracts, list them and the amount and to whom.

Mr. MEIEROTTO. Yes; we will be pleased to provide that for the record, Mr. Chairman and Senator.

[The information follows:]

EEO CONTRACTS

The Office for Equal Opportunity is requesting an increase of $50,000 under "other services" for reimbursable details of bureau personnel to handle case backlogs. The office does not anticipate letting any contracts and has requested no funds for this purpose in 1981.

CONTRACTING REVIEWS

Senator STEVENS. Did you provide similar information to the Governmental Affairs Committee when they went into the question of contracting out generally?

Mr. MEIEROTTO. Yes.

Senator STEVENS. Was Interior involved in that hearing?

Mr. MEIEROTTO. We weren't involved in the hearing, but we did supply materials to that committee. Also, Senator Proxmire also requests similar information on a regular basis from us.

SACRAMENTO OFFICE

Senator STEVENS. You have a new "satellite office" in Sacramento at a cost of $41,000.

Mr. MEIEROTTO. Yes.

Senator STEVENS. What is that for? What is the difference between that and the field office?

Mr. MEIEROTTO. The distinction we have made is that the Secretary dispatched a special representative out to Sacramento. What we found was the individual that was here in Washington working in the Secretary's immediate office was spending 100 percent of his time on four or five specific projects that were related to California.

Senator STEVENS. Is this lobbying in the State of California?

Mr. MEIEROTTO. No.

Senator STEVENS. What is the function of that individual?

Mr. MEIEROTTO. That individual is involved on specific projects, such as the New Melones Dam. We are having some ongoing difficulties there as I think you are aware, with the archaeology itself and also the people interested in filling the dam.

Senator STEVENS. Didn't you have a field office in Los Angeles and in northern California, too?

Mr. MEIEROTTO. The only place we have a field office in the Office of the Secretary is in Los Angeles. We have one person who is working on Outer Continental Shelf oil leasing matters.

Senator STEVENS. The Department has offices in San Francisco and Los Angeles, don't they? I mean the bureaus, the Department supervises?

Mr. MEIEROTTO. Yes.

Senator STEVENS. Was it necessary to have a complete secretarial office in Sacramento?

Mr. MEIEROTTO. I think it is, Mr. Chairman, because we do have a lot of issues that cut across the bureau lines there.

Senator STEVENS. What is different about California from any other State? I have half the Federal land in my State. Do you have a special secretarial office in my State?

Mr. MEIEROTTO. We have a field office in your State.

Senator STEVENS. That is a bureau office, isn't it?

Mr. MEIEROTTO. No; it's part of the Office of the Secretary, Mr. Chairman, and it's reflected in our field coordination budget.

Senator STEVENS. What is the difference between this satellite office and the field offices?

Mr. MEIEROTTO. The satellite office will be working on four to five specific projects that are related to the State of California. The individuals working in the field offices, tend to perform a broad range of services. They represent the Secretary on the Federal Regional Council. They represent the Secretary on the River Basin Commissions. They are involved in chairing the field committees.

This is something the individual out there in Sacramento is not doing. He is working solely, like I say, on some of these stickier problems we seem to have out in California.

JUSTIFICATION FOR SATELLITE OFFICE

Senator STEVENS. Your justification mentions the Park Service and OCS. You mentioned others this morning, but not those two. What are the problems that the Secretary—the implication is that the Secretary, maybe he ought to require a special secretarial representative? Are you sure the representative hasn't testified before the State legislature?

Mr. MEIEROTTO. No, he never testified before the State legislature. The majority of his work is working with our bureaus out there, and also with individual recipients and constituents that seem to have a particular problem with some of the projects we have going on.

Senator STEVENS. It's the nebulous quality in your response that interests me. What is the particular decision that requires this personal relationship with the Secretary in dealing with these constituent problems out there?

Mr. MEIEROTTO. Excuse me, Mr. Chairman.

Senator STEVENS. There must be something different out there. We are interested because if it's required in California, it will soon be required in Alaska or Massachusetts or Louisiana or Denver or somewhere else. This is a whole new spectrum of expenditures if we have a new kind of office that is required.

A field office is not enough. Now we have to have a personal representative in a satellite office. This is part of the Secretary's personal staff. That is what it implies.

Mr. MEIEROTTO. But this applies, I think——

Senator STEVENS. Answer that first, please. Is this a personal representative of the Secretary?

Mr. MEIEROTTO. It is.

Senator STEVENS. Not just the Department, but the Secretary's personal representative in California.

Mr. MEIEROTTO. He also represents the Department, Mr. Chairman, in the sense that the Secretary——

Senator STEVENS. I understand, but he is there to represent the Secretary in dealing with the Department, bureaus, and field offices and constituent problems of the Department, right?

Mr. MEIEROTTO. That's correct.

Senator STEVENS. What is distinct about California as compared to the rest of the country?

Mr. MEIEROTTO. In the rest of the country, we have established field offices that have a broad spectrum of duties, as we do in Alaska and in Denver, Colo.

As I mentioned, they deal with the ongoing day-to-day problems you have in any large organization where we have 80,000 full- and part-time employees, most of which are located in the field. This is the Secretary's voice in the field.

NUMBER OF CALIFORNIA EMPLOYEES

Senator STEVENS. How many people do you have employed Department-wide in California?

Mr. MEIEROTTO. I would have to check that. I have no idea. I would guess we have at least a couple thousand.

Senator STEVENS. Put that in the record. In my day, it was substantial.
Mr. MEIEROTTO. It is.
[The information follows:]

NUMBER OF EMPLOYEES IN CALIFORNIA

As of March 31, 1980, the Department had 6,154 employees located in California.

CALIFORNIA FIELD OFFICE

Senator STEVENS. You don't have a field office in California, do you?
Mr. MEIEROTTO. No, we don't, Mr. Chairman.
Senator STEVENS. So in this case, you leapfrog the concept of field offices and establish a Secretary's personal office in California, a personal representative there full-time. Why didn't you go to a field office arrangement in California?
Mr. MEIEROTTO. The reason we didn't go to a field office is that we are not sure we need a field office in terms of a full-blown field office. At the current time, we have four or five items that require the Secretary's attention out there. We elected to go this way rather than establish a full-blown field office because we are not sure that that level of effort is needed. We would prefer to wait and see.
To date, the problems have been, like I say, very specific in nature and that has been why we have established that office. The other field offices tend to be more generalized. The general context that I would view a field office is with a much broader range of issues. Another issue out there is the Klamath River fishing——
Senator STEVENS. The field offices have two people, also?
Mr. MEIEROTTO. Yes.
Senator STEVENS. What is the difference in cost between a field office and satellite office?
Mr. MEIEROTTO. I would have to check that. I suspect the cost is the same.

SATELLITE OFFICE COSTS

Senator STEVENS. Then why are we creating a new type of office in California?
Mr. MEIEROTTO. I am not sure, Mr. Chairman, I think there is a question about the longevity. How long we will have that office. Whether it will be needed ad infinitum. How much business we are going to have in California.
Senator STEVENS. Where do you house that office?
Mr. MEIEROTTO. In Sacramento.
Senator STEVENS. In what? You have to rent space?
Mr. MEIEROTTO. It's in the Federal Building. Yes, we had to rent an office in the Federal Building in Sacramento.
Senator STEVENS. Didn't you have offices there already?
Mr. MEIEROTTO. Yes, we have other offices there.
Senator STEVENS. Why couldn't you use the people already there to perform this function?
Mr. MEIEROTTO. If we did, we would have to reflect them in our budget if they will be doing work for the Secretary's immediate office. They are bureau personnel of——

Senator STEVENS. You told me they were here and you found out they were spending most of their time out there.

Mr. MEIEROTTO. That is correct.

Senator STEVENS. Have you taken two people off the Washington staff and added two out there?

Mr. MEIEROTTO. We took two people from the Washington staff and assigned them to duty stations in Sacramento.

NEED FOR ADDITIONAL POSITIONS

Senator STEVENS. Why do you need two additional positions, then?

Mr. MEIEROTTO. The additional positions we are requesting, Mr. Chairman, are for intergovernmental relations, one professional and one secretarial.

Senator STEVENS. But you had them here.

Mr. MEIEROTTO. Yes, and what happened was he was spending his full time on these California problems.

Senator STEVENS. Why didn't you decrease your secretarial staff here then? Why do you need two additional positions to have these people permanently assigned in California?

Mr. MEIEROTTO. We have, in effect, decreased the staff here, in fact, because the two people are now out there in California.

Senator STEVENS. I understand they are out there. Have you decreased the secretarial staff here in terms of numbers? Why do you ask for two additional positions then?

Mr. MEIEROTTO. Because we do have a void in the Secretary's immediate office in that we have no one working specifically with the States on intergovernmental affairs matters.

ASSISTANT SECRETARY—LAND AND WATER RESOURCES

Senator STEVENS. Well, let's move on. You have a $1 million budget for the Office of the Assistant Secretary for Land and Water Resources. There is a $40,000 increase for water policy and reclamation law enforcement efforts. What does that mean?

Mr. MEIEROTTO. That represents one temporary individual.

Senator STEVENS. Is that increased staff?

Mr. MEIEROTTO. Yes; the increase on the staff is one person, one temporary employee. Given the current situation with the 1902 Reclamation Act, we find that it does require additional oversight from the Assistant Secretary's Office.

We do have some proposed legislation related to that act. If that is not forthcoming we will have to enforce that law, and it will require policy oversight from the Assistant Secretary's Office and someone to monitor that activity.

ASSISTANT SECRETARY—FISH, WILDLIFE, AND PARKS

Senator STEVENS. Of the Assistant Secretary for Fish and Wildlife's, $885,000 budget, how much is for additional temporary staff costs and additional travel?

Mr. MEIEROTTO. The travel increase associated with that is $8,000. Temporary staff cost is $62,000.

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Senator STEVENS. Is that oversight travel?

Mr. MEIEROTTO. Yes, Mr. Chairman.

Senator STEVENS. Why is it necessary?

Mr. MEIEROTTO. That is to review the field operations that report to the Assistant Secretary for Fish and Wildlife and Parks.

Senator STEVENS. Do they have any increased requirements? Why should they be increasing their travel and increasing their oversight function at this time?

Mr. MEIEROTTO. It's what we perceived as the increased demand on that office to oversee the bureaus that report to them. We feel that they have not had the travel funds to operate at maximum capacity and we feel that we do need to increase that, based on historical travel funds they required in that office.

ASSISTANT SECRETARY FOR INDIAN AFFAIRS

Senator STEVENS. How long has the Assistant Secretary for Indian Affairs' Office been vacant?

Mr. MEIEROTTO. Since January or February, Mr. Chairman.

Senator STEVENS. Is there still a 39-person staff there?

Mr. MEIEROTTO. Yes; we have an Acting Assistant Secretary there at this time from the bureau, out of the field.

Senator STEVENS. How many of the 39 positions are vacant in addition to the Assistant Secretary's?

Mr. MEIEROTTO. Let me check—17.

Senator STEVENS. Is there any study underway to combine the Office of the Commissioner and the Assistant Secretary?

Mr. MEIEROTTO. No, there is no study underway to combine the Assistant Secretary and the Commissioner.

Senator STEVENS. Let me see if I understand that in terms of the departmental chart. You have the secretarial office; Under Secretary; an Assistant Secretary; and below that Assistant Secretary you have a Commissioner. Below that you have the Bureau of Indian Affairs. So you have a Secretary, Under Secretary, Assistant Secretary, Commissioner, over one bureau.

Mr. MEIEROTTO. Yes; a similar structure to what we have with the other assistant secretaries.

Senator STEVENS. That Assistant Secretary has only one bureau, doesn't he?

Mr. MEIEROTTO. Yes.

Senator STEVENS. The others have more than one bureau, don't they?

Mr. MEIEROTTO. Yes, Mr. Chairman, but I would draw your attention to the Indian Education Act, Public Law 95–561, which requires that the Director of Indian Education report directly to the Assistant Secretary. Without getting into the controversy as to whether that——

Senator STEVENS. I was very much involved in that controversy.

Mr. MEIEROTTO. The way the act reads——

Senator STEVENS. They are not reporting to him what they are doing. He is not managing their budget and hiring and firing people. He is coordinating their activities over in the Department of Education.

Why can't we abolish the Commissioner now? We all thought we were elevating the Commissioner to Assistant Secretary.

How many people are in the Commissioner's Office?

Mr. MEIEROTTO. I am not sure how many. I think he has 10 or 11 people as I recall but I would have to check on that for sure.

Senator STEVENS. Put that in the record, too.

[The information follows:]

COMMISSIONER OF INDIAN AFFAIRS POSITIONS

There are 38 people in the Commissioner's Office.

ROLES OF ASSISTANT SECRETARY AND COMMISSIONER

Mr. MEIEROTTO. Yes; the reason why we have the Assistant Secretary's Office there is to provide policy oversight and policy direction for the Bureau of Indian Affairs.

Senator STEVENS. What is the Commissioner supposed to do?

Mr. MEIEROTTO. He is in charge of the day-to-day management and operations of the Bureau of Indian Affairs.

Senator STEVENS. There is only one bureau. They have two staffs maintaining control over one bureau.

Mr. MEIEROTTO. I think the Commissioner of Indian Affairs is so tied up on the day-to-day management of that organization that he can't devote the time he needs to the general policy within the whole spectrum of Indian affairs. For example——

Senator STEVENS. Wait a minute. The whole spectrum of Indian affairs is in fact the job of the Commissioner.

Mr. MEIEROTTO. Yes, but I am trying to explain that he is involved in the day-to-day management of the bureau. What is needed is some policy overview and oversight. For example, there was a need to establish an Administrative Services Office. Over the years, the Commissioner of Indian Affairs never had enough time to devote to get this established, in terms of all the hoops one would have to go through to put this concept together.

The Assistant Secretary's Office has been involved in a complete review of property management. They have improved contract monitoring. They have developed a position control system. They have developed their financial management and financial reporting system. They have devoted time to all the things that the Commissioners over the years felt they needed but they have been unable to devote the time to, simply because of the magnitude of the job in trying to run the bureau in terms of the day-to-day brush fires and day-to-day management.

Our desire with the Assistant Secretary's Office is to provide some of the foresight needed to organize the operation. Otherwise they would be fighting brush fires and just responding to General Accounting Office and Inspector General audit reports and not able to do anything about them.

Senator STEVENS. We thought we were elevating the management of the Bureau of Indian Affairs up to the assistant cabinet level when we created the Assistant Secretary. You are telling me we didn't do that? We just put a cabinet level policymaker on top of the existing BIA and all its functions. I think we may consider in our report directing the Secretary to take action to consolidate those positions. It doesn't seem, in this period of time, that we should have the luxury of two perma-

nent staffs managing one bureau, it doesn't seem to be right. You are having to lay people off in other areas of the Department. I don't think there is anyone here who would disagree with that.

Mr. MEIEROTTO. In all due respect, when the Assistant Secretary first walked into that office he had about 17 General Accounting Office reports staring him in the face. These reports had accrued over the years and concerned problems in running the Bureau of Indian Affairs; the Commissioner, simply by running the day-to-day operations, didn't have time to address what was really the guts of those reports.

Senator STEVENS. Give him 17 people to review the 17 reports and you will have 22 more people than the Commissioner used to have.

Mr. MEIEROTTO. I think it takes additional staff to bring these things together in terms of implementing and coordinating these management improvement initiatives. It's a difficult task. We have never pulled any punches about the effort it would take to turn BIA into a well-managed bureau. That is why we originally established the office, and that was our justification.

ADMINISTRATIVE SERVICES

Senator STEVENS. Let's go on to another level of the Department then: administrative offices. You have a $1.5 million budget and 50 staff members for administrative services. Under secretarial operations you have another $1.2 million and 42 staff members for administrative services. Why can't you consolidate the secretarial functions with the administrative services? Again, in my day that is what it was. The administrative Assistant Secretary was part of the Secretary's Office and he handled the whole administrative function of the Secretary. Why should there be this duplication?

Mr. MEIEROTTO. The functions are not being duplicated. The Administrative Services Office handles the law enforcement and security management policy. It has the printing and publications function—the printing plant; directives management—the departmental manual releases; it handles all the management of office space; it handles general services, such as moving people in and out of offices; and it is also in charge of safety management for the Department.

The Secretarial Operations Office consists of two divisions. One relates to personnel and the other to fiscal services. They perform the personnel and fiscal services for the Office of the Secretary similar to that which would be performed by a bureau.

Senator STEVENS. Your justification says administrative services include property management services. Why isn't property management a function of $9.4 million Office of Acquisition and Property Management?

Mr. MEIEROTTO. That would be the property management within the Office of the Secretary. Let me make the distinction between the two offices. The Office of Acquisition and Property Management handles the general policy oversight for the Department on the property management area. Within administrative services the operating management people are the ones that are in the actual operations. They are the ones putting inventory tags on the desks. We have one spot in the Department that develops a property management policy for the Department and sees that it's implemented so the Department is essentially on the same system and we are all operating by the same rules.

To implement that within the Department, each bureau has its own property management officer who is actually in charge of counting the tables and chairs. In the Office of the Secretary that is administrative services.

Senator STEVENS. Let me interrupt you. I'm sorry, I have to confer about a time agreement this morning. We will have to stand in recess for about 20 minutes.

[A brief recess was taken.]

CONSTRUCTION MANAGEMENT

Senator STEVENS. May I apologize for the delay.

Mr. Secretary, what are you doing with the Office of Construction Management in terms of this budget? Is it going to be merged with the Office of Acquisition and Property Management?

Mr. MEIEROTTO. It's a division within the Office of Acquisition and Property Management, yes, Mr. Chairman.

Senator STEVENS. The House wanted it in a separate account last year and we established it as a separate line activity. Why do you want to merge it?

Mr. MEIEROTTO. Mr. Chairman, it is a distinguishable activity in the sense that it's not comingled with any other function. Facilities and construction management is broken out separately. It's devoted to the Indian school construction program, and the program is there. We have elected not to make it a separate office within the Office of the Secretary solely because of its size and the fact that it is a single function. It's more of a project-oriented operation. We are dealing with just one bureau right now and one particular construction program.

Senator STEVENS. Is there any intention to make it cover more than BIA construction management?

Mr. MEIEROTTO. Not at the present time, Mr. Chairman. We have no intentions of expanding it.

Senator STEVENS. There is a reduction of a little over a half a million dollars but it's not explained. What is that cut?

Mr. MEIEROTTO. That reduction is representative of the original schedule we put together and presented to Congress in terms of the construction program. We are on schedule now. This was just some of the initial work. We don't need that money this year. We are on schedule and I would not characterize it as a reduction in the sense that we are cutting back on the services and facilities in the construction area. We are just moving to another phase.

Senator STEVENS. That was congressionally-mandated, wasn't it?

Mr. MEIEROTTO. Yes.

Senator STEVENS. We would like a separate budget for that office and a justification for it, particularly an explanation of that $528,000 reduction. Why is it that the Department does not want to do what Congress wanted and that is, to have a separate function in terms of construction management for BIA?

Mr. MEIEROTTO. My understanding is that we have fulfilled the mandate of Congress on this item. It's primarily an architectural engineering design and planning operation. I have not seen anything in the report language nor in discussions with the various committees involved that

they wanted us to take over all of the Indian construction programs. My understanding is that we submitted a master plan on what we were going to do with the facility construction program. We have a steering committee made up of both policy, budget, and administration and Indian Affairs representatives. It's my understanding that we have fulfilled every mandate Congress has asked. The $500,000 reduction is in accordance with the master plan that we submitted last year on this particular project.

Senator STEVENS. Will you provide us that separate justification please?

Mr. MEIEROTTO. Yes, Mr. Chairman.

[The information follows:]

EXPLANATION OF $528,000 REDUCTIONS IN BIA CONSTRUCTION MANAGEMENT

The following table identifies planned changes in program needs including the planned reduction of over $500,000 in 1981.

OFFICE OF ACQUISITION AND PROPERTY MANAGEMENT
FACILITY CONSTRUCTION AND OPERATION IMPROVEMENT DIVISION
SYSTEMS STATUS

Functional Description	Award Date	Scheduled Completion	Contractor	FY Budget 1979	FY Budget 1980	FY Budget 1981	Status
Boiler & Pressure Vessel Inspection Inspection of all BIA boilers and pressure vessels on an annual basis. 1979 first phase major external inspections complete. Spring, 1980 major internal inspections. Fall, 1980 and spring, 1981 follow-up and certification inspections.	07-23-79	12-31-79	Hartford	$450,000	$300,000	$450,000	Phase I Substantially complete Phase II to begin in June 1980
Facility Management Standards Gather data on all BIA facilities. Review operational standards and develop a standard of performance & operation for all facilities. Phase I standards development complete December 1979. Spring of 1980 program being tested at two BIA sites. Summer 1980 total BIA field review for site specific standards. 1981 complete development of site specific standards, integration into facility control system and development of job performance aids to assist in operation of the facilities.	08-01-79	01-01-80	International TAO Systems	165,000	4,431,250	4,150,000	Phase I Substantially Complete Phase II Being Negotiated
Cost Estimating System Review BIA cost systems and historical data. Develop a standard systematic method of budget, project, contract estimating for BIA. 1979 develop data, review procedures. Spring, 1980 final system developed. Summer, 1980 beginning integration into BIA system and train employees in use of system.	08-14-79	12-13-79	Hanscomb Associates	110,000	100,000		Contract extended to March. Project three months behind schedule.

OFFICE OF ACQUISITION AND PROPERTY MANAGEMENT
FACILITY CONSTRUCTION AND OPERATION IMPROVEMENT DIVISION
SYSTEMS STATUS

Functional Description	Award Date	Scehduled Completion	Contractor	FY Budget 1979	FY Budget 1980	FY Budget 1981	Status
Facility Construction Operation and Maintenance (ADP)	10-05-79	11-16-79	Wilson-Hill	1,110,380 1/	no year funds →		On Schedule
Develop a data base management information system that will allow BIA to monitor schedule, manage and control its planning, design, construction, operation and maintenance programs. Fall 1979 system requirements for planning and inventory models complete. Spring, 1980 planning and inventory models designed, loaded and tested for use. Summer 1980 development of utilization and status reporting models to be completed January 1981. Spring and summer 1981 integration of facility management operation and maintenance models and final completion of energy conservation models. Fall, 1981 and spring, 1982 FACCOM system goes on line throughout BIA.	01-18-80	04-01-80	Martin-Marietta D.S.	→	→		
Facility Management Control System Identification, development, structure, and functions to provide central inspection, evaluation, accountability on facility performance. May 1980 contract completion for identification of system and final integration plan. 1980 and 1981 facility management control system integrated as activity within facility management standards.'	11-08-79	05-26-80	J. Terry Ray	420,000			On Schedule

OFFICE OF ACQUISITION AND PROPERTY MANAGEMENT
FACILITY CONSTRUCTION AND OPERATION IMPROVEMENT DIVISION
SYSTEMS STATUS

Functional Description	Award Date	Scheduled Completion	Contractor	FY Budget 1979	FY Budget 1980	FY Budget 1981	Status
Design and Construction Procurement and Administration System Develop techniques for A/E negotiations, selections, evaluations and planning for Design and Construction consultant contracts. Develop system for final inspections, review BIA design contract spec. techniques with development of a performance contract system. 1980 completion of new system. Train and integrate precedures into BIA organization.	11-26-79	04-15-80	Barnes, Landes, Goodman and Youngblood	128,000	178,750		Project two months behind schedule
Project Management Plans Develop a model system for project planning, identify all objectives to serve as a performance measuring tool during execution. Summer 1980 select projects will begin to develop Project Management Plans in accordance with the Program Implementation Master Plan. 1981 will review plans and begin integration as a procedure in BIA.				25,000	400,000	400,000	
Metering Program In 1979 metering needs were identified, master plans for installation prepared and procedures developed for installation at all BIA sites. 1980 the larger buildings of the BIA will have meters installed and 1981 all remaining energy users will receive meters.	03-15-80	09-15-80	BIA Discretion	100,000	1,500,000	1,500,000	Survey complete - installation now starting

OFFICE OF ACQUISITION AND PROPERTY MANAGEMENT
FACILITY CONSTRUCTION AND OPERATION IMPROVEMENT DIVISION
SYSTEMS STATUS

Functional Description	Award Date	Scheduled Completion	Contractor	FY Budget 1979	1980	1981	Status
Model Training Plan In 1979 a review of BIA facilities program was performed and a system to train and develop employees in skills and procedures to perform needed operation and maintenance services defined. 1980 will begin the development of job performance aids (JPA's) in accordance with the new operation and maintenance standards. 1981 additional JPA's will be developed and review of work task with JPA's completed.	09-11-79	01-11-80	Kinton, Inc.	100,000	1,090,000	1,000,000	Contract complete. Advertising for JPA development. Project on schedule.
Organizational Structure Identify, evaluate and recommend an organizational structure and operational relationship for new systems implementation. Organizational study was delayed to allow facility control contract completion before defining organizational needs. Study will begin last quarter of 1980.				100,000			To Be Readvertised - Third Quarter
Inspection Services Provide construction inspection services on BIA projects to assure quality of construction and contract compliance. Task orders were issued in 1979 and are being used on such projects as Ft. Totten and Ft. Yates. 1980 and 1981 additional projects will receive strong inspection and evaluation. (2 contracts)	09-25-79 09-25-79	09-24-80 09-24-80	Sverdrup & Parcel Northern Testing Laboratory	387,000	450,000	450,000	One Year Basic Ordering Agreement (2 contracts)

OFFICE OF ACQUISITION AND PROPERTY MANAGEMENT
FACILITY CONSTRUCTION AND OPERATION IMPROVEMENT DIVISION
SYSTEMS STATUS

Functional Description	Award Date	Scheduled Completion	Contractor	FY Budget 1979	FY Budget 1980	FY Budget 1981	Status
Cost Estimating Services Provide Cost Estimating Service on project cost, project budget, change order, and cost control procedures. 1979, 1980 two firms under contract to provide services. One firm already used to review the Ft. Totten project. 1981 will continue cost estimating services.	10-09-79 02-05-80	09-08-80 02-04-81	McCaleb Associates Stearns-Roger Arch.	100,000	150,000	100,000	One Year Basic Ordering Agreement (2 contracts)
PROGRAM BUDGET				1/ $3,195,380	$8,600,000	$8,050,000	
OFFICE OPERATION BUDGET				257,761	400,000	450,000	
		TOTAL		1/ $3,543,141	$9,000,000	$8,500,000	

1/ Includes $1,100,000 of no-year appropriations budgeted for use in FY 1979 and FY 1980.

POLICY ANALYSIS AND OUTER CONTINENTAL SHELF ACTIVITIES

Senator STEVENS. You have $1.6 million in the Office of Policy Analysis. The indication is that they are spending a lot of the time on OCS issues. But you have a separate Office for Outer Continental Shelf policy budgeted at $500,000. Why are the two involved in the same function?

Mr. MEIEROTTO. Heather Ross may want to expand on my comment on this, but we have developed a special type of expertise in the Office of Policy Analysis that is available throughout the Office of the Secretary and the Department, for that matter, to work on specific analytical tasks.

It is true that, for example, this year the policy staff worked on the profit sharing system in the oil and gas leasing but at the same time those same people have worked on similar systems and similar types of analysis related to the coal program and we viewed it as a more efficient way to organize the staff. If they were in, say, the Outer Continental Shelf Office, their expertise would be utilized in just one area, that of off-shore leasing. We think it would be better utilized on an across-the-Department basis on both on-shore and off-shore items, and also any other items we may have that would be applicable to that particular staff.

Ms. Ross. That's correct, Mr. Chairman. The Office of OCS program coordination is responsible for bringing together the work of the bureaus in the Department to actually operate the program; the schedule you are familiar with, the planning for the 5-year program, and the conduct of preparations for the actual sales. So they are on the operational side. They are primarily engaged in the management and coordination of the management of the program and they are uniquely OCS.

Senator STEVENS. Are they responsible to you?

Ms. Ross. They report to me.

Senator STEVENS. The policy staff?

Ms. Ross. The policy staff reports to me as well. They are the analytical staff of the Secretary for all his decisionmaking in the Department. They review all the decision documents that come to him for any program that has a decision that will be taken at his level and they are available for technical assistance to all the bureaus for analyses of program issues which would require the kind of skills they have.

Now in the OCS program we have some issues like that. Several were mentioned. For example, bidding systems. We are able to use them in the OCS program but we also are using them in all the other programs of the Department for similar kinds of economic and policy analysis.

ENERGY LEASING STUDIES

Senator STEVENS. On page 53 the Department listed five studies underway. Four of them concern leasing activities, two coal and two OCS studies. Why couldn't those studies have been done by your existing staff? Why do you need separate staff to do that?

Ms. Ross. Are you speaking of the Office of Policy Analysis?

Senator STEVENS. I am talking about the OCS staff and you must have a separate staff dealing with coal programs and BLM leasing.

Ms. Ross. Yes.

Senator STEVENS. Is there redundancy in this?

Ms. Ross. The idea of the Office of Policy Analysis work is to use the special expertise of the people in that office. They are Ph. D.'s in economics and operations research analysis, people not ordinarily hired in the bureaus for this kind of analytic task.

They use a little seed money plus their time to try to get ideas started that can then be implemented in the bureaus. So it's a seed money kind of function and a thinking kind of function from a perspective of the Department as opposed to an individual bureau.

The thing about leasing is that it crosscuts the Department completely so it's an effort to bring together the Department's overall view of this, analyzing something that may be a program innovation with a small amount of money, and an effort to see whether it's worthy of consideration and can ultimately be made operational in the bureau. That is true for all the programs of the Department.

This list reflects certain priorities in the Department now, things the Secretary wants to have innovative thinking done on and progress made. He has put a priority on leasing.

Senator STEVENS. How much does it cost for those studies? Tell us that. It appears that there is an increasing redundancy in the Department. What will these studies cost as far as OCS and leasing?

Ms. Ross. The total studies budget in the office is on the order of $350,000, and it's spent on the range of things I indicated. I would be happy to provide you a full list of the efforts that are going on and the amounts that are involved for the record if I may.

POLICY OVERLAP

Senator STEVENS. What is the difference between this and the old program review staff? Do you still have that, too?

Ms. Ross. I'm not sure.

Mr. BETTENBERG. Mr. Chairman, it's in part very similar but I believe the program review staff tended to be emphasizing the operational aspects rather than the study aspects. This particular office does both.

Senator STEVENS. We were assured there wasn't redundancy. Who is seeing there is no redundancy in these things now? Do you have a staff, Ms. Ross, to see there is no redundancy as far as programs are concerned?

Ms. Ross. As far as programs across the bureau? Yes.

Senator STEVENS. Across the whole Department. How do you know someone in OCS is not doing the same study you are doing?

Ms. Ross. First, for the Department as a whole the zero-based budgeting process is an annual process which establishes what every one proposes to do and assures that the final package makes sense as a whole. The work on that is done by the Office of Policy Analysis and by the Office of Budget.

Senator STEVENS. That is your office.

Ms. Ross. Both of those report to me.

Senator STEVENS. Do you have anybody in your office who says OCS and this staff are doing the same studies?

Ms. Ross. That, we are confident, is not happening. The work policy analysis is doing, for instance on bidding systems, is being done for the program coordination office. The OCS program coordination office is a coordinating office and it coordinates beautifully. It does, I think, a remarkable job.

Senator STEVENS. I am reminded that DOE has $1.5 million before this subcommittee dealing with analysis of OCS lease/sale activities. Do you coordinate with them?

Ms. Ross. We try.

Senator STEVENS. Somehow or other the dollars seem to be spreading out and no one seems to have the responsibility to assure that there is coordination.

Ms. Ross. The leasing programs are under the purview of the Department of the Interior. To the extent that DOE has elected to watch some of those things and report to us, we hope it will be useful and we will use the information, but we don't support in any formal sense their budget request. It's not to, in fact, aid our operational activity.

Senator STEVENS. Why don't you make the OCS office big enough to have a policy staff?

Ms. Ross. The policy staff is departmental. It handles the Secretary's work. The OCS Office can draw on it. I try to see that that happens in an efficient way. Your question is well taken. That is what we try to do.

If I may say so, the OCS program works at least as well as all the others because we have a quasi-line authority there so we can be sure that the analysis which is being done will be available to the program and will be used by the program.

DIRECTION OF OCS LEASING

Senator STEVENS. OCS brings in the major part of your revenue, doesn't it?

Mr. MEIEROTTO. Yes, Mr. Chairman, the revenue does go to the general fund.

Senator STEVENS. But they are responsible for the major portion of the revenues the Department earns?

Mr. MEIEROTTO. Yes, Mr. Chairman.

Senator STEVENS. Why aren't they important enough to have their own coordinating staff?

Mr. MEIEROTTO. That has not been necessary. We have utilized the expertise of another office that handles more than just one aspect of leasing. I think there is a benefit from the economists working in that area being cognizant of what is taking place in other fields related to the leasing function.

Ms. Ross. They have their own coordinating office. It's unique. There is an office of coordination precisely to pull things together and help the Department move ahead on that very important program. The policy analysis staff does things that are longer range and more complicated.

By that I mean analytically complicated. Computer simulation, for example. The kind of things that need specific expertise. The program coordination staff are analytically very sound themselves. That is how they coordinate. They understand the issues of policy and program.

They are backed up by policy analysis with certain kinds of expertise that require—for example, computer simulation.

Policy analysis has done all the work, for example, on evaluation of bids, on modeling on simulation that is carried out by the Geological Survey to establish what a reservation price would be. It's very specific and detailed work which goes to individual aspects of the program that require certain very technical economic analysis skills.

Senator STEVENS. Aren't you really splitting OCS leasing between two offices?

Ms. Ross. Definitely not.

Senator STEVENS. You split it in minerals policy—the Department does. Why don't you have minerals policy in your office? The Bureau of Mines has minerals policy, $1.4 million.

OFFICE OF MINERALS POLICY AND RESEARCH ANALYSIS

Ms. Ross. The Office of Minerals Policy and Research Analysis is in the Office of the Assistant Secretary for Energy and Minerals and they perform a support function for that assistant secretary that is analogous to the support function that policy analysis provides to the Secretary, but it's done for that Assistant Secretary for decisions that are made at her level and coordinated among her bureaus.

Senator STEVENS. You are doing it on a departmental level for OCS.

Ms. Ross. We are doing it at the Department level in policy analysis for programs in the Department generally and in fact we have, as it has turned out historically, not had to invest our efforts in those efforts OMPRA worked on.

OFFICE OF INSPECTOR GENERAL

Senator STEVENS. We mentioned the Inspector General before, Mr. Secretary. I think yours is the only agency with this fantastic buildup in the Inspector General activities. Thirty additional positions, an increase of almost $1 million in 1 year. Why is that the case?

Mr. MEIEROTTO. The reason, and the Inspector General may want to comment on this further, is that we have, according to the Inspector General's Act, expanded responsibilities to detect fraud and abuse. The Office of Audit Investigation, simply hadn't been doing that type of work before. Fraud and abuse detection is an expanded function. The Inspector General is getting into reviews of the automated data processing area. It has become a much more sophisticated field.

The Department also, given our backlog of investigations, finds that we do need an expanded investigative staff to meet all the needs. The act brought with it some new requirements including the "whistle blowers" provisions; this is a whole new area where the employee can register complaints anonymously if they so desire; we must pursue and investigate any of those complaints.

Senator STEVENS. How many of these 30 additional positions are identified with whistle blowing activities?

Mr. MEIEROTTO. Of the 30 additional positions we have requested 9 additional investigators. The investigators would fall in that category of "whistle blower" activities. However, some of the audit positions might

even be assigned to that if the nature of the complaint related more to an auditing function, rather than what I term a general investigation.

IG WORKLOAD

Senator STEVENS. What is your backlog now in terms of investigation requests?

Mr. MEIEROTTO. If I may ask the Inspector General, Mr. Chairman. June Brown.

Senator STEVENS. What is the backlog?

Ms. BROWN. We have remanded part of our 1,500 case backlog back to the bureaus and offices. Many deserve to be investigated but we have given all of those that we consider to be management-type issues to the bureaus because we only have 12 investigators currently.

Senator STEVENS. How many cases would you say you handled last year?

Ms. BROWN. Approximately 1,500. We had six investigators last year. We took audit positions and made additional investigative positions out of them in order to attack that backlog. Just to evaluate the 1,500 cases took the major part of our staff. We retained approximately 400 cases that we consider to be serious, investigations that were clearly our office's responsibility.

AUDIT INDEPENDENCE

Senator STEVENS. Are you requiring the bureaus to detail people to your staff to handle this audit function?

Ms. BROWN. No, sir.

Senator STEVENS. Does the Department do that?

Ms. BROWN. No; that hasn't been done in any case. What we have done is in those cases which we feel are proper for investigation but something that management could handle, such as misuse of Government vehicles—where it's fairly defined and management can get the facts, we have asked that the bureaus follow through and take action on such cases and report back to us the result of their management action.

Senator STEVENS. I am told your budget has been expanded by $2.7 million in transfers from individual bureaus to elminate reimbursable funding of audit activities. Isn't that requiring them to transfer people to you?

Ms. BROWN. No; the reason for that is that when I took the job as Inspector General, the procedure that had been used was when the bureau wanted an audit of a contract or grant or something of that nature that requires audit on a particular cycle, they would request audit of that activity and would treat us as if we were an outside contractor and they would pay for that particular job. I found that this would not allow me to establish the priorities for my office. If there was a fraudulent contract, for instance, it is conceivable there would be no request for audit.

We then didn't have the flexibility to look at those issues because we wouldn't have any way to pay our people. We could only respond to Bureau requests. So I asked the Secretary and Assistant Secretary to have the funds for the normal workload of the bureaus taken out of the appropriation of the bureaus and put in our appropriation. Now we are

doing a vulnerability analysis. We are trying to establish what our priorities should be within this office.

IG RESPONSE TO GAO REPORT

Senator STEVENS. What have you done about the GAO report that came out in October?

Ms. BROWN. We responded in many ways. We haven't had additional resources with which to work. We have been doing a vulnerability analysis looking at all programs and activities and establishing priorities on that basis.

Senator STEVENS. Have you quantified this request in relationship to the GAO report? How much was really required by the GAO report? They said, for instance, that too many of the IG audit staff, 60 percent, are used to audit grants and contracts which could be done by certified public accounting firms, the Defense Contract Audit Agency, or Interior agencies.

Ms. BROWN. We have doubled the amount of work we contracted in fiscal year 1980. We have gone from approximately $500,000 to just under $1 million in contracted work in order to provide greater audit coverage.

Senator STEVENS. Does it have to be contracted? What is wrong with using Interior's agencies to begin with?

Ms. BROWN. There aren't any auditors on any of the bureau staffs. That function was centralized in our office under the Inspector General Act. So we feel ours is the office that has been delegated responsibility for taking care of required audits. External audit still uses a very large proportion of our staff, which keeps us from doing internal type audits or evaluations of programs and activities.

INVESTIGATIVE CAPABILITY

Senator STEVENS. What is the most important part of the requested increase of $800,000 for your function?

Ms. BROWN. We will still be severely understaffed; $100,000 is for the cost of living increases. We actually have $702,000 that will be devoted to paying 30 additional people on our staff. Right now we have a 57-year audit cycle for all programs and activities.

Senator STEVENS. How much? What is the cycle?

Ms. BROWN. Fifty-seven years. We also, of course, have not been able to address those serious investigative issues that we could not remand back to the bureaus and offices. We feel that we should increase our investigation staff and try to get a more timely response on those investigative matters that are backlogged. We also want to increase our audit activity on the basis of the vulnerability analysis we have done. We would like to be able to go in and audit those activities that are highly vulnerable and showed high error rates when we went in and did some survey work, or when there was very questionable uses of funds or whatever the problem.

Senator STEVENS. Who in the Department reviews the policy decisions in your office?

Ms. BROWN. Who reviews them?

Senator STEVENS. Yes.

Ms. BROWN. In most cases, depending upon the particular decision, we have to go through normal Departmental approval.

Senator STEVENS. Whom do you report to?

Ms. BROWN. The Secretary and Under Secretary and the Congress. If there is an approval such as for purchase of computer terminals with which we can audit the various computer systems within Interior, we would go through the office that has to approve procurement of any kind of computer equipment. For each specific type of approval, we go through the same process as any other office in the Department.

ADDITIONAL COMMITTEE QUESTIONS

Senator STEVENS. Thank you.

We will have additional committee questions to be answered for the record.

Thank you for your patience in understanding the situation today. I thank you for your responses.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Additional Committee Questions

INCREASES FOR ASSISTANT SECRETARY FOR LAND AND WATER RESOURCES

Question: Your $1 million request for the Office of the Assistant Secretary for Land and Water Resources includes a $40,000 increase, part of it for "water policy and 1902 reclamation law enforcement efforts." What does that mean exactly, and how much in total have you budgeted for that effort?

Answer: The increase of $40,000 requested for the Office of the Assistant Secretary for Land and Water Resources is for temporary staff support to this office. This includes interns and one person assigned to work on expediting siting and construction of major energy facilities on or near public lands. The increase is not intended for any enforcement efforts connected with water policy or enforcement of Reclamation law.

INCREASES FOR ASSISTANT SECRETARY FOR FISH AND WILDLIFE AND PARKS

Question: Please explain the increases requested for temporary staff costs and additional travel under the $885,000 budget for the Assistant Secretary for Fish and Wildlife and Parks. Why is additional temporary staff needed, and why does the Assistant Secretary need additional oversight travel?

Answer: The temporary staff costs provide for temporary secretarial services to be utilized during the vacation season when several of the permanent employees will be on leave. None of the temporary replacements involved in the proposed increase of $3,500 are expected to be for longer than two weeks each and 50 days in the aggregate.

The requested increase of $8,000 for additional travel is in recognition of the interest of the Congress and the Administration to further assure maximum efficient use of all appropriated funds. This requires closer oversight of program management and performance which requires additional program reviews and evaluations by the Office of the Assistant Secretary.

ADMINISTRATIVE SERVICES/SECRETARIAL OPERATIONS OVERLAYS OF FUNCTION

Question: For administrative services you have a $1.5 million budget and 50 staff members. Under secretarial operations you have another $1.2 million and 42 staff members. Don't these two functions tend to overlap? Why can't they be consolidated?

Answer: There is no overlap or duplication between the Office of Administrative Services and the Office of Secretarial Operations.

The $1.5 million and 50 staff members are for the Office of Administrative Services which provides only certain administrative support services (i.e., policy development and operations) for the Department.

These services include directives, reports management, enforcement, security, emergency preparedness, safety management, contracting, procurement, office services, and mail and file support for the Office of the Secretary.

The $1.2 million and 42 staff members are for the Office of Secretarial Operations which includes the Division of Fiscal Services and the Division of Personnel Services. These organizations provide budget, accounting, payroll, and personnel support to the various organizations in the Office of the Secretary.

PROPERTY MANAGEMENT SERVICES

Question: Part of the justification for administrative services includes "property management services." Why isn't property management the function of your $9.4 million office of acquisition and property management?

Answer: "Property management services" as it relates to the Office of Administrative Services includes the actual acquisition, moving, and maintenance of property (i.e., furniture and equipment) as well as management of the property through an automated Property Management Accountability System (PMAS) for all organizations in the Office of the Secretary. The maintenance of the PMAS provides for effective property acquisition (including excess property transfers), utilization of personal property, reports as required by law, reconciliation with general ledger accounts, and inventory control, which includes labeling of personal property for identification and location. The property office within the Office of Administrative Services is the operating property office for the Office of the Secretary.

The Office of Acquisition and Property Management responsibility for management is in the area of Department-wide policy and oversight. They establish Departmental property policies based on applicable GSA and other Federal property regulations and policies. These are subsequently incorporated into and issued in the Interior Property Management Regulations (IPMR's) which must be adhered to by each of the Department's bureau operating property offices.

ADMINISTRATION SERVICES/ACQUISITION AND PROPERTY MANAGEMENT - JUSTIFICATION FOR STAFF INCREASES

Question: Please supply a better justification for the staff increases requested for acquisition and property management and administrative services.

Answer: The staff increase for one additional position that was requested for Acquisition and Property Management is for a Property Management Officer (PMO) functioning as a program analyst. The incumbent will assist in the development and operation of management information systems in both real and personal property program areas; assist in development of Department-wide inventory control systems; perform program overviews to ensure compliance with governing authorities; serve as Departmental representative on interagency

property management work groups. Recent Congressional and Executive Branch reviews have disclosed the need for better property accountability. GSA has instigated a number of Government-wide initiatives that involve personal property management. Departmental response to these initiatives and proper program overview requires the ability to analyze the component parts of the property management system. To accomplish this, it is essential that management has access to suitable reporting systems. The incumbent will be engaged nearly full-time in systems development. For example, in the furniture management program, there is an immediate need to computerize the Departmental furniture inventory, an effort which will take several years to fully accomplish.

The several GSA initiatives will require a nearly complete overhaul of the personal property regulations concerning management actions involving high value property items. To perform these tasks will require the commitment of a permanent, full-time staff person as well as additional staff support drawn from the bureaus and offices. The need for the PMO is immediate. The PMO should be representing DOI interests on several GSA/OMB property management work groups, and initiating a joint study of present bureau inventory systems leading to development of a single, computerized Departmental system. The need for the program analyst position is critical to development of the Motor Vehicle Management System and the Quarters Management Information System. The selection of a full-time PMO can not be readily deferred and still meet the responsibilities of this office.

The staff increase for one additional position that was requested for Administrative Services is in the contracting area and in that area, the workload, both in terms of contracts awarded and complexity of the work, has increased substantially during the past few years. In FY 1977, approximately 80 contracts and modifications were awarded. For FY 1981, 225 are estimated to be awarded - an increase of 181%. The contracting function has become more complex as a result of several requirements which have been established in response to various socio-economic considerations. OMB Circular A-76 (Policies for Acquiring Commercial or Industrial Products and Services Needed by the Government) has increased the contract workload. Similarly the Minority Business Enterprise program and Public Law 95-507 (which requires that all contracts under $10,000 be awarded to small businesses) have also contributed to the complexity of the contracting function.

At the present time, the contracting staff is almost exclusively involved in the development and awarding of contracts. The one additional position requested (GS-13 Contract Specialist) will significantly strengthen the contracting operation by providing for greater emphasis to be placed on other key elements of contract administration. Much more emphasis would be placed on providing technical assistance to serviced organizations in all aspects of contractual services. This function can contribute to significantly improved use of financial resources by such techniques as consolidating several small purchases into a single contract awarded on a competitive basis, better defining desired goods and services, and better contract monitoring.

ACQUISITION AND PROPERTY MANAGEMENT
FUNDING REQUESTS FOR THE THREE PRINCIPAL FUNCTIONS

Question: Please supply for the record a breakdown of funding requested the Office of Acquisition and Property Management for the three principal functions. Give the levels for 1979 through 1981.

Answer:

Principal Functions	FY 1979	FY 1980	FY 1981
Acquisition and Grants	$ 227,141	$ 369,000	$ 399,000
Facility Construction 1/	--	9,000,000	8,500,000
Propert Management	115,260	174,000	322,000
All Other 2/	1,005,599	176,000	206,000
Totals	$1,348,000	$9,719,000	$9,427,000

1/ Funded by BIA appropriations in 1979. Comparable amount is $3,500,000.

2/ Acquisition and Property Management is a component of the former Office of Administrative and Management Policy which was reorganized in 1980. 1979 amounts reflect comparable amounts for functional responsibilities under the old organization.

CIVIL SERVICE REFORM EXECUTION

Question: You have budgeted $1.5 million - up $280,000 - for personnel management, including four new positions, all for executing the Civil Service Reform Act. In addition, you have budgeted a $1 million increase for Departmentwide senior executive service bonuses. Why is it so costly to implement these "reforms" in Civil Service?

Answer: The major changes in personnel management mandated by the Civil Service Reform Act have imposed a tremendous workload in converting to and managing new systems and programs. One of the principles of the Civil Service Reform Act is delegations from the Office of Personnel Management to the Departments and Agencies. The relatively small staff in the Office of Personnel could not keep up with these new important demands. The realignment of the Department's Office of Personnel, modifying priorities, and the use of task forces can meet only a portion of our augmented workload. Therefore, we elected to request a modest budget increase and to assign limited additional resources for Civil Service Reform. We rejected the alternative of contracting for such program development activities as merit pay, performance appraisal and the Federal Equal Opportunity Recruitment Program which published reports indicate other Departments have done, often at high cost.

The increase will provide for four positions. One at GS-15 has full-time responsibility for the management of the SES program,

including developmental and training activities, utilization of senior level positions, compensation, and recruitment. One at GS-13 concentrates on making the Federal Equal Opportunity Recruitment Program work in the Department by monitoring recruitment efforts aimed at attracting well qualified minorities, women and the handicapped to meet CSRA mandates. Another at GS-13 concentrates on evaluation efforts for the new CSRA programs and the use of additional delegated authority in the Department. A GS-7 position provides technical/clerical support on the SES program.

When the Civil Service Reform Act was passed it was indicated that Merit Pay for GS 13-15 managers was to come from existing funds. However, since SES bonuses were non-existent prior to the Act, this was to be new money.

The Secretary has decided to include all SES bonuses in the Office of the Secretary. Only 294 positions are in the SES Department-wide, making it difficult to budget for this by bureau. We believe that our senior executive service bonus request represents a conservative approach. The maximum that could be paid under current Governmentwide limitations is $1,670,000; however, in keeping with Federal efforts to control expenditures, we have budgeted for this Civil Service Reform Act program at a significantly reduced level. Thus the proposed budget for bonuses in FY 1981 will provide for our initial implementation of this program.

The costs represent increases which we believe are inherent in this legislation.

SENIOR EXECUTIVE SERVICE BONUS PAYMENTS

Question: How does your request for executive bonuses fit within the proposed limitation on individual compensation in the senior executive service?

Answer: Our request was based on projections of bonus payments which are substantially less than $10,000 per eligible executive. Thus, we will stay well within the limitation on individual compensation of $60,660.

ADP MANAGEMENT IMPROVEMENTS

Question: Why do you need five additional positions and an increase of nearly $500,000 for information resources management simply to implement improvements recommended by GAO and the House Appropriations Committee? Why can't you provide these improvements by trimming back elsewhere in the Secretary's office budget?

Answer: The GAO and the House Appropriations Committee Investigations Staff identified several major problems in ADP management within the Department. Actions taken thus far to correct the deficiencies include (1) the establishment of a Departmental Information Systems Council chaired by the Assistant Secretary - Policy, Budget and Administration with Program Assistant Secretaries as members, (2) strengthened ADP management from existing Office of

the Secretary positions, (3) established four general purpose computer centers operating under common policies, (4) transferred responsibility from the Office of the Secretary for an operational computer center with 70 positions to a bureau to promote better management and efficiency, and (5) established the Office of Information Resources Management by combining existing offices which were performing specialized but related functions.

The five requested positions are required to provide assistance to a small ADP policy group which has Departmentwide responsibilities for ADP management. The positions are necessary to (1) insure the effectiveness of data base utilization, (2) provide maintenance and evaluation of the Department's ADP Security Program, (3) establish a standards and evaluation program, (4) coordinate office automation programs, (5) perfect the review of large ADP acquisitions, and (6) standardize to the extent possible administrative computer applications. Without these positions there is just no way that our current complement of five specialists can absorb these additional responsibilities. The $500,000 is required to cover the cost of these positions ($330,000 including $136,000 for contractual services) and to just maintain the current level of operations ($134,000). With the increased activity in information handling the volume of data, and the growth rate of 23 percent per year in expenditures for ADP activities additional attention is simply mandatory for good management.

With respect to providing these improvements by trimming back elsewhere in the Secretary's Office budget - there is just no slack to allow this approach without causing serious problems in other functional areas. We sincerely believe that we are operating with as lean a staff as is possible to the point that some bonafide requirements are necessarily deferred or left undone.

BENEFITS FROM INTERNAL AUDITS PERFORMED BY THE INSPECTOR GENERAL

Question: The justification lists seven examples of internal audits which have "significant, but unquantifiable benefits." Why can't benefits from these studies be defined?

Answer: Many of these benefits can be defined but they are not quantifiable in terms of dollars. For example:

1. The report on the Central Valley Project is intended not only to disclose that project costs will not be recovered as required, but also to point out the necessity to revise the policy for negotiating future water project contracts.

2. In the Payments in Lieu of Taxes report we determined that there is an urgent need for changes in the Act. Vague language and inequities create confusion and uncertainty and prevent effective administration. These problems impact not only on the Bureau of Land Management (BLM), but in varying degrees on all Federal agencies which manage Federal lands. We recommended legislative changes.

3. The report on the delivery of social services to Indian children contains recommendations to improve the quality of life for these children. Savings in dollars would only be an indirect result and, although the amount could ultimately be substantial over several generations, it could not be traced back to our specific report.

Other benefits include information, analyses, and recommendations to the Secretary and the Congress on how well specific programs are operating. Better decisions on the allocation of limited resources can be made when officials are better informed. Actual savings may not be evident since the budget may not be reduced; however, the funds are spent on programs and activities producing the optimum results.

RESULTS OF INTERNAL AUDITS

Question: What has actually happened as a result of the internal audits that are listed in the justification?

Answer: Policies and Practices are Resulting in Substantial Subsidies to Municipal and Industrial Water Users of the Central Valley Project

Our report recommended that a Departmental water rate policy should be established to ensure timely repayment of annual operation, maintenance, and replacement costs, including the recovery of prior deficits and interest costs thereon.

The cumulative deficit by the end of fiscal year 1995 on the Central Valley Project is estimated at $131 million. We believe that interest costs on annual operating deficits, reimbursed by water users, should be based on interest rates paid by the U.S. Treasury to finance such deficits. To date we have received no formal response to our audit report; however, we were advised that a ratesetting policy document which provides for the recovery of the Municipal and Industrial (M&I) water repayment deficit is being prepared. Additionally, a comprehensive M&I water marketing policy option paper, applicable Servicewide, is undergoing review and revision. Our office has provided comments to the Water and Power Resources Service on the interim marketing policy option paper.

Problems Implementing the Payments in Lieu of Taxes Act

Public Law 94-565, 31 U.S.C. 1601-1607 (the Act), authorizes the Secretary of the Interior to make payments in lieu of taxes (PILT) to units of local government where certain Federally-owned lands are located. Under this $100 million per year program, payments were made to about 1600 local government units in each fiscal year since 1977.

Based on our audit, we determined that there is an urgent need for changes in the Act. Vague language and inequities create confusion and uncertainty and prevent effective administration. These problems impact not only on the Bureau of Land Management (BLM), but in varying degrees, on all Federal agencies which manage Federal lands. We recommended legislative changes which would:

(a) eliminate reliance on financial data submitted by state governments,
(b) clarify the definition of units of local government, and
(c) treat Federal lands and revenue laws consistently.

On March 20, 1980, BLM recommended remedial legislation to the Secretary. BLM has delayed the submission of further recommended legislative proposals, awaiting the outcome of legal action that is currently pending in the Federal Circuit Court in Michigan. We concur with the BLM decision.

BLM also delayed decisions on our recommended changes concerning consistent treatment of Federal lands covered by the Act and other revenue laws presently excluded from the Act, pending its review of an opinion issued by the Department's Board of Land Appeals on February 28, 1980.

Improvements Needed in Property and Cash Management Procedures

The audit determined that property management at the Bureau of Mines needed strengthening to reduce the potential for loss, theft, and abuse. Based on our study of nine organizational units in the Bureau, responsible for over 8,000 property items valued at more than $27 million, 19 percent of the items shown in the records (valued at over $5 million) could not be found and their absence could not be explained. Another 17 percent (valued at over $4.5 million), shown in the records as being at the nine locations, had been stolen, disposed of, surplused, or transferred to another Federal agency.

The audit also concluded that $54,000 in annual interest costs could be saved by more timely deposits of mine reclamation fees (over $50 million each quarter), and $12,000 in additional discounts could be taken if invoices were routed and processed expeditiously.

The Bureau of Mines has since undertaken a complete physical inventory of all property items at all its locations. Property records are to be adjusted accordingly. The property handbook has been revised to provide conformance with the Code of Federal Regulations and visits from the Branch of Property and General Services have been scheduled at each installation to assist the Bureau in complying with prescribed directives.

The Bureau has instituted procedures to give priority to processing receipts of over $5,000 to expedite the depositing of mine reclamation fees and, in order to take the additional discounts offered, the Bureau has revised its procedures to ensure that invoices are sent directly to the Division of Finance by the vendors and has stessed to its field personnel the importance of submitting receiving reports promptly. These changes are also being incorporated in revised finance and procurement handbooks.

Delivery of Social Services - Bureau of Indian Affairs

This report concluded that BIA needs to develop and enforce definitive service standards, institute a quality control or oversight mechanism to identify locations providing poor service,

and provide for resource distribution based on developed staffing standards.

BIA responded to this report in April 1980 stating:

> We believe the quality control system is priority number one to institute an effective, systematic program review to insure that program operations are uniform and attaining objectives in all area. From this quality control system, we believe we can subsequently develop and enforce definitive social work standards and produce recommended staffing standards (the current 20 foster care cases per social worker will remain as recommended until further revision.)

We have increased as of July 31, 1979, the employment position ceiling of the Central Office by 2 positions, to the 1973 level, as reported to you on January 24, 1980, for a total of 12 positions. These positions will function in the specific area of the quality control system and program development. We have implemented the mandatory requirement of random sample 6-month Agency case record and program review quality control system by each Area Office.

Since 1970 the Bureau has tried to modernize the program and management information systems of the Division of Social Services on an Automatic Data Processing system. However, each effort has been thwarted by hardware and software equipment requirements. As you know from your audits in the Phoenix Area Office, this Office has had a pilot program designed for the past three years. With the FY 1979 ADP systems now available to the Bureau for the first time, we have activated the Phoenix Area Office pilot program design for this year, with the plan that such a system will become operational Bureau-wide effective October 1, 1979 for Fiscal Year 1980.

During Fiscal Year 1980, we will provide your office periodic reports on the quality control system development and program development changes that are brought about by the system.

Clarification of Relationships with the Wolf Trap Foundation Needed

The audit determined that the cooperative agreement between the National Park Service (NPS) and the Wolf Trap Foundation is too vague, and as a result, NPS is providing financial assistance on something close to an open-ended basis. FY 1978 direct and indirect assistance totaled over $2 million. The audit also concluded that issuing free tickets or reduced price tickets to NPS employees and others creates possible conflicts of interest and is contrary to regulations.

The National Park Service responded with the following changes regarding the cooperative agreement with Wolf Trap Foundation:

(i) The financial assistance which we are providing in Fiscal Year 1979 is in the form of a grant which was approved in accordance with procedures contained in the Office of Management and Budget Circular No. A-110, "Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals,

and Other Non-Profit Institutions." Integral parts of these procedures provide for exact identification of the function or project that is to be funded, the time period covered by the grant, the exact dollar limits of the grant, the requirement for supporting documentation of the expenditure of funds by the grantee and the provision for a final report by the grantee as well as an audit by Departmental auditors. This grant is administered on a cost reimbursable basis.

We have now developed procedures which will enable all parties to have a better understanding of how much will be available and how the money must be utilized. Any future agreements, grants, and/or contracts will be predicated upon a cost reimbursable financial arrangement and will provide sufficient parameters which will spell out maximum amounts of funds available and for what purpose they are to be used, the period(s) of time covered, and will provide sufficient controls for assuring proper expenditures of those funds by both the National Capital Region and the Foundation.

(ii) The Department of the Interior, through the National Park Service, is responsible for the management, technical operation, and direction of the stage including the theatrical facilities and equipment in the Filene Center. Thus, in this year's agreement with the Foundation, the Service has arranged to have eight seats set aside out of the 6,500 available (3,000 on the lawn) for each performance. Tickets for these seats are to be used in the exercise of official business by the Secretary, Under Secretary, Assistant Secretary for Fish, Wildlife, and Parks, and the Director of the National Park Service. At the written request of one of these officials, a member of the Secretariat, Assistant Secretariat, or Directorate of the National Park Service, can use tickets in the exercise of official business. At the request of a Member of Congress to the Secretary, Under Secretary, Assistant Secretary, or Director, tickets will be made available to that Representative or Senator. When the Director of the National Park Service is called upon by representatives of foreign governments to review the performing arts in the National Park System, he may also use the tickets for that purpose. It shall be the policy of the National Park Service not to make free tickets available to other Park Service employees or to employees of the Department of the Interior. Moreover, the agreement with the Foundation specifically provides that the Foundation shall make no free tickets available, other than the eight, to officials or officers of the Department of the Interior. Any unused tickets will be turned back to the Wolf Trap Foundation for sale to the public.

The National Park Service has set up a control system for the distribution of these tickets. The Chief, Office of Legislation, who reports directly to the Director of the Service, is responsible for controlling the distribution of tickets.

We continue to monitor the Department's efforts to resolve the matters reported above and also all uncleared recommendations related to other audit reports.

INTERNAL AUDIT ON ANIMAL DAMAGE CONTROL

Question: What for example, has occurred since the internal audit was completed on animal damage control? Is the Fish and Wildlife Service adopting the recommendations?

Answer: In March 1980, the OIG rejected the Fish and Wildlife Service (FWS) response to our audit report because it did not identify specific corrective actions to resolve the issues raised. Our recommendations for improving program accounting and monitoring program effectiveness have not been implemented.

As regards the $476,000 to be recovered from a state agency, FWS proposed to the Deputy Solicitor that it be settled for $54,675. In April 1980, the OIG objected to the proposed settlement and recommended to the Deputy Solicitor that the $476,201 bill of collection not be compromised. We further stated that any proposed compromise must be submitted to GAO.

INTERNAL AUDIT ON HASKELL INDIAN JUNIOR COLLEGE

Question: What about the study on Haskell Indian Junior College? Is the College eliminating its graphic arts program, stopping the acquisition of unneeded equipment and rescoping its construction needs?

Answer: The report concluded that (i) unless a method could be found to significantly increase enrollment, costs should be reduced by eliminating the graphic arts program, which is utilized at about 14 percent capacity; (ii) HIJC should stop acquiring unneeded equipment; and (iii) construction requirements should be based on more realistic enrollment requirements.

The Acting Deputy Assistant Secretary, Indian Affairs, responded to this report on May 21, 1980 stating that

(i) the Graphic Arts Department enrollment has been increased to 49, and the instructional staff reduced to 3; thus providing a proper student/teacher ratio. The Graphic Arts Program was completely reorganized, effective September 30, 1979;

(ii) procurement procedures were revised to require department chairmen to submit a complete and definitive justification for all purchase requests and the office of the president, HIJC, formally approves all requests for equipment with full supporting justification;

(iii) any future proposed construction projects will be developed based on a detailed analysis to include realistic enrollment figures, consideration of existing facilities, and realistic future academic goals for HIJC. Effective July 1978, all school construction requests need to compete in a Bureau-wide priority system to be verified by an on-site team composed of engineers and educators.

INSPECTOR GENERAL AUDIT AND INVESTIGATION REPORTS FURNISHED TO CONGRESS

Question: Are IG audit and investigation reports furnished to Congress? How?

Answer: The IG Act requires the Inspector General to report significant problems, abuses, and deficiencies through the Secretary to the Congress. These reports are sent to the Chairmen of both the Senate and the House Committees on Appropriations. Copies of these reports are also sent to individual members:

Vice President Walter F. Mondale - President of the Senate
Representative Thomas P. O'Neill - Speaker of the House
Senator Henry M. Jackson - Chairman, Committee on Energy and Natural Resources
Senator Abraham A. Ribicoff - Chairman, Committee on Governmental Affairs
Senator Warren G. Magnuson - Chairman, Committee on Appropriations
Senator Jennings Randolph - Chairman, Committee on Environment and Public Works
Senator Edward M. Kennedy - Chairman, Committee on Judiciary
Representative Morris K. Udall - Chairman, Committee on Interior and Insular Affairs
Representative Jack Brooks - Chairman, Committee on Government Operations
Representative Jaime L. Whitten - Chairman, Committee on Appropriations
Representative Harold T. Johnson - Chairman, Committee on Public Works and Transportation
Representative Peter W. Rodino - Chairman, Committee on Judiciary

The IG also sends a monthly list of all completed reports to the House Subcommittee on Interior Appropriations, the House Subcommittee on Indian Affairs and Public Lands, and the House Oversight and Investigations Interior Subcommittee. These subcommittees can then request copies of specific reports of interest to them.

The IG will fulfill all requests for audit reports from the Congress. Names can also be added to the mailing list of Committees and Subcommittees to receive copies of the semiannual reports and monthly lists of completed reports.

Investigative reports contain information generally exempt from the requirements of the Freedom of Information Act and are subject to the provisions of the Privacy Act. As such, they have limited circulation.

INSPECTOR GENERAL REPORTS PROVIDED TO THE APPROPRIATIONS COMMITTEE

Question: Most of the reports listed in the justification should be provided to the Appropriations Committee, don't you think?

Answer: Copies of the IG semiannual reports are sent to the Appropriations Committee. These reports contain lists of all audits completed during the period. Upon request, the IG provides copies of selected audit reports to members of the Congress.

ALLOCATION OF INSPECTOR GENERAL BUDGET

Question: For the record, please supply how the IG budget is allocated among audit, investigative, and ethics activities. Include both dollars and staff. Also supply an object class breakdown for the IG for the 1979-1981 fiscal year.

Answer: The requested information follows:

Office of Inspector General

Staff

Type/Location	Authorized FY 1980		FY 1981 Additions		Authorized FY 1981	
	Prof.	Cler.	Prof.	Cler.	Prof.	Cler.
IG-Immediate Office	2	1	-	-	2	1
Ethics	2	1	-	-	2	1
Asst. IG Policy & Resource Management[1]						
Headquarters	5	5	1	-	6	5
Denver	5	1	-	-	5	1
	10	6	1	-	11	6
Audit						
Headquarters	2	1	-	-	2	1
Arlington	41	4	8	-	49	4
Denver	39	2	6	-	45	2
Albuquerque	3	0	-	-	3	0
Sacramento	36	3	6	-	42	3
Portland	4	0	-	-	4	0
	125	10	20	-	145	10
Investigations						
Headquarters	16	3	8	1	24	4
Denver	1	0	0	0	1	0
	17	3	8	1	25	4
	156	21	29	1	185	22
	177[2]				207[2]	

[1]Includes ADP expertise and supervisory capability as necessary on ADP audits and investigations.

[2]Includes 3 positions funded from reimbursable activities.

A breakdown by object class for FYs 1979 through 1981 is shown below. This breakdown also includes estimates of reimbursements from other government agencies for audit services provided by our staff.

	1979 Actual	1980 Budget	1981 Budget
Source of Funding			
Direct Appropriation	$4,262,000	$4,873,000	$8,832,000
Reimbursements			
--Intradepartmental	2,101,000	2,785,000	-
--Interdepartmental	236,000	236,000	260,000
Totals	$6,599,000	$7,894,000	$9,092,000

Breakdown by Object Class

No.	Description	1979 Actual	1980 Budget Request	1981 Budget Estimate
11	Personal Compensation	$3,700,952	$4,205,800	$5,152,000
12	Personnel Benefits	360,809	404,000	493,000
21	Transportation of Persons	755,367	757,200	870,800
22	Transportation of Things	10,350	32,000	39,000
23	Rents, Communications & Utilities	62,416	128,000	134,800
24	Printing and Reproduction	33,433	36,000	43,800
25	Other Services	1,499,640	2,268,000	2,281,000
26	Supplies and Materials	32,787	36,000	42,800
31	Equipment	142,901	27,000	34,800
	Totals	$6,598,655	$7,894,000	$9,092,000
Positions Budgeted:			177	207
--Funded by direct appropriations			146	204
--Funded through reimbursable activity		31	31	3

Many of the functions and staff within the IG overlap and because of this, we do not attempt to officially separate the budget by type of function. For example, teams of auditors and investigators conduct major investigations, while investigators provide assistance on audits. The ADP staff is intended to provide expertise and supervision on ADP intensive audits and investigations. Because our staff is small in number, this provides us with the needed flexibility for getting the job done in the most effective and efficient way.

An estimated allocation of dollars to each activity based on the number of staff presently assigned is shown below:

Function:	FY 1980	FY 1981
Audit	$6,551,000[1]	$7,154,000[1]
Investigation	688,700	983,000
Ethics	103,300	104,000
Policy and ADP Resources	551,000	591,000
Total	$7,894,000	$8,832,000

[1]Includes $1.9 million in purchased contract services.

TRANSFER FROM BUREAUS TO THE INSPECTOR GENERAL

Question: The Inspector General budget has been expanded by $2.7 million in transfers from individual bureaus "to eliminate reimbursable funding of audit activities." Please supply an identification of the individual transfers by agency and object class.

Answer: The transfers by bureau are as follows:

Bureau of Indian Affairs	$721,000
Heritage Conservation and Recreation Service	608,000
Fish and Wildlife Service	371,000
Bureau of Mines	252,000
U.S. Geological Survey	223,000
National Park Service	193,000
Water and Power Resource Service	169,000
Bureau of Land Management	207,000
Office of Water Research and Technology	41,000
Total	$2,785,000

This transfer is reflected in the Office of the Secretary's 1981 request under the direct program. The object class distribution is as follows:

Salaries	$775,000
Benefits	94,000
Travel	338,000
Transportation	15,000
Rent, Communications & Utilities	79,000
Printing	15,000
Other Services	1,456,000
Supplies	9,000
Equipment	4,000
Total	$2,785,000

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STANDARD LEVEL USER CHARGES

Question: Under your object classification, how is it that you are able to achieve a savings of nearly $700,000 in standard level user charges? Are you using less space now?

Answer: The Office of the Secretary does not anticipate a reduction in its total space requirements for 1981. However, an accounting change for charging space costs to Working Capital Fund activities will result in a reduction in space costs charged to the Direct Appropriation in 1981. The total space requirements for the Office of the Secretary will not be reduced. Any reductions reflected in the Departmental Management Appropriation are offset to the Working Capital Fund account. It is felt that this change will more accurately reflect the total cost of performing Working Fund services. This is part of our effort to more accurately account for costs.

CONTRACTUAL SERVICES

Question: Please explain the somewhat spectacular growth in contractual services for the Office of the Secretary since 1979. The level then was $5.7 million. Now you are budgeting $14.8 million.

Answer: The largest portion of the $9.1 million growth in contractual services from 1979 to 1981 is attributed to the transfer of the Construction Management function from the Bureau of Indian Affairs to the Departmental Management Appropriation. 1981 funds for contractual services, for this function, total $8.1 million. Of the remaining growth, $750,000 was included for the Office of Small and Disadvantaged Business Utilization (which was amended to $250,000) and approximately $250,000 will provide for other needs throughout the Office of the Secretary.

CONTRACTS AWARDED

Question: For the record, please supply a breakdown of contracting for the three years.

Answer: Selected key contracting workload information for FY 1979-81 is as follows:

	FY 1979		FY 1980		FY 1981	
	#	$	#	$	#	$
Contracts Awarded	169	$3.6 Mil.	200	$10 Mil.	225	$12 Mil.
Small Purchases Awarded	4,863	$3.7 Mil.	5,000	$6.0 Mil.	5,100	$6.1 Mil.

FY 1979 UNOBLIGATED BALANCE

Question: Under your program and financing statements you show an unobligated balance lapsing in 1979 totaling slightly over $1 million. Please identify and explain that lapsing balance.

Answer: There were several basic causes for the over $1 million lapsed in 1979. These were lapses in hiring individuals, lapses in terms of contracts and requests of proposal for studies and a basic programmatic problem, as explained below.

The lapse in hiring individuals was mainly in the Office of Inspector General, Office of Budget, Office of Hearings and Appeals and the Library. An example of the lapse problem can be cited for the Office of Budget and the Office of Inspector General. In 1979 the Budget Office staff was increased by 13 positions. The filling of these positions was held in abeyance until the new director was brought on board, in January 1979, in order to allow him to select high quality financial management personnel. A similar situation existed in the Inspector General's Office. There traditionally is a high turnover rate for auditor types. Since the Inspector General was not brought on board until May, 1979 many vacant positions were not filled until an assessment of office requirements was accomplished.

Problems concerning contracts occurred in two offices: Minerals Policy and Research Analysis and Policy Analysis.

In FY 1979 Minerals Policy and Research Analysis was involved in an interagency review of nonfuel minerals ordered by the President and chaired by the Secretary of the Interior. This review has not been concluded.

During July 1979 Phase One work was being completed and Phase Two was to begin to carry out some of the recommendations obtained during Phase One. It was anticipated that a minimum Phase Two involvement would be four to five projects requiring various amounts of funding, and funds were set aside by OMPRA, the Bureau of Mines, and additional available resources within the Department.

The endorsement to start Phase Two did not occur in FY 1979 and the monies placed on reserve for this purpose were not obligated.

In addition, anticipated costs to programs were successfully reduced by the diligent efforts of the Contract Staff during negotiations with contractors.

The Office of Policy Analysis obligated about $250,000 of the approximately $300,000 available for contracting in FY 1979. At the end of the fiscal year Policy Analysis requested that the Contracting Office (PMO) extend the deadlines for one solicitation they had expected to award before the end of the fiscal year. The RFP was delayed in preparation, encountered additional difficulties in preparation for mailing, and rather than shorten the time available for preparation of proposals by potential offerors, Policy Analysis decided to extend the solicitation into the next fiscal year. This contract would have obligated an additional $45,000.

Contracts include the establishment of a binding legal relation basically obligating the seller to furnish personal property or nonpersonal services (including construction) and the buyer to pay therefor. It includes all types of commitments which obligate the Government to an expenditure of funds and which, except as otherwise authorized, are in writing. In addition to a two-signature document, it includes all transactions resulting from acceptance of offers by awards or notices of awards, agreements, and job orders or task letters issued thereunder; letter contracts; letters of intent; and orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance. It also includes contract modifications.

Small purchases include the procurement of supplies and nonpersonal services from commercial sources when the aggregate amount in one transaction does not exceed $10,000 and by issuance of delivery orders against Federal Supply Schedules when the aggregate amount of one transaction does not exceed the Schedule maximum order limitation. Small purchases are procured through the use of purchase orders and Fedstrip.

PERSONNEL SUMMARY CONSOLIDATION

Question: Your personnel summary is apparently consolidating the direct and reimbursable programs so far as average grades and salaries are concerned. Why is this?

Answer: The personnel summary has historically consolidated this information for the direct and reimbursable programs. This data is prepared from a Consolidated Schedule of Permanent Positions which includes both direct and reimbursable positions in the Office of the Secretary.

PERSONNEL SUMMARIES - DIRECT AND REIMBURSABLE PROGRAMS

Question: For the record, please supply a revised personnel summary with complete data for both the direct and reimbursable programs.

Answer: The revised schedule reflecting complete data for 1981 follows:

Personnel Summary

	1981 estimate
Direct program:	
Total number of permanent positions	1,025
Total compensable workyears	1,075
Full-time equivalent of other positions	(78)
Full-time equivalent of overtime and holiday hours	(5)
Average ES salary	$49,680
Average GS grade	10.00
Average GS salary	$26,500
Average salary of ungraded positions	$17,644

Reimbursable program:	
Total number of permanent positions	7
Total compensable workyears	7
Full-time equivalent of other positions	(0)
Full-time equivalent of overtime and holiday hours	(0)
Average ES salary	(0)
Average GS grade	11.14
Average GS salary	$27,621
Average salary of ungraded positions	(0)

REIMBURSABLE PROGRAM

Question: Also please explain the large fluctuation in personal compensation and employment level under the reimbursable program. With a sharply declining personnel level, why is it that personnel benefits are increasing from $238,000 in 1979 to more than $12 million in 1981?

Answer: Included in the 1981 estimate of $12.1 million for personnel benefits under the reimbursable program is $19,000 for the Government's share of employee payroll benefits for the salaries under the reimbursable program. The balance of $12,079,000 represents total cost for the Department of Employee Compensation payments to the Department of Labor.

The estimates for these Employee Compensation payments were previously reflected under the Consolidated Working Fund schedules and are included in the reimbursable program of the parent appropriation "Departmental Management" in 1980 and 1981. 1979 actual Employee Compensation payments appear under the Consolidated Working Fund schedules in the amount of $8.9 million.

Office of Water Research and Technology

STATEMENT OF GUY R. MARTIN, ASSISTANT SECRETARY, LAND AND WATER RESOURCES

ACCOMPANIED BY:

GARY D. COBB, DIRECTOR, OFFICE OF WATER RESEARCH AND TECHNOLOGY

MANUEL MORRIS, DEPUTY DIRECTOR, OFFICE OF WATER RESEARCH AND TECHNOLOGY

WILLIAM D. BETTENBERG, DIRECTOR, OFFICE OF BUDGET, OFFICE OF THE SECRETARY, DEPARTMENT OF THE INTERIOR

BUDGET REQUEST

Senator Stevens. Let's now go to the Office of Water Research and Technology, please.

Thank you all very much. Good morning. These estimates total $32.6 million, an increase of $1.8 million over appropriations to date for fiscal 1980.

For the record we note that the pending budget request is $800,000 below the original January request, as a result of the President's March budget revisions. The justification for the January budget estimate has been printed in the House hearings.

We will ask OWRT to insert in the record at this time the justification for the President's budget amendment.

[The justification follows:]

Revisions to President's 1981 Budget

The President recently amended the 1981 budget he had submitted to the Congress in January 1980. As a result of this amendment, OWRT's budget was reduced by $800,000. Attached is a summary explaining the reductions in some detail as well as a table showing OWRT's revised budget.

The funding for technology transfer and information dissemination, and reimbursable programs was not affected by the budget cuts. Also unaffected are the $5.1 million for the saline water demonstration projects at Alamogordo, N. Mex. and Virginia Beach, Va., which are proposed for later transmittal, pending approval of authorizing legislation by the Congress.

Office of Water Research and Technology

(Thousands of Dollars)

Activity/Subactivity	Base FY 1981	Revised Budget Request FY 1981	Inc. (+) Dec. (−)
I. Water Resources R&D	15,885	16,885	+1,000
A. State Water R&D Institutes	6,405	6,749	+ 344
B. Matching Grants	5,450	6,292	+ 842
C. Research and Development	4,030	3,844	− 186
1. Conservation	950	958	+ 8
2. Reuse	1,753	1,763	+ 10
3. Water Problems Urban Areas	950	740	−210
4. Special R&D Projects	377	383	+ 6
II. Saline Water R&D	12,697	13,161	+ 464
A. Research	3,320	3,700	+ 380
1. Membrane	2,155	2,044	−111
2. Thermal	391	778	+387
3. New Concepts	774	878	+104
B. Development	8,363	8,930	+ 567
1. Membrane	4,807	4,807	--
2. Thermal	1,368	1,668	+298
3. Reuse	2,168	2,455	+287
C. Demonstrations	1,014	531	− 483
III. Technology Trans. & Info. Dissem.	2,331	2,567	+ 236
A. Technology Transfer	1,070	1,285	+ 215
B. Scientific Information	1,261	1,282	+ 21
(General Program Support)	(3,320)	(3,477)	(+ 157)
Total	30,913	32,613	+1,700

REVISIONS TO PRESIDENT'S JANUARY BUDGET

Activity: Water Resources Research & Development
Subactivity: State Water Resources R&D Institutes

(Dollar Amounts in Thousands)

		FY 1981 Request Pending	FY 1981 Proposed Amendment	FY 1981 Revised Request
State Water Resources R&D Institutes	$	6,773	-24	6,749
	(FTP)	(10)	(--)	(10)
(Common Program Services)	$	(485)	(--)	(485)
Total Requirements	$	6,773	-24	6,749
	(FTP)	(10)	(--)	(10)

Description.
This postpones a study of the need for water resources R&D Institutes in the Pacific Island areas. However, an increase of $6,000 for each of the 54 existing State Institutes would still be provided.

Activity: Water Resources Research & Development
Subactivity: Matching Grants

(Dollar Amounts in Thousands)

		FY 1981 Request Pending	FY 1981 Proposed Amendment	FY 1981 Revised Request
Matching Grants	$	6,450	-158	6,292
	(FTP)	(10)	(--)	(10)
(Common Program Services)	$	(490)	(--)	(490)
Total Requirements	$	6,450	-158	6,292
	(FTP)	(10)	(--)	(10)

Description.
The $842,000 increase over the 1981 base for this program will support the most promising proposals in the seven national critical problem areas which were identified in the original 1981 budget justification. The $158,000 decrease will mean that approximately 3 lower priority proposals will not be funded in 1981.

Activity: Water Resources Research and Development

Subactivity: Water Research and Development

(Dollar Amounts in Thousands)

		FY 1981 Request Pending	FY 1981 Proposed Amendment	FY 1981 Revised Request
Conservation	$	958	--	958
	(FTP)	(2)	(--)	(2)
Reuse	$	1,763	--	1,763
	(FTP)	(2)	(+1)	(3)
Water Problems of Urbanizing Areas	$	740	--	740
	(FTP)	(1)	(--)	(1)
Special Research Projects	$	383	--	383
	(FTP)	(1)	(--)	(1)
(Common Program Services)	$	(444)	(--)	(444)
Total Requirements	$	3,844	--	3,844
	(FTP)	(6)	(+1)	(7)

Description.

With the postponing of the water resources R&D demonstration effort, one FTP will be reassigned to the water R&D subactivity to alleviate the shortage of personnel. This will enable a greater in-depth review and analysis of proposals, planning and development of criteria, and oversight of the nationally focused water reuse program.

Activity: Water Resources Research & Development
Subactivity: Demonstrations

(Dollar Amounts in Thousands)

		FY 1981 Request Pending	FY 1981 Proposed Amendment	FY 1981 Revised Request
Demonstrations	$	218	-218	--
	(FTP)	(1)	-(1)	(--)
(Common Program Services)	$	(18)	(-18)	(--)
Total Requirements	$	218	-218	--
	(FTP)	(1)	-(1)	(--)

Description.

The reduction will postpone implementation of the new water resources demonstration program for technology that is ready for application. The FTP will be assigned to the water resources R&D nationally focused program of water reuse where there is a shortage of personnel.

Activity: Saline Water Research & Development
Subactivity: Research

(Dollar Amounts in Thousands)

		FY 1981 Request Pending	FY 1981 Proposed Amendment	FY 1981 Revised Request
Membrane	$	2,044	--	2,044
	(FTP)	(5)	(--)	(5)
Thermal	$	878	-100	778
	(FTP)	(1)	--	(1)
New Concepts	$	878	--	878
	(FTP)	(2)	(--)	(2)
(Common Program Services)	$	(340)	(--)	(340)
Total Requirements	$	3,800	-100	3,700
	(FTP)	(8)	(--)	(8)

Description.
The $100,000 reduction in thermal research will still allow a $380,000 increase over the 1981 base and is sufficient to initiate research on scale prevention and corrosion. The budget also includes an increase of $104,000 for saline water research on new concepts.

