1979 DOE AUTHORIZATION ENVIRONMENT BUDGET

HEARINGS

BEFORE THE

SUBCOMMITTEE ON THE ENVIRONMENT AND THE ATMOSPHERE

OF THE

COMMITTEE ON SCIENCE AND TECHNOLOGY U.S. HOUSE OF REPRESENTATIVES

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1979 DEPARTMENT OF ENERGY AUTHORIZATION ENVIRONMENT BUDGET

TUESDAY, FEBRUARY 14, 1978

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
SUBCOMMITTEE ON THE ENVIRONMENT AND THE ATMOSPHERE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:30 a.m. in room 2325, Rayburn House Office Building, Hon. George E. Brown, Jr. (chairman), presiding.

Mr. BROWN. Good morning.

Today, we begin 3 days of authorization hearings for the Department of Energy's Office of Environment.

The role of the Office of Environment is both to conduct general, preliminary environmental, health, and safety research, and to oversee the energy-technology programs to insure that they are environmentally acceptable. However, the role of the Assistant Secretary for Environment in formulating the agency's environmental policies is not clear to us. This situation has been exacerbated by the fact that a nomination to the post of Assistant Secretary for Environment has not been made. We will discuss these and other issues today with the Honorable Dale Myers, Undersecretary, Department of Energy; Dr. James Liverman, Acting Assistant Secretary for Environment; and on Thursday with Alvin Alm, Assistant Secretary for Policy and Evaluation.

Our overriding objective is to see that resources provided to the Office of Environment are sufficient to allow the environmental concerns to keep pace with the energy technology development process. Thus, we will explore in detail DOE's environment budget and program for fiscal year 1979 with several of Dr. Liverman's staff tomorrow morning.

Within DOE, environmental research which is specific to a site or an energy-technology is usually conducted by the responsible energy-development program. Although we will not examine these environmental research efforts in these hearings, over the course of the year we intend to see whether the energy development programs are responsive to the guidance of the Office of Environment.

Another issue involves the proposed exchange of funds and programs between DOE and the Environmental Protection Agency's Office of Research and Development. Specifically, $14 million from EPA's environmental control technology program will be moved to DOE's fossil energy program, while $14 million from the DOE Office of Environment's health effects program will be transferred to EPA. This issue will be discussed in detail on Thursday, February 16, with

Dr. Stephen Gage, EPA's Acting Assistant Administrator for R. & D.; Mr. George Fumich, Jr., Acting Program Director for Fossil Energy in DOE, and Dr. Don Kash, director of the science and public policy program, University of Oklahoma.

We are very fortunate to have the Honorable Dale Myers, Undersecretary of the Department of Energy here to start us off this morning. Knowing how many other important things that you have to do, we want to express our appreciation to you, Mr. Myers, and look forward to your testimony this morning.

You may proceed.

[The prepared statements of Mr. Myers follow:]

STATEMENT OF DALE D. MYERS, UNDER SECRETARY OF ENERGY

Good morning, Mr. Chairman, and members of the Subcommittee. It is a pleasure to be here to discuss the role of the Department's Office of Assistant Secretary for Environment in helping to achieve our Nation's energy and environmental objectives. Appearing here with me today is the Department's Acting Assistant Secretary for Environment, Dr. James L. Liverman. His presentation, following my opening general remarks, will include more detail and deal with budgetary specifics. In this overview statement, I will address the questions you requested I answer in your February 8 letter to me.

As you are aware, the Department of Energy is committed to the development of energy technologies and resources sufficient to meet our national energy needs. We are also committed to assuring the production of this energy, not just within the bounds of environmental regulations, but above the letter of regulations. The stated purpose of the Department requires that we do the former, the President's policy and Department goals demand the latter.

The sometimes contradictory objectives of increased energy development and environmental protection are not easily met. Often, energy supply technologies and strategies involve environmental degradation. On each energy technology program decision, the Department fully considers environmental issues. This is done both in terms of the capability of a specific technology involved to economically meet existing and anticipated environmental regulations, and in terms of the environmentally optimal selection of energy programs or policies from available supply options. The process is extremely complex and difficult. Moreover, when environmental impacts are considered in their broadest sense, they necessarily include socioeconomic impacts as well.

OFFICE OF THE ASSISTANT SECRETARY FOR ENVIRONMENT (ASEY)

Within the Department, these elements of our energy policies and execution of programs in support of these policies are carried out in the Office of the Assistant Secretary for Environment. The Office is responsible to the Secretary of the Department to assure compliance with environmental laws and procedures, and to exercise independent review and approval of environmental impact statements of major actions in the Department. The Assistant Secretary for Environment also has program responsibility for directing research and development programs that examine energy impacts on the environment.

The role of the Assistant Secretary requires a balancing of energy and environmental concerns. The organization is therefore concerned with minimizing environmental impacts as well as supporting the primary responsibility of the Department—assurance of an adequate supply of energy for the Nation. In this sense, it is involved in a continuing negotiation between two iterests, both of which must be reasonably met. The organization carries out this mandate by reviewing environmental impact statements, conducting research and assessment programs regarding environmental impacts on energy programs, analyzing environmental issues and associated policies, and preparing Environmental Development Plans on each emerging energy technology. All of these activities are aimed at providing guidance to other Department components as to environmental regulatory constraints, and information on energy-versus-environmental tradeoffs. This allows Departmental policies and programs to be selected which best balance National energy and environmental objectives.

Before proceeding to other pertinent information concerning the environmental activities of the Department, I would like to discuss the status of our efforts to fill the position of Assistant Secretary for Environment.

We are conducting an intensive national search, with assistance from many different groups to locate the strongest candidate for this important national leadership and management position. Basically, we are looking for a person who meets the following criteria:

One who has been educated in the sciences and is knowledgeable of environmental issues;

One who has no perceived biases towards one energy technology in relation to another;

One who has a balanced perspective with regard to National energy and environmental goals; and

One who has a strong management background.

Our search for such a person has been a challenging task. It is still continuing. However, the President hopes to submit a nomination to Congress in the near future.

The creation of the Department of Energy led to expanded responsibilities in the area of environmental programs. In order to effectively implement some of these responsibilities, we have consolidated five former units into a single operating unit, the Office of Technology Impacts. This first change in the structure of the Office of Environment allows consolidation and improved focusing of the functions of environmental overview, assessment and policy analysis. Other organizational changes and options have been developed for consideration by the Assistant Secretary for Environment after confirmation is completed.

Now I would like to discuss the interactions of the Department in carrying out environmental policy responsibilities.

ENVIRONMENTAL CONTACTS

In order for DOE to meet environmental objectives and obligations, it maintains an open and frequent dialogue with the Environmental Protection Agency, as well as with other governmental and private groups concerned with environmental issues. The Office of the Assistant Secretary for Environment acts as the Departmental link to environmental agencies, particularly the Environmental Protection Agency, the Council on Environmental Quality, and the Department of the Interior, and to the environmental community, in general. However, many functional relationships exist between EPA and the other DOE Assistant Secretaries. Close contact is maintained particulary by the staff of the Assistant Secretary for Planning and Evaluation and staff members of energy technology programs.

THE JOINT EPA/DOE PROCEDURES FOR REGULATING NEW TECHNOLOGIES

One development in this set of overall contacts, which significantly facilitates DOE responses to environmental issues, is joint work currently underway by DOE and EPA to establish coordinating procedures for the environmental regulation of emerging energy technologies. This is in direct response to the request of the President in his Environmental Message of last May, and will ensure the exchange of plans and pertinent information between DOE and EPA. Guidance from EPA as to the regulatory constraints which an emerging energy technology may face will allow the R&D programs of both agencies to better address anticipated problems. In certain cases, this inter-agency coordination may result in an early decision to terminate or change the direction of a program because of environmental constraints, thus allowing DOE to allocate RD&D expenditures to programs with an attractive commercialization potential.

The joint DOE/EPA procedures and information sharing will, in turn, assist EPA to better understand the energy production and supply penalties associated with environmental regulations. EPA may be able to apply this information, on the basis of an overall environmental assessment of a total energy system, in adjusting the implementation strategy or an existing or proposed regulation. This could conceivably stimulate development of a particular energy technology which could not otherwise achieve commercialization, while ensuring a lesser impact on the environment.

CONTROL OVER TECHNOLOGY DEVELOPMENT

The Office of the Assistant Secretary for Environment maintains the overview of energy technology development through the use of Environmental Development Plans or EDP's. These EDP's are called for in an Interim Management Directive, making them a required part of the formal procedure for budget approval. The plans are prepared by each of the energy technology development programs within the Department, and identify major environmental issues and constraints which must be addressed. The Assistant Secretary for Environment coordinates the preparation, review and updating of the Environmental Development Plans in cooperation with the other concerned Department offices. Should any differences of position remain between the Office of Environment and the technology program offices, they are resolved by the Under Secretary.

Also, the Assistant Secretary for Environment has a Division of Environmental Control Technology which provides the information necessary to make independent judgments on the environmental control aspects of emerging energy technologies and national environmental policies and regulations. In implementing this expertise, there is close interaction with the energy technology offices through joint work efforts.

Therefore, through the use of Environmental Development Plans, and the interaction of the Division of Environmental Control Technology, the Department ensures that Energy technologies are developed in an environmentally acceptable manner.

SUMMARY OF INITIATIVES

The joint EPA/DOE coordinating procedures, and the Environmental Development Plans are examples of the improved capability of DOE to respond positively and constructively to environmental issues in a timely manner. This is important in an era when environmental concerns increasingly must be considered in the setting of programs and policies for the development and supply of energy.

Meeting the Nation's environmental objectives is given high priority within DOE and the programs and institutional arrangements mentioned here today are part of a continually growing and improved capability on the part of DOE to balance energy and environmental objectives. The key to DOE's success in resolving the energy/environmental interface will be cooperation and communication, both within DOE, and between DOE and pertinent environmental regulatary and public interest groups.

CONCLUDING REMARKS

Following my comments, Dr. Liverman will detail elements of the proposed 1979 budget for the Office of Environment. As you know, Jim was the senior official in ERDA for environmental matters.

The transition from perspectives held prior to the new, more integrated environmental role is well along—as Dr. Liverman will discuss in his detailed testimony. Initiatives in FY 1978 have been refocused, and the FY 79 proposals will accelerate the direction of environmental overview, assessment and research in meeting the Nation's and the Administration's energy goals.

Dr. Liverman will discuss the proposed FY 1979 budget of our Office of Environment. This discussion will present detail in the areas of:

The expanded and changing scope of environmental responsibility in DOE;

Our continuing environmental R&D program, including the increased emphasis on conservation initiatives and non-nuclear supply techologies; and the reorganization of the policy analysis and technology assessment units in Environment.

After discussing these elements, Jim will provide the detailed programmatic response to the specific areas requiring emphasis in each of the primary program categories (Light Water Reactor Safety Facilities; Environmental Research and Development; Decontamination and Decommissioning; and Life Sciences Research Biomedical Applications).

The overall budget for FY 1979 is $284.6 million, a decrease of $27 million from 1978. These totals represent changes in the following major program categories.

Environmental Research and Development for FY 79 is $208.6 million. This program level, which is down $9.2 million from 1978, reflects the fact that $13.9 million were in projects sponsored by DOE in FY 78 that will be sponsored by EPA in FY 79.

Life Sciences Research and Biomedical Applications in FY 79 is $40.8 million.

Decontamination and Decommissioning is $25.2 million in FY 79. The increase of $7 million is primarily for remedial actions at various sites.

Light Water Reactor Safety Facilities is $10.0 million, down $18.1 million from 1978, to reflect completion of tests and facilities.

Before Dr. Liverman's remarks, I would like to address any questions that the Subcommittee members might have at this time.

STATEMENT BY
JAMES L. LIVERMAN
ACTING ASSISTANT SECRETARY FOR ENVIRONMENT
U.S. DEPARTMENT OF ENERGY
BEFORE THE
HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON ENVIRONMENT AND THE ATMOSPHERE
FEBRUARY 14, 1978

Mr. Chairman and Members of the Subcommittee:

I am pleased to have this opportunity to discuss with you again the Office of Environment's programs and budget for FY 1979 authorization in the Department of Energy (DOE). I would like to begin my discussion with an overview of the general responsibilities of the Assistant Secretary for Environment in terms of the general trends or changes in environmental functions and programs in DOE. To summarize these major points for you, they are:

- the expanded scope of environmental responsibilities in DOE, primarily with regard to strong involvement in implementation of the National Environmental Policy Act and the focusing of energy/environmental policy guidance;
- our continuing environmental research and development program in support of nonnuclear technologies, including conservation.

As you know, the creation of DOE combined the short range energy policy and regulatory activities with the longer range energy technology research and development. As a result, the complexity and scope of environmental interaction have increased to include those aspects which were formerly handled separately by the various agencies which have been incorporated into DOE. This, coupled with a strong and clear Presidential and legislative mandate to assure that the Nation has sufficient energy with minimal environmental disruption, has increased the overall responsibility of the Office of Environment.

One of the areas of increased responsibility concerns the National Environmental Policy Act (NEPA). The decision was made by Secretary Schlesinger and others that one major focal point for all NEPA activities would be centered under the Assistant Secretary for Environment. This includes the traditional responsibilities of independent review, analysis, and approval of all Departmental environmental impact statements, as well as providing technical support and policy guidance on NEPA, preparing certain legislative and policy environmental impact statements, and analyzing other agencies' environmental impact statements. Because of the diversity of the NEPA activities, this function will undoubtedly be one of our most challenging endeavors; the very diversity strengthens and ensures DOE's compliance with this country's environmental protection goals.

The other major area of increased complexity and responsibility is related to questions of energy/environmental policy. The Office of Environment is responsible for providing policy guidance to the Secretary on Department-wide compliance with environmental laws and procedures as well as on health and safety issues related to DOE programs. However, on policy matters we share responsibility with the Assistant Secretary for Policy and Evaluation, a point which will be discussed in more detail.

The NEPA activities and policy activities are included in the DOE budget under the category of Overview and Assessment. This category also reflects a major increase in Operational and Environmental Safety functions, as well as offsetting changes in several programs as a result of anticipated efficiencies due to consolidation of functions such as information management in DOE.

Of course, a major legislated responsibility of the Assistant Secretary for Environment continues to be the conduct of a comprehensive research and development program to determine the environmental health and safety effects of energy technologies and systems. This research comprises a second major budget category, Biomedical and Environmental Research. As you know, we have been working over the past three to four years to redirect the primarily nuclear-related budget to support nonnuclear technologies and systems. The success of this effort is demonstrated more explicitly by showing the FY 1977, '78, and '79 changes in program by technology. The changes have resulted from our effort to look at the possible impacts of the highest priority technologies such as conservation, coal, and solar heating and cooling, while still continuing to carry out high-priority nuclear research. Overall, the Federal fossil environmental research program would actually expand in FY 1979; the decrease in the Office of Environment fossil-related budget occurs because certain projects supported by DOE in FY 1978 will be conducted by the Environmental Protection Agency (EPA) in FY 1979. These projects are in support of EPA development of regulatory standards and long range environmental goals related to fossil fuels. Discussions are currently underway among DOE, EPA, and the Office of Management and Budget to define specific management arrangements.

The management approach which we now have in place in the Office of Environment to assist us in reallocating priorities is the Environmental Development Plan (EDP) process. Each EDP (currently there are thirty-two) identifies environmental, health, and safety issues and requirements for a specific type of energy technology. From total needs, the net environmental health research which is within DOE's responsibility is determined. To ensure that the environmental research program is responsive to DOE energy technology program needs, we compare ongoing research against needs; select the highest priority research; develop guidance to the laboratories, other field organizations, and universities for preparation of research proposals; and fund those proposals best satisfying research needs and program objectives.

MAJOR INITIATIVES

I would now like to turn your attention specifically to the major initiatives which have emerged in response to the needs of DOE. These initiatives fall into two major areas:

- o reorganization of programs in the Office of Environment
- o programmatic response to specific problems related to changing missions and technologies

REORGANIZATION - Clearly, to enable programs to respond to expanded NEPA and environmental policy requirements in DOE, some reorganization was needed immediately to address and manage these activities. Therefore, the Office of Technology Impacts (OTI) was created to combine the environmental review and analysis functions of the Energy Research and Development Administration (ERDA) with the Federal Energy Administration's Office of Energy Policy. This new Office now performs national and regional energy systems assessments and policy analyses from the environmental, health, and safety perspective. Since the reorganization has just been approved, the FY 1979 budget for OTI is still carried under former ERDA categories. We are also in the process of reorganizing the NEPA function to enable it to deal with the variety and complexity of DOE programs, by establishing an Office of NEPA Affairs (ONA). In addition, the reorganization of the entire structure under the Assistant Secretary remains to be completed, although major revisions of present program organizations are not anticipated.