Activity: Saline Water Research and Development
Subactivity: Development

(Dollar Amounts in Thousands)

		FY 1981 Request Pending	FY 1981 Proposed Amendment	FY 1981 Revised Request
Membrane	$	4,807	--	4,807
	(FTP)	(9)	(--)	(9)
Thermal	$	1,668	--	1,668
	(FTP)	(2)	(--)	(2)
Reuse	$	2,755	-300	2,455
	(FTP)	(4)	(--)	(4)
(Common Program Services)	$	(830)	(--)	(830)
Total Requirements	$	9,230	-300	8,930
	(FTP)	(15)	(--)	(15)

Description.
The reduction in water reuse technology development will postpone work in textile and food processing industries. It will, however, allow development of ultra filtration/reverse osmosis membranes for recycle applications in high water-using industries and municipal effluent reuse applications. There is also a $280,000 increase over the 1981 base for thermal process development.

Senator STEVENS. Please introduce the people with you today.

Mr. MARTIN. Yes; in addition to Mr. Bettenberg, whom you met, I have Mr. Gary Cobb, Director of the Office of Water Research and Technology, and next we have Manuel Morris, Deputy Director of that office.

I am prepared to summarize my testimony very briefly for you and then answer questions.

Senator STEVENS. Do that, please.

We will first print your prepared statement and that of Gary Cobb in the record.

[The statements follow:]

STATEMENT OF GUY MARTIN

I am happy to have the opportunity to appear before you today to present the President's budget request for the Office of Water Research and Technology, and to comment on actions taken to meet the concerns expressed by this Committee in last year's hearing report.

Mr. Gary Cobb, Director of OWRT, and Deputy Director Manuel Morris are with me today, and will present the details of OWRT's program plans and appropriation request.

The President is now requesting $32,613,000 for the program authorized under P.L. 95-467, the Water Research and Development Act of 1978. This represents a decrease of $800,000 from the January budget. The revised budget still provides an increase of $1,832,000 over the 1980 appropriation. The adjustment to the January budget will be made by (1) postponing a study on the need for an additional Institute to serve certain of the Pacific Territories, (2) eliminating several matching grant projects, (3) postponing the start of the water resources R&D demonstrations, (4) reducing research in thermal saline water conversion by $100,000, and (5) reducing development of water reuse technology by $300,000. The President continues to propose increases for the State water research Institutes, matching grants, focused research, saline water research and development, technology transfer, and general program support.

An additional $5,100,000 is included in the President's budget for construction of the first two demonstration plants at Alamogordo, New Mexico, and Virginia Beach, Virginia, as authorized in P.L. 95-84. The request for those funds will be transmitted following Congressional action on S. 1640, introduced by Senator Mike Gravel by request. A parallel bill, H.R. 5340, is before the House. These bills will provide two-year reauthorizations for all programs in P.L. 95-467, and will make several amendments to both P.L. 95-467 and P.L. 95-84. In concluding my testimony, I will briefly describe for the Committee the legislative changes which have been recommended by the Administration.

Last year, I outlined for the Committee the specific corrective actions which had been taken to bring better management and direction to OWRT. I noted the passage of the Water Research and Development Act, P.L. 95-467, broadening the base for OWRT programs and sharpening the focus of the Federal effort in basic and applied water resources research. I reported on the reorganization and restructuring of OWRT to make the best possible use of senior professional staff in carrying out the new legislation. I reported on the problem-oriented focus of the new law and the OWRT efforts to identify and address critical water problems. I reported on the rebuilding of the saline water conversion program and the growth of the technology transfer program.

Mr. Chairman, in spite of our efforts to inform Congress fully on the substantial progress by OWRT in building a stronger national water research program, last year this Committee indicated concerns which had first been noted in the 1977 investigative report of the House Appropriations Committee following its analysis of water resources research programs of the Department of the Interior and the Department of Agriculture. A particular focus of that investigation was on OWRT.

The 1977 House Investigation report was disturbing. I would like to take a few minutes today to examine some of the criticisms in that report and to contrast them with the current situation in each case. The Secretary has recently testified that he is satisfied that questions about OWRT management and program direction have been satisfactorily met. My testimony today will provide his reasons for making that statement.

The major thrust of the report was the general lack of coordination in water research goals, lack of program direction and problem-solving management. Those water resources research programs which were investigated were found to be decentralized and managers were uninformed about work being done in other agencies.

As you know, Mr. Chairman, the Administration had many of the same concerns as the Congress. We were engaged at that time in examining Federal water programs and policies at the direction of the President. The President announced his water policy initiatives in 1978, and specific actions were taken to coordinate all water resources programs in the Federal Government, including those programs with a water research component. OWRT was the lead agency in preparing the recommendations on water research for the President's water policy report and the Director of OWRT chairs one of the task forces assigned to develop and implement Federal water policy improvements. The Administration has always con-

sidered research to be an integral part of the President's water policy and OWRT to be the focal point for Federal water resources research.

The President's Science and Technology Message of last year directed Secretary Andrus and Dr. Frank Press of the Office of Science and Technology Policy to set water research priorities for the nation. Secretary Andrus designated me to carry out this assignment, with the assistance of OWRT's director and staff. A government-wide interagency effort has been underway since March of last year to identify water problems, both current and future, and to identify research goals aimed at solving problems. The initial report of the interagency water research priority group has gone to the President and a copy has been sent to this Committee. The final report is scheduled for January 1981.

Assignment of these responsibilities responded directly to the first of the four recommendations which the investigative report made concerning OWRT--that leadership in establishing national water resources research priorities be strengthened and that interagency coordination of research be accomplished more effectively. The other three recommendations of the report concerned separate programs conducted by OWRT and its organizational structure. In considering criticisms in that report, it is important to remember that the investigation was initiated immediately following a change in Administrations and was essentially completed prior to the arrival of the current Director and Deputy Director. OWRT was operating at that time under two separate laws; it was understaffed; it had suffered several years of up-and-down funding; and it had poor support from previous Administrations and from the Department. Staff morale was low, programs had been drifting, and the future of both water resources research and the saline water conversion research program was in doubt.

As you remember, Mr. Chairman, I testified before this Committee that we would effect specific changes for OWRT. Those changes were accomplished: new legislation, focused research programs, research priority identification, a stronger Institute program for work at the State level, stronger desalting programs in research, development, and demonstration, and stronger and clear direction.

The criticisms and the actions taken by OWRT in response are:

The criticism: OWRT is understaffed.

The response: Today, OWRT has 83 full time permanent positions. This includes eight positions assigned to the fully reimbursable overseas programs. In addition, three IPA candidates are being recruited to add strength in specific disciplines.

The criticism: No long-range program planning and evaluation of research.

The response: Today, a long-range program planning guide has been developed and is being periodically refined with goals and step-by-step projections for each OWRT program and each area of research activity. Five-year research priorities, as mandated by P.L. 95-467 are being developed with the help of the State Institutes, and will be completed in January 1981.

The criticism: No direction and oversight of Institute allotment programs and research.

The response: Today, P.L. 95-467 assures a stronger program for assigning five functions to the Institutes: (1) develop statewide research programs, (2) conduct and encourage research aimed at State, regional and national water problems, (3) conduct technology transfer, (4) develop five-year research priorities for their State, and (5) train water resources professionals through participation in research and development activities. OWRT requires allotment research to be relevant to each Institute's established priorities. Onsite reviews of Institutes are conducted to assess consistency with OWRT policy. OWRT guidelines for matching grant research through the Institutes require that research be relevant to OWRT-identified national research needs or identified State priorities.

One measure of Institute improvement can be seen in Figure 5 of the OWRT justifications, which you also have before you on the last page of my testimony. In 1977, the reported total Institute program amounted to $29.7 million of which $10.5 million came from OWRT. As can be seen in the chart, in 1979, the total amounted to $42 million of which OWRT supplied only $11.6 million. Administrative costs were less than four percent, with less than one-third coming from OWRT. Examples of research highlights in the Institute program can be found on page A-68 of the Appendix of OWRT's justifications.

The criticism: Institute technology transfer needs to be increased, and coordination with State water officials improved.

The response: The new legislation responded directly to this, establishing a requirement for Institute technology transfer and coordination with State and regional water officials, and by providing for a grant program for Institute technology transfer. This grant program has not yet been funded, but an examination of the chart indicates that $2.6 million, with less than half from OWRT, were spent by the Institutes for technology transfer. Lists of members of each Institute's Advisory Committee are included in the Appendix of the OWRT justification, to illustrate the increase in numbers of State and regional water resources officials working directly with the Institutes today.

The criticism: Over 80 percent of the Title II funds go to university researchers.

The response: The Title II program of that time has been superseded by Title I, Section 105(b), of the new law as the focused program for water resources research and development. These grants are directed to national priorities. The chart shows that of the $2.8 million appropriated for this program in 1979, only $576,897 were awarded to university researchers--about 20 percent of the total of such funds.

The criticism: Saline water conversion processes should be directed toward water reuse; saline conversion research program should be rebuilt; and test facilities at Roswell, New Mexico, and Wrightsville Beach, North Carolina, are underused.

The response: The Secretary has strongly supported rebuilding and strengthening the saline water conversion research, development, and demonstration programs. These programs are authorized by P.L. 95-467 under Title II. Because the saline water conversion program has been growing steadily over the past three years, the test facilities at Roswell and Wrightsville Beach are being used more fully. There is a stronger water reuse component in both research and development. The demonstration program is proceeding on schedule, and the first two plants are expected to be in the construction phase in 1981.

Mr. Chairman, I believe that I have correctly listed the specific criticisms of OWRT made in 1977. I am pleased to be able to provide illustrations of the improvements which have been made within OWRT and in the Institutes since that time.

OWRT is continuing to increase oversight and direction. Each program is being given a problem-oriented focus while still retaining needed flexibility. OWRT is the only Federal water research and development agency with a program that is not incidental to a legislated primary mission.

Secretary Andrus has been strongly supportive of OWRT during this three-year transition period. We believe that the OWRT program, as it is now constituted, fills the need for an independent research, development, demonstration, and technology transfer program with strong ties to States through the Institute

network. The Secretary has stated that OWRT is the best focal point for him to accomplish the water research directives of both the President and the Congress.

Mr. Chairman, the budget request for 1981 is dependent on authorization of appropriations for the programs in P.L. 95-467. S. 1640 provides the amount of "such sums as are necessary" for each of the authorizations. In addition, several programmatic changes are proposed, amending both P.L. 95-467 and P.L. 95-84. I would like to take a few moments, at this time, to summarize the amendments.

The most significant change would alter the funding arrangements for the desalting demonstrations authorized in P.L. 95-84. The current law requires the local community to provide water rights, water supplies, rights-of-way, power source interconnections and brine disposal. The dollar value of these contributions varies considerably from site to site. The Federal Government is currently required, in addition to paying all costs of construction, to pay the costs of operation and maintenance for an indefinite period of two to five years.

The proposed amendment would provide flexibility in fixing the local cost-sharing contribution at not less than 15 nor more than 50 percent of the total cost of the demonstration, including operation and maintenance costs over a fixed period of four years. The local community would be drawn into the design, construction, and operation and maintenance process, with shared responsibility and shared decision-making at each step. The financial plan would be designed to enable steady and gradual assumption of this responsibility by the local communities, with benefits to them and to the Federal Government as well.

The demonstration package under the proposed legislation would offer other communities a clear picture of the usefulness of the new technology and the cost/benefit experiences. When the operation phase ends after four years, the local community will be prepared to take full responsibility for the plant and to make realistic plans for expansion if desired and needed.

A second change proposed would remove the limitation of five as the number of plants to be built with the $50 million currently authorized. The variety of water problems which can be attacked with innovative desalting systems is greater than previously thought. Research and development now underway indicate that the range of technologies which can be demonstrated successfully will be expanded. Our studies in the past year lead us to believe that our objectives can be met through the construction of a greater number of small-size plants, using distinct technology systems or combinations in widely disparate source-water situations.

A third change would allow the Secretary to conduct the demonstrations, or any portion of them, through cooperative agreements. Under cooperative agreements, title to the demonstration facilities could be vested in the nonFederal entity as the project is undertaken. This approach increases local involvement, getting the community into cooperative decision-making and planning from the start. The Secretary would, of course, maintain the right to full access to the plant during all four years of Federal operation for the purposes of demonstration and data collection.

The other amendments in S. 1640 would alter several provisions of the Water Research and Development Act, P.L. 95-467.

The matching grants portion of the research program is currently open only to academic researchers, applying through the Institutes. The amendment would open this program to local and State government agencies, also through the Institutes. We believe each Institute should be highly visible as the coordinator of expertise, experience and knowledge about water problems in its region. This amendment, we expect, will draw nonacademic researchers into the program on projects attacking high priority State problems. Direct involvement of local water officials will facilitate application of research results where practical.

Under current law, the Institutes are required to review and comment on proposals from academic institutions, but without clarification as to the purpose of the review. S. 1640 would authorize the Secretary to require the Institute to review proposals under all parts of the Act for relevance of the proposal to research and development needs and priorities of the State and region. The amendment would assist the Institute Director in the overview of ongoing research and development in that State and assist OWRT in the identification of national water research and development needs.

Finally, S. 1640 would require that only rules and regulations be transmitted to the Congress 30 days prior to becoming effective. The current requirement is for "rules, regulations, guidelines, interpretations, orders, or requirements of general applicability" in connection with the administration of any program. This requirement is so all encompassing that virtually every minor directive and routine announcement must be submitted. It has proved to be a hindrance to operation. OWRT has been fully responsive to the law, but this has resulted in serious delays. Congress was not in session for most of the first quarter of FY 1979, preventing the publishing of routine announcements requesting proposals until 30 days following the return of Congress in January 1979, with consequent delays of awards, creating a substantial jam-up in the contracting process.

Mr. Chairman, I believe S. 1640 will make the operation of OWRT programs more efficient and more responsive to the intent of the Congress.

I will be pleased to answer any questions regarding my testimony. Mr. Gary Cobb, Director of OWRT, is prepared to testify concerning the details of OWRT's program and budget request. Thank you.

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FIGURE 5 ALLOCATION AND SOURCES OF INSTITUTE FUNDS 1979

ALL INSTITUTES

ACTIVITY	OWRT Funds		Non-OWRT Funds			Total
	Allotment	Other	Federal	State	Private	
Research and Development Program						
1. Allotment Projects	3,972,085	0	185,177	3,239,398	72,691	7,469,351
2. OWRT Matching Grant Projects	0	4,619,673	0	4,978,211	75,027	9,672,911
3. OWRT Focused Research Projects	0	576,897	3,000	129,715	0	709,612
4. Non-OWRT Projects	0	0	9,892,111	6,206,939	1,728,986	17,828,036
Subtotal	3,972,085	5,196,570	10,080,288	14,554,263	1,876,704	35,679,910
Five-Year Water Research Priorities Development	139,127	0	0	116,856	0	255,983
State Research Program Development and Coordination	774,399	0	16,865	1,009,913	50,000	1,851,177
Technology Transfer and Information Dissemination	531,240	509,208	263,535	1,292,279	8,000	2,604,262
Administration	513,188	0	32,761	1,095,752	18,792	1,660,493
Total	5,930,039	5,705,778	10,393,449	18,069,063	1,953,496	42,051,825

This table depicts the allocation and source of funds within the State Institute programs based on data furnished by the Institutes. It aggregates the amounts shown in the tables for the individual Institutes, in Section I-C of the Appendix. Columns show funding by sources; activities are those mandated by P. L. 95-467. Variation in individual University accounting practice has required some adjustments to assure consistency in reporting. Data may not be consistent with audited data except for gross totals. The column, OWRT Funds "Other," shows funds awarded to Institutes by OWRT under its Matching Grant, Focused Research, and Technology Transfer programs. Amounts shown in the column, Non-OWRT "State" include budgeted support, other program support, and in-kind contributions. The "Private" column includes funds from private sources and institutions, regional councils, and municipalities.

Clerical expenses, payroll, administration and other overhead are included under "Administration." Professional expenses are distributed among appropriate activity categories.

STATEMENT OF GARY D. COBB

I am pleased to be here today to present our budget request for 1981 and to report on our progress in restructuring OWRT to meet both the Secretary's and Congress' concerns.

Secretary Martin has outlined for you the actions which the Administration has taken to strengthen and coordinate Federal water research programs, and he has commented on OWRT's response to Committee criticism. I feel that we have succeeded in correcting the conditions which engendered those criticisms. We are continuing to strengthen our organization and to give positive direction to all activities.

The budget request for 1981 is $32,613,000, which includes an increase of $1,832,000 over the 1980 appropriation. The net increase for programs after adjustments to the 1981 base is $1,700,000. An additional $5,100,000 is proposed for later transmittal, following Congressional action on S. 1640, the bill Secretary Martin discussed.

Before explaining the allocation of funds in the requested budget, I would like to briefly add to Secretary Martin's comments on action taken in response to the Committee's past views on management and direction of programs.

- Our guidelines for matching grant proposals now require relevance to one of seven national water problem areas or identified State priorities. These guidelines are disseminated by the Institutes to academic research communities.

- We proposed, and Congress included in the Water Research and Development Act of 1978 (P.L. 95-467), a requirement for development of a five-year national water research plan.

- We have drawn up and sent to the Institutes plans and schedules for developing five-year research objectives and priorities. Reports are due in November 1980. The national report will be made in January 1981.

- We have tightened our proposal review procedures for matching grant and focused research projects, screening out nonrelevant and duplicative research as well as proposals from delinquent investigators.

- We instituted a system to encourage preproposals of two-to-four pages, and we estimate we are receiving 50 percent more ideas as a consequence. If an idea looks good, the investigator is asked to submit a full proposal. Since proposal preparation can cost up to $10,000, saving can be effected for the researcher and OWRT.

- We have rewritten our policy guidelines for the Institutes. The scope of research has been narrowed to identified State, regional, or national priorities. And, as already noted, delinquent investigators are not funded. We have also set new reporting procedures.

- We are encouraging multi-Institute proposals and will allocate the proposed increase in allotment funds in this budget to this kind of research.

- We are preparing criteria for measuring Institute program effectiveness. Onsite reviews of Institutes are scheduled. The chart Secretary Martin submitted with his testimony - page 21 of our budget justification - is our analysis of Institute activities and funding sources. Charts for each Institute can be found in Section I-A of the Appendix to our budget justification.

- We are developing guidelines for the preparation of research reports so that the results can be more useful for technology transfer.

- We have put in place a procedure for intradepartmental and interagency screening of proposals to detect and thus avoid duplication.

- Because the Water Research and Development Act of 1978 made a number of changes in Institute programs, we will renegotiate with the universities agreements which originally established the Institutes. This will provide opportunities to reacquaint university presidents with the responsibilities, under the new law, for the Institutes at their campuses.

- We are cooperating with other agencies and have formal agreements with Geological Survey, Water and Power Resources Service, Environmental Protection Agency, Science and Education Administration of the Department of Agriculture, and the U.S. Committee on Desertification. We are supporting domestic projects with the Corps of Engineers, Navy Department, Water Resources Council, USGS, EPA, DOE, AID, and the Department of the Treasury.

- We have reorganized our executive staff and eliminated the coordinator positions. The staff for our directly appropriated program has been increased to 75, and three IPA technical staff are being recruited.

- We instituted a rotation policy for test facility managers to ensure that what is being learned is brought into our program in Washington.

- Without weakening the technical capability of our staff, we have effected a reduction in the average grade level.

Mr. Chairman, these changes, together with those described by Secretary Martin, enabled us to produce the budget justification you have before you, which reflects the sharper focus we have given to program objectives and actions.

Now I would like to briefly take up the allocation of funds in the requested budget.

Water Resources Research and Technology Institutes - $6,749,000

A proposed increase of $344,000 raises the allotment to $116,000 for each of the 54 Institutes. Our analysis shows the Institute research program to be stronger than we reported last year. In the aggregate, the Institutes spent about $1-2/3 million for administration, less than 4% of the total of all Institute programs. OWRT's total allotment is $5.9 million, from which the Institutes use a little more than $500,000 for administration, the balance coming from nonOWRT sources. The OWRT allotment used for administration is a mere 1.2 percent of the total Institute program of over $42 million; this is less than five percent of all OWRT funds to the Institutes. The Institutes are performing all of the mandated tasks and are increasing their technology transfer capabilities. Institutes are required to identify research priorities, develop State research programs in coordination with local and State officials, undertake technology transfer and conduct research and development projects aimed at identified water problems.

Some Institute research projects of interest are listed in Section I-D of the Appendix to our Budget Justification. Descriptions of seven additional noteworthy projects were submitted to the House Subcommittee at its request, and are submitted today for your information.

Matching Grants - $6,292,000

This grant program provides additional funds for research through the Institutes. An $842,000 increase is included in the request to fund the most priority-relevant proposals, with particular emphasis on groundwater contamination and the conjunctive management of surface and groundwater. Research of special interest is described in Section II-B of the Appendix.

The matching grant research guidelines require proposals to be relevant to one of the seven national research priorities or to an Institute-identified State/regional priority.

Water Research and Development - $3,844,000

This is our focused water resources R&D program. All applicants are eligible, and projects may be funded up to 100 percent of cost. Subsections are: water conservation ($958,000); water reuse ($1,763,000); water problems of urbanizing areas ($740,000); and special R&D, which supports new concepts offering unique opportunities for regional or national water problem solving ($383,000).

The largest subprogram is in water reuse and recycling. Since 1977, we have supported projects aimed at planned beneficial reuse and recycling, with emphasis on innovative processes as well as adaptations of existing processes. Projects of interest include a multispecies low energy aquaculture system for wastewater treatment; reuse and recovery of biomass; solvent extraction for industrial reuse based on liquid ion exchange; and a micro-gas-dispersion process for renovating and reusing industrial wastewaters.

Water conservation as a focused research topic began in 1979 with 10 projects; 15 more are expected to be funded in 1980. We are looking at the effects of pricing policies on the conservation of urban and irrigation water; incentives for conservation; social, economic, and institutional consequences of conservation; and technologies for conserving water in urban, industrial and agricultural usage.

Water problems of urbanizing areas as a focus for research also began in 1979. Very little research has been done in this field, although long-term effects on environments at or near growing population centers could be dramatic. Three projects are looking at institutional barriers and problems in water management and planning in urbanizing areas; other projects focus on stormwater runoff. When technology assessments and needs evaluations now underway are completed, we will be more confident in the appropriateness of the awards for research in this special topic area. A decrease of $210,000 brings the request for this section to $740,000 for 1981. The OWRT expects to fund 10 to 12 new projects, including research on the conjunctive use of surface and groundwater supplies, and their contamination resulting from hazardous wastes.

Saline Water Conversion Research - $3,700,000

The allocation of requested funds is as follows: membrane research, $2,044,000; thermal, $778,000; and new concepts, $878,000. This provides a net increase of $380,000 resulting from increases of $387,000 for thermal and $104,000 for new concepts and a decrease of $111,000 for membrane research.

Membrane research is successfully enabling brackish water to be made into a supply source for some communities with water problems. Yet, work is still needed to reduce membrane cost, to extend membrane life, to operate with less energy and to develop membranes matched to source characteristics. In 1981, OWRT will support work on the buildup of saline concentration on membrane surfaces, and on synthesizing and testing membranes of new polymers resistant to chemical and biological attack, compaction, high temperature, and pH changes.

Research on electrodialysis, ED for short, emphasizes work which takes advantage of the greatly increased electrical conductance of the ED process to increase production with lower energy requirements.

OWRT will also support research on ultrafiltration, UF for short, for pretreatment processes. We will conduct bench scale studies of antifoulant UF pretreatment membranes of the piezoelectric type.

The decrease for membrane research reflects the completion of a large scale research project in low resistance ED membranes. The project will now be supported in OWRT's technology development program for development and testing.

Thermal desalting processes--distillation and freezing--make up more than half of the desalting plants in the world. Research in this area was held back when the saline water conversion program was nearly snuffed out some six or seven years ago. At that time emphasis was given to membrane research which had the potential for a higher short-run pay-off. Progress has been substantial, and our programs did not die but have been increasingly supported by this Congress and this Administration. Now we must pursue the considerable opportunity for improvements in thermal processes.

For example, preliminary work at a very restricted funding level indicates we may be close to a breakthrough in the freezing process, but the necessary next steps will require a better level of funding. Also, water production cost can be lowered if we can take advantage of opportunities inherent in the use of hot water rejected in cooling processes to offset the similar amounts of energy used for heating water for thermal desalting. A comparable opportunity could, through appropriate R&D, make use of "cold BTUs" rejected when natural gas is deliquified; this form of waste heat lends itself admirably for use in the freezing process and if work already planned is successful, we may have a second major achievement in freeze desalting. New materials for heat transfer and new tube configurations show promise for cost reductions and increased efficiencies. The requested increase will make possible a return to research on scale prevention and corrosion which was halted in 1974. Solving scale and corrosion problems can greatly improve plant and production costs in distillation plants.

Basic research in new concepts for desalting includes studies on the way natural biological membranes separate salt from water. This work will continue

in 1981 with emphasis on vascular plants. Work will also be reopened on metallic membranes, work which had to be put into the deep freeze of 1973-1974, just when there were improved prospects for long membrane life and electrical cleaning and control. The increased funds requested will support the study of the cellular nature of salt tolerance in plants and animals and will accelerate studies on metabolic membranes.

Saline Water Development - $8,930,000

Funds for this subactivity will be allocated as follows: membrane, $4,807,000, a level effort; thermal, $1,668,000, an increase of $280,000; and reuse, $2,455,000, an increase of $287,000. This represents an overall increase of $567,000.

Developments in membrane processes require separate consideration of seawater, brackish water, and other impaired feedwaters, although basic knowledge from one can often be applied to the others. Field testing followed by evaluation of advanced technology prototype units is done on brackish water at the Roswell, New Mexico, test facility, on seawater at the Wrightsville Beach, North Carolina, test facility, and on impaired water at either or at plants generating impaired waters. These pilot plants are forerunners to commercial application. In 1981, a slightly greater testing emphasis will be given to advancing seawater technology because of the greater need for fundamental operating data.

Significant recent accomplishments include a large experimental seawater reverse osmosis spiral-wound module, 12 inches in diameter, which is being tested and evaluated this year at our Wrightsville Beach facility, and a promising thin film composite seawater reverse osmosis membrane. Recently completed tests have demonstrated the feasibility of eliminating the use of dangerous acids in seawater reverse osmosis plants through the substitution of a harmless antiscalant compound.

In thermal development, OWRT is evaluating new conceptual designs for high performance, energy-efficient freeze processes. OWRT research in freeze processes has established a number of process variations with expected low energy requirements. The 1981 program will emphasize development of reliable vacuum-freezing processes for seawater conversion and we will continue, for part of 1981, the testing of the 25,000 gpd pilot plant using the absorption freezing vapor compression cycle. The requested funding increase will be used for the special application and testing of this same pilot plant coupled to a liquified natural gas terminal facility, making use of "cold BTUs." Some of the increase will be used to test solid/liquid separation devices developed in OWRT's research program.

Water reuse development is tied closely to the work done in our focused research program. Desalting technology plays a significant part in reuse processes. Work in 1981 will include development of coupled transport membranes for water recycling in the metals industry, UF for both municipal and industrial reuse, hollow fiber UF membranes for recycling wastestreams from a metal-finishing and several textile plants. Recently, we started a project which will examine the feasibility of using UF and RO with wastewaters from the enchanced oil recovery process in which the ability to recover water injected in the oil extract process means recycled water can be used for further oil extraction. Without the ready supply of water, energy production from this source could be greatly inhibited or its costs raised unacceptably. If the preliminary work shows promise, the development efforts will be given priority in 1981.

A mobile treatment unit incorporating reuse/recycling technologies is being shuttled among several plants of high water-using industries to test the effectiveness of these technologies in renovating wastewaters, and in the 1981 program we will develop those processes which are appropriate. We are also testing a recycling technology in the food processing and petroleum refining industries using biologically extended activated carbon, and in 1981, this technology should be ready for large scale development. The requested funds include $550,000 for the development phases following the completion of the research phases in 1980. These are UF/RO membranes for recycle with industrial and municipal effluents and recycle of wastestreams in the textile and primary metals industries. In the latter, in addition to the water, we expect the extra bonus of recovering significant amounts of heat and chemicals. And, finally, our work at Water Factory 21 in Orange County, California, in 1981, will have reached the level at which we will be able to reduce our support to $400,000.

Saline Water Demonstrations - $531,000

The demonstration program is on schedule. The decrease of $483,000 leaves an amount sufficient for site evaluation and initiation of design for the third site, and selection of the fourth site.

Each demonstration plant goes through five phases: selection of site, evaluation of site and technology or process to be demonstrated, design and construction specification,construction, and operation and maintenance. The schedule and estimated Federal costs can be found on page 72 of the Budget Justification.

The first two sites will be ready for design following submission to the Congress of the agreements with the local communities. A $5.1 million request for construction is proposed for later transmittal following Congressional action on S.1640, which Secretary Martin commented on.

Sites 1 and 2 will demonstrate membrane and process stream arrangements not in use in any existing plant; one plant will use polarity reversal ED; the other will use RO. Both sites will use brackish feedwaters, but one high in gypsum, while the other high in chlorides.

Agreements with these communities will provide for the contribution each is to make to the project which may be in cost, in kind or a combination of the two. These are expected to be 15 percent for Alamogordo and 35 percent for Virginia Beach.

Technology Transfer - $1,285,000

The increase of $215,000 in this program will be used to fund a workshop on the fracture-trace method for water-well location, reports on water reuse in the steel industry, technology assessments on maintenance of water quality in lakes and reservoirs, and on groundwater contaminated with acid precipitation and leachates from chemical disposal dumps.

Funds in this program produce a variety of technology transfer material. Coordination with Institutes is encouraged. Examples of successful work can be found of page 77 of our justification.

Water Resources Scientific Information Center - $1,282,000

No increase is requested for this program as new procedures for obtaining abstracts and entering them into the data base will make it possible to carry out the work at the same funding level.

General Program Support $3,477,000

Mr. Chairman, general program support in this budget is $3,477,000 and is included as part of the aforementioned programs. A breakdown for general program support can be found in the 1981 Budget Justification.

Reimbursable Program - $600,000

The reimbursable programs are the joint U.S.-Israel desalting project authorized and funded under Section 219 of the Foreign Assistance Act; and the U.S.-Saudi Arabian desalting project funded under the Joint Commission on Economic Cooperation.

The preliminary design of an intermediate module and prototype plant for the Israeli project is complete. The construction of the module is scheduled to be completed in 1981. Thereafter it will be under test for an extended period of operation.

The Saudi project consists of two efforts; one is the establishment of a research, development, and training center; the other is the development of the technology for single-unit multistage flash desalination plants with capacities of up to 66 million gallons per day. Design requirements for the training center have been completed, and detailed design will be completed following selection of a contractor by Saudi Arabia. Conceptual design studies for the desalting plant test module have been completed. This will provide background data for the detailed design.

Mr. Chairman, that completes my testimony. I would be happy to answer your questions.

FUNDING SUMMARY

Mr. MARTIN. Basically, I want you to know that, while this is a small program in terms of dollars and numbers of people, it's one that has a great deal of importance for resource management and learning more about our resources. I spent quite a bit of time on this personally. We have requested $32.6 million. That is up almost $2 million from last year. That is $800,000 down from the January request. I think the conclusion I would offer you is that, by and large, this budget in terms of what we were given by the President's request, in terms of what he reduced in January, reflects very strong departmental and administration support for the kind of work we are doing and the way this program is moving.

DEMONSTRATION PROGRAM

Let me hit three areas for you that I think are significant. First there is the demonstration program, in which there is a great deal of interest. This is an active, aggressive program that is followed very closely by a number of people in Congress. There are five demonstration projects authorized. There are two that have now moved to the point where they are ready for design and construction, one in Virginia Beach and the other in Alamagordo, N. Mex.

The third demonstration plant is in the site selection process. The site will actually be chosen in July of this year, pursuant to a rather rigorous process that has worked very well so far.

The fourth demonstration plant is in the early stages of the site selection process but is on the schedule that we have announced and carried out since the initiation of the program.

The budget request that we have before you today, Mr. Chairman, has an additional factor, in that the President's budget has an additional $5.1 million which is being held for a later submission contingent on the resolution of some legislation pending in Congress related to a cost-sharing arrangement and some adjustments in the demonstration program. The time for submission, in my view, is upon us now. We submitted legislation to Congress last year which proposed to make cost-sharing arrangements with communities where these demonstrations would be located more flexible, while in the present program they must make a number of in-kind contributions.

We wanted that expanded so as to range from 15 to 50 percent of the costs of these projects, including the in-kind contributions which sometimes can constitute the whole amount that is contributed.

We also propose that we use a phased approach to cost sharing, so the community becomes part of the demonstration itself rather than having the Federal agency lay this demonstration on top of them and when it's over, leave the plant to the community without there being any prior involvement.

In each case, the cost sharing would be accomplished on a progressive basis; the Federal Government gradually gets out of the demonstration over a 5-year period, leaving the community in a position of being responsible for the plant.

Our experience so far in the two sites we are working on is that this is a very acceptable process, and we are getting support from both of these communities.

I can report to you that our legislation, in relatively unchanged form, has passed the committee level in both the House and Senate and only awaits floor action.

I am aware of no controversy with regard to that legislation. It had strong bipartisan support. We contemplate it will pass at the convenience of each body.

ADDITIONAL FUNDING REQUEST

Based on that, I will work on a request to get a release of the $5.1 million, in anticipation of this passage, and while we haven't adopted a final strategy yet as to how it will be done, we will do it either through an amendment or through a supplemental request, so Congress can act on that additional appropriation in anticipation of passage of legislation.

As I explained before, I am playing an intermediary role between OMB and Congress to try to get this new legislation in place and keep the demonstrations moving.

I think we are in good shape there.

COOPERATIVE AGREEMENTS

Senator STEVENS. What are the advantages of the proposed authorization for the Secretary to conduct demonstrations through cooperative agreements?

Mr. MARTIN. Public Law 95–467 appears to encourage the use of cooperative agreements with non-Federal entities for the saline water demonstration program. At the same time Public Law 95–84 requires Federal control and ownership through contracts. The new legislation will amend Public law 95–84 and put both pieces of legislation in synch by making use of cooperative agreements, an option that will enable title to be vested in the non-Federal entity from the start. In this manner, joined with the effects of cost sharing, the non-Federal entity has a greater interest in sharing the responsibility, decisionmaking, and costs, becomes more involved with the project, and is better prepared for takeover at the end of 4 years of operation and maintenance.

Senator STEVENS. What kind of cost sharing does that approach envision?

Mr. MARTIN. The form of agreement has no effect on cost sharing.

OCEAN THERMAL ENERGY CONVERSION

Senator STEVENS. Are you involved in the OTEC process? The ocean thermal process.

Mr. MARTIN. No, sir.

Senator STEVENS. I understood one form of that process, in fact, accomplished saline water conversion, the so-called——

Mr. MARTIN. Let me ask Mr. Morris to comment.

Mr. MORRIS. Two demonstrations are now in progress in the planning stages. One is in Puerto Rico and one is in Hawaii. The current phases don't include any saline water conversion. It is proposed that a later demonstration include saline water conversion in the OTEC program.

Senator STEVENS. In view of the tremendous cost of what we have done in the Virgin Islands as far as saline water, and we still put up $8

million a year just to barge water from Puerto Rico to the Virgin Islands, I would be interested in trying to find ways to reduce that cost. It would be interesting to find out whether there is any way we can use the OTEC moneys—we will have to effect some kind of demonstration on whether that open system would work to reduce the reliance of the Virgin Islands on imported water from Puerto Rico.

Mr. MORRIS. There are several programs working right now in the Virgin Islands which would provide several new plants. Three new desalting plants——

Senator STEVENS. I was there and inspected those. There is still a gap down there in technology because of the problems of the increased costs of imported fuel, while they are still importing water by barge. The cost to the Federal Government continues to escalate.

Mr. MORRIS. Those programs will have to wait until they get the new plants down there. Three plants are currently under construction—IDE plants from Israel—plus three additional small plants which would add another roughly 1½ million gallons per day capacity.

Senator STEVENS. My question is whether your agency is keeping track of what DOE is doing in terms of OTEC to insure the fresh water by-product of OTEC is demonstrated somewhere like the Virgin Islands where the Federal Government is paying the cost of importing water.

Mr. MORRIS. By the time the OTEC program proves the feasibility of developing power and subsequently water, the Virgin Islands should be self-sufficient in saline water conversion with its new plants.

Senator STEVENS. Only if they can afford the fuel.

Mr. MORRIS. That's correct.

Senator STEVENS. That is the problem. In Hawaii they want the energy. In the Virgin Islands they need energy and the fresh water. It seemed to me if there is a system that has possibilities we ought to be looking at it now to see whether the Virgin Islands can use it and get them a generation ahead, as far as their problems are concerned.

Mr. MORRIS. We had some inquiries from the Virgin Islands, specifically from a member of the Virgin Islands Senate. We have tried to keep him abreast of developments of the program. The program itself is under the direction of the Department of Energy. We are staying on top of it. We expect we will have some role when it comes to the saline water conversion portion of that project.

OTHER PROGRAM HIGHLIGHTS

Mr. MARTIN. Two other highlights are worth noting here. First, at the time that my association began, this was a very troubled program. In fact, it was charged that there had been an attempt made to end the program over a period of years before my term. We made a measured decision that this was a good program and one that was well worth saving and doing correctly. That met the view of all those in Congress that dealt with the program, so far as I am aware. This committee and its reports noted specifically a series of criticisms and problems that had been experienced in this program over a period of time. These comments were included most recently in your last committee report.

Without going into all of them in detail, except in response to your questions, of course, let me say between my testimony and Mr. Cobb's

we looked comprehensively over this list of comments and tried to respond and give you an idea of the specific management actions which we have taken. Those relate to the setting of research priorities, tighter management of water institutes, better OWRT staffing, improvements of the saline water program, and a whole list of others.

I think we have done a rather comprehensive job of indicating specific actions we have taken.

OWRT'S RESEARCH ROLE

The final note I would add is that I think it's worth bringing to the attention of this committee that there appears to me to be a trend both in the Department and the administration, I think a proper one, of regarding OWRT as the Department's and administration's leader on water research policy. It's the only nonmission-oriented agency of its type, and while similar work is done in Energy or the U.S. Geological Survey, or others, this is the only nonmission agency that does this.

Both in the Department, where the Secretary has formally designated OWRT to lead this endeavor, and the administration. where the President asked his Office of Science and Technology Policy and OWRT to take the lead, I think it is encouraging for our program and a good deal is coming out of it, which I think the committee will be pleased with.

With that I certainly conclude and will be glad to answer questions.

OTEC IN THE VIRGIN ISLANDS

Senator STEVENS. Well, I don't want to belabor it. From my own experience, I recall the time we had one cruiser in St. Thomas Bay, and we had to take in a second one. We were using the water conversion facilities on the cruiser to supply water to St. Thomas. It didn't take too long to figure out that both cruisers working together could not purify water as fast as people could flush the johns in the Virgin Islands Hotel.

This has been a problem with the Virgin Islands, as long as I can remember. I feel that OTEC is going to be looked at as the Hawaii-Pacific Island type of process, and people are going to forget that we continue to fund that Virgin Islands' deficit of $8 million a year to bring water over there, in addition to the fund we provided for saline water conversion. I would hope that if there is any possibility at all that OTEC is going to be not only an energy-producing system but a freshwater conversion system, that does not require imported oil, that people will not forget the Federal budget requirements from the Virgin Islands.

Mr. MARTIN. The Virgin Islands are very much a concern of ours. This program spends a good deal of time working on that specific problem. I know how serious it is.

Let me take a personal look at the relationship of those two perhaps and see if we are doing enough, and I will give you a report back on the progress we have made, and what we think is possible.

COST SHARING

Senator STEVENS. What is this cost sharing change you mentioned?

Mr. MARTIN. The way it works, Mr. Chairman, first I guess it's important to say this demonstration program stands in a kind of middle ground with regard to the way it brings Federal assistance to the local level. It basically takes the technology which is established but which has not yet been demonstrated and it demonstrates that technology. The policy decision we made that I think is helpful in sustaining this program is to insist that that demonstration always be made in the context of a genuine regional or local problem rather than in a kind of scientifically abstract environment.

To carry that out practically, what we wanted to do was to locate high priority areas that had water quality or quantity needs that could be satisfied by desalting processes which, as you know, are still expensive and very specialized in their application.

The further finding we made was that the level of risk that was inherent in any individual application and the cost of any individual application varied a great deal in terms of what we were asking a community to accept or what they were biting off in terms of trying new technology. Under the old arrangement there was an automatic series of costs assumed by those local participants, and they related basically to the rights-of-way and the water supply and other things that were inherent to the process. And that was rigidly set.

OMB had always opposed the program because of its cost. It basically felt it was an unguided program. What we proposed to do was put in a more flexible cost-sharing arrangement where a local community enters into an agreement with the Office of Water Research and Technology to share an amount of the cost as low as 15 percent and as high as 50 percent which would include these old in-kind contributions, but may include cash contributions. We tied that to a program in which we put in our share, let's say, it's 85 percent. We put in our share, very heavy at the frontend, and gradually back ourselves out over a 5-year period. In the fifth year, we are out and the local community is actually shouldering the full responsibility for the plant.

What happens is that the community takes over the plant through a learning process rather than it being a continuing Federal responsibility. At some point the local or regional government is in charge and takes over.

VARIATION OF COST SHARING

Senator STEVENS. Why so much variation in the amount of the local contribution?

Mr. MARTIN. Basically, for the factors that I set out. The two we seek to fund right now are classic examples. One is Virginia Beach which by comparative standards is a relatively wealthy community, one of the fastest growing in the United States with a very large tax base. In addition, the technology to be used has a relatively high chance of success, given the fact that it's a demonstration. In that situation we have a community which has both the ability to share, and they also have a set of technological circumstances which make it possible.

Alamogordo is exactly at the other end of the spectrum. It's a community where they have a very low tax base. What we have done is negotiate cost-sharing arrangements to fit the needs and abilities of each community.

In the case of Alamogordo, they are cost sharing at 15 percent. In the case of Virginia Beach, they are sharing at 35 percent. In each case, the leaders of the community and the city officials have endorsed this and made their wishes known to Congress.

NUMBER OF DEMONSTRATION PROJECTS

Senator STEVENS. Do you expect to be funding more than five projects in the next couple of years?

Mr. MARTIN. Yes; one of the pleasant surprises we made as we worked through this program is that our early assumptions about the cost of these demonstrations appear to have been somewhat inflated. Unlike everything else that seems to be going on now, we believe we can build some of these facilities at somewhat similar sizes than we initially thought we could, and with the cost-sharing arrangements we can further expand the ability that we have.

We have an umbrella of $50 million authorized right now for these and a limitation of five plants. The legislation proposes, and it's being accepted, to remove that lid of five. I guess the new legislation didn't set a ceiling anymore, so it would be an unlimited number, but we have told the members of both committees we think with cost sharing and with our new cost estimates for these projects that it would be possible for us to build somewhere between 8 and maybe as many as 15 or 16 for the same $50 million.

Senator STEVENS. Will you be seeking additional money for Virginia Beach and the Alamogordo plant this year?

Mr. MARTIN. Yes, sir, if we can clear this additional increment to the President's budget, we will be up either with an amendment or supplement for $5.1 million for start of construction of those two plants, and that is within, as I say, the President's request.

ADDITIONAL COMMITTEE QUESTIONS

Senator STEVENS. All right. Well, we will be submitting some additional questions to you for the record. We would appreciate it if you would answer them. I would appreciate your looking into OTEC.

Mr. MARTIN. I promise to do it, even if it involves a sacrifice of a personal visit.

[Laughter.]

Senator STEVENS. I made it at my own expense.

[Laughter.]

Senator STEVENS. Thank you very much.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Additional Committee Questions

Demonstration Projects

Question: What is the status of the selection process for the third demonstration plant, for which $50,000 was appropriated in the current fiscal year? Which communities are the leading contenders and when do you expect to make a selection?

Answer: The selection process for demonstration plant number 3 is underway. New candidate sites are being evaluated in addition to those nominated but not selected for plants 1 and 2. We expect to have the overall ranking and a report available about July 15. The selection can be announced after that date.

Question: Why is only $330,000 requested for evaluation and design of the third demonstration plant when design alone for each of the first two plants averaged $420,000? Does this reflect a reduced federal share?

Answer: It is anticipated that plant number 3 will be smaller than plants 1 and 2. The Alamogordo, and Virginia Beach plants will be 2-million gallons per day demonstrations. The third site for planning purposes was set at ½ million gallons per day. Therefore, the federal share of the cost will be less, but not a lesser percentage.

Question: What is the total funding that has been made available to date for the Alamogordo and Virginia Beach plants, and how much of that is unobligated at this time?

Answer: No funds have been appropriated specifically for construction of these plants. The total funds available for the demonstration plant program to date are $1,084,000, of which $843,244 are unobligated. These funds have been used for program planning, site selection and evaluation. The balance will be used for engineering and design of the two plants.

Question: You are budgeting $50,000 for selection of a fourth plant. Why should we begin any commitment to yet another plant when the first three are still in the preliminary stages?

Answer: The demonstration plant program follows a schedule of selecting and starting a new plant each year. Plant number 2 was accelerated to run concurrently with number 1. Subsequent plants were not accelerated, however, and in accordance with the schedule given to the Congress, the site for plant number 4 is to be identified in FY 1981.

We are in an orderly process of conducting a demonstration program and the schedule is being adhered to: we are about to enter the detailed design and construction phases for the first two plants; the third site will be selected this fiscal year; and the feasibility study for the third site will begin in early FY 1981. The schedule calls for making a site selection for the fourth plant near the end of FY 1981.

Because of the long lead time with respect to site selection and the budget cycle, we believe it is necessary at this time to seek funds for site selection of the fourth plant if we are to remain on schedule.

Question. What varieties of desalting technology do you expect to be offered for a demonstration?

Answer:

Plant No. 1 - Brackish ground water - reverse osmosis.
Plant No. 2 - Brackish ground water - electrodialysis with polarity reversal.
Plant No. 3 - Single pass seawater - reverse osmosis.
Plant No. 4 - Water recovery - industrial application - probably with reverse osmosis.
Plant No. 5 - A thermal process either distillation or freezing. At the moment, no particular type of feedwater has been defined.

All plants will be advanced technologies, fully developed, but not commercially available. The 4th and 5th technologies are tentative. The five technologies listed above do not exhaust all possibilities.

Budget Reductions

Question: What will be the impact of the $800,000 reduction in your budget as a result of the President's March revisions? That is, how will this cutback affect your ongoing research and development programs?

Answer: State Water Resources R&D Institutes funds would be decreased by $24,000. This postpones a study of the need for an Institute in the Pacific Territories. However, an increase of $6,000 for each of the 54 existing State Institutes would still be provided.

The Matching Grant program is reduced by $158,000. The remaining $842,000 increase over the 1981 base for this program will support the most promising proposals in the seven national critical problem areas which were identified in the original 1981 budget justification. The $158,000 reduction will mean that approximately 3 priority proposals will not be funded in 1981.

The $218,000 reduction will postpone implementation of the new Water Resources Demonstration program for technology that is ready for application.

The Saline Water Research program is decreased by $100,000. This reduction will postpone some of the work scheduled on scale prevention and corrosion.

The Saline Water Development program is decreased by $300,000. The reduction in water reuse technology development will postpone work in textile and food processing industries.

Question. That $800,000 reduction is less than 3 percent of your January budget, and it still leaves you with an increase over 1980 of $1.8 million. With the need for budget constraints, why can't you take a larger reduction?

Answer: Larger reductions would jeopardize the continuity of research and development in established programs and risk waste of funds invested earlier.

Question: One proposal that dropped out of your 1981 budget was a study on the need for a water resources research Institute for the Pacific Territories. The justification spoke to one or more Institutes for American Samoa, the Northern Marianas and the Trust Territory, or perhaps a regional institute in cooperation with Guam and Hawaii. How could these small island areas support any kind of an institute?

Answer. Congress amended the President's legislative request to specifically include these three areas as qualifying for Institutes. OWRT cannot determine what the needs, capabilities or support possibilities are without a study. The proposed study was an effort to be responsive to the Congressional intent.

Question. How is the institute at Guam doing? What research has it conducted, and how much funding has the Government of Guam contributed to its operation?

Answer. The emphasis of Guam's research program has been on determining the quantity of its surface and groundwater resources, the quality of water throughout the island and methods of resource protection. Recharge potential has also been examined in the light of the occurrence of natural and man-made contaminants.

In FY 1979, Guam voluntarily contributed to Institute programs $25,000 from territorial funds and $5,000 from private sources.

Question: You have also reduced your matching grant proposal by $158,000, which the justification indicates will eliminate three lower priority research proposals. What is the average project grant?

Answer: Based on FY 1981 selections, the average federal project grant will be $59,000.

Question: The matching grant budget reduction still leaves you a 15 percent increase over the base program. Why do you need such an increase at this particular time?

Answer: Appendix II-C of our justifications lists examples of proposals of excellent quality which could not be funded in 1980. For FY 1981, OWRT is already receiving proposals of comparable quality. The increase requested would support the most promising of these proposals falling into the seven critical problem areas, with special emphasis being given to problems of groundwater contamination and the relationships and interactions of groundwater and surface water. There is a critical need at this time to conduct research on conjunctive groundwater/surface water management to avoid degradation in water quality. Further delay in initiating these research projects at the local level could be costly in the long run.

Question: You are also giving up your $218,000 water resources demonstration program that would have been implemented in 1981. Why did you decide to drop this program?

Answer: We reviewed our priorities and decided that this was a new activity that could be deferred without major impact on the balance of our program.

Question: Why should OWRT be in the business of demonstrating water resource technology anyhow? Shouldn't this be left to the state and local governments? If a water resources demonstration program were implemented, what level of funding does OWRT contemplate when the demonstrations are fully operational?

Answer: There is a clear federal responsibility to promote the general welfare. There are planning, management and technology alternatives that are either unknown to State and local government decisionmakers and the citizens, or if known exceed the risk assumption capabilities of these groups.

Although the major mission of OWRT is to support research and development for the advancement of water technology, there is a corollary obligation to make new technology available to potential users and the

public at the earliest possible time. Recognizing these facts, Congress directed this demonstration program be carried out (P.L. 95-467, Sec. 109).

We expect that when the demonstration program is fully operational, it would be at the authorization level of $1,000,000 per year.

Question: The justification for your $400,000 reduction in saline water research and development indicates there will be no serious impact. Even with that reduction you retain nearly a $1 million increase in the base for research and development. Why can't you reduce further in this area?

Answer: This is a misinterpretation of our justification for the reduction. We did not intend to indicate that there would be no serious impact. The reduction of $400,000 for saline water research and development will reduce the planned level of effort on scale prevention and corrosion, and will defer work originally budgeted for water reuse development in the textile and food processing industries. Our examination of priorities indicates that these particular reductions would have the least impact on the program. Any further reduction would impair the integrity of the program, and follow-on research and development would not occur when needed or ready.

Question: As we have with every agency this year we must ask you to assess how you could absorb a 10 percent reduction in your January budget request. Please give us your general comments at this time and submit the details on how such a reduction would be applied for the record.

Answer: A 10 percent reduction from our January budget request amounts to $3,341,000, bringing our request to $30,072,000, which is $709,000 below our FY 1980 level. It would be very difficult to reduce our request by 10 percent. This was recognized by the Department and OMB when we were requested to revise our FY 1981 budget. The overall Department reduction met the President's objective, but OWRT was spared the severe cuts which many other programs had to endure, as our original budget was already bare-boned. However, if OWRT had to sustain a 10 percent reduction, we would prefer to maintain the program balance provided by the FY 1980 appropriation with the following reductions:

FY 1980 Appropriation		$30,781,000
I. C.3.	Water Problems in Urbanizing Areas	$200,000
II. A.1.	Membrane Research	75,000
II. C.	Saline Water Demonstrations	$434,000
Reduction		$709,000
Net		$30,072,000

FY 1981 January Request	$33,413,000
Ten Percent Reduction	3,341,000
Net	$30,072,000

This would result in allocation of FY 1981 funds as shown on the following page.

Institutes

Question: Again this year you are proposing an increase in the grants to Institutes, this time only $6,000 each for a total of $116,000. We have been through this before many times and the House has been adamant in refusing to increase these grants to Institutes. Has that situation changed to your knowledge?

OFFICE OF WATER RESEARCH AND TECHNOLOGY
(Thousands of Dollars)

Activity/Subactivity	Appropriated FY 1980		Recommended FY 1981 Allocation with 10% Reduction from January Budget	
I. Water Resources R&D	14,520		14,320	
A. State Water R&D Institutes	5,940		5,940	
B. Matching Grants	4,980		4,980	
C. Research and Development	3,600		3,400	
1. Conservation		850		850
2. Reuse		1,550		1,550
3. Water Problems Urban Areas		850		650
4. Special R&D Projects		350		350
II. Saline Water R&D	11,464		10,955	
A. Research	3,000		2,925	
1. Membrane		1,950		1,875
2. Thermal		350		350
3. New Concepts		700		700
B. Development	7,650		7,650	
1. Membrane		4,450		4,450
2. Thermal		1,250		1,250
3. Reuse		1,950		1,950
C. Demonstrations	814		380	
III. Technology Trans. & Info. Dissem.	1,650		1,650	
A. Technology Transfer	750		750	
B. Scientific Information	900		900	
IV. General Program Support	3,147		3,147	
Total	30,781		30,072	

Answer: We have no information concerning the position which the House will take on this matter this year. However we have submitted a detailed justification for our 1981 request which included a complete breakdown of expenditures by the Institutes and sources of funding at the Institutes for research, development, technology transfer, program development and administration. The Institute research priorities are analyzed and reported. Our justification this year is clearer and stronger and, we think, more responsive to the needs of the Committee in deciding correct levels for appropriations.

Our justifications also point out the new requirements which the Water Research and Development Act of 1978 (P.L. 95-467) place upon the Institutes, and the need for regional research in which more than one Institute is involved. The increase of $6,000 for each Institute will partly cover the cost of research priority identification and Statewide program development required under the law. In addition the Institutes will be encouraged to cooperate in the submission of joint or regional proposals.

Question: What are the current matching requirements for Institute grants? What good would a $6,000 increase do? Isn't that too small to bother with?

Answer: The current law requires one non-Federal dollar for two Federal dollars in the Institute allotment. The matching grant program is separate from the allotment program, although all matching grants are awarded through the Institutes. Matching grants are competitive, require at least an equal match of Federal and non-Federal dollars, and only non-Federal dollars may be used for matching grants.

The Chart submitted with the testimony shows that in actual practice, the non-Federal match is much larger than the required amount in every category. The $6,000 increase requested will be earmarked for multi-Institute projects to encourage research on problems common to two or more States. This kind of research has a history of leading to follow-on research and development in other OWRT programs and for expanded research support at the Institutes from non-Federal sources.

We don't feel that the $6,000 is too small to bother with as it can only be used in a multi-Institute project. The minimum number of participating Institutes is obviously two, raising the level to $12,000, but as these funds require one non-Federal dollar for every two Federal dollars, the smallest aggregate would be $18,000.

Question: The current ceiling on grants is $175,000 to each Institute, and you are recommending no specific ceiling in future authorizations. Generally, what kind of a grant level do you think would be suitable?

Answer: The current allotment authorization for each Institute is $175,000. The President's recommended legislation provides for such sums as are necessary. A level estimated for FY 1981 is $116,000 with possible increases in the future.

Saline Water

Question: Under saline water R&D you are reducing membrane research since the technology is judged ready for development pilot plant testing. However, there is no corresponding increase in membrane development. Why is this?

Answer: The reduction in membrane research is modest and is associated with only one specific research project which is planned for the development phase in FY 1981. Though no additonal funds are shown for

overall membrane development in FY 1981, funding support for this particular project is included in the development program priorities in the appendix to the budget request.

Question: Why do you need to double your thermal research? What program goals merit this kind of increase?

Answer: The sharp funding reduction which the OSW/OWRT desalting program took in 1973/1974 resulted in halting work on thermal processes because, at that time, R&D on membranes could be done with the limited funds that were availabe in a program which appeared to have a very short future. Subsequent progress has been made on membrane development at the expense of thermal research and development. However, considerable opportunities for improved processes and materials exist in thermal R&D, particularly when combined with savings in energy. For instance, the use of the hot water rejected in cooling processes, such as in power plants, offsets the need for equal amounts of energy to heat water for distillation desalting, while the use of "cold BTU's" rejected when liquified natural gas is deliquified provides another opportunity to use waste heat in desalting, in a freezing process. New materials for heat transfer and new tube configurations can also beneficially impact cost and efficiency in thermal desalting. In view of the energy costs of the 1980's, thermal R&D promises good results.

Question: Why can't you absorb the cost of thermal process development for which you are requesting an increase of $280,000? Aren't there some other projects that are winding down?

Answer: The thermal development budget request is one-third that for membranes. Because of the low level of funding for thermal research and development since the cutback in the desalting program in the early seventies, OWRT has been gradually increasing the thermal development program to complete work done on thermal research. The increase requested for the 1981 budget reflects the need to develop the results of work done in the research program in the last few years. The higher request for membrane development reflects the higher investment in membrane research in recent years. If we are to get any benefits from the money spent for work done on the research side of the program, we should not cut back too severely on development. Completion of the research and development cycle necessitates the levels represented in the 1981 request. Absorbing the $280,000 increase for thermal development would mean leaving undone those membrane or reuse projects which are ready for development or leaving unfunded those projects which are in the process of development.

Our planning recognizes that there are always some projects winding down, and we schedule our work accordingly.

Technology Transfer

Question: Please explain more specifically why a $215,000, or 20 percent increase is needed at this time for technology transfer? Why can't any new initiatives be absorbed with the base?

Answer: The 1981 base program is described in detail on pages 76 through 80 of our Justifications. In addition, pages A-122 through A-126 of the Appendix to our Justifications list current and continuing technology transfer projects. The work for which the increase is requested cannot be absorbed within this base program as all funds in the base program are scheduled in accordance with the cited pages of the Appendix. Since the highest priority work is already in the base program, additional work can be accomplished only through an increase.

Technology transfer as a discrete program was authorized for the first time in Title III of P.L. 95-467. OWRT plans gradual growth in this

program, beginning with the transfer of information already on hand and based on priorities reflecting greatest potential dollar savings and most significant improvement in water quality or quantity.

The increase being requested would be for four projects. Each is an example of technology ready to be used but still relatively unknown to those who need it. OWRT has identified each of these projects as cost-effective, of national significance, and ready for application. These specific projects are described on page 80 of the budget justification. OWRT believes that these four projects should be conducted in 1981, if possible, and that the savings or benefits to the nation will outweigh these costs.

Common Program Services

Question: Please explain why common program services requires such a large portion of the saline water demonstration program (28 percent of the 1981 program request).

Answer: The saline water demonstration budget includes the costs of common program services needed to initiate construction on the first 2 plants. A calculation of the percentage should include the $5.1 million, also in the President's Budget for the demonstration program, which would show the figure to be only 2.7 percent.

Question: Common program services also claims 26 percent of the technology transfer program. Why are overhead costs so high here?

Answer: The technology transfer program is only partially accomplished through grants and contracts. A substantial part of the work is done in-house. Common program services for contract work does not include the cost of the contract, but when work is performed in-house, all costs in lieu of contracts are included as common program services, and hence only appear to be higher.

Question: Why are you including executive direction under general program support along with common services? Why isn't executive direction a distinct activity that is not counted into program costs?

Answer: General program support is an umbrella title for an activity which includes common program services (65 FTP) and executive direction (10 FTP) for a total of 75 positions. Executive direction is a distinct subactivity separate from common program services to show how executive policy, overall direction, program guidance and development, and water research coordination within the Department of the Interior and with other federal agencies, are carried out.

Question: You listed all 75 positions under general program support in the summary table on pages 14 and 15. Does this mean you charge all personnel compensation against executive direction and common program services? If so, why?

Answer: Yes. In previous years all personnel costs were listed under General Program Support. This year we broke that category into two subactivities to clarify the work being done in Executive Direction. The total personnel cost in the umbrella activity, General Program Support, remains the same.

Administrative

Question: Your justification indicates you have succeeded in reducing the average grade level of the staff. Because of the Civil Service changes establishing the executive service level, it is not

possible to compare your average grades. Please supply a personnel summary that is comparable and that shows the actual grade level reduction you have achieved. Include the average salary comparisons as well.

Answer: The following is a comparable personnel summary that shows the actual grade level reduction for all OWRT full time employees from September, 1976 to March, 1980.

Personnel Summary

	September 1976	March* 1980	March 1980
Total number of full time personnel	63	77	82
Average grade	12.14	11.30	11.52
Average salary	$26,020	$30,356	$31,293

* As there were no foreign assignments in September, 1976, none are included in the first of two columns for March 1980, so that the comparison will be on the same basis. The second column for March 1980 includes foreign assignment employees. The year 1976 is chosen as it represents the level at the end of the previous administration. The salaries are calculated on the fifth step of the grade, except for GS-18.

Question: Why are you budgeting all of your grants under "other services:? Do you consider all your institute and research support to be contracts? Why?

Answer: Prior to the FY 1978 budget estimate, the Annual Allotments and the Matching Grants were budgeted under Object Class 41, Grants, Subsidies, and Contributions. But, these are not grants in the usual sense; that is, once given, there is no agency control. OWRT grants closely resemble contracts in that the funds are awarded to carry out specifically selected and approved research projects, with reporting requirements, certain administrative and managerial functions, and project reports to OWRT, while OWRT maintains project review and monitoring responsibilities for the R&D. The Department advised us that the allotments and grants should be treated in the same way as other research contracts funded by OWRT. Starting with the FY 1978 budget, all of OWRT's research and development allotments, grants and contracts have been included under Object Class 25, Other Services.

Question: Please identify and explain the $554,000 lapse shown in your program and financing statement for fiscal 1979.

Answer: Only $277,000 of the total $554,000 lapsing unobligated balance was from FY 1979 funds. The remaining $277,000 resulted from reporting financial information from the consolidated schedule which includes unobligated balances involving all expired accounts from FY 1978 and before. This amount should have been shown in the budget as line 77.00, adjustments in expired accounts. A further correction is now in progress that reduces the FY 1979 unobligated balance by $30,000 to $244,000. The remaining unobligated balance are funds for 10 new positions that could not be filled because of a freeze and an OMB restraint on OWRT in employment of new hires.

Question: Why is your obligated year end balance estimated to increase so markedly in fiscal 1981?

Answer: The increase in year-end balance goes back several years. For an extended period immediately prior to 1977, OWRT's program direction has been disorganized. OWRT had been without a Director, and in the absence of executive leadership, the award of contracts and grants slipped later and later into the fiscal year, until nearly all were being made in the last quarter. As a consequence, it was virtually impossible to effect any significant liquidation of prior year obligation, and year-end obligation balances grew.

The new OWRT leadership recognized the problem and established schedules to get the work out earlier, but it was not practical to make more than a two to three month correction per year, given staff limitations. Several years would be required to get the awarding of contracts and grants on a track that would obligate work early in the fiscal year and substantially liquidate obligations by year's end.

The Congressional requirement in P.L. 95-467 of submitting all program guidelines to the Congress for 30 days prior to their becoming effective delayed obligations until the fourth quarter. At the same time, the OWRT program was experiencing a small increase, which added to the ongoing workload and further slowed the pace of obligations. A freeze on new hires also prevented the recruiting for contract and procurement specialists. This latter problem has been overcome. With the enactment of S. 1640, removing the need for 30-day notice to Congress of announcements and guidelines, plus the implementation of new contracts schedules, we expect that future year-end obligation balances will be substantially reduced.

Question: When you added additional positions in FY 1980 as a result of Congressional increases, which specific positions were filled? Please supply the individual job descriptions, grade level, and salary for the record, including a revised detail of permanent positions displaying actual 1979-81 employment.

Answer: Of the additional positions for FY 1980, the following were filled:

	Grade	Position Title	Salary
1.	GS-14 -	Technology Development Specialist (SWC Demonstration Program)	$41,655
2.	GS-13 -	Technology & Information Transfer Specialist	$38,166
3.	GS-13 -	Water Research Specialist	$29,375
4.	GS-12 -	Water Research Specialist	$24,703
5.	GS-11 -	Contract Specialist	$23,559
6.	GS-11 -	Contract Specialist	$20,511
7.	GS-9 -	Information Management Assistant	$21,011
8.	GS-2 -	Clerk-typist	$ 8,128
9.	GS-13/14 -	Water Research Specialist (being recruited)	$34,270
10.	GS-5/6 -	Secretary (being recruited)	$12,368

Position descriptions for each of the above are attached. A revised detail of permanent positions showing actual employment as of September 30, 1979, June 2, 1980 and positions budgeted for FY 1981 is shown below:

Full Time Permanent Positions

		Actual 9/30/79	Actual 6/2/80	Revised Estimate FY 1981
ES-18	(ES-6)	1	1	1
ES-17	(ES-5)	1	1	1
ES-16	(ES-4)	4	3	3
GS/GM-15		16	13	14
GS/GM-14		9	12	11
GS/GM-13		7	9	8
GS-12		6	2	4
GS-11		5	5	5
GS-10		2	2	2
GS-9		5	5	5
GS-8		5	5	5
GS-7		6	6	7
GS-6		4	1	3
GS-5		2	2	2
GS-4		3	2	3
GS-3		1	--	1
GS-2		--	2	-- 2
Subtotal		77	71	77

Foreign Activities (Reimbursable)

GS-16	(FC-13)	1	--	--
GS-15	(FC-12)	4	5	5
FC-5		--	--	1
Subtotal		5	5	6
Total permanent positions		82	76	83
Unfilled positions, end of year		-13	7*	--
Filled positions, end of year		69	83	83

* It is anticipated that we will fill 7 positions by the end of FY 1980 for a total of 83.

Question: We note that you have had to increase your original 1980 estimate for "other services" object class by nearly $1.2 million. Why were you underestimated in this area?

Answer: The increase is the correction of an error made in preparing the 1980 budget.

Question: Why is it that you classify your grants under the "other services" classification which is normally reserved for contractual services. Why don't you budget grant obligations under object class 41, grants, subsidies and contributions?

Answer: As indicated earlier, OWRT grants closely resemble contracts and following advice by the Department, grants are included in object class 25, not object class 41.

Question: Please supply a breakdown of your object class 25--how much for grants and how much for contracting.

Answer:

Breakdown of Object Class 25, Other Services:
(In thousands of dollars)

	FY 1980	FY 1981
Grants	$15,608	$17,167
Contracts (Including Purchase Orders)	$11,714	$12,356
Total	$27,322	$29,523

Question: How is it that you are able to reduce your 1980 estimates for communication, utilities and other rent and for equipment? Please indicate what spending has been cancelled or deferred and whether it has been budgeted in 1981.

Answer: The estimate in the FY 1980 budget for other services was understated by approximately $1.4 million, while the total for object classes 23.2 and 31.0 was overstated by approximately the same amount. The object class estimates were corrected in the FY 1981 budget.

Report on Ocean Thermal Energy Conversion

and Desalting in the Virgin Islands

The Office of Water Research and Technology's interest in the use of naturally occurring thermal gradients dates back to the early 1950's. The Office of Saline Water collaborated with the University of California on a paper study of the possibility of installing an ocean thermal difference plant to produce fresh water in the channel between Southern California and Catalina Island. Until recently, the large capital investment in such plants made desalting far too costly to consider any extended effort on the development of technology specifically tailored to Ocean Thermal Energy Conversion conditions. Even so, the desalting R & D program has always been sensitive to energy costs and current emphasis is placed on developing highly efficient processes which are applicable to a variety of energy sources including electrical, mechanical and thermal power.

The OWRT has kept abreast of the progress being made in the DOE's program on OTEC and in many cases has provided pertinent data and information on heat transfer, materials and corrosion, fouling and scaling, and general background on our experience with the marine environment to the DOE. The present trend in the OTEC program is to place priority on early development of the closed or Rankine cycle concept, for installation on a floating platform to be situated directly over an area where the thermal gradient is advantageous. The obvious advantage of locating such plants as near as practical to land areas where energy demands exist, is being exploited in what has been termed an "Island Strategy for OTEC Commercialization." Land-based test facilities in Hawaii and Puerto Rico are being established to expedite obtaining the test data needed to design the first floating pilot plant which is scheduled for operating and testing in 1985.

In the closed cycle OTEC system, optimized for production of electrical power, there appears to be no unique opportunity for obtaining low cost desalted water. The economics of power produc-

tion are closely related to the size of the equipment required and therefore the size and complexity of the floating platform which must be provided. Desalting equipment added to the closed cycle system would therefore increase the size of the installation, the requirement for in-house power consumption, and the final cost of export electrical power. Increased costs could be allocated to water production but the cost of transporting the water to the point of utilization would probably be excessive.

Early DOE studies examined several possible uses of power from OTEC plants including water production and the on-site production of energy intensive products such as ammonia for fertilizer production. Early commercialization seems most probable using fixed floating platforms close to land with relatively short electrical power transmission cables to the nearest point of use. While ammonia production is still considered feasible for cruising (or "grazing") OTEC plantships, the production of lower value, high bulk desalted water does not appear to be advantageous at this time.

DOE has a continuing program to investigate alternative power cycles and in 1979 a report by Westinghouse Electric Corporation presented a direct open cycle OTEC concept with projected power costs less than the closed cycle plants at capacities above 50 MW. In the open cycle concept warm water is directly flashed to steam (pure water vapor) which can be used to drive a turbine generator. Desalted water is a natural by-product of the power generation cycle. Since the production of pure water vapor is necessary to produce power and the method of condensing this steam has little or no effect on the efficiency of the power cycle, desalted water may be considered as a free by-product. The site specific cost of transporting the water to a point where it may be utilized will determine the true value of this desalted water by-product. It is interesting to note that the fresh water by-product is cited as a potential benefit of the open cycle OTEC, but no specific value is claimed in comparisons with the closed cycle process. In the general case the cost of transporting this water probably exceeds its market value.

The economics of direct use of ocean thermal gradients for the production of fresh water is dependent on the same factors affecting the economics of electric power production and distribution. Since transportation of water is far more costly than transmission of electric power, the proximity of a usable thermal gradient to the point of water use is of critical importance. Desalting technology for OTEC range temperatures does exist and plants could be designed with confidence. The simplest type would use one to several stages of flashing but the most efficient would probably use one stage of flashing followed by a multi-effect distillation system. The total plant would be optimized by minimizing the total cost of the desalting plant and the cold water intake system. Higher efficiency plants have a higher capital cost but require a smaller cold water intake.

Considering the Virgin Islands, the closest point of useful thermal gradient appears to be 10-20 km north of St. Croix. This area has been investigated and the results reported at the 6th OTEC Conference June 19-22, 1979 sponsored by DOE. Determining the cost and feasibility of running a submerged cold water intake to a suitable point 10-20 km offshore would be a major undertaking. But, to provide a frame of reference, the intake at Jidda, Saudi Arabia for a 2 MGD distillation plant, which was about 1-mile long and at a maximum depth of 20 meters, cost about $7 million. New approaches to cold water intake piping are being developed by DOE for their facilities in Hawaii and Puerto Rico. An intake similar in capacity to the Jidda plant and extending to depths of

2500 ft. may cost as little as $2.5 million. Based on current desalting plant costs and estimated intake system costs, a one-million-gallon per day land-based OTEC plant in St. Croix is estimated to cost between $21 and $48 million depending on the length of the cold water intake. At the lower capital cost, desalted water would cost about $10.76 per thousand gallons using a fixed charge rate of 14%. At current fuel prices, these costs are higher than commercially available desalting plants.

Summary Status

. OWRT monitors the progress of DOE's OTEC program and participates in the review of specific program elements where desalination technology or an extension thereof, may be pertinent.

. OWRT's development program strategy, although traditionally and necessarily based on minimizing total costs for desalted water, places high emphasis on lowering energy consumption. In most applications the origin of the energy has no effect on process efficiency or desalting costs.

. Special cases can exist where the form of the energy in its initial or some intermediate converted state suggests dual purpose utilization with a net benefit relative to the two product streams. The open cycle OTEC concept with flash evaporation and a surface type condenser is such a case. With the steam turbine power cycle, desalted water is a natural by-product of power production. However, the cost of transporting this essentially free by-product from a floating platform miles to a point of use may well exceed its value.

. Flashing technology for OTEC open cycle conditions does not exist. Extrapolations from desalting technology are the basis for current conceptual designs and further development will probably be deferred in favor of the closed cycle concept.

. Desalting technology for OTEC-type temperature differentials does exist and water production could probably be optimized by first flashing steam for subsequent use in a multi-effect evaporator much as is planned in the U.S.-Israel Project.

. The Virgin Islands area appears to offer viable OTEC conditions, particularly in the area 10-20 km (6-to-13 miles) north of St. Croix, but the technology for transport of cold water or product water to the inland is sketchy and costs may well be excessive.

Potential Activities for OWRT

. Extend flashing technology to conditions of OTEC open cycle power system design concept. Estimate 5 years $6M.

. Optimize desalting concepts for low temperature, 40°F temperature difference, and conduct pilot study. Estimate 5 years $10M.

. Optimize desalting concepts for low temperature, 25°F temperature difference, to piggyback on closed cycle plants and conduct pilot study. Estimate 5 years $10M.

. Investigate costs of cold water transport to St. Croix, 25°F to 40°F parametrically. Combine with pilot studies above for water cost estimates. Estimate 3 years $1.5M.

OFFICE OF THE SOLICITOR

STATEMENT OF CLYDE O. MARTZ, SOLICITOR

ACCOMPANIED BY:

FREDERICK N. FERGUSON, DEPUTY SOLICITOR
DONALD A. CHENDORAIN, DEPUTY DIRECTOR OF ADMINISTRATION
WILLIAM D. BETTENBERG, DIRECTOR OF BUDGET, OFFICE OF THE SECRETARY
DAVID A. WATTS, ACTING ASSOCIATE SOLICITOR, CONSERVATION AND WILDLIFE
JOHN LESHY, ASSOCIATE SOLICITOR, ENERGY AND RESOURCES
ALEXIS C. JACKSON, ASSOCIATE SOLICITOR, GENERAL LAW
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ROBERT J. URAM, ASSOCIATE SOLICITOR, SURFACE MINING
C. JAMES JEWER, BUDGET ANALYST
SHARON ALLENDER, ASSISTANT SOLICITOR, AUDIT AND INSPECTION
TIMOTHY S. ELLIOTT, DEPUTY ASSOCIATE SOLICITOR, GENERAL LAW

BUDGET REQUEST

Senator STEVENS. We will now turn to the budget request for the Office of Solicitor. The $16.4 million represents an increase of $1.2 million over the 1980 appropriations to date. There is a pending supplemental request of $628,000 to cover the 1980 pay cost increases. The budget justification is in the record.

PREPARED STATEMENT

This is your first appearance before our committee, Mr. Martz. We will place your complete statement in the record, sir, along with your biographical sketch. I am pleased to be familiar with it, since I am on the other committee that managed your nomination hearing.

[The statement follows:]

STATEMENT OF CLYDE O. MARTZ

Mr. Chairman, I want to thank you for this opportunity to discuss our fiscal year 1981 budget request for the Solicitor's Office of the Department of the Interior. As you know, this is my first appearance before your subcommittee, having been confirmed as solicitor just about 1 week ago.

The Solicitor's Office has submitted the detailed budget justification to the subcommittee. In my statement today, I would like to highlight briefly the major aspects of that request, then try to answer your questions.

We are requesting approximately $16.8 million, only a 1.3-percent increase over our 1981 base appropriation, with no additional permaent positions added in fiscal year 1981. This modest increase of $218,000 will provide the resources necessary for increased employee efficiency and productivity.

The $218,000 will be divided amongst three broad categories: $104,000 for personnel compensation and benefits; $36,000 to finance the continuation of microfilm processing; and $78,000 to finance the increased costs for administrative and central services provided to the solicitor by the Secretary's Office.

Almost 50 percent of the requested increase reflects funding for personnel compensation and benefits. A large portion of the $104,000 will pay for satisfactory job performance during specific employment periods. There isn't a great degree of flexibility in this item.

Second, we are requesting an additional $36,000 to continue the microfilming of written materials. Microfilming techniques and storage have proven to be cost effective and alleviate space problems. We need to expand the utilization of microfilming throughout our divisions and regions.

Of particular concern are documents which must be kept in each office, but may not be in use daily. Such documents as solicitor's opinions, law suits, litigation files, and Indian fishing files, may be needed on short notice, but are not continuously required. The use of microfilming will reduce storage requirements in all our docket and records sections.

The last funding category is for increased costs paid as a reimbursement to the Secretary's working capital fund. The Secretary's Office provides such central services to the Solicitor's Office as storage and shipping, printing, and copy centers. Based on the current rate of increased production, we will require an additional $78,000 to reimburse the working capital fund for these administrative and consolidated billings.

Mr. Chairman, I would also like to coment on the productivity measurements that we developed prior to our fiscal year 1980 budget justification. Although we are submitting our second productivity table, which compares our workload for fiscal years 1980 and 1981, we must still measure these workload estimates against actual workload results. We will monitor these workload factors throughout, and at the end of the fiscal year, gage the accuracy of our workload projections. We are eager to refine our productivity measurements and reduce the possibility of errors.

Our current productivity measurements indicate that more attorneys will be required than will be available.

I urge your favorable consideration of this budget submission and will be happy to try to answer any questions that the subcommittee may have.

BIOGRAPHICAL SKETCH OF CLYDE O. MARTZ

Born: August 14, 1920, Lincoln, Nebr.

Education: University of Nebraska—B.A., 1941 and Harvard Law School—LL.B., 1947.

Employment: Partner, Davis, Graham & Stubbs, 1962–67, 1969–80; Assistant Attorney General of United States, 1967–69; Judicial Administrator, State of Colorado, 1959–60; Special Assistant Attorney General, Colorado, 1972–79; Professor of Law, University of Colorado, 1952–58, 1960–62; Assistant Dean 1954–59, Acting Dean 1957–58; Associate Professor of Law, University of Colorado, 1951–52; Assistant Professor of Law, University of Colorado, 1947–50; Adjunct Professor of Law, University of Denver, 1962–80; Consultant, President's Materials Policy Commission, 1950–51; and admitted to practice Colorado, 1948; U.S. Supreme Court, 1968.

Publications: Cases and Materials on Natural Resources Law, 1951; Co-author, American Law of Property, 1953; Editor and Co-author, American Law of Mining, 1960; Co-author, Waters and Water Rights, 1963; Water for Mushrooming Populations, 1954; Contributor, Annual Surveys of American Law, 1952–60; and Various articles: Rocky Mountain Mineral Law Institute, University of Colorado Law Review, and University of Denver Law Review.

Other: U.S. Naval Reserve, 1942–58, Commander; Active duty 1942–45, Silver Star, Bronze Star; Commanding Officer, Reserve Division, 1955–57; and Honorable Discharge.

Memberships: President, Rocky Mountain Mineral Law Foundation, 1961–63; Member Colorado Advisory Board, Bureau of Land Management, 1967; Member American, Colorado, and Denver Bar Associations; and Award of Merit, Colorado Bar Association, 1962.

Personal: Married Ann Spieker, Fremont, Nebr., May 29, 1947; two children, Dr. Robert Graham Martz, Albuquerque, N. Mex.; Nancy Martz, Denver, Colo.; Elder, Presbyterian Church.

INTRODUCTION OF WITNESSES

Senator STEVENS. Would you please identify the people with you at the table, and I would ask you to summarize your statement, if you will.

Mr. MARTZ. Thank you.

To my right is Fred Ferguson. To my left is Don Chendorain.

Because I was only confirmed last week I have only been exposed to the office for about 4 weeks, I brought with me my staff of associates who can provide the committee with factual answers to questions it may have.

Starting from my left is Hans Walker, Jr., Acting Associate Solicitor for Indian Affairs. Next to him, David A. Watts, Acting Associate Solicitor, Conservation and Wildlife. Next to him is Jim Jewer, Budget Analyst.

Behind me is Bob Uram, Associate Solicitor of Surface Mining. Next to him is Alexis C. Jackson, Associate Solicitor, General Law. And on the end is John Leshy, Associate Solicitor of Energy and Resources.

Bill Bettenberg you know.

In the second row are Sharon Allender, Assistant Solicitor, Audit and Inspection, and Tim Elliott, Deputy Associate Solicitor, General Law.

Senator STEVENS. Under the circumstances, Mr. Martz, why don't we just submit the questions to you for your staff to answer.

In the time you have been on board is there anything that developed that you think we ought to know, as we review the budget for the Office of Solicitor?

REQUESTED INCREASES

Mr. MARTZ. Yes, I think so. As you know, our budget request is basically a maintenance request. All of the items are a continuation. The $104,000 is for in-grade increases and promotions and benefits associated with that for the present staff. The $78,000 is our contribution to the working capital fund which is centrally administered by the Office of the Secretary, and we have some $36,000 for continuation into the third year of a microfilm program, which has a very positive benefit/cost ratio, because of the savings of space and the savings of storage facilities that will be achieved in that.

PAY RAISE SUPPLEMENTAL

The thing that happened since I arrived is that we received what I know is a very serious limitation on our pay raise supplemental budget to cover the pay increase that occurred last October. At the time of the pay raise our office was above ceiling, because of increases in demand of the surface mining program and the increased demand of the Inspector General program to which the Senator has already alluded.

The effect of the reduction of $178,000 from our supplemental budget request has been to essentially freeze our office. In order to meet our ceiling goals for this year, we are obligated to essentially eliminate travel, eliminate training, curtail the kind of normal employment that would be required in my mind to meet the objectives I have as solicitor. Two of my objectives are to try to get solicitor's opinions published and out in the field and for public use, and to coordinate and

improve the timing of decisionmaking throughout our office and in the Department.

I think the cut was most unfortunate. I would request the committee when it reviews the markup of the House to take a careful look at the impact of that cut. I submit it may have been affected unrealistically, because in the reports that had gone to the Treasury, for fiscal years 1979 and 1980, it appeared that we weren't committing all of the allocated funds, due to the fact that in those initial reports the space charges had not been written into the first and second quarters. We are actually without funds.

The impact of the budget cut is very serious.

Senator STEVENS. That is the supplemental you are talking about now?

Mr. MARTZ. Yes. Now that supplemental added to last year was our base for 1981 and the only increase to that is the $218,000 described in our request.

UNOBLIGATED BALANCE LAPSING

Senator STEVENS. It was pointed out that in 1979 your predecessor lapsed $264,000.

Mr. MARTZ. I would like to have Mr. Chendorain, who has the facts on that, to address that. It was a peculiar situation where the Office of Surface Mining had been created, and we had a number of positions authorized and a budget approved for them, but because of delay in receiving the appropriation we could not get the people on board within fiscal 1979 and thus it appeared to be a lapse. Those people came on in fiscal 1980 and that lapse has not been realistic.

Mr. CHENDORAIN. In addition, although we show $264,000 unobligated balance lapsing, some of our fixed costs, such as postage, weren't recorded as incurred. Additional obligations of $86,000 have now been reflected on our fiscal records which has now reduced our unobligated balance lapsing to about $178,000 which means that we have obligated at least 99 percent of our budget for 1979.

Senator STEVENS. How much of the $264,000 went into your zero-based budget for 1981? You didn't obligate the $264,000; right? That was surface mining activity. Were those people on board in 1980, so they went into the 1981 budget?

Mr. CHENDORAIN. They are included in the 1981 budget.

Senator STEVENS. It seems the House assumed you didn't take that into account. Is that an erroneous assumption?

Mr. CHENDORAIN. The House in looking at the obligation rate would not have realized that some additional obligations would be included, which reduced the unobligated balance.

Senator STEVENS. All right. We will take a good look at it. It does seem your increase is about the smallest in the Department, as a matter of fact. We will do our best to improve your situation.

Mr. MARTZ. I would hope so. I think we can show you that this money is put to very productive use.

LEGAL SERVICES REVIEW

Senator STEVENS. How much money is allocated throughout the rest of the Department now for legal activities? Do you have the total legal budget now? Do any of the bureaus continue to have legal services which are not responsible to you?

Mr. MARTZ. As the Senator recalls, last year the office conducted a legal services review to identify positions that might be legal in nature in the various agencies. We have transferred 13 such positions which were so identified to the Solicitor's Office. There are others which have been identified which are quasilegal, which are undergoing good review and some challenge. Mr. Chendorain points out principally the Bureau of Indian Affairs—I believe there's about 25 there, about 25 quasilegal positions which the legal services review indicated should be brought into the Solicitor's Office. The matter is now undergoing appeal and review at the moment.

ADDITIONAL COMMITTEE QUESTIONS

Senator STEVENS. We wish you luck on that. We will submit the questions.

Thank you very much. Thank you all.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

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Additional Committee Questions

Effects of Ten Percent Budget Reduction

Question: We have noted that your request represents an increase of only $218,000 over the 1980 base, yet we do ask that you provide for the record a statement of how you would allocate a ten percent reduction in your budget among the various activities.

Answer: With respect to a possible ten percent reduction in the fiscal 1981 budget, legal services would continue to be provided in all areas of specialization as outlined in our description of Divisonal and Regional activities, but our services would be restricted only to those matters of highest and most immediate priority. Thus, the overall quality of services provided by the Solicitor's Office would inevitably suffer. If a ten percent reduction ($1,680,000) was applied to one specific office, we could virtually eliminate an office. For example, it costs about $1.7 million to operate our Denver (Rocky Mountain) Regional Office which provides services in Arkansas, Colorado, Iowa, Kansas, Louisiana, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas and Wyoming. Additionally, all legal research would be restricted to the most important matters.

Pay Cost Supplemental

Question: Last year seven additional positions were provided to meet the increased responsibilities in the areas of OCS and mining. Based on a comparison of last year's detail of permanent positions and this year's submission, it would appear that all seven positions were filled on the executive schedule level rather than GS Grades. How do you justify so many high level employees?

Answer: Based on Title IV (Senior Executive Service) of Public Law 95-454, entitled the Civil Service Reform Act of 1978, the Solicitor's Office converted 17 positions from General Schedule (GS) 15-18 to Executive Service (ES) 1-6. Of these 17 positions, ten positions were shown in last year's Congressional budget submission as GS 16-18 and seven were shown as GS-15. These seven GS-15 positions were converted to Senior Executive Service (SES) positions because the seven incumbents were Regional Solicitors who were appointed to SES positions and are included in the Fiscal 1981 Congressional budget submission in the ES 1-6 pay levels. Incidentally, the five surface mining and two outer continental shelf positions were filled at the GS-6-13 level.

Question: Your 1981 justification shows you had 16 positions above GS-15 in 1979; but last year's identified only 11. Why did you change these position placements in prior years?

Answer: Fifteen of the seventeen Senior Executive Service positions were converted on July 13, 1979 (fiscal 1979), while the two remaining Senior Executive Service positions were authorized during fiscal 1980.

Question: Please explain all your changes in all other permanent positions for prior years.

Answer: The following table reflects our changes in permanent positions:

	Fiscal 1979	Change	Fiscal 1980	Change	Fiscal 1981	Remarks
ES-1	1	+2	3	-0-	3	Represents two newly authorized Senior Executive Service Positions.
GS-15	54	-2	52	-0-	52	Represents two GS-15 positions which were abolished. The two incumbents accepted the authorized SES positions (ES1).
GS-11	37	-0-	37	+1	38	Represents a Paralegal position established as a result of word processing savings.
GS-9	20	+1	21	-0-	21	Represents a Paralegal position established as a result of word processing savings
GS-8	9	-0-	9	+1	10	Represents a Paralegal position established as a result of word processing savings.
GS-7	51	-0-	51	-1	50	Represents the abolishment of a clerical position.
GS-6	33	-0-	33	-1	32	Represents the abolishment of a clerical position.

GS-5	33	-0-	33	-1	32	Represents the abolishment of a clerical position and reinstatement of that position.
GS-4	5	-2	3	-0-	3	Represents a net reduction of two positions from fiscal 1979 to 1980.
GS-3	3	-0-	3	-1	2	Represents the abolishment of a clerical position .

Question: All offices regularly request increases for promotions, benefits and within grade increases. In view of the fact that you do experience some turnover in staff through retirement and attrition why can't these costs be absorbed since new hires would generally be paid less than those who have left?

Answer: We currently have 413 employees on-board (fiscal 1980), in comparison to 383 as of September 30, 1979 (fiscal 1979), which represents an increase of 30 employees. This increase in personnel more than offsets the savings in lower salaries to new employees.

Question: What is the estimated annual attrition rate in the Office of the Solicitor?

Answer: The actual annual attrition rate for fiscal 1979 is 11.2 percent. Also, the projected annual attrition rate for fiscal 1980 approximates 11 percent.

Microfilm Processing

Question: In fiscal 1979 only $4,000 was budgeted for microfilm processing. The 1981 budget requests an increase of $36,000 on top of the $50,000 increase provided last year. Testimony presented to the committee last year estimated $9,575 would be saved annually as a result of the $50,000 increase. We note no savings in the object class for either space or equipment. What happened to those projected savings?

Answer: Although we indicated that $9,575 would be saved for storage space and equipment due to the conversion to microfilm, we also were required to relocate some of our regional offices. For example, we vacated lower cost office space after our lease was terminated in Atlanta, requiring us to move into newer higher cost facilities. Specifically, we relocated our Atlanta Regional Office

from Caine Street Building ($7.64/sq ft) to the Russell Building ($10.85/sq ft). Based on 5,800 square feet of space we utilize in the Russell Building, our net cost increase for space is $18,800. Since the unprogrammed Atlanta Regional Office relocation took place in fiscal 1979, we had to absorb approximately $13,000 in space costs, which is in excess of the $6,000 savings. Due to the transfer of positions to the Solicitor's Office as a result of the Legal Services Review, we utilized $3,575 to provide equipment for these 13 positions. No equipment was transferred with these personnel, nor do we intend to request funding for this transfer. Once our equipment needs are met for the 13 positions transferred regarding Legal Services Review, we will reduce our budget in the equipment object classification by $3,595 for fiscal 1982.

Question: It would appear that any projected savings to be realized by not having to purchase file cabinets and pay for storage is more than offset by the ever increasing expenditures for microfilming. At what point can we anticipate that requests for this project will level off?

Answer: The budget base of $90,000 per annum for microfilming as indicated in our fiscal 1981 budget request would provide funding to continue our conversion program throughout the Office, without supplemental requests for more funding. We do not intend to request additional funding in the ensuing budget justifications, but rather we plan to utilize only the $90,000 base to purchase printers/readers and convert paper copy to film over the next five years.

Word Processing

Question: Last year a sizeable increase of $100,000 was provided for the Office to purchase word processing equipment. We anticipated that this would be a one-time expenditure; yet the request for equipment remains at the 1980 level. What word processing equipment is being purchased this year, and what major items do you intend to purchase in 1981?

Answer: Last year's increase of $100,000 for word processing equipment is associated with the leasing of, rather than the purchasing of, 18 word processors to be located in field offices which did not have word processing capabilities. This annual cost for these word processors will continue, since the equipment is leased. We do not plan to purchase any word processors because of the constant change in word processing applications and capabilities. Recent equipment improvements and higher work volumes in the last few years have made previously purchased word processors obsolete.

Question: $8,000 of the requested increase of $108,000 for purchase of word processing equipment was specifically denied by Congress last year. That should have reduced the object

class for equipment from $211,000 to $203,000, yet this year's budget shows the 1980 level for equipment at $220,000. Please explain this discrepancy.

Answer: The word processing equipment was not purchased and is not shown as "Equipment;" this equipment is leased and appears under "Other Services." Further, the $8,000 was reduced in the "Other Services" object classification. The increase in equipment is the result of fiscal 1980 budget Amendments regarding the Surface Mining program and the Outer Continental Shelf leasing program, resulting in an adjusted equipment level of $220,000.

A summary of the changes in "Other Services" and "Equipment for fiscal 1980 are:

(In thousands of dollars)

	Other Services	Equipment
Fiscal 1980 Budget Justification	661	211
Fiscal 1980 Outer Continental Shelf Amendment	1	4
Fiscal 1980 Surface Mining Amendment	3	5
Congressional Reductions:		
Patent Contracts	(70)	
Word Processing	(8)	
Pay Raise Absorption	(45)	
Fiscal 1981 Justification	542	220

Working Capital Fund

Question: An increase of $78,000 is requested to reimburse the working capital fund of the Office of the Secretary. What is the current annual reimbursement figure?

Answer: We currently (fiscal 1980) are reimbursing the Secretary's office $639,845 for central services related to the working capital fund. The Secretary's office has estimated our cost for fiscal 1981 at $717,800, which represents an increase of approximately $78,000.

Question: Please supply a detailed breakdown of the increase for the record.

Answer: Our fiscal 1981 increases for the working capital fund costs are:

Federal Telecommunications Services	$31,000
Postage	21,300
Administrative Billing (fiscal services; e.g., accounting, payroll, etc.)	13,785
Consolidated Billing (central services; e.g., copy centers, computer services, printing, etc.)	11,870
Total Increase	$77,955

SUBCOMMITTEE RECESS

Senator STEVENS. We will stand in recess.

[Whereupon, at 12:20 p.m., Wednesday, May 28, the subcommittee was recessed to reconvene at the call of the Chair.]

DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

TUESDAY, JUNE 3, 1980

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9:45 a.m., in room 1223, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens presiding.

Present: Senator Stevens.

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

STATEMENTS OF:

CHARLES P. EDDY, DEPUTY ASSISTANT SECRETARY-ENERGY AND MINERALS

H. WILLIAM MENARD, DIRECTOR, U.S. GEOLOGICAL SURVEY

ACCOMPANIED BY:

DOYLE G. FREDERICK, ACTING ASSOCIATE DIRECTOR

ROBERT L. WESSON, ASSISTANT DIRECTOR-LAND RESOURCES

GEORGE H. DAVIS, ASSISTANT DIRECTOR-MINERAL AND WATER RESOURCES

JAMES F. DEVINE, ACTING ASSISTANT DIRECTOR-ENGINEERING GEOLOGY

BETTY M. MILLER, ASSISTANT DIRECTOR-EASTERN REGION

DALE BAJEMA, ASSISTANT DIRECTOR-PROGRAM ANALYSIS

EDMUND J. GRANT, ASSISTANT DIRECTOR-ADMINISTRATION

RUPERT B. SOUTHARD, CHIEF, NATIONAL MAPPING DIVISION

DALLAS L. PECK, CHIEF GEOLOGIST

PHILIP COHEN, CHIEF HYDROLOGIST

DON E. KASH, CHIEF, CONSERVATION DIVISION

GENE THORLEY, ACTING CHIEF, OFFICE OF LAND INFORMATION AND ANALYSIS

GEORGE GRYC, CHIEF, OFFICE OF NATIONAL PETROLEUM RESERVE IN ALASKA

DAVID B. STEWART, CHIEF, BRANCH OF EXPERIMENTAL GEOCHEMISTRY AND MINERALOGY

GEORGE D. DE BUCHANANNE, CHIEF, OFFICE OF RADIOHYDROLOGY

WILLIAM D. BETTENBERG, DIRECTOR OF BUDGET, OFFICE OF THE SECRETARY

BUDGET REQUEST

Senator STEVENS. Good morning. My apologies for being slightly late.

This is the time scheduled to review the fiscal 1981 budget estimates and the fiscal 1980 supplemental request for the U.S. Geological Survey. The amended fiscal 1981 estimate for surveys, investigations, and research totals $475.1 million, and the request for exploration of the national petroleum reserve in Alaska is an additional $46.5 million, for a total request of $521.6 million.

The amended request for surveys, investigations, and research is $23.1 million greater than appropriations to date for fiscal 1980, and $6.3 million less than the President's original January budget request.

The reduction of $129.1 million below appropriations to date for fiscal 1980 for the national petroleum reserve in Alaska reflects the administration's proposal to terminate Federal exploration on the reserve in fiscal 1981. We will discuss this reduced request along with the President's proposal to open the reserve to private energy leasing later during this hearing.

An additional $4.9 million is requested for surveys, investigations, and research in the fiscal 1980 supplemental appropriation request. This additional funding is associated with the Department's resumption of coal leasing activities. A copy of the supplemental justification will be included in the record this morning.

[The information follows:]

JUSTIFICATION

GEOLOGICAL SURVEY

Appropriation	FY 1980 Presently Available	FY 1980 Revised Estimate	FY 1980 Proposed Supplemental
Surveys, Investigations, and Research ---------	$452,055,000	$456,996,000	$+4,941,000

Surveys, Investigations, and Research
FY 1980

For an additional amount for "Surveys, Investigations, and Research," $4,941,000.

Justification of Program and Performance

Activity: Geologic and Mineral Resource Surveys and Mapping

Subactivity: Energy Resource Surveys

(Dollar Amounts in Thousands)

	FY 1980 Appropriation		FY 1980 Revised Request		FY 1980 Proposed Supplemental	
	Perm. Pos.	Amount	Perm. Pos.	Amount	Perm. Pos.	Amount
Coal	76	$ 4,271	82	$ 5,971	6	$ 1,700
All other programs	342	23,925	342	23,925	--	--
Total requirements	418	$ 28,196	424	$ 29,896	6	$ 1,700

Coal

Authorization: 43 U.S.C. 31 (a)

Objectives: The basic objectives of this program are: to collect, analyze, and publicly disseminate information about the quantity and quality of the Nation's major coal deposits as a prerequisite for effective long-term planning for coal extraction and domestic consumption or export, to provide the Federal land managing agencies, particularly the Bureau of Land Management, with coal resource information on 1:100,000-scale maps, and to enter the resource information into the National Coal Data System so that it can be retrieved from the system by OSM, BLM, Forest Service, and the U.S. Geological Survey and utilized in the analysis of specific tracts for selection and evaluation.

Base Program: The program consists of three elements: (1) coal resource assessment studies, (2) coal exploration related to Federal coal leasing, and (3) the development and maintenance of a coal resource data system. These studies currently are focused on coal on Federal lands in the Western States and on low-sulfur coal in the central and southern Appalachian Basin. Special emphasis is placed on the identification and delineation of coal beds. Investigations of coal stratigraphy and structure permit the projection of coal quality point-source information throughout a coal basin and enable a quantitative assessment of a basin's coal resources.

Data generated by these investigations are incorporated in the National Coal Resources Data System (NCRDS), which is being established in two phases. Phase I consists of aggregated data on coal resources, derived from existing noncomputerized resource files. The more than 31,000 data records in the

Phase I file are being used to generate assessments of coal quantity by Region, State, or county, but they do not contain information on coal quality. Phase II, now being implemented, consists of disaggregated or point-source geologic data obtained from mines, core holes, and outcrops and includes measurements such as coal bed and overburden thickness, moisture, sulfur, ash, and trace-element content, and heating value. The point-source data file can be used to produce computer-drawn resource maps of various types, including coal quality distributions, as well as quantitative resource calculations. Data for inclusion in NCRDS are being gathered with the cooperation of the Geological Surveys of the 38 coal-bearing States.

The Coal Exploratory Program, related to Federal coal leasing, is designed to provide geologic and resource information about Federal coal lands subject to the Federal Coal Leasing Amendments Act of 1975. The key elements in the program, in part done cooperatively with State Geological Surveys, are core drilling on coal lands distant from coal bed outcrops, subsurface mapping of coal beds using well logs and geophysical exploration techniques, and geochemical analyses of core samples. Core drilling is necessary because existing oil, gas, and water wells either are located improperly for coal assessment research or were not adequately cored or logged.

The scientific data and interpretive resource reports generated by both the coal resource assessment studies and the Federal coal exploration work will be developed predominantly on 1:100,000-scale maps (approximately 85 such maps compose the important Federal coal lands of the Western United States). These maps, compiled in loose-leaf folios, will assist (1) areal analysis for national energy policy planning, (2) siting and technology development for coal energy-conversion programs of DOE, (3) environmental assessment and regulatory activities of EPA, (4) coal extraction technology development by the Bureau of Mines, and (5) leasing and regulatory programs of the Department of the Interior, including BLM and the Office of Surface Mining. This information is necessary to assist BLM in its land-use planning program to prepare resource management plans to use as a basis for selecting future competitive coal leases beyond the first round of lease sales to be held based on the Secretary's current decisions. Larger scale maps and reports will be developed for various special studies.

Need for Supplemental: The $1.7 million increase in the Coal Resources Assessment Program for FY 1980 will be utilized to initiate additional 1:100,000-scale quadrangles in BLM's Management Framework Plan areas, to obtain subsurface data, to establish regional coal-bed correlation networks, to expedite interpretive mapping and analysis, and to meet BLM land-use planning needs. The capability to obtain subsurface data is critical to the accomplishment of an assessment program to provide needed data to BLM and other Federal agencies for land-use planning and for the development of coal lands in an acceptable manner. This need for information was recognized by the Secretary of the Interior in his submittal of the Coal Exploratory Plan to Congress in 1978, for which $1,500,000 was appropriated in FY 1978. Because of court injunctions which halted coal leasing, this program was reduced to $700,000 in FY 1979. Since the injunction was lifted and the Secretary has recently announced the continuation of a Federal Coal Leasing Program, the need for subsurface data for resource mapping has become critical for the selection of future tracts for leasing. With the $1,700,000 for subsurface information and the increased personnel to begin new quadrangles, it will be possible for the U.S. Geological Survey to produce coal resource maps to support BLM planning and synfuel activities of the Department of Energy on Federal lands.

Object Classification Distribution: The object class detail for the increase is as follows:

Position Title	GS Grade	Number	Annual Salary
Geologist	GS-13	1	$ 29,375
Geologist	GS-12	2	49,406
Geologist	GS-9	2	34,070
Geologist	GS-7	1	13,925
Permanent Positions		6	$ 126,776
Less Lapse		-3	- 63,388
Total Man Years		3	63,388

Object Classification

Permanent Compensation		$ 63,388
Positions Other Than Permanent	3	50,000
Other Personnel Compensation		6,519
Total Compensation	6	119,907
Personnel Benefits		11,900
Travel and Transportation of Persons		45,000
Transportation of Things		8,000
Communication, Utilities, and Other Rent		20,000
Printing and Reproduction		3,000
Other Services		1,442,193
Supplies and Materials		40,000
Equipment		10,000
		$1,700,000

Justification of Program and Performance

Activity: Conservation of Lands and Minerals

Subactivity: Federal and Indian Lands

(Dollar Amounts in Thousands)

	FY 1980 Approp.		FY 1980 Revised Request		FY 1980 Proposed Supplemental	
	Perm. Pos.	Amount	Perm. Pos.	Amount	Perm. Pos.	Amount
Coal Program	230	$11,611	256	$14,852	26	$3,241
All Other Programs	688	24,919	688	24,919	--	--
Total Requirements	918	$36,530	944	$39,771	26	$3,241

Coal Program

Authorization: 43 U.S.C. 31(a)

Objectives and Base Program:

The Geological Survey's coal program is responsive to the responsibilities of the Secretary of the Interior under the Mineral Leasing Act, as amended, and the recently announced new Federal Coal Management Program. It provides for the basic data collection and analysis on coal resources of Federal lands which are essential to the identification of priority leasing areas; establishment of coal leasing schedules; selection and evaluation of coal lease sale tracts, and the determination of coal values of lands proposed for disposal or exchange under the Public Land Laws. In the execution of the coal program, the Geological Survey provides information to the Administration and the Congress for the development of new legislation and determination of National Policy. The Survey also provides maps depicting the location, quantity, and character of the coal in potential leasing areas to land management agencies such as the Bureau of Land Management (BLM) and the Forest Service (FS) for use in the preparation of land

Management Framework Plans (MFP). These coal resource occurrence/coal development potential (CRO/CDP) maps are also identified in the Secretarial Issue Document (SID) for the Federal Coal Management Program, June 1, 1979, as the major source of information for identifying high or moderate development potential coal resources within a land use planning area. The Secretary's decision is to "require only that coal leases be issued within Known Recoverable Coal Resource areas (KRCRA) but retain coal quality as a ranking factor and use CRO/CDP maps for information." The Geological Survey also has a major responsibility in regulating the operations of lessees in exploring for coal, developing mines, and extracting coal from Federal leases and in determining, collecting and accounting for royalties due the Government from lease production.

The coal program is accomplished through a balanced program of field investigations, test drilling, subsurface mapping, coal analysis, mining engineering, geological and economic evaluation, and royalty accounting. Confidential data from permittees and lessees are utilized throughout the program in addition to the data generated through program initiatives.

Need for Supplemental:

At the time the initial FY 1980 Budget Justification was submitted, the Secretary had not announced his competitive coal leasing program. As a result of the recent amendments to the Mineral Leasing Act, and recently announced Department initiatives for coal, BLM has constructed a schedule of activities related to leasing that will significantly increase the workload of the Geological Survey. This additional workload includes the evaluation of increased Short-Term Leasing Criteria (STLC's) and Emergency Sales, Competitive Lease Sales, Preference Right Lease Applications (PRLA's) and drilling of test holes; and new work involved with modification of existing leases, coal land exchanges, trespass cases, negotiated sales of right-of-ways, lease readjustments, and analysis of Logical Mining Units. Public Law 95-554 was passed by Congress during 1978 and this legislation gave the Secretary authorization to exchange certain PRLA's in Utah held by Utah Power and Light Company for alternative coal leases; the P.L. 95-554 also authorizes the Secretary to similarly exchange certain coal leases and lands at Lake DeSmet, Wyoming (which the Secretary has subsequently decided not to exchange as it would not be in the best interest to the Government based on the resource evaluation conducted). Evaluation of certain leases along the right-of-way of Interstate 90 are also authorized for partial or complete land exchange. Workload associated with P.L. 95-554 was not funded during FY 1979 nor proposed in the FY 1980 budget submission as the final outcome of the legislation was not known at the time.

Those workloads associated with the Secretary's revised leasing program, the enactment of P.L. 95-554 and recent amendments to the Mineral Leasing Act are shown as changes in the following table which compares the workload in the original FY 1980 Justifications with those of the requirements of the revised program:

Outputs/Workload	FY 1980** Excluding Supplemental	FY 1980 Revised	Change due to Leasing Policy
Emergency Leasing/Short Term Leasing Criteria (STLC) Sales	20	31	+ 11
Modifications of Existing Leases	--	6	+ 6
Negotiated Sales Right-of-Ways	--	2	+ 2
Preference Right Lease Applications	20	34	+ 14
Coal land Exchanges (FS & BLM) - Exclusive of P.L. 95-554	--	4	+ 4
Logical Mining Units-Engineering Analysis	--	24	+ 24
Competitive Lease Sales Tract Evaluation	25	30	+ 5
Lease Readjustment-Engineering Evaluation	--	17	+ 17
Trespasses	--	18	+ 18
Test Holes-All Requirements Including P.L. 95-554	900	1,375	+475

Outputs/Workload	FY 1980 ** Excluding Supplemental	FY 1980 Revised	Change due to Leasing Policy
KRCRA's * (millions of acres)	3	3	--
CRO/CDP Maps Contracted	210	22	--
Original Reserve Estimates on Leases	185	185	--
Lease Reserves Updated	192	192	--
Mine & Exploration Plans Approved	228	228	--
Diligent Development/Continued Operations	97	97	--
Environmental Analyses	113	113	--
Inspections	2,436	2,436	--
Royalty Accounts Maintained	590	590	--
P.L. 95-554 Land/Lease Exchanges			
- Utah Power & Light Exchange		1	+1
- Interstate 90 Right-of-Way Exchanges		4	+4

In brief, the increased funds and positions are needed in order to respond to increases due to, 1) the Secretary's renewed coal leasing program and the related BLM workloads it imposes, and 2) P.L. 95-554 and the recent amendments to the Mineral Leasing Act. The position increases and associated funding are required for the increases in the regulatory and engineering aspects of the coal program.

Object Classification Distribution

The object class detail for the increase is as follows:

Position Title	GS Grade	Man-Years	Annual Salary
Geologist	GS-13	3	$ 93,999
Mining Engineer	GS-13	6	187,998
Computer Specialist	GS-12	1	26,349
Geologist	GS-12	5	131,745
Mining Engineer	GS-12	3	79,047
Mining Engineer	GS-11	2	43,970
Geologist	GS-11	3	65,955
Physical Science Tech.	GS-9	1	18,171
Geologist	GS-9	1	18,171
Mining Engineering Tech.	GS-7	1	14,853
Permanent Positions		26	680,258
Less Lapse		-13	-340,258
Total Man-Years		13	$ 340,000

Object Classification

Permanent Compensation	$ 340,000
Personnel benefits	34,000
Travel and transportation of persons	44,000
Transportation of things	7,800
Standard level user charges	42,000
Communication, utilities and other rent	41,600
Printing and reproduction	3,700
Other services	2,688,900
Supplies and materials	13,000
Equipment	26,000
	$ 3,241,000

* Original FY 1980 justification shows 25 KRCRA's. Acreage Figure more accurately presents output.

** Revised from original FY 1980 Justification to show current estimates of outputs.

SURVEYS, INVESTIGATIONS, AND RESEARCH
PROGRAM AND FINANCING (Dollars in thousands)

Identification code 14-0804-1-1-306	19 80	19 80	19 80
	Presently Available	Revised Estimate	Proposed Supplemental
Program by activities:			
Direct program:			
3. Geologic and mineral resource surveys and mapping	138,661	140,361	1,700
5. Conservation of lands and minerals	101,528	104,769	3,241
All other activities - No change	211,866	211,866	--
Total, Direct Program	452,055	456,996	4,941
Reimbursable Program	155,445	155,445	--
10.00 Total program costs, funded, obligations	607,500	612,441	4,941
Financing:			
Offsetting collections from:			
11.00 Federal funds	-86,654	-86,654	--
14.00 Non-Federal sources	-68,791	-68,791	--
40.00 Budget authority (appropriations)	452,055	456,996	4,941
Relation of obligations to outlays:			
71.00 Obligations incurred, net	452,055	456,996	4,941
Obligated balance, start of year			
72.40 Appropriation	68,197	68,197	--
72.98 Fund balance	17,847	17,847	--
Obligated balance, end of year			
74.40 Appropriation	-88,087	-89,328	-1,241
74.98 Fund balance	-17,847	-17,847	--
90.00 Outlays	432,165	435,865	3,700

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code 14-0804-1-1-306	1980	1980	1980
Personnel compensation:	Presently Available	Revised Estimate	Proposed Supplemental
11.1 Permanent positions	188,804	189,207	403
11.3 Positions other than permanent	36,272	36,322	50
11.5 Other personnel compensation	5,433	5,440	7
Total personnel compensation	230,509	230,969	460
Personnel benefits:			
12.1 Civilian	23,311	23,357	46
13.0 Benefits for former personnel	14	14	--
21.0 Travel and transportation of persons	11,336	11,425	89
22.0 Transportation of things	3,499	3,515	16
23.1 Standard level user charges	23,522	23,564	42
23.2 Comm., util., and other rent	16,018	16,079	61
24.0 Printing and reproduction	4,613	4,620	7
25.0 Other services	94,752	98,883	4,131
26.0 Supplies and materials	20,518	20,571	53
31.0 Equipment	20,524	20,560	36
41.0 Grants, subsidies, and contributions	3,366	3,366	--
42.0 Insurance claims and indemnities	73	73	--
99.0 Total obligations	452,055	456,996	4,941

SURVEYS, INVESTIGATIONS, AND RESEARCH
PERSONNEL SUMMARY

Identification code 14-0804-1-1-306	1980	1980	1980
Direct Program	Presently Available	Revised Estimate	Proposed Supplemental
Total number of permanent positions	7,824	7,856	32
Total compensable workyears	10,280	10,299	19
Full-time equivalent of other positions	(2,710)	(2,713)	(3)
Full-time equivalent of overtime and holiday hours	(175)	(175)	--
Average ES salary	$47,316	$47,316	--
Average GS grade	10.14	10.15	11.47
Average GS salary	$23,626	$23,632	$25,220
Average salary of ungraded positions	$21,496	$21,496	--

CONSOLIDATED SCHEDULE OF PERMANENT POSITIONS PAID
FROM FUNDS AVAILABLE TO THE GEOLOGICAL SURVEY

DETAIL OF PERMANENT POSITIONS

GRADE	1980 Presently Available	1980 Revised Estimate	1980 Proposed Supplemental
Executive Level V	1	1	--
Subtotal	1	1	--
ES-6	1	1	--
ES-5	6	6	--
ES-4	36	36	--
ES-3	4	4	--
ES-2	10	10	--
ES-1	--	--	--
Subtotal	57	57	--
GS-18	--	--	--
GS-17	4	4	--
GS-16	10	10	--
GS/GM-15	489	489	--
GS/GM-14	700	700	--
GS/GM-13	1,188	1,198	10
GS-12	1,436	1,447	11
GS-11	1,403	1,408	5
GS-10	191	191	--
GS-9	1,236	1,240	4
GS-8	252	252	--
GS-7	666	668	2
GS-6	492	492	--
GS-5	681	681	--
GS-4	349	349	--
GS-3	84	84	--
GS-2	7	7	--
GS-1	--	--	--
Subtotal	9,188	9,220	32
Grades established by the Administrator, Agency for International Development: (75 Stat. 450)			
FC-13, $47,540 to $50,112	1	1	--
FC-12, $40,775 to $50,112	7	7	--
FC-11, $34,270 to $45,719	8	8	--
FC-10, $29,375 to $38,186	8	8	--
FC-9, $24,635 to $32,312	6	6	--
FC-8, $20,747 to $26,847	3	3	--
Subtotal	33	33	--
Ungraded	257	257	--
Total permanent positions	9,536	9,568	32
Unfilled positions, end of year	-20	-20	--
Total permanent employment, end of year	9,516	9,548	32

PREPARED STATEMENTS

Senator STEVENS. We welcome you again, gentlemen.

Mr. Eddy and Dr. Menard, we have your prepared statements. They will be put in the record. I would ask that you introduce those who are at the table with you and that you summarize your statements as you may wish before we get to the questions. Thank you.

Mr. EDDY. Mr. Chairman, I am Charles Eddy, Deputy Assistant Secretary for Energy and Minerals. I am pleased to introduce Dr. Menard, Director of the U.S. Geological Survey. I will let Dr. Menard introduce the other members of the Survey.

Your introductory remarks did highlight the major points in my statement, so I will add nothing further at this time and will await the questions.

[The statements follow:]

STATEMENT OF CHARLES P. EDDY

I am pleased to be here today on behalf of the Geological Survey, to introduce Dr. H. William Menard, Director of the Geological Survey, and to support their combined total Budget Request for fiscal year 1981, as amended, of $521.6 million--$475.1 million for Surveys, Investigations, and Research and $46.5 million for the Exploration of the National Petroleum Reserve in Alaska. Dr. Menard will discuss the details of the number of program increases and decreases, but I want to address the issue of the decrease in the combined total request of the Survey from $644.7 million (which includes two fiscal year 1980 Supplemental Requests pending) to $521.6 million; an overall reduction of $123.1 million.

First, I will point out that the decrease is entirely due to elimination, in FY 1981, of $129.2 million in FY 1980 program for the federally supported exploration program and the environmental restoration activities in the National Petroleum Reserve in Alaska (NPRA). The FY 1981 proposal does include funds requested for operation, under existing arrangements, of the Barrow Gas fields in order to continue supplying natural gas to the natives and to government installations in the area of Point Barrow.

The President has transmitted his recommendations for future development of the Reserve, as required under Section 105(b) of the NPRA legislation, along with proposed implementing legislation. The Survey's funding requirements will be submitted as an amendment when that legislation is passed.

Second, and perhaps more important, I want to assure you that the FY 1981 request in the Survey's basic scientific research and regulatory programs--Surveys, Investigations, and Research--has not been decreased. The SIR request, as amended by the Presdident's anti-inflation reductions, includes a number of program increases which are offset by decreases in other programs. Let me further assure you by saying that I, the Secretary, and his staff, in developing and reviewing these program proposals and that the program request before you in no way represents any diminution of the truly important work of the Survey. Quite the opposite is true. The programs of the Survey are more critical than ever before.

As Dr. Menard will be telling you, there are a number of key increases in the overall program of the Survey. But resources are limited, and Dr. Menard and his staff are to be complemented for the difficult work they have done in reviewing and establishing priorities among these programs. I would like to highlight a few of the important increases which the Survey is requesting for FY 1981.

Emphasis continues on environmentally sound methods of exploring for, developing, and producing both energy and non-energy minerals. Increases are proposed for: seismic data needed for scheduled lease sales; environmental work for current, as well as scheduled future lease development activities; for the higher workload demands resulting from accelerating onshore and Outer Continental Shelf development activities; and for research and development aimed at reducing the risk of accidents and pollution and improving industry capability to respond to government requirements for the use of the Best and Safest Technology (BAST).

In the critical area of water resources, increases are proposed for: research relating to the disposal of High-Level Nuclear Waste, and for research and and data collection activities in the areas of hydrologic studies, water-use, and oil shale development activities. There are other increases and, of course, decreases throughout the range of Survey programs, but Dr. Menard and his staff are better equipped to expand on these in their testimony.

This concludes my remarks about the Survey's Request. I would be pleased to answer any questions which you may have.

STATEMENT OF DR. H. WILLIAM MENARD

I am privileged to appear before you today to discuss the fiscal year 1981 budget proposal for the Geological Survey. The request involves two appropriations: one for Surveys, Investigations, and Research which provide scientific and engineering information about the land, water, and mineral resources of the Nation and for mineral evaluation and lease management activities on Federal and Indian lands; and the second for Exploration of the National Petroleum Reserve in Alaska. The Survey's budget submission for FY 1981 was recently amended as part of the Presidents efforts to balance the Budget in FY 1981. Copies of the Survey's Budget Amendment have been provided to the Committees. The amendment indicates which programs are proposed for reduction from the original submission and the effect of those reductions. In my statement I will be addressing the budget as amended.

SURVEYS, INVESTIGATIONS, AND RESEARCH

The proposed program changes in the Survey's initial and amended budgets for fiscal year 1981 are summarized in Exhibit 1. The amended budget request for Surveys, Investigations, and Research is $475.1 million. Two supplemental requests for FY 1980 have been transmitted; one for increased pay costs of $12.1 million and the other for $4.9 million to implement the Federal Coal Management Program. Programmatic increases of $6.4 million in the initial budget submission are being offset by $6.3 million in decreases included in the amendment recently submitted.

TOPOGRAPHIC SURVEYS AND MAPPING

A total of $73.3 million is being requested in the FY 1981 amended budget to support the National Mapping Program, a program decrease of $0.9 million. The proposed reduction is in the Airborne Profiling of Terrain System.

GEOLOGIC AND MINERAL RESOURCE SURVEYS AND MAPPING

The fiscal year 1981 amended budget request for the Geologic and Mineral Resource Surveys and Mapping Activity is $142.4 million, a program decrease of $3.9 million. Within this request is an increase of $0.4 million for studies of the environmental aspects of coal development in support of the Secretary's coal leasing program, and to provide grants to State Surveys to conduct analyses on behalf of the Federal government consistent with the requirements of the Surface Mining Control and Reclamation Act. An additional $0.6 million is being requested for environmental surveys to more fully delineate and increase the geologic understanding in the central and north Chukchi Sea area off the Alaska northwest coast. Preliminary surveys in this area which is scheduled for lease in 1985 have shown a high potential for leasable oil and gas resources. Reductions are being proposed in the Nuclear Reactor Hazards Program, the Mineral Discovery Loan Program, the Geothermal Energy Investigation Program, and Wilderness, Alaska and Conterminous Mineral Surveys.

WATER RESOURCES INVESTIGATIONS

The fiscal year 1981 amended budget request for Water Resources Investigations is $113.5 million, a program increase of $3.0 million. A requested increase of $0.4 million will be used to initiate national assessment appraisals of the water supply and demand of the Nation; this increase will be used to facilitate the understanding of the distribution, location, and severity of water problems and facilitate analyses of national water issues. An additional $1.1 million is being requested to expand the water-use data program in four additional States for a total of 48, and to intensify ongoing activities in many States that are presently participating in the Federal-State Cooperative Water-Use Data Program. An increase of $1.0 million is being requested in fiscal year 1981 to expand research, including risk assessment methodology, in the High-Level Nuclear Waste Program. An increase of $1.5 million is requested in fiscal year 1981 to intensify and expand hydrologic studies and data collection in Colorado, Utah, and Wyoming related to ongoing and anticipated increased activity associated with the development of oil shale.

Reductions are being proposed for River Quality Assessment and Coal Hydrology.

CONSERVATION OF LANDS AND MINERALS

The amended FY 1981 request for Conservation of Lands and Minerals is $111.7 million, a net program increase of $3.3 million, reflecting the accelerated pace to locate and produce domestic energy resources, both offshore and onshore, as well as increased industry interest in nonfuel mineral resources. An increase of $3.0 million for Outer Continental Shelf Lands will enable the Survey to meet expanded workload brought about by accelerated OCS development and to complete the implementation of the regulatory responsibilities of the OCS Lands Act Amendments of 1978. An offsetting decrease of $2.0 million is requested in the Reservoir Shut-in/Efficient Operations Program, as only one of the eight field studies completed to date has shown any potential for increased production rate. An increase of $1.2 million is requested for Research and Development for OCS Oil and Gas Operations, which will allow additional research effort to be put forth to reduce the likelihood of accidents and pollution during operations as well as a determination of how industry can most effectively comply with government requirements to use the Best Available and Safest Technology (BAST). Increased funding of $1.9 million is requested to provide the high-resolution seismic data needed to support sales in 1982 and 1983 proposed in the June 1979 OCS Leasing Schedule. Within the Federal and Indian Lands subactivity, an increase of $1.8 million is requested for the Oil and Gas Regulation Program to meet workload demands of expanded oil and gas drilling and to enhance the collection of royalties.

Offsetting reductions of $2.4 million are proposed in fiscal year 1981 in the Coal Program due to the completion of the initial inventory of coal reserves on existing leases and the completion of evaluation work for exchanges required in Public Law 95-554, and $0.3 million for the non-energy mineral program.

LAND INFORMATION AND ANALYSIS

The fiscal year 1981 amended request for the Land Information and Analysis activity totals $18.5 million, a program decrease of $0.7 million. An increase of $0.3 million is needed to provide an interagency remote sensing applications facility in Anchorage, Alaska, in support of the rapidly increasing activities in the exploration, development, planning, and management of Alaska's natural resources by Federal and State agencies. A decrease of $1.0 million is proposed in the Environmental Impact Analysis Program to reflect a reduction in anticipated workload funded through direct appropriation.

Alaskan Program

During fiscal year 1981, the Bureau will conduct a feasibility study to project future personnel, office and laboratory space, and location requirements so that the Geological Survey program in Alaska over the coming decades will proceed in an efficient and orderly manner.

EXPLORATION OF NATIONAL PETROLEUM RESERVE IN ALASKA

The request for the Exploration of the National Petroleum Reserve in Alaska appropriation totals $46.5 million, a decrease of $129.2 million, which in 1981 terminates the Federal exploration program and related environmental restoration activities. The fiscal year 1981 request includes funds to operate the Barrow Gas Fields under existing arrangements in order to continue supplying natural gas to the natives and government installations at or near Point Barrow, Alaska. The President has submitted his recommendations pursuant to section 105 (b) of the NPRA legislation as to the best procedures for development of the petroleum resources in the Reserve. He has also proposed legislation to implement the recommendations. The Geological Survey's requirements to implement the proposed legislation will be submitted as an amendment upon passage of the legislation.

Under the proposed legislation, the NPRA would be open for private leasing with adequate protection of surface values. The private

leasing approach offers the most expeditious way to find and produce oil and gas. That is, a number of firms exploring under several different exploration strategies have a higher probability of success than does exploration under a single government strategy.

In addition, under the lease arrangement, the Federal government will receive payments from the oil companies for exploration and development rights.

The Federal exploration program of the National Petroleum Reserve in Alaska (NPRA) continued during fiscal year 1979 through the contractor, Husky Oil NPR Operations, Inc. Nine exploration wells were active during the year; five were completed, including one well which was reentered and completed to target depth and one well left for reentry in fisal year 1980. None of the wells drilled to date, including the seven drilled by the Navy prior to transfer of the Reserve to the Geological Survey, have discovered commercial quantities of oil or gas, although strong flows of gas were reported recently at Seabee Test Well No. 1. The flow ranging from 2.1 to 6.7 million cubic feet a day, while not a commercial well in itself, is important because it occurs in a large structure and in a part of the reserve known to contain both oil and gas accumulations. Information gained from the program has supported the assessment of the petroleum resources of the Reserve and the economic analysis study and report mandated by Public Law 94-258. By the end of fiscal year 1981, 24 exploratory wells will have been drilled.

HIGHLIGHTS OF RECENT ACCOMPLISHMENTS

Energy

Providing the Earth science knowledge needed to help satisfy the Nation's demands during a declining energy resource base and addressing the environmental implications of satisfying those demands continues to be major responsibilities for the Geological Survey. The leasing program to accelerate Outer Continental Shelf (OCS) oil and gas exploration, the resumption of coal leasing on Federal lands, as well as legislative initiatives have directly affected the programs and activities of the Geological Survey this past year.

During this past year, 678 offshore oil and gas leases were offered for sale by the Department of the Interior on the basis of evaluations made by the Geological Survey. To comply with the Outer Continental Shelf Lands Act Amendments of 1978, new regulations governing industry operations on the OCS were devised, and the compilation of indexes and summary reports of OCS related research and activities was begun to better communicate scientific findings to the public. During 1979, an important environmental technique, oilspill trajectory computer modeling and analysis, was developed and included in 10 environmental impact statements used by BLM in their administration of the OCS leasing process. Of the total royalties collected by the Survey during 1979, 74 percent or $1.4 billion resulted from oil and gas production on the OCS.

The new Federal coal program announced by the Secretary of the Interior on June 1, 1979, intensified the effort of the Survey to provide geologic and water resources information and evaluations that aid in the coal lease decisionmaking process. To respond to this need, the first of a series of coal folios covering three 1° X 2° quadrangles was completed and the necessary field work was begun in many other quadrangles. Fiscal year 1981 base estimate includes $1.7 million increase over fiscal year 1980 current estimate for this work. A supplement to the fiscal year 1980 is being submitted by the Department.

The program of water data collection and analysis was expanded to meet requirements of the Surface Mining Control and Reclamation Act. In addition, over 1.2 million acres of Federal land were classified into Known Recoverable Coal Resource Areas, and 26 coal economic evaluations were developed to support coal leasing decisionmaking.

Substantial support is provided by the Survey in the domestic energy resource assessments of the Nation and to the subsequent development of those resources on Federal and Indian lands as both are vital to the Nation's overall energy plan. During this past year, the Survey

updated its assessment of geothermal resources and evaluated low temperature geothermal waters which have the potential of adding to the resource base. A revised overall assessment of onshore and offshore oil and gas resources is in final preparation and will be forthcoming later this year. Expansion of private exploration activities into the promising overthrust belt of Utah, Wyoming, Idaho, and Montana increased the number of new exploration and development wells approved to 3,550 during this past fiscal year, while the number of related environmental analyses increased to 3,547. Implementation was begun on procedures in the Natural Gas Policy Act which allow lessees or operators to charge higher prices for natural gas produced from certain categories of wells. During the first year of the new pricing policy, 6,671 applications were processed and 4,500 determinations were made of various well categories described under the provisions of the Act. At this time, approximately 300 applications for well reclassification are received each month.

Site specific investigations for identification of potential repository sites for high-level nuclear waste continue to be a joint, coordinated program with the Department of Energy. The Survey has accelerated its research program to provide Earth science data to assist the Department of Energy in its selection and design of repository sites. Studies are underway at the Waste Isolation Pilot Plant site in southeastern New Mexico, at the Nevada Test Site, at Hanford, Washington, and in Utah, Mississippi, and Louisiana.

Minerals

Future shortages of critical mineral commodities are likely to be experienced in the same manner as the prevailing shortages in energy commodities. The availability of domestic minerals must be balanced against the right of future generations to areas of the Nation's lands remaining preserved and protected in their natural, unspoiled condition. This past year, mineral assessments were completed on 3.5 million acres of lands being investigated by the Forest Service for potential designation and withdrawal under the National Wilderness Preservation System. In addition, mineral assessments were provided to the Bureau of Land Management for 1.7 million acres of land in support of their wilderness study program. A more systematic appraisal was continued through the Mineral Resource Appraisal programs in Alaska (AMRAP) and the conterminous United States (CUSMAP). To date, 12 folios covering quadrangles in Alaska have been published, 6 are in preparation, and field work is now in progress on 5. Three CUSMAP folios will be in press during this year, six will be in press next year, and field work and compilation are now in progress on six additional quadrangles.

Water Resources

Studies are underway in 12 of the 28 aquifer systems identified in the Regional Aquifer-System Analysis Program. Maps are being developed that show water quality, potentiometric surfaces, and aquifer characteristics. In addition, computerized simulation models are being developed for each regional aquifer system to facilitate rational water management decisionmaking. River quality assessments are presently underway in the Potomac River estuary, the Truckee and Carson River Basins in Nevada and California, the the Schuylkill River in Pennsylvania, and the Apalachicola River in Florida. Findings from the completed Chattahoochee River assessment indicate that stormwater runoff from the city of Atlanta, Georgia, contributed significantly to pollution of the river. This underscores the need nationwide for development of techniques for managing urban stormwater runoff. To assist local agencies in addressing this problem, the Survey is conducting a series of studies that will provide agencies with data and interpretive reports. Tests are being conducted using Earth satellites to relay water measurements from about 200 remote data collection stations to a central processing and distribution facility which provides real-time data.

Mapping and Geography

During fiscal year 1979, the Survey distributed over 9.3 million copies of topographic, hydrologic, and geologic maps and published 3,546 new and revised topographic maps at scales ranging from 1:24,000 to 1:500,000. This effort brought the completion of the 7.5-minute map series to 77 percent of the Nation (excluding Alaska). Alaska is 84 percent completed at the standard 15-minute map series. To meet high-priority and urgent needs, the Survey also produced 3,900 orthophotoquads as an interim mapping product.

About one-half the conterminous United States has been mapped at the 1:100,000 scale; this scale is of particular benefit to those involved in resource planning, inventorying, and conservation activities. This coverage is up from about one-third at the end of fiscal year 1978. During fiscal year 1979, the Survey published a new 1:100,000-scale map for the XIII Olympic Winter Games in Lake Placid, NY, in cooperation with the Lake Placid Olympic Organizing Committee.

The Survey initiated a digital mapping program which will provide basic categories of cartographic data and produce specialized mapping products and information. This digital geographic reference base is used by agencies that analyze computer-based resource information and management systems. During fiscal year 1979, an additional 260,000 square miles of land use and land cover were mapped bringing the total square miles completed to 1.25 million. Of special note was the use of the Survey's land-use maps in the analysis of population densities in the vicinity of Three Mile Island, Pennsylvania. Following the accident in March 1979, a colored map of land use in the vicinity of Three Mile Island was plotted by a USGS computer in one evening's time--a good example of the value of having such data already in the data base. Like others in the nationwide system, the computer-generated map of land use of Three Mile Island and vicinity overlays USGS topographic maps which provide essential information, such as terrain, transportation routes, and hydrology. Census tracts are also shown. The Nuclear Regulatory Commission and the California Office of Emergency Services are requesting similar maps for areas around other nuclear plant sites and also for areas surrounding waste disposal sites.

Hazards

The Disaster Relief Act of 1974 recognized the Earth hazards research activities of the Geological Survey by giving it the responsibility for warning State and local officials of impending geologic and other natural hazards in their areas. To help meet this responsibility, a communications network for the transmission of technical information has been established this past year in a majority of States.

Two recent events have emphasized the importance of the hazards research program; the recent (and continuing) volcanic activity at Mt. St. Helens and the severe mudslides in southern California.

The Survey began monitoring Mt. St. Helens prior to the eruption, when increased seismic activity warned of incipient changes, and then the eruption, in order to provide accurate and timely warning information to the U.S. Forest Service, other Federal agencies, and State and County officials in Oregon and Washington. While continuing to monitor the activity in order to provide warning information, research activity has also been stepped up to take advantage of this unique opportunity to study the transition of a volcano from a dormant to an active state. This is particularly important, not only for the insights it should provide about volcanoes generally, but because Mt. St. Helens is one of several in the Cascade Mountain chain which, until this eruption, have been dormant, but not extinct, volcanoes. The last eruption in the Cascades was Lassen Peak, California in 1914-1921. All of these Cascade volcanoes--Mts Ranier, Baker, Adams, Glacier Peak--pose a potentially severe threat to both lives and property in the Portland and Seattle areas.

The other major event was the less dramatic but economically far more severe earth hazard activity of the storm and rain induced mudslides in Southern California. Here too, studies will not only provide basic insights into the mechanics of this type of ground failure, which is of potentially great economic significance in many population centers, but will also provide data directly applicable to the continuing potential problem areas in Southern California. These studies will be conducted cooperatively with State and local governments and other Federal agencies such as the Corps of Engineers, and will generate results directly applicable to pending land-use decisions in these areas.

The preparation of flood prone area maps in 236 areas subject to urban flooding was a significant accomplishment by the Survey in fiscal year 1979. In response to the Flood Insurance Act of 1968, 222 Housing and Urban Development flood insurance studies were also completed.

Remote Sensing

The Earth Resources Observation Satellite Data Center (EDC) began using a domestic communications satellite (DOMSAT) to relay Landsat image data from the Goddard Space Flight Center near Washington, DC, to EDC in Sioux Falls, SD. Used with the new EDC Image Processing System (EDIPS), the relay has made possible an all-digital process that greatly speeds the transfer of Landsat data from Goddard to EDC. This process will allow Landsat data to be used in applications that require quick access to data such as detecting and tracking oilspills, monitoring agricultural and range land through the seasons, forest fires, and floods.

Basic Research

The solving of urgent short-term problems and responsiveness to the Earth science data and interpretation needs of land use decisionmakers is a primary concern in mission programs. Basic research programs, however, are a prerequisite for mission programs and are a fundamental and respected part of the Survey's work. Basic science often results in the initial step leading to a future land resource decision. For instance, this past year, long term studies have resulted in the discovery of a concealed belt of sedimentary rock in the Appalachian region that has the potential of doubling the area favorable for oil and gas exploration. Another example of practical applications from ongoing research in 1979 results from studies of petroleum under high temperature conditions; the studies suggest greater stability than previously thought possible, a finding which may extend the theoretical depth of petroleum occurrence. Discovery of an association of the occurrence of lithium with uranium promises to enhance the exploration for both elements.

Conclusion

Finally, I would like to report several recent events that are important to the Geological Survey and will undoubtedly impact its future. This past fall, an International Symposium was held in Reston, Virginia, as part of our centennial activities with distinguished scientists participating from 44 countries. "Resources for the 21st Century" was the primary theme of the meetings providing an open forum for scientific ideas as well as a global perspective of the world's natural resources and their future development. It was agreed that, for minerals and energy sources, the world's nations are interdependent as never before. The major resources of developing countries are not yet fully known; they can be delineated only with the help of the scientifically advanced countries. In January of this year, I was privileged to represent the United States as the signator of protocols with the People's Republic of China establishing an Earth science exchange which is already being implemented.

Several organizational changes have been accomplished within the Survey which will allow more efficient management in the future. The Publications Division, the Topographic Division, and the Geography-Land Use functions previously within the Office of Land Information and Analysis, have been consolidated and are now designated the National Mapping Division. Implementation of the reorganization within the Conservation Division is also proceeding, which places the regulatory and evaluation functions into separate offshore and onshore components within the Division.

Mr. Chairman, I would like to thank you for the opportunity to present the fiscal year 1981 budget request for the Geological Survey and to report on the Survey's activities of the past year. I am prepared to answer your questions.

SUMMARY OF GEOLOGICAL SURVEY'S PROGRAM INCREASES AND DECREASES IN THE FY 1981 BUDGET REQUEST
(Dollars in millions)

	FY 1981 Presidents Budget	FY 1981 Amendment	FY 1981 Amended Request	Increments FY 1981 Amend. Request Compared to Base
SURVEYS, INVESTIGATIONS, AND RESEARCH	$481.4	$-6.3	$475.1	$+0.1
Topographic Surveys and Mapping	74.7	-1.4	73.3	-0.9
Orthophotoquads		-0.5		
Airborne Profiling of Terrain System		-0.9		-0.9
Geologic & Mineral Resource Surveys and Mapping	143.9	-1.5	142.4	-3.9
Reactor Hazards				-0.7
Alaska Mineral Surveys		-0.5		-0.5
Wilderness Surveys		-0.5		-0.5
Conterminous Mineral Surveys		-0.5		-0.5
Mineral Discovery Loan Program				-0.1
Coal Invest. (Environ. Studies)				+0.4
Geothermal Investigations				-2.5
OCS Energy Environmental Analysis				+0.6
Water Resources Investigations	114.9	-1.4	113.5	+3.0
River Quality Assessments		-0.5		-0.5
National Water Data Exchange (NAWDEX)		-0.4		
Nat'l Assess. of Water Supply & Demand				+0.4
Coop Water Use Information				+1.1
Nuclear Energy Hydrology (High-level)				+1.0
Oil Shale Hydrology				+1.5
Coal Hydrology		-0.5		-0.5
Conservation of Lands and Minerals	113.2	-1.5	111.7	+3.3
Regulation of OCS O&G Operations				+3.0
R&D Prog. for OCS O&G Operations				+1.2
OCS Reservoir Shut-in/Diligence				-2.0
OCS Resource Evaluation				+1.9
Onshore O&G Regulation				+1.8
Coal (Class. & Reserve Inventory)		-1.0		-2.4
Non-Energy Mineral Regulation				+0.2
Non-Energy Mineral Evaluation		-0.5		-0.5
Land Information and Analysis	19.0	-0.5	18.5	-0.7
Earth Resources Observation Systems				+0.3
Environmental Impact Analysis		-0.5		-1.0
General Administration	3.8		3.8	-0.2
Facilities	11.9		11.9	-0.5
EXPLORATION OF NATIONAL PETROLEUM RESERVE IN ALASKA	46.5		46.5	-129.2
Eval. & Assess. of NPRA	45.0		45.0	-96.5
Barrow Area Gas Expl. & Devel.	1.5		1.5	-29.7
Environmental Restoration	---		---	-3.0

NOTE: Amounts shown have been rounded.

Biography of Doyle G. Frederick

Doyle G. Frederick, Acting Associate Director
U.S. Geological Survey, Mail Stop 102
National Center, Reston, Virginia 22092

Educational and Professional Experience

Bethel College, McKenzie, Tennessee, B.S. Mathematics, 1957. University of Cincinnati Graduate School, Dynamical Astronomy 1960-61. Federal Executive Institute, 1974.

In present position since March 1980. As Acting Associate Director of the Geological Survey, he shares fully with the Director in all phases of the broad overall planning, directing, and controlling of the varied scientific and technical programs of the Geological Survey.

Was Associate Chief, National Mapping Division since November 1979. Was responsible for the direction of scientific, technical, and administrative activities of the National Mapping Division in the conduct of the National Mapping Progrm. The program involves: the preparation of a series of general purpose maps of the United States; the preparation, use and dissemination of digital cartographic data; the operation of a National Cartographic Information Center; the participation in surveying and mapping technology; and the assistance of Federal, State, and local groups in the effective use, analysis and display of maps and related data.

From 1957-1965 served as a research and staff officer in the areas of cartography, mathematics and geodesy at the Aeronautical Chart and Information Center, St. Louis, Missouri. Served as a Program Manager in the Mapping Charting and Geodesy Directorate, Department of Defense, from 1965-1971, with responsibilities in the fields of geodesy, gravity, hydrography, airborne electronic and photographic surveys and photogrammetry. During 1972-1973, was the Department of Defense member on the Federal Mapping Task Force which conducted a broad study of civilian mapping, charting, geodesy and surveying activities in the Federal Government to determine how best to use available resources to meet overall national needs. From 1973-1979, served as the Chief, Office of Plans and Program Development, Topographic Division, U.S. Geological Survey. Responsible for the identification of requirements, formulation of plans, development of programs, allocation of funds, and staff management of the program. Also responsible for Federal mapping coordination, international activities and the National Cartographic Information Center.

Extra Curricular Activities

Has prepared and presented speeches and papers on many occasions for various technical societies and meetings relating to surveying and mapping technology programs. Capt. Bethel College Basketball, 1956-1957, Who's Who in American Colleges and Universities, 1957; Suggestion Award, ACIC, 1960; Superior Performance and Cash Award, ACIC, 1960; Outstanding Performance Award, DIA, 1967 and 1970; Meritorious Award/Outstanding, DMA, 1973; Meritorious Service Award, Department of the Interior, 1976; Superior Performance Award, USGS, 1979.

Biography of George H. Davis

George H. Davis, Assistant Director--Mineral and Water Resources
Office of the Director, U.S. Geological Survey
171 National Center, Reston, Virginia 22092

Educational and Professional Experience

Attended Lakeview High School, Chicago, Illinois; undergraduate degree in geology at University of Illinois (1942); graduate study at UCLA (1946-47). Professional career began as geologist with Illinois State Geological Survey (1942-1946), interrupted by 3 years army service. With USGS 1948 to present, except for 1966-1968 as a hydrologist with International Atomic Energy Agency, Vienna, Austria. Served with USGS 1948-1959 in field investigations of ground water and land subsidence in the Central Valley of California. Subsequent assignments have been USGS headquarters staff in water resources and energy management. Main professional interests have been ground-water resources of the Central

Valley, California, land subsidence, isotope hydrology, and energy development.

Awards

Meinzer Award of Geological Society of America, and Holdredge Award of Association of Engineering Geologists for "Land Subsidence Due to Withdrawal of Fluids" by J. F. Poland and G. H. Davis (1963)

U.S. Department of the Interior Meritorious Service Award (1974)

Registered Geologist and Certified Engineering Geologist, State of California

Main Extra-Curricular Activities

Editor, Water Resources Research (AGU) 1970-1976

Editor, Journal of Hydrology, 1977 to present

Deputy Geothermal Coordinator, U.S. Department of the Interior 1971-1972

Chairman, UNESCO IHD Working Group on Ground Water 1971-1974

Member, IAEA IHD Working Group on Nuclear Techniques in Hydrology 1970-1974

Chairman, UNESCO IHP Working Group on Water for Energy 1976 to present

U.S. Member, CENTO Working Group on Hydrogeology 1975

Biography of Philip Cohen

Born: New York, New York, December 13, 1931

Education: Primary and secondary schools, New York, New York; City College of New York, B.S. Degree, cum laude, in Geology, 1954; University of Rochester, M.S. Degree in Geology, 1956.

Professional Employment: U.S. Geological Survey, 1956 to present.

Professional Experience: Hydrology of Truckee Meadows area, Nevada, and supervision of Nevada observation-well program, 1954-1960. Project Chief for Water Resources Division activities in Federal-State Humboldt River Research Project in northern Nevada, 1960-1964. Ground-water hydrology of the Dixie-Fairview area, Nevada, 1963. Presented paper on water-quality and hydrologic systems analysis in Nevada to the Geological Society of America, 1963. Project Chief of Bay Park artificial recharge study; assisted in Long-Island water-budget study, Mineola, New York, 1964-1966. Research Hydrologist, 1966-1968. Presented paper on "Artificial Recharge and Aquifer Management" to IASH Symposium in Haifa, Israel, 1967. Hydrologist-in-Charge of Mineola Subdistrict Office, 1968-1972. Staff Scientist, Office of the Director, 1973-1977. Associate Chief, Research and Technical Coordination, Land Information Analysis, 1977-1978. Assistant Chief Hydrologist for Scientific Publications and Data Management, 1979 (3 months). Chief Hydrologist, 1979-present.

Scientific and Professional Societies:

Society of Sigma Xi, Geological Society of America, National Water Well Association, American Water Resources Association (Chairman, Technical Program Committee, 4th American Water Resources Conference, 1968), American Institute of Professional Geologists.

Honors:

Meritorious Service Award, U. S. Department of the Interior, 1975; Distinguished Service Award, U. S. Department of the Interior, 1979.

Biography of James F. Devine

Born: Westernport, Maryland; May 19, 1934

Education: Primary and secondary schools in Maryland. West Virginia University, B.S. in Geology with mathematics minor and mechanical engineering speciality. Earthquake Engineering (short courses) UC Berkeley; UCLA; Mass. Institute of Tech.

Professional Employment: Oceanographer, U.S. Coast and Geodetic Survey, 1958; Geophysicist, U.S. Coast and Geodetic Survey, 1958-1961; Research Geophysicist, U.S. Bureau of Mines, 1961-1967; Research Geophysicist, National Oceanic and Atmospheric Administration, 1967-1973; Geophysicist; U.S. Geological Survey, 1973 to present.

Professional Experience: Installed, operated and interpreted recordings of tide gages and current meters, 1958; installed, operated, tested, modified, and calibrated all types of seismographs and associated electronic gear; conducted field research on seismic waves from earthquakes, underground nuclear detonations, rocket launches and chemical explosions, 1958-1961. Project leader of team that conducted field research on air blast and ground vibrations from quarry blasting, 1961-1967; project leader of team that conducted a wide variety of studies of ground and structural responses to earthquakes and explosives, and performed seismological reviews of applications for licenses to construct and operate nuclear reactors and provided testimony at licensing proceedings, 1968-1973; Deputy Chief for Engineering, Office of Earthquake Studies and coordinator with the Nuclear Regulatory Commission for all U.S.G.S. geologic and seismologic analyses of reactor site applications; consequently, has had direct review role and/or coordinating role for over 100 nuclear power plant applications; coordinated technical reviews of other critical structures such as liquified natural gas facilities and dams, 1973-1980. Acting Assistant Director for Engineering Geology, 1980.

Scientific and Professional Societies: Seismological Society of America; New York Academy of Science; AIME, Society of Mining Engineers; Earthquake Engineering Research Institute.

Honors: U.S.G.S. Meritorious Service Award 1978.

Biography of George Gryc

Born: St. Paul, Minnesota, July 27, 1919

Education: Attended public schools in St. Paul and from 1937 to 1943 attended the University of Minnesota, Minneapolis, Minnesota; received a B.A. in geology in 1940 and B.S. in geology in 1941. Worked toward Ph. D. at Minnesota and taught geology as instructor in 1942-43. In 1947, 1948, and 1949 attended the Johns Hopkins University part-time and completed academic requirements for doctorate degree.

Professional Employment: Appointed as geologist in the Alaskan Division in 1943 to study mercury resources in the Kaskokwin River region. In 1944 he began field studies on the North Slope of Alaska which were continued through the 1945-53 PET-4 program. He conducted the first geologic traverses of the Chandler, Kuparuk, Sagavanirktok, Shaviovik and Canning Rivers. From 1958 to 1960 he was the Chief of the Survey's Navy Oil Unit, the geologic arm of the PET-4 program.

From 1960 to 1963 he served a tour as Staff Geologist for the Chief Geologist in Washington, D.C., and returned to Alaskan activities as Chief, Branch of Alaskan Geology in September 1963. In this position he was the principle

spokesman for the Survey on the geology and mineral resources of Alaska. He was an active participant and Chairman of the Menlo Park Work Group in the planning, preparation of stipulations, and review of the design of the Trans-Alaska pipeline.

In January 1976 Mr. Gryc was appointed Regional Geologist for the Western Region. In this assignment Mr. Gryc represents the Chief Geologist for all geological research by the USGS in Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington, and the Pacific Trust territories.

In April 1976 Mr. Gryc was asked by the Director to head a group to plan and implement a new Office of National Petroleum Reserve in Alaska in response to provisions of the "Naval Petroleum Reserves Production Act of 1976", Public Law 94-258 signed April 5, 1976.

Mr. Gryc is the author of numerous publications on the geology and petroleum resources of Alaska. He has been active in many committees, symposia and workshops on these subjects. He is presently a member of the Permafrost Committee of the National Academy of Science Polar Research Board, and the Committee for International Polar Relations.

Scientific and Professional Societies: Sigma Xi (Fellow), A.A.P.G. (Associate Editor for Alaska), Paleontological Society, Arctic Institute of North America (Governor, Fellow, and former Secretary), G.S.A. (Fellow), Geological Society Washington, Cosmos Club of Washington, Alaska Geological Society, and Northern California Geological Society.

Honors: Department of Interior Meritorious Service Award, 1974
Distinguished Service Award, 1978

Biography of David Benjamin Stewart

Born: Springfield, Vermont, July 18, 1928

Education: Primary and secondary schools, Springfield, Vermont; Harvard College, A.B. in geology and chemistry with high honors, 1951; Harvard University, A.M. in geology (concentration in mineralogy and petrology), 1952; Harvard University, Ph.D. in geology (concentration in petrogenesis and mineralogy), 1956.

Professional Employment: Geologic field assistant, U.S. Geological Survey, part-time, South Dakota and Montana, 1947-51. Geologist, U.S. Geological Survey, Washington, DC, 1952-53. NSF Predoctoral student, Harvard, 1954-55. Geologist, U.S. Geological Survey, 1956-present.

Professional Experience: Geology of alkalic igneous rocks, Montana, 1952-53. Geology of rapakivi granites, Maine, 1954-55. Guest investigator for high pressure-high temperature phase equilibria of feldspars, Geophysical Laboratory, Carnegie Institution of Washington, 1956-57. Experimental geochemistry of lithium-rich pegmatite, physical properties of feldspars by computer-refined X-ray diffraction measurements, 1958-66. Principal investigator, structure and stability of lunar feldspars, 1967-72. Stratigraphy, metamorphism and geochronology of the Blue Hill and Castine quadrangles, Maine, 1967-71. Lunar Sample Review Board-NASA (to review and appraise prospective investigators of lunar samples). Crystallization, metamorphic history of lunar feldspars, and lunar metamorphism - principal investigator for NASA lunar synthesis program, 1972-76. USGS representative to U.S. National Committee on Geochemistry, 1975-77. Chief, Branch of Experimental Geochemistry and Mineralogy, USGS, 1976 to present. Geology Advisory Screening Committee for Earth Sciences, Fulbright-Hays Program, Council for International Exchange of Scholars, 1977-80. Geologic Division Coordinator, Radioactive Waste Management Program, 1978 to present. Participant in Interagency Review Group for Radioactive Waste Management assessment of status of repository technology, 1978-80. Dept. of the Interior representative to Interagency Working Group on Radioactive Waste Management, 1979 to present. Visiting professor; U. of Toronto, 2/68; ETH, Zurich, Switzerland, 3-8/71. Representative to International Atomic Energy Agency Symposium on Repository Technology, Finland, 1980; reviewer of Radwaste Program, Canada, 1980; reviewer of Swedish repository programs, 1978-79; reviewer of Japanese repository technology, 1978. Radwaste Advisor to Assistant Secretary for Energy and Minerals, Department of the Interior, 1979-80.

Scientific and Professional Societies: American Association for the Advancement of Science; American Geophysical Union; Geological Society of America (fellow); Mineralogical Society of America (fellow); Mineralogical Society of Canada; Mineralogical Society of Great Britain; Geological Society of Washington (Past-President).

Honors: Mineralogical Society of America Award, 1966.

BIOGRAPHY OF GENE ALLEN THORLEY

Born: Mason City, Iowa; May 28, 1940

Education: Primary and secondary schools, Berkeley, California; University of California, Berkeley, B.S. in Forestry (concentration in forest management) 1961; University of California, Berkeley, Ph.D in Forestry (concentration in ecology and remote sensing) 1970.

Professional Employment: Director, Forestry Remote Sensing Laboratory, University of California, Berkeley, 1970-73; Chief, Earth Resources Survey Program, National Aeronautics and Space Administration 1973-74; Chief, Applications Assistance Branch, EROS Data Center, U.S. Geological Survey 1974-75; Staff Scientist, EROS Program Office, U.S. Geological Survey, 1975-79; Acting Chief, Land Information and Analysis Office, U.S. Geological Survey, 1979 to present.

Professional Experience: Forest inventory and damage assessment in Western Forests, 1961-67; Lecturer in Forestry Remote Sensing, University of California, Berkeley, 1967; Woods Hole Summer Study of NASA Earth Resources Survey Program, 1967; National Task Force for Agricultural Research Planning, 1967; NASA/USDA National Forestry Remote Sensing Program, 1967-70; Co-founder of Interpretation Systems, Incorporated, 1971; Consultant, Food and Agriculture Organization, United Nations and TRW, Inc. on land resource applications of Earth Observation Satellites, 1971; Coniferous Forest Biome, IBP Program, National Academy of Sciences, 1973; Application of space imagery to natural resource inventory, 1967-73; Definition of future operational earth observation satellites, 1973-79; Application of earth science data to societal problems, 1979 to present.

Scientific and Professional Societies: American Society of Photogrammetry (co-editor of volume II of the new Manual of Remote Sensing); Society of American Foresters (Chairman, Remote Sensing and Photogrammetry Working Group, 1973)

Honors: Presidential Citation, American Society of Photogrammetry, 1976.

BIOGRAPHY OF ROBERT LAUGHLIN WESSON

Born: San Francisco, California, February 26, 1944

Education: Primary and secondary schools, Spokane, Washington, Fresno, California and Seattle, Washington; Massachusetts Institute of Technology, S.B. in earth science, 1966; Stanford University, M.S. in geophysics, 1968, Ph.D. in geophysics, 1970.

Professional Employment: Geophysical Service, Inc., summer, 1965; geophysicist, Shell Oil Co., summer, 1966; Research Associate, U.S. Geological Survey, 1970-1972, geophysicist, U.S. Geological Survey, 1972-present.

Professional Experience: Studies of seismicity and crustal structure of central California, 1970-72. Analysis of after shocks of San Fernando earthquake, 1970-72. Supervision of data analysis and interpretation from central California seismograph network, 1972-73. Research in seismicity, seismic zonation and earthquake prediction, 1972-76. Field studies for earthquake prediction, Tadzhikistan, USSR, 1974-77. Deputy for Earthquake Mechanics and Prediction, Office of Earthquake Studies, 1976-78. Member, Organizing Committee, UNESCO Conference on Earthquake Prediction, 1977-79. Chief, Office of Earthquake Studies, 1978-80; Chairman, US side, US-USSR Working Groups on Earthquake Prediction, 1978-present. Acting Assistant Director-Land Resources, 1980-present.

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Scientific and Professional Societies: American Association for the Advancement of Science; American Geophysical Union, Earthquake Engineering Research Institute, Geological Society of America, Seismological Society of America. Registered Professional Geophysicist.

Honors: U.S.G.S. - National Research Council Postdoctoral Research Associate, 1970-72.

Biography of Dr. Betty M. (Tinklepaugh) Miller

BETTY M. (Tinklepaugh) MILLER, DR.
Assistant Director, Eastern Region, U.S. Geological Survey

Born: Corunna, Michigan, April 23, 1930

EDUCATION

Central Michigan University, Mt. Pleasant, Michigan, A.B. Degree (1952) in Geology, Biology and Mathematics

Michigan State University, East Lansing, Michigan, M.S. Degree (1955) and Ph.D. Degree (1957) in Geology and Statistics

PROFESSIONAL EXPERIENCE

3/80 - Present:		Department of Interior U. S. Geological Survey Appointed Assistant Director--Eastern Region Reston, Virginia
5/73 - 3/80	:	U. S. Geological Survey Program Chief, Oil and Gas Resource Appraisal Group Oil and Gas Resources Branch Denver, Colorado
1/66 - 4/73	:	The Sun Oil Co., Exploration Research Laboratory, Dallas, TX; Sr. Research Petroleum Geologist and Geostatistician in Basin Evaluation of Petroleum Resources
9/58 - 10/65	:	The Pure Oil Co., (merged with Union Oil of California), Exploration Research Laboratory, Crystal Lake, Illinois; Senior Research Geologist, Carbonate Petrology, Sedimentation and Computer Applications
9/55 - 9/58	:	Michigan State University, E. Lansing, Michigan, Teaching Faculty, Natural Science Dept., Earth Science Courses
6/54 - 9/56	:	McClure Oil Co., Alma, Michigan, Petroleum Geologist (summers)

AWARDS, HONORS, PROFESSIONAL SOCIETIES, ETC.

Scholastic Honors, Scholarships and Fellowships in Universities; represented American Association of Petroleum Geologists at White House Conference (7/1975); United States Dept. of Interior Unit Award for Resource Appraisal Work-Excellence of Service (1/1976). Professional Societies: Geological Society of America, American Assoc. of Petroleum Geologists, International Assoc. Mathematical Geologists, Society of Sigma Xi, Rocky Mountain Assoc. of Geologists, Colorado Scientific Society, etc. Listed in "American Men of Science," "Who's Who of American Women," and "Dictionary of International Biography."

Accompanied Secretary Schlesinger's party (Department of Energy) on a trip to the Peoples Republic of China Oct-Nov, 1978 as a technical delegate for discussions with the Chinese on petroleum resource appraisal work.

USGS representative for World Petroleum Congress in Romania in 1979.

Senior Author of USGS Circular 725 "Geological Estimates of Undiscovered Recoverable Oil and Gas Resources of the United States," 1975.

INTRODUCTION OF WITNESSES

Dr. MENARD. Senator Stevens, let me introduce the people who are with me at the table. On my far left is Doyle Frederick, Associate Director of the Geological Survey. Next to him, Dale Bajema, our Assistant Director for Programs. We will be calling on various people. There are quite a number here. But since it will depend on any questions you may wish to ask, it may be appropriate if I introduce them at the time.

Senator STEVENS. Just introduce them when they respond or ask them to do so themselves.

Mr. EDDY. I also have one additional introduction: Bill Bettenberg, Director of the Budget in the Office of the Secretary.

OPENING REMARKS

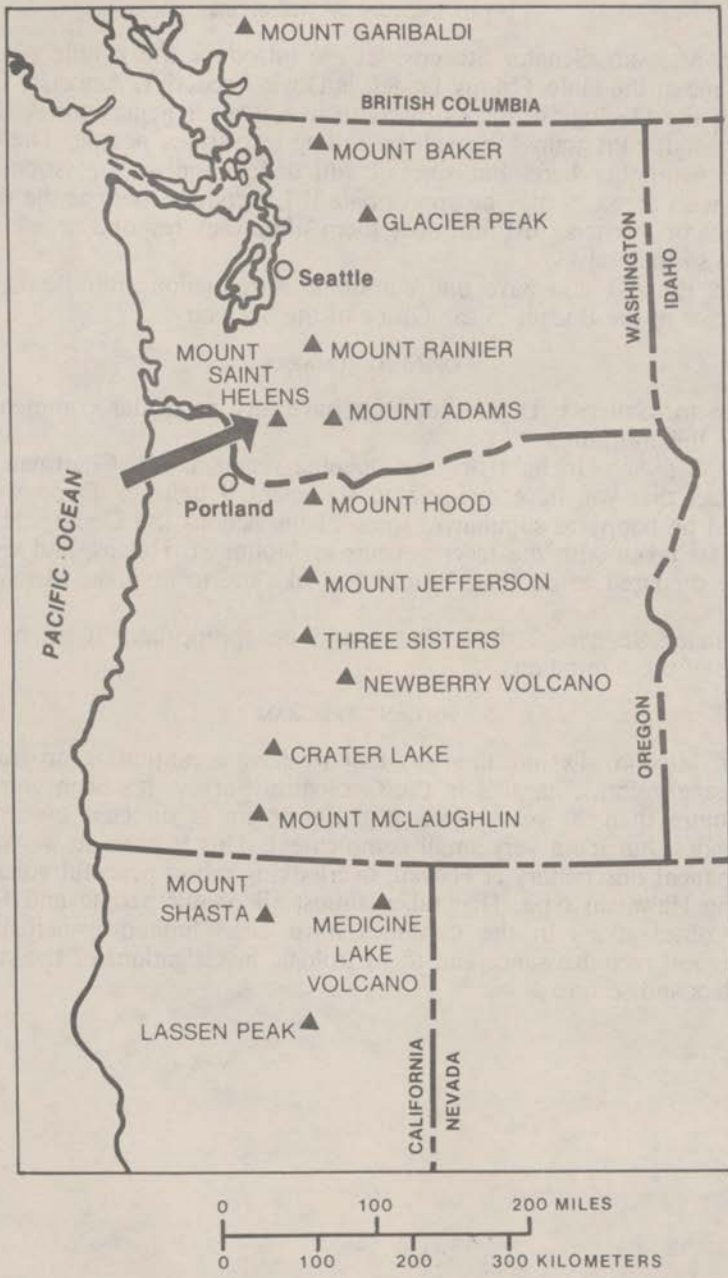
Senator STEVENS. Doctor, do you have any particular comments to make this morning?

Dr. MENARD. In light of your opening remarks, Mr. Chairman, and the fact that you have my printed statement, I believe, if you wish, I would be happy to summarize some of the actions the Geological Survey has taken with the recent events at Mount St. Helens, and we are quite prepared to do that. Would you like me to do that, Mr. Chairman?

Senator STEVENS. I think that would be appropriate. It might save some of these questions.

VOLCANO PROGRAM

Dr. MENARD. Let me then say that we have a continuing program of assessing volcanic hazards in the Geological Survey. It's been going on for more than 20 years. Part of the program is directed toward the Cascades, but it's a very small complement. This is because we have a permanent observatory at Hawaii, overlooking rather peaceful volcanoes of the Hawaiian type. That takes almost all of our people and funds. Our observations in the Cascades have been limited principally to geological reconnaissance and to hydrologic investigations of the size of glaciers and so on.



Fourteen major mountain peaks make up the main spine of the Cascade Volcano Range. Mount Baker, Mount Rainier, Mount St. Helens, Mount Hood, Mount Shasta, and Sassen Volcano Field are all believed to have erupted during the last 150 years. The larger volcanic systems (Glacier Peak, Three Sisters, Newberry, Crater Lake, and Medicine Lake Highlands) have not erupted in several thousand years, though they are still considered active and potentially hazardous, when they should erupt again.

MOUNT ST. HELENS

Now, if I could see that first chart, Mount St. Helens is one of what used to be called the "ring of fire"—and I suppose it still is—a group of volcanoes that occur around the Pacific basin, familiar to you, I am sure, in Alaska because they are in sight of Anchorage. They don't extend south of Mount Lassen in California. Geologists pride themselves now that they understand why that is so, but I think it's really not very germane to telling you about our work on the hazards.

Our work on the Cascades focused in on Mount St. Helens in the period 1975 through 1978, when two of our geologists, Dwight Crandall and Don Mullineaux, put together a report called "Potential Hazards of Future Eruptions of Mount St. Helens," in one of our standard series of bulletins. They predicted almost everything which has since occurred. They did this by studying Mount St. Helens and finding that it is such a young volcano that it has disrupted all the stream patterns in the area. They predicted that it presented the greatest hazard of any volcano in the 48 contiguous States because it had been most frequently erupting in recent historical time.

They showed that in the past there have been horizontal blasts, and at least one to the north that extended out for a distance of about 3 miles. They showed that there had been local gravity flows. And geologists distinguish between the things that flow down the sides of the mountain according to how hot and dry they are or how much water they had in them. Since Mount St. Helens, like most of the Cascades, has glaciers and ice on top, you expect a lot of mud flows. They showed that these mud flows in the past have extended down the valleys and might be expected to do so in the future.

They showed where floods might be anticipated. And finally, they showed that widespread ash had been erupted by Mount St. Helens, as well as other volcanoes, and they constructed the thickness of the ash and therefore determined the probability that more ash falls would occur and showed that most of them would occur off to the east of the volcano. Not always, but that would be the most common place.

ERUPTION OF MOUNT ST. HELENS

The recent events began on the 20th of March when there were a few earthquakes under Mount St. Helens. The Geological Survey working with the seismologists of the University of Washington expanded the number of observing station seismometers, putting in portable ones and a few more permanent ones. By the 27th of March, as the earthquakes continued and as the magma, which is what it is underground, could be traced coming up toward the surface, the Geological Survey, as is its responsibility, issued a hazard watch. That went out to FEMA and the States and the congressional delegations and other responsible officials. Our responsibility is only to inform official agencies, other organizations, such as FEMA and the State disaster organizations that are responsible for telling people what to do.

Our hazard watch was issued on the morning of the 27th of March. The first eruption—and I don't like to say we will be able to do it this well in the future—but the first eruption was that afternoon. The erup-

tion consisted of puffs of steam and some ash coming out. I went out to look at these. There was no indication of new lava, but it was an extraordinary event, and we assembled a sizeable number of geologists and hydrologists from the Geological Survey from Hawaii, Menlo Park, and Denver, almost all of our experts on this particular subject. They put up all manner of observing stations, and I can not say that they had a lovely time, but they were doing the best possible work that anyone could do, breaking off everything they were doing and concentrating on this potential hazard.

We found the glaciers were melting, the size of the crater was enlarging, but not very much else was going on.

Now, our seismologists and our volcanologists come from Hawaii, where the volcanoes swell in a very general way. We can track the magma moving up inside the volcano in Hawaii. We can warn the people what's going to happen. They heed our warnings, and what we say is going to happen, usually does happen. It's all, as I say, peaceful and orderly.

BULGE ON NORTHWESTERN SLOPE

But here, something totally different was going on. Our instruments simply couldn't measure a lot of the things. What was happening was too big. We finally realized that there was a 270-foot bulge on the northwestern side, a sort of tumor swelling out of the side of the mountain. The reason we hadn't been able to detect it with our sensitive instruments is that it was just too darned big to measure. From then on, as we tracked it, it was growing out laterally 5 feet per day, a rapidly growing tumor. And we identified it then in the last week in April as the most serious potential hazard posed by current volcanic activity at Mount St. Helens.

On the other hand, this kind of event is not one that necessarily leads to anything at all disastrous. On the 18th of May, everything we had predicted happened. Everything that Crandall and Mullineaux had predicted in their report happened.