In addition to these organizational changes, the DOE missions have sparked several major programmatic initiatives in FY 1979 with the environmental, health, and safety research and development programs. These fall in the four budget areas of Decontamination and Decommissioning, Environmental Research and Development, Light Water Reactor Facilities, and Life Sciences Research and Biomedical Applications. These will be discussed more extensively, but a summary is presented below.

DECONTAMINATION AND DECOMMISSIONING - Major new initiatives will be taken in three subactivities to implement the disposition of radioactively contaminated sites and facilities that are no longer needed. The program for Management of Surplus Radioactively Contaminated DOE Facilities will initiate work on major disposition projects in accordance with a National Decontamination and Decommissioning Plan that is nearing completion. In FY 1979, the primary new effort will be the dismantlement of the 100-F reactor at Hanford, Washington. Other major projects will continue, including the dismantlement of the 233-S plutonium facility at Hanford and cleanup of the GNOME Site near Carlsbad, New Mexico, to allow unrestricted release of the property.

In addition, we will expand activities leading to remedial actions at installations formerly used by Manhattan Engineer District/Atomic Energy Commission (MED/AEC) for uranium sampling and processing in the early days of the nuclear defense programs and at inactive mill tailings sites. Following assessment of alternatives, major remedial action projects will be undertaken at several of these sites on a high priority basis.

Preparation for remedial action at inactive mill tailings sites will be initiated for eliminating any unacceptable radiological conditions by stabilization or removal to alternative sites. DOE is developing a legislative package for remedial actions at inactive mill tailings sites to be submitted as soon as possible through normal procedures to the Congress.

ENVIRONMENTAL RESEARCH AND DEVELOPMENT - The Biomedical and Environmental Research program will continue to address the health and environmental problems which are associated with all developing and already existing energy technologies. A research program aimed at identifying and understanding the mechanisms and impacts of increased levels of carbon dioxide in the atmosphere has begun in FY 1978 and would be expanded in FY 1979.

LIGHT WATER REACTOR FACILITIES - The program to support construction of the Nuclear Regulatory Commission safety facility is nearing its scheduled completion; DOE funding is not expected after FY 1979.

LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS - The General Life Sciences program is aimed at providing needed information to design rapid and sensitive tests for biological damage and developing a fundamental understanding of comparative cellular and molecular processes to reduce the uncertainty in extrapolating risk estimates to human populations. The major emphasis in the Biomedical Applications program in FY 1979 is to facilitate the transfer of nuclear technology to the medical community to provide them with advanced diagnostic and therapeutic methodologies.

STATEMENT OF HON. DALE D. MYERS, UNDER SECRETARY FOR ENVIRONMENT, DEPARTMENT OF ENERGY

Mr. MYERS. Mr. Chairman and members of the subcommittee, it is a pleasure to be here to discuss the role of the Department's Office of Assistant Secretary for Environment in helping to achieve our Nation's energy and environmental objectives. Appearing here with me today is the Department's Acting Assistant Secretary for Environment, Dr. James L. Liverman. His presentation, following my opening general remarks, will include more detail and deal with budgetary specifics. In this overview statement, I will address the questions you requested I answer in your February 8 letter to me.

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One development in this set of overall contacts, which significantly facilitates DOE responses to environmental issues, is joint work currently underway by DOE and EPA to establish coordinating procedures for the environmental regulation of emerging energy technologies. This is in direct response to the request of the President in his environmental message of last May, and will insure the exchange of

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Meeting the Nation's environmental objectives is given high priority within DOE and the programs and institutional arrangements mentioned here today are part of a continually growing and improved capability on the part of DOE to balance energy and environmental objectives. The key to DOE's success in resolving the energy/environmental interface will be cooperation and communication, both within

DOE, and between DOE and pertinent environmental regulatory and public interest groups.

Following my comments, Dr. Liverman will detail elements of the proposed 1979 budget for the Office of Environment. As you know, Jim was the senior official in ERDA for environmental matters.

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The reorganization of the policy analysis and technology assessment units in environment.

After discusing these elements, Jim will provide the detailed programmatic response to the specific areas requiring emphasis in each of the primary program categories—Light water reactor safety facilities; environmental research and development; decontamination and decommissioning; and life sciences research and biomedical applications.

The overall budget for fiscal year 1979 is $284.6 million, a decrease of $27 million from 1978. These totals represent changes in the following major program categories.

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Before Dr. Liverman's remarks, I would like to address any questions that the subcommittee members might have at this time.

Mr. BROWN. Thank you very much, Mr. Myers. I think we might want to direct a few questions to you before Dr. Liverman proceeds. I might note parenthetically that Dr. Liverman has appeared many times before this subcommittee, and we have found him to be both knowledgeable and cooperative and we feel that we have established a good working relationship with him.

Now, the kinds of questions which the subcommittee has asked in the past are still matters of current concern. This probably reflects the fact that there are no good answers to some of these questions. We keep

trying to raise them in order to understand the situation somewhat better.

Let me suggest one area that has been brought up many times with witnesses at every possible setting: The coordination procedures that you refer to on page 6 of your testimony. Admittedly this is a hard kind of area to get hold of. You have coordination problems just within the Department and you probably will have a major responsibility for resolving those yourself.

The kinds of coordination that we have belabored a little bit more arrives out of the fragmented nature of the total environmental research and development responsibility in the Government. As you undoubtedly know, major responsibility exists not only in the Department of Energy, but also in the Environmental Protection Agency, the Department of HEW, the Department of Agriculture, independent agencies, and the Department of the Interior. The real question is whether these numerous programs, very good in many cases, but directed toward the specific mission of the agency involved, add up to a national environmental research and development program. Is there the coordinating mechanism necessary to achieve this?

Now, the obvious problems are that if a particular gap exists in overall research and development, or in environmental research and development, and it is not within the purview of any particular mission agency, or has not been specifically mandated, why should any one of them get involved in it. Or how should one get involved in it assuming that it is significant? How can we establish common inventories of the efforts that have been made into research projects and so on? We have discussed all of these kinds of problems with Dr. Liverman before, and we worry about them because the Congress does not want to set up new agencies. We do not want to pass any more new laws than are necessary, but we would like to feel that there is some sort of an effort being made to create a cohesive program out of the existing mission-oriented programs of various agencies. I would like to ask you to comment on that in a general way if you would.

Mr. MYERS. Mr. Chairman, in a general sense I feel like we have a reasonably good coordination now with EPA. Mr. Schlesinger has arranged meetings with the EPA and has had set up a continuing dialogue that Mr. Alm will talk to further when he is here before the committee. But that dialogue deals with the attempt to balance system studies of new technologies against the regulations that EPA would normally impose. We, for example, are quite worried about what we call the front end clean-up of coal, where we clean coal before it is burned hopefully to the place where, with fluidized beds, we can actually get rid of the SO_2 in the early part of the process. Yet there seems to be a move in the direction of further clean-up of the back end of the coal process.

We need communication with EPA at a high level in that area and Mr. Schlesinger has set up that activity. I think it is going to give us a much better balance between the needs and the technology.

Now on the other side of the coin, Dr. Liverman now is moving more and more to the position of direct support of our technologies at the early stages so that we have a strong interface between the environmental people who understand and, in fact drive the technology aspects with the new technology people, so they understand right at the beginning of the process what may be the limitations in the environment.

I find that by developing memorandums of understanding with the other agencies which are involved, and by continuous high-level attention within the Department—using these high-level management meetings to attack particular issues and problems, we are able to drive toward—I was going to say establish—but at least drive toward a coherent environmental policy for the administration. I cannot say we are there yet. I think we are dedicated to making it happen. And the actions that we are taking with the CEQ, NRC, and EPA are evidence of that. We are also developing now interaction with Agriculture and I am sure, over a period of time, we will develop a complete set of memos of understanding, high-level meetings, and actions with respect to the environment.

Mr. BROWN. Well, let me continue for just a moment. I will not belabor this too much, but the Department of Energy, of course, has a primary role involving energy technology, and we would assume that you will carry a major responsibility for insuring that there is adequate coordination in that area. I know, as I am sure you are well aware, of some of the difficulties that have occurred in the past in developing these interagency memorandums of understanding in cases where the technology is borderline. For example, the development of energy from urban waste is an energy production technology, but it also involves an aspect of solid waste disposal which is within the jurisdiction of other agencies. Obviously, this split in responsibility posed difficulties for you. I think you will be able to resolve it and I urge you to do so, but what about the somewhat more amorphous areas, like health effects research, which fall fully within the purview of several different agencies and where research is headed off in every possible direction.

Mr. MYERS. Mr. Chairman, we deal with the health effects associated with our specific program technologies. Other agencies certainly are involved in health effects, too.

I think we need a certain amount of that to be able to guide our technology developments to be able to support those specific programs. I do not think we need to have very broad generic programs in health in areas other than those directly associated with our technologies.

I think it is a good point which you raise concerning the balance of a close-knit operating team, as opposed to the possibility of better efficiencies by concentrating the activity in another area.

My background in major program activity tends to drive me in the direction of having enough of the elements of the program to support the responsibilities which we have and rely on others for the broader generic terms, which I know in some cases will, in fact, impact our activities. I think there is a limit to how much we want to put into it.

Mr. BROWN. Well, the problem that is posed to the Congress is, I think, that we rank environmental health effects research fairly high on our list of priorities. We observe in some committees that the Department of Energy is doing relevant health effects research resulting from its concern with energy technologies and doing it at a sophisticated level. In other committees, we find that other agencies are doing health effects research, perhaps concentrating on the basic mechanisms of how cells are impacted by environmental pollutants of various kinds. We may note that the budget in one agency is going up and in

the other it is going down, yet no single committee is looking at the whole area to see if we are approaching it in an appropriate, comprehensive, and adequately prioritized manner. The system makes it almost impossible to do that unless there is someway in which we can focus on the problem as a whole and establish some priorities, as in fashion of the King-Muir report, which was originally the basis for distributing some of the energy-related environmental research and development work among the various Federal agencies.

There has been some discussion, as a matter of fact, that this evaluation and distribution of research and development should be done on a recurring basis to assess the way in which environmental research and development is handled, since it cuts across so many agencies.

Mr. MYERS. Could I have Dr. Liverman comment on that. He has been familiar with that area.

Mr. BROWN. Certainly.

Dr. LIVERMAN. Mr. Brown, I was going to cover this later in my testimony, but I think now is an appropriate time to deal with it.

As you are aware, we have been trying to compile an inventory of all the activities in this area. The thrust behind such a task is to find out what all the agencies in town are doing not only in health but the environmental areas as they relate to the questions which arise from the energy sources as we develop, exploit, and use them.

A follow-on of that, which the King-Muir report attempted to do but did not quite achieve, is to take each of those segments, the health effects or environmental effects and to put in place expert committees of scientists to look at the content of that ongoing effort and address that to the needs, the unanswered questions, to see whether scientifically, it is really valid and priorities established for those things that are the most urgent. There is another need for setting priorities, namely the technologies that we are working toward demonstration and commercialization.

This effort, as you are aware, has gone a long way and is continuously progressing, broadening, and improving with some reluctance at times by some agencies. I would say, however, that compared to 2 years ago, we are an order of magnitude farther along in trying to achieve a final evaluation of the adequacy of these programs to cover all our needs. As the committee pointed out, we are supposed to be putting together a plan by this fall for the committee's review in this area.

Mr. BROWN. Well, the purpose of the plan, of course, is to help the committee and the Congress grapple with this problem. To do this, we are proposing closer cooperation with other committees of Congress which have common responsibility.

But we have noted, and I am sure you have much more than we, that as a result of the concern over health effects of nuclear fallout in the fifties, the Smoky test and others, there is general agreement that we goofed completely in not doing the recordkeeping, data handling, and epidemiology that might have been done. Hindsight is always beautiful, you know.

We would like to avoid looking back 20 years from now and saying "we goofed again" in a whole new area—low level carcinogens or whatever. I am not sure that we will be able to do that but we want to make the effort and that is why we tend to stress some of these efforts that might indicate that we are missing something.

Dr. LIVERMAN. I would hope that that is precisely the kind of thing which comes out of the detailed analysis of the inventory. The environmental development plan is to focus on those issues that clearly may be down the road but they portend reasons for starting now to collect the right kind of information. Whether that is a DOE responsibility or EPA or somebody else's has yet to be resolved; of course that is one that concerns me.

Mr. BROWN. Well, it is difficult to sell the Congress on the importance of these contacts. We need help in doing that and sometimes the best help is to look back at mistakes that we have made in the past: Although it is unfair to focus on them, it may create the momentum required to avoid them in the future.

Mr. Winn?

Mr. WINN. Thank you, Mr. Chairman.

I would like to take this opportunity to welcome Dale Myers before this subcommittee. He appeared before our other subcommittee last week. Welcome back to government service.

Dale, I did have a chance to go through your testimony here while you were so busy with the chairman. On page 8, paragraph 3, you discuss the use of environmental development plans in the International Division of Environmental Control Technology—which insures that energy technologies are developed in an environmentally acceptable manner.

Now that is a worthy effort and one that I think everybody would like to succeed. On the other hand, I am afraid that DOE might get so wrapped up in coordinating with EPA that we might come out thinking that EPA is the law and the Bible, where from a practical political standpoint, as in the case of the Alaskan pipeline, we had to overrule a lot of the requirements of EPA, and finally made the decision that we needed the oil more than we needed the environment cleaned up or protected.

I heard yesterday on TV that EPA requirements cost $187 per person last year. I do not know how they arrived at those figures, but it does make me wonder—are the EPA requirements, and DOE has to work very closely with them, going to affect the budget of DOE?

Mr. MYERS. Mr. Winn, I would think that the answer to that question is yes. We are doing many of our developments now in a direction to favor the environment. I am sure our expanded programs in solar energy, biomass, the dispersed technologies are, in some sense, influenced by our strong desire to balance the environmental issues.

The work we are doing on fluidized bed coal combustion is clearly in the direction of favoring the environment, so I think you would find that almost every one of our technologies has some element of incentive, of drive to be able to favor the environment in the process of doing that.

The question of degree and the question of issues that may eventually be directed by the Congress—in my mind are things that must be continuously communicated to the Congress and understood by the committees as we proceed to see whether there is the right balance in all these activities. So far the actions that we have here with the environmental groups working with our technologists are, I believe, a sound program of trying to get a balance between environment and new supply.

Mr. WINN. I think it could cause a problem, just looking at our present day situation with the coal strike—and they are now back to where they started this morning—they did not have any talks scheduled for negotiations. We have EPA's environmental requirements both on the national level and on the State level. Now we are in that situation where, I believe one or two of the cities in the State of Ohio are considering asking EPA for a suspension of certain regulations relating to the burning of coal. I am not familiar with all the technical details, but it is obvious that the environmental regulations are causing a problem there along with the coal strike. So you have got double trouble. I do not know the answer to it, but it is something that you are going to be living with for a long time and you are going to have to try to figure out what EPA is telling you from a regulatory standpoint on policies, and on unexpected occurrences such as strikes, and natural disasters.

Mr. MYERS. Yes, I am very worried about this coal strike and its impact on the choosing of the coal initiatives by the utilities. We, of course, are pushing to increase the use of coal. The environmental requirements are difficult but meetable as they stand now, and we can see a growing use of coal in the utilities.

Frankly, I am worried about the reaction of the utilities in this situation of the strike that has occurred here. And certainly the total balance and one of the things that has occurred to help in that whole picture is this transfer of the advanced control of emissions technology to DOE from EPA. It gives us a better opportunity to get a balance in that system of looking across the whole spectrum of first the cleanup of the coal, how clean can you burn the coal and then how easily you can clean it up after you finish working in the stack gases. It is that kind of technology balance now moved to DOE—that gives us a broader base of understanding the total picture in terms of new supply versus the environment. And some of the things we are doing are going to improve the environment relative to direct burning of coal. And so technologies that we are putting in there are going to cost the taxpayer something, but that balance with respect to the overall environment as we bring new supplies on line.

Mr. WINN. Well, I think you understand that my concern is that the combination of EPA's environmental requirements, their effect on DOE's technologies and the requirements that you have to meet to coordinate with them is going to cost the American taxpayer a real bundle. I just do not know if the people—the way they feel now about taxes—are going to want to pay a bundle more on top of what they are already paying taxwise. It is a concern. I know there is no perfect answer to it, but I think it should be a concern and it is going to show up in your budget. Next year, I would be willing to bet, when you come back here we are going to be able to see those effects pretty boldly.