Mount St. Helens has been an active volcano for at least the last 18,000 years. During the 19th century, there were numerous mudflows, a major pyroclastic eruption, the building of a dacite dome, and subsequent flat andesite flows. It is expected that 20th century eruptions of Mount St. Helens will follow a similar pattern which has started with major mudflows and pyroclastic eruptions.

I think you can see over there on that large chart of Mount St. Helens, features and eruption products diagram the events that went on. There was a blast off to the north that went out as far as Spirit Lake and 1 mile beyond. The blast is the faint line you can see on the chart there. There were mud flows and pyroclastic flows that went off to the north as far as Spirit Lake and went down the valleys to the west.

The principal event that occurred was that a large part of the north side of the mountain went out. I won't dwell on these things, because they have been in the newspapers. I am trying to focus on our response to these various events.

EFFECTS OF ERUPTION

The Toutle River was totally changed. The pyroclastic flows and the debris flows came down, hit that valley just at the spot where 10 days or so before I had been standing with our geologists, and they said, "This is where it's going to hit first." They didn't say it was going to hit in anything like the way it did. Of course, we did not predict the specific occurrence of the blast. We lost a very promising young volcan-

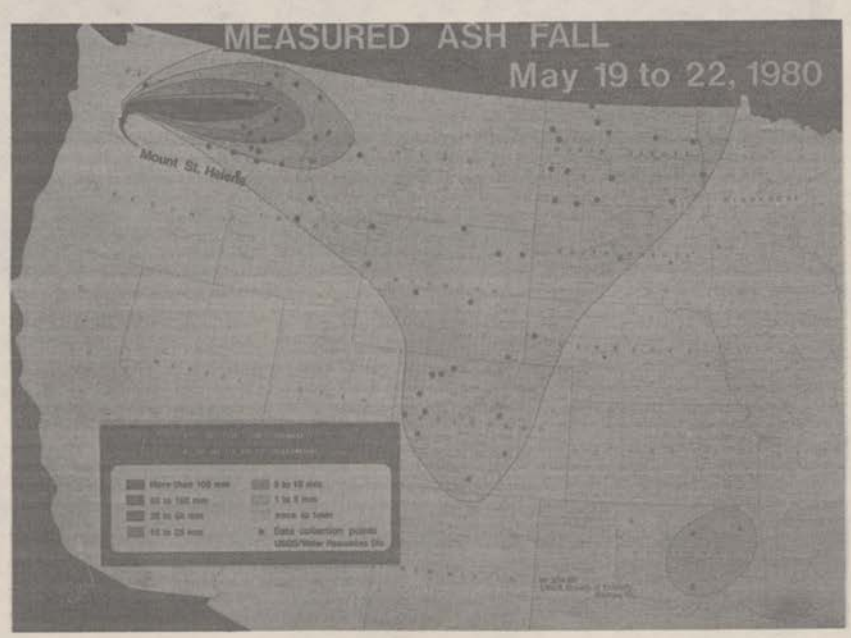
ologist in that blast. David Johnston. But we had taken every precaution informed people can. We had put him at a station that was not down in the valleys where our predictions said all kinds of pyroclastic flows, hot ash and mud flows would come. We put him, I think it was, 1,400 feet up on a ridge on the side of the mountain where he could observe what was going on. The only thing that could get to him was what did, and that was the blast.

Senator STEVENS. How many people did you lose?

Dr. MENARD. We lost one. Volcanologists know they are leading a dangerous life.

We also predicted what followed immediately after. That was predicted as typical of this volcano, the large column of ash that went up. We had no way of saying it would go to 60,000 feet—although that's not extraordinary—when the ash curved off to the north. We have a diagram showing that.

Senator STEVENS. How many miles did the ash travel?



Isopack data of the thickness of ash distributed over a large area of the western United States was prepared from measurements taken by Water Resources Division staff from field stations throughout the West and Midwest. Except for a few areas, the ash accumulation did not exceed 1 inch (25 mm).

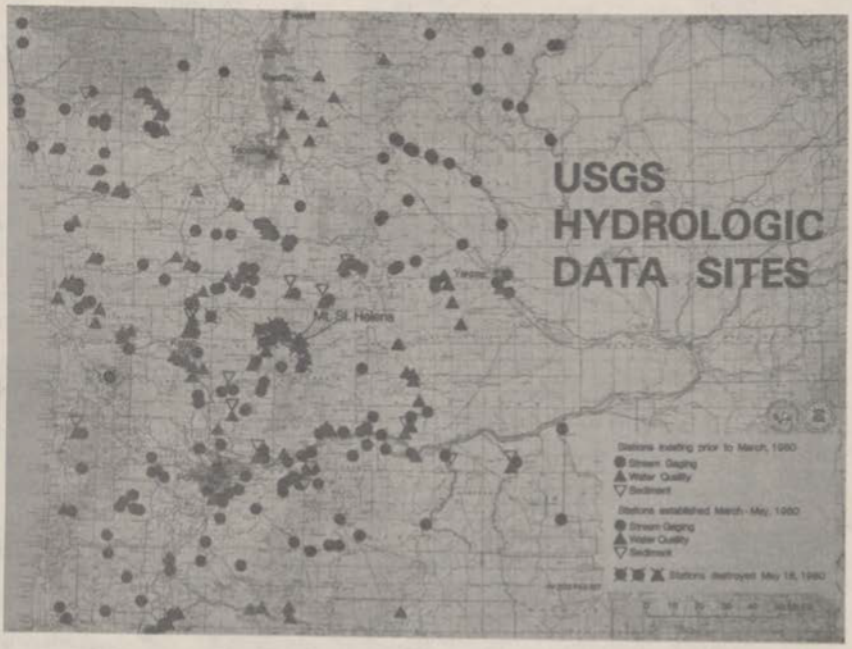
Dr. MENARD. This chart shows the distribution in the United States. It probably will go around the world. But as a visible record on the ground, I don't think it's as far as the Mississippi. But what has happened in the past, in the famous eruption of Krakatoa, the British Royal Society tracked the ash three times around the earth. They did it by the newspaper records of the spectacular sunsets. So we can expect more of those as time goes on.

But that's how far it had gone almost immediately. What we didn't

predict as well as now, in retrospect, or as well as we will in the future, was the effects of that ash on machinery and the complicated socio-economic system. Many volcanoes erupt, and the ash goes out over the ocean—and geologists are interested in it, but nobody else is—it falls on a ship or what have you, or it goes out in relatively trackless wastes. But here it fell in a highly developed country, not only with towns, but with intense logging industry, all kinds of concern with fisheries, concern with recreation. And we just didn't realize—I don't think any of us did—that it was going to have such effects on internal combustion engines or on what was going on.

Well, after that happened, we continued to bring in our geologists. We had as many as about 40 people there. We were concerned, of course, as everyone was, with the water.

Could we see the illustration about the water?



The USGS maintains a nationwide network of water-quality and stream-gaging stations. After the initial activity at Mount St. Helens (March 20, 1980), the survey augmented the data stations at and around Mount St. Helens. Most of this new network was destroyed by the May 18, 1980, eruption.

That's our network, shown in black, of observing stations either for stream flow, or just for water quality. You can see that we made almost all the measurements of these things in the United States. You can see we had the area covered quite well. We brought in—it's a little difficult at least for me to see at this range—but where there are red dots there, we installed special observing stations. We have some stations there, that telemeter data into satellites and then directly to us so we can tell what's going on quite well.

As far as stream flow and, given a little time, stream quality are concerned, we do not issue flood warnings. That's done by the National Weather Service. We study the water and tell them about it. And this is a new thing for us. We are now gathering data that enables us to say—not to issue a flood prediction—but to say that a stream has so changed its character for geological reasons that inevitably there are going to be floods sometime in the near future.

MONITORING BY SATELLITE

Senator STEVENS. How much did you use satellite monitoring on this event?

Dr. MENARD. I would have to ask Mr. Cohen, our chief hydrologist, on that.

Mr. Cohen. Of a total of 250 stations that you see on that diagram, I can estimate—and it's only an estimate, now—that there are probably about 30 or 40 that use various telemetering devices. Some use radios, with respect to data-collection platforms, to the GOES satellite—probably on the order of half a dozen to a dozen.

OTHER VOLCANIC ACTIVITY

Senator STEVENS. Are you able to anticipate any additional volcanic activity in other locations in this area now?

Dr. MENARD. Only in the historical record. We have not detected any earthquakes or any signs of heating. But our program has been small. We would have picked it up from melting of glaciers and the like, but that has not yet occurred.

Senator STEVENS. That's east of the fault line, isn't it?

Dr. MENARD. Of the San Andreas? Yes, the San Andreas runs out to sea at San Francisco, curves along the coast, and disappears at Cape Mendocino, which is still in California. So we are 500 miles, perhaps, north of it.

Senator STEVENS. Is this to be viewed as a totally independent volcanic action, or can we tie it in with any related potential?

Dr. MENARD. Well, Mendocino is actually west of Lassen Peak. I don't like to correct my Assistant Director's pointing, but I happen to know that because that's where the plate boundary is, and it's in this plate tectonics, framework, that I give you this answer, that is, that the volcanoes are certainly connected in some way with that fault, but the connection is pretty vague in the sense that movement on the fault does not, in any way that we know of, generate activity on the part of the volcanoes.

But we are now talking down to a scale where it would be difficult to totally exclude that. I would say with our present information we have no reason to believe that if anything happens in the volcanoes that something will also happen in the fault, or vice versa. But we do know that if we get earthquakes at one point on one of these big plates, like the Pacific Ocean floor, that you commonly get a sequence of earthquakes spread over a matter of a few years elsewhere around the plate edge.

HISTORICAL VOLCANIC ACTIVITY IN CASCADE RANGE

The same may be true of volcanoes in the sense that in the early 1840's and in the 1850's, when Mount St. Helens was last active, two other volcanoes in the Cascades were also active.

Senator STEVENS. Where were they located?

Dr. MENARD. Those were Mount Hood, which was active in the 1950's, and Mount Baker.

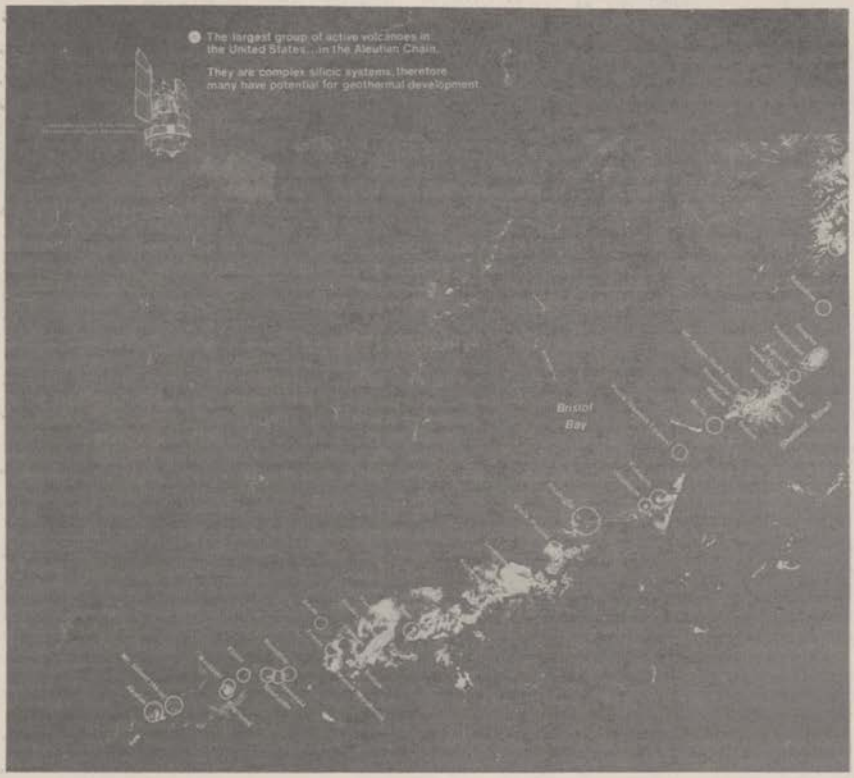
Senator STEVENS. In the 1850's.

Dr. MENARD. 1850's, right. Mount Baker was 1843. Mount St. Helens was active over a period from 1831 to 1857.

RELATIONSHIP TO VOLCANOES IN ALASKA

Senator STEVENS. Are these in any way related to the volcanic action in my State?

Dr. MENARD. Indeed, so. That is the same mechanism in this plate tectonics model that explains why you have these volcanoes, it explains why you have the ones in Hawaii. It's a different plate, so you would not say because you had activity here you would have activity in Hawaii.



There are at least 70 active volcanoes in the State of Alaska with the majority comprising the Aleutian Islands. Most of the volcanoes on the west side of Cook Inlet have erupted during this century. The largest eruption was the eruption of Katmai in 1912, which produced 12 cubic kilometers of pyroclastic materials. Many of the volcanoes shown on this panel have great potential for geothermal energy development as well as great potential to produce medium to large (1 to 20 km^3) eruptions during the next 100 years.

In Alaska, in fact, your State, as shown in this chart, has more active volcanoes and they're more frequently active than anywhere else in the world because where the Aleutians and the Alaska Peninsula are is the continental mass and the Pacific plate where it says "Gulf of Alaska," is backing into that at a matter of about 2½ inches per year. This, for reasons that I won't say I understand, but somehow this phenomenon generates heat, and you get the volcanoes and the phenomena that is going on.

There isn't anything that can stop it, and the eruption will go on in those volcanoes. The potential hazard is clear enough, of course, because you have got two recently active volcanoes that look right out over Cook Inlet.

EARTHQUAKE ACTIVITY IN ALASKA

Senator STEVENS. The staff tells me that there was a report of a prediction of major earthquake activities. Did you issue that?

Dr. MENARD. We issued a report on one of these near Yakataga. I don't believe we issued a report on the other. These are in the so-called

seismic gaps. If you'd like, we can get highly expert opinion from Dr. Wesson, who is the head of our seismology department.

Senator STEVENS. Go off the record a minute.

[Discussion off the record.]

Senator STEVENS. Back on the record. I'm sorry to interrupt you.

Dr. WESSON. I was just pointing out that the two areas, basically, since the turn of the century, the whole Aleutian Chain and the South Coast of Alaska, down along the Canadian coast, has ruptured in great earthquakes.

If we infer what regions of this great zone has torn during these earthquakes from distribution of the aftershocks, we conclude this whole region has ripped except for two parts, one right along the Shumagin Islands, somewhere down around here, the other in the Yakataga region, essentially between the 1964 earthquake and the 1958 Fairweather Fault earthquake. So you may remember a year ago February we had an earthquake just north of Mount Saint Elias that was about 7¾ magnitude. This refocused our attention on this region.

By going back over the old data—this work was done both at the Geological Survey and at Columbia University—we realized that this was a region that could rip in a big earthquake. We issued a hazard watch to the State of Alaska and to the appropriate Federal officials that we should keep an eye on this region.

In neither of these regions is there any kind of imminent prediction. We're not saying it's going to be this year or next year. The time scale we're really talking about, certainly, for Yakataga is probably a few decades. I think it's fair to say, if there are going to be big earthquakes in Alaska in the magnitude 8 range, these are the two spots that we think are the most likely for those earthquakes and we should anticipate them over the next couple of decades.

We've installed additional instrumentation in the Yakataga area and also, in collaboration with Columbia University and the Department of Energy, instrumentation in the Shumagin Islands region. And we'll be trying to determine if there are any phenomena which may give us a better estimate of when these earthquakes are likely to occur.

As you know, this Yakataga region is a very difficult one to work in because the weather along the coast is bad and you've got glaciers right behind. And it's not like California, where you can just run down to Radio Shack and buy spare parts. But we are doing the best we can up there.

REQUEST FOR ADDITIONAL FUNDING

Senator STEVENS. Thank you very much. We appreciate it. Now, what does this mean in terms of this budget? Can we anticipate a budget amendment for your activities as the result of Mount St. Helens?

Dr. MENARD. We have submitted to the Department a request, but only quite recently. We submitted an initial request about 1 month ago. But that was on the basis of the peaceful steam eruptions and the earthquakes and so on. We realize it's going to be a good deal more expensive, so we are submitting a supplemental for 1980 and an amendment for 1981. But those at the moment are only under preliminary discussion.

Senator STEVENS. You have a $1.1 million reprograming request pending; is that right?

Dr. MENARD. It's $1 million that runs the Hawaiian observatory and about $100,000 that runs the Cascade observatory, in round terms.

Senator STEVENS. Is there anything before the committee yet or the House committee in connection with Mount St. Helens?

Dr. MENARD. No.

Senator STEVENS. What have you submitted to the Department?

Dr. MENARD. We submitted the initial request before the main eruption. Then we shortstopped that and submitted a larger request after the main eruption, and those submissions have just gone in last week.

Senator STEVENS. Is one of them related to the 1980 supplemental?

Dr. MENARD. And the other for the 1981 amendment.

Mr. BETTENBERG. Mr. Chairman, we're in active discussion with the Office of Management and Budget. We anticipate that we'll have some decisions on this cleared through OMB some time by tomorrow evening. The time line on it so far as they are concerned is getting a document to you before you mark up the supplemental.

Senator STEVENS. Since I don't want to hold another hearing, I'd like to discuss it now. How much is it? What's it for?

Dr. MENARD. We have all of that.

REDIRECTION OF RESOURCES

Senator STEVENS. Are you proposing to shift any of the moneys that are in the 1980 budget?

Dr. MENARD. For all the work that we've been doing in fiscal year 1980, we've been shifting funds from other programs, with the hope that we would be able to get a refund, so to speak, so that we could continue with the programs.

But the funds and personnel have all come from other places, to a considerable extent, from the geochemical and geothermal programs.

Senator STEVENS. Well, it's an emergency. I don't think there's any problem about that.

Dr. MENARD. Well, you have two major components, Mr. Chairman. One of these, this is for 1980, for geological studies about $4.6 million, for the hydrologic investigations about $2.4 million, for redoing the basic cartographic maps which we need for other work about $0.4 million, some work for Earth sciences applications for $0.1 million, which is our terminology for trying to change the geological technical report to make the documents more useful and responsive to public agencies and the general public, for a total of almost $7.5 million.

Senator STEVENS. Part of that is to replace money you've already spent; is that right?

Dr. MENARD. Yes.

Senator STEVENS. And that's for 1980?

Dr. MENARD. That's for 1980.

Senator STEVENS. Can you give us some idea of what activities you're involved in that were not anticipated, as a result of Mount St. Helens? I know we had the emergency work and the emergency surveillance. But what ongoing demands are there that are new?

Dr. MENARD. $1.1 million of this is for monitoring Mount St. Helens, the work which is directly going on in order to establish—we believe—I can't say we predict, but on past behavior of that volcano, it continued to be active for almost 20 years. We assume, then, that the more sensible way, the economical way to keep on observing it, is to set up an observatory. For that we're asking $2 million.

VOLCANO OBSERVATORY

Senator STEVENS. Where will that be located?

Dr. MENARD. That we haven't established. The Forest Service is quite interested. It's Forest Service lands unless it's private lands there, and the Forest Service locally is quite interested in establishing a combined scientific and public observing point, saying that there undoubtedly will be tourist interest. It's part of their normal procedure to do so.

In that case, one might establish it at Mount St. Helens. I'm inclined that way myself. But it is a matter that we have really not had time to pin it down. We're requesting the funds in 1980 on the grounds that we need some sort of commitment in order to be able to go ahead and do this. We don't expect to spend it today.

REDIRECTION OF FUNDS

Senator STEVENS. You're talking about new funds that you're going to be requesting in 1980. Have you requested approval to reprogram any funds in addition to that money you're talking about?

Dr. MENARD. No; we have been shifting it, but in small amounts. So we didn't feel it was necessary to ask for permission to reprogram.

Senator STEVENS. Will you give us, for the record, an indication of where you got the money from, so we can have some record to demonstrate that you do need new money?

Dr. MENARD. Yes.

Senator STEVENS. You have borrowed from some programs, I take it, and you'll have to put that money back if you are to continue to function.

Dr. MENARD. We will certainly present that for the record.

[The information follows:]

Funds Obligated to Date at Mt. St. Helens

As of June 3, 1980, the Geological Survey has incurred approximately $1,300,000 in extraordinary costs as a result of the eruptions at Mt. St. Helens. These funds have been redirected from related ongoing programs. If additional funds are not made available to replace these costs, the following major impacts on program accomplishment will occur in FY 1980:

Geologic Studies - ($580,000)

Geothermal: Without replacement funding, geothermal studies scheduled for completion this year will be delayed, resulting in a delay in the regional geothermal assessments used by DOE as a part of their program to develop geothermal resources.

Earthquakes: Seismometers have been deployed to monitor Mt. St. Helens. This deployment is causing an acute problem because of the increase in earthquake activity in other parts of the West in the last several months. Funds are needed to restore the networks.

Volcanoes: Instruments and staff have been deployed from the Hawaiian Volcano Observatory lessening the ability of the Survey to respond to an eruption of volcanoes in Hawaii without additional funding.

Other Geologic Programs: Delays will be encountered in completing other programs such as Wilderness and Mineral Resource Assessment unless funds are restored. In addition, valuable equipment has been destroyed during the eruption of Mt. St. Helens and must be replaced.

Hydrologic Studies - ($650,000)

Funds for hydrologic data and collection related to Mt. St. Helens have been redirected from many hydrologic programs across the Country. The source of funds by State and examples of programs affected follows:

State	Source of Funds Used to Date
Washington	$240,000
Oregon	70,000
Idaho	40,000
Montana	20,000
Connecticut	10,000
Mississippi	25,000
Virginia	70,000
California	25,000
Colorado	70,000
Georgia	20,000
All Others	60,000
TOTAL	650,000

Washington

Funds expended thus far in Washington State have come mainly from the Cooperative Program and partially from programs with other Federal Agencies. Many Cooperative Programs have been temporarily stopped or delayed, and some programs for other Federal Agencies have had similar stoppages and delays. These are contractual obligations that we must fulfill. Examples of activities delayed or suspended are as follows:

A Cooperative Program with the Yakima Indians to determine the unregulated flows in the Yakima Basin to assist the Indians in determining their legal rights to water in the Basin has been temporarily stopped. The model development for this work must be completed, and the model run and data analyzed to meet the USGS commitments.

A Cooperative Program with the Washington Department of Ecology in the Pine Lake Basin has also been temporarily suspended. This program is one whereby the State hopes to develop a rehabilitation program for Pine Lake, and the Geological Survey is evaluating the degree of the problems and the effectiveness of the rehabilitation program.

A Cooperative Program with the Washington Department of Ecology to identify nonpotable aquifers in the State has been stopped. The identification of these aquifers is an EPA requirement that has been imposed on the State, and the Geological Survey is doing the identification for the Department of Ecology.

A Cooperative Program with the Washington Department of Ecology in Island County, Washington, looking at the availability of water resources on Bainbridge Island and other islands has been seriously delayed. This work is to assist the State in identifying the availability of water resources in the county for development for municipal, commercial, and other purposes.

A contractual arrangement with the Department of Housing and Urban Development for flood mapping in four communities has been stopped. This program is essential for determining inundated areas for various magnitude floods for setting the rates for flood insurance.

Oregon

A Cooperative Program with the State of Oregon on ground-water quality problems in the Coos Bay - North Bend area has been seriously delayed. This program will assist the State in determining the availability and quality of the ground-water resources in the area.

Idaho

The Cooperative Program with the State of Idaho evaluating the water quality of both the surface and ground waters has been delayed as a result of the Mt. St. Helens work. The most serious concerns in Idaho have been the effects on water quality of the ash deposits. The Cooperative Program in the State relating to water quality has suffered because of the diversion of personnel with water quality expertise to the problems relating to the ash.

Several States

Annual maintenance and repair of gaging stations will be significantly delayed or postponed. Impact will be greatest in Washington, but will be significant in other States, especially in the Northwest.

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ONGOING WORKLOAD

Dr. MENARD. We have the sum that we have spent. Our present estimate is that we have spent approximately $1.3 million during the emergency period of the eruption of the volcano.

Senator STEVENS. What about your ongoing workload? I assume that this is going to mean an increased workload for the immediate future as far as this activity is concerned. Will this money cover that for 1980?

Dr. MENARD. It will cover that for 1980. What is happening is that the scientists are working to the point where I am as much concerned about them being exhausted—and we all are—as anything else. They are scientists and they're public servants and they're working without extra compensation, to my knowledge. Maybe some of the lower level ones are getting overtime. They're just working night and day, so a lot of the extra labor is just a bonus to the Government, that is, the labor of the professional scientists.

REQUEST FOR FUNDING IN FISCAL YEAR 1981

Senator STEVENS. I understand that. For professional people, undoubtedly the interest in this must be fantastic.

What we're trying to determine is the budgetary implication. We've been talking about 1980. Now what are you going to do about 1981? Are you going to get an amendment for that, too?

Mr. BETTENBERG. We have an amendment under consideration. We'll be spending a bit more time reviewing that. But certainly, time for Presidential submission before the Senate marks up.

Senator STEVENS. Have there been hearings in the House on the 1981 provision?

Mr. BETTENBERG. No, there have not been.

Senator STEVENS. What's your timeframe for that as far as the House is concerned?

Mr. BETTENBERG. I think that there's probably no chance of the administration getting a request before the House acts on the 1981 budget. We anticipate that will happen next week.

Senator STEVENS. So we will be asked to consider the 1981 amendment without any House review; is that right?

Mr. BETTENBERG. That's what I would anticipate.

Senator STEVENS. How substantial is that amendment?

Mr. BETTENBERG. The total amount that's initially been requested is about $17 million.

Senator STEVENS. Is that all related to the Mount St. Helens activity?

Dr. MENARD. No; much of this budget is related to what we believe is a prudent expansion to study the Cascades as a whole, and also to go into those Alaskan volcanoes—well, the ones in the eastern end of the Alaska peninsula, the volcanoes that have been active in historical times but are not to our knowledge active now.

STUDIES OF LINKAGE BETWEEN VOLCANOES AND EARTHQUAKES

Senator STEVENS. Is any of that money for studies to determine whether there is any linkage between these volcanoes and the other hazards that might be present in the Pacific area, particularly earthquake hazards?

Dr. MENARD. You couldn't possibly stop our volcanologists and seismologists from trying to make that linkage every day.

Senator STEVENS. I understand that. I just want to make sure they've got the money to go out and try to ring the bell, that's all. [Laughter.]

Dr. MENARD. I think we can say they are.

Senator STEVENS. Is this 1981 money?

Dr. MENARD. They're performing basic research—that is, setting some people aside to take all the time to think about it might be beneficial, but we have not asked for such money.

Senator STEVENS. In 1981 is there any additional nonvolcanic hazards study money?

Dr. MENARD. No, I don't believe we have any for earthquakes, no.

Senator STEVENS. In 1980 is there any additional money?

Dr. MENARD. In 1980, no. We are going systematically downward as far as the funding. We aren't decreasing it, but inflation is doing it. In 1982 we are certainly thinking in that direction.

Senator STEVENS. Well, it would seem, at least to the layman, that we ought to find out whether there's any potential connection and someone ought to be thinking about that. This is the start of a whole series. Had you had any historical studies on what went along with Mount Baker and Mount Hood and Mount St. Helens in the 1850's? What else went on in the world and in the Pacific area?

Dr. MENARD. Studies of that sort are made and every effort is made to correlate the occurrence of volcanism with lunar and solar tides, earthquakes, and almost any phenomenon you can think of. I'm quite sure that there's no acceptance among scientists of any of these, but at least we look.

AMENDMENT FOR FISCAL YEAR 1981

Senator STEVENS. All right. We can expect an amendment of some kind for 1981?

Mr. BETTENBERG. Yes.

Senator STEVENS. And we have an immediate problem in terms of the supplemental. I assume that you'll have that up here this week?

Mr. BETTENBERG. My understanding is that we'll have the decision through OMB on Wednesday evening. I would anticipate that they would be moving very rapidly after that to get the documents together. I'm sure that they are aware of your mark up schedule.

Senator STEVENS. This relates just to USGS functions, not the overall governmental functions?

Mr. BETTENBERG. My understanding is that there are several other items for 1980 that are under consideration at OMB, primarily Cuban refugees. That's the one that I recollect.

Senator STEVENS. I'm talking about this subcommittee's activities. There would be no other departmental effect on what we're talking about now except with USGS?

Mr. BETTENBERG. That's correct.

Senator STEVENS. I heard proposals for a new disaster national park and all sorts of things. The USGS is the only one?

Mr. BETTENBERG. That's right.

COORDINATION WITH FOREST SERVICE

Senator STEVENS. Staff points out that we haven't heard from the Forest Service yet. Are you coordinating your activities with the Forest Service as far as the supplemental is concerned?

Mr. BETTENBERG. We've not done any coordination with the Forest Service from the departmental standpoint.

Senator STEVENS. Are they participating with you, Doctor, in studying what's necessary to meet the problems of Mount St. Helens?

Dr. MENARD. They have given us the most extraordinary cooperation. They have provided us facilities, communications, helicopters, airplanes. They have spent far more money on this than we have, just in support of our work.

Senator STEVENS. Will you be requesting funds to repay them for that?

Dr. MENARD. They have not presented us with any bill. It's my understanding that they count this as equivalent to a forest fire. Well, there were forest fires. And they have what is a very useful thing. They have authority to come back to you, to the Congress, at the end of the year and say that we had so many forest fires not planned for and the cost is this, and they expect to get a refund.

Senator STEVENS. But you're not looking for the funds to repay them in this supplemental?

Dr. MENARD. No; we are looking for the funds to pay for our own helicopters and airplanes. We don't expect them to continue to do that.

FISCAL YEAR 1981 AMENDMENT REDUCTIONS

Senator STEVENS. All right. Let's go back, then, to the budget in terms of your March reductions. Mr. Secretary, you reduced coal programs. Federal-State cooperative water funding was untouched. Can you tell us what priorities guided your revisions of the President's original budget as it affects USGS?

Mr. EDDY. The intention was to take an across-the-board look at all programs under our jurisdiction, to see what areas could be delayed or cut back without any serious programmatic implications. We asked the bureaus to carefully evaluate the programs under general guidance and come back to us, and basically taking an approach of spreading the reductions generally, but in a very limited way, over a broad range of program areas.

Based on recommendations that were submitted by the individual bureaus, surveying as well as mines and surface mining in our case, we essentially made our decisions based upon possible effects on secretarial and congressional priorities. We felt that the cuts as allocated were a means of apportionment. We felt they were a reasonable apportionment. We felt there were no reductions for any high priority programs.

Senator STEVENS. Were you given any guidelines by the administration as to where the budget cuts had to be aplied to the original budget?

Mr. EDDY. There was an across-the-board cut. As far as specific programs in our area, we did not have any particular directives to cut. We were given complete leeway.

ALLOCATION OF 10-PERCENT REDUCTION

Senator STEVENS. As you know, we've been submitting to each agency of the Department a request to give us an indication as to how you would allocate a 10-percent reduction in your January budget. We'd like to have that for the record. In the event we face such a proposition, we want to allocate the cut so that it would have the least harm on your programs. So would you give us that, please, for the record?

Mr. EDDY. Sure. Will you be asking for that, Mr. Chairman, for all bureaus?

Senator STEVENS. Every agency that's come before the subcommittee has a request from the chairman and myself, as to how they would allocate a 10-percent cut. And I think you should allocate it based on the original budget.

[The information follows:]

Allocation of 10 Percent Reduction to FY 1981 President's Budget

In recent years the Survey's budget increases have largely been in the high priority, energy-related programs. Because of inflation and forced absorptions, such as for pay cost, the other programs of the Survey have, in real terms, been reduced. A further 10 percent reduction could only be accommodated with serious impacts on our basic mission programs and on important initiatives of the Administration.

If the Geological Survey was required to reduce the FY 1981 President's Budget by 10 percent, the following list would represent the programs to be reduced:

National Mapping Division

Subactivity	10% Reduct. (including Neg Amend) ($ in millions)	Implications of Reduction
Quadrangle Mapping & Revision	$ 4.4	- Prepare orthophotoquads only for the highest priority cost-share requests. - Postpone the acquisition of modern mapping equipment intended to support an expanding digital program. - Defer acquisition of a highaltitude photography camera and specialized equipment that provides the ability to utilize special source materials effectively in ortho-photography. - Interrupt continued development of prototype APTS, delaying aircraft modification by about 6 months and operational testing about 1 year--to 1983.
Small Scale & Special Mapping	1.5	- Eliminate USGS support of the DMA 1:50,000-scale mapping program. Reduce by 50 percent the topo/bathy program and the 1:250,000 map program.
SUBTOTAL	$ 5.9	

Subactivity	10% Reduct. (including Neg Amend) ($ in millions)	Implications of Reduction
Geologic & Mineral Resource Surveys and Mapping		
Land Resource Surveys	6.5	- A reduction of $6.5M in the Earthquake Programs would slow down progress in both prediction and hazard delineation at a time in which increased earthquake activity is occurring in the Western U.S. which may be a precursor to major earthquakes in heavily populated areas of CA.
Mineral Resource Surveys	6.0	- Reduce AMRAP field studies in FY 1981 from 7 to 6 and special studies from 21 to 9. Postpone two CUSMAP quadrangles scheduled to begin in FY 1981. - Determinations of Wilderness potential areas would not be provided in time for FS to meet requirements for RARE II studies.
Offshore Geologic Surveys	3.5	- Would reduce studies in areas not now on the Secretary's lease schedule and would eventually affect ability to open new areas to OCS leasing.
SUBTOTAL	$16.0	
Water Resources Investigations		
Federal Program	$ 6.7	- Delay the start of the Jordon River Basin, Utah, river quality assessment. - Delay, by at least 2 years, the development of new systems and support services for NAWDEX. - Delay the start of two new RASA studies planned for FY 1981, and nine ongoing studies by six months to a year. Program will not be completed in FY 1988 as planned.

Subactivity	10% Reduct. (Including Neg Amend) ($ in millions)	Implications of Reduction
		- Eliminate the Ground Water Recharge Program thereby seriously diminishing the understanding needed to perform comprehensive ground water investigations.
		- Discontinue the Flood Hazard Analysis program whose prime responsibility supports the Flood Insurance Program of HUD.
Federal/State Coop Program	2.0	- A $2 million decrease will result in a program decrease of $4 million and will seriously impact Survey's ability to meet the needs generated by environmental and energy legislation and will adversely impact the flood-warning capabilities of NWS.
Energy Hydrology	1.5	- This reduction will result in a reduction in data collection, interpretive studies, and research. The impacts will be delays in the completion of projects and a reduction in the volume of hydrologic data collected.
SUBTOTAL	$10.2	
Land Information and Analysis		
Environmental Impact Analysis	1.3	- Decrease the number of OCS development - stage EIS's. - Reduce the number of research and training projects.
SUBTOTAL	$ 1.3	
Conservation of Lands and Minerals		
Outer Continental Shelf Lands	$12.5	- Eliminate funding for acquisition of high resolution data prior to OCS sales. This cut would require a policy change in conducting hazards assessments after the sale using data acquired by industry.

Subactivity	10% Reduct. (Including Neg Amend) ($ in millions)	Implication of Reduction
		- Minor reduction ($500,000) in funding for acquisition of Common Depth Point Seismic Data used in tract selection and evaluation.
Federal and Indian Lands	2.1	- Defer production of Coal Resource Occurrence/Coal Development Potential maps until FY 1982, pending the evaluation of Coal Development Potential mapping at 1:100,000 scale. - Defer production of Leasable Mineral Occurrence/Leasable Mineral Development Potential (LMRO/LMDP) maps until FY 1982. - This reduction would eliminate the Water Power Classification Program and would force the FS, BLM, and other Federal Agencies to seek the data elsewhere in order to meet their data needs.
SUBTOTAL	$14.6	
TOTAL	$48.0	

PLATFORM VERIFICATION STUDIES

Senator STEVENS. Let's turn to OCS. You have $71 million for 1981. How much of that is allocated for the platform verification studies?

Dr. MENARD. Mr. Chairman, can we call upon Dr. Kash, who is head of the Conservation Division?

Dr. KASH. The platform verification program is funded at $1.27 million. It is primarily an operating program at the present time. What we've done in that is set up a small group of people to manage the program. It primarily looks at platforms of unusual design in frontier areas—deep water off Alaska and the east coast. We have a couple of mechanisms. We have some in-house people that review the design, construction, and placement of the platforms and we use independent third party verifiers in connection with that program. So it's not really a very high-cost program.

Included was a $500,000 item for collecting environmental data for design purposes. The item did not seem sufficient to provide data necessary for what we anticipate to be the timespan in which OCS development would take place.

INSPECTION PROGRAM

Senator STEVENS. You mentioned some 14,872 inspections for 1981. Who does those inspections?

Dr. KASH. Those are inspections carried out by our personnel.

Senator STEVENS. By your staff?

Dr. KASH. Yes.

Senator STEVENS. How many people involved in those inspections?

Dr. KASH. The vast majority of those are in the Gulf of Mexico. There are about 50 inspectors. We have a staff in the Gulf of Mexico, altogether of about 480.

Senator STEVENS. They're onsite inspections?

Dr. KASH. We have, I believe, 13 helicopters in the Gulf of Mexico and they run 7 days a week carrying out inspections.

Senator STEVENS. Do they concern potential problems such as the North Sea platform and the platform in Texas that caught on fire, or are they just related to resource recovery?

Dr. KASH. Oh, no, it's related to safety. The safety of the operation and the safety of the equipment. We have quite a comprehensive program, and it has been added to as a result of passage of the OCS Lands Acts amendments in 1978. One of the things that we've done in this connection, and will do in the future is related to the recent accident on a platform in the Gulf of Mexico, operated by Pennzoil. We are just in the final stages of completing what is essentially a hearing with subpena power for investigating the sources of that accident. This will be a pattern in the future. Sometimes we do it jointly with the U.S. Coast Guard. In this case, because the source of the difficulty, it was carried out by the Geological Survey.

OCS REGULATORY PROGRAM

Senator STEVENS. Of the $33.7 million you have for regulatory programs in OCS, do you contract any of that money out?

Dr. KASH. Yes; one of the items that we contract very heavily is a research and development item. We're asking for a $1.2 million increase in OCS research and development. That will give us a total budget of about $1.7 million. The R. & D. program basically attempts to keep us abreast of changing technology, particularly if we move into frontier areas.

Senator STEVENS. How large is your staff for the OCS regulatory program?

Dr. KASH. The regulatory program for OCS is a total of approximately 485 people.

LEASE SALE SCHEDULE

Senator STEVENS. What about your timing now for lease sales? Are we on schedule?

Dr. KASH. Yes, we are. The Secretary of the Interior has communicated very clearly to the Geological Survey that we are to be on time. We've taken that advice.

Senator STEVENS. Have you had any delays as a result of court action?

Dr. KASH. The only delay is the Beaufort Sea sale. As you know, the Federal portion of that is in abeyance.

Mr. EDDY. The sale itself was on schedule, but the results are in abeyance.

COASTAL ZONE MANAGEMENT PLAN

Senator STEVENS. The Bering Sea people have been to see me. They don't seek to delay the lease sale; they seek to delay the actual drilling on leases in the Bering Sea until they complete their coastal zone management plan, or for 5 years—whichever occurs first. Have you been in contact with them regarding that request?

Mr. EDDY. We had possibly the same group of some native corporation leaders and others who did come in to discuss it. We did, and have been, attempting to lay out what the timing sequence of what we saw, the exploratory and subsequent development phases would be, and see how that related to completion of their coastal zone management plans.

Generally, we would see exploration starting 1 to 2 years—this is actual exploratory drilling—1 to 2 years after the first lease sale in that area. So given the initial dates on those sales, which I believe are 1981 and 1982, they would have about a 3- to 4-year period from now for exploratory drilling to start.

Actual development, though, which is one of the real impacts, would be likely to hit—that would be like the experience in Yakutat, where they had only very limited impacts after the first Gulf of Alaska sale. The real development impacts were probably 6 or 7 years down the road. Our initial reaction is that there ought to be adequate time to complete the coastal zone management plans.

Senator STEVENS. Then why don't you find some mechanism to give them that assurance? This is a totally virgin area. That area is the size of California, and the number of people involved are probably 15,000 to 20,000. The impact on their lifestyle is horrendous. It would seem to

me that there ought to be some way to give them the assurance of a timeframe for completion, which incidentally gives them an additional leverage with the State to get the money. Unless they know that they have a definite timeframe, I don't think that they're going to get the study money for the coastal zone management plan. There has to be some definite timeframe established so that they can get the cooperation of the State and of the Federal people in working out their problems of coastal zone management. I think they've been very realistic. They did not ask us to delay the lease sale; they asked us to delay the drilling.

I would say, from what I know, a slippage of 2 years would not be that drastic as far as giving them the assurance that they'll have the time to study the area and present a management plan to deal with the onshore impact of that offshore development. If it's successful in the long run you're going to avoid litigation.

The management plan could be completed in 3 years if they got the interest behind it. There wouldn't be any delay at all if they got the funds. I would urge you to consider their problems, because I think they're very unique.

STATUS OF LEASING IN CALIFORNIA

With regard to the OCS, what's the situation down in California? Is there any delay there?

Dr. KASH. No delay.

Mr. EDDY. There definitely was a delay until very recently in sale 48.

Senator STEVENS. I mean of the proposed lease schedules, is there any delay?

Mr. EDDY. No; there's no delay.

Dr. MENARD. There aren't any delays anyplace.

EXPLORATION OFF EAST COAST

Senator STEVENS. Can you give us an update as far as the east coast? What's happening as far as the east coast OCS is concerned?

Dr. KASH. There have been gas shows or gas discoveries in three wells off New Jersey. Texaco, at the present time, is considering whether they have adequate data to come forward with the first development and production plan in that area. They have not communicated with us formally, but they are reasonably optimistic. Dr. Menard can fill you in on the next sale.

The clear optimism with regard to oil and gas resources is the deeper water on a reef that has received a good deal of attention. That area is proposed for leasing in the next sale off the Baltimore Canyon. We are just in the beginning stages of developing the activities on the Georges Banks. Companies at the present time are collecting geophysical information in that area.

We have no specific exploratory plans at the present time, although we anticipate that some of those will be coming in within the next 2 to 4 months.

Senator STEVENS. Has the USGS taken a position on that bill on Georges Bank?

Mr. EDDY. The Department and the administration do not feel the bill is necessary. We have taken most of the steps that are proposed in the bill, such as the formation of a biological task force to advise the Conservation Division on specific stipulations dealing with disposal of drill cuttings and waste, when necessary. They're all included in the lease stipulations.

We feel it's a dangerous precedent to start legislating on the area-by-area basis on top of the major revisions to the OCS Lands Act. We're going to end up with a very confused situation and one that I think is potentially disadvantageous to the exploration and discovery of oil and gas resources. We feel we have the authority to do what's necessary under the OCS Lands Act.

RESOURCE EVALUATION

Senator STEVENS. What's this $1.9 million for resource evaluation programing in OCS?

Dr. KASH. The majority of those——

Senator STEVENS. It's an increase.

Dr. KASH. That is correct. Those funds primarily are for the purpose of additional high resolution geophysical data on a tract specific basis to deal with the new lease sale or the additional sales on the June 1979 OCS lease sale schedule.

Senator STEVENS. Which sale in particular?

Dr. KASH. This is really to cover a number of sales. That is, the work is done in a number of phases in the process. This is based on the June 1979 projected lease sale schedule that the Department had.

Senator STEVENS. Are these in-house studies, or are you going to contract it out?

Dr. KASH. Almost all of this money will go to purchase geophysical information from geophysical companies in the private sector.

Senator STEVENS. Are you purchasing work already completed or are you going to determine what studies are to be done?

Dr. KASH. The vast majority of this money goes on a tract-specific basis, like the high resolution data, to look primarily at shallow hazards, which is tied up with insuring the safety of the platforms in production. We collect this information primarily to inform the Secretary in the selection of tracts. We have to assure him that in our professional judgment these tracts can be developed, before they are leased.

Senator STEVENS. Why should there be an increase in that?

Dr. KASH. It is directly tied to the increased acreage of the sales and, of course there are higher costs associated with this as you go into frontier areas, particularly Alaska.

Senator STEVENS. What's going to happen to the program if you don't get the $1.9 million?

Dr. KASH. We will go through a fairly difficult process.

Dr. MENARD. I don't believe the analysis we've made, that we could meet the schedule without doing that work. I am not saying that we can't cancel $1.9 million worth of work elsewhere in the Geological Survey if we're authorized to do it, but we really have to acquire this information in a specific style. We don't have the options, without risking court action, of changing the way we collect the data.

We can't space it more widely, for example. We can't just say "we know enough about the area, we're satisfied." We have to be able to collect this kind of information we get, on less than 1 mile spacing, in many areas, in order to certify that if somebody bids and we give them a lease, that we have already certified that they meet common standards of construction, safety standards. And by then they can put in the platform.

Mr. EDDY. We've been concerned with the potential growth in this program as the acreage expands. The risk in not doing it is that we'll put out tracts that we will then subsequently have to cancel. And the obligation to pay for those cancelations is established in the OCS Lands Act. That could be a heavier burden on Government over the longer term than doing the work right initially. But we are looking at ways to acquire that data in alternate ways that might avoid some of the longer-term growth implications.

Senator STEVENS. You feel, now, it's absolutely essential to keep your schedule?

Dr. KASH. Under the present criteria, we see no alternative. This has been, as Dr. Menard indicated, a program where the costs have grown quite rapidly because of the expansion of the acreage, and the number of sales, and the increased cost in frontier areas. But under present circumstances, unless we can identify a way that is scientifically and professionally acceptable to make these determinations, other than the ones that we have—we just believe that this is basic.

Senator STEVENS. Put in the record, will you, the amount of acreage reviewed last year and how much acreage you will review this year, to give us some additional justification.

[The information follows:]

ACREAGE FOR OCS EVALUATION

In fiscal year 1980, high resolution seismic data will be acquired on approximately 16,250,000 acres; whereas in fiscal year 1981, high resolution seismic data will be acquired on approximately 11,300,000 acres. The principal difference between fiscal years 1980 and 1981 is that shallow core holes will be acquired in fiscal year 1981 in the Beaufort Sea and Norton sale areas, whereas all the geologic hazards data acquired in fiscal year 1980 will be high resolution seismic data.

ENVIRONMENTAL STUDIES IN ARCTIC

Senator STEVENS. You have a problem up in my State in the environmental study work in the Beaufort Sea and the Arctic Ocean. What's the status of that?

Dr. KASH. The predominant environmental work in that area is being handled by the Bureau of Land Management. They provide funding to the Geologic Division for certain environmental work. This is done early, before the sale; that is, the work done by the Geologic Division is done prior to the sale, basically to get an overview of environmental data, to inform the Department, particularly in its preparation of the environmental impact statement and its preparation for the lease data.

Senator STEVENS. Is any of this OCS money earmarked for the Beaufort area?

Dr. KASH. We have money in our geophysical budget for work for the next Beaufort Sea sale.

Senator STEVENS. You are planning nine regional environmental geology surveys for 1981; is that right?

Dr. KASH. No; I believe this is part of the Geologic Division's program.

Senator STEVENS. Are there nine regional environmental geology surveys for 1981? Is that part of your justification?

Dr. PECK. I am Dallas Peck, chief geologist. Yes.

Mr. EDDY. We've gone to land now.

Senator STEVENS. Right, we're going onshore.

Are they all onshore?

Dr. PECK. No; the environmental geology surveys that you refer to are part of the OCS program. Our regional surveys in the Bering Sea and off the Atlantic and Pacific coast are well in advance of development in order to identify what the environmental hazards are.

Dr. KASH. Mr. Chairman, if I might draw the distinction—this work is distinguished from what we were talking about previously in that it is regionwide, basinwide. It is an effort to get a picture of the hazards at the general level. The high resolution data which is handled by the Conservation Division is tract-specific and it has to do with identifying whether a particular tract should be leased or whether stipulations should be put on tracts that are leased, indicating that development did not take place on certain portions of the tract, except under a specific set of circumstances.

Senator STEVENS. Give us for the record where those nine are, will you please?

[The information follows:]

LOCATION OF NINE REGIONAL ENVIRONMENTAL GEOLOGIC SURVEYS IN FISCAL YEAR 1981

The nine regional environmental geology surveys that will be conducted in fiscal year 1981 will take place in: Gulf of Mexico continental slope (sale 69); North Atlantic OCS (sale 52); St. Georges Basin, Alaska (sale 70); Beaufort Sea (sale 71); California OCS (sale 73); Gulf of Mexico (sale 74); Northern Aleutian Shelf (sale 75); Mid-Atlantic continental slope (sale 76); and South Atlantic OCS (sale 78).

ONSHORE RESOURCE STUDIES

Senator STEVENS. Going onshore, it is my understanding that you've already completed a study that we requested in the Energy Committee for the Arctic wildlife range area. Who's familiar with that?

Dr. MENARD. The resources evaluation? The study was requested for July 1, and our deadline was to prepare the information, that is, the Geological Survey's contribution, by the 1st of June, which has now passed, and we got awfully close. But the geologists, who've been putting on emergency meetings to make the evaluations, finally fed the information into a computer, and they report that the program blew up on June 1.

That means I can give you a very rough estimate but you'd get much better numbers in due course. These are just geological estimates on resources. The difficultly in the area is that there is a divergence of geologic opinion, because, of course, there is very little information. There aren't any holes. There's been geophysical work directed in the area. We're extrapolating both from offshore, which one group of geologists

emphasize, and on land, in Prudhoe Bay, as the other group emphasizes.

As a consequence, we have an extraordinary range. I mean, it's a hundred times greater range in estimates than we usually have, because of this divergence of opinion. That is, provided the computer ends up saying what they're generally expecting now, the mean sorts of numbers probably aren't going to vary very much, and they're 7 billion barrels.

ARCTIC RESOURCES ESTIMATE

Senator STEVENS. We had a report once before on resource bases in the Arctic. We are in a very delicate time as far as conservation is concerned.

Dr. MENARD. We have within the survey people with highly diverging opinions. If the data were clear, we wouldn't have highly divergent opinions. Everybody would agree.

Having gone through a careful evaluation of everything that's available to them, I am informed—I haven't had a chance to read the report because the computer hasn't produced the final numbers—but I am informed that there still is a difference of opinion. That means that we're not going to get rid of it.

So while we may have a general agreement on the likely mean value, we're not going to have any agreement at all on what the extremes are. One group of people will say the prospects are there's an awful lot of oil there. Another group will say, the prospects are nothing like that.

Until we get more information, we just don't know.

Mr. EDDY. The method that's being applied was developed for NPRA as part of the report to you on NPRA. It is a system designed to deal with frontier areas and high levels of uncertainty.

We just had a tremendous amount of more data on NPRA than we have with the wildlife range. What the assessment will show is that through the divergence of opinion, a greater range of uncertainty in what the estimates are, but it will come up with estimates and it's designed to deal with these levels of uncertainty.

But we do anticipate making the deadlines that the Secretary committed to Senator Jackson to report.

Senator STEVENS. I hope that we don't get locked into another condemnation concept as far as that area is concerned. I tried to go back and find the original estimate for the Prudhoe Bay area. I know there was one at the time public land order 82 was revoked. That goes back to 1958.

We had information that was developed then on the basis of a serious guesstimate. I'd say that's the exercise you're going through now.

Dr. MENARD. Professional guesstimate.

Senator STEVENS. That professional guesstimate was in the range of about 1 billion barrels. We've proved up 9.6 million recoverable. I don't know what the estimate is now. You're basing an estimate on an area that hasn't even had, so far as I know, one single seismic crew.

I hope we can avoid this question of whether someone's rewritten your report. That's what exercised me last time. I got the impression that someone has rewritten your report.

Dr. MENARD. I think that if I understand the report you're talking about, what happened was, coming in as the Geological Survey's Director, I found I had two geologists who didn't behave as though they were both in the same organization. I told them, of course, their professional opinions were based on professional judgment and I was not about to suggest that they should change them.

But I did think that they ought to get together and look each other in the eye and either call the other man a liar or incompetent, or agree to turn out one joint report.

What they agreed to do is turn out a joint report. Nobody changes their numbers; it's just that the joint report said, look, some people, or one of us thinks that there's a lot and the other thinks there's little.

These same people still think the same things and they're going to turn out a similar report. But there will be one report.

You have to assume that competent men with the amount of information available reached divergent opinions.

Senator STEVENS. The computer is going to tell us the range of those opinions. It's not going to tell us which one is right or wrong. It's a pity someone hasn't taught it to think better than your two geologists. [Laughter.]

Dr. MENARD. The two geologists are thinking the best they can. They're highly trained and highly qualified. They just can't do it without information.

Senator STEVENS. It's my understanding that the Energy Committee has asked for those computer runs. Are they going to be made available?

Dr. MENARD. Surely.

Mr. EDDY. We haven't received that request. But what this report will do that the others have not done is that it will express the range of estimates with probabilities attached based on the evaluation.

Senator STEVENS. Could you give us for the record who's continuing the study?

Dr. MENARD. We will be happy to submit for the record everything that is involved in the study—the people, the schedule. That's why we do it in the way that we do so that we can go into the public record, as well as come to the Congress.

Senator STEVENS. All right.

[The information follows:]

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Personnel Involve in Arctic Wildlife Range Study

Attendees-Affiliation		May - June Meeting Dates								
		13	14	15	16	19	21	25	2	3
R. Detterman	AG	X	X	X	X	X	X			
A. Grantz	AG			X	X	X		X		
L. Magoon	OG	X	X	X	X	X				
S. May	AG			X	X	X				
C. Molenaar	OG	X	X	X	X	X				
C. Mull	AG	X	X	X	X	X	X	X		
I. Palmer	CD	X	X	X	X	X	X	X		
G. Pessel	SA	X	X	X	X					
H. Reiser	AG	X	X	X						
I. Tailleur	ONPRA	X	X	X	X				X	
K. Bird	OG	X	X	X	X	X	X	X	X	X
W. Brosge	AG	X	X	X	X	X	X	X	X	X
G. Dolton	OG							X	X	X
G. Gryc	ONPRA							X		
R. Mast	OG							X	X	X
R. McMullin	OG							X	X	X
B. Miller	DO							X		
R. Powers	OG							X	X	X
E. Scott	OG							X	X	X
R. Anderson	OMPRA	X	X	X	X	X	X	X	X	X
L. White	OMPRA	X	X	X	X	X	X	X	X	X
S. Miller	OMPRA							X	X	X

AG = Branch of Alaskan Geology
CD = Conservation Division
DO = Director's Office
OG = Branch of Oil and Gas Resources
OMPRA = Office of Minerals Policy and Research Analysis
ONPRA = Office of National Petroleum Reserve in Alaska
SA = State of Alaska

Meeting Date	Activity
May 13 and 14	Geological Assessment Committee reviewed geology and established plays.
May 15, 16, 19, and 21	Geological Assessment Committee appraised each play, viewed results, and made revisions.
May 23,	Resource Appraisal Review Committee meeting. Geologic summary presented. Play-by-play review (with some revisions) of appraisal data and resulting resources.
June 2	Resource Appraisal Review Committee meeting. Play-by-play review with some revisions.
June 3	Resource Appraisal Review Committee reviewed and discussed resource distrubitions. Made subjective probability resource estimates for area.

FUNDING OF STUDY

Senator STEVENS. Is there going to be any additional funding required for that study as far as this committee is concerned?

Is this being absorbed in your regular budget?

Dr. MENARD. These people who are making the estimates do this on a regular basis. All that would happen is that they had to shift their priorities and not do some other work. But they would have ultimately done this, anyway.

Mr. EDDY. The computer model was developed with the 105(b) money in the NPRA program. The runs are relatively expensive, Mr. Chairman.

NATIONAL PETROLEUM RESERVE IN ALASKA

Senator STEVENS. Let's shift over to the NPRA, then. You've reduced your request for the reserve to $47 million for next year. That assumes Federal exploration in fiscal 1981 will be abandoned in favor of private exploration.

It's not my understanding that any of us anticipate getting approval of the administration's leasing program for NPRA this year. Do you have any contrary information?

You're going to have a hiatus in NPRA exploration unless we get legislative authority.

Mr. EDDY. We certainly would still hope that there is a possibility of getting leasing legislation this year. So I understand the uncertainties. We assume that if leasing is initiated this year, if legislation is passed, some companies could be ready to undertake some seismic work this coming season and with substantial additional seismic work coming here and that within 3 years, we would have, in addition to the seismic work that companies would undertake, company-initiated drilling operations.

Senator STEVENS. That means a 3-year hiatus, as far as drilling, doesn't it?

Mr. EDDY. Not a 3-year hiatus because we will have three additional wells that are held over from the 1980 program that will be drilled by Husky this coming year.

Senator STEVENS. But those three would be the end of it.

Mr. EDDY. That would be the end of it under the administration proposal. If there is a delay of 1 to 2 years in passage of the legislation, then the drilling hiatus would likely be in the 4- to 5-year range.

Senator STEVENS. Well, there's a 20-month delay even in the administration's proposal.

Mr. EDDY. There's a 20-month period before the first lease sale. But in our discussions with a number of companies who have expressed an interest in this area, they would be ready to undertake the seismic work. They would need at least two seasons of seismic work before they would be willing to bid and before they would be willing to initiate their drilling activities.

So there would be some industry-oriented exploration that would take place simultaneously with our preparation for the first lease sale.

Senator STEVENS. We have a problem, as I see it. This committee has added the money now for 2 years in a row at Senator Jackson's request

and my request. We started that original program that Husky has operated. It looks to us as though the administration's request is not going to bring about any additional drilling for another 5 years. Would you dispute that?

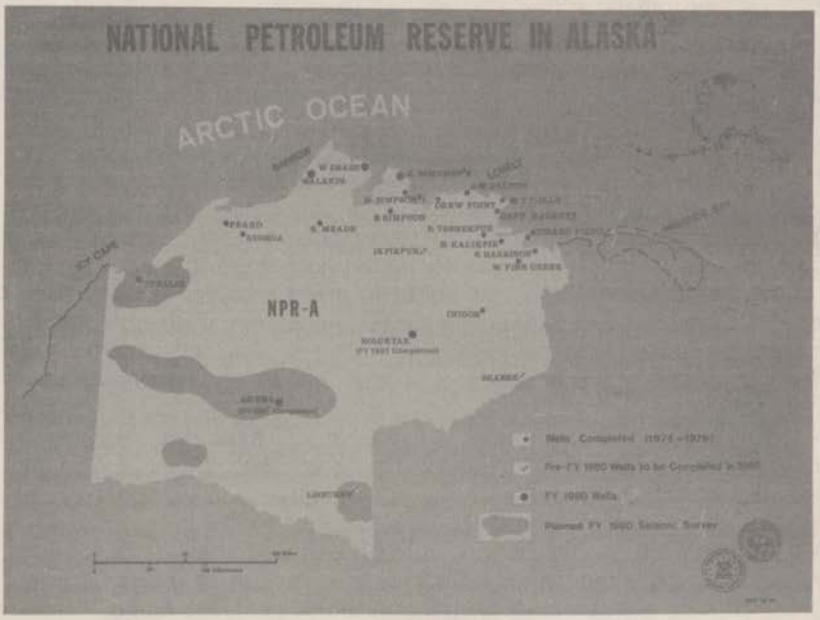
How are we going to get any drilling under your approach in the NPRA after the three Husky wells are completed in less than 5 years unless we get legislation this year that authorizes private exploration?

Mr. EDDY. It would be unlikely that there would be drilling before 4 years if there's not legislation passed this year.

RESULTS OF DRILLING

Senator STEVENS. I know that the Husky operation wasn't designed to be wildcat. Has it produced any significant shows of oil or gas during the period of time they've been drilling?

Dr. MENARD. It depends a little on what you want to call significant. We have here Mr. George Gryc, who's the head of our program and has been in it since it began and can answer that question. George?



This chart displays the current status of the evaluation and assessment program of NPRA conducted by the Navy (fiscal years 1974 thru 1977) and the Geological Survey (fiscal years 1978 through 1980).

Mr. GRYC. We have a chart here of the reseve. Nearly all of the wells have had some shows. Including with the Navy's program. They drilled seven wells. As you recall, the Navy started out drilling these seven wells in the northwest quadrant of the reserve following the Prudhoe Bay trend.

In those seven wells, there were no commercial discoveries. The W. T. Foran well had a significant show in the same formation that occurs at Prudhoe Bay. We then followed up on that particular show.

We drilled the Drew Point well over at Simpson, and this well, the J. W. Dalton well.

There was a tar mat in the J. W. Dalton well and we were actually able to recover some oil from that. It seems to indicate that there has been an oil deposit in this general area and our best guess is that it's still seaward and probably lies just offshore.

We've attempted to follow up on that here in the Simpson area.

So I would say that the J. W. Dalton well and the Foran well had significant shows. Good porosity and permeability were also found at Simpson. So I would say that that's significant, but it seems to indicate an oil field offshore. We have a significant gas show at the Seabee well. It's at the old Umiat field, but it's at a deeper horizon at about 5,300 feet. The initial tests there ran as high as 5 and 6 million cubic feet a day, which is a reasonable gas well. It is comparable to some of the other wells in that general area, the Gubik field.

Senator STEVENS. How far is that from Gubik?

Mr. GRYC. Airline, it's probably about 10 miles from Gubik. The Gubik tests and the East Uniat tests all ran in that general range.

A detailed analysis of the Seabee tests is being made by a consultant in Houston. It seems to indicate what is called a limited depleting reservoir.

In other words, it would not sustain flow at those high rates of 5 and 6 million cubic feet a day. However, it is significant that we found additional reservoir sands below the Umiat oil pool. At Walakpa, we also had a significant gas discovery. It's about 12 miles from Barrow.

The tests were not too good because the formation was damaged by fresh water drilling mud. Also, this caused the formation of hydrates when the pressure was lowered by the infiltration in the formation.

A careful analysis of the Walakpa test data indicates that there is a gas deposit in the range of 150 to 250 billion cubic feet, which is about 10 times that of the South Barrow field.

Again, this is not a commercial field by the south 48 standards, but it's certainly significant. We had a very strong gas blow here at Tunalik at 12,500 feet; in fact, it kept the well flowing. It took almost 2 months to control that well.

We finally got it controlled, but again, it seems to be high pressure gas of limited reservoir. We were unable to test that very adequately because in the process of killing the well, we had to introduce a great deal of barite and heavy mud, which pressed out into the formation and did not permit us a good test.

We have just completed a series of three tests at Lisburne. This is against the Brooks Range, as you know, in the foothills. It, too, has a couple of gas zones. However, it's not of commercial interest.

So I'd say that those were the most significant tests and the most significant results. Many of the others have had minor shows of gas and oil.

USE OF DATA GATHERED BY HUSKY

Senator STEVENS. With regard to this program, if you terminate the Husky-type activity aren't you going to get less for your leases when you do lease them?

The information you're gathering now for the Husky program is going to bring back additional returns, isn't it, when you do get around to leasing.

Dr. MENARD. I think that would be moot as far as our experience on the Outer Continental Shelf. In the first place, if we kept on drilling holes that didn't look too promising, then I would think the value would go down. Certainly there would be more information upon which the Geological Survey could estimate values and which industry could, too.

Senator STEVENS. Is the Husky information going to be available to all prospective bidders?

Dr. MENARD. It's available immediately.

Mr. EDDY. It's available now.

Dr. MENARD. And industry uses it or collects it if they get it from them.

Mr. EDDY. I think it's fair to say that there is high industry interest in going into this area as quickly as possible. We have had questionable reports on the value of the information. Some companies have criticized, for example, the quality of the seismic data. We've looked at that and are reasonably satisfied that the more recent data we've acquired is up to standards.

The industry has tended in its verbal presentations and also in the House hearing that was held specifically on this question to discount the value of the drilling program. Our view is the drilling program is valuable in terms of identifying the resource potential.

But in direct response to your question, the absence of a truly commercial discovery, its effect on the value of the leases is very problematic and in all likelihood, won't have much effect.

Senator STEVENS. Well, we're faced with a dilemma in that we've kept the program going despite the fact that you wanted to abandon it before. We've not been able to get the leasing legislation through yet so we have continued the Husky program. We turned down the $18 million rescission proposal and now we find you're going to abandon the drilling program anyway.

I don't know how we're going to get any congressional policy as far as this area is concerned unless we just take the bull by the horns here.

LEASING LEGISLATION

Why don't we just write leasing legislation into this bill? What kind of legislation would you have to have in order to get this thing into position where you could lease it within 1 year?

Mr. EDDY. We have, of course, proposed a fairly detailed bill because we wanted to deal specifically with a number of potential problems in the land management area to avoid what could be delays awaiting wilderness reviews, potential land planning delays, and so forth.

We could certainly deal with leasing with a general grant of authority that allowed us to proceed and also allowed us or directed us to waive or provide certain strict time limits on some of the mandatory planning processes under FLPMA, the Federal Land Policy Management Act.

Senator STEVENS. This area has been set aside now since Harding's day for a petroleum reserve. When we got statehood, we were told we

couldn't select that area because it was so important as a petroleum reserve. In the Land Claims Act, the natives were told that they couldn't get any subsurface rights because they were so important to the petroleum reserve. Now it appears that you're delaying until you can set some of it aside so it won't be used for petroleum exploration.

What about that 4 million acres that HCRS wants in there? Did you approve that?

Mr. EDDY. If you're referring to the 4 million acres of national landmark designation which was proposed, we frankly have some fairly substantial problems with that proposal.

Senator STEVENS. I would hope so. If you set aside 25 million acres for petroleum exploration, at least it ought to be explored for petroleum before you designate it for a park or wildlife monument or anything else.

This was decided in the 1920's that it was a very important petroleum province.

You know, we drafted a bill that would have permitted NPRA, the old naval petroleum reserve, to be leased. Where the Navy had made any expenditures, it could be leased competitively; otherwise, it would be leased on the basis of development contracts, which in the old days we thought had a great deal of promise. We don't use those any more. Why shouldn't we give you authority to at least get the cooperation of the industry to look before we make these decisions?

Mr. EDDY. We would certainly welcome the authority.

Senator STEVENS. We'll see what we can do in this bill. I think that's the only way to do it, because otherwise we're going to have a hiatus. I don't think we're going to get the money this year to second-guess you.

So it looks like we have to give you some authority and I think some broad discretion to make decisions as to which areas could be leased now for development, and see if we can get some drilling underway next year. It would be your discretion. We can't lease it for you, but you ought to be able to find, out of 25 million acres, 1 or 2 million acres that have great potential for oil and gas production and get them leased next year.

Mr. EDDY. We have initiated the planning process for leasing or identifying the potential areas for preliminary leasing. We hope the process of putting together the necessary regulations and the plans is well under way. We feel if we are given the authority this year we can move very quickly to initiate a leasing program.

Senator STEVENS. We have a series of detailed questions here concerning this area. I feel like I've been involved in it so long I don't need to ask the questions. But you can answer them for the record.

GAS WELL AT GUBIK

Senator STEVENS. What about Gubik, though? That's another thing. One of the goals we used to have was to get Gubik into production. With this new find, does it make Gubik any more important?

Mr. GRYC. The Gubik Field was never really adequately tested. As you know, they had a fire and so on. I think the estimates range anywhere from 18 billion to a couple hundred billion cubic feet of gas, which is a large field by south 48 standards, but not by Alaskan standards.

There are a group of gas fields in that general area and it's conceivable that somewhere along the line those could be put together as a gas resource. Not only Gubik and Seabee, but there were also good gas shows at two of the old gas wells that were drilled in the Pet 4 program there. They form a little cluster in that general area.

I think it's not unreasonable to expect that the area might be developed somewhere down the line, particularly if there's a gas line built, amortized on the basis of Prudhoe Bay. These might be feeder fields into that.

Senator STEVENS. That's one reason the gas comes south through Alaska, so we can pick up our gas rather than pick up gas from the Mackenzie delta.

I wonder while we're thinking about this possible continued exploration for oil, if we ought not to include some provision to authorize private exploration in the area of that gas line?

Mr. GRYC. The Gubik Field was leased.

Dr. MENARD. That's what you're going to hit anywhere.

Senator STEVENS. But that's the area where there is a show.

Dr. MENARD. I think, as you said, we would be called upon to determine which areas are most promising for leasing. That looks like it certainly would be one.

Mr. EDDY. It clearly would cover both oil and gas, Mr. Chairman.

ESTIMATES OF GAS AND OIL IN ALASKA

Senator STEVENS. My staff indicates that we are led to believe there's going to be some overall review of the estimates for Alaska for oil and gas. Is that going on now? Is that a result of Mr. Reagan's comment. You're not going to try to prove, in a political year, that he's wrong, are you?

[Laughter.]

Dr. MENARD. It is an ongoing process. We can say that we are always reestimating the oil and gas in all 50 States. We don't expect much in Hawaii, but otherwise we look at all of them. We are looking for a deadline late this fall.

Senator STEVENS. Just to avoid any more conflict, how would you like to make that after the election? I'm really worried about this process of reevaluating reserve capabilities for Alaska just in the political season. I'm serious. We've never gotten very political here, but there does seem to be some tension to try and decide who's right and wrong. I don't think that's a thing for the USGS to get involved in.

The politicians can argue about who's got the best information.

Dr. MENARD. I think that by merely asking us to make a special estimate on the wildlife preserves, that those are the same people who are trying to do the nationwide estimate—I think that alone probably would move us past the election.

Senator STEVENS. Good. As I see that Arctic country, going back to the days of the old PLO–82 and everything we did to get that revoked during Duncan's era I think that those who had the most optimism concerning the Arctic have been vindicated so far. We've probably got our day coming, that indicates maybe we shouldn't be so optimistic. But right now optimism is indicated.

As far as the Senate floor, I would hate to see the Government take the tack of trying to downplay the potential, which would have the impact of putting a damper on the incentive for exploration. That does not seem to be a proper function for us to do.

CLOSEOUT COSTS FOR HUSKY

What about the close-down costs of Husky? I said I wasn't going to ask all of these questions. But I am concerned about that. What is going to happen to the Husky equipment if we don't give you any additional money beyond what you've asked for?

Mr. GRYC. All the equipment on the reserve is contractors' equipment except for a relatively small amount at Camp Lonely. As those subcontracts are closed out, that equipment will be demobilized. That's part of our contract, to demobilize it.

Senator STEVENS. It will have to be flown out?

Mr. GRYC. It will have to be flown out.

Senator STEVENS. Are you going to get a storage site or what are you going to do?

Mr. GRYC. The Government does not own the equipment.

Senator STEVENS. I understand that. But the Government owns the land.

Mr. GRYC. The equipment will be flown either to Service City, Dead Horse, Prudhoe Bay, or it will be taken out by barge, possibly to Anchorage or Seattle. It's the subcontractor's option. I think the contracts read that we're obliged to demobilize it to its point of origin or some alternate point, if they wish to use it somewhere else.

Senator STEVENS. That close-down money is in here, right?

Mr. GRYC. Yes, that's $45 million-plus some carryover moneys that will be used for that purpose.

TIMEFRAME FOR CLOSEOUT

Senator STEVENS. If we don't give you any more money and we give you some authority to deal with the leasing proposition, how long will Husky use that equipment up there under the money you requested in this budget?

Mr. GRYC. There are actually two wells to be finished, Awuna and Koluktak. These two wells have yet to be completed. They'll be completed by May of next year. If the decision is now to closeout, we'll go ahead and demobilize the rest of the equipment this fall and into the coming winter. Some of it will have to be flown out.

Senator STEVENS. Well, I'm trying to get some fail-safe date here. When do I have to have a bill passed with language in it to give you the authority to decide not to move all that stuff at a cost of $45 million as opposed to using the $45 million in drilling to find new oil?

Mr. EDDY. We have an option, which we've exercised, which is to hold the rigs through basically to the end of this calendar year, fiscal year.

Mr. GRYC. Yes; we've exercised that option. The equipment can be maintained on the reserve through the fiscal year, in other words until September 30, except for the one rig which we have already demobil-

ized. We have five rigs on the reserve right now. One is the Brinkerhoff, the shallow rig which drills the Barrow wells and many shallow wells in that area. And there are four deep rigs.

Senator STEVENS. All right, thank you. We'll give you the rest of those questions.

Now there are some questions on leasing barriers, too, which we'll just submit for the record as far as NPRA is concerned.

BARROW GAS FIELD AND RESEARCH FACILITY

With regard to the Barrow gas development, what's the status of your negotiations with the Office of Naval Research?

Mr. EDDY. We have a 1-year grace period before ONR proposes to close out that facility. They will continue to provide support for fiscal year 1981. We are now looking at a series of options for maintaining that operation there through fiscal year 1981. Much of it will depend if anybody does pick up NARL after the Navy closes out. Otherwise, we will have to go into a mode utilizing some of the facilities that NARL and ourselves are putting in, separate facilities, for some time to operate the field.

I think one thing is clear: it is going to be more expensive without the Navy support than it has been historically. But what that figure will be will depend on the particular mode we end up operating in.

Senator STEVENS. We've been trying to find some agency to act as a host for the Naval Arctic Research Lab. I don't know how that's going to come out, either. That's a budgetary problem this year, too. It is going to increase USGS costs in the Arctic if that facility is not operated there. You've really just been a tenant, haven't you, over the years?

Dr. MENARD. That's correct, sir. We are looking at various options, such as building special buildings or the possibility of trying to operate, have facilities in the village of Barrow. None of these are really very satisfactory if the Navy pulls out of Barrow.

Mr. EDDY. NARL has provided other services, also, such as road clearance.

REVIEW OF GAS RATES

Senator STEVENS. Did you review that gas rate problem for Barrow, as we requested last year?

Mr. EDDY. Yes; we completed the preliminary review, which was a comparability study of the rates in Barrow with equivalent residential energy costs in other locations in Alaska, both smaller villages and major urban areas. Based on that, we did conclude that we should undertake a review of the rate, with an eye to possible adjustments. And we have now requested the assistance of the Federal Energy Regulatory Commission from a technical standpoint in starting a rate review proceeding.

Senator STEVENS. What's going to happen to the rate structure if NARL closes; have you examined that?

Mr. EDDY. Of course, the rate paid by Federal installations has been approximately double the rate paid by the village utilities. I think the principal effect of the closing of NARL, assuming it's completed, would be to stretch out the earlier life expectancies of the fields themselves.

Senator STEVENS. That's going to increase the cost to the residential consumers, isn't it?

Mr. EDDY. Well, the residential consumers, the rate charged has been approximately 25 percent of the costs of production as of 1979. We estimate that that cost of production—and this does not include capital costs; this is strictly operating costs—is likely to increase three to fourfold over the coming years, as we assume direct responsibility and as operating costs generally increase. I don't think the rate differential at this point has much effect on what the Natives are paying.

Senator STEVENS. We'll submit some additional questions on that too.

TURNING OF GAS FIELD OVER TO NATIVES

Have you explored the possibility of just getting out of there and turning over that whole area, letting the Native people take those gas fields and develop them and use them in their own timeframe?

Mr. EDDY. We recommended that approach in the draft legislation we submitted on NPRA. Our proposal includes that concept. We have had some preliminary discussions with both the State and the Natives, which we will be following up on. We have a representative going to Alaska for several weeks to further those discussions, both in Anchorage and Barrow.

We would like to try to work out conceptually an approach where we would be able to, in a fairly short period of time, be able to turn over a modern, up-to-date, operating field to the Natives, with the improvements that have been made, with the additional drilling to be completed, three additional wells to be completed, and then get a resolution of the facilities question and support facilities taken care of.

We think we ought to be able to be in a position to do that within a year or two.

USE OF SATELLITE DATA ON MOUNT ST. HELENS

Senator STEVENS. Let me go back to Mount St. Helens. I asked you if you'd used satellites. Have you used the LANDSAT or any of those satellite activities to keep track of what went on, or was it possible?

Dr. MENARD. I think we did.

Senator STEVENS. With all the smoke and everything, you couldn't get much.

Mr. TILLING. I am Bob Tilling, Mr. Chairman. We were able to track the plume by satellite, the rate of propagation of the plume.

Dr. MENARD. There was one picture published in the newspaper. After a while the plume became too diffuse to keep on tracking it.

TOPOGRAPHIC SURVEYS AND MAPPING

Senator STEVENS. In the topographic surveys and mapping there is $74.2 million, the same as the 1981 base, and $3.2 million above appropriations for fiscal 1980. Half of that money is for quadrangle mapping, I am told. Is it necessary to go into that detailed quadrangle mapping now, under the circumstances of budget constraints?

Dr. MENARD. Let me call upon Mr. Southard, the head of our mapping division. It's certainly a subject which we debate frequently.

Mr. SOUTHARD. Mr. Chairman, the requests for detailed quadrangle mapping at the 1 to 24,000 scale continue to come in. We support the work of other Federal agencies, as well as supporting the Geological Survey programs.

The serious trend is in the direction of the more detailed map requirements. The series of requests seems to show no cessation. Strong requirements are laid against us and we can respond to only a percentage of them. We can't respond to them all.

Senator STEVENS. How many maps can the division accomplish in 1981 with the money that's here?

Mr. SOUTHARD. I don't know that number from memory, Mr. Chairman. We can put that into the record.

[The information follows:]

NUMBER OF TOPOGRAPHIC MAPS FOR FISCAL YEAR 1981

The money in the quadrangel mapping and revision subactivity permits the survey to produce new topograhic quadrangle maps, revise outdated published quadrangle maps, and prepare orthophotoquads. New topographic quadrangle maps require 3 to 5 years to bring to publication stage and it is estimated that 1,175 new maps will be published in fiscal year 1981. Some map compilation in the revision and orthophotoquad program is completed within a particular year, but some work such as complete revision carry over 3 to 5 years, similar to new mapping efforts. About 1,800 quadrangle maps will be revised, published, and distributed and about 3,500 orthophotoquads will be prepared.

MAPPING BACKLOG

Senator STEVENS. What is your backlog now in terms of your mapping program?

Mr. SOUTHARD. The backlog is in better shape than in recent years. This committee has taken serious interest in that over time and we are aware of that interest. The backlog has continued to be reduced slightly, and we can continue to reduce that backlog slightly by continued attention and quite a lot of use of rapid methods of revision, such as photo revision, which can be done within a single year.

REQUESTS FOR MAPPING

Senator STEVENS. Where is the major pressure coming from for this mapping activity? From the Congress, from Governors, mayors, citizens? Where do you get your impetus for the mapping program?

Mr. SOUTHARD. The strongest requests come to us from about 30 other Federal agencies, through an annual solicitation process, as well as from the States. The States are extending stronger and stronger pressure on us to pay more attention to the more detailed mapping and revision of maps of their States.

The history of mapping in our country has been one of first attention in the East, because that's where the concentration of people and people-related activities are. So the East is better mapped. Therefore, those maps are older and many require extensive revision.

As we move West, the attention now is being turned to meeting the needs for detailed map data to support all of the energy-related land management kinds of things that the Federal agencies and the States are having to do.

SIDE LOOKING RADAR

Senator STEVENS: All right. There are some other detailed questions about that activity, too. What about the side-looking airborne radar system that the House was so interested in and we keep getting letters about. Has anybody reviewed this proposal?

Dr. MENARD. Yes, we were asked to carry out a specific program, and since it bridged all the way across the Geological Survey, we had Dr. Thorley, who's in charge of our land information and analysis program, prepare a program. We can have him tell you what we're doing in detail. It certainly involves mapping in Alaska, for example, in the Aleutian Peninsula.

Any kind of radar has the advantage that it can see through clouds. And the Alaska Peninsula and the Aleutians, some areas, they've always been clouded. We've had great difficulty getting suitable aerial photographic coverage. So we've made an attempt to use the radar for that.

We are also making an attempt to evaluate side-scanning radar as an information gathering technique versus the other kinds of remote sensing data sets we already have. We have satellite images. We have radar images from the SEASAT satellite. Although it lasted only briefly, we got, I believe it was, 80 percent imagery coverage of Alaska just from that one satellite, having a side-looking radar capability. But it did not scan at a low angle. It was scanning at an angle about 15 degrees, whereas the airplanes are scanning at an angle of about 35–45 degrees.

So we get different information. We're trying to determine the relative effectiveness and cost effectiveness of all these different techniques. We're giving it a fair try, as we were directed to do.

Senator STEVENS. How much money is requested for the side-looking radar?

Mr. BAJEMA. It was described as being financed under fiscal year 1980 funds. We did not have any money under fiscal year 1981.

Senator STEVENS. How much is being used in 1980?

Mr. BAJEMA. Yes; $2 million.

Senator STEVENS. Does the result of that so far indicate that there should be money in this budget to continue this effort in 1981?

Dr. MENARD. I would say that we're still evaluating, although much of the work has not been done yet. We had to get contractors to carry out the image acquisition, so we don't believe we're in a position to say we should go ahead with any comparable sum.

MINERAL RESOURCE SURVEYS

Senator STEVENS. Let me go now to the Mineral Resources Survey that is going on in my State. Costs are about the same in Alaska as elsewhere, and we're always told that it costs so much more to operate in Alaska.

How are you able to do the Mineral Resources Survey for less in Alaska than you are able to do them in the Lower 48?

Dr. MENARD. That's Dr. Peck's specialty, so I'll ask him.

Dr. PECK. I'm not familiar with what cost data you're looking at.

Senator STEVENS. The staff tells me Alaska costs are $365,000 a quadrangle. In the south 48, they are $366,000. How can you do that? Is it the same unit that's being studied for the same amount of money?

Dr. PECK. Probably both are 2-degree quadrangles. I suppose that boils down to the more reconnaisance nature of the studies in Alaska, because much of the ground is not very well known, whereas the work in the south 48, much of it's in areas that have been fairly well studied. In order to gain significantly new information, it takes more detailed work.

Senator STEVENS. Isn't the reverse of that also true? We don't have very much information on Alaska. Shouldn't we spend a lot more money to get information?

Dr. PECK. I personally would like to see a larger program in Alaska, but we are limited to the expenditures under our appropriated funds.

Mr. BAJEMA. The figures shown here in the budget justification are unfortunately comparing apples to oranges. I think the $365,000 we referred to in the Alaskan program is field studies, which is only a portion of the total cost of the quadrangle study, as compared to the $366,000 for the complete job.

AMENDMENT REDUCTION

Senator STEVENS. I understand there is a reduction of half a million dollars in these wilderness mineral surveys. What effect is that going to have as far as my State is concerned, as far as the RARE II studies are concerned? Are we going to have the information that we're required to have?

Dr. PECK. It's going to slow down that program. We're planning, for example, to start field work in 1981 in three new quadrangles. As it is, we're only going to be able to do it in two of those. It's going to slow down the completion of that program of 100 top priority quadrangles by some 10 or 20 years.

Senator STEVENS. Have you taken any of the money out of Alaska that was made available for mineral surveys?

Dr. PECK. I'm not quite sure I understand your question.

Senator STEVENS. We added some money in the past to put the emphasis on getting the mineral information before this Alaska lands bill is finally acted upon by the Congress. I just wonder if there's been any decision not to spend the money that's been made available for those areas?

LOCATION OF ALASKAN BRANCH OF GEOLOGY

Dr. PECK. No; there is a half million dollar cut under the President's negative amendment, and we are being faced with continually increasing helicopter costs for the field work. Also, we're in the process of moving some of the people up to the new branch of Alaskan geology headquarters in Anchorage, and that movement involves cost-of-living pay in Anchorage, so we are facing increased costs.

Senator STEVENS. I'm sorry you did that. Why didn't you go to the university where you've traditionally had your presence as far as the survey is concerned? Why did you pull those people out of Menlo Park and put them in Anchorage?

Dr. MENARD. He's talking about the people in his division, which is the branch of Alaskan geology. They're the ones in minerals. We are expanding our water program in one of the other divisions in Fairbanks,

and we are working in every way as cooperatively as we can. Our plans, for example, in the volcanological program, we cooperate with the University of Alaska. We do cooperative work with them in a number of ways now.

I think the concept of having one center is a good one, but we haven't been able to implement it. Meanwhile, the needs for people in Alaska are expanding, especially if we go into leasing and NPRA and the OCS. So the Survey is putting more and more people there in connection with putting in a gas pipeline. We see that we're going to need more people there working on the effects of permafrost and so on.

Those people, as we plan it now, will be in Fairbanks, because we already have a group at Fairbanks—a few of the geologists and a group of hydrologists. We're expanding the group of hydrologists.

Senator STEVENS. Basically, our position in Alaska was that the Fairbanks college campus ought to be the earth sciences campus. There's a fear that you are going to provide the magnet with USGS activities in Anchorage and that that will shift the focus of earth sciences to the other university campus. I think they're beginning to articulate that fear more and more to us. Government policy ought not to have such an impact on the State's decision as to where the various disciplines are going to be located under their educational system.

Dr. MENARD. I think it would be regrettable if that were to occur. The Geophysics Center at Fairbanks is a highly reputable group. They've got good facilities.

I'm from the State of California. Berkeley, UCLA, and Cal Tech all seem to operate. There are lots of problems; there are lots of earthquakes and minerals, and I think it's underestimating the need for geology in Alaska to think that everybody has to be in one spot.

Senator STEVENS. I know. But when you're going to put your heavy funding for facilities related to earth sciences in one place, they're liable to shift the funding requirements for the university if they have to follow your people.

I hope you'll keep it in mind and work on it to the maximum extent you can. I understand your considerations about costs and a lot of other things. We always thought they'd go back where they came from, not start a new office in Anchorage when they finished their job.

MINERAL DISCOVERY LOAN PROGRAM

The mineral loan discovery program, tell me about that. Is there any money in this budget for that?

Dr. PECK. There's a small amount of money, somewhat over $100,000. That's a program that was involved with loans for small miners, small mining operations, but there has been no new money for loans for several years, and this is just a very small continuing operation in order to examine and collect royalties from loans that were already made some years ago.

Senator STEVENS. Do you have a staff working on that now? What are they funded in 1980?

Dr. PECK. It's under the mineral discovery loan program at a level of $104,000. It involves two or three people. It's main headquarters is in Denver, and there's somebody working part-time in Menlo Park.

OTHER SUPPLEMENTALS OR AMENDMENTS

Senator STEVENS. Can we anticipate any other modifications to either the 1980 supplemental or to the 1981 budget that affects USGS other than the ones we've discussed so far?

Mr. BAJEMA. Yes, Senator. We are about to submit to the Department a request for additional funds to overhaul our royalty management system in the Conservation Division.

Senator STEVENS. How extensive will that be?

Mr. BAJEMA. On the order of $8 or $10 million.

Senator STEVENS. Is that 1980 or 1981?

Mr. BAJEMA. 1981.

Senator STEVENS. Are there going to be any more changes for 1980 that you anticipate now, other than by emergency, that we haven't discussed?

Mr. EDDY. No; I don't see any.

Mr. BETTENBERG. I think the answer is no to that.

Senator STEVENS. Any other pending modifications before OMB that deal with either 1980 or 1981 that we haven't discussed.

Mr. BETTENBERG. No; that's everything that we've got at this point.

OIL SHALE DEVELOPMENT

Senator STEVENS. The staff points out that you are proposing funding for oil shale development in the resources surveys.

Why are you proposing 8.5 times greater funding for uranium surveys and 10.4 times more for geothermal energy resource surveys than you are for looking at the oil shale development program? Where do we get that? Is it a policy judgment as to how much money should be put where?

Mr. EDDY. I think the operating assumption and the policy guidance we've given the Geological Survey over the past several years has been that the oil shale operation would be the existing prototype program and that those other areas raised higher priority questions. We have now completed an internal decision process on oil shale leasing.

The Secretary has decided to go with additional leasing under the prototype program of up to four more leases. In addition, to initiate the planning for a long-term oil shale leasing program, we don't anticipate any immediate budgetary impacts. The resource base for additional prototype leasing appears to be adequate, but as we move to a potential full-scale oil shale leasing program over time, combined with the synthetic fuels program guarantees, I would anticipate some out-year requirements, and we'll likely raise this particular item to a much higher priority level.

Dr. MENARD. Mr. Chairman, if I may point out, we do have an additional program bearing on oil shale in which we're asking for a $1.5 million increase—that's oil shale hydrology—because the effects of any development at all are going to be quite substantial on a quite limited water supply. So we are not neglecting oil shale completely.

Senator STEVENS. Did you get that $2.2 billion that we appropriated last year?

Mr. EDDY. No; that was purely the Department of Energy.

Senator STEVENS. I understand that, but don't they make some of that available to you for your activities?

Mr. EDDY. That $2.2 billion was, as I understand it, strictly for funding for prototype studies to private applicants and then potentially for loan guarantees.

NPRA PROGRAM

Senator STEVENS. Let me emphasize again the NPRA in terms of its impact on this bill. You're either going to face a demand on the one hand to put the money back in and continue the Husky program at its current level or we're going to have to demonstrate that we can, through some special authority given you under this bill, bring about private development activities that would be of no lower intensity, without dropping the ball.

I think that can be done. I urge you to think about it and to respond to our additional questions. Senator Jackson and I have already discussed it. The chairman has a feeling against increasing the amount here during this tight budget year, but he also wants to see the activity continue, at least at the existing rate of exploration.

It could be done without getting into an argument over what should be given to HCRS or anything else if we just specifically detail the areas where this special authority could be used and give you the authority. I think the industry will jump at the chance to get in there next year if you do it properly.

I would urge you to keep that in mind as you respond to those questions, because I believe the chairman and I want to be able to assure the Senate that that program will continue and that you won't have a hiatus in terms of exploration of the NPRA, if they follow our recommendations.

ADDITIONAL QUESTIONS

As I mentioned earlier, we have a series of additional questions which we would like you to respond to for the record.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Additional Committee Questions

Question. Describe your reports and other activities which are now contemplated as a result of the eruptions at Mt. St. Helens.

Answer. The following activities are now underway, or will begin shortly:

Geologic Studies--With the beginning of the first earthquake precursors on March 20, 1980, the Geological Survey has provided the officials of Gifford Pinchot National Forest and other Federal, State, and local agencies various administrative reports and maps on the volcanic hazards posed by the eruption of Mt. St. Helens, which began on March 27 and continues to date. In order to provide updated assessment of volcanic hazards on a day-to-day basis, Geological Survey personnel greatly expanded seismic, geodetic, geochemical, and observational monitoring to attempt to detect significant departures from current eruptive behavior. We are maintaining the expanded monitoring effort, with emphasis on reestablishing instrumentation and monitoring arrays destroyed during the catastrophic eruption of May 18.

Preparation of a non-technical report summarizing the Mt. St. Helens eruption to date is in progress and should go to press in a matter of weeks. As regards technical reports, a series of maps showing the effects and deposits of the eruption and related volcanic hazards will be compiled as soon as some of the scientists involved with current monitoring can be pulled off monitoring studies to begin the preparation of such maps. Also contemplated is a multichapter USGS Professional Paper which will describe and analyze the information gathered to date. In addition, a number of scientific professional organizations, for example, American Geophysical Union, Geological Society of America, and the American Association for the Advancement of Science, have scheduled special symposia on Mt. St. Helens activity at their annual meetings this fall.

Hydrologic Studies--The following hydrologic activities have been identified; preliminary work on some has already started:

Flood Investigations--Sediment deposition has resulted in greatly increased flood potential on the lower Cowlitz River. Future high sediment yields from the devastated areas around the mountain can produce additional flood hazards for the Cowlitz and many other rivers.

Snow Studies--The southern slopes of the volcano still contain snow and ice. Reconnaissance surveys are needed to establish the volume of runoff potential should conditions result in rapid melting.

Land and Water Relationships--Scientific investigations of changes in land form resulting from the eruptions and subsequent alteration by natural forces such as erosion will enable prediction of hydrologic impacts. Included are impacts resulting from large areas of newly exposed soil and volcanic debris in a high rainfall area, massive stream channel alteration involving highly erosive material, and destruction and establishment of water impoundments.

Recovering Datum--Volcanic and seismic activity has destroyed datum references and may have changed altitudes over an extensive area. It will be necessary to establish the datum for new

and replacement hydrologic stations near Mt. St. Helens and to check the datum for existing stations in the general area.

Effects of Volcanic Ash on Indian Lands--A number of the Indian reservations in the Northwest lie directly in the path of heavy ash deposits from the volcano. These include the Yakima, Spokane, Nez Perce, Colville, and Coeur d'Alene Reservations. Much of this land is dedicated to irrigated agriculture and grazing. Thus, the ash and solutes from the ash may severely impact streams and irrigations systems, as well as public and private water supplies.

Ground Water Investigations--Volcanic and seismic activity have probably been sufficient to alter the hydraulic properties of aquifers near the mountain. Testing of existing wells and establishment of new aquifer characteristics are needed.

Studies of Other Volcanoes--Collection of hydrologic information in the vicinity of other volcanoes in the conterminous United States and Alaska will be markedly accelerated. The information acquired will be analyzed to more effectively predict the possible future eruptions of these volcanoes.

Geothermal Studies--Volcanic activity has changed the thermal regime of the hydrologic system. The streams draining Mt. St. Helens produce a very significant anadromous fisheries resource. Elevated stream temperatures will be very detrimental to this resource. In addition, ground water temperatures have almost certainly been increased, and a significant geothermal resource may have been created.

Data Collection and Analysis--Streams, Lakes, Reservoirs, Ground Water, Precipitaton--A report on the immediate hydrologic impacts of the eruption is in the planning stage. Reports on the above program elements will be issued as soon as possible; any aspects involving hydrologic hazards will be issued immediately.

Earth Science Applications--The Earth Science Applications Program is cooperating with all other organizations within the Survey in preparing various reports relative to the eruption. In addition, it is increasing its quick response capability for reaction to future activity at Mt. St. Helens as well as other potential natural geologic disaster sites. It is likely the program will maintain field coordination capabilities in Vancouver, Washington. The program is intensifying its hazard warning procedures to include greater involvement with State and local governments.

Question. How long is the current phenomenon apt to continue, and what demand has this placed on the Geological Survey? How have other Geological Survey functions such as water, terrain, and population mapping been useful in developing emergency plans to deal with disaster?

Answer. If the last activity of Mt. St. Helens in the 19th century (1831-1857) serves as an analogy of the current eruptive activity, we can anticipate the eruption to continue intermittently for years, and possibly decades. From specific knowledge of Mt. St. Helens' past behavior and general knowledge of volcanoes around the Circum-Pacific, scientists expect over the near term (months to years) the emplacement of a lava dome in the crater, accompanied by sporadic emission of ash and, possibly, the eruption of small flows of viscous lava.

The anticipated continuation of activity places great demands on already severely strained manpower and budgetary resources.

The current monitoring effort draws heavily from personnel who have high priority commitments to the Flood Hazards, Wilderness, Earthquake Hazards Reduction, Geothermal, Engineering Geology, Reactor Hazards, and Geologic Framework Programs, as well as the Hawaiian component of the Volcano Hazards Program.

In large measure, because of the general geologic and hydrologic data on the Cascades region gathered over the years, when the Mt. St. Helens activity began the Geological Survey was able to assemble a group of knowledgeable scientists on an emergency basis to carry out the required monitoring. The quick response to the crisis provides another example whereby data obtained as part of long-term research programs all of a sudden are precisely those needed for short-term crisis. Specifically, hydrologic studies; mapping and dating studies largely supported by the Geothermal Research; Earthquake Hazards; Engineering Geology; and Geologic Framework Programs served as the starting point for volcanic hazards assessment.

This effort included the determination of flood hazard in the Toutle and Cowlitz Rivers; the chemical and physical characters of the volcanic ash--its impact on water supplies, agriculture, the salmon runs in the Cowlitz River, and other aspects of stream biology. Much effort was expended on assessing the flood hazard from the possible failure of a debris dam across Spirit Lake outlet and the hazard produced by sediment filling 90 percent of the Cowlitz River channel. Data from dam break and flood routing models were collected in a very short period of time; the results of the model runs analyzed; and FEMA, NOAA, and the general public advised of the hazard.

The Survey Hazard Coordinator, Chief, Earth Science Applications Program, and Deputy Hazard Coordinator have spent full-time effort on activities related to Mt. St. Helens since prior to the May 18, 1980 eruption. All hazard activities not related to Mt. St. Helens, except activities related to the recent California earthquakes, has ceased.

Question. Assuming that additional funds will be requested for the volcano hazards subprogram, please provide for the record a revised workload chart for fiscal year 1980 and 1981.

Answer. The revised workload table for the Volcano Hazards Program as submitted to the Department is as follows:

	FY 1980		FY 1981	
Geologic Studies	Hawaii	Cascades	Hawaii	Cascades & Alaska
Volcano hazards mapping (km^2)	975	---	350	1,100
Seismograph stations monitored	55	8	50	22
Seismograph stations installed	---	8	---	14
Tilt stations monitored	60	3	50	45
Tilt stations installed	---	3	---	42
Geodimeter lines monitored	265	3	250	5
Geodimeter lines installed	---	3	---	2
Gravity stations monitored	18	5	18	10
Gravity stations installed	---	5	---	5

	FY 1980		FY 1981	
	Hawaii	Cascades	Hawaii	Cascades & Alaska
Publications	40	5	30	10
Establishment of Mt. St. Helens Observatory	---	---	---	1
Hydrologic Investigations				
Replace destroyed streamflow stations		4		---
Replace destroyed water quality stations		3		---
Replace GOES satellite platform		2		---
Install new gaging stations with satellite platforms		6		---
Water quality sampling sites - operation of		100		155
Water quality recorders - operation of		6		8
Precipitation sites - operation of		35		35
Fluvial transport stations - operation of		26		166
Exploratory test holes drilled		---		4
Ground water pumping tests		---		4
Stream temperature network		---		5 sites
Survey ash deposition - irrigation canals		---		100 miles
Aerial photography		1,250		300 stream miles
Survey and set erosion stakes		---		12 areas
Survey river reaches		5		10
Establish monitoring program for lakes & reservoirs found to be greatly impacted by ash fallout		---		(unknown at this time)
Establish monitoring program for water quality related to anadromous fish		---		1
Establish ground water sampling network		---		1
Cartographic Activity				
New quadrangle mapping started		---		116 quadrangles
Quadrangle revision		---		2,500 square miles
Orthophotoquads prepared		50		500
Aerial photography		4,000		18,000 square miles
Site maps (at special scales)		6		12
Digital cartographic units started		50		150
Land use and land cover mapping		2,500		30,000 square miles
Special purpose thematic maps prepared		---		25
1:100,000 scale mapping begun		1		8
Special purpose large scale topographic products		300		--- square miles

Conservation of Lands and Minerals - OCS

Question. You indicate in your workload tables for the OCS inspection program that you will be performing 14,872 inspections in fiscal year 1981. What is the frequency of inspections per facility, and what percent of these are actually on-site inspections?

Answer. The frequency of inspection depends on the type of facility and the OCS area in which that facility is located. A drilling vessel in the Gulf of Mexico is normally inspected

once prior to each initiation of drilling operations and then at least once during the actual drilling operations for each well. If the drilling operations continue for an extended period of time, due to the depth of the well or operational difficulties such as stuck pipe or extended fishing operations, the drilling vessel may be inspected an additional one or two times during the drilling of each well. In frontier areas, drilling vessels are also inspected prior to each initiation of drilling operations. Due to the limited activity in the area or the hostility of the environment, these vessels may be inspected from twice a week during each well to every day with the inspector aboard the vessel for a continuous 7-day period.

Production platforms and pipeline segments are currently in place only in the Gulf of Mexico and Pacific OCS areas. In the Gulf of Mexico, each platform and pipeline segment is inspected in detail once a year. Additional inspections are normally conducted on those facilities that are considered problem areas. Due to the limited number of facilities in the Pacific OCS area, detailed inspections are performed every 6 months on each facility, with additional inspections performed as often as once or twice a week.

One hundred percent of the inspections described above are actual on-site inspections.

Question. Are all of these inspections performed by the Geological Survey staff?

Answer. Yes.

Question. Do you still have any fiscal year 1981 funding requested for reservoir shut-in studies? If so, how much?

Answer. When the fiscal year 1981 budget was originally formulated, it was the intention to continue these studies. However, only one of the studies conducted to date has shown any potential for increased production rates. Therefore, the urgency for these studies has diminished considerably, and it is doubtful that we will continue these studies

Question. How many staff years do you have in total for the OCS regulatory program in 1981?

Answer. Out of the 485 positions for the OCS regulatory program, 441 are identified with the actual regulation of OCS operations. The additional 44 positions, 5 for Platform Verification, 3 for Research and Development, and 36 for Reservoir Shut-in/Efficient operations, are considered to provide staff supporting roles to the positions actually involved in the regulation of OCS operations.

Question. In view of the hostile offshore environment, why is the Department not pursuing onshore development more aggressively first?

Answer. The Bureau of Land Management is pursuing a more aggressive program of onshore oil and gas leasing. In FY 1981, they have requested a $5,884,000 increase for onshore oil and gas. This includes an increase of $4,150,000 for preliminary work in the NPRA leading to a competitive oil and gas sale in 1982 in Alaska. The remaining $1,734,000 will be used to respond to the growing onshore oil and gas workload in the lower 48 states. The proposed increase

would result in a greater number of leases issued, development plans reviewed, compliance checks conducted and assignments processed in comparison to FY 1980. While onshore activities are increasing, the greatest potential for increased domestic oil and gas production is with offshore leasing particularly in frontier areas. Industry interest has been demonstrated by their sizable investments offshore.

Question. Please indicate for the record the location of your nine regional environmental geology surveys in 1981.

Also indicate for the record the areas for your environmental reports prior to nominations (6), geophysical data reports (9), and environmental reports for EIS use (6).

Answer. The nine (9) regional environmental geology surveys that will be conducted in FY 1981 will take place in:

Gulf of Mexico Continental Slope (Sale 69)

North Atlantic OCS (Sale 52)

St. Georges Basin, Alaska (Sale 70)

Beaufort Sea (Sale 71)

California OCS (Sale 73)

Gulf of Mexico (Sale 74)

Northern Aleutian Shelf (Sale 75)

Mid-Atlantic Continental Slope (Sale 76)

South Atlantic OCS (Sale 78)

The areas for which the Geological Survey will issue reports in FY 1981, are:

a. <u>environmental reports</u>

California OCS (Sale 73)

Mid-Atlantic Continental Slope (Sale 76)

South Atlantic OCS (Sale 78)

Navarin Basin, Alaska (Sale 83)

Chukchi Sea (Sale 85)

Hope Basin, Alaska (Sale 86)

b. <u>geophysical reports</u>

Southern California (Sale 68)

Norton Basin (Sale 57)

North Atlantic OCS (Sale 52)

St. George Basin (Sale (70)

Beaufort Sea (Sale 71)

Gulf of Mexico (Sale 72)

Kodiak (Sale 61)

California OCS (Sale 73)

Gulf of Mexico (Sale 74)

c. evironmental reports for EIS use

Mid-Atlantic Continental Slope (Sale 59)

Gulf of Mexico (Sale 67)

Southern California (Sale 68)

Gulf of Mexico (Sale 69)

Norton Basin (Sale 57)

North Atlantic OCS (Sale 52)

St. George Basin (Sale 70)

Question. Will the President's March budget reductions of $500,000 to both the Alaska and Conterminous States Mineral Resource Surveys have any significant impact on other related programs?

Answer. A number of other mineral programs and related activities will be impacted as a result of the $500,000 reductions in the Alaska (AMRAP) and Conterminous States (CUSMAP) Mineral Resource Surveys Programs. Reduction in the AMRAP program will delay the Geological Survey's ability to respond more fully to the numerous inquiries it receives regarding the mineral potential of Alaska lands. The CUSMAP program in 1981 and beyond is being planned to assist the Geological Survey to gear up to meet its mandated responsibility of providing minerals information on Bureau of Land Management lands under consideration for wilderness classification. The reduction in funding will reduce the number of CUSMAP quadrangles started.

Question. What is the extent of Federal funding for oil shale resource characterization and development.

Answer. During FY 1980, the Geological Survey will spend $1.461 million and DOE will spend $3.360 million. In FY 1981 the Survey will spend $1.522 million and DOE will spend $2.030 million.

Question. Your budget justification (on page 95) indicates that the 1980 program will conduct "a limited amount of surface and subsurface geologic mapping and stratigraphic studies of oil shale deposits" in prime oil shale areas. In what way is this effort "limited" and will this inhibit timely development of oil shale potential in this country?

Answer. Considering the current funding level for the Survey's Oil Shale Resource Investigations and the types of geologic information needed to design an oil shale development program, the Survey studies are focused on acquiring data about the physical and chemical properties of the richest oil shale deposits in Colorado and Utah, where development work most likely will begin. These studies primarily involve geochemical and mineralogic analysis of oil shale samples. Only enough geologic mapping and stratigraphic

studies are being conducted to complete the delineation of the richest oil shale deposits. The relatively "limited amount" of mapping now in progress will not adversely affect efforts to develop these rich deposits in northwestern Colorado and northeastern Utah, but it could delay plans to exploit lower grade deposits in the Rocky Mountain region or elsewhere in the United States.

National Petroleum Reserve in Alaska

Question. In addition to the anticipated legislative delays, aren't there a host of other concerns such as environmental and anti-competitive legal reviews which could further delay the private development of the Reserve?

Answer. The Administration Bill, by directing specific deadlines and planning processes, is designed to avoid potential delays brought about by litigation. For example, to preclude such delay, the Administration's proposal exempts NPRA from the wilderness review requirements and the standard planning process, required by the Federal Lands Policy and Management Act. While a leasing Act shaped along the lines of the Administration Bill is not a guarantee against law suits we believe it will greatly reduce the likelihood of successful delays.

Question. Why not go ahead with the Federal program until a smooth transition to private exploration can be achieved?

Answer. There is a much lower probability for discovery under a single exploration strategy than a multiple industry exploration strategy. In recent testimony before the House Subcommittee on Appropriations, industry testified that they gain little information from Government exploratory wells and that detailed geophysical data are much more valuable in providing for a smooth transition to a private leasing program.

Question. Your budget justification indicates that the Department intends to begin close out operations this summer for exploratory drilling, geophysical exploration, and geological investigations and evaluations on the National Petroleum Reserve. Have any close out activities been initiated to date?

Answer. No. One drilling rig, Parco No. 95, and a small amount of construction equipment were demobilized because they were excess to a four-well FY 1981 drilling program.

Question. If so, on what basis did you proceed to make these close outs since Congress did not accept the Administration's $18 million rescission proposal earlier this year?

Answer. Work is underway to carry out a four-well drilling program in FY 1981. The equipment that was demobilized is surplus to the carrying out of a four-well program.

Question. Does the $7.5 million reduction in the geophysical exploration effort truly represent completion of the seismic data collection project or does it simply represent Federal abandonment.

Answer. There was no reduction in this program. The full FY 1980 geophysical exploration program was conducted. However, additional seismic data will be needed, depending on what type of program Congress directs the Department to undertake.

Question. Have all the highest priority drilling sites been tested with exploratory wells?

Answer. The NPRA is an extensive area encompassing 23 million acres. The primary objective of the exploration program is to accumulate geologic and geophysical data to prepare a resource assessment on the oil and gas potential of the Reserve. The drilling exploration strategy is based on a play concept. A play is a relatively homogeneous geologic setting which may contain numerous prospects. The drilling objective is to test each play at least once. The more promising prospects are selected to enhance the opportunity of making a discovery. However, not all prospects within a play will be tested.

Question. Again, does the $2 million reduction in geologic investigations and evaluations of the National Petroleum Reserve reflect completion of the high priority evaluations or is this simply another case of Federal abandonment of the Reserve?

Answer. Evaluation of the Reserve will be a continuing process. As new data and information are obtained, the resource assessment will be periodically updated. We are requesting $1 million in FY 1981 to evaluate the data from the two remaining unfinished wells and to prepare a summary report of the data collected in conjunction with the 24-well program.

Question. How will you manage to conduct the same number of geologic and engineering studies in FY 1981 (19) as you did in FY 1980 with only one-third of the amount of money?

Answer. The FY 1981 request is for funds to complete the ongoing studies and to publish summary reports. Additional studies in conjunction with the 24-well program are necessary.

Question. What would be the 1981 cost to continue the present level of effort for exploratory drilling?

Answer. The maximum number of additional wells that could be drilled in FY 1981 is four. The capability statement previously submitted estimates the cost to drill four wells at $170.3 million which includes associated geologic/geophysical work.

Question. Similarly, what would the 1981 cost for geophysical exploration and geologic investigations and evaluation?

Answer. Geologic and geophysical investigation in support of the drilling activity is estimated at $11 million. As an alternative to drilling additional wells in FY 1981, the Department did provide, at the request of the Committee, a geophysical exploration capability statement. That statement lays out a program for gathering data that would smooth the transition into a private leasing program. The estimated cost of the effort is $34.7 million.

Question. How much funding is allocated within the exploratory close out request for environmental restoration?

Answer. $4.5 million.

Question. Has drilling been completed on all 24 of the wells identified in Table N-2 of page 204 in your budget justification?

Answer. Two wells remain to be completed. They are Awuna and Koluktak and are scheduled for completion during FY 1981.

Question. What information have you gained from the five wells which you started drilling this winter?

Answer. The three following wells have been completed:

Walakpa Test Well No. 1

The Walakpa well was drilled to test for potential oil and gas accumulations in a large structural--stratigraphic trap in the Jurassic Simpson sand. The well was completed at a depth of 3,660 feet in argillite basement. A test was done at approximately 2,000 feet. The test resulted in a new gas discovery in the Jurassic sand from 2,070 to 2,086 feet. The well also penetrated the Simpson sand which shaled-out down-dip but is considered to be prospective.

West Dease Test Well No. 1

The West Dease well was drilled to test for potential oil and gas accumulations in a combination structural--stratigraphic trap in the Sag River sandstone. The well was completed in the argillite basement on March 26, 1980 at a depth of 4,170 feet. The Barrow and Sag River sands had oil and gas shows. These sands had fair porosity but poor permeability, the drillstem test recovered no hydrocarbons.

East Simpson Test Well No. 2

The East Simpson No. 2 well was drilled to test for oil and gas accumulations in a large stratigraphic trap in sands of the Ivishak Formation. The well was completed in the argillite basement on March 15, 1980, at a depth of 7,505 feet. Gas shows were found in Lower Torok sands which were thin and nonporous. An oil and gas show was cored in the Sadlerochit Ivishak sandstone. The drillstem test recovered minor amounts of oil and gas. This well, in company with other wells drilled along the northeast boundary of the Reserve, indicates that a Sadlerochit field may exist offshore. Awuna and Koluktak are scheduled for completion in the spring of 1981. Data collected to date are still being evaluated.

Question. Please provide for the record an update of this table and indicate briefly the information that was gained from each well.

Answer. Enclosed is an update of table N-2 and a brief description of the 22 wells completed to date.

SUMMARY OF EXPLORATION DRILLING

NATIONAL PETROLEUM RESERVE IN ALASKA

Name	Location	Date Spudded	Date Completed	Total Depth	Deepest Horizon Attained	Remarks
Cape Halkett No. 1	18 mi ESE of Lonely	3/24/75	5/23/75	9,900 ft.	Argillite Basement (Devonian or older)	Dry; plugged and abandoned
East Teshekpuk No. 1	25 mi S of Lonely	3/12/76	5/11/76	10,664 ft.	Granite Basement	Dry; plugged and abandoned
So. Harrison Bay No. 1	50 mi SE of Barrow	11/21/76	1/27/77	11,290 ft.	Lisburne Group (Mississippian)	Poor oil shows; plugged and abandoned
Atigaru Point No. 1	44 mi SE of Lonely	1/12/77	3/10/77	11,535 ft.	Argillite Basement (Devonian or older)	Poor oil shows; plugged and abandoned
West Fish Creek No. 1	51 mi SE of Lonely	2/14/77	4/21/77	11,427 ft.	Kayak Shale (Mississippian)	Poor oil shows; plugged and abandoned
So. Simpson No. 1	41 mi WSW of Lonely	3/9/77	4/18/77	8,805 ft.	Argillite Basement (Devonian or older)	Dry; plugged and abandoned
W. T. Foran No. 1	23 mi ESE of Lonely	3/7/77	4/16/77	8,864 ft.	Argillite Basement (Devonian or older)	Oil and gas shows; plugged and abandoned
Drew Point Test Well No. 1	14 mi W of Lonely	1/13/78	3/13/78	7,946 ft.	Argillite Basement (Devonian or older)	Poor oil and gas shows; plugged and abandoned
No. Kilikpuk Test Well No. 1	37 mi SE of Lonely	2/27/78	4/14/78	7,395 ft.	Kingak Shale (Jurassic)	Poor oil and gas shows; plugged and abandoned
So. Meade Test Well No. 1	45 mi S of Barrow	2/8/78 (Re-entered 12/1/78)	1/22/79	9,945 ft.	Argillite Basement (Devonian or older)	Poor gas shows; plugged and abandoned
Kugrua Test Well No. 1	67 mi SW of Barrow	2/13/78	5/30/78	12,588 ft.	Lisburne Group (Mississippian)	Dry; plugged and abandoned
Inigok Test Well No. 1	60 mi S of Lonely	6/7/78	5/22/79	20,102 ft.	Kekiktuk Formation (Mississippian)	Encountered hydrogen sulfide and sulfur at 17,570 ft.; poor gas shows; plugged and abandoned

Summary of Exploration Drilling Cont'd:

Name	Location	Date Spudded	Date Completed	Total Depth	Deepest Horizon Attained	Remarks
Tunalik Test Well No. 1	22 mi SE of Icy Cape	11/10/78 1/27/79	1/7/80	20,335 ft.	Argillite Basement	Gas test; plugged and abandoned
Peard Test Well No. 1	25 mi NE of Wainwright	1/27/79	4/13/79	10,225 ft.	Argillite Basement	Poor gas shows; plugged and abandoned
Ikpikpuk Test Well No. 1	42 mi SW of Lonely	11/29/78	2/28/80	15,481 ft.	Argillite Basement	Shows; plugged and abandoned
East Simpson Test Well No. 1	55 mi SE of Barrow	2/19/79	4/10/79	7,739 ft.	Argillite Basement	Oil and gas shows; plugged and abandoned
J. W. Dalton Test Well No. 1	3 mi E of Lonely	5/7/79	8/2/79	9,367 ft.	Argillite Basement	Oil and gas shows; some heavy oil recovered during testing; plugged & abandoned
Lisburne Test Well No. 1	110 mi SW of Umiat	6/11/79	6/2/80	17,000 ft.	Lisburne-Endicott Group	Shows of gas; plugged and abandoned
Seabee Test Well No. 1	1 mi NW of Umiat	7/1/79	4/16/80	15,611 ft.	Basal Cretaceous	Gas test; plugged and abandoned
Walakpa Test Well No. 1	15 mi S of Barrow	12/25/79	2/7/80	3,666 ft.	Argillite Basement	Shows of gas; plugged and abandoned
West Dease Test Well No. 1	28 mi SE of Barrow	2/19/80	3/26/80	4,170 ft.	Argillite Basement (Devonian or older)	Poor shows; plugged and abandoned
East Simpson Test Well No. 2	50 mi SE of Barrow	1/28/80	3/15/80	7,505 ft.	Argillite Basement (Devonian or older)	Poor shows; plugged and abandoned
Koluktak Test Well No. 1	75 mi S of Smith Bay	Being Planned		4,500 ft. (projected)	Torok Formation (Cretaceous)	Planned for drilling in FY 1981
Awuna Test Well No. 1	150 mi S of Barrow	3/1/80		15,000 ft. (projected)	Lisburne Group (Mississippian)	Suspended at 5,300 ft. for summer

NPRA EXPLORATION WELLS

U.S. Navy Drilling Program 1975 - 1977 (Zone A - Northeast part of the Reserve)

Cape Halkett Test Well No. 1 (FY 1975)

The Cape Halkett well, completed on May 23, 1975, at a depth of 9,900 feet in argillite basement, was the first exploratory well drilled by the Navy. It was designed to test the Sadlerochit, the main producing reservoir in the Prudhoe Bay Field, east of the Reserve, within a seismically defined half-domal structure. This well provided valuable information for interpretation of trends of sands and reservoir quality westward onto the Reserve from Prudhoe. Hydrocarbon shows were present in the Colville, Nanushuk, Torok, Kingak, Shublik, Sadlerochit, and Lisburne units but porosity and permeability were generally low in the potential reservoir units. Good gas shows in the lower Torok indicated porosity and possible stratigraphic traps in these discontinuous, fine-grained sands. Subsequent wells have usually found gas shows in similar sands in this same section and indicated to some degree the hydrocarbon source potential of the interbedded Torok shales and the underlying "pebble shale." The well discovered significant, though thin, sandstone in the "pebble shale" and thus established another play in the Reserve. The Lisburne is anomalously thin and suggested that a high area or platform exists at this location with possible development of porous facies on or surrounding this feature. The dolomite in the Lisburne is thin and the updip pinchout of this unit may be productive nearby. Well tests in the Prudhoe Bay Field indicated dolomite to be the primary reservoir rock in the Lisburne Group. The well confirmed regional thinning of the Kingak and Torok along the south flank of the Barrow - Prudhoe Arch and consequent stratigraphic trap potential; lensing and truncated sands relating to the unconformities.

East Teshekpuk Test Well No. 1 (FY 1976)

The East Teshekpuk well, completed on May 11, 1976, at a depth of 10,664 feet in granite, was a test of the Sadlerochit as well as other units in a structure defined by geophysical data seventeen miles southwest of the Halkett well. The well helped to delineate sand trends and reservoir quality of the Sadlerochit and other units across the northern part of NPR-4. Hydrocarbon shows were present in the Nanushuk, Torok, "pebble shale," Kingak, Sag River, Shublik, Sadlerochit, and Lisburne. The Lisburne dolomite unit, is not present. The Lisburne overlies granite rocks in the basement, indicating that this area may represent an ancestral high with peripheral facies possibly having good reservoir properties.

South Harrison Bay Test Well No. 1 (FY 1977)

The South Harrison Bay well was completed on February 8, 1977, at a depth of 11,290 feet in Lisburne age rocks. The well was drilled on a broad domal anticline on the Fish Creek Platform to test the "pebble shale sands", the Sadlerochit Group sands, and the Lisburne dolomite in good seismic closure. Hydrocarbon shows were present in the Colville, Nanushuk, Torok, Kingak, Sag River, Salderochit, and the Lisburne, but reservoirs in Sag River, Sadlerochit and Lisburne have low porosity and permeability. The Gamma Ray Zone of the upper "pebble shale" is absent. The Lisburne is thicker than expected at this location and the complete dolomite unit was not penetrated at total depth of the well.

Atigaru Point Test Well No. 1 (FY 1977)

The Atigaru Point well was completed March 18, 1977, at a depth of 11,535 feet in argillite basement. The well was designed to test the "pebble shale sands," the Sadlerochit Group, and the Lisburne dolomite penetrated in the Cape Halkett No. 1. Hydrocarbon shows were present in the Nanushuk, Torok, Sag River, and Sadlerochit. The dolomite unit of the Lisburne is present and porous and the stratigraphic pinchout of this unit lies updip from Atigaru Point No. 1, between the Cape Halkett and W. T. Foran wells. Possibilities for stratigraphic traps beneath the Torok unconformity in the "pebble shale" sandstone were apparent,

but subsequent drilling of the North Kalikpik well to test this concept cast serious doubt as to its validity.

West Fish Creek Test Well No. 1 (FY 1977)

The West Fish Creek well was completed on April 27, 1977, at a depth of 11,427 feet in the Endicott group of probable Mississippian age. The well was a test of the "pebble shale sands," Sadlerochit Group, and the dolomite zone of the Lisburne Group. Secondary objectives were the Sag River, Echooka, and Nanushuk sands. The well was drilled into as anticlinal structure on the seismically anomalous Fish Creek Platform. Hydrocarbon shows were encountered in the Colville, Nanushuk, Torok, Kingak, and Sag River. The "pebble shale" was truncated by the sub-Torok unconformity. The Lisburne is anomalously thin, suggesting the presence of shoal facies related to a paleotopography high and possible development of porous facies associated with this feature. The dolomite unit of the Lisburne is also relatively thin in the area.

South Simpson Test Well No. 1 (FY 1977)

The South Simpson well was completed on April 30, 1977, at a depth of 8,795 feet in argillite basement. It tested the thinning edge of the Sadlerochit where it laps upon the south flank of the Barrow High and the Jurrassic sand that had been penetrated in Topagoruk Well No. 1. Hydrocarbon shows were encountered in the Nanushuk, Torok, Kingak, Sag River, Shublik, and at the top of the Sadlerochit. A well developed sandstone with gas shows is present in the Kingak, just beneath the "pebble shale" unconformity. Test of this sandstone and of the two lower Torok sandstones recovered only minor amounts of gas. The Lisburne is absent but a red, clastic sequence of the Endicott Group is present at the location.

W. T. Foran Test Well No. 1 (FY 1977)

The W. T. Foran well, completed April 24, 1977, at a depth of 8,864 feet in argillite basement, was a test of the Sadlerochit near its truncation by the basal Cretaceous unconformity. The Lisburne, which is truncated by the same unconformity farther north in the offshore area, was also an objective. Hydrocarbon shows were encountered in the Nanushuk, Torok, "pebble shale," Kingak, Sag River, Shublik, Sadlerochit, and Lisburne. A thin sandstone in the basal "pebble shale" had excellent reservoir properties. This sandstone lies unconformably on a truncated and sandier Shublik formation. Excellent reservoirs in the Sadlerochit had good oil shows. Higher structural position of this unit is probably offshore, outside of NPRA. Good shows were present in the Lisburne but the absence of the Lisburne dolomite indicates that it pinches out south of the well. Tests of the "pebble shale sand," the Sadlerochit, and the Lisburne recovered saltwater with very minor amounts of gas and oil. Dead oil shows were present in fractures in the basement complex.

U.S. Geological Survey Drilling Program 1978 - 1980

Drew Point Test Well No. 1 (FY 1978)

The Drew Point well was completed March 13, 1978, at a depth of 7,946 feet in argillite basement. Located 37 miles west of the W. T. Foran No. 1, the well was designed to test the good hydrocarbon indications in that well in a seismically optimum updip location. Shows were found in the lower Torok, Kingak, Sag River, Shublik, and Sadlerochit, however cores indicated non-porous and impermeable sandstones. Tests in the lower Torok and the Sadlerochit recovered only drilling fluid.

North Kalikpik Test Well No. 1 (FY 1978)

The North Kalikpik well was drilled to test a postulated stratigraphic trap identified by seismic data as an east-west trending erosional remnant of the "pebble shale sands" beneath the unconformity identified in S. Harrison Bay and

Atigaru Point wells. This sand body, enclosed by impervious shales, was expected to serve as a reservoir for oil accumulation. Continous cores were cut at the objective depth recovering only shale with thin streaks of siltstone and mudstone. Hydocarbon shows were apparent, however, in these cores and in thin lower Torok sandstones.

Kugrua Test Well No. 1 (FY 1978)

The Kugrua well was completed May 29, 1978, at 12,588 feet in the Lisburne Group but below the target depth of the predicted argillite basement. The well, located in a new area of the Reserve, was drilled to test a seismic anomaly in Paleozoic strata in an onlap sequence along the north margin of the Meade basin. An unexpectedly thick sequence of Late Paleozoic limestone, exceeding 1,400 feet, was drilled.

This thick unit of potential reservoir rock, heretofore unknown and unexpected in this portion of NPRA, extended the Lisburne play into regions previously believed non-prospective.

South Meade Test Well No. 1 (FY 1978)

The South Meade well was completed Janaury 22, 1978, as a test of possible oil and gas accumulations in truncated Lisburne and Sadlerochit strata onlapping the southern flank of the Barrow Arch. Caving shales caused severe drilling problems and required sidetracking by spring breakup. In December 1978, the borehole was reentered and completed to argillite basement at 9,945 feet. The well developed the Jurassic glauconitic sandstone present in Kugrua No. 1, Topagoruk No. 1, and South Simpson No. 1 and enhanced this "Simpson sand" play in the northern part of NPRA. The sandstones and conglomerates of the Sadlerochit were found to be of low porosity and permeability. Minor gas shows were observed from nearly all of the sandstones of the lower Cretaceous and Jurassic. The Lisburne was not present, indicating its northern wedge-edge lies south of the well location.

Inigok Test Well No. 1 (FY 1978)

The Inigok well was started in June 1978 and was completed on May 22, 1979, at a total depth of 20,102 feet in Kekiktuk conglomerate. The well was drilled to test a thick section of Lisburne and a seismically determined 4,000 feet of sub-Lisburne strata in a large, closed structure separating the localized Ikpikpuk basin from the Umiat basin to the south. Drilling was routine to a depth of 17,570 feet where native sulfur and high concentrations of hydrogen sulfide were encountered. After a delay of 78 days during which time the sulfur and hydrogen sulfide gas were controlled and two fishing jobs were completed, drilling continued. The Lisburne Group was much thicker than anticipated and drilling was terminated in the Upper Mississippian conglomerates of the Kekiktuk Formation after borehole drift became excessive. Devonian age rocks predicted seismically at about 16,000 feet were not found. Gas shows were noted in the non-porous sandstones and shales in the Torok, "pebble shale," Kingak, Sag River, Shublik, and Sadlerochit strata.

Tunalik Test Well No. 1 (FY 1978)

The Tunalik well was completed at 20,335 feet in the Lisburne Group on January 7, 1980. It was planned as a deep, basement test in the totally unknown western part of the Reserve about 125 miles SSW of previous deep tests, to evaluate the hydrocarbon aspects of the strata delineated seismically. Many of the thin Cretaceous sandstones had minor gas shows and at 12,549 feet, high-pressure gas in a Lower Cretaceous sandstone about 13 feet thick was encountered. The heavy mud and barite used to control the gas flow damaged the formation, and attempts to test the sand were unsuccessful. High-pressure, low-volume gas was also encountered in the Triassic Shublik Formation. An unexpectd and geologically significant sequence of igneous rocks was drilled within the

Lisburne Group. Most stratigraphic units were found to be thicker than equivalent strata in wells to the east.

Peard Test Well No. 1 (FY 1979)

The Peard well was completed on April 13, 1979, after reaching a total depth of 10,225 feet in argillite basement. The well was drilled, based on results from Kugrua, to test for possible oil and gas accumulations in Lisburne and Endicott rocks near their northern wedge-edge on the north flank of the Meade Basin. This location was also selected for information on the Sadlerochit and Jurassic sand plays although no hydrocarbon traps were identified from seismic data in these shallower zones. The Sadlerochit was found to rest directly on basement, and the more than 1,500 feet of Lisburne and sub-Lisburne strata in the Kugrua well were not present. The disappearance of such a thick section in a distance of only 12 miles indicates an abrupt wedge-out of both units or possible loss by a large normal fault. Minor gas shows were noted in the Nanushuk, Torok, Kingak, Shublik, Sadlerochit, and Echooka rocks.

Ikpikpuk Test Well No. 1 (FY 1979)

The Ikpikpuk well was completed on February 28, 1980, at 15,481 feet in argillite. The well was drilled to test the Lisburne and pre-Lisburne plays at their wedge-out on the north flank of the Ikpikpuk Basin. Nearly 4,000 feet of tight, non-prospective Lisburne and Endicott beds were drilled with scattered minor gas shows. Two of the shallow sands, the "pebble shale sand" and a Torok sand, were tested primarily for productive capacity and fluid content. Some gas was recovered on each test.

East Simpson Test Well No. 1 (FY 1979)

The East Simpson No. 1 well was completed on April 10, 1979, at a total depth of 7,739 feet in argillite basement. It was located as another test of the Sadlerochit (Prudhoe Bay-type) play based upon a seismically determined combination truncation - depositional wedge-out trap. The well drilled and cored about 150 feet of Sadlerochit siltstone, sandstone, and conglomerate. The cores were oil stained but core analyses indicated generally low porosities and high water saturations. Minor gas shows occurred in the lower Torok, Kingak, Sag River, and Shublik formations and a weak oil show was found in the Kekiktuk formation.

J. W. Dalton Test Well No. 1 (FY 1979)

The Dalton well was drilled to a total depth of 9,367 feet in argillite basement and completed on August 1, 1979. The well was drilled to further test the Sadlerochit and Lisburne plays about midway between Drew Point and W. T. Foran wells. The Sadlerochit, Lisburne, and Endicott groups were thicker than expected with good oil shows in the first two and a minor show in the latter. Two tests of the lower Lisburne each recovered five barrels of heavy asphaltic oil along with formation fluid. A test at the top of the Lisburne and two tests of the Sadlerochit recovered only small amounts of gas and formation fluid or oil-cut drilling mud. The apparent thick column of heavy oil could indicate a hydrocarbon accummulation updip and offshore. Minor oil and gas shows were found in the Shublik and "pebble shale."

Lisburne Test Well No. 1 (FY 1979)

The Lisburne well was completed on June 2, 1980, at 17,000 feet in the fifth penetration of the Lisburne limestone. The well was located on a seismic closure in the disturbed-belt play, which borders the Brooks Range and is at least partly analagous to the overthrust play in the western United States. The well drilled about 7,000 feet of highly deformed, allochthonous rocks before reaching the Jurassic to Mississippian prospective section exposed at the surface, immediately south of the well site. Ubiquitous dead oil occurrences demonstrate generation of hydrocarbons. Tests in two different Lisburne plates recovered only very small amounts of gas and some relatively fresh formation water. A test in the Shublik

flowed gas at a calculated rate of 213 Mcfd, but indicated a low volume depleting reservoir. Local porosity is indicated to at least 12,000 feet, and maturation analyses indicate prospective source rocks to total depth. This well will be fundamental to disturbed-belt exploration.

Seabee Test Well No. 1 (FY 1979)

The Seabee well was completed on April 15, 1980, in the lower Cretaceous "pebble shale" at a total depth of 15,611 feet. The well was drilled on the flank of the Umiat anticline, which contains the Umiat oil field discovered in 1950. The objective was to test for possible deeper hydrocarbon reservoirs in Early Cretaceous (Fortress Mountain) strata. Good oil and gas shows were encountered in the shallow Umiat oil zone, but testing was not possible because of the large sized borehole. Minor oil and gas shows were found in the Nanushuk and upper Torok and a significant show was found at 5,340 feet in the Torok. Tests of this zone gave flows of 2 - 6 MMcfd, but detailed analyses of the test data indicate a limited, depleting reservoir. Minor gas shows were found in deeper thin, nonporous sandstones.

Walakpa Test Well No. 1 (FY 1980)

The Walakpa well was completed on February 7, 1980, at a depth of 3,660 feet in argillite basement. The objective of the well was a large structural-stratigraphic trap in the Jurassic Simpson sand. The Jurassic sand was not present but a "pebble shale"-type sand tested gas in amounts significant to the local Barrow market.

West Dease Test Well No. 1 (FY 1980)

The West Dease well was completed on March 26, 1980, at a depth of 4,170 feet in argillite basement. The well was drilled to test a seismic structural-stratigraphic trap in the Sag River sandstone. The Jurassic Barrow and the Triassic Sag River sands were cored with good oil and gas shows and fair porosity but with very poor permeability. A test in the Barrow sand recovered only mud with an oil sheen. Minor gas and oil shows were found in the Torok and "pebble shale."

East Simpson Test Well No. 2 (FY 1980)

The East Simpson No. 2 well was completed on March 15, 1980, at a depth of 7,505 feet in argillite basement. Drilled 4 miles updip from the East Simpson No. 1, the objective was a seismically-sensed thickened section of the porous and oil-stained Sadlerochit strata found in that well. Minor oil and gas shows were found in the Torok and Sag River formations. A thin section of Sadlerochit was cored with a good oil show but a test of the sand recovered 161 barrels of formation water with a sheen of oil. Small-scale faulting is indicated between the wells in the area and may account for the thin Sadlerochit section. Sandstones of probable Endicott age were cored with poor to fair porosity and with dead oil shows. An Endicott play similar to that in the Prudhoe Bay area may lie updip from the East Simpson No. 2.

Question. We understand that even if Federal exploration were to be continued, it would not be conducted under the present contract with Husky Oil Company but would be subject to competitive bidding. What would be the cost of the drilling program conducted in that manner, including Husky close out costs and the investment required to mobilize one or more new contractors?

Answer. The Husky Oil NPRA Operations, Inc., contract expires on September 30, 1980. Two wells remain to be completed under the 24-well program started by Husky. We intend to extend the Husky contract to complete those two wells. Any additional wells authorized by Congress would be completed under a separate competitive contract or contracts. The cost to complete the

remaining two wells and to close Husky operations is estimated at $45 to $60 million. If Congress directs that four additional wells are to be drilled, we estimate the cost for one or more new contractors to be $145 million.

Question. What would be the cost of the same scope of work under the existing Husky contract?

Answer. We are using competitive bidding for this work to assure it is performed at the lowest cost to the public. We estimate that range to be approximately $160 to $190 million. Husky will have an opportunity to bid on that work. We have not requested a formal cost estimate from Husky under the current contract.

Question. What experience does the Survey have in managing day-to-day exploration, construction, and drilling activities?

Answer. A basic mission of the Geological Survey is the regulation of oil and gas activities on Federal and Indian lands. In addition to that basic mission, the Survey was assigned the NPRA program in June 1977. Over the years, much experience has been gained in the day-to-day conduct of petroleum operations.

Question. How would you administer one or more exploratory drilling contracts, and what would be the cost of directly managing NPRA opeations? Do you have sufficient resources in this budget for that approach?

Answer. There would be only one drilling contract, a complete package which includes the drilling of all four wells. A separate contract will be competed to to obtain those technical services that are unavailable within the existing USGS management structure. The Administration budget request does not include funding for drilling or management services because the request is based on the premise that the drilling program will be terminated.

NPRA Leasing Barriers

Question. What are the specific barriers to opening the NPRA to competitive leasing immediately? First, what act of Congress is required to permit leasing?

Answer. The principal barrier to opening NPRA to competitive leasing is the prohibition clause contained in Section 104(a) of the Naval Petroleum Reserves Production Act of 1976 which states:

> "No development leading to production of petroleum from the reserve shall be undertaken until authorization by an Act of Congress."

Congress would have to pass legislation to authorize the Secretary to lease lands within NPRA for exploration, development, and production of oil and gas resources. Our preferred option is the enactment of the Administration proposal, H.R. 6630.

Question. If Congress provided authority to begin leasing, what other requirements must be met before actual leasing can begin? (If necessary, details for the record.)

Answer. This would depend on how the authority was worded. Generally, there would be requirements to apply the NEPA provisions.

- Prepare a land use plan.
- Prepare operating regulations
- Coordinate with DOE on the production goals.
- Obtain anti-trust report from the Department of Justice.
- Issue a call for nominations of tracts.
- Select and evaluate tracts.

Question: Hasn't the Department conducted extensive studies already on the NPRA with direct appropriations recommended by this committee? And don't these studies include both oil and gas development issues and surface environment management?

Answer: Yes, on both counts.

Question: What is the total cost of all these studies to date?

Answer:

a.	105(b) Economic and Policy Analysis	$2 million
b.	105(b) Environmental Impact Assessment	$2.6 million
c.	105(c) Land Use Study	$7.29 million

Request: Please supply for the record the full details on all studies conducted to date, together with a summary of findings.

Response: The summaries of the 105(b) Economic and Environmental reports are attached as well as the final reports of the studies.

A complete set and a summary of the 105(c) land use study is en route to Washington and will be sent as soon as it arrives.

Summary of the 105(b) Environmental Impact Assessment

This is an environmental analysis of potential development, production, transportation, and distribution of petroleum resources from the National Petroleum Reserve in Alaska (NPRA). The analysis was accomplished by a task force within the Department of the Interior under authority of Section 105(b) of Public Law (P.L.) 94-258, the Naval Petroleum Reserves Production Act of 1976. The analysis is both broad and qualitative; its purpose is to apprise decisionmakers and the public of major environmental issues and concerns and to indicate impacts which would require in-depth analysis in any future program or project. Because no specific programs have been developed to date for NPRA, no site-specific analyses of impacts are possible. Such analyses will be possible only when specific lease sites and programs are identified. This impact analysis therefore considers those anticipated impacts that could likely be associated with future potential development. Depending upon location of potential development, many of the impacts discussed could be successfully mitigated or avoided; others would not even occur.

In the analysis of impacts, certain concerns evolved for the development and production of petroleum resources within NPRA and for transportation and distribution of the petroleum resources to refineries and market areas. The principal environmental concerns stemming from development and production are:

- Impacts on the Inupiat culture and lifestyle, particularly through effects on subsistence pursuits.
- Impacts on wildlife, especially on caribou and waterbirds.
- Depletion of gravel and water resources, which are in limited supply.

The Inupiat culture and lifestyle are currently under stress. Survival of the Inupiat culture as a unique and distinct entity depends upon the viability of its socioeconomic subsistence complex and its direct relationship and dependence on the arctic environment. This conflict is embodied in the joint role of subsistence and cash in the Inupiat economy.

Petroleum development in NPRA would further exacerbate this stress and further increase existing social and cultural problems. Traditional subsistence patterns would be further altered by disruption and reduction of the resource base. A further influx of workers, machinery, and introduced changes would increase demands on regional governmental and service infrastructure through increased demand for housing, health care, and transportation and could result in decreased quality of the available services.

Wildlife would be impacted by alteration or reduction of habitat, disturbance of migration patterns, and wildife population declines. Of prime concern is the Western Arctic Herd of caribou, which ranges over an area of 140,000 square miles, and calves in the Utukok River uplands area from late May until early June. These caribou, along with the bowhead whale, are a principal subsistence resource of the Inupiat. Petroleum development with its attendant gathering lines could seriously impede or alter the caribou migratory and calving patterns and could result in reduction or division of the Western Arctic Herd. Petroleum development, particularly in northern NPRA, would affect areas important to waterfowl, including most of the approximately 500,000 ducks that use NPRA in the summer and the millions of migratory birds that use the coastal zone barrier island-lagoon systems. Numerous geese occupy a unique molting area around Teshekpuk Lake and are especially susceptible to disturbance by noise and activities during the molting season.

Petroleum development within NPRA will require huge amounts of gravel and water, both of which are locally in short supply in the Arctic. Depending on location of development, gravel may have to be hauled hundreds of miles over ice roads in winter. Removal of gravel from beaches could accelerate shoreline erosion, and removal from the flood plains of rivers would alter streamflow characteristics and increase siltation during removal. Of major concern, however, is the allocation of a vital Arctic resource in short supply to petroleum development. Although water is generally available from deeper lakes and from rivers, sources may be considerably removed from the point of use.

The principal environmental concerns for transportation of petroleum resources from NPRA are:

- Impacts upon the Inupiat culture and lifestyle through increased access to the area and increased pressures on government and service infrastructures.
- Impacts on wildlife, particularly on caribou migration patterns and habitat access, from pipelines and roads.
- Potential oil spills along new pipeline or marine routes.

The transportation of petroleum to terminals along the Trans-Alaska Pipeline System would require extensive pipeline corridors which, along with roads

associated with development, could provide ready access to parts of NPRA and surrounding areas now accessible only by aircraft or snow machine. Such access to existing villages on the North Slope could alter the Native culture and lifestyle of the villages through increased non-Native population and increased competition for jobs and new pressures on socio-cultural, governmental, and service infrastructures. The overall impact will be to further stress the Inupiat population through weakening local control mechanisms now acting as a buffer between Western and Inupiat cultural and economic systems.

Pipelines to transport oil from the well fields to terminals could block or alter migration routes of the Western Arctic Herd of caribou and result in division or reduction of the herd. Blockage of some routes through the Brooks Range could deny the herd timely access to the traditional calving grounds in the Utukok uplands or alter winter distribution which would affect subsistence hunting south of the Brooks Range.

New pipeline corridors or new marine routes would open new areas to potential oil spills, some of which could be major. Oil spills in Arctic waters are of particular concern, since oil trapped under multi-year sea ice may not surface for years.

In the analysis of impacts, the development and experience at Prudhoe Bay and the construction and operation of the Trans-Alaska Pipeline System (TAPS) were used as general models. Together they represent the current level of technology and experience in the Alaskan Arctic environment. It was also assumed that all existing laws and regulations applicable to petroleum development and transportation, as well as stipulations for Prudhoe Bay and TAPS, would be applied, but that accidents and unintentional violations could occur. Because facilities vary widely with petroleum reservoir characteristics, no specific well-field model was used. For the transportation of petroleum from NPRA to terminals, three general corridors were assumed for illustrative purposes. These are: 1) from eastern NPRA to TAPS at Prudhoe Bay, 2) from eastern NPRA to TAPS south of Prudhoe Bay, and 3) from southwestern NPRA to the Bering coast at an alternate site in the vicinity of Cape Thompson. A marine terminal at Barrow for submersible tankers is also considered briefly because of previous studies.

This study report consists of a preface, an environmental analysis, and three appendices — a description of the environment, a discussion of environmental and planning controls related to petroleum development, and a description of current and standard practices for petroleum development in the Arctic.

The preface capsulizes the purpose of the study, the assumptions of the environmental analysis, and the major environmental concerns identified in the analysis.

The environmental analysis consists of a detailed description of all impacts identified by the task force — major or minor, long term or short term.

The three appendices provide information upon which the analysis is based. Appendix A describes the affected environment. Appendix B discusses planning and environmental controls which would govern petroleum operations in NPRA. Appendix C describes current and standard practices for such operations.

EXECUTIVE SUMMARY OF THE 105(b) ECONOMIC AND POLICY ANALYSIS
FINAL REPORT (December 1979)

Executive Summary

INTRODUCTION

As a Nation, we face critical and difficult decisions concerning the development of our scarce and increasingly valuable domestic energy resources. Many undeveloped domestic oil and gas resources are located in remote or technologically difficult areas, such as the Outer Continental Shelf (OCS) and Alaska. Their development may conflict with other uses of the land and pose significant environmental risks. Technological, environmental, and public health problems also constrain the use of coal, nuclear energy, synthetic fuels, and such unconventional energy sources as solar, geothermal, and wind power.

At the same time, recent cutbacks in foreign energy supplies and sharply increased prices of oil and gas have demonstrated again the extent of U.S. dependence on energy. In addition, our increasing reliance on petroleum imports exposes the United States to the risk of economic disruption and international political influence. In attempting to reduce these risks and increase domestic energy production, Congress and the Executive Branch continuously seek to achieve a judicious balance between the Nation's energy and security needs and various environmental, technological, social, and public health risks.

The National Petroleum Reserve in Alaska (NPRA) is a prime example of a frontier region that contains potentially important domestic energy resources. However, the cost of conducting oil and gas operations in the harsh Arctic environment makes development and production difficult. (See Appendix B. for a discussion of the typical field operations that could take place during each stage of petroleum development.) The considerable distance of the Reserve from major petroleum markets adds to the difficulty. Moreover, the environment and the indigenous human culture of the region could be affected adversely by petroleum extraction and transportation activities.

The Reserve, whose 24-million acre expanse is almost entirely wilderness, was originally set aside in 1923 by President Harding as Naval Petroleum Reserve No. 4 (NPR–4). It was designated as a national defense reserve under the jurisdiction of the Department of the Navy and viewed as a possible petroleum supply source during a military emergency. It is located on Alaska's North Slope and is bounded to the north by the Arctic Ocean and to the south by the Brooks Mountain Range. Its eastern border lies more than 50 miles west of the Prudhoe Bay oil field and the Trans Alaska Pipeline System (TAPS) (see Figures 1 and 2).

The threat of oil shortages during World War II prompted the Navy to accelerate its petroleum exploration program. The Navy's exploration program resulted in the discovery of the Umiat oil field, estimated to contain at least 70 million barrels of recoverable oil, minor discoveries of petroleum at Meade, Oumalik, Square Lake, Wolf Creek, Simpson and Fish Creek, and a gas field at Barrow (see Figure 1.1 in Chapter 1). The Umiat field has not been developed. The Barrow field produces gas for local use.

Passage of the Naval Petroleum Reserves Production Act of 1976 transferred jurisdiction over the Reserve to the Department of the Interior (DOI) and changed its name. The Act poses the question of how the petroleum resources of NPRA should be managed so as to contribute to the Nation's effort to increase domestic energy production and reduce dependence on imported petroleum.

To answer this question, the Act requires that four activities be carried out:

- Under Section 104(d), a continuation by the Department of the Interior of the petroleum exploration program initiated by the Department of the Navy.
- Under Section 105(c), a study by the Department of the Interior of the values and best uses of the lands in NPRA, exclusive of its potential for oil and gas development.
- Under Section 105(b), a Presidential study to determine the best overall procedures for the development, production, transportation, and distribution of NPRA's petroleum resources, consisting of an economic and policy analysis to study alternative procedures for NPRA petroleum resource development, and an analysis of the environmental consequences of alternative development procedures.

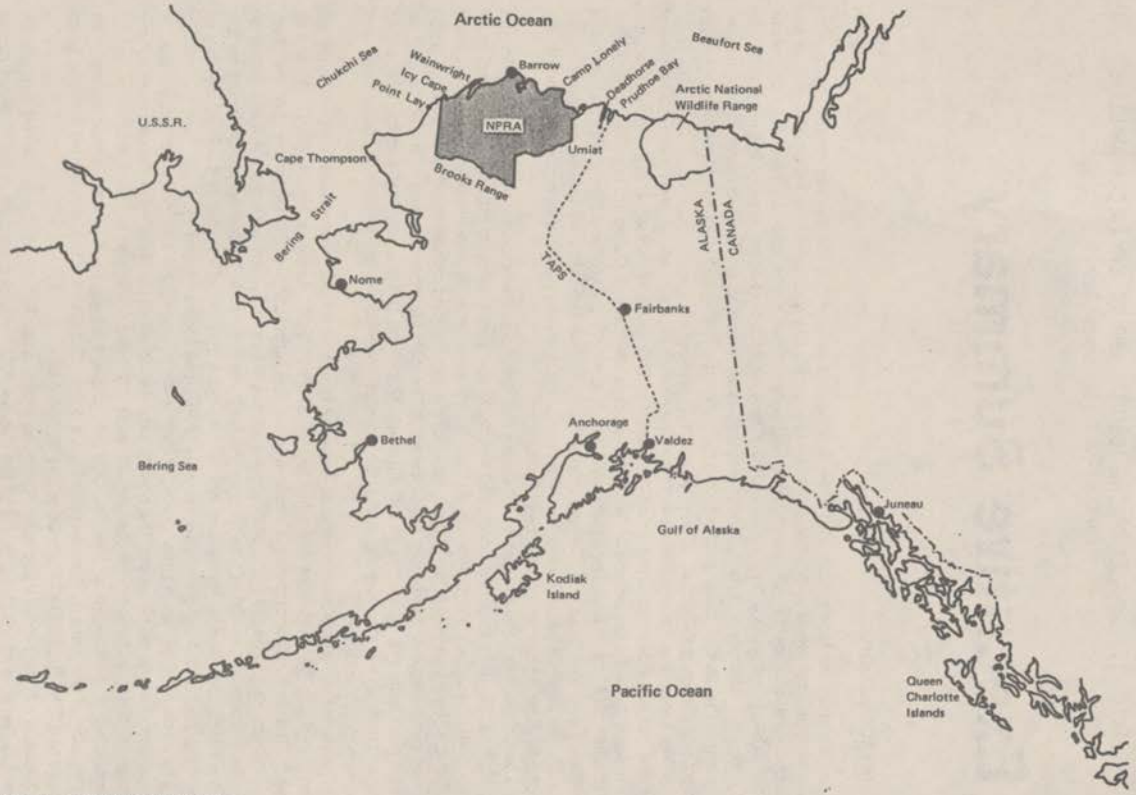


Figure I -- Reference Map of Alaska

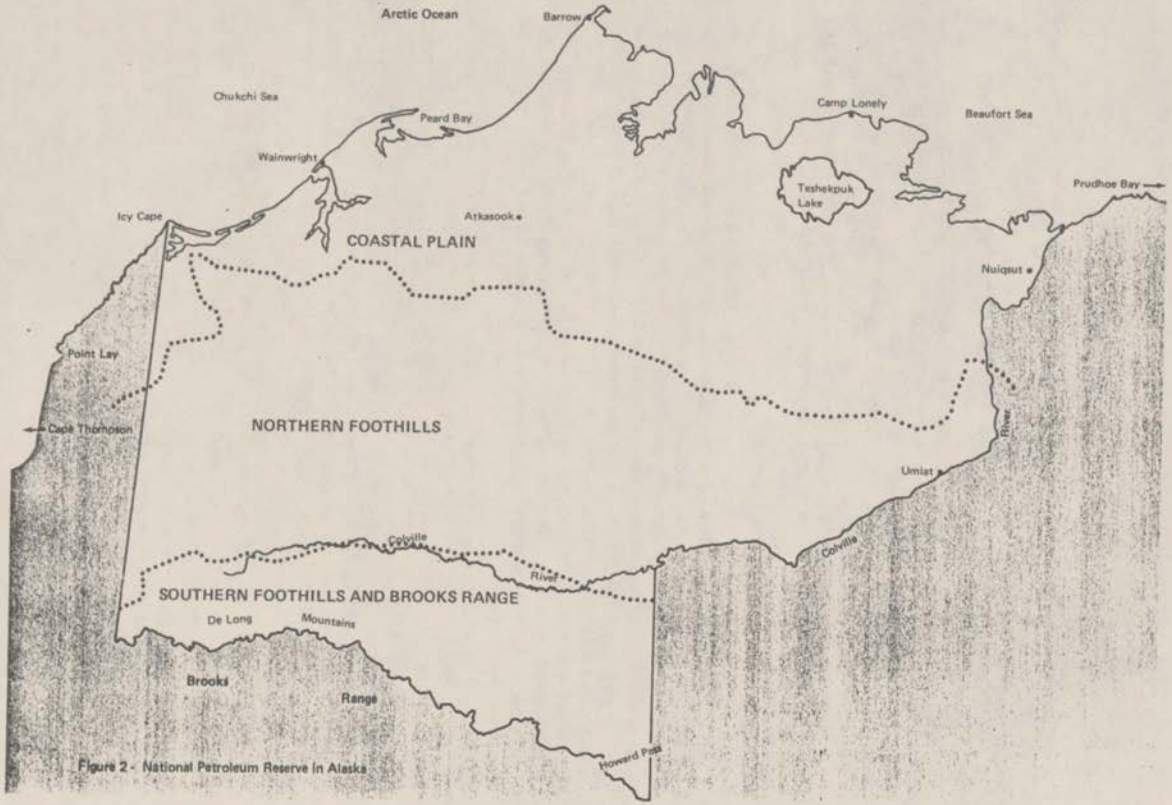


Figure 2 - National Petroleum Reserve in Alaska

This study meets the economic and policy analysis requirement of Section 105(b)(1)(A).

THE 105(b) ECONOMIC AND POLICY ANALYSIS

Primary responsibility for the 105(b) Study was assigned to the DOI. Within the Department, the Assistant Secretary for Energy and Minerals directed the Office of Minerals Policy and Research Analysis (OMPRA) to conduct the required economic and policy analysis, while the United States Geological Survey (USGS) was assigned responsibility for the complementary environmental analysis.

The broad objective of the Economic and Policy Analysis was to develop and analyze alternative policies and procedures for managing NPRA's petroleum development. In this effort, major use has been made of petroleum resource data developed by the USGS and the Department of the Navy exploration and research programs. These data were thoroughly reviewed by an experienced panel of USGS geologists and resource appraisal experts. The preliminary estimates of NPRA's oil and gas resources and the evaluation of the Reserve as a petroleum province contained in this report were derived from analysis of these data.

Various issues related to the management of NPRA petroleum resources have been identified, each with a range of policy options.

1. What are the economic effects on oil and gas development of alternative land management approaches that could be applied in NPRA? If specific areas of NPRA are excluded from petroleum production and development and/or transportation to afford maximum protection to nonpetroleum values, what will be the consequences of such designations on NPRA petroleum production and economic values?
2. Which leasing system or systems and terms should be used if titles to NPRA petroleum resources are transferred from the public to the private sector?
3. How will the State of Alaska be affected by NPRA development? NPRA petroleum development could result in additional jobs, higher incomes, large tax revenues, and increased population for Alaska, but development could also place burdens on State and local public finances.
4. When and at what rate and geographical sequence should NPRA be developed? The timing of development, both when it begins and how fast it proceeds, will determine how soon NPRA's resources would become available to the Nation and how development would affect Alaska.
5. What differences in economic value result when NPRA petroleum is shipped through existing or planned pipelines such as the Trans Alaska Pipeline System (TAPS) and the Alaskan Highway Gas Pipeline System (AHGPS) versus shipment through pipelines connecting producing fields with an Alaska northwest coast port such as Cape Thompson?

To structure the analysis of these and other policy issues, five resource management goals were used as study criteria. Each policy issue was analyzed according to the degree to which it promoted attainment of these goals:

- Economic benefit to the Nation
- Reduced dependence on imported oil and gas
- Return to the public
- Protection of the environment
- Equitable treatment for Alaska

ANALYTICAL APPROACH

To the extent possible, evaluation was supported by quantitative as well as qualitative analysis. Specific policy issues such as whether the public or private sectors should conduct NPRA activities and what might be a preferred NPRA leasing system did not lend themselves as readily to quantitative analysis (see Chapter 2). In Chapters 3, 4, and 5, however, a quantitative approach was used to analyze other policy issues such as the effects on oil and gas development of alternative land management approaches.

To assist in the policy analysis, a computer model was developed to simulate the resource potential and the process and economics of exploration, development, production, transportation, and distribution of NPRA oil and gas. This model explicitly recognizes the uncertainties inherent in petroleum activities through the use of a probability process and provides a consistent methodology for estimating the major economic consequences of a

specified set of management alternatives. To facilitate policy analysis, and for easier reference to specific geographic areas in the Reserve, NPRA's surface area was arbitrarily divided into 15 activity areas. A more detailed discussion of the model is presented in Appendix A.

RESOURCE EVALUATION AND IMPLICATIONS FOR GEOGRAPHICAL SEQUENCE OF DEVELOPMENT

A preliminary petroleum resource evaluation performed for the 105(b) Study indicates that the estimated NPRA petroleum resources in place are sizeable. Estimates of oil resources in place range from 1.0 billion barrels with a 95–percent probability to 16.5 billion barrels at the 5–percent level, with an average value of 7.1 billion barrels (see Table 1.1 in Chapter 1). Gas resources in place are estimated to range from at least 3.5 trillion cubic feet with a 95–percent probability to 35 trillion cubic feet with a 5–percent probability, and an average of 14.1 trillion cubic feet. Chapter 1 of this report presents in more detail the results of the NPRA petroleum resource evaluation.

Estimates of petroleum in place expressed as average barrel of oil equivalents (BOE) in each activity area are displayed in Figure 1.2 and tabulated in Table 1.4 of Chapter 1 together with the 5 percent probability values for each activity area. BOE in place is obtained by converting the estimated gas in place to the energy equivalent in oil and adding the resulting value to the estimated oil in place.

The potential for oil and gas accumulations was unevenly distributed throughout the Reserve; the eastern, northern, and northwestern sections are currently believed to have greater potential than the midwestern and southwestern sections. More than 80 percent of the BOE resources in place are expected to be found in 6 of the 15 activity areas, and nearly 50 percent are expected to be found in just three areas. Currently, the most promising area is expected to be the southeastern wedge, which is thought to contain approximately 20 percent of NPRA's BOE resources in place. The next most promising area lies immediately to the northwest, and the third most promising area lies in the northwestern corner of NPRA. When BOE in place is disaggregated by oil and gas in place an important relationship emerges: approximately two-fifths of total gas in place is estimated to be located in three activity areas in the northwest (Areas C, D, and I) and approximately one-half of total NPRA oil in place is expected to be found in three activity areas comprising the southeastern wedge of NPRA (Areas G, H, and L).

DEVELOPMENT UNDER TRADITIONAL LEASING PROCEDURES

Five comprehensive NPRA management approaches are analyzed in Chapter 3. The management approach that serves as the reference point for this study is Approach 2, which assumes management of NPRA through traditional OCS-type leasing and development procedures. Approach 2 is referred to as the base case. A principal component of the base case is development by industry under a variable bonus bid/fixed royalty system with leasing beginning in 1983 and extending to beyond 1990 when all areas of the Reserve will have been opened to leasing. For all five management approaches it is assumed that oil and gas produced from the Reserve would be transported to TAPS and the proposed Alaska Highway Gas Pipeline System, that the real price of crude oil landed at Long Beach is $30 per barrel in 1986 and that the real price of gas delivered to the city gate (Chicago and San Francisco) is $7.00 per thousand cubic feet in 1986 (both in 1978 dollars).

NPRA is an attractive petroleum province under the base case approach. Analysis indicates better than a 97–percent chance that oil or gas will be commercially produced if all of the Reserve is opened to petroleum leasing (Table 1.2). The estimated size of the minimum commercial stand-alone pool that would lead to the initiation of production, i.e., that fully meets its exploration, production, development, and transportation costs, is less than 100 million barrels of recoverable oil (or 1 trillion cubic feet of recoverable gas). These minimum commercial stand-alone oil and gas pools have favorable locations, costs, and other attributes that may not necessarily be transferrable to other pools of these sizes in NPRA. Thus, the 70 million barrel oil field discovered at Umiat could be commercial.

Of the five comprehensive management approaches analyzed, the base case is the second most effective in promoting economic benefit to the Nation from development of NPRA's petroleum resources. The average net national economic benefit (NNEB) resulting from this approach is estimated to be $17.5 billion (in 1978 dollars). NNEB consists of at least two components: increases in net national income and decreases in energy dependence. On the average, it would cost $16.80 to explore for, produce, and transport a barrel of oil; costs for the same activities for gas are estimated at $5.10/mcf. Average transportation costs per barrel of oil are roughly estimated at $9.00.

The average values of delivered oil and gas under the base case approach are 1.85 billion barrels and 3.74 trillion cubic feet, respectively. There is a 5–percent chance that oil deliveries will be at least 4.76 billion barrels and a 5–percent chance that gas deliveries will be at least 12.88 trillion cubic feet. Delivered oil and gas are estimates of the petroleum resources which could actually be produced less the quantity used to power the transportation system. The mean value of average daily oil deliveries is approximately 85 thousand barrels, and the 5–percent value 217 thousand barrels; for gas, the respective values are 170 million and 588 million cubic feet (see Table 1).

Table 1
Summary Results of Petroleum Activities Under the Base Case
Values at Mean (Average) and 5% Probability Levels

	Mean	5%*
Oil in Place (billions of barrels)	7.10	16.45
Gas in Place (trillions cu.ft.)	14.12	34.97
Total Barrel of Oil Equivalents Delivered (billions of barrels)	2.51	5.91
Total Amount of Oil Delivered (billions of barrels)	1.85	4.76
Average Daily Oil Deliveries (thousands of barrels)	84.55	217.4
Number of Years Oil Production	21.7	35.0
Total Amount of Gas Delivered (trillions of cu. ft.)	3.74	12.88
Average Daily Gas Deliveries (millions of cu. ft.)	170.8	588.0
Number of Years Gas Production	18.3	43.6
Net National Economic Benefit** (discounted at 7%)	17.50	43.29
Total Revenues	96.29	223.5
Total Costs***	47.88	112.9
Total Lease Payments	22.12	43.64
Total Bonus Bid Payments	11.28	20.31
Total Royalty Payments	10.84	26.21
Federal Corporate Income Taxes from production	11.49	29.77
Total Severance Tax Payments to Alaska	7.48	18.08

*There is a 5% chance that the quantity is at least the given value. Each value of this column is estimated independently, therefore components necessarily do not sum to totals.
**All dollar values in this table are in billions of 1978 dollars, undiscounted, unless otherwise noted.
***Exclusive of lease and tax payments other than the taxes incorporated in the transportation tariffs.

Implementation of the base case approach would result in considerable cash flows to the Federal and State Governments. Given the assumption that all the excess profits resulting from petroleum activities are returned to the Government in lease payments, the public would receive, on the average, approximately $11.3 billion in bonus bid payments and $10.8 billion in royalty payments under the base case approach. Federal corporate income tax revenues from production are estimated at $11.5 billion, on the average. The State of Alaska and the North

Slope Borough would receive an estimated $11.6 billion in revenues and incur $419 million in estimated costs (see Table 5.1 of Chapter 5).

ALTERNATIVE NPRA MANAGEMENT APPROACHES

Four additional comprehensive management approaches were analyzed to illustrate both the range of policy choices available and varying perspectives of Congress and the public:

Approach 1. Accelerated petroleum development

Approach 3. Public sector exploration, development and production

Approach 4. Major attention to environmental values

Approach 5. Accelerated development with major attention to environmental values

The following sections and Table 2 will briefly highlight the findings of each of these analyses. A more extensive presentation is found in Chapter 3. The comprehensive management approaches are not directly comparable in the sense that differences in results are not easily attributable to individual policy assumptions, since each approach is a combination of many policies. The five approaches are therefore evaluated as separate and whole packages, rather than used for comparisons of individual policy options that make up each approach.

APPROACH 1: ACCELERATED PETROLEUM DEVELOPMENT

The policy components of Management Approach 1 are similar to those of the base case except that lease sales begin 1 year earlier, in 1982; the entire area of NPRA is opened for exploration through a series of lease sales over a 5–year period (1981–1986) rather than an 8–year period; and a bonus bid/fixed profit-share rather than a bonus/bid fixed royalty leasing system is used.

Approach 1 results in the highest NNEB (see Table 2) of all five approaches. The reduction in the level of U.S. dependence on imported oil and gas, with average deliveries estimated to be 1.9 billion barrels for oil and 3.6 trillion cubic feet for gas, matches the base case in importance.

APPROACH 3: PUBLIC SECTOR EXPLORATION, DEVELOPMENT, AND PRODUCTION

The Federal Government plays a more direct role in NPRA development under Approach 3 than in Approaches 1 and 2. It would explore, develop and produce NPRA petroleum resources. Field activities could be undertaken by private contractors, and management and decisionmaking authority retained by the Federal Government. Private firms would purchase NPRA production at the wellhead and transport and distribute it to markets. Petroleum exploration and development would be permitted in all of NPRA except the Utukok River Uplands and Teshekpuk Lake areas. Transportation would be permitted across these environmentally sensitive areas. The full exploration program would not begin until 1990, and the activity areas where petroleum development is permitted would be opened for exploration gradually over a period of 10 years.

Approach 3 results in considerably less NNEB than would occur under Approaches 1 and 2 because the delay in petroleum production results in a greater discounting of revenues and because of the removal of areas with considerable petroleum resources. The average value of NNEB under Approach 3 is estimated as $11.8 billion, approximately 33 percent less than under Approach 2.

Withdrawal of the Teshekpuk Lake area leads to a loss of roughly one-seventh of NPRA oil in place and withdrawal of the Utukok Uplands area results in a loss of one seventh of gas in place. The average oil and gas resources in place that are withdrawn from the Teshekpuk Lake area are 1.1 billion barrels of oil and 1.4 trillion cubic feet of gas, or 15 percent of average NPRA oil and 10 percent of average gas in place. The resources in place in the withdrawn Utukok Uplands area averaged 0.4 billion barrels of oil and 2.0 trillion cubic feet of gas, or 6 percent of average NPRA oil and 14 percent of average gas.

The average BOE delivered under Approach 3 is 2.3 billion barrels, approximately 9 percent less than under Approaches 1 and 2.

Table 2
Summary Results of Petroleum Activities Under Alternative Management Approaches
Values at Mean (Average) and 5% Probability Levels

	Approach 1		Approach 2		Approach 3		Approach 4		Approach 5	
	Mean	5%*	Mean	5%*	Mean	5%*	Mean	5%*	Mean	5%*
Total Amount of Oil Delivered (billions of barrels)	1.88	4.93	1.85	4.76	1.61	4.75	0.82	3.15	1.84	4.79
Total Amount of Gas Delivered (trillions of cubic feet)	3.61	12.94	3.74	12.88	3.88	12.70	1.91	8.81	3.35	11.89
Net National Economic Benefit** (discounted at 7%)	19.00	49.07	17.50	43.29	11.79	29.18	3.63	12.61	17.26	42.69
Total Bonus Bid Payment	6.27	11.55	11.28	20.31	NA***	NA	2.70	9.66	5.39	10.01
Total Profit-Share or Royalty Payment	19.05	46.02	10.84	26.21	NA	NA	10.16	30.92	18.07	41.77
Severance Tax Payment to Alaska	7.11	16.30	7.48	18.08	NA	NA	3.96	11.75	6.97	15.92

*There is a 5% chance that the quantity is at least the given value. Each value of this column is estimated independently, therefore components necessarily do not sum to totals.
**All dollar values in this table are in billions of 1978 dollars, undiscounted, unless otherwise noted.
***NA = Not Applicable.

APPROACH 4: MAJOR ATTENTION TO ENVIRONMENTAL VALUES

Approach 4 strongly favors environmental protection by prohibition of exploration, development, production and transportation activities in the Colville River Valley, Utukok River Uplands, Teshekpuk Lake, and Icy Cape/Kasegaluk Lagoon areas, by a restrained pace of petroleum development, and by Government management of exploration. Leasing to the private sector begins in 1995 and lease sales in the available areas would be held over a period of 19 years, between 1995 and 2013.

Approach 4 proves to be the least effective in promoting economic benefit to the Nation because of the restrictions on land available for production and transportation and the slower pace of operations. The average value of NNEB under this approach is $3.6 billion, only one fifth of the NNEB resulting from Approach 2.

Approach 4 also results in the lowest value of oil and gas deliveries of the five management approaches. The potential contribution of Approach 4 to a reduced dependence on imported oil and gas is mainly affected by withdrawal of the environmentally sensitive areas and by prohibitions of transportation corridors across these areas.