Thank you, Mr. Chairman.

Mr. WIRTH. Thank you and welcome Mr. Myers and Dr. Liverman.

Mr. Myers, when was the Department of Energy bill signed into law by the President?

Mr. MYERS. August 4, 1977.

Mr. WIRTH. And how many Assistant Secretaries were designated under that reorganization plan?

Dr. LIVERMAN. Would you clarify your question?

Mr. WIRTH. It is a very simple question—I mean there are 6, 8, 10 or 12.

Dr. LIVERMAN. The law called for a certain number of Assistant Secretaries and that is what you are asking—the number that the law called for?

Mr. WIRTH. I mean every Government agency has an organizational chart and a series of boxes, and these are boxes that are entitled "Assistant Secretary." How many are there in the Department of Energy?

Mr. MYERS. On the order of 8 to 10. I will have to get the specifics for you on that.

Mr. WIRTH. OK, on the order of 8 to 10, how many of those have been confirmed?

Mr. MYERS. I think all but four.

Mr. WIRTH. Four out of eight assistant Secretaries have not been confirmed yet during a 6-month period of time of probably the President's No. 1 priority project? What is the problem in getting 50 percent of the Assistant Secretaries, the key policymakers, confirmed?

Mr. MYERS. Well, I think we have described the problem that we are having with the Assistant Secretary for Environment; it has been a very difficult job to fill.

Mr. WIRTH. Why have 50 percent of the key policymakers in the President's No. 1 priority program not been confirmed when we have had since August 1977? Is that due to a problem in the Congress? Is that due to a problem downtown?

Mr. MYERS. I think it has been probably a problem with the Department in getting its act together, I guess that is a good way to put it.

Mr. WIRTH. I would say, Mr. Myers, it is very difficult. There are a lot of people in the district that I represent and across the country who are beginning to see chaos on a number of fronts, especially since we cannot even get 50 percent of the key policymakers into office. You know, there are some very real problems.

Let me go on—we have had since August to identify the Assistant Secretary for Environment and it is now past February 1. I know every one of these jobs is a difficult job to fill, but it seems to me that if somebody were really interested in filling that job and meeting those criteria you could do it.

Mr. MYERS. We have aggressively pursued that area.

Mr. WIRTH. And you cannot in 180-some odd days find a person in the United States that meets the criteria that you outlined in your statement?

Mr. MYERS. We have not yet found the candidate for that job.

Mr. WIRTH. Who is responsible for doing that search?

Mr. MYERS. The search has been carried out initially by the personnel department of our agency and has more recently been broadened to include some outside search activities.

Mr. WIRTH. Have the names for all the other unfilled vacancies gone up?

Mr. MYERS. The names for all the other unfilled vacancies have gone up.

Mr. WIRTH. And the Assistant Secretary for the Environment is last on the list?

Mr. MYERS. Correct—excuse me—I am not sure that we have submitted the name for the Inspector General. I just do not happen to know.

Dr. LIVERMAN. The list did not include him.

Mr. MYERS. There may be two that have not gone up.

Mr. WIRTH. How soon are you going to have a name?

Mr. MYERS. For the Assistant Secretary of the Environment?

We are still in the search mode. We are still in the interview mode. So I really cannot give you a specific date for submission.

Mr. WIRTH. In your statement, Mr. Myers, you also mentioned that you were personally going to be responsible for orchestrating any kind of conflicts or whatever that might exist between the various Assistant Secretaries. How much of your time will you spend doing that, do you think?

Mr. MYERS. Well, that is a hard question to answer. So far we have had very good cooperation between the environmental group in DOE and the other Assistant Secretaries in developing this interaction with the lowest levels of the organization, and I have had no case that I am aware of—that I can remember—where we have had the kind of conflict that I wrote into the testimony.

Mr. WIRTH. I cannot call that a conflict when a job is unfilled. I mean that gives the other people who are there a great opportunity to cooperate with any empty chair, right?

Mr. MYERS. Well, I would like to state for the record that Dr. Liverman has really done a fine job in the interim activities——

Mr. WIRTH. I have great respect for Dr. Liverman but since I have also spent a lot of time in large organizations, particularly at HEW, I realize how difficult it is when you do not have the cachet to really carry out the mission that you are entrusted with under the law.

It is my understanding, Mr. Myers, that EPA sets various standards. Is that not correct?

Mr. MYERS. That is correct.

Mr. WIRTH. And in order to set those standards, say for particulate control or SO_2, they really have to have a pretty good sense of what the technology is capable of controlling—right? Who then does EPA turn to, to say what technology is available? Who has the responsibility of telling EPA? For example, I am Doug Costle, and I am very concerned about fine particulates. What we would like to do is to really take a look at this area. What can the technology do? Who does Doug Costle talk to?

Mr. MYERS. We have coordination with EPA at several levels in the environmental organization. I would like to have Jim get more specific about that.

Mr. WIRTH. Doesn't he really have to turn to Thorne's operation and is that not where the responsibility sits for defining that?

Mr. MYERS. There is direct communication within the ET organization. There is also a more formalized coordination with the environmental group. These development plans that are actually initiated by the program activities are very closely tied to the work that Jim is doing in his research programs in identifying environmental activities that are necessary in these areas, and the formal tie to EPA is with Jim's group.

Mr. WIRTH. EPA's formal tie is with your organization?

Dr. LIVERMAN. That is correct.

Mr. WIRTH. Do you define then, you know, tell EPA what technology is available?

Dr. LIVERMAN. Let me address that.

I think there are three points to be made here.

One is that there is a very close tie between my shop and EPA in the environmental control technology assessment area. They assess the technology as do we. That is a check and a balance between the two. There is a very close tie—and, of course, all of these could be closer—between our R. & D. arm which is looking at the impact of these particulates. So we assess where the technology can or cannot control both of us. We assess the level of knowledge about what the impact of these particulates might be and then in our policy analysis and assessment area, headed by Al Alm, between Al and me we have fairly large groups that continually address the proposed regulations that EPA is thinking about issuing. Those three combined, then, provide a basis for argument, debate, discussion, and finally, resolution of the difficulties before EPA issues a regulation that the technology cannot meet.

Mr. WIRTH. So that the formal relationship is between your office and EPA?

Dr. LIVERMAN. Principally, although that is a problem but there is a lot of interaction between the individual technologies and our——

Mr. WIRTH. Do you and Mr. Costle discuss various problems together on a fairly steady basis?

Dr. LIVERMAN. I would say that the discussion level is more between the Assistant Secretaries and the Assistant Administrators in EPA. That is where the principal contact lies, Jim Schlesinger and Dale Myers and Jack O'Leary have their discussions with Doug Costle.

Mr. WIRTH. Whom do you deal with at EPA then?

Dr. LIVERMAN. We deal considerably with Steve Gage, who will be here on Thursday. In fact, my office deals with every assistant administrator in EPA because each has a different kind of problem. My office deals with the regulatory arm and the R. & D. arm with Steve Jellinek who is the Assistant Administrator, Office of Toxic Substances, and William Drayton, Assistant Administrator for Planning and Management, who is the policy analysis man, and the other assistant administrators who regulate.

Mr. WIRTH. How does Mr. Thorne get into this in his operation?

Dr. LIVERMAN. Let us take a specific area. If you want to look at the fluidized bed question in contrast to direct combustion FGD, his people, my people, and EPA would all be in the same meeting discussing the issues that are involved in those particular technologies.

Mr. WIRTH. Who has authority within the Department of Energy to recommend or in fact decide what kind of research dollars are going to get spent on various technologies that might be useful to EPA?

Dr. LIVERMAN. Well, that is partly Thorne. There are three different operations—resources applications, Thorne's energy technology and conservation solar and applications. If you are talking about fossil energy, that would fall in both resource applications and Thorne's program.

Mr. WIRTH. Your office or the Assistant Secretary for Environment does not conduct any research on control technology, is that correct?

Dr. LIVERMAN. That is basically correct. We do not do the R. & D. in that area.

Mr. WIRTH. So what we have is the people who are developing the technologies are also developing the controls right?

Dr. LIVERMAN. Right. We have in my organization an assessment function to look over their shoulder.

Mr. WIRTH. Does that make a lot of sense in your opinion? That is like saying to the nuclear power people, going back to the forebears of this august department, that we are going to have the exact same people whose mission it is to develop the nuclear technologies also assure everybody that the technologies are perfectly all right. It seems to me we are in something of a fox in the chicken house situation.

Mr. MYERS. Mr. Wirth, I would like to speak to that.

It was my decision to put the advanced control technology into the fossil fuel area because we have over a period of time been working within the technologies and what I see as an integrated system approach to trying to keep the cost of coal technology down while meeting the environmental requirements. We have done a tremendous amount of work in the technology of the front end of coal cleaning, the burning process of coal cleaning, and the thing that was missing was the back end of that technology—the eventual scrubber activity. So having this advanced scrubber activity now in the Department of Energy I felt that the job of Dr. Liverman and the environmental activities was to continue to overview all of that activity to give us a balance as to the final pollution elements that are involved, but continue this as a total system picture to get the cost down for a given environmental level.

Mr. WIRTH. Going back to playing Doug Costle's role, he has to take the word of DOE as to what is possible. He does not have the capability to say if we did the following, made the following kinds of technological investments, we could in fact bring the level of particulate emissions down very significantly. In effect, he has to believe what you are saying; he has to go to the same people whose responsibility it is to develop those very technologies.

Dr. LIVERMAN. May I venture a point for a minute, Mr. Wirth?

There are two ways to view this and there is a middle way. Let me take the middle way.

I think we believe in DOE, and I certainly believe it, that the technology itself should try to improve its processes as much as it can to prevent any need for control technologies, and to modify them if there appears to be trouble ahead.

It is important to look at the question of containing and controlling all of those things that look like they are going to be troublesome and that is going to be an area, as Mr. Winn was discussing earlier, that can be done most effectively and cheaply with essentially known technology. They are not going to be inventing new control technologies, basically, unless it looks like it is really needed. The role of EPA and the environmental program of DOE, it seems to me, should be to explore those things that have not yet shown scientific feasibility, and I can use the deep-sea disposal of radioactive waste as an example. It is not a priority program, but it is an option that must be explored. If EPA and the environmental program of the Department are on their toes and continuously assessing what the technologies are doing, as well as looking at other options which might give better control of particulates or something else, then it seems to me that an amenable relationship exists. If all of these qualifications are not met then there may be problems, and I do not know Dr. Myers' views about that particular point.

Mr. WIRTH. Are you saying, Dr. Liverman, that there really are not any new control technologies that are feasible, that there are certain existing technologies which we will have to go ahead and use? Is that the summary?

Dr. LIVERMAN. I think stack scrubbers and fluidized beds are approaches. You can also look at different methods to improve that kind of technology or you can install bags that catch things on the end of the cycle. Those are not totally new controls. They need more exploration and the technology program would seem an appropriate place to be concerned about that with a very closely coupled overview by the environmental program.

Mr. WIRTH. To draw a parallel, let us go to Mr. Schlesinger's statement some time ago that all of the nuclear waste management issues were going to fall under the Assistant Secretary for the Environment. Is that correct?

Dr. LIVERMAN. He said that was one of the options being considered.

Mr. WIRTH. One of the options was that he would put it under the Assistant Secretary for Environment for credibility reasons. Was not that the quote?

Mr. MYERS. I do not know the specific quote. It is an option that is being considered.

Mr. WIRTH. Let us assume that that was the quote. I think I am pretty sure that it was. What is the reason for putting the nuclear waste management issues under the Assistant Secretary for Environment, yet on the other hand taking the technology say for air pollution control and putting it under the energy technology development programs? I am trying to tease out the rationale to all of this. It has bewildered me since the formation of the Department.

Mr. MYERS. I think the role of the environmental group involves the technical development in the areas which identify the problems with some of these pollutants that are involved with the energy area. I think the issue that you bring up on waste management is a good one from the standpoint of there again is the question of should these things be in a separate, highly technical, program management kind of operation such as putting waste management in the environmental group, as opposed to using the broad base of skills that are involved in the energy technology area, and using that as a system approach—broadening it into the system approach that is involved in nuclear power. And it is in fact an issue that we are still dealing with within the Department.

Mr. WIRTH. Systems are terrific, Mr. Myers, and I am for all systems and trying to see if we can get this system at the Department of Energy to function a little bit better than it has in the past. My concern, as you can see, is that we deal with the extraordinarily delicate balance between energy development and the environment as carefully as we ought to, I am also concerned, in considering this very important position of Assistant Secretary for Environment that is unfilled and unnominated, that we be concerned with more than just putting it under there for reasons of credibility, and that we really take it as more than an office that is cosmetic in value. There are some very, very real environmental concerns in this country, and we are not just going to allow one part of the Department of Energy not only to develop the energy, but also to define for EPA the technologies that are avail-

able to clean up the environment. We are going to have a lot of people in this country immensely sick if we do not take adequate measures to control environmental pollution.

Dr. Liverman's slide show about 4 months ago, representing a first cut at a long-range look at what is going to happen in terms of pollutants all over this country, was enough to age anybody on this Committee and anybody in the hearing room at the time. It was a very, very thoughtful presentation, which underlined my belief that we have to put greater emphasis on environmental research. My concern, as you can tell from my questions, I am sure, is that the Department of Energy has given this very, very short shrift, beginning with nominating somebody for the position of Assistant Secretary for Environment.

Let me ask you a few other question along this line.

Can you tell me, Mr. Myers, what the role of the Department of Energy is with the National Environmental Policy Act (NEPA)? Maybe that falls under your operation, Jim. What do you do in relation to NEPA?

Mr. MYERS. I would like Dr. Liverman to respond to that.

Dr. LIVERMAN. Clearly, in the Department of Energy, the responsibilities under NEPA have been broadened considerably. Previously, and I am speaking from my past experience under ERDA and AEC, we felt with an R. & D. element almost totally, there was little NEPA-related activity with policy and certainly nothing to do with regulations. With the Economic Regulation Administration, and the Federal Energy Regulatory Commission, the power marketing activities, and we now in the Department it is very clear that we have a totally different perception of what NEPA is about and how we go about enforcing it. We have set about to put in place new regulations, 10 CFR 1021, to look at that broadened responsibility. We are also trying to provide for a larger staff with a broader purview of the total Department's activities and to do this with this central staff that Mr. Schlesinger talked about; namely, to sit in an anticipatory mode as opposed to a responsive mode. By that I mean, as in the case of the environmental development plans and whatever else has to be done to indicate as early as possible those points in time in technology development at which decisions are going to be made and for which that technology must come up with a detailed environmental assessment or an EIS statement for public purview.

Mr. WIRTH. How many NEPA assessments come to your office in a year?

Dr. LIVERMAN. Oh, I guess, in the 4½ months the Department has been in existence there are on the order of 50. My guess is before the year is out we will have looked at something on the order of 100 assessments and perhaps as many as 15 detailed environmental statements.

Mr. WIRTH. You have to do that. How many different sets of regulations have you had to review in the past 4 months?

Dr. LIVERMAN. I would guess offhand that the number for regulations is less than 10. I have just been handed additional information with regard to the number of NEPA documents we may have in process this year. We expect for the year that DOE's environmental assessments will number somewhere between 120 and 155. Dave Bardin is now coming out with lots of regulations which we have to deal with.

The number of EIS's that will be in the NEPA process will number between 75 and 100. This is a lot more than we handled previously in ERDA.

Mr. WIRTH. How many people do you have to do this job?

Dr. LIVERMAN. Seven people came from the FEA's NEPA office and I had seven in ERDA. That is the total number in that structure. The power marketing groups such as the Bonneville Power Administration have NEPA people in their organizations but they do not report to me. They report directly to the Assistant Secretary for Resource Application through their respective administrators. FERC has some of its own and they review their own statements, I do not.

Mr. WIRTH. It is our information that you have a total of 19 people altogether, counting clerks and secretaries for reviewing all the NEPA assessments: working on the regulations and coordinating with other agencies—19 people to do a mammoth job.

It seems to me that we are conjuring up a real potential for disaster in this area. I do not see how it is possible for a staff of 19 people to get into this vast subject deeply enough to be able to provide an adequate analysis of or a balance to the groups that are spending their time developing these massive energy technologies. I just do not understand how 19 people can do that job. I have a total of 18 people that work for me and we do a lot of things like this. There is no way we could get into any kind of in-depth analysis to provide any kind of careful analytical counter to the technology people, much less provide information to EPA that would be helpful to them.