APPROACH 5: ACCELERATED DEVELOPMENT WITH MAJOR ATTENTION TO ENVIRONMENTAL VALUES

The policy components of Approach 5 were selected to provide a high degree of protection to certain NPRA environmental values while permitting accelerated petroleum development by the private sector in less environmentally sensitive areas. The emphasis on environmental protection is achieved by instituting environmental regulations and stipulations more stringent than those of the base case in the same areas as were removed under Approach 4: the Utukok River Uplands, Ice Cape/Kasegaluk Lagoon, Colville River Valley and Teshekpuk Lake areas of the Reserve. However, transportation corridors would be allowed across these areas. The remaining policy components are identical to those of Approach 1.

The average NNEB resulting from Approach 5 is $17.3 billion, approximately five times as great as the NNEB estimate of Approach 4, primarily because in Approach 4 approximately 3.6 billion BOE in place in the environmentally sensitive areas are withdrawn from potential production (see Figure 1.2 of Chapter 1). Average NNEB and average oil and gas delivered under Approach 5 are somewhat less than under the base case.

NPRA WILDLIFE AND WILDERNESS DESIGNATIONS

To provide assistance for land use planning, the economic implications on oil and gas production of two major land use designations were analyzed: (1) management with specific areas designated wildlife refuges and (2) management with specific areas designated wilderness areas. Significant percentage reductions in the achievement of the national objectives of reduced dependence on foreign petroleum, increases in national wealth, and fair return to the public were often found to result.

MANAGEMENT WITH SPECIFIC AREAS DESIGNATED AS WILDLIFE REFUGES

For this analysis it was assumed that a wildlife refuge designation would result in prohibition of exploration, development and production activities within the specified area. Transportation would be permitted but with a 15 percent cost increase to reflect the costs of additional stipulations designed to reduce environmental impacts.

Three cases were selected. Case 1 consists of designating the Teshekpuk Lake area as a wildlife refuge, Case 2 designating the Utukok River Uplands area as a wildlife refuge, and in Case 3 both these areas are designated as wildlife refuges. The implications of each of these wildlife refuge designations are compared to the results of the base case (Approach 2).

Under Case 1, the average resources in place in the withdrawn Teshekpuk Lake area are 1.1 billion barrels of oil and 1.4 trillion cubic feet of gas, approximately 15 percent of average NPRA oil and 10 percent of average NPRA gas in place under the base case scenario. The withdrawal of these resources has significant impacts upon NNEB which averages $15.2 billion as compared to an average value of $17.5 billion under Approach 2. Oil and gas deliveries average 1.6 billion barrels and 3.4 trillion cubic feet, a reduction of 16 percent for oil delivered and 9 percent for gas delivered when compared to the base case estimates.

In Case 2, the resources in place in the withdrawn Utukok River Uplands area averaged 0.4 billion barrels of oil and 2.0 trillion cubic feet of gas, or approximately 6 percent of average oil

and 14 percent of average gas in place under the base case. The estimates for the amount of oil delivered are slightly less than for the base case, while average gas deliveries decreased 14 percent.

In Case 3 when both areas are designated as wildlife refuges, an estimated 1.5 billion barrels of oil and 3.4 trillion cubic feet of gas, which represent 21-percent and 24 percent of the total estimated NPRA oil and gas in place, are withdrawn. The estimate for oil delivered is 20 percent less than oil deliveries in Approach 2, while gas delivered is the lowest of any of the refuge cases with a 22-percent decrease on average from the base case. The $14.7 billion average NNEB estimate represents nearly a 16–percent decrease from the base case.

MANAGEMENT WITH SPECIFIC AREAS DESIGNATED AS WILDERNESS AREAS

Assigning certain lands inside the Reserve to wilderness area classifications could both prohibit petroleum-related activities on these lands and raise the costs of production and associated activities on nearby lands (e.g., by denying developers access to raw materials, such as gravel from riverbeds needed to conduct operations). Additionally, by assigning Federal lands within or near NPRA to an exclusionary wilderness classification, construction and operation of the transportation system needed to move petroleum to the Lower–48 States could be restricted, and transportation from NPRA's western, southern and eastern boundaries could be made more complicated.

Six cases were selected for the wilderness analysis. Case 1 consists of withdrawing the Teshekpuk Lake, Utukok River Uplands, Colville River Valley, DeLong Mountains/Arctic Foothills, Ikpikpuk River, and Kasegaluk Lagoon areas; Case 2, withdrawing only the Teshekpuk Lake and Utukok River Uplands areas; and Cases 3 through 6, withdrawing the Colville River Valley, DeLong Mountains/Arctic Foothills, Ikpikpuk River, and Kasegaluk Lagoon areas individually. These cases are compared to the base case (Approach 2).

Case 1 has by far the largest value for resources in place in the withdrawn areas and results in the most severe impacts on oil and gas deliveries and NNEB. More than 76 percent of oil in place and 66 percent of gas in place are withdrawn, with consequent reductions of 86, 92, and 83 percent of oil and gas deliveries and NNEB, respectively, compared to the base case averages. The probability of commercial production is only 31 percent. Thus, restriction of transportation access along with withdrawals of areas from production has a significant impact upon the economic viability of the Reserve as a petroleum province.

Case 3, withdrawal of the Colville River Valley area, is the next most severe, with reductions of 25, 15, and 31 percent for oil and gas delivered and NNEB, respectively. Case 5, withdrawal of the Ikpikpuk River area follows in severity of impact with slightly less gas delivered than Case 3, but somewhat more oil and consequently higher NNEB. Chapter 4 presents the detailed analysis of both the refuge and wilderness designations.

TRANSPORTATION OF NPRA GAS AND OIL TO THE WEST COAST OF ALASKA

The sensitivity of NPRA petroleum development to the possibility that the AHGPS would not be in place in 1985, as well as the possibility of access restrictions to TAPS was tested.

The sensitivity of NPRA gas development to shipment by pipeline to the west coast of Alaska rather than to AHGPS was analyzed. A marine route using liquefied natural gas tankers from Cape Thompson on the northwest coast of Alaska was selected. This marine system consists of an LNG plant and marine terminal at Cape Thompson on the Chukchi Sea north of the Bering Strait, icebreaking LNG tankers operating between Cape Thompson and Point Conception north of Long Beach, California and a vaporization plant at Point Conception to convert the LNG to pipeline gas.

For oil, pipelines would connect producing fields to Cape Thompson. A marine system from Cape Thompson to Long Beach using 280,000 DWT icebreaking tankers was selected.

The probability of oil and gas production in all of NPRA is reduced from 97 to 85 percent when oil and gas are shipped to the west coast of Alaska. NNEB and average BOE delivered are reduced approximately 29 and 16 percent, respectively. Royalty payments and severance tax payments are each reduced roughly 25 percent as compared to the base case. When these results are disaggregated by oil and gas, an interesting pattern emerges. The average oil and gas delivered declines by 16 and 18 percent respectively, while at the 5–percent probability value, gas delivered to Cape Thompson is approximately 9 percent greater than deliveries to AHGPS are at the 5–percent value. Thus, the Cape Thompson route appears to be less advantageous for NPRA oil and gas than TAPS and AHGPS on the average, but more advantageous for NPRA gas at the 5–percent value than the AHGPS. One reason for this result may be that the Cape Thompson route does not assume an existing pipeline with a fixed capacity, so that the system can be sized appropriately, thus lowering per unit costs at the

higher 5–percent flow rates. Additionally, the expected major gas producing fields in NPRA tend to be located in the western region nearer Cape Thompson, while some of the largest oil producing fields appear to be located in the eastern region of the Reserve nearer TAPS.

ALTERNATIVE RESOURCE TRANSFER SYSTEMS

Nine systems were analyzed in the study:

1. Bonus bid with fixed royalty
2. Bonus bid with sliding-scale royalty
3. Bonus bid with fixed profit share
4. Work commitment with acreage relinquishment
5. Two-stage system with profit-share bid for exploration and bonus bid for development and production
6. Bonus bid for development following public exploration
7. Price bid for produced resources following public exploration and development
8. Negotiated concession agreement
9. Multimineral lease

Each of these systems was found to have advantages and drawbacks and these are discussed in the context of NPRA development in Chapter 2. Broad, flexible leasing authority with discretion to establish terms and conditions appropriate for the high risks, geological uncertainties and unusual operating conditions in some areas of the Reserve appears to be appropriate.

BONUS BID/FIXED ROYALTY

The bonus bid with fixed royalty system may not be well suited to a high risk petroleum province like NPRA since this system allows the public sector to share only minimally in the risk. The bonus payment, which has no risk-sharing features, increases the potential economic loss a firm may suffer. Additionally, the royalty payment adds an increment to the cost of each unit of production and can lead to losses in economic value. On the other hand this leasing system is well known and favored by industry, and the administrative costs involved in its implementation would be minimal.

BONUS BID/SLIDING-SCALE ROYALTY

Under a bonus bid, sliding-scale system a higher royalty payment would result from the more productive and profitable tracts, and the economic life of fields may be extended since smaller, more marginal fields and fields in the decline phase of their productive lives would pay lower royalty rates. Additionally, problems associated with a large front-end bonus payment could be alleviated. However, the Government may have difficulty in establishing a sliding scale schedule for a frontier province such as NPRA.

BONUS BID/FIXED PROFIT SHARE

A bonus bid/fixed profit share system in which the Government shares both in the profits from successful tracts and in the losses from unsuccessful tracts theoretically may promote the highest economic benefit to the Nation from development of the Reserve. The risk-sharing features of this system would reduce the financial risk to the industry, thereby encouraging additional investment. Additionally, profit-share payments involve minimal interference with a firm's investment and operating decisions. This system could enhance the return to the public from transfer of NPRA resources to the private sector. However, a reasonably accurate and uniformly applicable profit share system may be difficult to design, and the administrative costs and problems involved in its implementation could be high.

WORK COMMITMENT WITH ACREAGE RELINQUISHMENT

A work commitment with acreage relinquishments would provide strong incentives for rapid exploration and development over large areas of the Reserve. However, the resulting net economic value of the resources may be less than the maximum since the incentive under this system is for rapid but not necessarily economically efficient exploration. The bid variable can

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be either a cash bonus or a work commitment. When the work commitment is the bid variable, this system may result in lower payments to the public than under alternative systems, because, in effect, bonus payments are converted to work commitment expenditures.

TWO-STAGE BIDDING

A two-stage system requires a profit-share bid for exploration and a bonus bid for development and production. It reduces the uncertainty regarding the value of resources prior to making development decisions and allows for Government intervention between exploration and development based on a consideration of the economic benefits of development related to any environmental costs. However, the economic value of NPRA could be affected by any uncertainty concerning the timing of the second-stage sale as well as the bidding behavior of companies competing at the second stage. A drawback of this system is that it shifts risk onto the exploration company and may discourage participation in the first stage.

BONUS BID FOR DEVELOPMENT FOLLOWING PUBLIC EXPLORATION

A bonus bid for development following Government exploration would probably work best in areas of NPRA where there is a relatively high degree of geological uncertainty, where costs are high, or where the land has high environmental value. Since uncertainty about the presence and value of resources would be reduced prior to the transfer of title, the risk to the firm should be similarly reduced and the return to the public should be higher. However, potential problems with Government operation of an exploration program may lead to the discovery of fewer resources than under a conventional leasing system.

PRICE BID FOR PRODUCED RESOURCES FOLLOWING PUBLIC EXPLORATION AND DEVELOPMENT

The economic benefits resulting from this approach will depend on the efficiency of the Government exploration and development program. Major administrative problems associated with implementation of an unfamiliar operation, the possibility of less efficient operations, higher administrative costs, and less exploration success could result in less production and lower NNEB than under alternative systems.

NEGOTIATED CONCESSION

A negotiated concession system may encourage rapid exploration and resource development. However, it may also encourage an overallocation of resources to exploration and the return to the public may be considerably lower than under alternative systems. Because considerable subjective judgment is required in awarding the concession, decisions regarding the allocation of tracts to specific companies may be open to controversy.

MULTIMINERAL LEASE

In those cases in which more than one mineral is potentially present on a tract, a multimineral lease could enable an operator to recover minerals jointly at lower costs than separate recovery efforts would entail. However, it is not clear that there will be a need for this type of more broadly defined multiple-mineral lease instrument in NPRA since the lands in the Reserve with the greatest oil and gas potential do not appear to overlap areas with other mineral potential with the exception of coal, which appears to be uneconomic to produce at this time.

MAJOR LEASE TERMS AND PROVISIONS

Because of the geologic uncertainties, the large geologic structures in some areas, the long lead times and the high costs of NPRA operations, a primary lease term of perhaps 10 years, large tract sizes of up to 60,000 acres, and removal of joint bidding limitations may be necessary in specific areas of the Reserve. Each of these terms will be briefly discussed.

PRIMARY LEASE TERM

Because of environmental sensitivities, climatic conditions and logistical requirements three to seven years could be required for exploration, and in the event a commercial discovery is made, up to seven years for development. Thus an initial lease term of perhaps 10 years should be considered. If the lease term is too short, prospective lessees may be discouraged from acquiring leases, or inefficiencies may result as operators carry out hasty activities.

SIZE OF TRACT

Tract Delineation on the Basis of Geology

In most cases, potential oil or gas bearing structures or traps should be explored and subsequently developed and produced as a unit to provide the most efficient use of resources. Tract delineation on the basis of geological considerations could result in an integrated operation and provide the most efficient exploration and development and reduce the need for post-lease unitization agreements. However, geological tract delineation may not be feasible for those areas containing stratigraphic traps and in the southern and southwestern regions in which there is little well information.

Geographic Tract Size

Since NPRA appears to have very large structures in some regions, larger tract sizes in these areas would minimize administrative problems involved in exploration and development and would facilitate environmental control and operational supervision. Given implementation of a work commitment bid with acreage relinquishment system, the large acreages available would provide a strong incentive for rapid exploration and development over large areas of NPRA. On the other hand, too large a tract size may decrease efficiency by reducing the number of exploration strategies that could be applied simultaneously in an area.

JOINT VENTURE BIDDING LIMITATIONS

Joint bidding by major oil companies should be considered in some areas because of the uncertainties, costs and risks associated with Arctic operations, especially in the less explored areas of NPRA and in areas where there are very deep and large structures, such as in the southern region of the Reserve. Joint operations could also bring differing geological perspectives to bear on exploration.

ADDITIONAL ISSUES ASSOCIATED WITH NPRA DEVELOPMENT

Three additional issues analyzed in the study relate to (1) distribution of NPRA petroleum, (2) the timing and rate of development, and (3) the proper roles of the public and private sectors in NPRA development.

DISTRIBUTION

There are two reasons for allowing exports of NPRA petroleum: (1) export restrictions may result in higher costs and lower value at the wellhead for NPRA petroleum, thus reducing the attractiveness of the Reserve as a petroleum province; (2) by the time NPRA petroleum is available, the Strategic Petroleum Reserve should be operating.

Similarly, any constraints on distribution of NPRA oil to the Lower–48 States could diminish the economic attractiveness of the Reserve as a petroleum province.

TIMING AND RATE OF DEVELOPMENT

The earlier and more rapid the development, the higher will be the net economic benefits to the Nation. If NPRA were maintained in an unexplored and undeveloped state, it would be impossible to use its petroleum resources to provide any short-run relief in the event of an emergency. Additionally, it would be prohibitively expensive to explore and develop the Reserve and then to hold the resources in readiness. A more economic alternative would be to produce and consume NPRA petroleum while continuing to store petroleum in the Lower–48 States as part of the Strategic Petroleum Reserve.

THE ROLE OF THE PUBLIC AND PRIVATE SECTORS

Conceptually a direct Government role in exploration, development and production could correct market imperfections and problems affecting social efficiency, such as alternative attitudes towards risk and the failure of the market to reward private operators for supplying the national security benefit. However, Government operations could be less efficient than a private program, could incur higher administrative costs, and could result in less exploration success since fewer exploration strategies would be used than under a private, decentralized system.

Question: Why can't all these studies be sufficient to meet the NEPA requirements? Is it really necessary and practical to conduct a whole new series of environmental studies?

Answer: These analyses should provide adequate information for conducting the necessary NEPA analysis. However, until legislation is enacted and an appropriate leasing program is designed under the new legislative structure, it is not possible to conduct the impact and alternatives analysis required by NEPA. Because of the extensive information base for NPRA, we believe this task can be accomplished quickly. It must be emphasized that the principal factor determining the date of the first lease sale is not environmental analysis and land use planning; it is the need for industry and government to acquire and interpret detailed seismic data before selecting and bidding on tracts.

Question. If it were the intent of Congress to initiate private leasing in the NPRA as rapidly as possible, what kind of statutory language would be needed?

Answer. Our preferred option would be enactment of the Administration's proposal. The most expedient approach would be to amend the Naval Petroleum Reserves Production Act of 1976 to authorize the Secretary to permit an oil and gas leasing program within the Reserve pursuant to that Act and the regulations developed by the Secretary. The language proposed by the House Appropriations Subcommittee takes that approach.

Question. What particular problems, if any, would be associated with language that would make the provisions of the Mineral Leasing Act applicable to NPRA?

Answer. The major problems resulting from applying the Mineral Leasing Act (MLA) provisions to NPRA operations would be:

- limitation placed on competitive leasing. Competitive leasing would be limited to areas of known geological structure of a producing oil and gas field. The Barrow gas field is the only producing field in NPRA.

- limitation on lease size. Under the MLA, the maximum lease size is 640 acres. High risk, cost and uncertainty involved in the Arctic justify larger tracts. Moreover, the structures are very large in this area.

- limitation of the lease term. Under the MLA, the primary term of competitive leases is limited to 5 years. The long leadtime and limited operating period will justify up to 10-year leases.

- limitation on leasing system. The MLA limits leasing to a royalty plus bonus bid system. The high risk, cost, and uncertainty justify use of other systems.

- reduction in competition. A 300,000-acre limitation is placed on the number of acres that any one individual or corporation may hold in north Alaska.

Barrow Area Gas Development

Question. How many wells will the two Barrow gas fields contain when they are fully developed, and what volumes of gas will they produce?

Answer. Current and anticipated demand does not justify full development of the gas fields at this time. Currently, there are 7 producing wells in the South field and 2 producing wells in the East field. The 2 fields contain approximately 25 billion cubic feet of recoverable gas. The current production is approximately 1 billion cubic feet per year.

Question. The closure of the Naval Arctic Research Laboratory in Barrow will significantly reduce the amount of gas consumed in the community. Will it have any effect on the rate structure?

Answer. It is unknown at this time how the rate structure will be affected with the closure of NARL. However, NARL's closure will result in a significant increase in production cost. The Congress in its Conference Report on H.R. 4930 has asked the Department to review the rates being charged to the residents of Barrow to determine if a proceeding should be instituted to revise the rates. Preliminary discussions are being held with the Federal Energy Regulatory Commission (FERC) to initiate this review.

Question. Do you have any long range plans for additional drilling in the Barrow gas fields?

Answer. Currently, there are 9 producing wells in the 2 gas fields supplying gas to Barrow. Three more wells are scheduled to be drilled in the East Barrow field this year. We believe these wells will meet future anticipated demands for the next 10 years or more. No additional wells are planned at this time.

Question. Didn't GS at one time have plans which envisioned as many as 9 working wells in the South field and an additional 9 wells in the East field?

Answer. Over the years, there have been 9 producing wells drilled in the South Barrow gas field. Not all wells were drilled at once, but rather on a schedule to provide for proper field development consistent with demand. There are seven producing wells currently operating in the South Barrow field. The East Barrow field would be developed under the same principle as the South field. Currently, there are 2 producing wells in the East field.

Question. The fiscal year 1980 Barrow gas fields program has not yet been completed. I understand that drilling of the 3 wells in the East field may not take place until September. Is it possible that the FY 1980 program may not be as successful as you anticipated and that additional work might be needed to make the fields produce at maximum recovery?

Answer. Our objective is orderly development of the field in a manner that will meet demand rather than provide for immediate maximum production. Additional wells planned for 1980 will achieve that objective. However, if the 2 Barrow wells scheduled for completion

this fall are not successful, additional wells would be required to effectively drain the East Barrow field.

Topographic Surveys and Mapping

Question. Why has a high percentage of some relatively unpopulated States such as North Dakota been mapped in this manner while little more than half of some more densely populated States, for example California and Illinois, has been completed?

Answer. The heavily populated areas (urban areas) of all States have been mapped in the 7.5-minute series. A few less populated States such as North Dakota have extensive high Federal interest for mineral, metal, and water appraisal, particularly energy areas including known coal reserves. These unmapped and relatively unpopulated areas were mapped in the 7.5-minute series to meet National priority requests of many Federal and State agencies. These priorities were determined in accordance with OMB Circular A-16. Special funding about $1 million annually, was directed by the old Bureau of Reclamation in the 1960's and early 1970's for 7.5-minute mapping of States lying in the Missouri River Basin.

California and Illinois, however, have had complete coverage of either 7.5- or 15-minute mapping for some time. Although the 15-minute mapping in these States is out of date and badly in need of replacement, the high National priorities did not develop in these States until after most of the unmapped areas of the U.S. were programmed for map production. These State areas are now receiving more attention.

Question. What is your average cost per square mile for revising quadrangle maps, and how many square miles of revisions do you plan for fiscal year 1981?

Answer. Cost per square mile varies greatly with map content, such as an urban area compared to a rural area. The type of revision is also a major factor. The fastest and least costly is photorevision, where the average program cost is about $40 a square mile; and the most costly is complete revision, which averages about $350 a square mile. Presently there are about 40,000 7.5-minute quadrangle maps published, and to keep this growing inventory of maps current, requires extensive revision of some maps and only photorevision of others. We plan to revise about 100,000 square miles of 7.5-minute mapping (1,800 maps) in FY 1981.

Question. The budget justification indicated (on page 33) that the backlog of maps exceeds 7,000. Does the size of this backlog cause any serious problems?

Answer. The principal problems in having such a backlog of maps needing revision is that the Nation's map users may have to make critical decisions based on out of date maps. This backlog is slowly being reduced and the National High Altitude Photography Program is expected to provide more needed imagery to photoinspect and revise those maps determined to be in need of revision.

Question. The President's spring budget amendment reduced funding for the orthophotoquads program by $500,000 and the justification indicates that 400 orthophotoquads will not be produced in lower priority areas. What are some of the examples of these lower priority areas?

Answer. Our current orthophotoquads program consists primarily of products prepared under joint funding agreements to meet high

priority needs of Federal and State agencies. Also some orthophotoquads are prepared for general purpose needs, using only appropriated funds. These latter products supplement existing map sources and often provide additional valuable new detail not depicted on existing maps. These latter products, therefore, are assigned a lower priority and can be deferred.

Question. What is your present workload backlog in the orthophotoquad program?

Answer. We do not have an orthophotoquad backlog per se for we are generally meeting our annual commitments to Federal and State agencies. However, Federal and State agency requests for orthophotoquads are presently programmed over a 2 to 2 1/2 year period with additional requests being received on a continuing basis.

Airborne Radar Systems

Question. The spring budget amendment also reduced funding requested for the airborne profiling of terrain system by $900,000. Exactly what will you accomplish in fiscal year 1981 with the balance of $2.7 million?

Answer. The fabrication of the system components will be completed and tested by the contractor. An existing Department of the Interior aircraft is being acquired under lease and airframe modifications will begin for the installation of the system components.

Question. The Committee has received a number of letters over the last few years touting these side looking airborne radar (SLAR) systems. Is there a high priority need for these kinds of systems in carrying out the responsibilities of the Geological Survey?

Answer. SLAR affords a potentially useful means of acquiring specialized remote sensing data. However, the level of these data's utility will be better understood after completion of the studies begun in FY 1980. To date, the claims of SLAR proponents have not been considered adequate justification to prioritize the acquisition of these data as a standard policy. The Geological Survey views SLAR as only one of many useful tools which can be used in conjunction with other geological, geophysical, and remote sensing techniques by an experienced Earth scientist.

Question. Can you get the same kind of information as effectively and more cheaply through some other source?

Answer. Indeed, one of the principal objectives of the SLAR effort initiated in FY 1980 will be to assess the cost effectiveness and applicability of SLAR for "topographic and geologic mapping and geological resource surveys." This is particularly important in light of the existence of a suite of conventional geological, geophysical and remote sensing techniques for the gathering of Earth science data. Each of these specific techniques have advantages and may supply unique capabilities. SLAR has advantages including cloud penetration and structural enhancement. However, as with any tool, it must be selected and used by experienced scientists who weigh the cost benefit of gathering specialized scientific data versus the goals of a particular study.

Question. You are requesting approximately $8.1 million for small-scale and special mapping projects. Is the Geological Survey reimbursed for these special services; and if so, what was the total revenue generated from this subactivity in fiscal year 1979?

Answer. The Survey is reimbursed for most special projects that are prepared on a one-time only request and do not contribute to the National mapping goals. The intermediate-scale mapping effort received about $2.5 million in reimbursable funds in FY 1979 from Federal agencies and state joint funding agreements. In addition, totally reimbursable funding of about $225,000 is provided annually by the National Science Foundation for mapping support in Antarctica. The funding in FY 1979 was: $8.1 million appropriated and about $3.0 reimbursable for a total of $11.1 million.

Question. What is the average time required to process a routine request at the National Cartographic Information Center?

Answer. The average time to process a routine request is 10 days.

Question. How does this processing time compare with that of five years ago?

Answer. The average time to process routine requests five years ago was about 30 days.

Question. In addition to providing files, etc., does the Geological Survey provide any financial assistance to the State affiliates of the National Cartographic Information Center?

Answer. No financial assistance is provided to NCIC State affiliates. However, the initial information data files furnished to the affiliates and the periodic updating of these data is a cost to NCIC. As a pilot project, the Texas State affiliate (the Texas Natural Resource Information System) is being provided about $10,000 to collect cartographic information of that State and provide it to NCIC for input to the information data files for use by Federal and State agencies as well as by the public.

Question. What percent of the cost of the National Cartographic Information Center is recovered through user fees?

Answer. No user fees are collected, however, in accordance with OMB Circular A-25, customers are charged only enough to recover the cost of reproduction. These funds are credited to the Survey's account. Sales of printed maps and published books are deposited to the Treasury.

Geologic and Mineral Resource Surveys and Mapping

Question. The amended budget request for Geologic and Mineral Resource Surveys and Mapping is $142.4 million which is an increase of $3.7 million over appropriations to date for fiscal year 1980. The primary request in this area is $32.5 million for earthquake hazards reduction. Is any of your earthquake hazards analysis cooperatively funded with state or local governments?

Answer. Several western States have active earthquake hazards reduction programs that are coordinated with the National Program. In fiscal year 1979 California spent approximately $18 million on earthquake hazard reduction, Nevada $120 thousand, and Utah $400 thousand. The Geological Survey supports work by the Association of Bay Area Governments (San Francisco) directed toward the application of results from the National program. A formal cooperative agreement exists between the Survey and Alaska for the study of earthquake hazards in the Anchorage area.

Question. Do you have cooperative arrangements where state officials agree to monitor certain of your earthquake detection and recording devices?

Answer. Such cooperative arrangements are usually in the form of a contract between the Geological Survey and State and private universities with programs in earthquake studies. Contracts for monitoring earthquake detection devices exist between the Geological Survey and the California Institute of Technology, the University of Colorado, Pennsylvania State University, University of Southern California, the University of Utah, the University of Nevada, the University of Washington, and St. Louis University. The total dollar amount for these contracts in FY 1980 is approximately $1.5 million.

Question. What is the significance of the information you have recorded during the August 6 and October 15, 1979, earthquakes in California?

Answer. The most significant information obtained from these earthquakes are recordings of the strong ground motion at sites near the epicenter. In the case of the October 15 earthquake, over 40 records of this type were obtained, 13 of these were from a building that failed during the earthquake. This is the first time that such data has been obtained from a structure that failed, and the entire suite of 40 records is the most complete and comprehensive set of strong-motion data ever recorded.

Question. How will this information be used to reduce earthquake damage and injury in the future?

Answer. This data is used by engineers and architects in the design of earthquake-resistant buildings and critical facilities. It is also used by local, State, and Federal agencies in the development of building codes. This data tells engineers and planners the nature and severity of strong ground motion that is to be expected from earthquakes and helps them design and site structures to enhance public safety and reduce property damage.

Question. How much is requested in fiscal year 1981 for cooperative agreements with foreign governments to establish instrumentation networks for earthquake prediction research.

Answer. Approximately $1.5 million is spent annually in cooperative studies for earthquake prediction in foreign countries, approximately half of this total is directed toward studies involving instrumentation networks at foreign sites.

Question. Is this program basically a form of foreign assistance?

Answer. No. The Earthquake Hazards Reduction Act of 1977 dictated that "The research elements of the program shall include . . . (9) studies of foreign experience with all aspects of earthquakes." This is recognition of the fact that there is much to be gained through the sharing of results and data with countries with active earthquake prediction programs such as Japan, China, and the USSR. Many large earthquakes occur outside the United States and it is to our advantage to participate in the study of these events and apply what we learn to predicting earthquakes and to assessing earthquake effects in the United States.

Question. Are we learning anything from these cooperative agreements which we could not learn in the United States?

Answer. Yes. From the study of successful earthquake prediction case histories in China and the USSR we have installed similar instrumentation along active fault zones in the United States. We have gone to earthquake regions in Central America, Yugoslavia, China, and the Middle East to study earthquake effects on buildings,

critical facilities, and societal institutions. If we had to wait for similar earthquakes to occur in the United States to make these studies, our learning rate would be considerably slower.

Question. The budget justification (on page 65) indicates that a six station array of seismometers was installed to augment the continuing study of the Toktogul Reservoir in Russia. In view of the present chill in relations with the Soviet Union, are we getting any data from this project at the present time?

Answer. This study is carried out through a contract with the Lamont-Doherty Geological Observatory of Columbia University. The data is analyzed jointly with the USSR and the results are brought to the United States by Lamont scientists returning from periodic visits. To date we have no indication of any difficulty with these procedures; however, Lamont scientists will not return to the USSR site until September or October, 1980.

Other Lands Resource Surveys

Question. How much of your funding for FY 1980 is earmarked for review of the Teton Dam failure?

Answer. Approximately $10,000, largely in salary costs, was diverted from studies of landslides for review of the report on the Teton Dam failure in FY 1980?

Question. Why is no savings from the completion of this study reflected in the fiscal year 1981 base estimates?

Answer. The U.S. Geological Survey's participation in the Teton Dam failure study, beginning in FY 1977, has largely been through participation in committees charged with the examination of existing data on the geology of Teton Dam, design of new data collection efforts by others, review of all data relating to possible failure mechanisms, and development of recommendations. This limited, but time consuming, Survey involvement was not funded by additions to the base program, but by diversion of personnel from existing landslide studies. Completion of the review study does not reflect completion of a funded effort and is not, therefore, reflected in a reduction of the base program.

Question. The justification notes (on page 71) that a substantial portion of the $1 billion property damage due to landslides could be eliminated through application of available technology. What are these specific technologies referred to?

Answer. Landslide loss reduction measures can be broadly characterized under two general categories--hazard avoidance and hazard mitigation. Hazard avoidance involves the development and implementation of land-use measures to preclude, where possible, the construction of structures susceptible to damage. For example, San Mateo County, California, based on slope stability maps done by the Survey, has established a Resource Management Zoning District that, in areas of greatest instability, limits dwelling units to one for each 40 acres, and then only where foundation conditions can be proven to be stable.

An example of a hazard mitigation technique is the Hillside Grading Ordinance of the City of Los Angeles which regulates the entire construction process from site selection through construction. Severe storms in the winters of 1968-1969 and 1977-1978 provided an opportunity to assess the effectiveness of such ordinances. In 1968-1969, more than 97 percent of the damage occurred to sites developed before enactment of the latest revision

of the grading code in 1963. In the winter of 1977-1978, more than 93 percent of the damage was to sites developed before 1963.

Other types of hazard mitigation involve a wide variety of engineering methods of stabilizing landslides but may be effective or economically feasible only for smaller landslides or where high-cost or critical structures must be protected.

Application of such loss-reduction techniques rely first and foremost on a knowledge of the distribution and character of potential landslides, the further development and application of land-use and engineering mitigation measures, and the dissemination of such knowledge to the public and to appropriate public agencies in an interpretive form that can be used for planning and decisionmaking.

Question. What is the rationale for reducing the reactor hazards research program by $700,000 below the fiscal year 1981 base?

Answer. When the normal process of licensing nuclear plants was interrupted by events at Three Mile Island, it appeared prudent to reduce the scope of reactor hazards investigations. Both industry and the NRC had invoked a hold on licensing. After the accident analysis data had been evaluated and recommendations were made to upgrade nuclear plants, the licensing process was resumed. The series of events leading to renewed processing of licenses occurred in a shorter time frame than perceived earlier, and the original rationale for delay of the program may have been overtaken by events.

Question. What is the lead time to translate the research learned in this program to the site specific applications?

Answer. Lead time is three to five years. The program was initiated in 1975, and results of early work have been and are now becoming available.

Question. Isn't this the kind of generic research which also has applicability for siting other large non-nuclear structures such as a liquified natural gas plant, synthetic fuels plant, or possibly a reservoir?

Answer. This type of generic research does have value in siting of other large structures. Geologic studies by the Survey in California have provided significant data applicable to the Auburn Dam project and the liquified natural gas facility at Point Concepcion. County and municipal governments in the Houston area are using results of similar geologic studies for guidance in urban development.

Question. Why then the 20 percent reduction?

Answer. At the time the 20 percent reduction was proposed, the NRC was still analyzing the Three Mile Island accident, and the issuance of operating licenses was deferred until the results of the analysis had been evaluated. The NRC has now resumed licensing.

Question. What are the locations of the six station array, and are we getting any other useful data from these stations?

Answer. The array is located in Tadzhik in southwestern USSR. The spacing between the individual seismometers of the array is a few tens of kilometers. The seismometers and the array geometry

are designed to record and locate small, local earthquakes. Although the seismometers record teleseismic (distant) events, the data is not used for any other purpose than to record and locate seismicity in the vicinity of the reservoir.

Question. What was the total cost for this six station array, and is there any support funding requested in fiscal year 1981 budget.

Answer. The total contribution by the United States to date has been approximately $100 thousand. This sum has paid for equipment and the salaries and travel of the Columbia University scientists. Columbia University has requested about $75 thousand for continued support of this work in 1981. Most of this money will be spent in the United States for salaries, airplane tickets, and data interpretation. The Soviet contribution has, at least, matched the United States contribution. All travel and living expenses of United States scientists within the Soviet Union are paid by the USSR. All costs associated with field work and installation are paid by the Soviet Union, this includes helicopter support.

Question. Does the Survey have any other cooperative programs with the Russians or other foreign countries which have been suspended at the present time and if so what funds were requested for these activities in the fiscal year 1981 budget?

Answer. This question implies that the joint earthquake prediction program with the Soviet Union has been suspended. This is not the case. The earthquake work is carried out under the US-USSR Joint Committee on Cooperation in the Field of Environmental Protection. The USGS receives policy guidance for this program from the Environmental Protection Agency which is the lead US agency in the Joint Committee. After the Afghanistan incursion, we were advised by EPA to proceed with our program on a low-key but continuing basis. We were advised that "At the present time, acceptable activities are ones involving humanitarian concerns (such as health, pollution control, and the like) or ones where there are clear, near-term, substantive benefits to the United States". We were advised that activities under the Environmental Agreement satisfy the first requirement and could continue.

Question. The object class for the reactor hazards research program indicates that there would be a reduction of nearly $300,000 in personnel compensation alone, but the summary table (on page 54) indicates that there would be no change in the full-time permanent position ceiling of 64. How do you explain this apparent discrepancy?

Answer. We are presently projecting for FY 1981 a permanent position ceiling of 64 at the time of the position count period in September. However, there will be a reduction in total man-years expended on the reactor hazards research program throughout the year which will equal $300,000 in personnel compensation. It is possible, however, that within our internal ceiling we may revise positions by program. If so, this would be apparent in our FY 1982 budget submission.

Mineral Discovery Loan Program

Question. What is the anticipated 1981 level of royalty payments under the Mineral Discovery Loan program?

Answer. It is impossible to predict the amount of royalties that might be paid in any one year, because the royalty is based on mineral production from individual mining properties having

an obligation to pay royalty to the government. In FY 1979, $25,000 was received in royalty payments; $43,000 has been received to date in FY 1980. The total amount owed to the government from mineral properties explored under the program and having an obligation to pay royalty is $1,000,000; payment is, however, made only if ore is produced.

Question. How many staff years were associated with this program in FY 1980?

Answer. Four.

Energy Resource Surveys

Question. Exactly what are the roles of the Geological Survey and the Department of Energy in the energy resource surveys effort and how is this information used by each organization once it is compiled?

Answer. Except for uranium, for which DOE has lead responsibility, the role of the Geological Survey in energy resource surveys is to make periodic regional and national assessments of energy resources (coal, oil and gas, oil shale, geothermal energy). These assessments are based on and complement a program of research on the origin, environment of deposition, and physical and chemical characteristics of these resources (including uranium). The Survey's work primarily involves field and laboratory investigations in geology, geochemistry, and geophysics, with the goal of obtaining a better understanding of the habitats and magnitude of the Nation's energy resources. The principal roles, on the other hand, for DOE are to determine the potential production rates of energy minerals under varying economic situations and to conduct or contract for, research designed to overcome natural conditions that inhibit energy resource development. DOE uses the resource information produced by Geological Survey in its economic and technical studies.

Geological Survey geothermal research activities emphasize (1) scientific studies to develop fundamental information on the nature, distribution, and energy potential of the various kinds of geothermal systems, and (2) the assessment of geothermal resources on a regional and national basis. The DOE geothermal program is more site specific and technology oriented, with their principal interests being in the confirmation of individual commercially productive reservoirs and in the stimulation of increasing industrial utilization of geothermal energy. The Geological Survey studies are primarily generic in nature, whereas the DOE studies are very site-specific. However, the program of the two agencies are designed to be complementary and mutually supportive. The resource characterization studies of the Geological Survey which aid the discovery of previously unidentified geothermal systems (i.e., the "hidden" system, those without surface thermal manifestations) and the Geological Survey regional assessments provide a catalog of geothermal areas on which DOE bases its site-specific studies; and DOE's site-specific studies provide new data which help the Survey update its regional assessments and improve the characterization of geothermal systems.

Question. Please provide for the record a table of USGS and DOE funding for energy resource surveys by resource category.

Answer.

Funding for Energy Resource Surveys
(Dollars in thousands)

Resource Category	FY 1980		FY 1981 (anticipated)	
	USGS	DOE	USGS	DOE
Coal resources	$4,423	$ 865	$6,195	$ 865
Onshore oil and gas	6,841	2,260	6,923	1,410
Oil shale	756	---	765	---
Uranium/thorium	6,674	65,000	6,773	27,000
Geothermal	10,330	---	7,946	---

Question. How much of the $6.9 million in the Geological Survey request for 1981 is for eastern Devonian shale and how much for western tight sands?

Answer. None. Geological Survey participation in these two programs is funded entirely by DOE. The level of support anticipated in FY 1981 is $250,000 for eastern Devonian shale and $1 million for western tight sands.

Question. Your justification indicates a total of $458,000 is requested for grants to states in the coal investigations subprogram. How many grants to states does this represent and why is grant funding necessary rather than entering into cooperative agreements or other cost-sharing arrangements?

Answer. The requested fund represent 8 to 10 grants to States. Most of these grants will provide for cost sharing of up to 30 percent by the receiving States.

Question. Please provide for the record an estimate of the recoverable coal reserves on Federal lands by State and indicate the estimated percentage of these reserves which are still unleased at the present time.

Answer. An estimate of the recoverable coal reserves on Federal lands by State and the unleased coal reserves on Federal lands by State is not available at this time.

Oil and Gas

Question. Does the Department of Energy or anyone else contribute a portion of the cost in preparing your revisions to the Geological Estimates of Undiscovered Recoverable Oil and Gas Resources in the United States?

Answer. The revision of Geological Estimates of Undiscovered Recoverable Oil and Gas Resources in the United States (USGS Circular 725), now nearly completed, has been funded solely by the Geological Survey.

Question. Why does the number of wells logged in your onshore oil and gas program drop from 50 in 1979 to 25 in 1980 and then increase back to 50 again in 1981?

Answer. The decrease in the number of wells logged in 1980 is due to the following factors:

- a delay in the delivery of a slim-hole gravimeter
- an increasing number of small-diameter wells drilled, which cannot be logged with a standard-size down-hole gravimeter
- a lesser demand by DOE for well logs
- a limitation on travel funds for field work.

Question. You are conducting joint studies with the Department of Energy to survey the oil and gas reserves and the production potential of several foreign countries. What is the cost-sharing relationship with the Department of Energy?

Answer. During FY 1980, the Geological Survey will spend $20 to $30 thousand of its appropriated funds on study of the energy resources of foreign countries. DOE so far has provided the Survey $130 thousand to support this work and has been asked for an additional $80 thousand.

Question. How is this data gathered?

Answer. The data used in the Geological Survey's study of foreign energy resources (primarily oil and gas investigations) are gathered from publicly available sources (trade journals, scientific publications) and from the International Oil and Gas Field Records, a proprietary data file purchased for Government use by DOE.

Question. Is there any benefit to the foreign country and is this cost shared with them?

Answer. The foreign countries presumably could indirectly benefit from the Survey resource studies, but they are not in any way involved in the program nor do they share any of the costs.

Other Energy Resource Surveys

Question. How much of your $6.8 million request for uranium activities is directed toward the National Uranium Resource Evaluation, and how much is DOE funding for the same activity?

Answer. The Survey spends none of its appropriated funds on the National Uranium Resource Evaluation, for which DOE is responsible. The Survey commitment to the NURE program is virtually completed; the remaining activities essentially are extensions of the Survey's basic research program in directions which will aid DOE in assessing the geologic favorability or actual resources in "world-class" (non-sandstone) types of deposit. The amount of FY 1981 DOE funds to be transferred to Survey for NURE work has not yet been negotiated, but it is expected to range between $300,000 to $600,000. The Geological Survey also is asking DOE for funds to develop and test objective and quantitative methods of assessing uranium resources, to improve upon the methods presently used.

Question. What is the distinction between your activities in this area and those of the Department of Energy outlined in the memorandum of understanding?

Answer. As outlined in the memorandum of understanding, the Department of Energy is responsible for planning and developing a national program in energy research and development, while the Geological Survey carries out research on energy-related minerals as a part of its general research responsibilities for the Nation's mineral and water resources. Specific to the National Uranium Resources Evaluation (NURE) program, Survey performed high-quality quadrangle evaluations in areas containing the bulk of the Nation's known and potential resources. In addition, the Survey receives DOE funding to expand its own research on both known domestic deposits and on lesser known types of deposits that are productive elsewhere. Finally, DOE funds augment the Survey's research that is directed toward developing improved methods of resource assessment.

Question. Your request for personnel compensation funding under geothermal investigations is reduced by more than half a million dollars, and yet there is no reduction in the permanent personnel ceiling of 126. Why is this?

Answer. The 126 position figure is an estimate of the number of full-time people we will have working in the program during the count period in September 1981. No reduction is contemplated in this number, because this is during our field season. The reduction in personnel compensation reflects a planned reduction in total man-years expended on the geothermal program over the total year; hence the apparent discrepancy.

Question. What will be the impact of eliminating approximately $1.2 million in research grants in the geothermal program?

Answer. The extramural component of the Survey's Geothermal Research Program, based on unsolicited proposals from organizations outside the Federal government, will be terminated. These external projects have provided funding support by research grants and contracts to more than 50 different organizations, primarily academic institutions, since the extramural component was first established in FY 1975. These projects have filled gaps, both in geographic coverage and in scientific expertise, that the Survey's internal program has lacked. The extramural program has also been extremely useful in accelerating progress in regional resource assessments, in evaluating exploration techniques, and in gaining a better understanding of a characteristic description of the various types of geothermal systems. Termination of the extramural component will mean not only a delay in completing major elements of the research objectives but also a deficiency in certain required fields of expertise. The latter will have to be remedied by internal personnel action or by fallout results from research programs conducted for other scientific purposes.

Question. Are there any multi-year projects which will be terminated because grant funds will not be available in fiscal year 1981?

Answer. Yes, four grants with four different universities that were initiated during the past two years and which should be two or three year projects will have to be terminated. This action does not involve an abrogation of financial obligations by the Federal government because each grant has been funded on a yearly basis.

Question. If there are any terminations of this kind, will the program be affected adversely?

Answer. Yes, in the sense that work will be incomplete and therefore project objectives will not be achieved. Results to date will not be irretrievably lost, but they will not provide a complete study.

Other Energy Hydrology Studies

Question. Please indicate the distinctions between the U.S. Geological Survey's program and that of the Department of Energy in the nuclear energy hydrology area.

Answer. The objective of the Department of Energy's (DOE) program in the hydrologic area is related to the selection and construction of a repository for high-level radioactive waste that can be licensed by the Nuclear Regulatory Commission (NRC). As such, much of DOE's work is site- and rock-media specific.

The Geological Survey has three objectives in the hydrologic area: (1) Making specific geologic investigations at some potential repository sites as requested by DOE; (2) Conducting a program of generic research and methods development that supplements the DOE site specific program. For example, the Survey is looking at other rock types and geologic environments, investigating what would happen to nuclear waste if it did get into the ground-water system, and studying how to characterize a mass of rock remotely without having to drill a large number of holes that could later allow water to move in and waste to move out; and (3) Assisting the DOE and all other affected agencies in formulating those parts of their waste programs that involve Earth science.

Question. How are the oil shale hydrology studies of the Geological Survey, the Department of Energy, and the Environmental Protection Agency, to name a few government agencies involved, coordinated?

Answer. Coordination takes place on two levels - through the Office of Water Data Coordination (OWDC) and via direct communications with energy program personnel in other agencies. With respect to the first level, program plans are exchanged at interagency meetings and information related thereto is documented through the Catalog of Information on Water Data. Direct communications take place principally at the field and regional levels where technical information on program and project activities is exchanged; coordination at headquarters is largely related to planning and exchange of project status reports.

Question. Even within the Department of Energy the oil shale program is handled by at least three different organizations (the fossil energy office, the environmental office, and the office of resource applications). Does this dichotomy cause problems for you in dealing with the Department of Energy on oil shale matters?

Answer. So far, we have not identified any problems that may be related to the DOE dichotomy in handling the oil shale program.

Water Resources Investigations - Federal Program

Question. How does the Geological Survey insure that it maximizes cooperative funding by states and others before it sets out to solely fund a water resource investigation project under the Federal program?

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Answer. Cooperative funding by States and others is maximized in part through an extensive nationwide network of field contacts. In FY 1980, the Geological Survey's Water Resources Division has joint-funding agreements with more than 800 agencies representing jurisdictions in every State, Puerto Rico, and several of the territories.

Further, the program formulation procedure is a continuing process that takes into account Federal as well as State interests by advance planning and communication at many stages of development. Attention is focused on emerging problems and decisions are constantly made with respect to which activities should be continued, modified, or eliminated and which new projects should be initiated.

Thus, the Federal/State Cooperative Program is a partnership that reflects a high degree of unanimity regarding mutual needs of Federal, State, regional, and local agencies. The process of project selection is a true mutual effort in which the Geological Survey represents national interests, including the needs of other Federal agencies, and the cooperators represent State and local interests. The result is a balanced program that evolves from careful evaluation of needs, priorities, and resources.

Typically, the amount of work proposed for inclusion in the Cooperative Program is considerably greater than can be accommodated. As a result, everything possible is done to ensure that the most essential programs are undertaken.

Hydrologic findings, understanding, and information developed through the Cooperative Program have for years furnished significant and invaluable support to Federal Program activities. Both programs are operated in a complementary and coordinated manner in an effort to direct Survey resources toward work elements of highest priority national interests.

Water resources investigations projects in the Federal Program focus on river basins covering more than one State, multi-state areas with widespread hydrologic significance as in the Regional Aquifer Systems Analysis Program, and specialized applications concerned with development of new techniques or technology as in subsurface-waste management and improved instrumentation. With respect to the collection and dissemination of hydrologic information, the Federal Program supports analyses of the quantity and quality of surface- and ground-water for court decrees, compacts, public lands, rivers and aquifers that cross State boundaries, and other areas of interstate or international concern. Federal Program funds also are utilized to carry out investigations with critical national emphasis such as nuclear waste storage, Federal coal leasing, and oil shale hydrology.

Question. How much are you spending under the National Water Data System program to develop and evaluate ambient water quality conditions?

Answer. Expenditures by the Geological Survey to describe and evaluate ambient water quality under this part of our program amount to slightly more then $16 million, distributed as follows:

Data Collection and Analysis	$9,331,000 *
Regional Aquifer Systems Analyses	3,000,000
Core Program Hydrologic Research	2,780,000
Ground Water Recharge	253,000
Subsurface Waste Storage	731,000
	16,095,000

* Of this amount, approximately $588,000 will be spent for development and evaluation of new analytical methods, field techniques, and instrumentation for evaluating ambient water-quality conditions as described on page GS-112 of the Budget Justification.

Question. Isn't the Environmental Protection Agency developing research in this same area? How is your work coordinated with theirs?

Answer. Both the Geological Survey and the Environmental Protection Agency are involved in the effort to describe and evaluate ambient water quality conditions. The Geological Survey is a major source of information on the subject for EPA, and the two agencies have several memoranda of understanding which provide for coordinated efforts in data collection. In addition, the Geological Survey is working closely with several EPA offices on such matters as quality assurance of chemical analytical data, data storage and retrieval, and occurrence of toxic substances.

Question. When will your river quality assessments be completed for the Apalachicola, Schuylkill, Truckee-Carson, and the Potomac River Basins?

Answer. The Apalachicola, Schuylkill, and Truckee-Carson Assessments will be completed in FY 1981. The Potomac River Quality Assessment will end in FY 1982.

Question. Why didn't the January budget submission identify the Jordon River Basin as a new study to be initiated in fiscal year 1981?

Answer. Following preparation of the January budget submission, manpower considerations necessitated revision in the River Quality Assessment Program. The revisions freed funds which led to plans for initiation of a small study of the Jordan River. The $500,000 March reduction in this program resulted in postponing the initiation of the Jordon River study.

Question. Please identify the nine reports now proposed for completion in 1981 and the three which are expected to be delayed.

Answer. The following River Quality Assessment reports will be completed in FY 1981.

1. Hydrology of the Truckee and Carson River Basins, California and Nevada

2. Desert Land and Mountain Waters: A History of Water Development in the Truckee and Carson River Basins, California and Nevada.

3. Hydrologic Model for the Truckee-Carson River System, California and Nevada.

4. Workshops for Project Planning and Coordination, Truckee-Carson River-Quality Assessment, California and Nevada.

5. Flood Patterns and Tree Distribution on the Apalachicola River Flood Plain.

6. Production and Decomposition of Leaf Litter on the Apalachicola River Flood Plain.

7. Nutrient and Detritus Transport in the Apalachicola River.

8. Approaches and Methodologies for Trace Substance Assessment.

9. Source Distribution and Transport of Selected Trace Metals and Organic Compounds in the Schuylkill River Between Reading and Philadelphia.

The reports delayed are:

1. Occurrence of Trace Elements and Organic Substances in Sediment and the Bivalve Corbicula Manilensis in the Apalachicola River, Florida.

2. Effects of Low-level Dams on the Distribution of Trace Substances in the Lower Schuylkill River Basin, Pennsylvania.

3. Methodologies for River-Quality Assessment in a Water-Short Region: Truckee and Carson River Basins, California and Nevada.

Question. How much funding is budgeted for river quality assessments in fiscal years 1980 and 1981?

Answer. The total funding in FY 1980 is $1,594,000. The total in FY 1981 is $1,164,000.

Question. What new projects will be initiated in fiscal years 1980 and 1981, and what are their proposed completion dates? Will the $500,000 March reduction delay any programs in the Jordan River Basin area such as synthetic fuels development etc.?

Answer. No new projects will be initiated in FY 1980 and 1981.

The reduction will not delay energy related programs. However, the reduction may delay a joint program with Utah and the U.S. Environmental Protection Agency to control non-point source pollution from urban runoff in the Salt Lake City metropolitan area.

Question. How is your National Water Data Exchange used by Federal, State, and local governments for analysis?

Answer. NAWDEX is used by Federal, State, and local governments, and other organizations to identify resources that are available for analysis within their areas of interest. Assistance is often provided in identifying and acquiring data needed for analytical purposes from several different sources. It is also used for access to the data resources of the USGS and EPA by organizations that do not have their own access mechanisms for these data. Often, analytical software available within these systems is used for generally accepted statistical, numerical, and graphical analyses. NAWDEX is also used to pre-analyze available data in terms of periods of record, frequency of collection, geographic distribution, parameters measured, and source organizations

to project the compatibility of available data sets, their suitability for merging into a single data set and their suitability for input into analytical methodology and systems scheduled for use.

Question. What does the Geological Survey do to insure that the information is used properly?

Answer. To assist as much as possible in this area, definitions and descriptions of information and data are published and provided to users. Recommended methods for the handling and exchange of water data are under development. In addition, training in the use of USGS information and data and their related computerized systems is provided to outside users on an annual or more frequent basis. Also, the USGS has published and made extensive distribution of information pertaining to its information and data gathering procedures as well as its analytical techniques for data. Assistance to outside users of USGS information is also provided. In general, however, the USGS makes no effort to influence or bias techniques and procedures used in scientific endeavors outside the Survey.

Question. How did the fee collections for the national water data exchange compare in 1979 with the appropriations for that year?

Answer. $66,750 in fees were collected in 1979. This was equivalent to 5.5 percent of the appropriation of $1,218,000 for NAWDEX. Revenues from user fees will continue to increase. However, these fees are used to support the operational expenses of participating service organizations, thereby, alleviating the need for Federal funding for this purpose. Annual appropriations for NAWDEX are used for Federal staffing, systems development necessary for an operational program, data base development and maintenance, and management support. The program is designed for eventual self-support for its user service program.

Question. What is the impact of the $400,000 reduction proposed by the President's March budget reductions in the National Water Data Exchange?

Answer. The proposed reduction will delay the development of new systems needed for providing additional information products for indexing areal data and interfacing with computerized data systems of member organizations. This will result in the indexing of fewer information sources and fewer additional data-acquisition activities, thereby delaying increased utilization of these information and data resources. Fewer new assistance centers will be established, and expanded contractual support for existing centers will be delayed. This will result in a two-year extension of completion of the scheduled program implementation plan.

Question. Please indicate for the record the 28 aquifer systems that had been identified for study and indicate when these studies are projected to be completed for each?

Answer. A table of the 28 aquifer systems is enclosed.

Aquifer Systems Identified in Survey

Study Title	States Represented in the Study Area	Projected Study Completion Date
Northern Great Plains	Montana, Wyoming, North Dakota, South Dakota	1981
California Central Valley	California	1981
High Plains	Texas, Oklahoma, Kansas, Nebraska, Wyoming, Colorado, South Dakota, New Mexico	1982
Northern Midwest	Wisconsin, Minnesota, Iowa, Illinois, Indiana	1982
Southwest Alluvial Basins	Arizona, New Mexico, Colorado, Texas	1982
Southeastern Carbonates	Florida, Georgia, Alabama, S. Carolina	1982
Snake River Plain	Idaho, Oregon	1983
Atlantic Coastal Plain	New York, New Jersey, Maryland, Delaware, Virginia, N. Carolina	1984
Southeast Coastal Plain	S. Carolina, Georgia, Alabama, Mississippi	1984
Alluvial Basins, Great Basin Region	Nevada, Utah	1984
Central Midwest Carbonates	Missouri, Kansas, Nebraska, Oklahoma, Arkansas, Colorado, South Dakota, Wyoming	1985
Mississippi Embayment-West Gulf Coastal Plain	Texas, Louisiana, Mississippi, Arkansas, Tennessee, Missouri, Kentucky	1985
Upper Colorado	Colorado, Utah, Wyoming, Arizona, New Mexico	1985
Columbia Plateau	Washington, Oregon	1985
Oahu	Hawaii	1985
Northeast Glacial Valleys	New York, Pennsylvania, Ohio, Massachusetts, Connecticut, Rhode Island, Maine, New Hampshire, Vermont	1986
Central Texas Carbonates	Texas	1986
Michigan Basin	Michigan	1986
Alluvial Basins, Southern California	California	1987
Ohio-Indiana Carbonates and glacial aquifers	Ohio, Indiana	1987
San Juan Basin	Colorado, New Mexico	1987
Pecos River Basin	New Mexico, Texas, Colorado	1987
Illinois Basin	Illinois, Indiana, Kentucky	1987
Appalachian Valleys	Pennsylvania, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, Georgia, Mississippi	1987
Northern Rockies Intermontane Basins	Montana, Idaho	1988
Puget-Willamette Trough	Washington, Oregon	1988
Alluvial Basin, Oregon California, Nevada	Oregon, California, Nevada	1988

Question. What is done to work with regional authorities to assist in the use of the aquifer study data?

Answer. Early in the course of each Regional Aquifer-System Analysis (RASA) investigation, a Liaison Committee is formed, consisting of representatives of various State and local authorities and having responsibility for water resources management within the project area. This Committee is briefed regularly on the plans, progress and findings of the study and the Committee's suggestions are solicited with regard to the conduct of the study.

Following the investigative phase of each study, a separate effort will be made to communicate the study results to State and local authorities concerned with water management. This effort will include the preparation of semi-technical management-oriented reports to supplement the scientific reports produced by the study; and the presentation of seminars or workshops in which representatives of water-management authorities are trained in the use and application of the study results.

Question. If any Federal assistance is provided to State and regional authorities regarding these aquifer studies, what is the funding level of this assistance and where is it budgeted?

Answer. Approximately $1,900,000 in Regional Aquifer-System Analysis (RASA) funding has been passed to State and local authorities to support work which is directly related to the RASA program. The enclosed table lists the type of agreement, the State or local authority involved, the RASA project supported by the work, and the total funding from the beginning of the program in FY 1978 through FY 1980.

Support of Regional Aquifer System Analysis Program

Type of Agreement	State or local Authority	RASA Project Supported by work	Funding
Cooperative Agreement	University of Illinois	Northern Midwest	$71,260
Cooperative Agreement	Minnesota State Geological Survey	Northern Midwest	16,000
Contract	New Mexico Water Resources Division, Dept. Nat. Resources	High Plains and Southwest Alluvial Basins	73,700
Contract	Texas Department of Water Resources	High Plains	514,490
Contract	Wyoming Dept. of Highways	High Plains	15,000
Contract	Oklahoma Water Resources Board	High Plains	92,493
Cooperative Agreement	Oklahoma Water Resources Board	High Plains	25,000
Contract	Kansas Geological Survey	High Plains	132,231
Cooperative Agreement	University of Idaho	Snake River Plain	106,620
Contracts	University of Arizona	Southwest Alluvial Basins	168,667
Contracts	Arizona Water Comm.	Southwest Alluvial Basins	72,188
Contract	Virginia Division of Mineral Resources	Atlantic Coastal Plain	30,000
Contracts	University of New Mexico	Southwest Alluvial Basins	51,971
Contract	New Mexico Bureau of Mines & Min. Resources	Southwest Alluvial Basins	25,000
Contract	Mo. Division of Geology & Land Survey	Central Midwest Carbonates	43,230
Contract	Colo. School of Mines	Southwest Alluvial Basins	31,675
Contracts	Montana Bureau of Mines and Geology	Northern Great Plains	270,832
Contracts	Colo. School of Mines	Northern Great Plains	105,000
Grants	Colo. School of Mines	Northern Great Plains	52,606
Contracts	Va. Polytechnic Inst. and State University	Northern Great Plains	30,990
		TOTAL	1,928,953

Question. You are presently operating a pilot data collection program to determine whether it is cheaper to contract for research to improve instrumentation using commercial satellites for water data collection. Specifically what kinds of activities would the contractor perform?

Answer. The contractor will be responsible for the procurement, installation, maintenance and operation of:

1. Hydrologic data sensors/recorders.

2. Data collection platforms that are used to control the sensors and transmit the data to the satellite from remote locations.

3. Earth receiving stations that are used to receive data messages transmitted to the satellite.

4. Computer Systems that are used for

   a. monitoring the collection system

   b. formatting the data

   c. archiving data

   d. providing a real-time data base

   e. data screening

   f. data delivery to the Geological Survey

The contractor is also responsible for managing the 105 site network and coordinating all efforts with Geological Survey field offices. In order to receive reimbursement for these data collection activities, the contractor must meet established performance standards for data quantity, quality and timeliness.

Question. If this is primarily a remote collection system, why would it be advantageous to contract for this work? This work is not seasonal or short-term in nature is it?

Answer. We are conducting the Pilot Program to determine the advantages and disadvantages of contracting. Probable advantages include:

- a better technical skill mix may be more available in the private sector.

- there are rapid changes in technology that the private sector may be able to monitor and develop faster than the government can.

- an increasing workload with fixed personnel ceilings may ultimately preclude our ability to provide a source of remote data collection to the Nation if we can only do it in-house.

The work is of a continuing nature and is not seasonal except for a few locations in the northern latitudes.

Question. You have a new program entitled National Assessment for Water Supply and Demand. How do the studies in this area relate to the ongoing analysis of the Water Resources Council which itself prepares and maintains assessments of U.S. water supply and demand?

Answer. The U.S. Geological Survey and the Water Resources Council signed a Memorandum of Understanding on May 1, 1978, which defines each agency's responsibilities for tasks associated with the Survey's mission to appraise the Nation's water resources and the Council's mission to assess water and related land resources. The Survey's new program will synthesize and analyze water supply, water quality, and water use data for inclusion in the Water Resources Council's assessment reports for use by other agencies interested in national overviews of the water situation. The Geological Survey will also assist the Council in developing new assessment procedures. The activities of both agencies will be coordinated through jointly developed work plans.

Question. Why will more than 70 percent of the funds for this new program be contracted out?

Answer. At the present time, the expertise in economic analysis needed to conduct this study is limited to a few individuals in the Geological Survey who have other pressing assignments. Similarly, computer programmers are in short supply. It does not appear that fiscal year 1981 personnel ceilings will permit the hiring of outside specialists; thus, contracting seems to be the best solution.

Question. What specific work will the contractors perform?

Answer. Contractors will perform the following tasks in fiscal year 1981:

1. Development of methodology for assessing water supply and demand and for clearly displaying the results of the assessments.

2. Compilation of information for use in a prototype regional assessment.

3. Compilation of information to provide a national overview of the Nation's water situation.

4. Computer programming in support of the assessment methods adopted.

Question. Your justification also indicates that you are providing unique job related training for more than 3,000 employees. How many of these employees are professionals?

Answer. The total number of professional employees in the Water Resources Investigation Program are 1,600 on full-time permanent appointments and 220 on other-than-full-time permanent appointments.

Question. Are you providing any training for state officials under the Federal Program?

Answer. All Federal and State cooperating agencies have the opportunity to send a limited number of employees to each training session. Every training course announcement indicates the number of participants from cooperating agencies that may attend. The average number is four cooperating officials for each training course. Thus, for an annual program of 80 courses, there would be an opportunity for training more than 300 State and other Federal agency officials.

Question. Now many average training days per professional do you provide?

Answer. The average number of training days per professional employee would be about 5 working days during a typical year.

Question. Provide for the committee files a list and brief description of all training courses funded in this area.

Answer. Enclosed is a copy of the Water Resources Division's Training Bulletin for FY 1979-80. A similar program is scheduled for FY 1980-81.

Federal/State Cooperative Water Data Program

Question. Your justification indicates that you are giving priority to state projects which relate to the implementation of the Surface Mining Act. Are you also giving priority to coal and synthetic fuel development projects?

Answer. The Federal-State Cooperative Coal Hydrology Program is assisting the State regulatory authorities in meeting their new responsibilities under the Surface Mining and Reclamation Act. The synfuel (oil shale hydrology) program is involved with development of resources principally on Federal lands and, hence, it is part of the Federal program. Oil-shale related activities are being conducted mainly in Colorado, Utah, and Wyoming. We are considering possible expansion of these activities in fiscal year 1982 to include the hydrologic factors related to the use of coal for synfuel production.

Question. How are your areal water basin appraisals accomplished, and are they conducted in conjunction with other mapping functions of the Survey?

Answer. Areal water-resources appraisals are usually carried out by an investigative team of two or three professional employees stationed in or near the project area. The work is accomplished by analysis and interpretation of existing and newly developed hydrologic and other related scientific data. The average length of time to carry out an areal appraisal is on the order of 3 years. At times, other mapping functions of the Survey are also carried out in the area of the water-resources investigation--including, for example, geologic, land-use hazards, or topographic mapping.

Question. What would be the impact on the water use program if the increase of $1.1 million were not provided?

Answer. If the $1.1 million increase is not forthcoming, we will not be able to attain our goal of obtaining water-use data for the entire country by the end of FY 1982. Specifically, we will not be able to fully meet the needs of the 48 States that are planning to participate in FY 1981. The $1.1 million reduction in funding will result in a net $2.2 million reduction of effort including the States' share. That will reflect a delay in implementing start-up programs in four States and delay planned expansions in 42 others. At the current planned level of $4.566 million, we are still not able to meet State offerings of $4.944 million.

Question. Why is 70 percent of this increased request earmarked for other contractual services? Specifically what contract efforts would be performed?

Answer. This is the level of additional effort that the participating State cooperators will undertake in this program. This cooperative program is being operated such that the direction, management, and standards developed to provide for a national,

consistent, and comprehensive program are the responsibility of the Survey, and the manpower-intensive field activities for acquisition of the data are the responsibility of the States where direct communication with the water-using community is readily established. Manpower intensive field activities utilize the bulk of the cost associated with this program, and these activities will be conducted by the cooperating States under provisions of the USGS joint funding agreement.

Question. The justification for the Federal-State coal hydrology program indicates that States will need increased water resource studies as they assume the regulatory authority for Surface Mining Act requirements. If this is so, why is there no program increase in fiscal year 1981 when state primacy will come into full swing?

Answer. Specific data and information that might be needed by the States will be partially met in fiscal year 1981 by redirecting some existing Federal-State programs. There is also a built-in delay factor because the leasing and permitting requirements of the Mining Act will push the major data requirements into fiscal year 1982. It should be pointed out that site-specific hydrologic data at or immediately adjacent to mining operations is the responsibility of the mining companies and not the Federal or State agencies.

Question. Again, why are Federal funds for the coal hydrology program reduced in the budget amendment by $500,000 when Federal programs for coal leasing and surface mining responsibilities on Federal lands are accelerating rapidly?

Answer. It was our intent to use these funds in FY 1981 to increase contracts and grants to universities and state water research centers for hydrologic research in the surface mining areas. We will attempt to accomplish most of the foregone work by increasing coal-related studies in the Federal-State Cooperative Program.

Question. Further, why is there no increase in funds when there is an addition of 37 full-time permanent positions in this coal hydrology area?

What specific contracted projects will be eliminated and will these 37 additional people perform the same work? If not, what specific projects will be eliminated and what new projects will be initiated?

Answer. This program received significant increases in funding in FY 1979 ($4,700,000) and FY 1980 ($4,240,000) with no increase in positions. The work was accomplished by utilizing other-than-permanent personnel, overtime, and contracting.

The 37 full-time permanent positions are being transferred from other Federal agencies (reimbursable) programs to replace the other-than-permanent positions and eliminate overtime.

The other-than-permanents now working in Coal Hydrology will be placed in other programs, primarily the other Federal agencies (reimbursable programs).

This change will result in little or no effect on contracts and projects in the Coal Hydrology program.

Question. How do you insure that the efforts of the Federal-State coal hydrology program and those of the Federal program are coordinated?

Answer. Federal-State and Federal coal hydrology programs are implemented and District (State) level with technical overview of their efforts at the Regional level. Planning and budgeting responsibilities provide for a still broader oversight and coordination at both the Regional and Headquarters levels. Much of the hydrologic data acquired via the cooperative program over the years, as well as currently, contributes to the vital base on which the more recent Federal program is built; coordination and compatibility are thus built in.

Federal and Indian Lands

Question. Why is your coal program reduced by $2.4 million when the President's stated intention is to increase coal production as rapidly as possible?

Isn't this reduction inconsistent with the desire to expand coal leasing?

Answer. The $2.4 million reduction consists of a $1.0 million reduction of the CRO/CDP mapping program, $1.0 million reduction from elimination of the coal reserve inventory program, and a reduction for coal drilling of $400,000. These reductions are consistent with the Administration's efforts to balance the FY 1981 budget. A considerable amount of the information supplied by the CRO/CDP mapping program has been collected and utilized for the immediate leasing schedule. Outyear information requirements used in leasing decisions in FY 1983 and 1984 will be deferred. Additionally, the Geological Survey requires operators to provide, in their view, coal reserve data under General Minng Order No. 1. Hence, Geological Survey reliance on operator data will be the alternative to a Federally funded program in satisfying credible coal lease reserve information.

Questions Submitted by Senator Dennis DeConcini

Question. In the Conference Report accompanying H.R. 4930, the Interior and Related Agencies appropriation bill, the Congress directed the Geological Survey to make up to $300,000 available in FY 1980 for a flood warning system in Arizona. It is my understanding, however, that only $100,000 has been made available to match local funds. Could you provide an explanation to how the $100,000 is being allocated and when the additional matching funds will be available?

Answer. The Geological Survey has negotiated a joint-funding agreement with the Flood Control District of Maricopa County matching $34,150 in local funds with the same amount in Federal funds. A similar agreement has been negotiated with the Arizona Water Commission, consisting of $75,031 in Federal funds matched by an equal amount in local funds. Thus, $109,181 of Federal funds are already committed. A plan has been developed by the Geological Survey and the Arizona agencies where as the remainder of funds required to complete the system will be spend in FY 1981.

Question. It is also my understanding that the Survey will not allow the Arizona Water Commission to include personnel costs as direct service credits in the match. Could you explain?

Answer. The Geological Survey is negotiating with the Arizona Water Commission to utilize direct service credits in the joint-funding agreement to the extent that these credits relate to those personnel costs which contribute directly to the construction of the flood-warning system.

Question. Could you indicate the scope of your continued participation in this flood warning program in Arizona? What funds are included in the FY 1981 budget request for this program?

Answer. Following construction and installation of telemetry equipment, the Geological Survey participation will only continue at those sites and stations of general hydrologic significance which are adequately and appropriately funded. For construction and installation, the Arizona Water Commission has indicated that $135,000 will be available for matching early in FY 1981. The Commission indicates it will have an additional $36,000 available for matching in July 1981. The Geological Survey will match at least $280,181 of State and local funds for the flood-warning network--$109,181 in FY 1980 and the remainder in FY 1981.

Question. The Congress directed that $2,000,000 be made available in the FY 1980 budget to fly Alaska with Side Looking Airborne Radar (SLAR) for the purpose of acquiring radar imagery over a significant portion of Alaska. What is the status of that program?

Answer. The U.S. Geological Survey has reprogrammed $2,000,000 to conform to the Congressional Mandate.

CONGRESSIONAL RECORD - HOUSE H10464 November 8, 1979

GEOLOGICAL SURVEY

"Amendment No. 37 . . . . . The managers on the part of the Senate will move to concur in the amendment of the House to the amendment of the Senate . . . The managers agree that $2,000,000 from within available funds should be used to begin the use of side looking airborne radar imagery for topographic and geological mapping, and geological resource surveys in promising areas, particularly Alaska."

Currently the Survey is involved in contract negotiations to have two areas (of as much as 75,000 square miles) in Alaska flown this summer; specifically, an area in Northern Alaska partially overlapping the NPRA, and an area of the Alaskan Peninsula.

In addition, ten other projects investigating and/or utilizing SLAR data for planimetric and geologic mapping and geological resource surveys have been identified and initiated.

Question. What are the Survey's plans if the flights are not completed during the summer months?

Answer. We currently anticipate that the SLAR data acquisition in Alaska will be completed by the 15th of September, before the snowfall obscures the ground. However, in the event of unforeseen climatic or contractual difficulties prohibiting data acquisition this summer we will have the data acquired next summer.

Question. What are the Survey's plans to continue this program? Are funds identified in the FY 1981 budget request for this purpose?

Answer. Our plans are to evaluate the data during FY 1981. No funds have been identified for that purpose. No further action is planned at this time.

Questions Submitted by Senator Ted Stevens

Question. What is the commitment of the USGS to the Water Resources Investigations program in Alaska?

Answer. The Geological Survey has made $730,000 in Federal matching funds available in FY 1980 for water resources investigations in the Federal-State Cooperative Program in Alaska; present indications are that approximately $760,000 in State and local funds will be available for this program. Approximately $880,000 in appropriated Federal Program funds will be available for other programs in the Alaska District, and it is anticipated that approximately $970,000 will be provided by other Federal agencies. Thus, the total level of activity in the Water Resources Division's programs in Alaska is expected to be funded in an amount on the order of $3,340,000.

Question. How does that commitment relate to the State of Alaska's commitment?

Answer. The Federal-State Cooperative Program proposed for FY 1981 will likely be funded essentially at about the same level as for FY 1980. In addition, of the $1,100,000 of new funding requested in the FY 1981 budget for the Water Use Program nationwide, approximately $35,000 would be available for the Alaska District.

Question. Since the State is not under a personnel ceiling and the USGS is, could contract dollars go to the State so that State personnel could perform needed work?

Answer. State personnel are supporting the USGS "cooperative" water resources program. Opportunities for such support are explored annually. However, while double-digit inflation continues, minimal increases in the annual appropriations limit the opportunities to expand the number of state personnel supporting such work.

Question. What is the status of USGS's resource appraisal effort in Alaska, the so-called AMRAP program?

Answer. Mineral resource assessment folios have been completed for 17, 1:250,000-scale quadrangles in Alaska. Studies are underway in 10 others and 2 more quadrangles will begin in the summer of 1981. Our objective is to complete the 100 mineralized quadrangles in Alaska by the year 2000.

Question. How much of the State has been mapped at the level required by the Federal Lands Policy and Management Act to implement an administrative recommendation for wilderness.

Answer. Much data have been collected in Alaska; however, no areas in Alaska have been referred to the USGS for wilderness study under the Federal Lands Policy and Management Act. Under the AMRAP program, the USGS is systematically assessing the mineral resources of Federal land in Alaska.

Question. If the USGS implemented a joint Federal-State cooperative mapping program, similar to the one in Kentucky, could the status of the resource appraisals in Alaska be improved?

Answer. The Kentucky program involved systematic, detailed, geologic maps of the State; such a detailed program in Alaska at this time would be inappropriate. Such detailed work would be more appropriate on a case-by-case basis. The cost of a detailed survey similar to Kentucky would be prohibitive. Alaska is more

than 14 times larger in area that Kentucky and the costs of field work in Alaska are substantially.

Question. With regards to the move of the USGS Branch of Alaska Geology to Alaska, how much basic research does the USGS intend to conduct in Alaska, where will basic research activities be headquartered, and what are the plans of USGS to maximize cost-effectiveness from the taxpayer's point of view by coordinating the USGS research effort with existing facilities, research programs, and trained personnel in Alaska? What criteria will USGS use in choosing a basic research site?

Answer. The distribution between "basic" and "applied" geologic research in the Branch of Alaskan Geology is difficult to make; the two types of work are difficult to be separated operationally. The quantitative amount of basic research that will be done in the future is uncertain and contingent on Federal appropriations and the press of mandated work. The Branch of Alaskan Geology will continue to do substantial basic research in addition to fulfilling other commitments. The Branch is presently headquartered in Anchorage, where most of the geologists in the State are located, together with the bulk of Federal agencies the mining and petroleum industry that utilize geologic data. These groups furnish much of the impetus for applied and basic research in the geology of Alaska as well as much of the geologic interaction and data to realize it.

An Alaska Center will be established at a location to be determined where most of the USGS scientists in the State will be based. Consolidation in the State will provide scientific and monetary benefit of consolidated efforts in the State. However, as is true elsewhere, subsidary offices may also be needed to take advantage of particular research opportunities or fulfill specific missions. In any event, special care will be taken that USGS scientists in Alaska will continue to interact with other Earth scientists throughout the State in academia, industry, and government.

Question. USGS Centers typically involve many University students as geology assistants or scientific aides. These Centers also often support graduate research at nearby universities. When a USGS Center is established in Alaska, does USGS intend to support existing graduate geology/geophysics research programs in Alaska in the same manner.

Answer. The USGS intends to support Alaskan undergraduate and graduate students in geology and geophysics. We anticipate a growth in this area as the Survey's work expands. We expect the Center would increase the opportunities in Alaska for employment of students as summer field assistants, thesis funding in support of larger USGS projects, and part-time employment of students throughout the year.

Questions Submitted by Senator James McClure

Question. The Department of Energy has a facility in my state of Idaho, the Idaho National Engineering Laboratory (INEL). The U.S. Geological Survey has conducted a continuous research and monitoring program of this site's radioactive waste disposal procedures since the lab's initiation in 1949.

On March 6 of this year I requested that the Appropriations Committee include in the DOE's FY 1981 budget $600,000 for additional

groundwater monitoring at the INEL. This effort was not allowed for in the FY 1980 budget or in the President's new FY 1981 budget.

In April of this year the DOE reallocated $200,000 from FY 1980 funds to begin work on this measure. I would like to know the status of this work, has the work begun, or when will it, and what actually will the $200,000 include?

Answer. The $200,000 reallotted by DOE is being applied totally to the drilling of 5 to 7 additional monitoring wells in the south to southwest section of INEL. M-K National, Inc., is administering the drilling program with technical guidance from the USGS (such as well design, location, and other contract specifications and environmental impact statement). The drilling contract should be awarded by July with work starting shortly thereafter. The work must be completed by September 20, 1980. The USGS will provide full-time technical oversight to the drilling and related technical support.

Question. It is my understanding that the funds for this project all come from the DOE. Is this correct? If not, how does it affect the DOI budget?

Answer. The entire $200,000 came from DOE and has remained with DOE, as we requested.

Question. I was told by the USGS in February when I had initially inquired about additional monitoring efforts at the site, that any re-ordering of priorities to accommodate the new tasks would result in interruption and deferral of important current work now in progress. I was told that to carry out all the suggested new work would probably require additional manpower on the project which might be difficult to acquire under current Bureau employment ceiling limitations. Please comment on what effect this order to accommodate new tasks is having on the work USGS now has in progress in Idaho.

Answer. There has been no significant deferral of important ongoing USGS work. Two additional temporary employees have been hired to assume some of the additional workload. The regular staff is working overtime to meet additional demands. Funds were made available for this effort by limiting travel, postponing lower priority work, and acquiring surplus equipment in lieu of purchasing new equipment. At least one additional full-time professional person or the deferral of important work will be necessary to accomplish the remainder of the proposed work in FY 1981.

Question. If this effort is not funded for completion in FY 1981 funds, what will be the effect on the program?

Answer. The FY 1980 status and FY 1981 prognosis is summarized below for each of the tasks proposed by the Geological Survey.

1. New Monitor Wells - Approximately one-third to one-half of the proposed new wells will be drilled this fiscal year with the $200,000. The number and specification of any additional wells needed will be dependent upon results from FY 1980 wells. It is unlikely that any additional wells could be drilled in FY 1981 with current funding.

2. Subsurface Drainage Wells - This work has been completed under the present program.

3. Monitoring Waste Organics - Work has been initiated. It is probable that most of the work can be completed without additional funding in FY 1981.

4. Plutonium Plume in Aquifer - Preliminary samples have been collected and sent to the Survey's plutonium chemistry specialist in Denver. He will provide additional advice based on his findings. Existing funds are inadequate to complete this work.

5. Iodine-129 Plume in Aquifer - Considerable progress has been made on this task and arrangements have been made to complete the work in FY 1981 without additional funding.

6. Modeling Waste Plumes - Some preliminary work will be completed this year but the bulk of the effort will require additional funds and manpower or deferral of other important work.

In summary, three of the six itemized tasks will be completed with existing funds, and with minimal effect on the regular program. Progress on the other three will be limited unless other programs are deferred or new funding and manpower are made available Much of the proposed work requires extensive use of USGS consultants, whose participation may be additionally constrained by currently restrictive travel limitations.

SUBCOMMITTEE RECESS

Senator STEVENS. Thank you very much, gentlemen.

The subcommittee was stand in recess subject to the call of the Chair.

[Whereupon, at 11:45 a.m., Tuesday, June 3, the subcommittee was recessed, to reconvene at the call of the Chair.]

DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

TUESDAY, SEPTEMBER 9, 1980

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:10 a.m., in room 1114, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens presiding.

Present: Senators Stevens and McClure.

FEDERAL STEEL SHOT REGULATIONS

OPENING REMARKS

Senator STEVENS. Good morning. This is the time scheduled to take testimony from both the Government and non-Government witnesses on the application of Federal steel shot regulations in the hunting of waterfowl. Our interest this morning is not in discussing the merits of steel shot as opposed to lead shot. There are honest and respected authorities who have very definite judgments on opposite sides of the issue, and this hearing has not been called in an attempt to reach a conclusion one way or the other.

Rather, our interest is in determining whether there has been a fair and lawful application of Federal steel shot regulations, particularly as these regulations are governed by the general provision of the appropriations act for the Department of the Interior and related agencies.

That language was introduced in the fiscal 1979 appropriation and is carried in the current year's appropriation, Public Law 96–126. That language reads as follows:

> No funds appropriated by this act shall be available for the implementation or enforcement of any rule or regulation of the U.S. Fish and Wildlife Service, Department of the Interior, requiring the use of steel shot in connection with the hunting of waterfowl in any State of the United States unless the appropriate State regulatory authority approves such implementation and enforcement.

COMPLIANCE WITH APPROPRIATION LANGUAGE

It seems quite clear from this language the Congress intended that the States make their own decisions regarding the implementation and enforcement of steel shot regulations within their jurisdictions. Some States have opted for steel shot; some have not.

The committee has received complaints, however, that the Federal Government through the Fish and Wildlife Service is not permitting any hunting in national wildlife refuges in those States which permit

the use of lead shot. We are told that this policy has been applied in the manner of a threat in advance of a State decision.

So the principal question today is whether hunting policy on wildlife refuges is being used to coerce States into following steel shot regulations.

We recognize the Fish and Wildlife Service has the authority and responsibility to control hunting in wildflife refuges in a manner that is in the best interest of the wildlife for which the refuge was established. That does not mean the Service has the right to use that authority as a means of requiring compliance with steel shot regulations. To do so would be a clear violation of the language I just read.

That is the narrow scope of this hearing, and I want to emphasize again that the purpose of today's session is not to argue the merits of lead versus steel shot. If there are any witnesses who intended to speak on anything other than the specific enforcement issue before the committee, we ask that you defer that in any oral presentation. Your prepared statement will, of course, be included in the record.

We will begin this morning with testimony from nongovernment witnesses and then go to the witnesses from the Interior Department, specifically the Fish and Wildlife Service.