Dr. LIVERMAN. I think the proper response to that is that, currently, we are considering the personnel issue and, in fact, have forwarded to Mr. Myers and to the Personnel Division what we honestly feel our current needs are in this area. Confronting that question with the President's desire, shared by the Congress, to keep the number of Federal civil servants down, we have to look for other ways to try to help with this problem. We are discussing in some detail whether or not we can use a contractor with the expertise to help with this problem.

Mr. WIRTH. I am sure that that is the proper answer, but what I want to point out again is that it seems to me that those facts and figures about the commitment of the Department, the group of people that are supposed to be its eyes and ears and arms on various environmental considerations, reflects the appalling lack of commitment of the Department in this area. Let me go on.

The Council of Mayors and the National Association of Counties have requested a significant program for various kinds of environmental planning, which I know you both are familiar with—which would involve developing various land and water use strategies to deal with energy development. There was a particular concern for boomtown analysis. What is your reaction to that requiest?

Mr. MYERS. The social and economic impact of new technologies is a part of our evaluation in these environmental development plans and will be considered in any of the new technology activities.

Mr. WIRTH. It was our information, Mr. Myers, that you were opposing this kind of an outreach program requested by Council of Mayors and the National Association of Counties, due to your feeling that this was a problem of institutional relations and was not deserving of this kind of investment.

Mr. MYERS. I think I may have answered your question by a different answer because we are considering the boomtown issue in the new technologies that we develop, and we will identify those in our environmental development plan for a given technology. I think the program that you are talking about is a different program.

Dr. LIVERMAN. I have not seen the specific thing that you are talking about, but we have had a number of groups and under ERDA, as I think you are aware, we did fund some programs in various places. Riverside, Calif., is an example of one in which we looked at their total energy system. DOE has not quite sifted out exactly where that responsibility lies, but I think that it would be an appropriate function for us to assist communities like the two counties in Colorado which have a problem with oil shale development in addressing the nature of the possible impacts and what the mitigating measures might be. I think, and Mr. Myers could answer this better than I, the precise part of the agency that would be selected to deal with that question and to fund such programs and carry it out has not really been decided. But I think it will be less than candid on our part not to recognize that such problems exist and must be dealt with.

Mr. WIRTH. I know, Jim, that you have been very helpful on that front. I just wanted to commend you for setting up the western energy information network in Denver. It is my understanding from talking to the people out there that they have been deluged with requests for information from the DOE data base. Is that program going to be able to continue?

Dr. LIVERMAN. I certainly plan to continue that. I am sure that Mr. Myers is aware of it, but it came about, as you the committee are aware, as a result of the concerns of western governors and people over the proposed synthetic fuels program. We constituted that information base in Denver with a multiagency involvement—EPA, Interior, HUD, and others, and it is continuing. As a matter of fact, I believe there is another one either established or about to be established in Atlanta, for the people in that region of the country. I think these are very valuable. They have been called upon very often by people in the regions who have the kinds of problems that you are addressing because it provides them with the access to DOE's data bases that will help them reach their conclusions on the same basis as we are.

Mr. WIRTH. I would hope that the Department would continue this program and put a major emphasis on outreach efforts in general, because there are a lot of people in this country, not just a few kneejerk Members of the Congress, who are concerned about the impacts of energy development. It often comes as a surprise to people that there is a very real concern not only for developing that energy, but also for making sure that it is done in an environmentally sound manner.

Dr. LIVERMAN. We have had discussions with Dr. Moses of the Energy Information Administration, and he feels that this is a legitimate function of ours because of its particular content.

Mr. WIRTH. I hope it is more than cosmetic and that it is very real.

Dr. LIVERMAN. It is not cosmetic. It is for real.

Mr. WIRTH. Mr. Myers, have you seen the Amory Lovins article talking about soft-path versus hard-path energy technologies? I am sure that you have.

Mr. MYERS. Yes. I have.

Mr. WIRTH. Driving into Denver from Stapleton Air Field with the President last fall, I was very impressed when he said that he thought that was the single most important piece that he had seen in the area of energy, and he had obviously read it with great care. Have you discussed that with him?

Mr. MYERS. I have not discussed it with the President. We have activities within the Department that are broadening the base of our disperse energy activities, both in, as I mentioned earlier, solar energy, the biomass, the smaller woodburning power generation stations, a whole series of increased initiatives in that area that are generally in the direction of the dispersed technology approach.

Mr. WIRTH. How do you alert people in the Department to what I would assume from that conversation with Mr. Carter is a real priority? Do you tell people that you think that is important? Does that come out in some kind of staff meeting? Do you emphasize that kind of thing?

Mr. MYERS. Mr. Schlesinger has discussed this idea with the President. We have had continued actions with the energy technology people, with Jim Liverman and with John Deutch on the new initiatives in this area, and have had several weekend meetings in this area to identify the proper emphasis in these areas.

Mr. BROWN. Would the gentleman yield?

Mr. WIRTH. I would be happy to.

Mr. BROWN. As long as this issue has been brought up, Mr. Myers, I understand that there has been a California study focused on the practicality of the so-called soft energy path and the viable alternative to the nuclear and coal technologies of California. This issue is going to be subject to a great deal of public scrutiny in that State and possibly other States.

For example, the California State Assembly, which is now considering exempting the Sun Desert Nuclear Plant, is probably going to have reports from the Energy Commissioner of California dealing with the viability of the soft energy technology paths, which may influence the decision of the legislature as to whether to exempt Sun Desert or not. I do not know if there is anything that can be done about it in a short time span, but I think it is very obvious that we need a full analysis done in the best possible scientific way, with adequate peer review, of the methodology of these reports. I would like to be reassured that analyses of the possible viability of the soft energy paths get full and open consideration in the Department of Energy, recognizing that there is controversy even in this committee. I am sure you know there will be those who say it is pie in the sky and others who will say that this will bring salvation. We will not be able to make a decision unless we have the very best kind of analysis made. It would be helpful if you would indicate that the Department will do its very best in regard to that kind of analysis.

Mr. MYERS. Mr. Chairman, the particular study which you are referring to is one which had been initiated by the environmental group for which I transferred responsibility on to Dr. Deutch, who is head of our energy research organization. I felt that the activities going on in the development of our new supply initiatives needed the focus point of John Deutch in the new disperse technologies, the energy technology resource applications, and conservation solar applications, feeding data into Al Alm who is the man who is putting together our new sup-

ply initiatives—the report that Mr. Schlesinger talked about as being about 3 months away. We are continuing to fund that study in California. We are expecting to still have the support and inputs from Dr. Liverman's group.

Now to speak to that overall picture.

It is my view from what I see of the apparent inability of our country to take on the strong conservation measures that are required to decrease the importing of oil, the fact that our oil imports are rapidly increasing, the balance of payments are going much more dramatically negative because of this oil import, that we must pursue all sources of energy that are environmentally acceptable. It is clear that today the cost of solar energy is higher than other energy sources, but we are doing what we can to reduce the cost of those other sources, the solar energy and other dispersed energy sources, and if successful we will be able to get an appreciable amount of power on-line by the 1985–90 time period.

That does not mean that you can drop coal, even Mr. Lovins does not say that we should drop coal—what he considers an interim situation.

My problem is that the really critical time period of supply for this country is about 1985 to 1990 I believe, from the standpoint of what will occur with respect to world generation of oil, and it is that time period that I think we have got enough going on the farther out eventual new R. & D. initiatives, like fusion, solar-powered satellites, and things of that nature. I think we are in real trouble in the 1985 to 1990 time period, and it is in that time period that we need to push as hard as we can in the new initiatives in the disperse technologies, in coal, in new sources of oil and gas and in light water reactors. I think we need to push them all.

Mr. WIRTH. To finish off, if I might, what is the condition of this year's budget at DOE in environmental research compared to last year's budget?

Mr. MYERS. The Environmental Research and Development Budget for 1979 is $208.6 million which is down $9.2 million from 1978, reflecting the fact that $15.9 million were in projects sponsored by DOE in 1978 that will be sponsored by EPA in 1979. So we are down slightly——

Mr. WIRTH. At a time when inflation is probably up 6 or 8 percent? I agree with you completely, we will have very real problems in the mid-eighties. We are going to be converting, hopefully, significantly to coal. We are going to have some very major problems in terms of environmental control technology which are already beginning to pop up in various places around the country, yet in terms of environmental research we are not only down in real dollars in the budget from last year, but looking at inflation, we are down even further.

Now, just in summary, Mr. Myers, the point that I want to make is as follows: As one member of this committee and this Congress, I have spent a vast amount of time in the last 3 years working on the subject of energy: natural gas, oil shale, coal, and solar energy, all of which you are familiar with, and have attempted to move us with a sense of urgency which I think we have in this country. I know you have had a great number of organizational problems at the Department of Energy in having that sense of urgency that Mr. Schlesinger feels is reflected in an organization. At the same time that we reflect that urgency and push on the supply side, we are going to have to be

awfully careful on the environmental side, and Dr. Liverman has been one of the very good people at the Department of Energy in thinking about this problem and attempting to get more people to understand it.

However, I do not get the sense of urgency on the other side of the Department of Energy, as I have attempted to illustrate through my questioning this morning. I do not think the Department of Energy reflects, in its failure to appoint an Assistant Secretary for Environment, in the way it approaches NEPA, in its relationship with EPA, in the approach it is taking to outreach programs and in its concern about the budget, an adequate environmental conscience. I just do not see that the evidence is there in looking at one issue after another. That is a very real concern to me, and I think that it is going to be a very real concern to the American public and the health of the American public. We are not talking about fuzzy-headed environmentalists. We are not talking about chipmunks or groundhogs. We are talking about such basic elements as how we are going to cut down on the amount of particulates in the air, and how we are going to avoid deleterious health effects from those particulates. What are we learning about the subject of air pollution and its relation to lung cancer and other kinds of respiratory diseases? It is as simple as that. It is no longer something that can be dismissed out of hand. It is something that is of greater concern to a lot of people, and I would hope that as you coordinate these enviromental problems at DOE, we take off the so-called groundhog hat or the chipmunk hat and put on a health hat and reflect the kind of concerns that I think you must and that certainly a great number of people down at this end of Pennsylvania Avenue reflect. That is the whole purpose of my questioning this morning. I just do not see that the requisite sense of urgency is there, and you can count on me, as Jim well knows, to do every thing I can to keep your feet to the fire on a steady basis. I will do that from my perspective on this committee and from my perspective on the Energy and Power Subcommittee and the Commerce Committee, where I am sure we will be meeting on a steady basis over the next year.

Mr. BROWN. Mr. Spensley has some questions.

Mr. SPENSLEY. Thank you.

Mr. Under Secretary, I just want to ask three questions.

First, I think that the Assistant Secretary for Environment seems to be a quality control lever for environmental concerns within the Department. He does not appear to be stepping out front, at least as his role has been defined to date, in motivating environmental considerations.

First of all, is that a fair assessment? Second of all, should that be the role for the Assistant Secretary for Environment in the Department?

Mr. MYERS. No, I do not think that is a fair assessment. I think that the environmental group is the spearhead of the awareness inside our department on the environmental issues and it does have people who work diligently and continuously with the new technologies to make sure that the people who are actually doing that development work do understand the environment and the environmental issues associated with it.

Mr. SPENSLEY. Given that response, in our previous experience with the environmental development plans (EDP's), there have

been problems with the environmental people working with some of the energy technology people insofar as getting cooperation and the information necessary to develop those EDP's. Is that still perceived to be a problem, or has there been some change made since the former ERDA became DOE?

Mr. MYERS. I can only say that the Acting Assistant Secretaries and the Assistant Secretaries that we have are fully cognizant of and fully cooperative with the idea of the environmental development plans.

There may be difficulties within our organization at lower levels, but I believe that the leadership that we have within the organization now, if confirmed, will strongly pursue the environmental development plans as an important element of the energy technology development.

Mr. SPENSLEY. Is there a specific directive or memorandum within the Department that directs the Assistant Secretary to work with the energy technology Assistant Secretaries?

Mr. MYERS. Yes, there is.

I am afraid it is called an interim directive, but every directive within the Department is an interim directive.

Dr. LIVERMAN. May I comment here?

The question you raise, Mr. Spensley, is a very good point. I must say my own perception is, as Mr. Myers has said, that the new leadership in there has shown a totally different attitude than in the past. And to take a specific example, we had considerable difficulty with various parts of the fossil technology program previously. I have had dealings with both George Fumich and Auggie Pitrolo, who are the leaders in that group now, and they have made it absolutely clear that they are looking to the environmental portion of this agency to do their environmental work. Now saying it and doing it are different things but at least the intent is there.

Mr. SPENSLEY. Do you, Mr. Under Secretary, sign off on the EDP's?

Dr. LIVERMAN. If I may?

He has not yet seen a new version. The 26 or 28 that were created in ERDA were signed off on by me and by the other Assistant Secretaries or Assistant Administrators. Later on, I was going to tell you that we have published a summary document and we are also starting to iterate a new version. I do not think it has been decided precisely who will sign off on them, but Dr. Myers will certainly have his opportunity to see them.

Mr. SPENSLEY. Let me ask the question, differently, then. Are those EDP's, the 26 or 28 that you mentioned, the working documents now for these technologies which are being developed?

Dr. LIVERMAN. Yes. Mr. Myers, himself, the other day said he would like to have something in hand to discuss a given technology and the problems that we consider to be the major ones. On a continuing basis, these things can be used to alert us to possible problems whether it be oil shale or fluidized bed or something else.

Mr. SPENSLEY. As a practical matter then, what do you do, Dr. Liverman, or Mr. Under Secretary, when one of the energy technology groups does not comply with that EDP?

Dr. LIVERMAN. They hear from me.

Mr. MYERS. Well, I think specifically as I said in my testimony if there are differences between the environmental group and the energy technology, they will be brought to me for resolution.

Mr. SPENSLEY. What criteria do you use to resolve those problems?

Mr. MYERS. I think, judgment. I would expect with the strong attention being given by my Assistant Secretaries in the areas of energy technology, resource applications, and conservation and solar applications, that when they come to me it is going to be a tough judgment to make, and I think that is what I am there for, to take on those kind of activities where there is a balance between the two and we have to look at the balance between the environmental and the supply.

Mr. SPENSLEY. One last question; this deals with the EPA/DOE transfer, which is of concern to the staff in trying to decipher where the various projects are going to go.

It is my understanding that in accordance with the McIntyre letter OMB gave 120 days for the details of the transfer to be worked out. It is also my information that the Department of Energy certainly knows what it would like from the Environmental Protection Agency, but it is not certain what it would like to give up to the Environmental Protection Agency.

Maybe you can elaborate on how that process is going so that we can determine in making staff recommendations to the members whether that $14 million ought to be transferred.

Mr. MYERS. Well, it is true that the transfer of the advanced control technologies to DOE is something that we agreed to and felt was important to this overall system approach. It is true that the portion dealing with the transfers to EPA was not clearly spelled out and needed some negotiation. Dr. Liverman has been in the process of that negotiation with EPA and he might speak further to that.

Dr. LIVERMAN. The problem with the transfer in the health and environmental area, as was clearly recognized by Mr. Brown earlier, becomes one of separating the chicken from the egg. Nevertheless, we have had, with OMB and EPA, four or five separate meetings in which we have tried to define the following point: It is not the question so much of the transfer of $14 million if the objective is, in the future, to give the agencies broad areas of responsibility with some lessening of the gray areas of overlap. It has been a matter of arriving at a definition of what that is along with one other point. If that is an agreed-upon definition by the two agencies and OMB, then my position has been that EPA's program and our program should both be analyzed and separated according to those definitions. There has been some reluctance to do this and you will have an opportunity on Thursday to talk to both Dr. Gage and me about that issue. The OMB is now taking a more forceful role in the sense that they are trying to define what it was they meant when they came up with the recommendation. We will achieve some degree of separation. We will arrive at some clearer more sharply focused missions of the two agencies but we will not totally unravel it either between those two or among the other 25 or so that are involved. The important point is an increased awareness and the ability which the Congress and others can help with, to perform effective coordination and have the mechanism in place to achieve it. It is important that we draw on all of the information being generated by all of the agencies to determine whether there is an adequate amount being done.

Mr. SPENSLEY. Let me ask, Mr. Under Secretary, one last question in that regard.