SENATOR JOHNSTON'S INTEREST

.Senator Johnston has an avid interest in this matter, and wished to participate in the hearing today. He has shown his active interest in this problem, as the hearing record will show. The senator questioned Secretary Andrus extensively on the issue earlier in the committee's budget hearings that were scheduled last spring; however, Senator Johnston has to be on the floor this morning to manage the energy and water appropriations bill that is before the Senate.

POSITION OF WISCONSIN GOVERNOR

Senator STEVENS. We are awaiting Senator Eagleton. I have been asked to read the testimony that was submitted by Gov. Lee Sherman Dreyfus of Wisconsin, and I will do so so that you will understand what he has provided to the committee. The Governor's statement is:

> I would like to thank the committee for this opportunity to submit written testimony on the imposition and enforcement of Federally mandated steel shot requirements by the U.S. Fish and Wildlife Service. This is an issue of considerable importance to the hunters of my State, and I am most supportive of your efforts to discuss this matter in such a timely fashion.

Why don't we defer this? I see my good friend is here. We will print the whole letter after Senator Eagleton's presentation. Good morning, Senator.

CONGRESSIONAL WITNESS

STATEMENT OF HON. THOMAS F. EAGLETON, U.S. SENATOR FROM MISSOURI

STEEL SHOT POLICY IN MISSOURI

Senator EAGLETON. Thank you, Mr. Chairman. Thank you for your courtesy, Mr. Chairman. I am pleased to introduce to the Appropriations Subcommitee Mr. Charles A. Purkett, Jr., assistant director of the Missouri Department of Conservation.

Missouri, as the members of this subcommittee are well aware of, has been fighting with the U.S. Fish and Wildlife Service for several years now over enforcement of steel shot regulations. In March of this year, the Missouri Department of Conservation reversed its earlier position on steel shot and rescinded regulations requiring steel shot for hunting in Missouri.

It was an action that the State conservationists believed was an appropriate one; however, the intense pressure placed upon the State by the Fish and Wildlife Service, namely threats of closing Missouri's valuable hunting refuge to waterfowl hunting in 1980–81, forced Missouri to return to the use of steel shot. Missouri hunters are not sure that steel shot is needed.

Clearly, the Missouri Department of Conservation has its doubts that regulations are needed. Around and around the argument goes, leaving everybody in a State of flux. So I commend the Interior Committee for calling today's hearing to review the problems of States in dealing with this so-called Federal regulation, and hope that the Fish and Wildlife Service will listen closely to Mr. Purkett's testimony on the effect of steel shot on my State of Missouri.

Thank you very much, Mr. Chairman.

Senator STEVENS. Thank you very much, Tom. I appreciate your introduction. Are you going to stay?

Senator EAGLETON. I will be excused, if I may, Mr. Chairman.

Senator STEVENS. We appreciate your courtesy.

NONDEPARTMENTAL WITNESSES

STATEMENT OF CHARLES A. PURKETT, ASSISTANT DIRECTOR, MISSOURI DEPARTMENT OF CONSERVATION

PROBLEMS WITH STEEL SHOT REGULATIONS

Senator STEVENS. Good morning, Mr. Purkett. We will be pleased to hear your testimony.

Mr. PURKETT. Thank you, Senator. As Senator Eagleton has said, I am Charles Purkett, assistant director of the Missouri Department of Conservation. I sincerely appreciate the opportunity to provide testimony on behalf of the Department of Missouri Conservation Commission concerning the waterfowl lead poisoning steel shot issue being considered by this committee. This matter has become entangled in controversy because of differing opinions with regard to the significance of lead poisoning losses caused by shot ingestion among waterfowl populations, and the acceptance of steel shot requirements in certain areas as a suitable solution to the lead poisoning problem.

This controversy has consumed an inordinate amount of time and manpower from strained conservation budgets during these recent years, and has caused polarization between conservation agencies and sportsmen's groups throughout the country. In order to eliminate this polarization and to insure sound management of the international waterfowl resource, this controversy must be eliminated through rational decisions and compromise on the parts of all concerned.

From our vantage point in Missouri, we have seen these problems in dealing with steel shot regulations, and I have three points:

First, no single agency or organization has complete control over steel shot regulations. While the U.S. Department of the Interior has the authority to establish nontoxic shot rules, this authority has been diluted by congressional action giving each State effective veto over Federal regulations. Success of the program depends importantly on the ability of the ammunition industry to provide adequate supplies of a load which meets the nontoxic criteria, and which is accepted by waterfowl hunters. Production and improvement of steel shot loads have been hampered because of the uncertainty of application of nontoxic shot regulations.

Second, gage exemptions under preliminary regulations widened the credibility gap between conservation agencies and waterfowl hunters. Hunters asked: "if lead poisoning is a problem among waterfowl, why must I shoot steel shot in my 12 gage shotgun, while hunters with other gage guns continue to shoot lead?" Hunters did not accept the lack of technology in developing 20 gage, 10 gage, or other steel loads as a reasonable explanation for what was considered to be discrimination. When the gage exemption later was removed for nontoxic shot zones, news releases and other information cast extreme doubt on the ade-

quacy of steel shot shells for other than 12 gage guns. In fact, testing of 10 gage and 20 gage steel shot shells has been rather limited, and only one company has indicated that it will distribute 20 gage shells for 1980–81 waterfowl seasons. No company plans to develop steel shot shells for guns other than 10, 12, and 20 gage.

Third, steel shot regulations have been applied inequitably among the various States. States utilize different criteria for determining the extent of lead poisoning of waterfowl. Some believe shot ingestion rates are true indicators of lead poisoning potential, while others rely only upon records of major die-offs. A 5-percent ingestion rate by some standards is too high, yet other States indicate willingness to accept 10 or 15 percent ingestion rate without prescribing nontoxic shot regulations. The U.S. Fish and Wildlife Service has not acted consistently in dealing with the various States in proposing annual steel shot rules. Its ability to do so, however, has been adversely impacted by the State option for enforcement provided through the appropriations bills for the past 2 years.

Hunters are understandably confused when they are confronted with divergent views about the need for steel shot in States with similar habitats and migration patterns. It becomes almost impossible to justify steel shot restrictions in Missouri to reduce the lead poisoning potential for ducks migrating to Arkansas, if those same ducks are subject to hunting with lead shot in Arkansas.

Congress should expect the Department of the Interior to justify its regulations, but any restrictions proven necessary should be applied on the basis of factual evidence, wherever a need exists. It is inconsistent and poor management to make such requirements optional as determined by their popularity. The welfare of the waterfowl resource must receive first consideration, because ultimately that is in the best interest of the public. We urge this subcommittee to examine the evidence and decide the steel shot issue on a national rather than a State option basis.

Thank you for your interest in wildlife conservation, and for the opportunity to report our experiences in dealing with this problem.

IMPACT OF FEDERAL POLICY IN MISSOURI

Senator STEVENS. Thank you very much.

How much of your hunting area of Missouri is in Federal wildlife refuges, and how much is outside of it?

Mr. PURKETT. We have three areas, Mr. Stevens, which will be subject to the steel shot regulations, because they are Federal land and will be required under Federal law.

Senator STEVENS. How extensive is that acreage within those wildlife refuges, do you know?

Mr. PURKETT. The acreage is not large. About 2,000 acres in one instance. And we have one area that, because all the hunting is on Federal land, we require steel shot on the whole area, which is 7,000 acres. And then, one further area of limited acreage.

Senator STEVENS. Well, I have a press release here issued by the U.S. Fish and Wildlife Service in Missouri, which indicates that the Fish and Wildlife Service plans to close waterfowl hunting on national wildlife refuges in Missouri as a result of the Missouri Conservation Commission's decision on steel shot. It says, and I quote:

However, Tom A. Sanders, Fish and Wildlife Service area manager, said today that if the use of toxic lead shot in shotguns were restricted in Missouri this fall, the Service would proceed with its regular waterfowl hunting programs on national wildlife refuges in Missouri.

Did you interpret that to mean that Missouri had to restrict the use of lead shot on non-Federal lands in order to have the Federal lands open to hunting?

Mr. PURKETT. No, sir, and the Missouri Conservation Commission did restrict it on Federal land, and will allow enforcement, in fact, will allow our agents, conservation agents, who are commissioned by the Federal commission, to enforce on Federal land, but not—it is not required on the other land in the State.

So it was not used as coercion for the rest of the State.

Senator STEVENS. Do you take the position that the Congress ought to make this steel shot decision on a national basis?

Mr. PURKETT. Yes, sir, in those areas where lead poisoning was determined to be a problem.

Senator STEVENS. Well, if we did that for Missouri, hunters would follow your Conservation Commission decision for non-Federal lands, and could be using lead shot, right?

Mr. PURKETT. In those areas where it is a problem, such as St. Charles County.

Senator STEVENS. But on the Federal lands, currently, they have to use steel shot.

Mr. PURKETT. That's correct.

Senator STEVENS. What happens to your total enforcement if we have a situation where the Federal Government would opt for steel shot only on Federal wildlife refuges, and you would say that lead shot could be used in all non-Federal lands in Missouri.

Mr. PURKETT. That is the situation, sir. And it will be somewhat confusing, both to the hunters and the people who want to supply steel shot ammunition and don't know how much to carry in stock.

Senator STEVENS. Was our decision to allow States to make individual decisions concerning lead versus steel shot workable if the Fish and Wildlife Service had not attempted to use this kind of coercion on the State agencies? If Missouri made its mind up to continue to use lead shot would there have been any enforcement problems or any environmental problems in Missouri?

Mr. PURKETT. We did find evidence of lead poisoning among waterfowl in Missouri, yes, sir, which, of course, was the reason that the staff recommended to the previous commission that we go along with the lead shot regulation in the previous years.

STATE VS. FEDERAL HUNTING REGULATIONS

Senator STEVENS. But you would have done that on the basis of your own decisions under the provision we put in the appropriations bill?

What I am trying to find out: Was it an unworkable arrangement, as far as you're concerned? Because you've asked us to examine the evidence and decide the steel shot issue on a national rather than a State option basis. I'm trying to find out why you want that to happen.

Mr. PURKETT. The commission would still go—our commission would still go along with steel shot regulation if you, for example, as I said—if the waterfowl weren't going to Arkansas and not be subject to the regulation in similar habitats, the same waterfowl traveling to Arkansas. They can pick up their few pellets which it takes to damage them or kill them very quickly down there.

Senator STEVENS. But did your commission reverse its stand?

Mr. PURKETT. Yes, sir.

Senator STEVENS. Why? Because of the pressure from the Fish and Wildlife Service?

Mr. PURKETT. No, sir—well, there were two reversals, sir. We had—they had passed a steel shot regulation in preliminary passage, and they had so much complaints from the waterfowl hunters, both—first of all, from some very outspoken people who are generally opposed to steel shot; second from people who said it was inconsistent both in gage size variation and from the fact that you did go across the State line and have a complete change.

So I guess the 16 gage shell problem and the fact that it won't be available brought it all to a head a few months ago, and they did reverse their conclusions on it, and voted steel shot out. Then, when we received the word from the Fish and Wildlife Service that hunting would not be allowed on the Federal refuge, then they reconsidered and decided that they would allow enforcement on the Federal refuge, and that our conservation agents could help in that enforcement.

Senator STEVENS. Does that mean that in the part of Missouri that is now involved in the acquiescence to the Federal Fish and Wildlife approach that a hunter must use a 12-gage shotgun and could not use a 20-gage shotgun?

Mr. PURKETT. There is now 20 and 10 gage shot available, so those three gages would be available. Sixteen will not be, this year.

Senator STEVENS. On steel shot?

Mr. PURKETT. Yes, sir, they are not making 16 gage steel shot.

Senator STEVENS. Well, if the Fish and Wildlife Service wants us to make a decision on steel shot, I am prepared to make it. Maybe that's the answer. We will just override these regulations.

I hope that we will have the situation worked out so that the Fish and Wildlife Service would work with the State agencies to determine which areas steel shot will be required, because of the real problems of lead poisoning and let it go at that.

But, if they want a national regulation, I am perfectly willing to go toward a national regulation to ban any regulations that require steel shot. The hunters out my way and out West don't like this one bit.

Thank you very much.

Mr. PURKETT. Thank you, Senator.

Senator STEVENS. Mr. Doig, is it, of the New York Department of Environmental Conservation in Albany? Yes, sir.

TESTIMONY OF GOVERNOR DREYFUS

Would you let me finish with this written testimony? I am committed to read this statement for the Governor of Wisconsin, since he can't be here today, so let me just continue this. Governor Dreyfus' statement continues:

I will begin by providing a brief background on steel shot requirements in Wisconsin. In 1978 and 1979, the Wisconsin Department of Natural Resources—DNR—followed the USFWS guidelines in proposing areas to be designated as nontoxic shot zones. The designated lands included areas in 21 countries, four wildlife areas, the west shorelands of Green Bay, some bottom lands along the Wisconsin River and approximately 250 miles of Mississippi River bottomlands. (See appendix 1 for listing of designated counties.)

The designated areas represent some of the best duck and goose hunting grounds in the State. During both 1978 and 1979, over the strong objection of many hunters, steel shot requirements were enforced by State personnel. These same lands were designated for enforcement in 1980.

However, earlier this year, the legislature proposed and I signed into law language which strictly prohibits our DNR from enforcing nontoxic shot requirements in any areas outside the Horicon zone for a period of 1 year. (See appendix 2 for additional detail on the adopted language.)

Following this legislative and executive action, the USFWS threatened to close service lands to hunting if steel shot requirements were not enforced. During the initial contacts my office had with the St. Paul district USFWS staff, we were told the Service would take action to prohibit hunting on Service lands if the requirements were not enforced in all designated area—on both Service and non-Service lands. I must express my objection to these threats of retribution. My State has been blessed by magnificent wildlife and natural resources. I strongly believe Wisconsin has wisely exercised its responsibility and authority to manage these resources. Through the threated closing action, the Service is attempting to overrule by bureaucratic fiat the legitimate acts of the Wisconsin legislature and executive. Further, I believe these threats may run counter to the spirit of the law as enacted by Congress in Public Law 96-126 section 306—Department of the Interior and related agencies appropriations for fiscal year 1980.

This section prohibits the enforcement of steel shot requirements unless approved by the State. Can the intent of the State approval requirement be effectuated if the Service is allowed to impose its will through their strong arm tactics?

In closing, I would not be opposed to Federal personnel enforcing these Federal requirements on lands under their jurisdiction. However, it would be inconsistent with a belief in the States authority to manage resources under its jurisdiction to allow the USFWS to carry out the type of threat they have made against Wisconsin. I hope the committee will support this position and will not permit the Service to take such arbitrary action.

Again, thank you for the opportunity to share my views with you.

And that is the Governor's attachment for the record.

Thank you for your patience. Do you have a statement for us?

STATEMENT OF HERBERT E. DOIG, ASSISTANT COMMISSIONER, NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION, ALBANY, N.Y.

STEEL SHOT POLICY IN NEW YORK

Mr. DOIG. Yes, thank you, Senator.

I'm Herbert E. Doig, assistant commissioner for natural resources with the New York Department of Environmental Conservation. I had served as chairman of the Atlantic Flyway Council, president of the Northeast Association of Fish and Wildlife Agencies, chairman of the Steering Committee for the Northeast Wildlife Disease Center, and I'm currently chairman of the Legislative Committee of the International Association of Fish and Wildlife Agencies.

And I'm pleased with the opportunity to present New York's views on the issue of implementation of the program to provide alternatives to the use of steel shot, with specific reference to the issue at hand.

As background, I think it is necessary to discuss very briefly management philosophy, because the management philosophy is the basis for

the issue that we're dealing with. Management of waterfowl is an international concern. It requires a cooperative management with leadership at the Federal level.

States acknowledge and support ultimate Federal authority and issues transcend State borders and national boundaries. A comprehensive management strategy is needed for adequate and comprehensive waterfowl management. The reproduction, in Canada, wintering in the United States, Mexico, Latin America, utilization throughout the extent of the various flyways makes it necessary that this comprehensive management strategy be employed.

An equitable allocation of resources for recreational hunting and aesthetic and scientific appreciation are the benefits that are derived from this kind of management. The values are for all society, of which hunters are a very important part.

The issue, basically, resource management, focuses on limiting factors which are all-important in developing sound resource management for wildlife resources. Removal of these limiting factors provide more benefits to the people that are utilizing the resources. Lead poisoning is a significant mortality factor. It has been proven by the scientific community and is supported nearly unanimously by that community. It has been shown that over 122,000 pellets are available in the environment each year for consumption by waterfowl. Only one is needed for mortality. Between 1.6 and 2.4 million waterfowl are killed annually, which is 3 percent of the flyway of the birds moving through the flyways. There is an alternative. The evolution of the development of the alternative program to lead shot was initiated a number of decades ago with the discovery of lead poisoning as an important mortality factor with waterfowl.

Since that time we have refined our knowledge on the problem, and there has been significant pressure building, built through the 1960's and early 1970's for action on the part of the Federal Government, which is the lead agency for protection and management of waterfowl. The big step was made a few years ago, and the States were very supportive of this initiative by the Fish and Wildlife Service. The Atlantic Flyway, a long advocate for the implementation of an alternative to lead shot was in the forefront and New York's experience was one that led the way.

With implementation of the program, New York was a very important part of the implementation in the Atlantic Flyway. New York cooperated 100 percent and although there was considerable concern on the part of the using public, the program to require of steel shot did move forward. The initial criteria, that being harvest plus shots per bird equals a problem, were supported by the State of New York as an initial way to get the program underway, with refinement of that criteria evolving as time progressed.

Refinement through investigation occurred in New York State, and the boundaries for use of steel shot, requirements for the use of steel shot were reduced in some areas, and they were identified areas of particular importance to mortality of waterfowl, where we are going to be implementing additional restriction beyond that that was initially required by the Federal Government.

Limitations on staff and dollars prevented our doing this before the program was implemented, so program implementation was an essential part of getting this program underway in the various States. It was an essential part to get the industry to focus on the development of alternatives to lead shot, and it continues to be an important part of the implementation on a national basis, so that we can realize our objective of comprehensive management of waterfowl resource.

There has been good cooperation with the Federal Government in New York. We have Federal refuges in New York, and we have worked hand in glove with the Federal Government in implementing steel shot regulations on these refuges, as well as on those wildlife management areas that have waterfowl hunting in the State.

We have had excellent support and responsiveness from the Federal Government, as a result of our continued study to refine this steel shot regulations and, in fact, New York has taken some initiative beyond that imposed, as I mentioned before by the Fish and Wildlife Service to limit the mortality factors that are being caused in New York as a result of the deposition of lead shot.

Agency relationships are an extremely important part of the issue that we're talking about. There must be unified effort, if we're going to address this common problem. If one State does not participate, it affects all, because these resources do move across State boundaries. They are produced in Canada; they winter south of many States, and most States have opportunities to be exposed to these resources at one time or another during the course of the year.

Mobility and communications among the users is also an important consideration that must be dealt with when we are dealing with this kind of an issue. It makes the issue a national one. Sportsmen from New York know what is going on in California. Sportsmen in New York know what is going on in Florida and vice versa.

These sportsmen realize that in some States there's a reluctance to accept steel shot, and, therefore, the sacrifice that has been made by New York sportsmen is not being shared equitably by sportsmen in other States. They also know that these resources are produced, many of them in the production grounds in Canada. They also know that the impacts of resource movement through individual States in the Atlantic Flyway affects them directly. Therefore, this issue must be dealt with as a common problem. There cannot be an open user choice program, when we deal with nontoxic shot.

FEDERAL LAND OWNERSHIP IN NEW YORK

Senator STEVENS. Now how much land in your State is Federal?

Mr. DOIG. How much Federal land?

Senator STEVENS. Yes.

Mr. DOIG. We have in national refuge about 15,000 acres.

Senator STEVENS. So what you're saying is since New Yorkers have kindly gone along with the Federal Government in 15,000 acres, those of us who come from States that have 99-percent Federal ownership should go along with it, too; is that right?

Mr. DOIG. No; what I'm saying is that the application of steel shot programs does not apply to all Federal acres, as it does not apply to all State acres. What I'm suggesting is that——

Senator STEVENS. What you're saying to me—no, now wait a minute, I said we're not going to argue about the question of lead versus steel shot, but I want to know from the point of view of the New York Commission on Fish and Wildlife, do you believe that Louisiana, Wisconsin, these other States, Missouri, should be compelled to change their laws, because you've gone along with the Fish and Wildlife Service on 15,000 acres, isn't that the issue here?

Mr. DOIG. No, it is not the issue here.

Senator STEVENS. On what basis do you think you have a right to interfere with the decision of the State of Wisconsin, in terms of the Governor and the legislature as to what is going to happen on Wisconsin land?

Mr. DOIG. Because we're talking about a resource that prevades State boundaries. We're talking about a resource that moves across New York and is impacted in other States.

Senator STEVENS. Have you decided in New York that only steel shot can be used on all lands in New York?

Mr. DOIG. No, sir, we have not. We have refined those boundaries so that we have a responsible steel shot program at the present time and this has been done in cooperation with the Federal program because we have been intent to reduce the amount of mortality caused by lead shot, and we found a system that has worked out very well for us.

Senator STEVENS. Now in those lands that you decided that you could use lead shot, if the Federal Government tells you you have to use steel shot or they're going to close their Federal lands, you would only lose 15,000 acres in all the State of New York, wouldn't you?

Mr. DOIG. Yes; that would be the case if they closed the Federal lands.

Senator STEVENS. So in effect, you could ignore them?

Mr. DOIG. Yes, we could ignore them.

FEDERAL INFLUENCE OVER STATE POLICY

Senator STEVENS. But in a State where you have Federal lands of vast acreage where sportsmen primarily hunt, such as Missouri and Wisconsin and Louisiana and Alaska and the western States, that kind of pressure is totally controlling as far as a determination of State policy, does the State of New York really believe that the State of Wisconsin should change its law because of the Fish and Wildlife Service?

Mr. DOIG. New York firmly believes that the State of Wisconsin should embody the program of seeking alternatives and using alternative to lead shot, and if those alternatives mean affecting other State lands, as well as Federal lands, then they should work cooperatively with the Federal Government to develop those programs. We feel that it is a program that should not be done on a State-by-State basis, but on a unified basis, because the resource is not an individual State resource.

Senator STEVENS. I understand that. I think we all understand that, but we also understand we have a system of 50 States, and we thought we had accomplished the balance of bringing about a cooperative effort from the State and Federal Government with the provision we put in in 1979, and apparently that has not worked. Unless this hearing de-

velops the fact that it will work, I intend to put in a provision this year and to have the fight this year that says the Federal Fish and Wildlife Service shall not enforce steel shot regulations outside of the limits of any Federal fish and wildlife refuge.

Now there is going to be balance here on a voluntary basis, or there is going to be decision by Congress as Missouri requests and as far as the Congress is concerned, I don't know any more environmentally inclined people than the people of Wisconsin. I will tell you in my whole life, and I've been involved in this business for a long time now, as long as many of these other people out here, I can never remember a more environmentally inclined group than in Wisconsin. And if the legislature and the Governor of Wisconsin decide what is best for Wisconsin, I would be inclined to go along with them, but the Federal Fish and Wildlife Service representatives said no and threatened the whole State.

Again, it wouldn't have any impact on New York. That is the thing to be remembered, 15,000 acres out of the whole State of New York, what difference does that make?

Mr. DOIG. But if this was done in the State of Maryland, it would have an impact in New York and that opportunity is available as a result of your amendments.

If it happened in the State of Virginia, the impact would be in New York, and that does concern us. The issue is not one of a State here and a State there. The issue is cooperative management on a flyway-wide basis, and that is what we're concerned about. And small issues that are politically motivated can influence legislatures and those legislatures can act to prevent the responsible management of wildlife resources. That is the real issue here and providing the ability to have small political issues affect long-range resource goals is an issue that very much concerns us, and one, sir, that should concern the Congress.

Senator STEVENS. You're talking to someone who has two-thirds of the wildlife refuges in my State. I know where the wildlife refuges are. The question is, should 20 percent of the lands that are set aside for wildlife refuges be used to control the policies of 50 States? And it is cooperation that we thought we had. I think all of us want to work this out on a basis that there can be cooperative management between the States and the Federal Fish and Wildlife Service. I think it is still possible. It is not possible if New York tells us that because New York has gone along on the basis of 15,000 acres, the rest of the country ought to go along with regard to all of the lands that are involved.

Mr. DOIG. But the point is, Senator, we haven't gone along on the basis of 15,000 acres. We've gone along on the basis of the sound resource program. We have a fairly subtantial segment of New York involved in the steel shot program. This has been a voluntary program. New York sportsmen have supported it at some sacrifice. We were among the first to initiate the program, and we feel that the program has matured through cooperation, so now we have a viable, workable, acceptable program and people, and it's important that other States take the first step too.

We feel very strongly that once they take the first step, then the following steps will come much easier, and over a very short period of time, there will be an acceptable program for all.

Senator STEVENS. My friend, Senator McClure, wants to ask some questions. Did you know that in Alaska, you can't keep a salmon unless it is over 28 inches long, and in Oregon you can't keep it unless it's under 28 inches long? And those salmon live together all their adult lives out in the Pacific, and somehow or other these salmon of Alaska and the salmon of Oregon are both thriving.

I would hope that would give someone a message that some States know what they're doing. There may well be areas where a State knows better than the Federal Government what is good for the birds in the whole flyway. And that is what we are seeking: the balance that is involved in that judgment.

Senator McClure?

DIFFERING STATE OUTLOOKS

Senator MCCLURE. The only point that I wanted to make, aside from again registering my concern about what is happening in this area, is that you applaud what the Feds are doing, because you agree with it. And because you agree with it, you want it applied everywhere. What if you disagreed with it? Would you be down here saying that the Federal regulations ought to be enforced upon States that don't want it, if, in fact, you disagreed with that policy?

Mr. DOIG. It was my experience that in New York the first year of the imposition it was not a popular imposition, but recognizing the overall benefits, we felt that it was important that we impose the regulations and experience it and work the system out.

Senator MCCLURE. I understand that. That's not my question.

Mr. DOIG. My response is that we have since worked that out to the point where working cooperatively with the Federal Government, we found an amenable solution to the problem in New York, and we feel that the same approach working through a program and arriving at a common objective is the best way to go about it.

Senator MCCLURE. I don't question that, but you start out from the premise that the Federal program is a good program. What if you believed that the Federal program was a bad program, would you still be as eager to have the Federal authority used to preempt the State decision?

Mr. DOIG. No, I expect that I would be quite aggressive working with the Feds to try to change the program.

Senator MCCLURE. All right. Thank you very much. There are other States who feel just the way you now said.

Mr. DOIG. Yes, and what I'm suggesting though is let the resource agencies work together to solve the problems.

Senator MCCLURE. What you're suggesting is that since you disagree with other States, the other States ought to be forced to accept your judgment rather than their own. I'm not sure that the State-Federal relationship really ought to be that.

Senator STEVENS. I don't question New York's judgment. They wanted to work with the Feds, but Wisconsin's judgment was there was no problem, and they shouldn't be forced to work with them.

Senator MCCLURE. That's my point. He's suggesting he likes the Federal program, therefore, Wisconsin ought to have to take it.

Senator STEVENS. What would you have us do with regard to this provision in the appropriations bill this year?

Mr. DOIG. It would be my recommendation that you eliminate the provision in the appropriations bill and not make this a political issue. Based on the funding for the Fish and Wildlife Service, that we return to the original program, which was a program that would evolve cooperation, so that political interference would not be an important factor in making judgments on resource matters.

Senator MCCLURE. The judgment that disagrees with his judgment is a political one, but his judgment is a professional one, and I respect that. People sometimes don't like political interference with professional management.

Mr. DOIG. But there are consequences, and if I could just very briefly outline them for you as I see them, I see that we are losing support of the basic using community without unified effort in handling the steel shot program. Decisions that are made on a political basis are done without basic resource facts. Continued pollution of the environment occurs in those areas where the program is not implemented and yet needed. There is confusion among users as to who is right and who is wrong, when we have segmented approach. We have the loss of credibility, not only for resources agencies and the Federal agencies, but also for hunters in this whole issue.

FAIRNESS OF FEDERAL CONTROLS

Senator STEVENS. We're going to have to move on to another witness in just a minute—but in terms of what you just said, there is a confusion—who should control Missouri's hunting activities, the Fish and Wildlife Service manager, and that's the level at which this decision was made, a local office, one man, or should it be the commission that is duly selected by the people of Missouri with regard to the lands outside of the Federal refuges.

No one is arguing about the land within the refuges, by the way. The Federal Government can close them if they want to.

Mr. DOIG. I thought you suggested, though, that was an issue that the—the Federal Government's closing.

Senator STEVENS. If they close them for the purpose of closing them, that's it. They're closed. But if they close them for the purpose of bringing pressure on the whole State of Missouri—did you hear that statement from the Governor? I wish you could have been here. But he's got a little program going on, called an election.

Mr. DOIG. I don't subscribe to the use of that kind of administrative pressure to achieve overall objectives.

Senator STEVENS. That's what this hearing is all about. I mean if you're talking about cooperation, we would hope we would get it.

Mr. DOIG. Yes, but cooperation means working on the part of both parties.

Senator STEVENS. It doesn't mean that you delegate authority to someone in Missouri and someone in Louisiana and someone in Wisconsin to make decisions that tie up the whole State.

I would like to see the time come when you have one Fish and Wildlife Service man in New York tie up the whole State of New York. The

difference is, they don't have enough acreage there to have any impact on you. That is really the answer, that they cannot make an impact on your hunters, because they only have 15,000 acres, and that's the end of it.

Mr. DOIG. What I'm suggesting though, sir, is that the impact that is being caused by this amendment as the result of individual and independent action on the parts of the States does affect New York, but because it induces pressures on New York to say why should we participate in this program if others are not? After all, the resources that we share are also shared by those people. If we're going to approach this thing together, we ought to do it all the way together, not on an individual approach.

And that really is the basis as I see it, in terms of the proposed amendment.

Senator STEVENS. OK. Thank you very much. We appreciate your taking the time to come.

Mr. KIMBALL. Our next witness is Thomas Kimball, vice president of the National Wildlife Federation.

STATEMENT OF THOMAS KIMBALL, VICE PRESIDENT, NATIONAL WILDLIFE FEDERATION

PREPARED STATEMENT

Mr. KIMBALL. I understand you are primarily interested in the State-Federal relationship and not on the merits of lead versus steel.

Senator STEVENS. That is correct. And, unfortunately, I have another hearing at 11:30.

What we're really talking about is the relationship here of the Federal Fish and Wildlife Service to the State agencies and the future of this language that is in the appropriations bill. It's in the House-passed version of the bill again. It has been in for 2 years.

It was worked out with the consent of the Department of the Interior. But we have now gotten these repeated reports—first, from Louisiana and, then, from Wisconsin and Missouri—using the pressure of the closure of the wildlife refuge if this stage did not accede to the Federal Fish and Wildlife Service position on steel shot. That's what we're trying to address, should we change.

In effect, we're going to markup this bill this week. And the real question is should we change this language? And, if so, in what way?

Mr. KIMBALL. With your permission, could I insert this testimony for the record?

Senator STEVENS. Surely. We would like to have it in the record.

[The statement follows:]

STATEMENT OF THOMAS L. KIMBALL

Mr. Chairman, I am Thomas L. Kimball, Executive Vice President of the National Wildlife Federation. I am pleased to be able to comment on this important waterfowl management issue which has been the focus of so much misunderstanding in recent years.

The National Wildlife Federation is the nation's largest conservation organization with affiliate organizations in all fifty states, Guam, Puerto Rico, and the Virgin Islands. Members of these affiliate organizations (composed primarily of sportsmen) together with associate members of the Federation and other supporters, total an estimated 4.6 million individuals.

The Federation has long been concerned with the millions of deaths of waterfowl from lead poisoning and with seeking ways to reduce these losses. We addressed the problem head-on in 1971 when our affiliates passed a resolution urging implementation of remedial measures by the Secretary of the Interior prior to the 1973 hunting season. In 1975 our resolve was strengthened by the adoption of another resolution which supported the program proposed by the Department of the Interior in its impact statement on steel shot. In 1979, stimulated by the opposition of a few states to the nontoxic shot program, our affiliates unanimously adopted a resolution supporting Interior's program for reducing lead poisoning losses by designating non-lead zones. This resolution also admonished Interior to coordinate with the states in the designation of non-lead zones.

The program was already showing signs of progress in reducing lead mortality when the Congress first added its restrictive rider to the appropriation bill. Although only a few states felt compelled to utilize the rider, it initiated a chain of events unforeseen, and I believe unanticipated, by its authors.

First let me say that I do not believe opposition to the steel shot program began with any real or alleged power play by the Fish and Wildlife Service to ram the program down the states'

throats. Had this been the case, the NWF would have supported amendments to rectify the problem. Opposition began because steel shot was alleged to increase crippling and reduce bagging, was alleged to damage shotguns or be dangerous to the shooter, and because its cost was significantly above that of traditional lead loads. (Attached to this testimony, for the Committee's information, is an NWF staff paper which reviews and summarizes all research which has come to light since the 1975 EIS. It provides overwhelming refutation of the above-mentioned sources of opposition.) Except for cost--and that gap is narrowing rapidly--virtually any study and all field experience show the other arguments to be without merit: there is no increase in crippling or reduction in bagging; there is no danger to steel shooters; while there may be dimensional changes to full-choked barrels, it is minor and does not affect performance or safety.

The steel shot rider to the appropriations bill has done much more than give the states a greater say in waterfowl regulations. By far its most detrimental and dangerous impact is the encouragement of wildlife management by politics. For over forty years, conservationists and sportsmen have worked to get politics out of wildlife management--to have trained, professional resource managers make management decisions based upon the best ecological information available.

Now, in one capricious stroke, forty years' work is negated. Louisiana offers one example. Here a commission of political appointees ignored the recommendations of its professional staff, and prohibited enforcement of steel shot regulations even though Louisiana ducks have some of the highest incidences of lead shot ingestion of anywhere in the U.S.

The pattern is now repeated elsewhere. In Maryland, in spite of continued support for nontoxic shot regulations by the state biologists, and in spite of the Governor's veto, the state legislature passed a law prohibiting the state DNR from accepting the regula-

tions they know are necessary. Likewise, in Wisconsin there is a legislative mandate prohibiting nontoxic shot regulations.

This is not management based on the needs of the resource, nor is this management designed to provide, as Aldo Leopold said, "sustained annual crops of wild game for recreational use." This is management by political expediency, not in the best interests of the renewable resources or their users.

This is not to say that the Fish and Wildlife Service did not act in a heavy-handed fashion early in the game. But their cooperation with the States has markedly improved, and partly because of the rider. Certainly the ammunition makers did not adequately inform the public about steel shot or do enough to hold down its costs. But here, too, there is improvement. What I am trying to say is that the remedy--the appropriations rider--did not fit the crime. At best, it has served its purpose, and should now be removed.

In waterfowl management, it is imperative that state and federal agencies work hand in hand. This is a matter of practicality rather than law. As you know, the U.S. is party to four separate international treaties for the conservation of migratory birds. All designate the federal government as the responsible implementing body, with no authority vested in the states. However, without the states, individually and sitting as flyway councils, waterfowl management would fail. The federal government cannot do the job alone. But someone must be the final decision-maker, and when dealing with a resource which crosses international and state boundaries, this must be the federal government.

The existing rider has been in effect for two years, and it has served its intended purpose. But it is now time to retire the state-veto, before it leads to a checkerboard management of our international wildlife resources, and to other unintended erosions of scientific resources management.

Mr. KIMBALL. There are a couple of points I would like to make, Mr. Chairman.

And one is the fact that the Wildlife Resource Management had been divided, traditionally, in two ways.

One is the Federal Government, through the international treaty concept, is responsible for migratory birds that traverse State boundaries.

So, I don't think we should lose sight of the fact that, traditionally and with State concurrence, the prime responsibility for the management of an interstate resource rests with the Federal Government.

Senator STEVENS. But doesn't this go into the area of taking now? Aren't we talking about taking when we're talking about the effect of a regulation that will eliminate the 16-gage shotgun and, in many instances, where the 20 and 10 gage is not available, limits these hunters to the 12-gage shotguns because of the impact of the Federal regulations? Isn't that an impact on the taking of wildlife, rather than the management of it?

Mr. KIMBALL. Well, taking is really a part of management. The management concept is you produce the birds, hopefully, for surplus as you take them. And it is that production and the maintenance of stable populations that really was the principle reason for the enactment initially of the steel shot regulation.

So that if we assume for a moment the professionals are right that have studied this and that the use of steel shot is going to save *x* numbers of birds and that it is desirable from that standpoint—and, certainly, I have sat in so many meetings with those professionals that convince me at least and my organization that that was desirable, that we should make an effort.

The problem has come up because of the application universally and the resistance on the part of the States that there are areas within those boundaries where the lead shot is not a problem because of the bottom switch and other reasons. I concur with that.

And when we initiated this program, we tried to develop a cooperative attitude between the States and the Federal Government to work on that, to try and determine by research—proper research by professional people—where they had the problems and to require the steel shot in those areas where they have the problem and not to do it elsewhere.

Now, you are right. There were initially some pretty high-handed efforts on the part of the Federal Government in applying that and resistance on the part of the States, which I personally think is being overcome.

But what has happened in this sense of professional researchers trying to work out this problem is that we have had the matter of politics injected into the business that, traditionally, hunters or any other group of people tend to resist a change that they are not familiar with. And that was to be expected.

And so the movement—this is where I think the amendment has done a disservice—has moved from the way that we would like to see this solution made, of having professionals in both the State and the Federal Government do the research to resolve their differences, rather

than into a political arena where that is forced on them by a State legislature.

POSITION OF SECRETARY ANDRUS

Senator STEVENS. The difficulty is that whenever one person has the right to tell a whole agency or a whole series of State agencies what to do, there is no cooperation.

Let me read to you, Tom, what the Secretary said when he came here. This is Secretary Andrus. He said:

> Let me give you one other example that might be in the interest of other members, the steel shot question, or rhubarb, if I may use that term. We resolved that by working with the States.
>
> I'm sorry Senator Stevens isn't here, but his amendment of a year ago I agree with totally. I was hoping he would bring it up, because Senator Stevens and I, for the past 18 months, haven't been able to agree on much; and here is one area where I think he is absolutely right, and we are working in that direction.

Now, I wasn't here at that time of that hearing, obviously. But it was after that that Senator Johnston called me and asked me if I knew what happened in Louisiana. Then I got notice of what happened in Missouri. And then we found out what happened in Wisconsin.

And while the head of the Department is telling us that he agrees with us 100 percent, the people who have been delegated authority are out there in Wisconsin turning over the act of the legislature and the Governor by administrative fiat, which is contrary to what the head of his Department said.

Mr. KIMBALL. But, Senator, you know, I don't know how many years ago that was.

Senator STEVENS. This is this year.

Mr. KIMBALL. I think it was 1979.

Senator STEVENS. No; I put it in 1979. This is the hearing for the fiscal 1981 appropriations.

Mr. KIMBALL. And I think it did serve a purpose, Senator. I think if there were any intent to be highhanded by the Federal Government in their relations with the States, that that has been overcome. I think there is—and you might want to call on the Federal agency to see whether or not there is that type of relation.

Senator STEVENS. That was February 4 of this year. All this has happened since that time. We're trying to find out what has happened to destroy what we thought was a cooperative arrangement, whereby the Fish and Wildlife Service had to take the results of their investigation and their professionals and go and demonstrate to the State agencies.

Instead of doing that, they went and tried to demonstrate. And they didn't convince people, and the States went against them. They said, "OK, if that's the way it is, we're going to pick up everything and go home." I don't see how that can work.

PROBLEMS VARY AMONG REGIONS

Mr. KIMBALL. Well, but let's take Louisiana, for example, to show you, really, what has happened.

Now, their most prominent scientist and biologist that I have known personally for 20 years did the research. They had got a real lead shot problem in Louisiana, according to the professionals.

Senator STEVENS. I understand they do in areas of Louisiana.

Mr. KIMBALL. OK. But that is a pretty substantial area. If any State has got a real lead shot problem, in my view, after reviewing some of that data from their own people in Louisiana—and if you think Louisiana is not a States rights State even amongst their own professional people, why you should talk to them sometime. I know them, and they have fought the Federal Government on almost everything, including that.

But they made the report that they had a serious problem, and their professional quit the Department because their own commission did not back him. And the resolution of that move from the area of where people are trying to resolve it that know something about it into the political arena, where it was resolved.

And you can point, the same, to Wisconsin and into Maryland, where even the Governor vetoed it and the legislature passed it, knowing and following the recommendation of his own professional staff. And that is the disservice that is being done.

If somehow you could arrive at some sort of an effort that would direct this to be done in a resolute way between the Federal professionals and the State professional to make those kind of recommendations, I think we would be getting somewhere, keeping in mind that the objective is to conserve resource.

Senator STEVENS. Well, some States don't make their fish and game regulations the way others do. That is the problem we ran into. We tried to work this out and, in fact, we worked with people in your organization trying to work out this language originally. In my State, as you know, the fish and game commission board makes the regulations and issues them, after hearings throughout the State.

In other States, it's the legislature. In other States, it's the Governor. In other States, you have appointed people. I think Louisiana has a situation where they have an appointed commission.

And incidentally, we're in 100 percent agreement in Louisiana, by the way. Even among the professionals, there was 100 percent agreement in Louisiana. Louisiana opted not to go along with the Federal Government, and the Federal Government did the same thing there as they've done in Wisconsin and Missouri. They just said, "OK, if that's the case, we'll close it."

The problem that I have is the delegation of authority. And the interesting thing is the pattern here. You are dealing primarily with the Central Flyway. Why is it that just the Central Flyway is out of balance in this thing?

Mr. KIMBALL. No, it is specific, too. You know, there is—probably the reason, Senator, is that there is less of a problem probably, at least in my view, in the Central and Pacific Flyway from lead shot than there are perhaps in the Mississippi and Eastern Flyways.

Senator STEVENS. We're not yet in a position where if you're against lead shot, you are a professional, and if you're for lead shot, you're a politician; is that right?

Mr. KIMBALL. I think that is about right.

In fact, that is the exact point I'm trying to make. And if you studied the States that you mentioned that are opposed to it——

Senator STEVENS. You don't think there's any professional opinion that still says that the jury isn't in on steel shot?

The hearing I conducted—when was that, 1979—which lead to this amendment in the first place was that the professionals were still pretty well split. And I'm talking about professionals.

Mr. KIMBALL. You said you didn't want to talk about this, but I have tried to accumulate for the committee's information the most up-to-date review of the research that has gone on over this period, which convinces me, Senator, that the preponderance of research data confirms the fact that we do have a serious problem in the continuing use of lead and that we ought to make every effort to try and reduce that loss in a way that doesn't impact in the areas that could be open to hunting without using lead. And that calls for the type and kind of cooperation of professionals.

You can't resolve a question of whether an area, a lake or a marsh, should have steel shot or shouldn't have it by going out and asking a State legislature or hunters that the only way you can do that is to do some research by competent people on that ground and determine whether you have the problem.

If you have it, you close it. And if you don't, you don't. And that accomplishes the purpose of managing the resource in such a way that really is the responsibility of the Federal Government. That resource is held in trust for the people and managed by that agency, with millions of dollars spent for professional people to do that very thing.

Senator STEVENS. Next year we will have a hearing on steel versus lead shot. The impression I have is that there are more birds lost by steel shot that are maimed and not killed than are lost by lead poisoning.

What is happening here is that a bird that is struck by lead shot that is 20 or 16 gage, they are not being killed.

Mr. KIMBALL. Senator, I hope you will take time to review the research. That is not what it shows.

Senator STEVENS. Well, that is what it showed before, and that the problem of lead poisoning was not really the basic problem of these flyways.

Mr. KIMBALL. I beg to differ with you, Senator. That is not what the research, the bulk of the competent research that is done by people who should know and have no, really, axes to grind. And I'm talking about ammunition companies and other people who have done it are saying. And that is what I've tried to accumulate for the committee's information, to study it.

Senator STEVENS. I'll be happy to take a look at it, but we're not getting involved in that issue directly this morning.

What are we going to do about this provision? The Secretary of the Interior says its working. We're going to the States, and everything is working fine.

Mr. KIMBALL. I think you had better ask him again. He may have a little different conclusion about it now. My suggestion would be that if you are going to do something——

Senator STEVENS. Was he a politician in February, but not in September?

Mr. KIMBALL. You ought to mandate the type and kind of cooperation that I'm talking about by professional people.

FLYWAY COUNCILS

Senator STEVENS. My memory is that the first draft of this said that regulations would not be imposed, unless the Flyway Council approved. And it was the Fish and Wildlife Service that came back to us and said, "No, no, no. Let's make this on an individual State basis."

New York raised a problem. And I'm sympathetic with New York's problem. I'm not sympathetic with their lack of Federal lands. I think they would understand our problems a little bit more if they had a few more Federal acres. But the difficulty is that the State-by-State option isn't working. Maybe we ought to go to a Flyway Council basis.

Mr. KIMBALL. Senator, I plead with you that giving State veto power over this is not the solution.

Senator STEVENS. Well, I'm certainly not going to go along with the Federal Fish and Wildlife Service manager vetoing the State of Wisconsin or Missouri or Louisiana. That just can't happen under our system.

Mr. KIMBALL. But, Senator, somebody has to have the final decision. And traditionally—and I was a State director of two State agencies before I came to Washington.

Senator STEVENS. I remember that fully well.

Mr. KIMBALL. And there's no one that fought the States rights, for the management of resident fish and wildlife more than I have. And I still do.

Senator STEVENS. I remember when you came in. I was here then, too, if you remember.

Mr. KIMBALL. That's right. And we have had many good conversations about that.

But, contrarywise, the migratory birds are a Federal responsibility. And when you plead for—and it is required—the Flyway Councils and the cooperation of the States that primary enforcement of Federal regulations even now is mandatory in order to manage that resource properly. And that is where we ought to address the question, not veto power.

Senator STEVENS. Well, you might as well abolish the Flyway Councils and abolish the State fish and game agencies and say we're going to have one agency governing the hunting and waterfowl in this country, period.

You know, it's not the first step. This is the second step in terms of limitation of the rights of hunters and in individual States.

Mr. KIMBALL. You're going to do that because three States have turned political and said, "We're not going to do it?"

What about the other States? You know, there are a good many of them that are working on research programs right now to try and identify the areas where they can jointly say, "We've got a problem and so we ought to do something."

Senator STEVENS. Well, I think they had better go back to those three States and convince them. I don't think they should be able to convince

them by just saying, "If you don't do it, everything that is Federal is closed off."

The next step would be the denial of money under Dingell-Johnston or something else. They would find another way to put additional pressure on them.

If New York was going against this and just had 15,000 acres and said, "The h--- with it," the next thing we would do is just say, "OK; well, we're not going to let you have back some of the Dingell-Johnston funds or some other funds." They'll find some way to bring about that result.

Mr. KIMBALL. Let me correct some misapprehension I think you may have about this.

The Federal Government, the Fish and Wildlife Service, has left open many areas in the refuge system to hunting. And they have closed those areas only where they are convinced by their own research that they have a lead shot problem.

Senator STEVENS. I don't know if you read the statement of the Governor of Wisconsin, which said that it's not correct in Wisconsin. Unless the whole State reverses its position, they threaten to close the Federal lands.

Mr. KIMBALL. I'm not sure that that's true, because I don't know. But I do know that in other areas there are many thousands of acres of national wildlife refuge lands that are open, and they are open because the Service feels that they have no serious lead shot problem in that area.

Senator STEVENS. Well, I thank you for your research. And I will read it. I do have it, and I will read it.

And I look forward to hearing from Lynn here.

DEPARTMENT OF THE INTERIOR

U.S. Fish and Wildlife Service

STATEMENT OF LYNN A. GREENWALT, DIRECTOR, U.S. FISH AND WILDLIFE SERVICE

ACCOMPANIED BY:

HARVEY NELSON, DIRECTOR, REGION III, MINNEAPOLIS
ROBERT SMITH, SPECIAL PROJECT COORDINATOR, MIGRATORY BIRD OFFICE
DAVID FISHER, OFFICE OF THE SOLICITOR

STEEL SHOT IN 1980

Senator Stevens. Mr. Greenwalt, I do have to have another hearing at 11:30, unfortunately.

What are we going to do about this year now?

Mr. Greenwalt. Let me, if I may, Mr. Chairman, make it abundantly clear that the Fish and Wildlife Service has never closed all of the areas for which waterfowl hunting is permitted to the use of lead shot. First of all, there are about 150 areas from the 420 areas of the National Wildlife Refuge system that are open to waterfowl hunting, 53 of which are restricted to steel shot. The balance are lead shot areas.

Senator Stevens. Did Mr. Saunders threaten the State of Missouri that the Federal refuge system would be closed to hunting in 1980 and 1981 to waterfowl unless the State of Missouri changed its position?

Mr. Greenwalt. As it regards national wildlife refuges in Missouri, not the entire State of Missouri, Mr. Chairman. In no case have we indicated to any State——

Senator Stevens. Now, wait a minute. We have a provision that says you cannot enforce the provisions of your steel shot regulations in any State unless the State agrees. And along comes Mr. Saunders and says, "We're going to close these lands unless you do agree."

Mr. Greenwalt. Agree with the use of steel shot on refuge lands——

CONFLICT OF LEGISLATION

Senator Stevens. As a practical matter, there was the issue that led to that provision and we worked it out with you. We had an agreement on the language: you would not enforce steel shot on wildlife refuges in any State unless the State commission agreed.

And the State commission did not agree, so he said, "OK, we will close them all."

Mr. Greenwalt. Mr. Chairman, I think the point is that I am confronted, and the Secretary is confronted, with two conflicting pieces of legislation, one of which governs the use of national wildlife refuges, which puts him—and therefore me—in the position of either attempting to get permission to use steel shot or closing the refuge, because we

have identified that particular refuge as having lead poisoning problems.

Therefore, we are confronted with a true dilemma, unless we can get State approval to use steel shot in the refuge areas.

Senator STEVENS. I understand that, but Congress has the power over Federal lands, doesn't it?

Mr. GREENWALT. Yes, it does.

Senator STEVENS. We said that steel shot regulations would not be applied on Federal lands unless the States agreed.

Mr. GREENWALT. That's correct, sir.

Senator STEVENS. You agreed with that provision.

Mr. GREENWALT. That's correct.

Senator STEVENS. So in Wisconsin, the State, acting under its normal procedures, did not agree.

Mr. GREENWALT. No, sir, the Department of Natural Resources in fact asked that we enlarge the steel shot zones in the State of Wisconsin, but were overridden by the Governor.

Senator STEVENS. I understand that, but that is their process.

Mr. GREENWALT. Absolutely.

Senator STEVENS. The Governor and the State legislature said no.

Mr. GREENWALT. And we in Interior said that because we have this continuing obligation to the well-being of migratory birds, we wanted to close one area on the Upper Mississippi River Wildlife and Fish Refuge or make it available for hunting only with steel shot.

Senator STEVENS. The Governor has indicated he does not intend to be coerced by your people; that the legislature has acted, the Governor has signed the bill, and that is the law of Wisconsin.

Does that mean that since you have not been able to convince the people of Wisconsin that your position with regard to steel shot is correct; that you are going to say that Congress doesn't have the right to manage Federal lands in Wisconsin?

Mr. GREENWALT. No, sir, I am not going to say that at all. I am simply going to say that——

Senator STEVENS. We said you could not use those steel shot regulations on Federal lands unless the State agrees, and that is what you're doing, isn't it?

Mr. GREENWALT. Precisely. But I have two conflicting laws staring me in the face, Mr. Chairman.

Senator STEVENS. Which is the other law you are relying upon? The Migratory Bird Act?

Mr. GREENWALT. The National Wildlife Refuge Recreation Act of 1962.

Senator STEVENS. The House has just passed it again.

Mr. GREENWALT. That's correct, sir.

Senator STEVENS. Well, what do you want me to do? Do you want me to take the funds out?

Mr. GREENWALT. No, sir. I feel that if you have categorically said "we shall not do anything on the national wildlife refuge relative to steel shot that is not approved by the State," then I feel honorbound to abide by that specifically. I am advised——

Senator STEVENS. Well, why didn't Mr. Saunders do it, then?

Mr. GREENWALT. He asked the State to reconsider their decision as it related to the national wildlife refuges in Missouri.

SECRETARY OF INTERIOR INVOLVEMENT

Senator STEVENS. Was Secretary Andrus advised of this brouhaha that was going on in Missouri and Louisiana and Wisconsin when he told us that this thing was working so well?

Mr. GREENWALT. Definitely. We had the problem in Louisiana.

Senator STEVENS. He told us it was working well.

Mr. GREENWALT. In February. I sat in the room when he said as much. He also went on to say that he knew that he might be confronted with the need to close national wildlife refuges in spite of this. He said as much in the continuation of that testimony, in a colloquy with Senator Johnston.

Senator STEVENS. Well, what I would like to know is: if the House has passed the bill, and it has the language in my amendment from the 2 previous years, and we have this situation where the people from Missouri and the people from Wisconsin and the people from Louisiana are asking us to change this and make a Federal decision; is that what you want us to do, is to make a Federal decision?

Mr. GREENWALT. No. I think the most equitable way to get at this problem is to give the Fish and Wildlife Service, the Secretary of the Interior, the option of using steel shot on refuges where it is established that lead poisoning is a problem, notwithstanding the action of the State Government—without any relationship between that and what happens by the States' own decision on State-owned lands elsewhere in that State. I think this would be accepted by the States.

Senator STEVENS. In most of these States, you don't have State-owned lands; you have privately owned lands.

Mr. GREENWALT. The taking of migratory birds is permitted on private lands so long as the private landowner agrees.

Senator STEVENS. But that must be in accordance with State law.

FEDERAL REGULATIONS

Mr. GREENWALT. And with the applicable Federal law. The Federal framework still applies, as you will recall, to season length, bag limits.

Senator STEVENS. Bag limits? The limitations on taking are part of the Migratory Bird Treaty Act? The concept of regulating the means of taking is not part of the Migratory Bird Treaty Act, and that is what has been, really, our fear, that you are marching toward controlling what type of shotgun is going to be used, how many shells are going to be allowed in each shotgun, the whole concept. That is a State law.

Mr. GREENWALT. The method of taking is also presently in the Federal regulations.

Senator STEVENS. There is a fine line there, and we went over that at the time we went over the Sikes Act, if you will recall.

Mr. GREENWALT. Yes, I do.

Senator STEVENS. Apparently, this is retreating from that balance, as I understand it; am I wrong?

Mr. GREENWALT. No; we're not retreating from the balance.

Senator STEVENS. Are we at the point where you're not allowed to have a 20-gage shotgun with steel shot to hunt on Federal lands?

Mr. GREENWALT. We have required that any shot shell used on a Federal refuge in which steel shot was required, be a steel shot shell, and at present they are available not only in 12 gage but in some supply—and I am told it is a growing supply—in 20 gage and in 10 gage.

We made it possible for many years for hunters to use lesser gages in lead loads because women and children, particularly, and newcomers to the sport like to use a lighter shotgun. We permitted this to go on until it was apparent that steel would be available in other loads, other bores, and then we required the use of steel. Without exception, wherever steel shot was a feature in the taking of migratory birds.

STEEL SHOT IN ALASKA

Senator STEVENS. Well, if you look at my State, with 60-plus million acres under the jurisdiction of the Fish and Wildlife Service. And I have got problems enough with that decision, without having the hunters in my State climb all over me and have them tell me that the management of those individual refuges is going to make the decision as to how they're going to hunt on an ad hoc basis.

In some areas they will use steel shot; in some areas they can use lead shot; in some areas they can use 20 gages; in some areas, they've got to use 12 gages; but that's going to be up to the State, as far as we're concerned, and that's what I thought we had an understanding—that it was up to the State.

Mr. GREENWALT. Mr. Chairman, first of all, insofar as I know, there is no lead poisoning problem in Alaska.

Senator STEVENS. There isn't, that's true. Our people are disturbed that this means that you're getting into the area that has traditionally been reserved to the State fish and game agencies.

Mr. GREENWALT. I think we are not. I think the State fish and game agencies and we agree that we're not treading on each other's prerogatives in this whole transaction.

STEEL SHOT APPROPRIATION LANGUAGE

Senator STEVENS. Let's assume, now, that the Senate decides to keep the language that was in the previous two bills—it's in the House bill—word for word, what was in before.

What is going to happen in Wisconsin and Missouri and Louisiana, in terms of this? I have a letter from the Fish and Wildlife Service in Minnesota, talking about Mr. Nelson, that says:

> The Service is committed to the concept of preventing further disposition of lead shot on national wildlife refuges and will elect to close refuges in Illinois as to waterfowl hunting if nontoxic shot cannot be required. Our position on this commitment has not changed.

Now, that is dated August 22, 1980.

Mr. GREENWALT. That's correct, sir. And I continue to operate on the assumption that I have this continuing obligation to the national wildlife refuge system and to the migratory bird resource that uses it.

Senator STEVENS. Now, doesn't Mr. Nelson get his money from the appropriations bill?

Mr. GREENWALT. He does, sir.

Senator STEVENS. Well, how come he's writing a letter saying that's the commitment of the Federal Government when we've decided otherwise, and the President signed that law? That's our problem. What good does it do us to put the language in there that reads, and everybody understands, the Secretary agrees is a good provision, and along comes a representative of the Fish and Wildlife Service and he says that "we're going to close these refuges to waterfowl hunting if nontoxic shot cannot be required."

Where is that leaving the decision to a State agency, or to cooperation? Where is this great cooperation we're all talking about?

Mr. GREENWALT. There was cooperation up to the moment, as was suggested earlier, that the commission in each of those States decided it was not in the best interest of the State to do these things.

Senator STEVENS. Well, I would like to talk with this gentleman, Mr. Saunders, is it?

Mr. GREENWALT. Mr. Saunders is not present.

Senator STEVENS. Mr. Nelson is here, the gentleman who signed this letter?

Mr. GREENWALT. Yes, sir.

WASHINGTON OFFICE DIRECTION

Senator STEVENS. Mr. Nelson, would you come forward. Do you have any instruction from your central office that directs you to take the position that was set forth in the letter that I just read?

Mr. NELSON. Was that the State of Illinois, sir?

Senator STEVENS. Well, I have a series of correspondence here, to Madison, Wis., to Mr. Risser, Mr. Jacomonis. Your telegram said the Fish and Wildlife Service most strongly considered the continued use of steel shot on the Federal refuges in Wisconsin, especially in the upper Mississippi refuge—or close such areas to hunting. I read previously your letter to Mr. Kenney in Illinois.

Have you been directed by your Washington office to take this position? Is this the position you took, or is this a position you took on your own?

Mr. NELSON. Well, I feel that I have the responsibility as regional director.

Senator STEVENS. I didn't ask you that question. I said were you directed by your Washington office, or did you take the position on your own?

Mr. NELSON. Yes, we were.

Senator STEVENS. You were directed by Mr. Greenwalt?

Mr. NELSON. Yes, sir.

Senator STEVENS. Mr. Greenwalt, is this coming from your office?

Mr. GREENWALT. Yes, sir.

Senator STEVENS. Have you a copy of any memorandum that went to the Fish and Wildlife regional directors to that effect?

Mr. GREENWALT. No, we discussed this orally at meetings.

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Senator STEVENS. There's nothing in writing?

Mr. GREENWALT. No, sir. I am unaware of anything specific.

LANGUAGE PROPOSALS

Senator STEVENS. Well, I have got to close. I would like to ask you to give me the language that you think you would like to have. I think we're going to be compelled to make the decision and if it is going to lead to a nice discussion on the floor, we will have to have the discussion on the floor as to what we're going to do.

But we didn't approach this as politicians, in terms of that language. If I wanted to be a politician, we would have prohibited you from enforcing these regulations in the first instance. But we gave you the option to go convince the States and have the States continue their prerogatives, and at that time everyone agreed it was a good solution. And it was working.

The Secretary, when he came in February, said it was working. Something has happened, primarily in the area that is under Mr. Nelson's jurisdiction. It appears to indicate that without regard to what Congress has said and the President has agreed to, that the Fish and Wildlife Service is going to coerce the States and is going to opt to do what Congress said it cannot do. It is going to close areas to hunting unless the States do, in fact, adopt the position of the Fish and Wildlife Service.

Mr. GREENWALT. Insofar as those affected refuges are concerned.

Senator STEVENS. I understand that, but the States have decided to the contrary. The real question is: what good does it do us to accept a compromise and to pass that law and have the President agree to it 2 years in a row, if you can do what you've done? Because you are saying that the law that we passed does not bind use of funds to the Department of the Interior.

The letters that Mr. Nelson has signed, the telegrams he signed, are directly contrary to an act passed by Congress and signed by the President, and it says, no funds can be used for this purpose, and yet the funds were used for this purpose.

Mr. GREENWALT. That's correct, sir.

Senator STEVENS. In my day, down at Interior, someone would have lost his job.

Now, if someone is either going to abide by the law or lose their job——

Mr. GREENWALT. It is my job that is at stake, because I'm the responsible official in the Fish and Wildlife Service.

Senator STEVENS. But you agreed to that language?

Mr. GREENWALT. I agreed to that language.

Senator STEVENS. Now you're disregarding it?

Mr. GREENWALT. No, sir. I am advised that there is some legal question about the conflict between my responsibility to the national wildlife refuge system and my responsibility—which I feel is very real—to your language.

Senator STEVENS. It was my suggestion, but it was the language of Congress, and the President signed it as the law of the land.

Mr. GREENWALT. I understand that, sir, and I can only tell you what I am being advised by the lawyers at Interior.

Senator STEVENS. Well, I think with my background as a solicitor, I ought to be pretty good at tightening up that language, and next year I don't think there will be that conflict.

Mr. GREENWALT. I hope not.

Senator STEVENS. We're going to tighten it up in some way so that you get the point.

Do you remember Mike Strauss?

Mr. GREENWALT. Surely. Yes, sir.

Senator STEVENS. Did you know he lived around this area for a little over 1 year without any salary?

Mr. GREENWALT. No, I did not.

Senator STEVENS. Why don't you go back and check that, because he did the same thing as Commissioner of Reclamation 1 or 2 years, and Congress just said, no funds can be used to pay the salary of a Commissioner of Reclamation.

Now, somehow or another, the message is going to get through, that we intend to limit the use of this money to enforce the steel shot regulation. You have done it contrary to the advice of the Secretary that the provision is working.

Now, I am going to put my brain to work to find some way to tell you in cold language you are not going to use funds under this bill to enforce the steel shot regulations in States where the States won't accept it. Now, that's all there is to it. And somehow or another—that's what Congress said, not just me. Everyone agreed. It was unanimous.

Mr. GREENWALT. I understand that.

OPINION OF SOLICITOR

Senator STEVENS. Have you a solicitor's opinion to the effect that the language in our bill does not mean what it says?

Mr. GREENWALT. No; there is no formal opinion as such. It has been discussed at great length with the Solicitor.

Senator STEVENS. Again, in my day, no one dared come to the Congress and tell them that the Solicitor had orally said that what the Congress said wasn't the law. Now, believe me——

Mr. GREENWALT. I do, sir.

Senator STEVENS. I, as solicitor, brought about several people's departing from that Department who took it upon themselves to say what I said. If I said anything, it was in writing.

I would hope that you would tell the Solicitor we'd like to have the Solicitor's opinion, if he has said that the Interior Appropriations Committee language does not have to be followed by the Department of the Interior. That is the impact of what you're telling me, that you have been advised that you can disregard the provisions that are in the Interior appropriations bill.

Mr. GREENWALT. I've been advised that there is great conflict between the two.

Senator STEVENS. That's not the point. There may be conflict, but have you been advised you can disregard it?

Mr. GREENWALT. No, sir.

Senator STEVENS. Hasn't Mr. Nelson disregarded it? Haven't you disregarded it?

Mr. GREENWALT. I have done my level best, Mr. Chairman, to discharge what I believe to be my responsibilities to you and to the resources of this country. If I have disregarded this, then I am at fault. No one else is.

RESOLUTION OF PROBLEM

Senator STEVENS. We thought we had worked this out on the basis of cooperation, and everyone said it would work. But how can it work if the Federal Fish and Wildlife Service officials take the position that it doesn't have to work; no matter what you say, we are going to enforce our position with regard to Federal lands, contrary to what the Congress and the President have said?

Now, somehow or another, that issue is going to be resolved this year. But believe me, with the feeling that exists in the Senate today, as expressed from Louisiana to Wisconsin and Missouri to Alaska, and Idaho, I can tell you what the decision will be on the floor of the Senate if we take this issue to the floor of the Senate. And I don't think you want that any more than I do, because I want these steel shot regulations to go into effect where the Federal Government and the State officials agree that it is necessary.

But we will prohibit steel shot regulations on all Federal wildlife refuges if you would like that to happen.

Now, believe me, that is the purpose of this hearing. Somehow or another, these things that go in this bill are going to mean something, or I am going to put my time in on it, and so is a gentleman called the majority leader, because we agreed on that provision as it went to the Senate, and went to the House with it, and the House agreed to it, and the House sent it back to us, 2 years in a row, as being a good resolution of this problem.

The Fish and Wildlife Service has now destroyed that cooperation, in my opinion. I have been besieged by people from Wisconsin, Missouri, Louisiana, and other States involved in the actions—because of the actions of the Fish and Wildlife Service under this amendment. Somehow we have to resolve it. But I would ask you to submit to us the language that you would like to have take the place of this language, if it is to be changed.

PREPARED STATEMENT

Mr. GREENWALT. Very well, sir. I have also submitted a statement that I would like to have in the record.

[The information follows:]

PROPOSED MODIFICATION OF SECTION 304 OF H.R. 7724

Add to section 304: "The section shall not apply to lands and waters of the National Wildlife Refuge System."

STATEMENT OF LYNN A. GREENWALT

Mr. Chairman, it is a pleasure to be here to testify on the steel shot issue.

Mr. Chairman, we have followed scrupulously the language contained in the 1979 and 1980 Appropriations Acts relating to steel shot. In both years we issued our regulations and then queried the States as to whether or not they would approve the steel shot program in their State. The vast majority of the States have approved our program. Where they have opposed it we have not enforced the steel shot regulations in that State. This policy applies to all lands within the States other than units of the National Wildlife Refuge System. On National Wildlife Refuges, we are governed not only by the Appropriations Act language, but also the provisions of the National Wildlife Refuge Administration Act (16 U.S.C 668dd, et seq.) and the Refuge Recreation Act (16 U.S.C. 460k, et seq). Under the provisions of these Acts, areas within the National Wildlife Refuge System are closed to hunting unless they are specifically opened in accordance with rules issued by the U.S. Fish and Wildlife Service.

There are two general restrictions in law limiting our ability to make these areas available to migratory bird hunters. First, not more than 40 percent of any area of the system which was set aside as an "inviolate sanctuary" for migratory birds by law, proclamation, or executive order can be opened to hunting unless we find that the taking of game birds would be beneficial to the species. Second, being an incidental or secondary use of a Refuge, hunting in any fashion cannot be permitted unless we find that such hunting will be compatible with, and will not prevent accomplishment of, the major or primary purposes for which such areas were established.

The Regional Directors of the Fish and Wildlife Service exercise my delegated authority to open refuges to hunting and to issue special rules regulating the manner in which hunting may be conducted to ensure that the major or primary purposes of the refuges--to preserve migratory birds--are realized. Where practicable, these rules are consistent with State regulations, since the States also have authority and jurisdiction to regulate migratory bird hunting on refuges where such rules would not conflict with Federal regulation of migratory bird hunting.

The Federal Courts, in the Great Swamp and Ruby Lake decisions, have emphasized that we may not take these Federal responsibilities lightly. (See Deer, Ecology, Environment and Resources, Inc. v. Morton, Cir. No. 1761-73 (unreported) (D.N.S., decided Dec. 10, 1973); Defenders of Wildlife v. Andrus, 455 F. Supp. 466. And, as you probably know, the steel shot regulations, which apply within designated "hot spots" on and off refuges, were sustained in the courts. National Rifle Association v. Kleppe, 425 F. Supp. 1101 (D.D.C. 1976), aff'd 571 F.2d 674 (D.C.Cir. 1978).

No one to date has questioned in the courts the authority of the Service under the Refuge System and Migratory Bird Treaty Acts to determine that a refuge should not be opened to hunting, or to use funds appropriated to Interior to implement or enforce the "steel shot regulations" in refuge areas where a State has consented to those regulations. It is the manner in which such consent was arrived at in a few States which has raised questions.

Mr. Chairman, we are convinced that our course of action is the only way in which we can obey the language of both the Appropriations Acts and the National Wildlife Refuge Administration and Refuge Recreation Acts. We cannot allow areas that were set aside to provide feeding, nesting and resting areas for migratory birds to contribute to the poisoning of those birds. Our Congressional mandate on this point is clear, and it has been reaffirmed by the courts. Over one hundred refuges are open to hunting with lead shot, but on the fifty refuges where there is a lead shot problem we have no choice. If the States do not allow us to enforce steel shot regulations on refuges where there is a toxic shot problem, we believe that the Refuge System Administration Act and the Refuge Recreation Act prevent us from opening that refuge to hunting. We frankly see no other course of action.

Mr. Chairman, we cannot let the opportunity pass to stress again the importance of the steel shot program. Each year approximately 3,000 tons of spent lead

shot pellets are deposited in the fields and marshes where waterfowl are hunted. In these areas, it is not at all unusual to find 20,000 to 100,000 pellets per acre in the top few inches of sediment or soil.

When swallowed by waterfowl while feeding, the lead pellets pass through the upper digestive tract to the gizzard where they are converted to a soluble form and absorbed by the bloodstream. The lead causes a reduction in oxygen supplies to the tissues. It interferes with the body's ability to break down glucose or other carbohydrates, leading to weight loss. Lead also disrupts the production of hemoglobin, resulting in anemia and damage to the liver and heart.

Based on repeated studies, it is estimated that 2 million ducks die each year from the hazards of lead poisoning. This is 2 percent of the U.S. waterfowl population as a whole, but for certain species such as the mallard, the percentage is even higher. Many more birds are severely weakened by the presence of lead in their bodies and fall victim to the cold or other factors.

We have also performed tests in actual hunting situations on the effectiveness of steel shot which strongly indicate that there is no significant difference in the effectiveness of steel and lead shot loads. In addition, based on four years experience with steel shot, we can assure hunters that steel shot has caused no damage of consequence to the life or performance of most guns used by waterfowl hunters today, and new guns are being manufactured for use with steel shot. Finally, we should point out that steel shot regulations, like all migratory waterfowl hunting regulations, are issued after close consultation with the States and are only part of the highly successful Federal-State waterfowl management program that has been in existence for almost 50 years.

Hunters have been in the forefront of the movement to conserve and enhance our waterfowl resources. They are keenly aware of the rapid loss of waterfowl habitat this country is experiencing, and through the Duck Stamp Program their dollars have been used to acquire and preserve the most critical wetlands. However, we are still losing 300,000 acres of wetlands each year, and so the quality of the remaining areas is becoming more and more important. The use of steel shot as a means of protecting our migratory waterfowl from lead poisoning is a conservation measure which needs their understanding and support.

Mr. Chairman, this concludes my prepared statement. I will be pleased to answer any questions at this time.

SUBCOMMITTEE RECESS

Senator STEVENS. Thank you very much. We will now stand in recess.

[Whereupon, at 11:30 a.m., Tuesday, September 9, the subcommittee was recessed, subject to the call of the Chair.]

DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1981

WEDNESDAY, SEPTEMBER 10, 1980

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:40 a.m., in room 1114, Everett McKinley Dirksen Senate Office Building, Hon. Walter D. Huddleston presiding.

Present: Senators Huddleston and Young.

DEPARTMENT OF ENERGY

ECONOMIC REGULATORY ADMINISTRATION

STATEMENT OF BARRY L. VAN LARE, SPECIAL ADMINISTRATOR FOR GAS RATIONING

OPENING REMARKS

Senator HUDDLESTON. The subcommittee will come to order.

We are here to hold a special hearing on the administration's fiscal 1981 budget amendment request for $103 million for preimplementation activities of the gasoline rationing plan.

Earlier this spring the committee heard testimony on the administration's fiscal 1980 supplemental request for $43 million for a rationing plan. The administration subsequently increased the supplemental request by $60 million, partly in response to additional requirements of the Emergency Energy Conservation Act of 1979.

Because the administration submitted the rationing plan too late for full congressional consideration before the supplemental appropriation bill was passed, consideration of funding for the plan was deferred without prejudice.

Now that the Congress has completed its review of the plan itself, it is appropriate for us here today to review the budget estimates for the plan.

We will include the justification for the amended budget request in the record at this point.

[The information follows:]

FY 1980 SUPPLEMENTAL REQUEST
SUMMARY TABLE
(BUDGET AUTHORITY IN THOUSANDS)
ECONOMIC REGULATORY ADMINISTRATION

	Presently Available	Revised Estimate	Proposed Supplemental
Emergency Preparedness			
Operating Expenses	$3,661	$106,661	$103,000

This request for supplemental FY 1980 funds includes the previous supplemental request of $43 million submitted in November 1979. The increase of $60 million is required to complete all preimplementation activities and is largely based on significant changes made in the plan since the earlier submission.

Supplemental funding in the amount of $103,000 is requested to permit the Department to complete the timely preimplementation of the Standby Gasoline Rationing Plan as authorized in the Emergency Energy Conservation Act of 1979 (EECA). The preimplementation phase is designed to bring the Plan to a 90-day state-of-readiness. Full funding for preimplementation is being requested because the Administration believes it is in the interest of national security to have a rationing plan in readiness status as soon as possible. The importance of timely completion of preimplementation activities has recently been highlighted by events in the Middle East.

Presently available funds and personnel do not permit the Department to achieve the timely development of the plans, prepare necessary issue analyses and progress reports, hold public hearings and consult with State Governors, nor conduct interagency reviews. Available resources also do not provide for the anticipated additional correspondence and increased requests for information and briefings about rationing that necessarily fall upon the Department from Congress, the press and the public.

The Department is committed to working closely with the Congress, State Governors, and consumers to develop a viable gasoline rationing plan. In doing so the Department believes that it would be in the national interest to preimplement the gasoline rationing plan expiditiously so that it will be ready if needed, particularly in view of the U.S. commitment with the International Energy Agency and the uncertainty about another shortfall which could be brought about by reduced oil production in the Middle East. The proposed supplemental funding would permit the Department to complete the rationing activities for which it is responsible in a expeditious manner.

There have been several changes to the Plan which have necessitated new funding estimates. These changes, which are a result of new decisions, the interagency review, and input from public hearings held in December and January include:

- Data for supplemental allotments will be developed during preimplementation rather than during mobilization.
- Funds to develop a National Vehicle Registration File (NVRF) and a one-time clean-up of State DMV files.
- Development of comprehensive public information materials to be used during the mobilization and operations phases, and a public information campaign to be used during preimplementation to facilitate the one-time clean-up of State DMV files and to inform firms about filing for supplemental allotments.
- Adequate Federal and contractor staff resources to manage the preimplementation effort.
- Design of several alternates to coupon rationing which would utilize high technology concepts.
- Provisions of a $20 million contingency fund to maintain managerial flexibility required for a program of this magnitude and complexity.

Preimplementation of the Plan will commence when supplemental funds are appropriated. Completion of this effort which will bring the plan to a 90-day state-of-readiness will require at least 12 months. Although only a small part of preimplementation will occur in FY 1980, total funding is being requested now

to insure the capability exists to complete the needed work as quickly as possible. Funds are requested, therefore, to remain available until expended. The supplemental request includes $165,000 for travel persons and $22,000 for transportation of things.

A description of preimplementation activities and requested funding is presented below.

	Estimated Cost (Dollars in Thousands)
Allotment Planning	$7,209
Develop supply projection capability	$ 150
Collect base period information from firms	5,474
Develop supplemental allotment applications processing capability	1,585
	$ 7,209

This package will include the development of systems and procedures for computing the size of ration allotments and reserves based on the total available supply of gasoline and on the number and type of eligible recipients. The actual distribution of allotments is not part of this package. The Energy Coordinating Council directed that all businesses would be entitled to supplemental allotments based on historical use, and that all firms could file their base period consumption during preimplementation.

The increased funding request is primarily for collecting the base period data. Developing a system and the actual filling of base period consumption by firms will require a full year. This work can only be completed in one year if all data entry is performed by contractors.

Ration Check Production $4,200

It is necessary to have an adequate supply of ration checks available for issuance during the mobilization period. Checks are required for basic vehicle allotments, non-receipts, supplemental allotments, and State and National ration reserves. The estimate includes funding for the transportation and storage of checks. The type of check to be used (post card, self mailer, separate check) will not be determined until the preimplementation period.

Check Issuance/National Vehicle Registration (NVRF) $21,000

Development of the National Vehicle Registration File (NVRF), including data acquisition, hardware, and facilities, and software development	$ 11,000
Cleanup of State Motor Vehicle Data and Systems	10,000
	$ 21,000

This work package will develop the capability to: (1) maintain a National Vehicle Registration File (NVRF) from which ration checks are to be issued; (2) to issue ration checks based on motor vehicle registrations; and (3) reconcile checks against those issued. The estimate provides for a one-time cleanup of State DMV files, development and maintenance of an NVRF by a contractor, and development of procedures for check issuance and reconciliation.

Coupon Production $18,000

Provides for manufacturing of sufficient coupons to permit efficient operation of the rationing program during the first three month ration period. EECA made the coupons obligations of the U.S. Government. The U.S. Treasury proposed that a new lithographed coupon be designed, and that it be multicolor, one side only, with sufficient security features and serialization to satisfy the requirements of the U.S. Secret Service. five and a half billion lithographed coupons can be produced within three months using the resources of the Bureau of Engraving and Printing, other Federal agencies and commercial printers.

Coupon Distribution----------$500

The preimplementation effort involves design of a transportation system to move ration coupons from storage and production points through Inventory Control Points (ICPs) to Coupon Issuance Points (CIPs), assuring security, accountability, and a short-notice supply and resupply capability. The revised estimate reflects the exclusive use of new produced, larger coupons and also has been escalated to include inflation.

Management Information Systems (M.I.S.)----------$5,315

Coupon Distribution and Inventory Management and Control System	$ 805
Rationing Rights Exchange Market information System	330
Ration Banking System	3,080
Financial Management and Accounting System	250
Audit and Enforcement Management System	250
Entitlement Computation System	600
	$5,315

This work package identifies information requirements and develops the management information systems needed to operate the rationing program. The estimate allows funds for inflation, machine time and telecommunications, and systems development in a greater number of major regional banks for the Ration Banking System.

Ration Banking Operations----------$600

The effort requires developing procedures for processing appliations for ration rights and redemption accounts, to receive deposits to accounts, and to transmit rights and redemption checks to Regional Processing Centers (RCPs). Ration banking data systems development is not part of this package, but is part of the Management Information Systems package.

State and Local----------$10,874

NGA Contract	$ 550
Develop state plans	7,433
Develop detailed state policy and regulations	691
Develop audit and enforcement guidelines and training	1,300
Other	900
	$ 10,874

The States have an active role in administering the rationing program, especially in operating a network of local boards for dispensing hardship allotments to the handicapped and others with special needs. States need to develop policies and procedures during the preimplementation period for setting up and administering the Station ration reserves from which hardship allotments will be issued. The estimate funds the preparation of State manuals and procedures as part of the State rationing plan development effort, and provides for the states to set the level of their overall ration reserves, and for additional plan development work. Actual staff recruitment and training costs for local plan development work are not included as preimplementation costs, but are considered mobilization period costs.

Allocation Interface----------$300

Funding provides for the rationing program's interface with the DOE gasoline allocation system in such areas as supplier-purchaser relationships, distribution of gasoline to wholesale and retail customers and transfer of gasoline between wholesale and retail customers and transfer of gasoline between low-demand and high-demand areas during rationing.

Ration Rights Market Operations----------$700

The DOE will develop a standby capability to enter the ration rights market as a purchaser or seller of coupons in case intervention is required to stabilize the market. DOE will examine the requirements and develop the necessary procedures and materials. This package is supported by the Rationing Rights Market Information System being developed under the M.I.S. package.

Audit and Enforcement----------$400

The work package will provide Federal and state procedures to ensure compliance by individuals, firms, banks, petroleum industry and others involved with rationing regulations. The M.I.S. work package includes development of an audit and enforcement case tracking system.

Adjustments and Appeals----------$200

The function of this package is to develop procedures and design an organization to process appeals from individuals and firms concerning ration entitlements. The type of appeals which should be heard at various levels will be identified. No appeals will be heard during preimplementation since no allotments will be made during this period.

Public Information----------$4,700

Federal efforts	$ 964
State efforts	3,736
	$ 4,700

This work package involves the development of advertising and public relations materials for informing the public about gasoline rationing implementation and program changes. There will also be an effort to advise firms to file base period consumption data during the preimplementation period. The estimate envisions a coordinated Federa/state effort. Federal funds will be directed at preparing masters of media announcements, press kits, brochures, etc. The DOE would fund state development of materials related to specific state media plans and television/radio/publications materials. A public information campaign will be directed toward firms during this time period also.

Federal Organization----------$200

This work package plans the Federal organization to direct and manage rationing mobilization and operation. The estimate includes funds for documenting DOE responsibilities, organization, functions and personnel requirements during mobilization and operation phases of rationing. Interagency agreements to provide specific skills requirements from other Federal agencies will be prepared.

Program Management and Systems Integration Contractor $7,002

Program Management	$ 4,635
Systems Integration Contract	2,367
	$ 7,002

This work package involves overall project management during the preimplementation effort by Federal employees and coordination of all work packages to be accomplished by a systems integration contractor. Funding for program management is based on 110 Federal staff years commencing upon funds availability. The estimate for the systems integration contract assumes contractor personnel will assist in coordinating the coupon distribution, ration banking, check production, MIS, coupon production, NVRF, alottment planning and readiness maintenance work packages.

Readiness Maintenance----------$300

This work package identifies and develops procedures for maintaining in a state of readiness all files, systems, materials, regulations, etc., during the period when preimplementation is completed and mobilization has not yet begun. The estimate is based on reviewing all work packages to identify readiness maintenance requirements and organizational responsibilities, to develop a monitoring system and to develop procedures for documenting and performing maintenance.

Alternative System Design Concept Proposals----------$1,500

The purpose of this package is to obtain alternative systems designs for couponless gasoline rationing systems which eliminate the labor-intensive

functions of the coupon/check based system and provdide better accountability functions. These systems should be capable of being implemented within a three to five year timeframe. The current plan contains many drawbacks related to handling large volumes of paperbased negotiable instruments. The movement of industry toward electronic methods suggests the viability of more techniques of rationing.

Management Reserve----------$20,000

A management reserve is essential for a program of this size and complexity. The reserve would be administered judiciously and would cover those costs which may arise in the future which cannot be identified at this time.