Information that has been provided to us by the Department indicates that in the total budget of something over $5 billion for ERDA for fiscal year 1977, the environmental control technology budget was roughly $185 million, which was about 3.4 percent of the total ERDA budget. Then, the whole environmental control technology budget for Dr. Liverman's shop was $11.6 million or less than three-tenths of 1 percent of the total ERDA budget. Now, given those statistics, which I think are rather revealing as to the amount of commitment being given to the environmental control technology quality control as distinct from development of control technology, I am wondering, Mr. Under Secretary, whether we would not get the biggest benefit for our buck if we put that $14 million we are taking from EPA and put it in Dr. Liverman's shop rather than putting it in the fossil fuel program where it represents less than 10 percent of their control technology program. In fact, $14 million would more than double the environmental control technology program under the Office of Environment.

Mr. MYERS. I think that the technology activities that we would be involved in here would be dirctly related to system analysis and the technologies associated with advanced control activities and I think they would really be in response to the interests and evaluations done by the environmental group on where the areas of action should be and particulates in CO_2 and things of that nature.

Mr. SPENSLEY. That is my point. Why should that not be under the Assistant Secretary for Environment rather than Mr. Fumich's shop?

Mr. MYERS. Because I think it is a system problem. I really am very insistent that we consider from cradle to grave the coal problem. And if I were to have separate organizations working in one element of the cleanup as opposed to another, I am sure that there would be an unbalance of activity, and that in fact is why I was so pleased to find that the advanced control technology is being transferred to DOE. It gives us a chance to balance that kind of activity.

Mr. SPENSLEY. I am not sure that there is necessarily as much of a problem with the fact that some of those EPA funds are going to DOE, but as to where they are going. And to go back to the point I am trying to make——

Mr. MYERS. My point then is why not have the cleanup of coal in environment? Why not have fluidized beds in environment? Why not have scrubber technology in environment?

Mr. SPENSLEY. Those are environmental control technology development activities, while the $14 million that is coming from EPA is primarily a quality control or a systems problem as you described it, which I think I agree with.

Mr. MYERS. Excuse me—the activities going on in EPA are in the area of advanced control technology and they are independent of the Department of Energy except for the coordination activity that is going on and I think it is an imbalanced systems problem. So just as in the cleanup in the front end, I look at the back end as a technology that has to be included in the total picture to get the best balance of the environment for the buck. That is really what we are looking for.

Mr. SPENSLEY. When you say systems problems, do you mean an energy technology development problem as distinct from a problem of how we acquire environmental control technology across the board?

Mr. MYERS. I include the systems analysis and conceptual development activities that balance front-end coal technology with back-end stack gases.

Mr. SPENSLEY. Just one last question.

If we are going to transfer $14 million from EPA to the proper DOE program, what do you think of the idea of giving Dr. Liverman $14 million as well to improve that less than three-tenths of 1 percent commitment to environmental control technology?

Mr. MYERS. Certainly, I do expect the environmental activities to be working closely with the technologists to get emphasis on the right area of pollution that is involved in these technologies. I, for example, look at the front end as basically getting rid of SO_2, and the back end may be the place where we can work more on some of the other pollution elements we cannot work on in the front end. So we have got to have that balance and we have to have the support from environment. I certainly do not feel that you need that big an increase in budget in environment to support that activity in the——

Mr. SPENSLEY. So that was a negative answer?

Mr. MYERS. A negative answer on the $14 million to environment.

Mr. SPENSLEY. Thank you, Mr. Chairman.

Mr. WIRTH. Mr. Myers, is there anything that you would like to add given this morning's discussion before we get on with Dr. Liverman and ask questions of the flow at Rocky Flats and other similar, wonderful issues about which I know you have a passionate concern?

[Laughter.]

Mr. MYERS. No; I have been happy to have the opportunity to respond to questions of the committee here today and I assure you that we are within the Department holding the environmental activity as a very strong important part of the Department's activities. I will continue to work with the committee and try to assure you that we are doing that.

Mr. WIRTH. Just in closing, Mr. Myers, I know what a very difficult job it is to put together a huge and complex new department, and I am sure that I can assure that this subcommittee and others on the Hill will do everything to help you, since we all want to see various priorities met very clearly. So thank you very much for being with us.

Mr. MYERS. Thank you.

Mr. WIRTH. Jim, maybe you can stay for a while at least until the bells go off which I think they may well do in the not too distant future.

Dr. LIVERMAN. At your pleasure, whatever you desire.

I think that we have covered most of the general things that I was going to talk about, namely, the creation of the Department of Energy and my responsibilities.

Mr. WIRTH. Do you mean to say that we can just put your statement as developed into the record?

Dr. LIVERMAN. Yes; I believe so.

There are two general points I would like to talk about first and then we can go into specific budget items.

One of them has to do with the environmental development planning process per se and a progress report on where that stands. I have

provided to members of the staff, some days ago, material extracted from the 26 or 30 environmental development plans we have prepared to date. This material was on a foldout sheet which shows by technology what the nature of the impacts might be. In addition, another compilation, not by specific pollutants but by general classes of pollutants have been showing what the first year's activities in the environmental development planning process have yielded.

I would like to make one or two observations related to what Mr. Winn brought up this morning—namely, how do we balance environment, economics, and the energy technology.

It seems imperative that with regard to our regulatory affairs in this country we consider these three matters on equal basis. This tradeoff is what the spirit of NEPA is all about. In detail this means that we must examine the environmental impacts of a technology not only across the whole fuel cycle, but we must consider the relative impacts in all media—water, air, soil, solid waste, et cetera. From the environmental standpoint then we must continuously rank as most desirable those technologies which when considered on these two bases are least environmentally damaging. This ranking, coupled with energy yield and economics by technology, should allow us to combine these three factors to provide these most desirable energy sources for our Nation. On such a basis, then, we could and should compare the desirability of using FGD versus fluidized bed combustion for sulfur removal.

The second point is that once we have formulated the environmental development plan, completed the inventory to see what is going on, and have done the technology assessment to see what it is we truly know for a fact, we are left with a residual of unknown information on any given technology that must be evaluated as to its priority in terms of human health or environment, and in terms of the time frame needed to get that information in place to make decisions about the technology. Those both set the priority for the technology and for the need for the environmental research and they must be closely coupled. My perception right now is that that has not been done as precisely as it needs to be done, and we hope, during the course of this year, to achieve that closer coupling.

One of the things we are doing is working very closely with a given technology. Let me take the gasifiers in industry program, where we have sat down with the technology people and worked out in detail a specific program to look at those six gasifiers that they are proposing to put in place and have environmental programs in place at three of those sites.

Furthermore, we had periodic discussions which assures the feedback of environmental information to the technology program directly. So in terms of modus operandi for dealing with the DOE-related questions, we have a number of programs. I think the geothermal program, I have discussed in southern California, is another good example. The gasifiers in industry another. We are doing the same thing in the gasification processes. So what you are going to hear during the discussion by my staff on the details of the program is more about these specifically focused programs which are tied to the specific technology in order to be sure that, as we march forward, we are addressing all the questions that must be dealt with.

Mr. WIRTH. We have had the signal from the Speaker that it is time to go to the floor.

Would you be available tomorrow morning—would that be possible? I think we are scheduled in the morning at 10 o'clock.

Dr. LIVERMAN. Yes; I will be available.

Mr. WIRTH. Might I ask you, perhaps between now and tomorrow morning, to have someone in your office call Bill Lamb, in Colorado, about the Broomfield water situation? I know that there has been a Broomfield proposal and a DOE proposal coming together there, and I think that we are pretty close to some recommendations. Maybe we could all get together. I talked to Bill yesterday afternoon and he was going to talk to the Broomfield people in preparation for this morning.

Dr. LIVERMAN. That must be here in our office somewhere.

Mr. WIRTH. If the proposal is not, it is on its way and maybe we could move it out smartly.

Thank you very much.

As you know, this subcommittee has also set a No. 1 priority on various health effects, and I am sure that there will be members who will want to ask you about your responsibilities in this area versus the responsibilities of the Assistant Secretary for Energy Technology and EPA.

Dr. LIVERMAN. Fine.

At 10 o'clock in the morning?

Mr. WIRTH. Yes, 10 o'clock.

Mr. CLEMENT. Mr. Chairman, if I might before you adjourn?

At the request of Congressman Phillip Ruppe, I would like to ask if you would be prepared tomorrow, Dr. Liverman, to give us a status report on a letter that was sent to you on October 11 of last year by Congressmen Ruppe, Oberstar, and Marks for the Conference of Great Lakes Congressmen on a proposed Great Lakes energy forum.

Dr. LIVERMAN. Would you like a statement or something for the record?

Mr. CLEMENT. If you could have something for the record and possibly touch base with Mr. Ruppe so that they will know where they stand on this, we would appreciate it.

Dr. LIVERMAN. Yes; we will provide something later on for the record and I will ask Dr. Stronberg of my staff to call Congressman Ruppe immediately.

Mr. WIRTH. Thank you very much.

[Material referred to above follows:]

Department of Energy
Washington, D.C. 20585

AUG 22 1978

Honorable George E. Brown
Chairman, Subcommittee on the
Environment and the Atmosphere
Committee on Science and Technology
U.S. House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

This is to provide additional information on the Great Lakes Energy Forum in which Congressman Ruppe has expressed a continuing interest.

Following the authorization hearings held before your Subcommittee, there was a meeting on May 23, 1978, with the then acting Region V Representative, William Peterson; John Bruce, Minority Staff Member for the Committee on Merchant Marine and Fisheries, representing Congressman Ruppe; Ms. Lee Botts, Chairman of the Great Lakes Basin Commission; and, a member of my staff, Dr. Joel Stronberg.

The Forum concepts were discussed and Ms. Botts' questions were answered. At the conclusion of the meeting, the Great Lakes Basin Commission was invited to submit a proposal. Mr. Peterson also volunteered to aid and coordinate the effort.

To date, nothing in the way of a formal proposal has been received.

I hope that this information will be useful to your Subcommittee and to Congressman Ruppe.

Sincerely,

James L. Liverman
Acting Assistant Secretary
for Environment

cc: Honorable Robert S. Walker

We will come back at 10 o'clock tomorrow morning.
[Whereupon, the subcommittee was adjourned at 12:20 p.m.]

1979 DEPARTMENT OF ENERGY AUTHORIZATION ENVIRONMENT BUDGET

WEDNESDAY, FEBRUARY 15, 1978

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
SUBCOMMITTEE ON THE ENVIRONMENT AND THE ATMOSPHERE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2325, Rayburn House Office Building, the Honorable George E. Brown, Jr., chairman, presiding.

Mr. BROWN. The subcommittee will come to order.

This morning we continue hearings on the proposed fiscal year 1979 budget and programs of the DOE Office of Environment. Yesterday, we covered general policy and administrative issues with Under Secretary Myers and Dr. Liverman. Today we will focus on the details of and major initiatives in the fiscal year 1979 budget, beginning with Dr. Liverman, Acting Assistant Secretary for Environment. Then, we will explore the programs of major concern to us with members of Dr. Liverman's staff: biomedical and environmental research, environmental control technology, and NEPA affairs.

Our first witness is Dr. Liverman, and Dr. Liverman, you can judge how much time the additional members of your staff might want and time yourself accordingly, and we hope we can handle the whole thing expeditiously this morning.

STATEMENT OF DR. JAMES LIVERMAN, ACTING ASSISTANT SECRETARY FOR ENVIRONMENT, ACCOMPANIED BY DR. PETER HOUSE, ACTING DIRECTOR, OFFICE OF TECHNOLOGY IMPACTS; DR. WILLIAM MOTT, DIRECTOR, DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY; DR. WILLIAM BURR, DIRECTOR, DIVISION OF BIOMEDICAL AND ENVIRONMENTAL RESEARCH; DAVE SLADE, ACTING DIRECTOR, OFFICE OF CARBON DIOXIDE EFFECTS RESEARCH; HAL HOLLISTER, DIRECTOR, DIVISION OF OPERATIONAL AND ENVIRONMENTAL SAFETY

Dr. LIVERMAN. Mr. Chairman, thank you. It is nice to be back again this morning.

We can handle the matter in two ways—I can give you a very brief 5- or 8-minute run-down on the budget highlights and then you can begin questions, or if you would prefer I would propose that two or three of my people take about 5 or 8 minutes to summarize their own areas, and I will leave that choice to the committee as to how——

Mr. BROWN. Why don't we do it as you have suggested. You take whatever time—8 or 10 minutes—and then have the appropriate people make their presentation and then we will have questions for the whole group.

Dr. LIVERMAN. Fine. Thank you very much.

If we could have the first slide? As was discussed yesterday with Mr. Myers, DOE is a different agency than ERDA, FEA, or other former agencies were. We have attempted to reshuffle our organization to incorporate the environmental activities involved in most of the moves. The major change that took place is one Mr. Myers brought up—the Office of Technology Impact which is headed by Dr. Peter House. What we attempted to do there was to pull together under one leadership all of the assessment activities, regional studies programs, those things that put us in a more straightforward position to deal with input of environmental policy into the Department's activities.

With that, let me move on rapidly to the budget.

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
($ IN THOUSANDS—BUDGET AUTHORITY)

ENVIRONMENTAL RESEARCH AND DEVELOPMENT

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
OPERATING EXPENSES				
OVERVIEW AND ASSESSMENT	$ 36,577	$ 48,010	$ 48,650	$+ 640
BIOMEDICAL AND ENVIRONMENTAL RESEARCH	127,974	141,946	135,338	- 6,608
TOTAL OPERATING EXPENSES	164,551	189,956	183,988	- 5,968
CAPITAL EQUIPMENT	11,880	17,825	14,600	- 3,225
CONSTRUCTION	7,700	10,010	10,000	- 10
TOTAL ENVIRONMENTAL RESEARCH AND DEVELOPMENT	$184,131	$217,791	$208,588	$- 9,203

SLIDE 1

This slide shows the overall budget (Slide No. 1), and as you can see overview and assessment increases about $600,000, biomedical and environmental research is down by $6.6 million overall, and the capital equipment is also down. Capital equipment is decreased because there were special needs as we moved into ERDA and we needed a major influx of new equipment to deal with our nuclear areas, and so the budget is back down now. The decrease in operating expenses, as the committee is well aware, is related to the transfer of $14 million out of our program into the EPA program which we will be going into in more detail tomorrow when Dr. Gage is here and I will be back before you. We are prepared to explore that more if you wish today, but, basically, the decrease that you see is related to that particular question.

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
($ IN THOUSANDS—BUDGET AUTHORITY)

OVERVIEW AND ASSESSMENT

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
OVERVIEW MANAGEMENT	$ 5,135	$ 8,049	$ 6,000	$ - 2,049
ENVIRONMENTAL POLICY ANALYSIS	5,799	5,011	5,450	+ 439
INTEGRATED ASSESSMENT	9,819	10,756	10,200	- 556
ENVIRONMENTAL ENGINEERING	11,464	16,822	16,000	- 822
OPERATIONAL AND ENVIRONMENTAL SAFETY	4,360	7,372	11,000	+ 3,628
TOTAL OVERVIEW AND ASSESSMENT	$ 36,577	$ 48,010	$ 48,650	$+ 640

SLIDE 2

This slide shows the overview and assessment area (slide No. 2). I would like to remark about the overview management budget which shows a $2 million decrease and, again, it is an attempt in that area to look at the NEPA coordination process, environmental energy information systems, environmental development plan preparation and review, and the water resources assessment. There is $1 million in that area that goes directly to the Water Resources Council, under section 13 of the Federal Nonnuclear Energy Act, for them to do the major qualitative and quantitative water assessments that the Agency needs.

The NEPA coordination represents about $800,000 of that; the Environmental Information Systems is $1.8 million which is about what the budget was last year, so there is not a net increase there. A major segment of that goes toward carrying out the environmental development planning process.

In the area of environmental policy analysis, which shows an increase of about a half a million, the thrust of the policy analysis is to allow us in DOE to track, as closely as possible, all of the regulatory changes that may be coming about, those that are in place, and what their impacts may be on the ability of the Agency to devlop a viable energy operation. For instance, among the things that we have been deeply involved in is the impact of the new source performance standards, under the Clean Air Act amendments as they were passed by the Congress. This is the area, Mr. Winn, that you discussed yesterday with Mr. Myers in detail. It is that segment of our budget, and the next line, which are aimed directly at putting—and the environmental engineering is a portion of that, too—us in an effective position to argue, to debate, to at least bring before the regulatory bodies all of the other considerations and facts as they may impact our ability to deliver an energy system.

The environmental engineering area has been reduced. The LNG program, which the committee had last year in its authorization, and said it should get more attention in terms of its safety aspects, is being maintained at the 1978 level. The Deputy Secretary, Mr. O'Leary,

has asked us to study with others members of the Agency what the program really should be, and we are due to have a program plan updated by about June 1. Involved in that are staff from the Federal Energy Regulatory Commission, who have the responsibility for the siting, of the LNG facilities.

Our largest increase in this budget segment has to do with that of Operational and Environmental Safety for which this committee was in many ways responsible for the increases in the budget last year; it really relates to two kinds of operations. One of these has to do with our responsibility to insure that all potentially hazardous activities in the Agency are approved by us before they begin, and second, to put in place a uniform safety process throughout the Agency and all of its activities. This involves inhouse activities and the demo plants for which we must comply effectively with all of the OSHA and EPA regulations. There is about a $1½ million increase in that area which we thing is extremely necessary if the Agency is going to act in a responsible manner.

Second, an area which I will call special operations has to do with radiological support of the Enewetak Atoll cleanup in which the Department of Defense is currently involved. It is going on at the Pacific island now. We are following it very closely to insure that, in fact, the atoll is cleaned up and can be turned over the the former inhabitants or if not all the islands can be, then we must specify those which cannot be visited or used to grow crops. We are also continuing support of the ongoing work in the Bikini Atoll.

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
($ IN THOUSANDS—BUDGET AUTHORITY)

BIOMEDICAL AND ENVIRONMENTAL RESEARCH

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
HUMAN HEALTH STUDIES	$ 19,439	$ 20,130	$ 20,839	$+ 709
HEALTH EFFECTS RESEARCH IN BIOLOGICAL SYSTEMS	43,009	48,922	42,753	- 6,169
ENVIRONMENTAL STUDIES	47,067	53,236	49,677	- 3,559
PHYSICAL AND TECHNOLOGICAL STUDIES	18,459	19,658	22,069	+ 2,411
TOTAL BIOMEDICAL AND ENVIRONMENTAL RESEARCH	$127,974	$141,946	$135,338	$ - 6,608

SLIDE 3

The next slide shows the largest segment of the program (slide 3) biomedical and environmental research, and, as you can see, the budget is down by $6.6 million which in a sense is some increase; the difference between the $6 and the $14 million is the increase in the budget because of the transfer of $14 million from this program area into the Environmental Protection Agency. Dr. Burr will be prepared to go into that in whatever detail you wish.

I would like to point out the fact that the carbon dioxide effects research and assessment program in the environmental studies line is about a $3 million program, an increase over the 1978 level.

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
($ IN THOUSANDS—BUDGET AUTHORITY)

DECONTAMINATION AND DECOMMISSIONING

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
OPERATING EXPENSES				
MANAGEMENT OF SURPLUS RADIOACTIVELY CONTAMINATED DOE FACILITIES	$ 7,613	$ 14,643	$ 14,990	$+ 347
REMEDIAL ACTION FOR INACTIVE URANIUM MILL TAILINGS SITES	507	1,723	3,530	+ 1,807
GRAND JUNCTION REMEDIAL ACTION	3,000	0	1,500	+ 1,500
REMEDIAL ACTION FOR FORMER DOE CONTRACTOR INSTALLATIONS	341	1,634	4,980	+ 3,346
TOTAL OPERATING EXPENSES	11,461	18,000	25,000	+ 7,000
CAPITAL EQUIPMENT	223	200	200	0
TOTAL DECONTAMINATION AND DECOMMISSIONING	$ 11,684	$ 18,200	$ 25,200	$+ 7,000

SLIDE 4

In another segment of the budget, the decontamination and decommissioning (slide No. 4), is one in which this committee showed a particular interest last year, particularly Mr. Wirth. It has to do with the safe management, planning, and disposition of surplus radioactively contaminated facilities on our own sites. It is to initiate remedial action at the excess sites that were previously under the control of the Manhattan Engineering District. We have gone back and resurveyed some 150 sites and find that there are 10 of those that probably are going to have to be cleaned up again. There is one in Cannonsburg, Pa., another in Middlesex, N.J., on which we are concentrating a considerable effort.

For that activity, combined with the uranium mill tailings question, namely, the 22 sites in the Western States that were abandoned and are there now and constitute a health hazard, we will be coming forward with a legislative proposal. The Department has made the decision that it must, over a period of the next 5 to 7 years, move aggressively toward the cleanup of those excess sites and the mill tailings, and that program may cost between $80 and $125 million depending upon choices by the States of how much they want to contribute toward the cleanup, with the formula usually being 25 percent State and 75 percent Federal. This is the formula which was used for the Grand Junction cleanup. And so that effort is reflected in the decontamination and decommissioning area.

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OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
($ IN THOUSANDS—BUDGET AUTHORITY)

LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
OPERATING EXPENSES				
GENERAL LIFE SCIENCES	$ 26,876	$ 25,870	$ 25,017	$ - 853
BIOMEDICAL APPLICATIONS	18,855	15,640	14,683	- 957
TOTAL OPERATING EXPENSES	45,731	41,510	39,700	- 1,810
CAPITAL EQUIPMENT	900	1,000	1,100	+ 100
TOTAL LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS	$ 46,631	$ 42,510	$ 40,800	$ - 1,710

SLIDE 5

The next budget area I wish to speak about is the life sciences research and biomedical applications program (slide No. 5). As you can see there that program is decreasing. It was a judgment as the budget priorities were decided that that area should be held constant or decreased somewhat, and so it reflects a decrease of about $1.8 million.

The final area has to do with the $10 million program that involves our support of the Nuclear Regulatory Commission in terms of finishing the LOFT Facility on the Idaho site (slide No. 6). The aim of the

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DEPARTMENT OF ENERGY—FY 1979 BUDGET
($ IN THOUSANDS—BUDGET AUTHORITY)

LIGHT WATER REACTOR FACILITIES

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
OPERATING EXPENSES				
LOSS OF FLUID TEST	$ 26,470	$ 24,342	$ 6,500	$ -17,842
PLENUM FILL EXPERIMENTAL FACILITY	2,300	0	0	0
TOTAL OPERATING EXPENSES	28,770	24,342	6,500	-17,842
CAPITAL EQUIPMENT	0	800	500	- 300
CONSTRUCTION	0	3,000	3,000	0
TOTAL LIGHT WATER REACTOR FACILITIES	$ 28,770	$ 28,142	$ 10,000	$ -18,142

SLIDE 6

whole program is to test whether or not the current regulations for reactor safety are adequate. We have already begun to run nonnuclear experiments and this fall, I believe, or early this winter, NRC will actually begin the nuclear tests in that facility. It has been building, as you know for something like 15 years at a sizable cost, and we think that we are going to complete it within the dollars that are shown there.

Mr. Chairman, that completes a brief rundown of the budget.

Dr. House, would you like to say a few words about your program?

Mr. BROWN. Go ahead, Doctor.

Dr. HOUSE. Mr. Chairman, and members of the committee, the Office of Technology Impacts is as Dr. Liverman said, the newest addition to the Office of the Assistant Secretary for Environment. It represents an attempt to pull together a number of offices that carried over from ERDA and the transferred parts of the environmental policy office from FEA.

The Office of Technology Impact (OTI) is comprised of four divisions, and rather than spending a great deal of time talking about the organizational structure, let me use it merely as a way of telling you about some of the major programs currently underway. I would like to make available to the committee a fact book that describes the office in more detail.

The four divisions in OTI are the Division of Policy Analysis, the Division of Environmental Impacts, the Division of Technology Overview, and the Division of Regional Assessments.

The uniqueness of this office is that it is one of the few places, that I know of, where there has been a policy office with direct assessment support by research. We use the policy analysis group to carry out the majority of the assessment reasearch.

In the Division of Policy Analysis, the major ongoing action is the formation of an Environmental Issues Committee, which attempts to focus within the agency on environmental issues as they come in from the outside. We are working closely with Mr. Alm's Office of Policy and Evaluation to get this committee started.

The Division of Technology Overview consists of two parts, on which the members of this committee have been briefed in the past. One has the responsibility for producing the DOE Environmental Development Plans. We have a summary document in preparation which Dr. Liverman spoke of yesterday and that is promised to the committee by the end of the month.

The second part of the Division of Technology Overview is responsible for performing technology assessments from an environmental perspective. The major ongoing program is the National Coal Utilization Assessment, and this one we expect to be completed within this year.

The Division of Environmental Impacts is responsible for environmental assessments with a national perspective. It has under its jurisdiction the annual environmental analysis report which this committee was briefed on last year. It also has as part of its responsibility the production of the annual environmental inventory of federally-sponsored, energy-related environmental research and development projects.

The fourth and final unit is the Division of Regional Analysis. It performs regional environmental assessments on a number of regional case studies. It also has the responsibility for the water for energy assessments required as part of section 13 of the Federal Non-Nuclear Energy R. & D. Act.

That is about as briefly as I can summarize the activities of the Office of Technology Impacts.

Thank you.

Dr. LIVERMAN. I would like, Mr. Chairman, with your permission, to call on Dr. Mott, the head of our Environmental Control Tech-

nology Division whose activities are concerned in a major way with assessment of the control technology areas of the agency's programs.

Dr. MOTT. Good morning.

I want to talk briefly about two programs—Environmental Engineering and the Decontamination and Decommissioning Program.

In the Environmental Engineering, as I have stated previously before this subcommittee, the major thrust of our program is to identify the nature and extent of the environmental control problems, to define the existing control technologies and strategies and to evaluate their efficacies and practicabilities and finally to get on with coming up with alternate control options or to see that research gets done for the options under investigation.

Looking very swiftly at our budget in the Environmental Engi-

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY
($ IN THOUSANDS—BUDGET AUTHORITY)

ENVIRONMENTAL ENGINEERING

	FY 1977	FY 1978	FY 1979
COAL	4,132	4,866	4,885
PETROLEUM AND GAS	2,393	3,315	3,250
OIL SHALE	157	790	765
SOLAR, GEOTHERMAL, AND ENERGY CONSERVATION	820	1,321	1,420
NUCLEAR ENERGY	3,962	6,530	5,680
TOTALS	11,464	16,822	16,000

SLIDE 7

neering area(slide No. 7) as Dr. Liverman showed, there is a slight decrease in going from 1978 to 1979.

There was some discussion yesterday about the Environmental Control Inventory that was done relative to environmental control initia-

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY

TOTAL DOE ENVIRONMENTAL CONTROL ACTIVITIES FUNDING ALLOCATIONS

Administration	FY 1977 Funding Allocation Related To Environmental Control Activities ($ In Thousands)	Portion of Total FY 1977 Budget Related To Environmental Control Activities (Percent)
Conservation (AC)	5,984	4.8
Fossil Energy (AFE)	86,194	19.4
Nuclear Energy (ANE)	62,195	2.5
Solar, Geothermal, and Advanced Energy Systems (ASGA)	12,337	1.4
Environment and Safety (AES)	17,973	8.1
Total	184,683	3.4

TOTAL DOE FY 1977 BUDGET: $5,383,982,000

SLIDE 8

tives in ERDA for 1977, and it is shown here (slide No. 8) that roughly $185 million was spent in ERDA in 1977 on environmental control issues. Of that, you will see that in the fossil energy area, and I just want to focus, next slide, please, on that (slide No. 9) roughly

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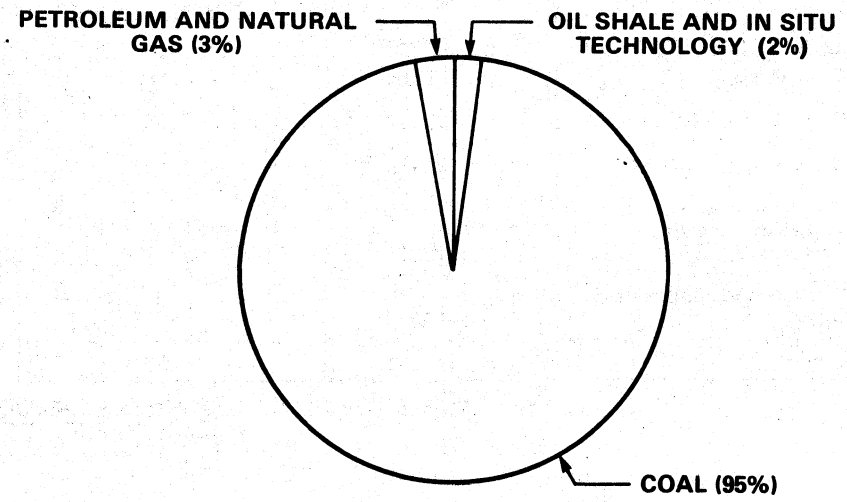
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY

Total Fossil Energy FY 1977 Funding Related To Environmental Control Technology: $86,194,000



SLIDE 9

95 percent of the environmental control initiative is in coal.

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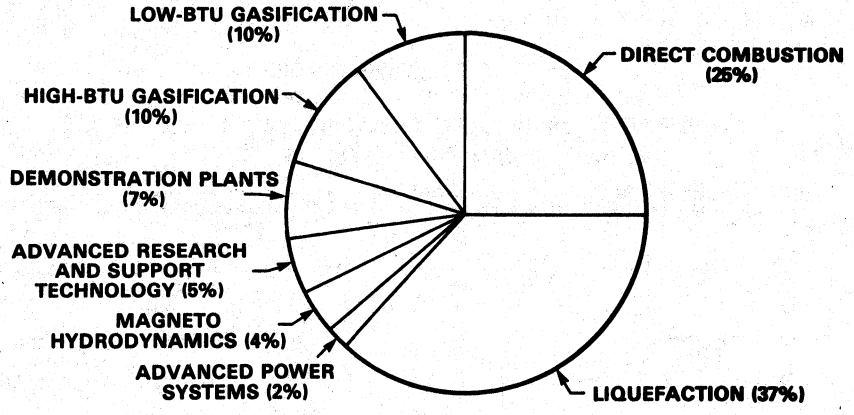
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY

Total Coal Program FY 1977 Funding
Related to Environmental Control: $81,897,000



SLIDE 10

And in fossil energy, roughly 25 percent of the expenditure is on direct combustion and 37 percent on liquefaction, as you see on this next slide. (Slide No. 10) Under the direct combustion area, the major initiative there was fluidized bed combustion with roughly 50 or 60 percent of all the work on fluidized bed combustion being assigned to environmental control work.

Under liquefaction, a large effort is conducted in solvent refined coal. It was decided that of the solvent refined coal initiative, roughly 80 percent of that was an environmental control initiative. That is how these numbers came about.

Mr. SPENSLEY. Excuse me, Dr. Mott, that is the control technology program for the fossil area, not yours?

Dr. MOTT. Not ours, that is fossil. It is all in the report that you asked for and have. That is the breakdown for fossil.

Mr. WATKINS. Does this percent of work represent all the environmental work in the fossil fuel area?

Is that the percent of dollars being so used? Is that what you have there?

Dr. MOTT. Yes.

Mr. WATKINS. Thirty seven percent of it for liquefaction.

Dr. LIVERMAN. Of the $81 million total environmental control funds being spent by fossil, that is the percentage distribution for liquefaction being carried out by that technology office.

Our level, I believe, Bill, is about $5 million. Our overview responsibility, carried out to see if an adequate job is being done is about $5 million.

Dr. MOTT. For the entire division, it is a bit higher than shown on this slide which is $17 million. (Slide No. 11).

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY
($ IN THOUSANDS—BUDGET AUTHORITY)

ENVIRONMENTAL ENGINEERING

	FY 1977	FY 1978	FY 1979
COAL	4,132	4,866	4,885
PETROLEUM AND GAS	2,393	3,315	3,250
OIL SHALE	157	790	765
SOLAR, GEOTHERMAL, AND ENERGY CONSERVATION	820	1,321	1,420
NUCLEAR ENERGY	3,962	6,530	5,680
TOTALS	11,464	16,822	16,000

SLIDE 11

Last year at such a hearing as this, we discussed LNG safety and environmental control R. & D., and this subcommittee recommended an increase in the budget authority which was provided for an expanded scope to the R. & D. safety and control activities then underway in ERDA. The scope was expanded and the significant output was a report entitled, "An Approach to Liquefied Natural Gas Safety and Environmental Control Research." I want to emphasize that in putting this report together, we looked at the LNG research efforts of the last 15 years, and from that base we determined the need for additional research, delineated the research that would have to be conducted to fill the indicated gaps and finally estimated time and cost for performing what seemed under the circumstances to be an optimistic program.

Of course, the interest in liquefied natural gas comes about because LNG is natural gas that has the temperature reduced to minus 160 degrees Fahrenheit. In so doing you reduce the volume by a factor of 600. The current concern is, whether in handling or storage or transport, that the LNG will be released into the atmosphere and you will have a vapor cloud produced that we do not quite understand yet.