$103,000

PREPARED STATEMENT

We welcome before the committee this morning Mr. Van Lare. We have your prepared statement and it will be included in the record. I might add that your statement was received only yesterday afternoon, which is much later than the committee requirement.

You may proceed to summarize your statement as you wish, after introducing any supporting witnesses you may have brought with you this morning.

[The statement follows:]

STATEMENT OF BARRY L. VAN LARE

Mr. Chairman and members of the Subcommittee, I am pleased to have this opportunity to testify before you today in regard to the Department's request for an appropriation to fund the preimplementation of the Standby Gasoline Rationing Plan which was developed by the Administration in response to the directives of Congress as set forth in the Emergency Energy Conservation Act.

As you will recall, that Plan became final on July 30, 1980 following the expiration of the mandatory Congressional review period. In very brief summary, the Standby Gasoline Rationing Plan provides that, during a period of rationing, ration rights (coupons) will be required for the purchase of gasoline. These ration rights will be distributed among the States on the basis of historical use so that all areas will share the shortfall on a proportional basis.

Before ration rights are distributed among the States, however, some will be set aside on a national level. First, a National Ration Reserve will be established to meet disaster and other emergency and special needs. In addition, sufficient rights will be reserved on the national level to provide for the needs of agricultural production and distribution.

At the State level, the remaining rights will be divided into three major categories:

-- a state ration reserve to be used by the State to meet hardship needs, including the needs of the handicapped;

-- supplemental rights for business and priority users to allow for the continuation of vital services and to avoid additional economic disruption; and,

-- basic ration rights allotments to be made available on the basis of registered vehicle ownership.

The State Ration Reserve will be operated by the States through local boards which will be able to bring expert knowledge of local conditions to bear on difficult hardship eligibility determinations.

Supplemental allotments, like agricultural allotments at the national level, will be based on historical use. We anticipate collecting the data needed on a national level through a voluntary registration process to be developed during preimplementation.

Basic vehicle allotments will be made on the basis of registered vehicle ownership. We expect to obtain this vital eligibility data from state motor vehicle registration files. Once ration rights are distributed, they may be exchanged for coupons at Coupon Issuance Points. These Coupon Issuance Points will include government offices, large businesses, commercial banks and other financial institutions. Coupons could then be exchanged for gasoline at retail stations. These stations would then cancel these coupons and deposit them in redemption rights accounts which would be maintained at a regional level. Checks drawn on these accounts would then be used to authorize sales back through the gasoline supply chain.

I should emphasize that this plan incorporates a number of provisions markedly different from the plan submitted to Congress last year.

Differences in Gasoline Consumption Among the States

This plan carries out the dual objectives of the Energy Policy and Conservation Act, as recently amended by the Emergency Energy

Conservation Act, to distribute ration rights among the states on the basis of historical use and to provide equitable distribution of the shortfall among all classes of end-users. To comply with this provision, the plan provides that ration rights will be distributed in accordance with each state's gasoline use in the most recent period for which reliable data are available.

Supplemental Allotments to Businesses

The current plan provides for firms to receive ration allotments equal to a percentage of their base period gasoline use. This new feature, which received strong support in public comments, will ensure that the imposition of rationing minimizes the disruption to the economy and the inflationary effect arising from the fuel shortfall. Under the plan, businesses, including self-employed individuals, would receive the same allotment for each registered vehicle as individuals but could apply for supplemental allotments by filing data on their historical gasoline consumption.

Priority Activities

This plan has expanded the number of activities that are identified as qualifying for priority status. Priority activities are expanded to include taxicabs and rental vehicles, certain telecommunications activities, utilities services, for-hire mail and small parcel transportation and delivery, search and rescue activities, energy production and newspaper distribution. Priority activities will receive allotments equal to a larger percentage of base period usage than the percentage allotted to other units.

Finally, under this plan, agriculture is treated as a priority activity and its definition has been revised to include commercial fishing as well as the related distribution of agricultural products. In addition, priority allotments for agricultural use will be taken from the national supply of ration rights before calculating each state's allotments.

DOE as a Purchaser and Seller of Ration Rights

This plan contains the authority, contingent upon the appropriation of funds, for DOE to buy and sell ration rights as a means of establishing and maintaining an equilibrium between ration rights and the supply of gasoline. The use of this authority would provide one of several mechanisms for achieving an on-going balance between ration rights and gasoline.

Expanded State Role

The final difference between the two plans would give the States the option of playing a larger role in the administration of the State Ration Reserve and in the establishment and operation of local rationing boards. The States will be able to exercise greater discretionary power in determining the size of the State Ration Reserve, with an initial minimum of five percent of the total number of ration coupons allocated to the State, and in establishing the criteria for its distribution to recipients within the State on the basis of hardship and on the needs of the handicapped.

Gasoline rationing is a large and complex process. It cannot be implemented overnight. As a result, the Department of Energy is requesting the appropriation of $103 million to preimplement this plan so that it can be developed to the point where it could be implemented within 90 days after the preimplementation work is completed. We expect that this preimplementation process will take a minimum of twelve months from the point at which an appropriation becomes available.

Preimplementation will include several major activities. These include:

-- identifying eligible businesses and individuals through the pre-registration of business and priority users and through the development of a vehicle registration file;

-- printing and storing the coupons and the identification of coupon issuance points;

-- developing State and local ration boards to manage hardship allotments from the State Ration Reserve;

-- establishing a ration banking system to facilitate the transfer of ration rights through the resupply system;

-- creating management and program controls to assure sound management and to prevent fraud and abuse.

To develop each of these items adequately requires that we invest monies now. These are long lead time items which would undoubtedly postpone the beginning of rationing if they were delayed until the start of mobilization.

The details of our request are included in the proposed amendment itself, a copy of which I will submit for the record. However, I would like to highlight some of the larger elements in the request. These include:

-- coupon and check production...$22.2 million;

-- vehicle and business registration files...$18 million;

-- develop state ration reserve...$10.9 million;

-- upgrade state motor vehicle registration files...$10 million;

-- program management and systems integration...$7 million; and,

-- public information...$4.7 million.

In addition, this request includes a $20 million fund for contingencies designed to allow us to respond to needs that may be identified during detailed design.

Recognizing the importance of having a Standby Gasoline Rationing Plan ready for mobilization, the Department of Energy has already taken steps to further prepare for the start of preimplementation. To direct this effort, the Secretary has established a Gasoline Rationing Preimplementation Project Office with a projected staff of 110. That Office reports directly to the Secretary through the Chief Financial Officer and is responsible for all aspects of preimplementation.

During the past few months the Department has initiated a number of critical activities. These include:

-- competitive selection of an integration contractor, dependent upon the availability of funds;

-- preparation of draft state agreements for the state role in rationing;

-- preparation of a draft interagency agreement with the Bureau of Engraving and Printing for coupon production;

-- preparation of detailed functional description for each component of the system;

-- survey of state motor vehicle registration agencies to determine state capacities and needs.

However, further progress requires the availability of additional funds for the actual development of needed systems. DOE cannot provide these funds from existing resources and we face a substantial delay if an appropriation cannot be made available soon.

In conclusion, the Department of Energy believes strongly that the Standby Plan should be preimplemented to the point where it could be activated upon 90- day notice. Despite the present high level of gasoline stocks, our Nation remains vulnerable to a sudden cut-off in our vital petroleum supplies. We must be prepared. It is a matter of critical importance to the Nation's economic security in the event of a sharp drop in the availability of petroleum that a Standby Gasoline Rationing Plan be available for use to ensure the continuation of essential services, to provide each end-user with access to some gasoline and to provide an orderly system for the distribution of gasoline. The process of bringing the plan to a readiness state should not be delayed. Such a delay is a luxury we cannot afford. As a result, I urge your favorable consideration of this request.

Biography of Barry L. Van Lare

Barry L. Van Lare presently serves as Special Administrator of the Gasoline Rationing Preimplementation Project Office with the United States Department of Energy. As head of this office he manages the activities involved in bringing the plans for a nationwide Standby Gasoline Rationing Program to a state of operational readiness.

Before joining DOE, Mr. Van Lare was employed by the Department of Health, Education and Welfare as the Deputy Assistant Secretary for Legislation. In this position he was responsible for social security, income maintenance and social services legislation.

Prior to that, he served as Associate Commissioner of the Social Security Administration where he was responsible for family assistance, low income energy assistance, refugee assistance and the repatriation program for U.S. citizens.

Before joining HEW, Mr. Van Lare was employed by the National Governors' Association as Director of the Division of Human Resources and was responsible for the integration and coordination of NGA activities in manpower, health planning, social services, welfare reform and other fields.

Prior to that assignment, Mr. Van Lare served in a number of increasingly responsible positions in State and local government. Most recently he served as Commissioner of Social Services for Erie County, New York. He also served as Director of Community Services for the State of Washington and in New York State, he served as Executive Secretary to the Health Planning Commission, Director of the Senate Task Force on Critical Problems, Acting Commissioner and Executive Deputy Commissioner of Social Services, Assistant Secretary to the Governor and Deputy Commissioner for Human Rights.

Mr. Van Lare received his A.B. degree in political science from the University of Rochester in 1962. He was born in Williamsom, New York. He is married to Phyllis Grace Judd of Waterloo, New York. The Van Lare's have three children--Sherryl Jean, Ian Judd, Susan Michele and live in Reston, Virginia.

STANDBY GASOLINE RATIONING PLAN

Mr. VAN LARE. Thank you, Mr. Chairman. I am pleased to have the opportunity to be here this morning to discuss our appropriation request. I regret the delay in submitting the formal statement for the record.

We had delayed the clearance of that statement so that we could have the most up to date information on the status of implementation. We will try to avoid that problem in the future.

As you indicated, Mr. Chairman, the regulations which established the standby gasoline rationing plan did become effective after a 30-day congressional review period, on July 30.

That standby plan has a number of elements which require preimplementation in order to implement the plan on short notice.

Basically, the plan requires us to distribute coupons to eligible individuals based upon either their business activities or the ownership of an individual motor vehicle.

In order to do that, we essentially take the total available supply of gasoline and calculate individual allotments in a number of categories including national ration reserves to meet disaster and special needs and agricultural reserves set aside for administration directly on the national level.

The remainder of the gasoline is basically divided among the States on a proportional basis, taking into account their historical use of gasoline.

A State may, from its share, set aside a State ration reserve to be used for meeting hardship needs, including the particular needs of the handicapped.

The remainder of that gasoline is essentially divided among business and priority users and individual registered vehicle owners.

Once those ration rights are distributed, they are exchanged for coupons. The concept is that the rights will be distributed in the form of a ration right check to be mailed to individuals. Those checks are exchanged for coupons at coupon issuance points, which will be a variety of facilities including Government offices, businesses, large employers, and commercial banks.

The coupons themselves are then exchanged for gasoline at retail stations and then are redeemed or cancelled by the individual station. They are then used through a ration banking system to obtain authorization to resupply the retailer and other elements of the wholesale chain.

Putting together a system of this nature is a large and complex project. We have estimated that it will take us a minimum of 12 months to preimplement the plan to the point at which it could become operational upon 90 days notice.

To give just one example of its size it is useful to note that the current payment roll of the Social Security Administration, probably the largest single Government payment operation, is about 35 million, as compared to 150 million who will be eligible to receive payments under gasoline rationing. As you can see, it is a large task to be undertaken.

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In order to do that within the timeframe we talked about, there are several things that the administration and the Department have determined should be done during preimplementation.

We need basically to be able to identify business and priority users through a voluntary registration system.

We need to be able to have access to and use vehicle registration models in order to identify people who will be receiving ration rights.

Because of the time involved in printing, we believe it is necessary to print and store the initial quarter's coupons prior to the end of the preimplementation period.

We need to identify some 60,000 coupon issuance points which would serve as a point of exchange so that they may have access to training materials and procedures so that we will be able to develop the schedule for distributing ration rights and handling inventory problems that may arise.

We need, as the statute sets forth, to establish or assist the States in establishing, boards in each community, so that they may respond to hardship needs in their communities.

We need to establish in cooperation with the banking community, a ration banking system to handle the redemption flow of coupons. This will minimize the problems that would be inherent if we tried to take the 5½ billion coupons each quarter and have them physically flow back to the prime supplier.

We also need to create basic managment and program controls in order to make the system responsive and to control abuse.

To do that there are several major items in the request that I would call your attention to:

Twenty-two million dollars of the request is designed basically for the printing of coupons and checks to have available the materials that are necessary to operate the system quickly.

Eighteen million dollars is provided for the development of the business and the vehicle registration files that are required to identify firms and individuals who will receive benefits.

Approximately $11 million is provided for the development of the State ration reserve, including the local board activities.

Another $10 million would be made available to the States for upgrading their motor vehicle registration files.

And, $7 million is recommended for program management and systems integration.

Over the past several months, the Department has been using its resources to prepare for this preimplementation period so as to minimize the delays we will face in developing contractual arrangements and resolving policy issues. We have accomplished, I think, a number of things during that period.

The Department has established a Gas Rationing Preimplementation Project Office and it has provided, using existing departmental resources—largely on detail and through special assignment—a staff of about 30 to work on those initial steps.

We have completed the preliminary steps in the competitive selection of a systems integration contractor. That was pending the approval of an appropriation.

We have prepared and will be discussing with the States next week, a draft agreement on the State role in this operation.

We have a draft agreement with the Bureau of Engraving and Printing for coupon production.

Detailed fu ·tional descriptions for each component of the system have been prepared.

We have been working with the State motor vehicle administrators to identify the problems and issues that they face in supporting this activity.

Basically, we are at a point where further progress requires the availability of additional funds. These funds are essential for moving ahead with the production, contracting, and development activities that are necessary if we are to minimize the time it will take to implement these plans.

It is the administration's and the Department's position that the plan should be preimplemented. That is, while we face no immediate crisis, the situation is such that we should be prepared.

Mr. Chairman, that concludes my summary.

I would be pleased to respond to questions.

PREIMPLEMENTATION AUTHORITY REQUIREMENTS

Senator HUDDLESTON. Thank you very much Mr. Van Lare.

Senator Young, do you have a statement you wish to make?

Senator YOUNG. No, thank you.

Senator HUDDLESTON. Mr. VanLare, why should Congress consider funding this rationing plan now when Federal allocation authorities will expire before the plan is completed?

Mr. VAN LARE. Mr. Chairman, we are aware that those authorities, and in fact the authority for the rationing plan itself will all be expiring at the end of September next year.

The administration and the Department are currently in the process of preparing recommendations as to which portions of those statutory authorities should be continued.

I think we are convinced that we will need the authority to operate a rationing plan, and that we should proceed so that it is available should a crisis arise.

Obviously, Congress will have the option and the opportunity to decide, in light of the circumstances that we will face next year, which of those authorities should be continued.

Senator HUDDLESTON. So this funding request is based on the assumption that Congress will continue the necessary authority for the gasoline rationing plan?

Mr. VAN LARE. That is correct.

We believe that the circumstances would make such a plan desirable now and that we will continue to face those kinds of circumstances over the next several years.

Senator HUDDLESTON. Well, the administration has submitted no legislation extending the authority along with the budget request, has it?

Mr. VAN LARE. They have not submitted it relative to this request. I would expect that after the departmental review has been completed, that there will be a request, I would suspect, pursuant to the 1982 budget request.

Senator HUDDLESTON. And when do you think we might receive that legislation?

Mr. VAN LARE. Mr. Chairman, I don't know the specific schedule of that.

Senator HUDDLESTON. Is the request of $103 million a firm figure, or can we expect other costs beyond this for the preimplementation?

Mr. VAN LARE. The $103 million figure is the best estimate that we can make prior to moving into detailed design of the system. We believe that that amount will provide adequate resources to do the things that need to be done during preimplementation.

We don't anticipate additional requests. That $103 million, as the committee is aware, includes a contingency fund that is designed to protect us against those areas where we may have unexpected requirements during the design process.

CONTINGENCY FUND

Senator HUDDLESTON. I notice that the contingency fund of some $20 million is about 25 percent of the funding requirements.

Why is it so large?

Mr. VAN LARE. It is large in the sense that a relatively small change in some of the larger elements can be costly. When you look at an individual piece, such as coupon production or motor vehicle files, those are areas where a relatively small change could produce a substantial increase.

The other reason that it's large is, that we have attempted, basically, to use realistic but lower range estimates on the individual pieces of this, rather than taking the highest projected cost of each of them and adding them up to reach a total.

Had we gone and said the range of cost for coupon production is from $16 to $25 million and had we done that for each of the items, added that higher estimate, I think, frankly, the request would have been higher than the $103 million.

By having the flexibility of a contingency fund, we are able to have the ability to respond in those limited areas where there may be a need to put additional funds.

Senator HUDDLESTON. The justification puts no limits, no restrictions on the use of this contingency fund, as I understand it; isn't that correct?

Mr. VAN LARE. In terms of where within the plan it would be used, that's correct. We have not attempted to identify where it would be used at this point.

Senator HUDDLESTON. What restriction would you assume on the use of these funds?

Mr. VAN LARE. I think, essentially, we would assume, first of all, that they are to be used for the purposes of preimplementation and for the functions in the basic work packages that have been described in the detailed request.

The other underlying assumption is that, from the standpoint of sound management and proper administration, we would want to minimize the use of those funds to the extent possible.

If we can do these items for the base price, I would be very pleased not to have to use the contingency fund. The difficulty that we envision, though is that during the process of preimplementation, we might identify a step that would save substantially in implementation costs, for example, a device that would allow us to simplify the coupon-issuance operation. Without the ability to commit to that, we either have to commit ourselves to potentially larger expenditures during implementation, or we would have to delay building that piece until we could come back to Congress for a supplemental appropriation.

The fundamental purpose for the contingency fund is to try to give us that flexibility to respond to that kind of problem within some limits that are set in terms of the kinds of activities that we will undertake.

NEED FOR CONTINGENCY FUNDING

Senator HUDDLESTON. I think Congress experience with unrestricted contingeny funds has not been a totally happy one. And there is some concern about that.

There's also concern about the fact that we have been, after all, developing this plan since about 1976. It makes you wonder why there are still so many uncertainties that we need $20 million, or 25 percent of the total specified preimplementation costs, left totally unallocated.

Mr. VAN LARE. If I may, there are two comments that I would make relative to that.

One, the last several years have been spent looking at what are the very complex policy and political issues relative to rationing, such as economic impact on various geographic areas and on various segments of the economy.

While there has been considerable work in developing the concept that would be used for administration, we do not have the pieces that are necessary to actually implement a plan, because there has not been either the authority nor an appropriation.

Building a motor vehicle registration file is an activity that we are talking about doing in a 12-month period. That is comparable to almost double the number of individual earning records that are maintained by social security.

The procedures, the interface with State systems, the available equipment, will have an impact on what we are able to build and how quickly and for what cost.

I think though the other point that I would offer is that if, in fact—and I hope it was not the case, but if, in fact, the contingency portion of the appropriation is a problem for the committee, I think we are able to identify those areas of development which are most subject to variation and change. We would suggest as an alternative, if necessary, that we look at adjustments in those areas, rather than cutting back on our total level of appropriation. Without such adjustment we would not have the flexibility to meet the schedule that we set forward for you.

Senator HUDDLESTON. I think it might be helpful to the committee if you could identify those likely areas so we can make a judgment as to whether this figure is more than we should necessarily have to appropriate at the present time.

[The information follows:]

CONTINGENCY PLANNING

The Department has reviewed the individual work packages contained in our request for an appropriaton for the preimplementation of the SGRP in order to attempt to determine those areas where the possible need for contingency funds will be greatest. As we have discussed, the purpose of the contingency fund is to provide us with the flexibility to respond to changes that will be identified during detailed design. For this reason it is only possible to identify general areas of concern prior to that stage. However, as we have continued to prepare for preimplementation, areas of possible concern have begun to develop. These include:

Coupon production.—The appropriation's request assumes that coupons will be printed in serated sheets. Preliminary discussion with the banking industry indicated that moving to single subject coupons and/or packaging in standard denomination booklets would save substantial sums during actual implementation. Such prepacking can be done most efficiently at the point of original printing. Should further study confirm these longer term savings, initial coupon production costs might increase by as much as $12–$15 million. This increase might, however, be more than offset by a decrease in mobilization and operation costs.

Coupon distribution.—The present proposal envisions a fairly simple inventory control system. Initial reviews indicate that such a system may lead to the need for a larger "buffer" in available coupons to assure an adequate supply at all locations. A more sophisticated system may minimize production needs and transportation costs. This system should it prove necessary may cost up to an additional $500,000.

Ration banking.—As we explore available resources it becomes clear that Treasury check reconciliation services are nearing their saturation point. While no final decision has been made, this may require us to contract with the banks for comparable reconciliation activities in order to minimize opportunities for fraud and abuse. The addition of this service could cost up to $1.5 million during preimplementation.

State and local.—Funds are now provided for planning the State role in the operation of the State ration reserve. Early discussions with the States indicate the possible need to actually preidentify and train key staff at the local level and to finalize detailed operating procedures. Such activities if proven necessary could cost an additional $3–$5 million.

Program management.—We now have proposals for the operation of the systems integration contract which indicate the need for approximately 50 man-years of support during preimplementation; funding of this contract would cost approximately $2.5 million more than initially estimated. These additional expenses would produce tighter management controls and may help prevent overall systems increase.

The basic purpose of the contingency fund is twofold. First, it will allow us to take advantage of design options that may help to reduce subsequent operating or maintenance costs. Second, it will provide the flexibility to resolve unanticipated problems that may arise. The examples above are merely illustrative of the opportunities and choices we will face. While the allocation of funds to these individual work areas would provide the flexibility to respond in these areas, it would not provide the flexibility to manage tradeoffs with other possible changes in other work areas.

It is also important to understand that the contingency fund is critical to the accomplishment of our proposed schedule. If design modifications require us to seek additional funds through the appropriation process, critical elements will be unavailable at the scheduled end of preimplementation.

We recognize the need to manage these funds carefully and do not intend to use them except in cases where it is critical or where we face opportunities for substantial future savings.

NEED FOR A STANDBY SYSTEM

Senator HUDDLESTON. Senator Young.

Senator YOUNG. What is your budget now, your current budget you are operating under?

Mr. VAN LARE. The current appropriation which is the basis for the activity that we're carrying out is the emergency planning activity of the economic regulation appropriation. We are using about half a million

dollars of that appropriation for the preparatory activities that are going on.

Senator YOUNG. It would seem that a rationing plan ought to be less urgent now, by far, than a year or two ago. I'm one who believes that we should have something ready in case we need it. But I understand that the oil companies have the biggest reserve of oil and gas, and all kinds of other products, now that they have ever had.

We have a bigger supply than we've ever had. It's kind of an odd time to be committing this much money for rationing when we have this big surplus.

Mr. VAN LARE. I think there is a saying that "The best time to fix a roof is when it's not raining." And I think there's something in that analogy in terms of what we are trying to deal with here.

If we knew when we were going to face, or if we were going to face a shortfall, clearly, we would delay spending money until 12 months, or whatever the preimplementation time was, before that crisis.

The difficulty in this area is that while there is a larger inventory now than we have had at any recent time in the past, there continues to be, in the international situation and other areas, potential problems that could reduce that inventory.

What we are trying to do during preimplementation is to take steps so that if a supply emergency should occur sometime in the future we would not need 12 to 15 months to build the system from scratch; rather, we would only need the 90-day mobilization period in order to move ahead.

It is an area where, essentially, we are recommending an investment in a standby system. That's the very nature of it, one that would be available and used only in the case of a crisis. But like a lot of the standby systems we have in Government and in the private sector, it's an area where the risk is great enough that the administration believes that we should make the investment at the present time, prior to the onset of a crisis.

COST OF PREIMPLEMENTATION

Senator YOUNG. With our present situation, it would seem that some of these plans could be curtailed so that they wouldn't cost quite as much, we wouldn't have quite as elaborate a system of rationing as we would have, it would seem to me, about a year or two ago, or even 3 years ago.

I would think we would find a way of coming up with a lower request for money than this.

Mr. VAN LARE. One of the considerations in developing the request, Senator, has been to meet the individual requirements that are set forth in the authorizing statute. We need to have the capacity to allocate, based on historical use, for both States and businesses. That requires a certain kind of investment in the building of a system.

We are required to have, and believe it is desirable to have, a system of local boards. That requires an investment in a certain kind of system.

The plan requires that coupons follow the flow of gasoline at all stages, not just at the retail stage. That requires a banking system that needs to be put in place earlier.

I think there is really nothing in the request that we will build during preimplementation that could be delayed without also delaying our ability to actually implement a plan during a crisis.

There are a number of activities which we have delayed until the next stage, until the President—and with Congress concurrence—decides there is a crisis that would require the implementation of the plan.

We have put as many activities as we think we can into that category so that we don't have to spend the money now before there is a crisis.

To put further requests there, as we are best able to analyze it, means that basically we would not have a 90-day mobilization period, but we would have some longer period, depending on what items were moved into that category.

Senator YOUNG. Thank you.

STATE ACTIVITY REQUIREMENTS

Senator HUDDLESTON. You have stressed the need for a national vehicle registration file. You have money requested specifically for that, but you indicate that is an area where some additional contingency fund money might be needed.

As you have gotten into that, what accounts for the increase from the $6 million in your original request to $21 million in this one to develop this file and to perform this one-time cleanup of State vehicle registration files?

Mr. VAN LARE. The major element of that increase is for the one-time cleanup of the State motor vehicle registration file. The success of this system depends on our ability to identify correctly the people that we will be mailing ration rights to.

Because of the different ways in which States collect and organize their motor vehicle information, there will be problems with that, both in terms of the timeliness of data and format in some States. In fact, at least in one State the data is not on a computer system.

Senator HUDDLESTON. Why should the Federal Government pay for that? Wouldn't only the State itself be harmed by its inadequate files?

Mr. VAN LARE. The problem that will come from an inadequate file falls primarily in two areas: One, it falls on the individual citizen and business, who will not get their allocation.

Senator HUDDLESTON. Within that State?

Mr. VAN LARE. Within that State, but nonetheless, the problem will fall not on the motor vehicle administrator, but on the individual who needs gasoline.

Second, the correction of those problems, in terms of being able to provide a system where those people can request adjustments and corrections, essentially falls back on the gas rationing system.

We will have to build a capacity, whether in coupon issuance points or somewhere else in the system, to allow those people to come in to tell us that they have not received an entitlement or a ration right that they are entitled to. And we will have to modify our system in order to provide that entitlement.

That kind of an activity, for the number of people that we are talking about, is really much more costly than the front-end investment in trying to minimize such problems by getting an adequate eligibility file.

Senator HUDDLESTON. But wouldn't it be incumbent on the State to provide fairly for its own citizens? And wouldn't the State motor vehicle registration department be the logical place for questions and complaints to go?

I don't know why the Federal Government ought to provide that service to the States.

Mr. VAN LARE. Basically, Mr. Chairman, the plan gives the Federal Government the responsibility for rationing. It does provide for the delegation of certain authorities and responsibilities to the States at their request, but does not, basically, say to the States, "It is your job to run a rationing system."

It says to the Department of Energy and the executive branch, "It's the Federal Government's responsibility to run that system."

In order to minimize the cost of doing that and the difficulty of doing that, we have, in our plan, attempted to use systems and information that are in place in the States, information that was not collected for the purpose of running a rationing program. It was collected, essentially, as a basis for a revenue source through the licensing system for the States.

Clearly, the States have an interest in cooperating with us.

You are correct, the public will not clearly differentiate whose fault it is that they don't get their ration rights. They will probably go to me and to you and to every official they can find in government.

But our approach to this has been that, in those areas where we are basically asking the State, the banking industry, the Post Office, whoever it may be, to conduct a function that is not directly related to what they normally do, that we have tried in the request to provide the resources to do that.

USE OF STATE FILES

Senator HUDDLESTON. Now you are calling for a one time Federal expenditure for a cleanup of State files, so to speak. Isn't this going to require a standardization of the way that States deal with data that they receive on motor vehicle registration?

Mr. VAN LARE. It should require, as we envision at the moment, two things and not require a third. We don't envision establishing a Federal standard for the operation of State motor vehicle registration systems. What we will need to do in order to operate our program is to identify certain elements of data, certain information that we would like the State to collect for us. A name, an address, a vehicle identification number are probably the main components of that.

It will also require us to ask the State to provide us that information in a certain format. We may also ask the States to use certain standard programs that exist for ZIP code identification and VIN verification. However, we are not looking at an approach that says that every State needs to revise their motor vehicle system to meet our standards.

What we are saying is that there are some additional processing steps, or in a very few instances some additional information, we would like them to build into their existing systems. They will undoubtedly collect and make use of a wide range of information that we have no need for, no interest in at the national level, and would not attempt to prescribe.

Senator HUDDLESTON. In your judgment, the Federal Government, then, should pay the States or assist them in any changes that may be necessary in their system to provide the information that you figure is essential?

Mr. VAN LARE. I think we should be prepared to do that. I think we also need to be aware of the fact that State systems are changing on a regular basis, and we ought to use our funds as a way to accelerate that process, not for reimbursing States for things they already plan to do.

Senator HUDDLESTON. Are you sure that this one-shot approach is going to be adequate? Will it not become obsolete itself in a short time?

Mr. VAN LARE. If we are doing this job correctly, we will have identified with the State motor vehicle administrators and the Governors and others in this area the needs we will have on an ongoing basis. Those needs should be considered by the States as they make their more permanent changes in the system.

What we are looking at now is, how do we get the States to do, in a 12-month period, what their normal schedule might have called for doing over the next 4 or 5 years. Clearly—and this is an area which is addressed in the issue of maintenance of the system, once it's been developed—clearly we will need to continue to work with the States to see that as they make changes, they are still able to meet the needs of the rationing program.

Senator HUDDLESTON. It seems to me the States would have a very strong interest in assuring that themselves, because it's the people within the State that would suffer.

Mr. VAN LARE. I think the State has two interests. One is the one you mention, which I think is paramount. The other is that there remains the specter that if, for some reason, the State system can't supply the data, that Congress or the administration might want to collect all that information directly. I think that's an area that's of great concern to the State motor vehicle administrators, and I think the combination of those two incentives will continue to generate an air of cooperation.

TIME REQUIRED FOR PREIMPLEMENTATION

Senator HUDDLESTON. Could the preimplementation time period be shortened to less than 12 months?

Mr. VAN LARE. In relationship to the plan that we have proposed and the requirements that have been included in the Emergency Energy Conservation Act, while we will make every effort to cut that time period down, I would be very reluctant to suggest that it could be reduced below the 12-month level.

Senator HUDDLESTON. What kind of risks would be involved, and what kind of additional expense would be encountered if the time period were trimmed to, say, 4 or 5 months?

Mr. VAN LARE. You run two kinds of risks. You run a very gross risk in that there would be no system to operate, that you would push the button and things would not have been developed far enough that they would work. Assuming that you overcome that, you basically are faced with a number of problems.

One of the requirements is that end-user categories share equally across the States in the reduction of the supply of gasoline. In order to

do that, we have to be able to identify business and priority use within the system. It would be impossible to do that within a 4-month period.

You would run the risk obviously of using motor vehicle files, where the problems we have identified have not been solved. You would have a redemption system without the support network required to operate it.

Basically, what you end up with is a system that, if it were able to distribute coupons—which I think is problematical in that kind of a timeframe—would not have the protection against large-scale errors, such as errors in the basic eligibility file, and that would not have built into it the kinds of protections that you would want against program mismanagement and fraud and abuse within the system.

There are also some very major constraints concerning the ability to secure the coupons themselves within that time period. The estimate is that it takes approximately 90 days to get a quarter's supply of security paper for the development of the coupons and an additional 90 days to print them.

If that is a real constraint—and I think it is—to cut the schedule to that extent basically is not possible.

Senator HUDDLESTON. Would the Department need any extraordinary hiring or procurement authorities to complete the preimplementation in less than 1 year?

Mr. VAN LARE. Based on progress made to date, it does not appear that extraordinary hiring authorities will be required. We have received excellent cooperation from the Department and from OPM and do not expect any unusual problems in meeting our staffing goals.

As to procurement, we are not requesting any extraordinary authority. While we intend to use competitive procedures wherever possible, the very tight timetables and the nature of the work may require selected noncompetitive procurements. We believe, however, that the needed steps can be taken under existing law. The accomplishment of our schedule, however, will require that every step possible be taken to expedite the normal procedure. Again, based on our experience to date, we are convinced that such steps will be taken.

Let me add, however, should the GRPPO be directed by order or circumstance to complete the preimplementation activities in less than 12 to 15 months, these extraordinary authorities, particularly the procurement authority, must be made available to the Department.

Senator HUDDLESTON. Would there be any savings if the preimplementation were extended to a period of longer than 12 months?

Mr. VAN LARE. There would be no dollar savings. In fact, costs might increase slightly in order to maintain the needed level of services by DOE staff and the integration contractor. The major impact of the additional developmental period would be some improvement in the accuracy of the basic vehicle registration file. DOE would have enough time to assist State divisions of motor vehicles to develop and institute improvements to their registration procedures and recordkeeping system.

Senator HUDDLESTON. Well, what about the 90-day mobilization period? Could it run concurrently with any of the 12-month preimplementation period, or are we talking about an actual 15-month lag from the time you receive your appropriation?

Mr. VAN LARE. We are looking at a best estimate at this point which says that it will take us 12 months from the point an appropriation is available, not from the day the plan was approved, to preimplement the plan so that it could be activated in 90 days. So we're talking about a 15-month period as we look at that total span.

DEVELOPMENT OF STATE PLANS

Senator HUDDLESTON. The budget justification contains $7,433,000 to develop State plans for carrying out their rationing responsibility. Why shouldn't this State effort be carried out with funds provided within the EMPA request if it is approved or perhaps within the Energy Policy and Conservation Act State grants recommended by the House.

Mr. VAN LARE. The $7,433,000 included in the $103 million gasoline-rationing request provides funding for specific State activities in response to the requirements imposed on them by the congressionally approved standby gasoline-rationing plan. Those activities are not duplicative of other State energy activities that are also supported with Federal funds, and specifically those activities authorized by the Energy Management Partnership Act and the Energy Policy Conservation Act. Should the Department be directed to divert funds away from other programs, those programs would, of necessity, be diminished in their expectations and results. If EMPA funds are diverted, the programs for new State initiatives in renewable energy sources, the assessment of the applicability of renewable energy sources to State and local government buildings, and the encouragement of financial and other organizations to participate in activities facilitating renewable energy source use would not be able to fulfill their present program goals. If EPCA funds are diverted, grants to State energy offices for developing and implementing energy conservation activities within the States would be reduced resulting in potentially higher levels of energy consumption than might otherwise be the case.

IMPACT OF SEVERE SHORTAGE

Senator HUDDLESTON. What would the Department do to allocate gasoline if a severe shortage occurred during the next year?

Mr. VAN LARE. The Department is currently developing a comprehensive response plan to deal with a wide range of energy emergencies. This plan will include several actions which could be implemented if a severe shortage occurred during the coming year while we are still preimplementing the approved gasoline-rationing plan. I understand that the Department will be testifying before the Senate Committee on Governmental Affairs, Permanent Subcommittee on Investigations on this subject on September 18 and that we will prepared to provide more detailed information to the Senate at that time.

Senator HUDDLESTON. In the event of a severe supply interruption how would the State and local ration boards be funded?

Mr. VAN LARE. In accordance with Public Law 95–224 and OMB Circular A–110, awards to State and local ration boards will probably be by grants. Provisions for such funding are included in our estimate of mobilization and operating costs.

USE OF CONTRACTORS

Senator HUDDLESTON. There has been considerable concern in this committee and in the Congress as a whole about the apparent indiscriminate use of contractors to perform the Department's responsibilities. Approximately how many contract staff years will DOE be buying with the $103 million?

Mr. VAN LARE. The development of gasoline-rationing components will require assistance from other Federal agencies, the States, and private concerns. With one exception, the major procurements will provide specific deliverables such as ration coupon production and distribution, State motor vehicle registration files, ration banking, operating procedures for State ration reserves and State and local boards, entitlement computation methodologies, and accounting systems. The principal exception will be the acquisition of a systems integration contractor who will assist GRPPO management with coordinating and controlling the development of subsystems and major components of the rationing system. In this role, he will support, not substitute for departmental management staff. Funds for approximately 40–50 staff years for this activity are included in the $103 million. In addition, the systems integration contractor will develop specific deliverables including a ration rights market information system, a system for simulating the operation of the ration system and a program participant locator system. Detailed estimates of the man-years required to produce specific deliverables under the various design/development contracts have not yet been made.

Senator HUDDLESTON. We understand this rationing program is a short-term effort; but why, for example, does DOE need to hire a systems integration contractor? What will this contractor do that DOE employees can't?

Mr. VAN LARE. Systems integration is a management concept used in the development of most large systems. The systems integration contractor will be a tool utilized by GRPPO to insure that all work packages and systems components are fully integrated and coordinated, that schedules are met and that all subsystems are integrated into a workable rationing system. This is a one-time preimplementation activity. This activity requires a wide range of highly specialized skills. It would be difficult if not impossible to transfer DOE people or hire an equivalent of 40–50 new people with comparable skills in the very short time allowed for startup activities. In addition, systems integration preimplementation activities will be completed within 12–15 months and the staff associated with those activities would no longer be required. If they were DOE personnel, reassignments or outplacement assistance would be required.

MAINTENANCE OF SYSTEM

Senator HUDDLESTON. The original fiscal 1981 budget requested nearly $1 million to maintain the rationing plan which it presumed would be funded in the supplemental bill this past July. The amended request includes another $300,000 for this purpose. Why is the Department requesting these funds when the rationing plan will not be completed in fiscal 1981?

Mr. VAN LARE. The House Report 96–1147, Department of the Interior and related agencies appropriation bill, 1981, recommended a decrease of $750,000 in the fiscal 1981 emergency preparedness request deleting $300,000 in contract funds for maintenance of a standby-rationing plan, $350,000 in assistance to State and local governments in rationing, and $100,000 for staff salaries for advance-rationing technology development. It further stated that activities such as those concerning the rationing plan, if it were approved, would be considered in the rationing supplemental upon which no action was taken. Our subsequent fiscal year 1981 budget amendment request includes $300,000 for preliminary identification and development of readiness maintenance requirements and organizational responsibilities. It does not provide for the actual maintenance of the completed system.

DEVELOPMENT OF ADVANCED CONCEPTS

Senator HUDDLESTON. The budget justification indicates that $1.5 million would be used to create certain high technology concepts which could provide for a more efficient rationing system. What specific concepts are being considered?

Mr. VAN LARE. At various points during the preparation of the plan, the Department has examined a number of high technology options. These include concepts such as electronic funds transfer, electronic banking, and a variety of credit card based approaches. While none of these has appeared ready for immediate implementation, several show promise over a longer period of time. We anticipate requesting proposals from a variety of sources and will select the ones for final study based on a careful evaluation of these proposals. Our goal is to see a system compatible with the basic plan which will eliminate or reduce the currently envisioned high volume paper flow.

Senator HUDDLESTON. When could these advanced concepts be available?

Mr. VAN LARE. Preliminary information indicates that more advanced technologies would take from 2 to 4 years to develop and implement. The proposed evaluation will include a more detailed assessment of cost and time requirements.

Senator HUDDLESTON. What impact might these high technology concepts have on operation and maintenance costs for the rationing plan?

Mr. VAN LARE. If successful, a high technology option would reduce paper flow and the related processing costs. By its very nature, however, such a system might increase costs during maintenance due to the sophisticated nature of equipment and software required. We expect to provide comparative costs as one product of the proposed study.

Senator HUDDLESTON. In what ways might these high technology concepts improve the reliability and equitability of the rationing system?

Mr. VAN LARE. It is unlikely that a high technology concept will change the basic concept of the current standby gasoline-rationing plan. As a result, it should have no impact on the basic equity of the system. It may, however, increase our capacity to detect and correct errors and to monitor the program more intensively in order to detect fraud or abuse. The reliability of the system would, of course, be considered in evaluating options.

STATEMENT OF SENATOR PERCY

Senator HUDDLESTON. Senator Percy has joined the subcommittee and has a particular interest in this subject. Senator Percy?

Senator PERCY. I have, Mr. Chairman. I very much appreciate the opportunity to comment very briefly. I will ask permission to insert my full statement in the record.

Senator HUDDLESTON. Without objection.

[The statement follows:]

STATEMENT OF SENATOR CHARLES H. PERCY

I greatly appreciate the opportunity to include some of my views and to pose some questions as a part of today's hearing on the Department of Energy's gasoline rationing plan. This plan, and the broader topic of energy emergency preparedness, are vitally important concerns to the future of our nation. Finally, more and more Americans are becoming aware of the severity of our energy vulnerability problems. They are coming to realize that we cannot allow our nation's future to remain in jeopardy, and that we can no longer procrastinate in our efforts to develop realistic and workable emergency preparedness programs.

I am greatly concerned, however, that while our citizenry is looking forward to a brighter and more secure energy future, our federal government is perpetuating serious mistakes that could worsen our vulnerability instead of alleviating it. I could describe various examples of how our government has taken the wrong steps in the past and contributed to our dangerous ill-preparedness. The results of these mistakes include an unfilled strategic petroleum reserve, a bureaucratic gasoline allocation program with a demonstrated ability to exacerbate gas line problems, a lack of plans to accelerate energy production under emergency conditions, and a set of standby conservation plans that are tied up in procedural knots.

Our government's latest mistake is the development of the costly, bureaucratic, and unworkable standby gasoline rationing plan that is being considered at today's hearing. This plan has a number of serious flaws, including its very high costs. It is being suggested that American taxpayers bear the brunt of $103 million in pre-implementation costs, $50 million per year for maintaining the plan in a state of readiness, and about $2 billion per year should we actually use the plan.

Additional problems include the complex and bureaucratic natures of the plan. However, perhaps the most serious flaw is the plan's inability to cope with the rapid run-up of petroleum prices that would be expected to accompany a serious oil supply shortfall. Whether caused by market forces or by the actions of oil-exporting nations, a rapid price increase could allow

the oil market to clear by itself. This could make the price of gasoline as much as $5 per gallon, causing the white-market coupons received by millions of Americans worth no more than the paper they are printed on.

When I led the opposition to this rationing plan earlier this summer on the Senate floor, some of my colleagues felt compelled to support the plan because it would be "better than nothing." If this plan lulls us into a false sense of security, however, I maintain that it would be better to have no plan at this time. Our unworkable plan could be a dangerous diversion that will blind us to the need for getting on with the task of developing solutions that will actually work when called upon. Likewise, if we let it, the pre-implementation of this plan will absorb an enormous sum of money that could otherwise be used much more effectively in preparing our nation for the next energy shock.

There are alternatives to the Department of Energy's coupon rationing plan that would be less costly, speedier, and more workable. I have cosponsored, for example, Senator Johnston's tax/rebate rationing proposal which is one of several alternative approaches to gasoline rationing that deserves much closer attention. This, and other issues related to emergency preparedness, will be the topics discussed by Deputy Secretary Sawhill at a hearing I will chair on September 18.

In light of the many advantages of tax/rebate rationing approaches, I sent letters to Energy Secretary Duncan and three other agency heads asking them to compare such approaches with coupon rationing. Two months later, I received just one two-paragraph response to my four letters and 17 specific questions. In this response of July 7, Secretary Duncan indicated that the Administration was examining tax/rebate alternatives, but that the analyses would require several months to complete. I strongly oppose pouring more tax dollars into this plan before the Department of Energy can tell us, on the record, that coupon rationing is a better idea than the alternatives that have been suggested.

I would like to insert Secretary Duncan's letter into the record. In addition, I would like to pose a number of questions for the Department of Energy and ask that the responses to these also be included as a part of today's hearing record.

July 7, 1980

Honorable Charles H. Percy
United States Senate
Washington, D.C. 20510

Dear Senator Percy:

Thank you for your letter of May 8, 1980, regarding an emergency tax and rebate plan. I am responding on behalf of the Secretary of Treasury, the Director of the Office of Management and Budget, and the Chairman of the Council of Economic Advisers who received similar letters.

The Administration is carefully examining the emergency tax and rebate approach to dealing with petroleum supply interruptions. While this approach may seem very straightforward and simple, it actually entails, as your questions suggest, many complicated questions regarding how the tax would be imposed, the rebate mechanism used, and the associated effects on the Federal budget and the economy. These questions need to be analyzed in depth before the feasibility and merits of the tax/rebate approach can be assessed. This analysis will require several months of effort; when completed, we will be glad to share it with you.

While we recognize that the emergency tax and rebate approach may offer potential, the standby gasoline rationing plan which the President recently sent to Congress is much further along in development. It is critically important that the rationing plan be available for use in the event of a severe interruption in petroleum supplies. We urge you and your colleagues to give the plan your support so that we can proceed with preimplementation. The process of bringing the rationing plan to a state of readiness must not be delayed while other alternative approaches are evaluated.

We look forward to discussing with you and other members of Congress the questions raised in your letter when our study is completed.

Sincerely,

C W Duncan Jr.

Charles W. Duncan, Jr.

Senator PERCY. They are waiting for me back at the markup, but I felt this matter so very, very urgent. As you know, I led the fight on the floor to reject this plan. It was rejected by—it was carried by only four votes in the House. That showed the scepticism in the House of Representatives, and even those who managed the legislation for the plan itself evidenced great scepticism about the plan. And when the sponsors of a piece of legislation that is supporting the administration in this regard themselves privately indicate as many concerns as they had and have actually, some of them substituted other plans, such as Senator Johnston, then I think we've really got to look at whether or not we can go ahead.

We are being asked, really, to provide funding for preimplementing a rationing plan that is very, very seriously flawed. It is very costly; it's extraordinarily slow to get underway. It's bureaucratic, and it probably, actually, won't work.

The problem is, if we do this and go ahead with it, we may give the impression we think we're really doing something. And as someone said, "Well, even though it's a terrible plan, maybe it's better than nothing." I would say it's much better to develop something that is really workable than to go ahead with something that you know is going to be a bureaucratic nightmare.

When we consider that there are now four times as many vehicles as there were during World War II, we have 153 million vehicles now. In the midst of the war, we had trouble with rationing with one-fourth the number of automobiles when we had the real incentive because of a war on in this country. There is not a war now, and we know it's every man for himself.

We know, as a matter of fact, that the coupon value alone, just if you start mailing out four times a year checks for 153 million vehicles, they have to be taken down to the bank to get the coupons. The administration has admitted that about 25 percent would probably never get to the people they were intended for. There would be all kinds of fraud. There would be counterfeiting. We would be creating a currency 40 percent as large as the present entire American currency.

Now we know, even with the present currency, we have problems of counterfeiting paper money and silver. Can you imagine what we would have with these billions of little coupons? Just think of the value that a carcass—anything that would move—would suddenly have. It would be worth $1,000, because these could be sold in the white market.

The plan is not likely to cope with the rapidly runup costs of petroleum prices that would occur with a severe oil shortage. Coupons will probably become worthless, and the white market could actually fall apart as prices just simply skyrocket.

There are many more effective ways, I think, of combating this problem and meeting a real emergency than to use—and we could use the preimplementation funding, I think, in many other ways—weatherization, for instance—a much higher return on investment; energy supply and enhancement; and certainly I much prefer Bennett Johnston's bill calling for a tax rebate plan. That would use our present currency; that would use the market forces in pricing, and that would recycle

those tax funds back without the necessity of creating a whole other currency.

And so, for those reasons, I am very much against—as I was on the floor—very much against the plan, and I simply feel it would be unwise for us to fund this plan, giving the impression that we're going ahead, putting $1 million—$100 million behind a plan that simply would not even work but would give the illusion that we are doing something. And I think with as many faults as the plan has we simply would be pouring money down a rathole, if I could use that expression.

Other than that, I don't feel strongly about it.

[Laughter.]

Thank you very much, indeed.

Senator HUDDLESTON. Thank you, Senator.

Mr. Van Lare, do you want to comment on those comments?

Mr. VAN LARE. I think only to the extent of indicating that the administration recognizes the complexity of what it has proposed. It has not done so, though, as you noted earlier, in a period of quick and unthoughtful consideration. This has been a long process of developing a response.

We believe that this is the most effective coupon plan that is available to us. We are specifically prohibited by the authorizing statute from developing a tax plan or offering a tax option or some of the other approaches that might be used in this kind of an area.

We do not believe that we ought to postpone putting this tool in our arsenal for dealing with a sudden shortfall of gasoline while we looked at other alternatives. We are not closing our minds to other approaches or other possibilities that may over time be more effective. However, this is the one tool that we have the authority to build. We believe we need to build it and should proceed in that direction.

EFFECT OF A 20-PERCENT SHORTFALL

Senator HUDDLESTON. If we had a sudden shortage, I think we could expect that prices would rise rapidly. Even if we had some mechanism here to prevent that, we can't keep the OPEC countries from increasing their prices.

What effect would that have on the price of gasoline? Say, we had a 20-percent shortfall.

Mr. VAN LARE. On the assumption of a 20-percent shortfall, using a reasonably conservative projection of elasticity we would see the price increase from $1.20 a gallon of gasoline to close to $3. If the elasticity is less—one of the difficulty is that we really don't know how consumers will respond to high prices—prices would increase even more. However, we would see about a 143-percent increase in the basic price in order to bring the system into balance.

That would be a very substantial amount of money out of the economy—something in excess of $150 billion. We see basically the coupon system and its impact on the ability to consume, which tends to deflate price, and the availability of existing price control authorities as a way of bringing about that market equilibrium without putting that kind of indirect tax on the individual gasoline consumer.

ALTERNATIVE MECHANISMS FOR GAS RATIONING

Senator HUDDLESTON. Well, what is your judgment of other mechanisms for rationing, such as a high tax with the rebates?

Mr. VAN LARE. The Secretary has asked the Office of Policy and Evaluation in the Department to evaluate a variety of additional options. That evaluation is going on, I think, on a very generalized scale, though each of the approaches has a common problem, which is the identification——

Senator HUDDLESTON. Just a moment, please.

I'm sorry. You may continue.

Mr. VAN LARE. As I was saying, the Secretary has asked the Office of Policy and Evaluation to review the various approaches to tax and price alternatives that have been suggested. While that evaluation is not yet completed and I don't know the conclusions of it, one of the things that is clear is that each of those options are generally accompanied by some type of rebate mechanism, whether it's an excess profit tax rebate or a price rebate or an excise tax rebate, whatever it may be.

The nature of gasoline is such that just about everybody in the country is going to pay additional costs if you go with that option. None of the income distribution systems that we have in place today affects everybody in the country. And one of the challenges that is being faced and one of the things that's being looked at is what type of problems, what type of modifications, would be involved in putting that sort of a system in place, depending on how you chose to do it.

If you chose to do it on the basis of vehicle ownership or business use of gasoline, you would still have the need for some of the mechanisms envisioned in our current plan. While the coupon mechanism would not be needed, the ability to identify owners of registered vehicles and the ability to establish historical use are problems that might still be faced.

I think, though, in fairness that we are waiting to see the result of the study and expect to share it with Congress and others who are interested in the question and concerned with the issue.

Senator HUDDLESTON. Do you have an idea of when that will be?

Mr. VAN LARE. I believe the study will be available by the end of next week.

COST TO OPERATE/MAINTAIN PLAN

Senator HUDDLESTON. What's your estimate of the annual cost to operate this plan as it's conceived at this time?

Mr. VAN LARE. If the plan were to operate for 1 complete year, it would cost about $1.9 billion a year, $474 million a quarter.

Senator HUDDLESTON. Have you figured that out on a cost-per-gallon basis?

Mr. VAN LARE. That, if I remember correctly, comes to approximately 2 cents per gallon.

Senator HUDDLESTON. What would be the annual cost to maintain the completed plan even while it's not operational?

Mr. VAN LARE. We have not completed that figure as part of our 1982 budget preparation. But I think our rough estimates are in the range of $35 to $45 million.

Senator HUDDLESTON. That's just to keep the plan in a state of readiness so it could be operational within 3 months?

Mr. VAN LARE. Yes; it is essentially, again, to keep it in a state of readiness, those elements that we have identified. We will not need to print additional coupons during that period. We will need, though, a system to test from time to time State motor vehicle files, to see whether the communications system or data is still in a useable form.

We will want to have in the individual States the capacity to see that their local board structure is up to date. We don't want a situation where 3 years from now you find that half of the locations that you have identified are no longer current. I think we have seen some of the problems of maintaining standby systems as we look at civil defense and emergency management.

We are trying to propose enough support so that the systems that are built won't decay, but will remain there ready for use.

Senator HUDDLESTON. What will be the principle items that will have to be maintained to keep the plan in a 90-day readiness status once the preimplementation effort is completed?

Mr. VAN LARE. The principle items required to maintain the program in a state of readiness maintenance with capability to fully mobilize within 90 days are: monitoring of gasoline shortfall projection and reviewing allocation program interface; maintaining program participant relationships with Federal agencies, States, and contractors for software maintenance services; maintaining the national vehicle registration file; updating base-period gasoline use; maintaining manpower readiness plans; incorporating state-of-the-art development in systems; and updating firms' records and processing new applications. It is projected that the majority of the readiness maintenance activities will be accomplished through the States and local governments under grants from the Department of Energy.

FINANCIAL ASSISTANCE TO BANKING SYSTEMS

Senator HUDDLESTON. You indicate in your budget justification that you will provide assistance to the banking community. What kind of assistance were you planning for the banks in setting up their procedures?

Mr. VAN LARE. What we envision is that we would enter into contracts for the development of the operating procedures for regional ration banking centers. Basically what we would be buying is the conversion of their existing cash and check processing systems to handle the particular or unique needs of rationing, so that we had in place on a regional basis the centers that could provide that service. That is, essentially to deal with the software and the computer programs and the operating procedures that would be needed to run this system.

PROJECTED OUTLAYS

Senator HUDDLESTON. Now, in your outlay estimates you estimate, I believe, only 50 percent of the $103 million will be outlayed in 1981. The plan is supposed to be completed within 12 months. Why don't you project a higher outlay rate?

Mr. VAN LARE. We project outlays of about $71.5 milion. We have

assumed essentially that we are buying products that will be completed in phases, and we will be making progress payments on many of these activities. Also, the timeframes that we have given have said 12 to 15 months in terms of building some specific pieces. With the fact that the appropriation will be available, at the earliest, at the beginning of the fiscal year, we have assumed that those additional funds will be used as carryover funds within the next fiscal year.

Senator HUDDLESTON. What specific activities are anticipated to spend out at a rate of less than 60 percent? Why?

Mr. VAN LARE. I will supply our specific outlay estimate associated with the subject $103 million budget amendment request for preimplementation of the standby gasoline rationing plan for the record.

[The information follows:]

OUTLAY ESTIMATE

Allotment planning	$7,209	$7,000
Check production	4,200	2,000
Check issue/NVRF	21,000	20,000
Coupon production	18,000	16,000
Coupon distribution	500	400
M.I.S.	5,315	4,700
Ration banking	600	400
State/local	10,874	8,298
Allocation interface	300	200
Ration rights market	700	500
Audit and enforcement	400	200
Adjustments and appeals	200	200
Public information	4,700	4,000
Federal organization	200	100
Program management	7,002	7,002
Program direction	(4,635)	(4,635)
Contractor	(2,367)	(2,367)
Readiness maintenance	300	.....
Alternative systems	1,500	500
Management reserve	20,000	.....
Total	103,000	71,500

Outlay authority in the amount of $71.5 million is requested to permit the Department to complete the timely preimplementation as authorized in the Emergency Energy Conservation Act of 1979 (EECA). The outlay request presumes that all major work packages will be about 90–95 percent completed during the 12 month preimplementation time schedule. The cost incurred during the months of August and September for the smaller packages ($12.5 million) will not be outlayed until the first quarter fiscal year 1982. The $20 million management reserve would be administered judiciously and would cover those costs which may arise in the future which cannot be identified at the time.

IMPACT OF REDUCED FUNDING

Senator HUDDLESTON. What would the impact of this implementation plan be if the funding were reduced, say to 50 percent or to $50 million?

Mr. VAN LARE. If we are talking about the total appropriation, the impact of a $50 million reduction means essentially that we would have to delay until mobilization one or more of the critical tasks. The net impact of that, depending on which tasks could be identified and which

tasks were delayed, would be to extend that mobilization period from the current 90 days to potentially as much as 120 or 190 days.

If we purchased paper and didn't print coupons, which is one way of making a saving, you would have a minimum of an additional 90 days that would be required for producing the coupons that would be needed during that first period of operation. I have not really thought through which elements we would delete from the plan, but the essential cost is that you would extend the mobilization period.

Senator HUDDLESTON. Please identify the discrete funding requirements in the plan compared with requirements in the previous $43 million plan and provide an explanation for each difference.

Mr. VAN LARE. Mr. Chairman I would be pleased to provide that detailed information for the record.

[The information follows:]

GASOLINE RATIONING PREIMPLEMENTATION
NOVEMBER 1979 VS JUNE 1980 REQUESTS
($ in Millions)

		NOVEMBER 79 SUPPLEMENTAL	APRIL 80 SUPPLEMENTAL
1.	ALLOTMENT PLANNING	490	7,209
2.	CHECK PRODUCTION	3,773	4,200
3.	CHECK ISSUE/NVRF	6,100	21,000
4.	COUPON PRODUCTION	5,265	18,000
5.	COUPON DISTRIBUTION	420	500
6.	M.I.S.	3,262	5,315
7.	RATION BANKING OPERATIONS	545	600
8.	STATE AND LOCAL	8,700	10,874
9.	ALLOCATION INTERFACE	82	300
10.	RATION RIGHTS MARKET OPERATIONS	664	700
11.	AUDIT AND ENFORCEMENT	265	400
12.	ADJUSTMENTS AND APPEALS	170	200
13.	PUBLIC INFORMATION	150	4,700
14.	FEDERAL ORGANIZATION	176	200
15.	PROGRAM MANAGEMENT	162	7,002
	PROGRAM MGT.	(162)	(4,635)
	SYSTEMS INTEG. CONT.	(0)	(2,367)
16.	READINESS MAINTENANCE	276	300
17.	ALTERNATIVE SYSTEMS	0	1,500
18.	MANAGEMENT RESERVE	0	20,000
19.	FORMS PRINTING	11,500	0
20.	PLAN DEVELOPMENT	600	0
21.	PREIMPLEMENTATION MGT. & SUPPORT	400	0
	TOTAL	43,000	103,000

An explanation of the proposed increases follows.

ALLOTMENT PLANNING

Basis of Estimate: November 1979 Supplemental assumed only development of procedures for providing rationing entitlements to various classes of users, including priority-class activities, and procedures for calculating initial allotments.
Basis of Revised Estimate: The Energy Coordinating Council directed that all businesses would be entitled to supplemental allotments based on historical use, and that all firms could file their base period consumption during preimplementation. The increased funding request is primarily for collecting the base period data.

CHECK PRODUCTION

Basis of Estimate: The initial estimate included fewer checks than are now envisioned as necessary, and was based on a lower unit production cost estimate.
Basis of Revised Estimate: The new estimate anticipates a greater number of checks to be used for agriculture and other businesses entitled to supplemental allotments. The revised estimate also includes funding for the transportation and storage of checks. The type of check to be used (post card, self-mailer, separate check) will not be determined until the preimplementation period.

CHECK ISSUE/NVRF

Basis of Estimate: This estimate was based on the collection of the State vehicle data to form the NVRF without significant data clean-up efforts. In addition, this estimate did not include substantial check reconciliation.
Basis of Revised Estimate: The revised estimate provides for a one-time clean-up of State DMV files, development and maintenance of an NVRF and development of procedures for check issuance and reconciliation.

COUPON PRODUCTION

Basis of Estimate: The Original Spring 1979 package assumed serialization of existing 4.8 billion coupons, little more than a 60-day supply. Serialization was eliminated by the Congress. This $5,265,000 assumed using the existing coupons, as is, and printing a 30-day added supply plus additional studies on the feasibility of a non-intaglio check size coupon.
Basis of Revised Estimate: EECA made the coupons obligations of the U.S. Government. The U.S. Treasury proposed that a new lithographed coupon be designed, and that it be multicolor, one side only, with sufficient security features and serialization to satisfy the requirements of the U.S. Secret Service.

COUPON DISTRIBUTION

Basis of Estimate: The November 1979 estimate was based in part on handling the coupons currently stored in Pueblo, Colarado, plus other coupons that would have been produced.
Basis of Revised Estimate: The revised estimate reflects the exclusive use of newly produced, larger coupons and also has been escalated to include inflation.

M.I.S.

Basis of Estimate: The Estimate included the cost of systems development, but did not include machine time and telecommunications costs.
Basis of Revised Estimate: The revised estimate allows funds for inflation, machine time, telecommunications, and further systems development at the regional level for the Ration Banking System.

RATION BANKING OPERATIONS

Basis of Estimate: The Estimate included all funds for selecting CIP's and RPC's and developing manual procedures and materials associated with ration banking operations.
Basis of Revised Estimate: The revised estimate includes an addition for inflation.

STATE AND LOCAL

Basis of Estimate: The initial estimate funded the preparation of State manuals and procedures as part of the State rationing plan development effort.
Basis of Revised Estimate: An additional $2.2 million has been provided to reflect the greater role of the states in setting the level of their overall ration reserves, and for additional plan development work. Actual staff recruitment and training costs for

local board operations are not included as preimplementation costs, but are considered mobilization period costs.

ALLOCATION INTERFACE

Basis of Estimate: The November 1979 estimate provided funds to:
(1) Review and modify allocation regulations;
(2) Identify supply imbalances; and
(3) Prepare manuals and materials.
Basis of Revised Estimate: The revised estimate includes funds for:
(1) Determining the impact of initial delivery certification;
(2) Expansion of the definition of agricultural priority;
(3) Proportionate adjustments to reflect States; historic use; and;
(4) Inflation.

RATION RIGHTS MARKET OPERATIONS

Basis of Estimate: The November 1979 estimate funded the design and development of wholesale and retail market intervention strategies.
Basis of Revised Estimate: The initial estimate was increased for inflation.

AUDIT AND ENFORCEMENT

Basis of Estimate: The November 1979 estimate provided funding for procedures, manuals and training materials.
Basis of Revised Estimate: The revised estimate includes additional funds for inflation and to accommodate DOE's providing firms with allotments based on historical usage and for inflation.

ADJUSTMENTS AND APPEALS

Basis of Estimate: The November 1979 estimate allows for development of procedures to accommodate adjustments and appeals.
Basis of Revised Estimate: The revised estimate allows for inflation to be added to the original estimate.

PUBLIC INFORMATION

Basis of Estimate: The November 1979 estimate included only a minimal public information preimplementation effort, and did not request resources for the costs associated with state public information efforts which DOE is required to fund.
Basis of Revised Estimate: The revised estimate envisions a coordinated Federal/State effort. Federal funds will be directed at preparing masters of media announcements, press kits, brochures, etc. The DOE would fund State development of materials related to specific State media plans and television/radio/publications materials. A public information campaign will be directed toward firms during this time period also.

FEDERAL ORGANIZATION

Basis of Estimate: The initial estimate included funds for documenting DOE responsibilities, organization, functions and personnel requirements during mobilization and operation phases of rationing. Interagency agreements to provide specific skill

requirements from other Federal agencies will be prepared.
Basis of Revised Estimate: The initial estimate was increased for inflation.

PROGRAM MANAGEMENT/SYSTEM INTEGRATION CONTRACT

Basis of Estimate: Initial estimate included only Federal personnel to oversee project effort, but did not fund effort to manage each work package. The initial estimate also did not provide any funding for a systems integration contractor.

Basis of Revised Estimate: Funding for program management is based on 110 Federal staff years commencing upon funds availability. The estimate for systems integration contract assumes contractor personnel will coordinate the coupon distribution, ration banking, check production, MIS coupon production, NVRF, allotment planning and readiness maintenance work packages.

READINESS MAINTENANCE

Basis of Estimate: The initial estimate was based on reviewing all work packages to identify readiness maintenance requirements and organizational responsibilities, to develop a monitoring system and to develop procedures for documenting and performing maintenance.
Basis of Revised Estimate: Inflation is added to the initial estimate.

ALTERNATIVE SYSTEMS

Basis of Estimate: The current plan requires handling large volumes of paper-based negotiable instruments. The movement of industry toward electronic methods suggest the eventual possibility of reducing this volume through the use of more modern techniques such as electronic banking or credit card systems. While such techniques are not immediately available these funds will allow us to secure and evaluate alternative designs for possible future adoption.

MANAGEMENT RESERVE

Basis of Revised Estimate: A management reserve is essential for a program of this size and complexity. The reserve would be administered judiciously and would cover those costs which may arise in the future which cannot be identified prior to the initiation of detailed design.

STATUS OF EXISTING COUPONS

Senator HUDDLESTON. The coupons printed some time ago—are they not usable?

Mr. VAN LARE. The coupons that were printed some time ago in terms of the kind of system that we're looking at at the moment, have a number of problems. They are packaged in a form that had assumed that the number of coupons that each vehicle received would be uniform. Under the terms of the current structure, the allotment will vary from State to State. The processing of those coupons at the coupon issuance point would be very expensive. In addition, they are not serialized, so they do not provide the kind of audit trail that is really necessary to handle potential fraud and abuse problems within the system.

Finally, they are of a size that is not readily handled in some of the more sophisticated validation and verification equipment that is now available. We believe the system will be less prone to abuse and more efficient to operate by replacing those coupons with something that is integrated within the whole package that we are putting together here.

Senator HUDDLESTON. Now the coupon production estimate has increased from just over $5 million in the earlier plan to $18 million in this plan. What accounts for that?

Mr. VAN LARE. I think the basic reason for the increase has been the decision to print new coupons, rather than to try to overprint and use the existing coupons.

ADDITIONAL QUESTIONS

Senator HUDDLESTON. We have a vote on in the Senate. I think, rather than to hold you here for further questioning, we will submit those additional questions, to you for the record. But we will need a rather quick response, because we will be marking up probably before the week is over or early next week.

Mr. VAN LARE. We will try to give you turnaround the same day you get them to us.

Senator HUDDLESTON. We would appreciate that, because it would be necessary for us to have that information.

[The following questions were not asked at the hearing but were submitted to the Department for response subsequent to the hearing:]

Additional Committee Questions

Staffing Requirements

Question. You are requesting 110 positions for the rationing preimplementation program. How many of these will be required once the preimplementation effort is completed?

Answer. Readiness maintenance activities will require fewer people than did the preimplementation program. In addition, the maintenance activities as currently envisioned will often require people with different skills. One project currently underway is the organizational and resource planning for readiness maintenance. Those determinations will be expressed in future DOE congressional budget requests.

Question. How many people have been hired for this program to date? What funds are you using to pay them?

Answer. A total of 10 permanent staff have been hired for Gasoline Rationining to date. The funding comes from the FY 1980 Emergency Preparedness activity within the Economic Regulatory appropriation. In addition, the complement of staff on duty consists of 15 individuals detailed from various DOE components, one expert and one consultant, and seven individuals detailed from other federal agencies.

Question. Please provide for the committee files the specific titles, grades, and a one sentence job description for all filled positions.

Answer. Mr. Chairman I would be pleased to provide that detailed information for the committee files.

Question. What lapse rate is assumed for the funding of the 110 positions?

Answer. A lapse rate of 13 percent was used in determining the amount of funds required to sustain the 110 positions during FY 1981. Upon reflection, that lapse rate may be too high. The Department has accorded a high priority to developing the rationing plan. As such, supporting organizations are providing rapid assistance in fulfilling GRPPO program and resource needs. We are concentrating on identifying and quickly acquiring program and management personnel. In addition, we hope to be prepared with immediate replacements for any attrition that occurs.

Question. If the Department intends to fill these positions on an accelerated basis, where will you find the individuals for this one year effort?

Answer. It is very important to the early and thus the ultimate successful accomplishment of preimplementation activities to acquire quickly as many good people as is possible. The Department is providing valuable assistance in searching internally for capable personnel. The Office of Personnel Management has been notified of our staffing needs and has provided important support and assistance. It has been difficult to fill some key positions from within and therefore in a number of instances, we will be required to hire people from outside the federal workforce. We have been working closely with a variety of sources to secure acceptable candidates.

Question. What percent of these positions do you anticipate filling from other parts of the Department?

Answer. The GRPPO will offer a position to any qualified and capable person from within the Department. In fact, the transfer of such an employee can be completed quicker than the hiring of someone from outside the federal workforce. The percentage of DOE transfers cannot be predicted, however, since it involves factors such as the number of DOE personnel possessing the knowledge and experience needed, and a person's preference for joining the GRPPO organization.

Question. Please indicate for the record the distribution of the 110 positions by title and grade.

Answer. A staffing table, listing the title and grade for all GRPPO positions by organization is still in preparation. Its final form will be dependent upon budget and classification reviews. The initial allocation of the 110 positions by office would be approximately as follows:

	Positions
Immediate Office of the Special Administrator, GRPPO	4
Office of Interagency and Intergovernmental Requirements	6
Office of Audit and Quality Assurance	4
Office of Development and Acquisition	30
Office of Program Control	33
Office of Systems Engineering	30
Office of Accelerated Rationing	3
TOTAL	110

We expect that we will shift some staff among these areas as work progresses from one stage to the next.

Question. Will all of the 110 positions be located within the Office of the Chief Financial Officer or will some be under the authority of other offices?

Answer. The GRPPO reports to the Secretary of Energy through the Office of the Chief Financial Officer. The 110 GRPPO positions are under the authority of the Chieft Financial Officer.

Question. Are you requesting positions in this budget for increased procurement support, legal support and other types of activities which are the responsibility of other organizations?

Answer. The $103 million amendment to the FY 1981 budget requests resouces only for the Project Office. No additional resources have been requested in support of Gasoline Rationing by other DOE organizations.

Question. If you are not requesting administrative support for other organizations within the $103 million, where are those funds requested?

Answer. The funds required by DOE support organizations where identified in the President's FY 1981 request submitted to the Congress last January. The support services provided to GRPPO will be provided within those resources; no support funds for such organizations are included in the $103 million.

Question. Will any staff in addition to the 110 be detailed to support the preimplementation effort? If so, from what programs do you anticipate detailing positions and how will this staff be funded?

Answer. So far, we have identified two professionals, one from the Office of Public Affairs and one from the Office of Procurement, that have been assigned and colocated to support GRPPO on a continuing basis. These arrangements have proved beneficial to the operations of the Office.

We expect that the existing temporary details of DOE personnel will be converted to GRPPO positions when funding becomes available. The two colocated professionals and the other temporary DOE details are funded by their permanent DOE organizations. There are also currently five people detailed to GRPPO on a reimbursable basis from other Federal agencies. In these instances, emergency preparedness funds appropriated to the Economic Regulatory Administration are being utilized. If additional details are required we expect to determine needed financing on a case by case basis. In any event the total needs will be met within the Department's proposed budget for FY 1981.

Continuing Resolution Concerns

Question. What plans have you made in the event this appropriation bill is not passed by October 1 and the Department has to operate under a continuing resolution?

Answer. In anticipation of a continuing resolution the Department has recommended that the OMB request the Congress to include special wording in the continuing resolution providing authority to expend new funds for this purpose. Such provisions are needed to allow the timely initiation and completion of the critical tasks.

Question. What would be the impact if no new funding is specifically included in the continuing resolution for this program?

Answer. The completion of preimplementation will be delayed until at least December 31, 1981; coupon printing, motor vehicle file improvements and the development of the State Ration Reserve will be seriously delayed; state activities and contractor participation will be minimal due to uncertainty of permanent funding; the Systems Integration Contract proposals will expire and may need to be rebid.

Question. What would be accomplished or foregone if $4 million were provided for the first quarter?

Answer. We believe that $6 million would be required to maximize the use of the period prior to a full appropriation. Specifically, these funds would ensure a second phase recruitment interim target of 85 FTP's by January 31, 1981. The Systems Integration Contract would be awarded as scheduled October 1, 1980. The recruitment and Systems Integration Contract would both show satisfactory progress, however, no funding is allowed for Interagency Agreements, State and Local role and developmental contracts objectives. This funding level does not allow for the plan to be implemented as the schedule contemplates. Funding at this level impedes any significant progress.

Question. How much would be required in the first quarter of fiscal 1981 to keep the program on a 12 month completion schedule?

Answer. Based upon currently available data, I would project a funding level at approximately $46.0 million. Detailed activity estimates are as follows:

- Interagency agreement with the U.S. Treasury, U.S. Postal Service, Bureau of Engraving and Printing and other Federal agencies. ($20.0 M)

- Cost to ensure 85 recruitment actions by January 31, 1981. ($1.0 M)

- Cost for States to accelerate preliminary policy, regulation and plan development. ($10.0 M)

- Systems Integration Contract would be awarded or scheduled. ($5.0 M)

- Support for developmental contracts to design application for issuing ration checks, transportation and inventory control for coupon activities ($10.0 M)

Other Forms of Rationing

Question. If a severe supply interruption occured isn't it likely gasoline prices would jump dramatically?

Answer. While crude oil and gasoline prices will rise in the event of a supply emergency, there are mechanisms available to moderate gasoline price increases. With the existing domestic crude oil price controls - and reimposition of controls on some or all domestic crude oils now exempted from controls - the price of crude oil produced in this country would not rise with world crude prices. The government could continue the entitlements system to allocate among all refineries the benefits of access to price - controlled crude oil. We recognize that allocation and price control authorities will expire on September 30, 1981, and expect to deal with that problem in subsequent legistative proposals.

Question. In a 20 percent shortfall, what is the Energy Information Administration's estimate of the level to which gasoline prices would increase?

Answer. Assuming the current gasoline prices, and an elasticity factor of - .25, it projects that gasoline would cost about $2.90 a gallon with a 20 percent shortfall.

Question. By what percent would this price increase dampen normal demand for gasoline?

Answer. Theoretically, it would reduce the demand for gasoline by 20 percent. Under the free market system, it is assumed prices would continue to rise until demand and supply reached an equilibrium.

Question. Then the rationing machinery we are considering here today would be of diminished value if the price went up substantially?

Answer. It is reasonable to expect that price increases during a shortfall will lead to reduced consumption and to a reduced monetary value of the coupon on the open market. However, if the price level at the pump is kept below the free market value and, therefore, in itself is not sufficient to bring demand down to the available supply, coupon rationing would remain important to assure that everyone would have access to available gasoline and that priority needs are met.

Question. In the present scenario there is little the rationing plan could do to keep the cost of gasoline down for the consumer if OPEC raises prices during a shortage, wouldn't you agree?

Answer. As I indicated earlier, the government could implement an entitlements system whereby the consumer would pay the average price for gasoline produced from domestic crude and world crude supplies. While this would minimize the impact on any single consumer, there is no way that we could prevent the increase.

Question. How about other mechanisms for rationing gasoline such as a high tax with rebates? In a shortfall, wouldn't that be a means of dampening demand without leaving room for OPEC to raise prices further?

Answer. The Department is currently examining tax mechanisms to distribute available gasoline supplies. As I understand it, the Department is nearing completion of a preliminary staff analysis which indicates that additional information must be developed concerning the cost and implementing schedule for a rebate mechanism. Such a mechanism is critical to the effective working of any tax plan and a final decision cannot be made until information comparable to that available on coupon rationing is in hand. While price increases will dampen demand, the response for further increases remains elastic. Thus, while additional OPEC increaes would reduce total demand it would not necessarily reduce revenue proportionately. This would only happen at a point where consumers reduced their consumption of gasoline dollar for dollar with each price increase.

Question. Wouldn't the rebate funds from a tax base rationing effort tend to transfer consumer expeditures from discretionary driving to purchases of consumer products?

Answer. It is not possible to accurately project public response to a tax rebate. By its very nature the tax increase will reduce consumption of gasoline and, to the extent that funds are diverted to gasoline purchase, it would reduce other consumer purchases. As a result the rebate would only restore lost purchasing power. Moreover, we have no firm basis for estimating the actual use of the rebate itself. Logically, we might expect the pattern to vary among individuals and income groups.

Question. Wouldn't such a spending shift be especially desirable during a supply interruption when demand for consumer products, and hence employment, would otherwise tend to decline?

Answer. Yes, I would think so. However, it is important to remember that the amount of the rebate for the nation as a whole is not likely to exceed the amount of additional tax which consumers are spending when purchasing gasoline. In theory, people should not be better off because a rebate mechanism is imposed, the idea is to reduce demand with higher prices and then reduce the burden of higher prices. As a result the rebate would restore, not increase purchasing power.

Question. Could a tax based system be made to operate equitably?

Answer. It appears that the equity of a tax based system will be dependent upon the nature of the rebate system. While equity is certainly possible it may require costly and time-consuming changes in existing tax or income distribution systems. For example, some have proposed adjusting withholding liabilities in the Federal tax system, decreasing social security taxes, or increasing transfer payments for low income population. Under such rebate mechanisms it would be extremely difficulty, if not impossible, to prevent duplicate rebates -- thus in effect creating inequities in the system. The only way to prevent duplicate payments would be to develop a master list and the cost to develop and maintain such a list, not to mention the privacy considerations, could be substantial. Moreover, if one defined equity as tailoring rebates to the

amount of gasoline purchased, even more substantial changes might be needed.

Question. What would be the annual operating costs of a tax based rationing system compared with the estimate for the present plan?

Answer. This is one of the issues which the Department will examine as we continue to analyze the feasibility of such systems. We do not have comparative costs available at this time.

Question. How would the mobilization time and annual maintenance costs of a tax based plan compare with the present plan?

Answer. While taxes could be imposed quickly, rebates may take significantly longer to implement. Such a delay could result in serious hardships for segments of the population. While we do not have sufficient data for comparison at this time, we are continuing to examine the mobilization and maintenance costs of these alternatives so that a comparison can be done.

Questions Submitted by Senator Charles H. Percy

Alternatives to Coupon Rationing

Questions. A number of other Nations, including the United Kingdom and Canada, have indicated that they are not spending nearly as much (on a per capita basis) on their gasoline rationing programs as the United States, yet they claim that their plans have shorter lead-times than ours. Has the Department of Energy investigated the plans of other Nations to see if we might learn something from their examples? If so, why do these plans cost less and have shorter lead-times?

Answer. Yes, we have examined gas rationing programs of other Nations. Several of these have features that are significantly similar to the Standby Gasoline Rationing Plan. While we have been unable to compare costs directly, it appears clear that the size of the population served and the somewhat more centralized nature of their governmental systems contribute to their lower level operating costs. There do not appear to be significant areas where costs can be reduced without substantially altering the flexibility and responsiveness of the current plan. Such steps would appear inconsistent with the directives of the EECA.

Question. Could you provide an indication of what progress has been made so far in the Administration's investigations of tax/rebate alternatives to coupon rationing? What timetable do your currently foresee for the completion of such investigations?

Answer. Currently a preliminary staff analysis of tax/rebate mechanisms is being circulated for comments. This document describes alternative approaches to a tax/rebate system and attempts to evaluate them according to a standard set of criteria which includes economic impact, equity and administrative difficulty. While it is clear that additional effort will be required to provide a detailed evaluation of comparative implementation costs and schedules, the analysis completed to date begins to show the magnitude of the issues involved. While we expect an early release of this document, I cannot speculate on a specific completion data until after these comments have been received.

Questions. In May, I posed a series of questions in letters which I sent to the Secretary of Energy, the Secretary of Treasury, the Director of the Office of Management and Budget and the Chairman of the Council of Economic Advisors. What are the answers to these questions?

Answer. We are aware of the questions which you have raised regarding an emergency tax and rebate plan. As Secretary Duncan indicated in an interim reply, the Department is analyzing tax and rebate allocation mechanisms, including those questions which you have raised. As your questions suggest, tax and rebate plans posed extremely complicated problems which involve a substantial analytical investment. Many issues including those which you have posed, need to be analyzed fully before one can decide on the feasibility of a tax/reabe approach -- otherwise we run the risk of inviting unsupported conclusions about the feasibility of inadequately developed options. We fully intend to provide answers to your questions as our anlysis progresses. I would like to emphasize, as did Secretary Duncan, that the current Standby Gasoline Rationing Plan is much further along in development. It is a matter of critical importance to our Nation's economic security that the reaioning plan be avaiable for rationing use in the event of a sharp drop in the availability of petroleum supplies. The process of bringing this plan to a readiness state would not be delayed as we continue to evaluate alternative approaches.

Question. How many people within the Department of Energy and within other Federal agencies are spending a majority of their time investigating the feasibility of tax/rebate rationing approaches?

Answer. Currently, two people within the Department, including the Director of the Office of Oil Supply Security, are spending the majority of their time analyzing tax/rebate end-user allocation mechanisms. In addition, the Department has enlisted the aid of two contractual firms to provide technical and statistical background on the effects of tax/rebate and other allocation mechanisms. Of course, many additional staff within the Department and other agencies, including the Treasury Department, the Council of Economic Advisors and the Office of Management and Budget are working with us on tax/rebate alternatives--but not on a majority time basis.

Question. Have your preliminary analyses of tax/rebate rationing approaches included the development of estimates for the preimplementation costs of such systems? Is it expected that these costs would be substantially lower than $103 million being requested for the current plan?

Answer. No detailed or comparative cost estimates are available at this time. The preliminary analysis has identified areas where comparative costs must be developed and will provide a good beginning point for further analysis. The cost will ultimately depend upon the responsiveness of the rebate system desired. While savings on coupon costs are evident, there may be offsetting costs involved in eliminating gaps or duplications in the rebate mechanisms. The modification of large systems such as income tax or social security is, in itself, a major task. While we do not yet have estimates it is likely that such costs could be substantial. In addition, the cost of a rebate alternative may increase or decrease depending on whether we wish to have the rebate approximate actual gasoline use. In such a case, many of the proposed preimplementation tasks for the coupon based plan might also be required for the tax/rebate system.

Question. Has serious consideration been given to the problem of a rapid run-up of petroleum prices that could cause the rationing coupons to become worthless, and the white market to fall apart?

Answer. Yes, we have considered this problem. However, if price controls where in effect during a rationing period, the price of domestic crude oil would not rise with world crude prices. The government could them impose an entitlements systems under which all refineries would be charged the average price for controlled domestic oil and world crude oil. This average price would then be passed onto the consumer. It is unlikely that these increases would reach the full market clearing price. As a result, the coupon should continue to have monetary value on the white market. We recognize that price controls will expire on September 30, 1981 and expect to deal with that problem in subsequent legislative submittals. The Department recognizes that it is possible that the combination of price increases and conservation measures might combine to bring supply and demand into equilibrium during a rationing period. We also recognize that the size and the scope of the shortfall may change.

As a result, careful consideration will be given during preimplementation to the monitoring mechanisms needed to detect such changes and the criteria and methods for phasing our rationing should it no longer be the appropriate response to the then current circumstances.

CONCLUSION OF HEARINGS

Senator HUDDLESTON. With that, then, we will conclude the hearings for this year.

[Whereupon, at 11:35 a.m., Wednesday, September 10, the hearings were concluded, and the subcommittee was recessed to reconvene at the call of the Chair.]

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