The major concerns have to do with a vapor cloud distance of travel, fire size, whether or not you can detonate a vapor cloud and so on.

In the course of developing the approach to LNG research, one of the major aspects of all of this is the kind of experimental test facility

required, and so we came up with a conceptual designed facility that would be required to conduct the kind of research I am talking

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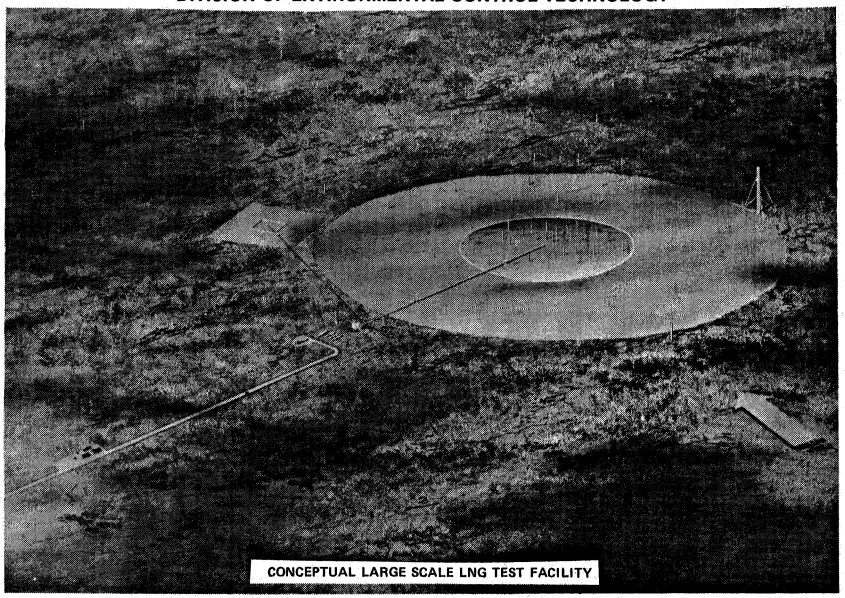
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY



SLIDE 12

about (slide No. 12). Unfortunately, you cannot see it very well here, but the water pond shown there is roughly 1,000 feet in diameter, and if you could see it better, you could see all the instrument towers that will be required to do the kind of meaningful research necessary.

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY
($ IN THOUSANDS—BUDGET AUTHORITY)

DECONTAMINATION AND DECOMMISSIONING

	FY 1977	FY 1978	FY 1979
MANAGEMENT OF SURPLUS RADIOACTIVELY CONTAMINATED DOE FACILITIES	7,613	14,643	14,990
REMEDIAL ACTION FOR FORMERLY UTILIZED MED/AEC SITES	341	1,634	4,980
REMEDIAL ACTION FOR INACTIVE URANIUM MILL TAILINGS SITES	507	1,723	3,530
GRAND JUNCTION REMEDIAL ACTION	3,000	0	1,500
TOTALS	11,461	18,000	25,000

SLIDE 13

Jumping swiftly to the decommissioning and decontamination area—in 1979 the four programmatic objectives amount to roughly $25 million (slide No. 13).

One of the initiatives that has been followed by this subcommittee has to do with West Valley and last year there was $1 million appropriated by Congress to do a West Valley study. That study is now underway, and the objective is to have a document by October 1, 1978.

In the management of surplus DOE-owned facilities, the total program we have is about $15 million. It is of interest to look at two of the remedial action programs, one having to do with mill tailings and the other one having to do with formerly utilized Manhattan Engineering District and AEC sites and to see how this is spread out

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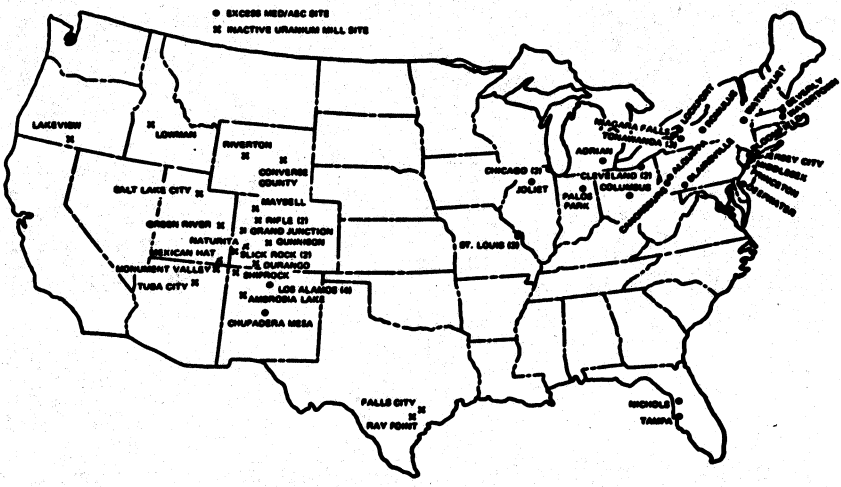
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY



LOCATIONS OF URANIUM MILL TAILINGS AND EXCESS MED/AEC SITES REQUIRING RADIOLOGICAL SURVEY

SLIDE 14

across the country (slide No. 14). To the right or the east are the formerly utilized sites and to the left in the western part of the Nation are the uranium mill tailings.

I just want to say one quick word about the origins of this program. We will not go into the detail of this slide. But what we have attempted to do in identifying this problem and really getting an understanding of it is focus on the sources of uranium back in the early 1940's, whether they came from Africa, as shown on the bottom, or from Canadian sources or American sources, and try to see how they flowed across the country, and the whole purpose of doing this is to make sure that we have not missed some material that has been buried around for some 30 years.

In 1979 in the remedial action program, we are hoping to be well along in cleaning up some of the sites. In the mill tailing programs, the same thing, but it is going to depend upon authorization legislation.

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY—FY 1979 BUDGET
DIVISION OF ENVIRONMENTAL CONTROL TECHNOLOGY

GRAND JUNCTION, COLORADO

PLANNED PROJECTS FOR FY 1979

RESIDENCES	79
SCHOOLS	1
COMMERCIAL	10
	90
COMPLETED BY FY 1978	310
TOTAL	400
ESTIMATED ELIGIBLE	605

SLIDE 15

At Grand Junction (slide No. 15), as a consequence of the bill just passed last week, adequate funding is now available, and we are moving on with that program very, very rapidly in the hope of handling the situation out there. In 1978 some 310 different facilities have been completed for a total of 600 altogether so there are still a couple hundred to go.

Thank you.

Mr. BROWN. Thank you, Dr. Mott.

Dr. LIVERMAN. Dr. Burr, would you like to discuss the biomedical and environmental area?

Dr BURR. Mr. Chairman, I would like first to make a few general remarks about our program and then focus on work in support of coal and nuclear technologies, and I will not touch on inexhaustibles or multitechnologies. I will then talk just a little bit about life sciences. Then we can return to these if you wish during the questioning.

BIOMEDICAL AND ENVIRONMENTAL RESEARCH OBJECTIVES

- RESEARCH TO DETERMINE ADVERSE ENVIRONMENTAL AND HEALTH EFFECTS, AND TO IDENTIFY METHODS OF MINIMIZING ADVERSE EFFECTS

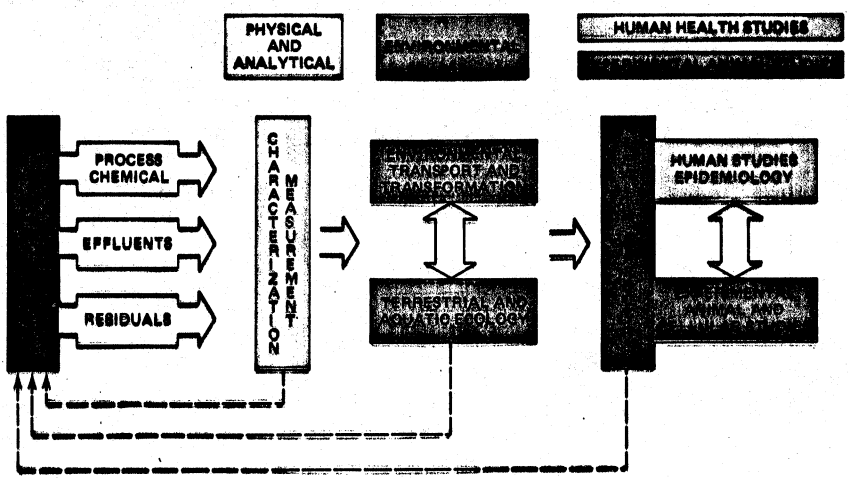
- PROVIDE INFORMATION TO ENSURE ENVIRONMENTAL ACCEPTABILITY OF ENERGY TECHNOLOGIES

- PROVIDE A FACTUAL BASE FOR ASSESSMENT OF ENVIRONMENTAL COST, RISK, AND BENEFIT TRADE-OFFS IN DEVELOPMENT OF ENERGY RESOURCES AND TECHNOLOGIES

SLIDE 16

First of all, we are a research division and we are interested in trying to achieve several objectives (slide No. 16). We are trying to determine any adverse effects and to minimize these if we find them. We are trying to provide information to insure environmental acceptability, and we are trying to provide a factual basis for assessments.

BIOMEDICAL AND ENVIRONMENTAL RESEARCH PROGRAMS



SLIDE 17

As I think you know, we organized our program into four areas (slide No. 17). These are shown in the boxes across the top of the slide. The physical and analytical box is our physical and technological program. Next is environmental program, and then our human health

studies, and the experimental animal studies which is our program on health effects in biological systems.

The diagram indicates the way we try to go about addressing the needs of the technologies. With any energy technology we are interested in the process chemicals and the products. We are interested in any effluents and we are interested in the residuals. And the first group in our organization that would be expected to come in contact would be the physical and analytical program because of the need to make measurements of affluents. We need to characterize these materials. This information would hopefully feedback to the technology. It also is necessary information for the rest of our program. The environmental program is concerned with the movement of pollutants through the environment. This would be transport and any transformations of this material, and also any impact on the environment. This includes terrestrial and aquatic ecology and oceanography and related subjects.

If there is a pathway to man, whether it is in an occupational environment or in the overall environment, we are interested in health effects. For this we have our human studies and epidemiology, and we will talk some about some of the new studies, and we also have the experimental studies that back this up in animals.

OPERATING EXPENSES

(DOLLARS IN THOUSANDS – B/A)

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
BIOMEDICAL AND ENVIRONMENTAL RESEARCH				
HUMAN HEALTH STUDIES	$ 19,439	$ 20,130	$ 20,839	$ + 709
HEALTH EFFECTS RESEARCH IN BIOLOGICAL SYSTEMS	43,009	48,922	42,753	– 6,169
ENVIRONMENTAL STUDIES	47,067	53,236	49,677	– 3,559
PHYSICAL AND TECHNOLOGICAL STUDIES	18,459	19,658	22,069	+ 2,411
TOTAL BIOMEDICAL AND ENVIRONMENTAL RESEARCH	$ 127,974	$ 141,946	$ 135,338	$ – 6,608

SLIDE 18

The budget that you have before you for the biomedical and environmental research in terms of authority is $135 million (slide No. 18). You will notice this is down from the fiscal year 1978 level of $141.9 million. The decrease is felt most in the health effects research in biological systems and in the environmental studies. This decrease reflects the transfer of $14 million to EPA and it happens that most of the programs that fall into the appropriate categories for transfer are in the above two areas.

The physical and technological studies increase. You will remember this as our characterization measurement and monitoring, and as we try to keep in step with developing technologies, this is a group that has to come into play rather early and therefore they need an increase in effort.

The slide you have been looking at shows our program grouped by the four program areas. We also look at the budget by the technology that the particular work supports. Perhaps this is more meaningful (slide No. 19). On this slide we have grouped the three fossil areas—

FY 1979 BUDGET

OPERATING EXPENSES BY TECHNOLOGY

(DOLLARS IN THOUSANDS – B/A)

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
BIOMEDICAL AND ENVIRONMENTAL RESEARCH				
COAL	$ 28,084	$ 37,597	$ 36,541	$ – 1,056
OIL AND GAS	4,978	5,627	4,279	– 1,348
OIL SHALE	3,489	3,346	2,833	– 513
TOTAL FOSSIL	36,551	46,570	43,653	– 2,917
SOLAR	2,740	3,035	2,976	– 59
GEOTHERMAL	2,788	2,562	2,568	+ 6
CONSERVATION	1,198	2,370	2,369	– 1
FUSION	1,823	2,663	2,671	+ 8
TOTAL INEXHAUSTIBLES	8,549	10,630	10,584	– 46
NUCLEAR	56,215	57,151	53,797	– 3,354
MULTI-TECHNOLOGY	26,659	27,595	27,304	– 291
TOTAL BIOMEDICAL AND ENVIRONMENTAL RESEARCH	$ 127,974	$ 141,946	$ 135,338	$ – 6,608

SLIDE 19

coal, oil and gas, and oil shale—and you will see that we have a reduction of $2,917,000 in that category.

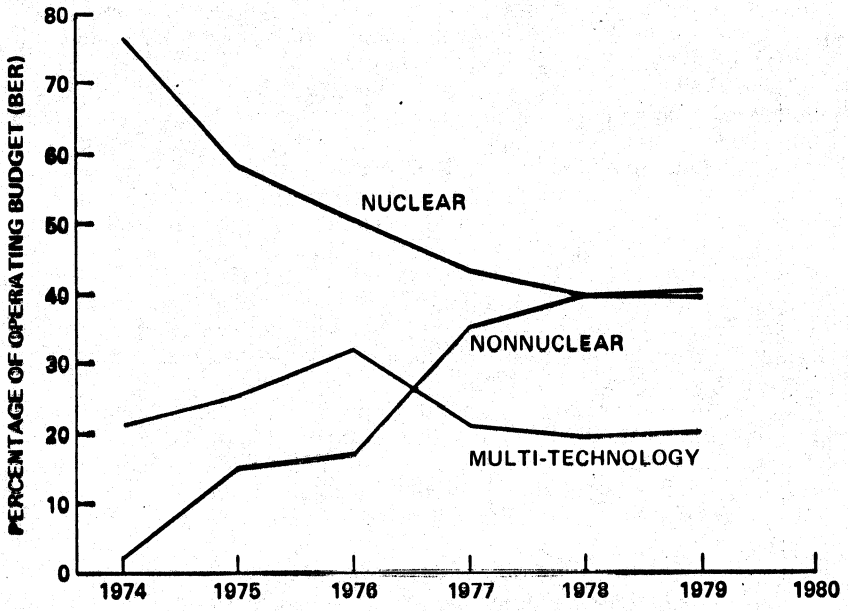
All of the $14 million that is transferred to EPA is from the fossil area, so if we had not been making an effort to address more of the needs of fossil, we would have had an even greater reduction in the program. However, we were trying to give emphasis to fossil needs, and this is why, even with a $14 million transfer, we have only a reduction then in the program of $2.9 million.

The inexhaustible area—solar, geothermal, conservation, and fusion—has stayed approximately constant from last year to this year. We would like to have shown increases in this area, but in looking at priorities we put the emphasis on the fossil area.

Nuclear has a reduction in the budget authority from $57,151,000 in fiscal year 1978 to $53,797,000 in fiscal year 1979. This is a reduction of $3,354,000 in our nuclear program. The multi-technology is reduced somewhat and that gives an overall reduction of $6,608,000 in support of biomedical and environmental research. A great deal of this decrease is accounted for by the transfer of the $14 million, so in effect we have about $7 million which is something near a cost-of-living increase for the balance of the program.

I would like to show you the shift in emphasis within our program over the years from the time we were AEC and the period we were ERDA and now in the period that we are DOE. If you trace the history of this particular program, as I am sure you know, all of the biomedical and environmental research that we have in DOE was built on ERDA's program, which was built upon the work that the AEC had in place. You will see on the slide we have crossed over to where we have more emphasis on research in support of the nonnuclear technologies than the nuclear (slide No. 20).

BIOMEDICAL AND ENVIRONMENTAL RESEARCH



SLIDE 20

Now if we did not have the $14 million reduction this would look even more pronounced. The loss of the work in the fossil area brings the curves to about the same level although with a little more emphasis on nonnuclear.

Now, I would like to highlight some of our activities in 1979, new initiatives and where emphasis will be placed. I will concentrate on coal and nuclear.

In the coal extracting area, you will note, first of all a rather small program of about $75,000 utilizing krypton–81m (slide No. 21). It is a metastable isotope which may be useful in early diagnosis of pulmonary diseases.

FY 1979 BUDGET
BIOMEDICAL AND ENVIRONMENTAL RESEARCH
Dollars in Thousands - B/A

COAL	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
	$28,084	$37,597	$36,541	−$1,056

FY 1979 HIGHLIGHTS

EXTRACTION

- **Krypton 81m In Early Detection of Pulmonary Disease**
- **Land Rehabilitation**

COMBUSTION

- **Toxicity and Mutagenicity of Conventional and Fluidized Bed Combustion Effluents**
- **Multistate Atmospheric Power Production Pollution Study**

SLIDE 21

Work is being done at the Argonne National Laboratory on land reclamation and shows quite a lot of promise. This work at Argonne is in cooperation with the State of Illinois and it is looking at what to do with deep mine refuse, how to stabilize it and handle it.

In the combustion area we have studies on the toxicity and mutagencity of conventional and fluidized bed combustion effluents. I would like to take just a minute to point out last year we used as an example of the opportunity to begin our work along with the developing technology, the geothermal area. Since last year we are pleased to say we can point to some areas in fossil where we have had the same opportunity to get programs going early. One of these areas is in combustion. We have work at Davis, Calif., on the products of conventional combustion. The Inhalation Toxicology Research Institute of the Lovelace Foundation, working with the Morgantown Energy Center, has a related program for fluidized bed combustion. This is going very well.

The "Multistate Atmospheric Power Production Pollution Studies" have been mentioned before. This year we plan to complete a box budget of sulfur compounds. This study is concerned with nitrogen compounds as well as acid rain problems and trace metals. It is a study from Illinois to the New England States and is one that has involved EPRI and EPA as well.

FY 1979 BUDGET
BIOMEDICAL AND ENVIRONMENTAL RESEARCH
Dollars in Thousands - B/A

COAL (Continued)	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
	$28,084	$37,597	$36,541	−$1,056

FY 1979 HIGHLIGHTS

CONVERSION

- **Carcinogenic, Mutagenic and Toxicological Screening of Products and Effluents from Conversion Processes**
- **Environmental Impact at Specific Synfuel Sites**
- **Transport and Conversion of Coal Conversion Process Effluents**
- **Characterization Studies for Gasifiers in Industry Program, in situ Gasification, and Other Processes**
- **Development of Portable Polyaromatic Hydrocarbon Meter**

SLIDE 22

The conversion area is another area that we have had an opportunity to work closely with the fossil program (slide No. 22). Carcinogenic, mutagenic, and toxocologic screening are carried out principally at ORNL but at PNL and other sites as well.

The environmental impact studies at specific Synfuel sites, and transport and conversion of coal conversion process effluents, required in fiscal year 1978 takes about $1½ million. This will go up in fiscal year 1979.

Next I want to emphasize characterization studies for the gasifiers in industry program, in situ gasification and other processes.

We have several major programs. ITRI works with Morgantown on the low Btu gasifier. The gasifiers in industry study is with the

University of Minnesota at Duluth and with ORNL. Livermore Laboratory is looking at in situ gasification. We also have some work on high Btu gas as well.

FY 1979 BUDGET
BIOMEDICAL AND ENVIRONMENTAL RESEARCH
Dollars in Thousands - B/A

OIL SHALE	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
	$3,489	$3,346	$2,833	-$513

FY 1979 HIGHLIGHTS

- **Integrated Program at Paraho**
  - **Medical Surveillance and Registry of Workers**
  - **Respiratory Toxicology of Shale Dusts**
  - **Toxicological Screening of Crude and Refined Oils**
  - **Test Plots of Spent Shale**
- **Effects of in situ Operations on Hydrologic Resources**

SLIDE 23

I think I will omit discussion of oil shale in the interest of time except to point out that here again we have been able to mount what we consider an integrated program (slide No. 23). We have a medical surveillance and registry of workers in collaboration with the American Petroleum Institute. We put in half of the funding. We have respiratory toxicology studies on shale dust being done at LASL and toxocologic screening of crude and refined oils also at LASL and PNL. We established a program last year which will be developing in 1979 on test plots of retorted shale. This environmental research and related studies are being done at the University of Colorado and Colorado State University. The test plots will be followed through the years. Problems of revegetation, leaching of the plots, and others will be studied to determine and see what really can be done to reestablish the landscape.

FY 1979 BUDGET
BIOMEDICAL AND ENVIRONMENTAL RESEARCH
Dollars in Thousands - B/A

OIL AND GAS	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
	$4,978	$5,627	$4,279	-$1,348

FY 1979 HIGHLIGHTS

- **Epidemiological Study of Refinery Workers**
- **Chronic Effects of Petroleum - Outer Continental Shelf**
- **Ocean Buoy Data Telemetry System Using Satellite Relay**

SLIDE 24

I will omit work in support of oil and gas except to note we have an epidemiological study on refinery workers which we are just getting underway in California (slide No. 24).

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FY 1979 BUDGET
BIOMEDICAL AND ENVIRONMENTAL RESEARCH
Dollars in Thousands - B/A

NUCLEAR FISSION	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
	$56,215	$57,151	$53,797	-$3,354

FY 1979 HIGHLIGHTS

- **Registry for Persons Exposed to Uranium**
- **Carcinogenic Risk Evaluation of Uranium - Thorium Fuel Cycle**
- **Animal Test System for Evaluating Uranium Mining Risk**
- **Transport, Conversion and Fate of Transuranics in Soils, Rivers, Ocean Sediments**
- **Measurement Techniques and Instrumentation**
  - **Plutonium Lung Burden**
  - **Plutonium In Stack Emissions and Surrounding Soils**
  - **Mixed Beta and Gamma Radiation Exposure**

SLIDE 25

In the nuclear area, I want to highlight the need to look at the uranium-thorium fuel cycle (slide No. 25). We are establishing a registry of persons exposed to uranium. We have work dealing with the carcinogenic risks of the uranium-thorium fuel cycle amounting to some $470,000 at PNL and at ITRI, and animal test systems to determine the risk of uranium mining. This work is being done at PNL. There are also environmental programs involved in the uranium-thorium cycle work as well.

FY 1979 BUDGET
(DOLLARS IN THOUSANDS - B/A)

	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS				
OPERATING EXPENSES				
GENERAL LIFE SCIENCES	$ 26,876	$ 25,870	$ 25,017	$ - 853
BIOMEDICAL APPLICATIONS	18,855	15,640	14,683	- 957
TOTAL OPERATING EXPENSES	45,731	41,510	39,700	- 1,810
CAPITAL EQUIPMENT	900	1,000	1,100	+ 100
TOTAL LIFE SCIENCES RESEARCH AND BIOMEDICAL APPLICATIONS	$ 46,631	$ 42,510	$ 40,800	$ - 1,710

SLIDE 26

Considering next the life sciences (slide No. 26), I will call your attention to the fact that this work provides the fundamental conceptual and mechanistic basis for understanding how physical and chemical agents interfere with life processes (slide No. 27).

FY 1979 BUDGET
LIFE SCIENCES RESEARCH AND BIOMETICAL APPLICATIONS
Dollars in Thousands - B/A

GENERAL LIFE SCIENCES	FY 1977	FY 1978	FY 1979	INCREASE OR DECREASE
	$26,876	$25,870	$25,017	-$853

FY 1979 HIGHLIGHTS

- Neutron Diffraction Structural Studies of Proteins, Membranes
- Mechanism of Interaction of Physical and Chemical Agents with DNA
- Molecular Genetics of Repair and Regulatory Processes in Chromosomes
- Studies on Limiting Processes for Plant Productivity
- Development of Instrumentation for Cell Analysis

SLIDE 27

GENERAL LIFE SCIENCE

PROVIDES THE FUNDAMENTAL CONCEPTUAL AND MECHANISTIC BASIS FOR UNDERSTANDING HOW PHYSICAL AND CHEMICAL AGENTS INTERFERE WITH LIFE PROCESSES.

1. DEVELOP BASE LINE MEASUREMENTS OF THE METABOLISM OF BIOLOGICALLY SENSITIVE TISSUES AND CELLS.

2. CHARACTERIZE THE PROPERTIES AND PROCESSES OF KEY MACROMOLECULES AND CELLULAR ORGANELLES.

3. DEVELOP THE GENETIC BASIS FOR UNDERSTANDING THE REPAIR AND TRANSMISSION OF DAMAGE TO INDIVIDUALS AND POPULATIONS.

4. DEVELOP THROUGH STUDIES IN PLANT SCIENCES MODELS FOR THE USE OF SOLAR ENERGY BASED ON PHOTOSYNTHESIS AND FOR THE IMPROVEMENT OF BIOMASS PRODUCTION.

5. PROVIDE THE CELLULAR AND MOLECULAR BASES FOR THE DEVELOPMENT AND VALIDATION OF BIOASSAY SYSTEMS TO DETECT HEALTH RISK.

SLIDE 28

On the next slide I call your attention to the next to the last item—studies on limiting processes for plant productivity (slide No. 28). This is an area that we feel is very important. It is a little bit of a departure in that it is not an effects study. It is an opportunity for the biologist to make a contribution to the solar program with fundamental information on what factors really influence plant productivity, and we think this can be quite important.

I had planned to allow Dave Slade to say a word or two about CO_2, and I do not know how you want to do that.

Dr. LIVERMAN. Mr. Chairman, do you want to hear a word or two about CO_2?

Mr. BROWN. I certainly do.

Mr. SLADE. Well, the discussion on the CO_2 issue is sort of growing like the CO_2 itself. DOE is in a rather unique position in regard to this issue because (1) we are, of course, a research funding agency and can do something about the recommendations, and (2) ultimately this is an energy policy issue and that is what our Agency is about.

Our goal is commensurate with this broad view, and I would like to read that:

It is to develop the ability to predict the environmental, economic, social, and political costs of increasing levels of atmospheric CO_2 with sufficient confidence to permit policy decisions to be made on future global uses of fossil fuels.

So the end point of this is not oceans or atmospheres, but rather costs to the social system, and for this point of view we have three strategic approaches.

First, is the creation of a national, then hopefully an international focus in this area, something called for in the National Academy of Sciences report. We are planning to do this or doing this by the process of trying to marshal the scientific community in this country at two levels.

One, we have an advisory committee which gives the Agency general guidance on both the policy and science, and then we have a team composed of many of the leading scientists in the various areas making up the whole question who are actually developing what amounts to an overall program plan, research program plan, not for this Agency, but one which the Nation could follow.

Second, we wish to act as a lever to insure that adequate funds are available to the scientific community for pursuing this problem and this is being accomplished by the development of this plan. We are outlining what is needed in the various areas making up the total problem. We wish to take hold of the research recommendations which exist in great number and try to convert them into an action program. They are supposed to answer the questions—How do you do this? What kind of resources are available? How do you involve the rest of the community? How much will it cost? And how long will it take?

The program plan will be available about April 30. The plan will cover five areas which are necessary. The first is the increase of carbon dioxide in the atmosphere and that goes beyond, of course, just burning. It takes into account the role of the biosphere and the role of the oceans. If we know something about the increase of carbon dioxide, the second area one considers is what that will do to climate. If we know something about climate changes that might result, the next area is what will those climate changes mean in terms of other environmental effects on the biosphere, on the oceans, and on the icecaps. And if we know something about all of the environmental effects, the clear question you ask is what is all this going to cost to the social system in dollars or in social consequences.

And finally at some point we will begin to look at strategies and technological fixes.

Our third strategy in this whole thing is to conduct an information synthesis of all the information being developed around the world and we intend to do this by having a major element of our program devoted to an assessment of the entire question.

I could talk to some of the initiatives we plan in 1979. These are primarily in the biosphere and the ocean area. The largest probably will be in beginning surveys of total global biomass—a terribly difficult, apparently very expensive question. But we will begin that in 1978 and go into a major program in 1979 using satellites, ground proof stations scattered around the world, and so forth. In the atmosphere we will concentrate on measurements of carbon dioxide at different kinds of locations; over the oceans and over extensive biomes. And in the oceans we will begin the planning and developing of major ocean surveys, again a terribly expensive kind of thing.

Let me close on one point.

Up to now total estimates of the budget dollars, new dollars required for this area have been more or less off the top of the head. By developing these dozen papers and asking the people to cost them out, we have for the first time a partial budget, a partial budget of what it would look like to fund adequately the entire program.

Now, not considering the social area at all, we still come up when we sum these to something on the order of $25 million. Now discounting that for scientific enthusiasm perhaps or let us say 50 percent, we are still talking—when you add these other areas in—of a program of at least $15 million of new moneys spent throughout the Federal Government. This I think is the first semi-hard budget we have come up with.

Mr. BROWN. Is that an annual estimate?

Mr. SLADE. Yes, sir.

Dr. LIVERMAN. That will not clear, obviously, until, I think, and Dave would agree, we get the plan put together with an appropriate budget to get information within a 5- to 7-year period. But it certainly is beginning to get into the right order of amount.

Mr. BROWN. Nothing comes cheaply these days.

Mr. SLADE. Well, those boats, you know, $2 million a year is a minimum just to get the boats out on the water and not even have anybody on board and that is how it goes.

Dr. LIVERMAN. Mr. Chairman, I think that completes the formal presentation.

Mr. BROWN. We appreciate that.

Is Mr. Hollister here?

Dr. LIVERMAN. Maybe it would be useful since the largest expansion is in Mr. Hollister's budget, if he took about 5 minutes.

Mr. Hollister's program is concerned about all of our onsite activities being in compliance or not.

Mr. HOLLISTER. Mr. Chairman, in order to understand our budget and our program, I think the important thing to start out with is an understanding that we are not a program division. We are really a staff division in support of the environmental safety and health program of the Department as it affects all of its operations and facilities.

If you will put up the strategy slide, I will start with that (slide No. 29).

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY - FY 1979 BUDGET
OPERATIONAL AND ENVIRONMENTAL SAFETY

DOE ES&H PROGRAM STRATEGY

TO BRING ABOUT AND TO MAINTAIN AN EFFECTIVE ES&H PROGRAM, DOE HAS:

- **Assigned To HQ Technical Program Offices And Field Organizations Responsibility For ES&H Activities, With Implementation By Contractors Through Contract Clauses.**

- **Assigned To ASEV/OES Responsibility For Advising And Assisting Program Offices And Field Organizations In The Development And Conduct Of ES&H Activities Through:**
  - **Policy Development And Interpretation**
  - **Uniform ES&H Requirements, Standards, And Guides**
  - **Independent Audits, Assessments, Appraisals**
  - **Operational Involvement - Accident Investigation**

SLIDE No. 29

You will recall the language in the Department of Energy Organization Act that required that we insure the incorporation of national environmental goals in the formulation of energy programs, and that we restore, protect, and enhance environmental quality and assure public health and safety.

We take the view that we assist the Department by analyzing all of the environmental legislation, not just the NEPA legislation or the DOE legislation, but the Clean Air Act, the Clean Water Act, the Toxic Substances Act, and almost any sort of legislation, esoteric legislation like the Coastal Zone Management Act, or the Endangered Species Act and so on, all of these things that may affect the Department's operations in some way or another. We are concerned in a staff role to departmental management that applicable laws are carried out.

As our program strategy indicates, we help the Department carry out its environmental safety and health program by performing staff support functions that are listed in the four bottom bullets, and by making sure that there are clean lines of managerial responsibility assigned to the various Assistant Secretaries. Also assuring that there are proper clauses in all of the prime contracts providing for environmental safety and health protection. The next slide shows the approach of the Department to its safety management (slide No. 30).

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY - FY 1979 BUDGET
OPERATIONAL AND ENVIRONMENTAL SAFETY

'SAFETY IS A FUNDAMENTAL RESPONSIBILITY OF LINE MANAGEMENT'

SLIDE No. 30

By safety here I mean health protection, occupational health protection, public health and safety protection which is really summarized in that one statement. There are large sums of money, in fact, that are budgeted under other programs that are spent on various aspects of safety and health. Our budget is a small supporting budget for the purposes shown in slide No. 31. About 50 percent of our budget is

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY - FY 1979 BUDGET
OPERATIONAL AND ENVIRONMENTAL SAFETY

OPERATIONAL & ENVIRONMENTAL SAFETY OUTLAY PROGRAM

- AUGMENTS OES STAFF WORK
- SUPPORTS SPECIFIC AREAS OF DOE ES&H PROGRAM
  - Not Necessarily Indicative In Emphasis Or Priority
- CONDUCTS NUMEROUS SMALL PROJECTS, E.G.,
  - Applications Engineering
  - Safety Studies
  - Standards Data Base
- HAS TWO LARGE PROJECTS
  - AMS
  - Pacific

SLIDE No. 31

actually in the two projects listed at the bottom—the support of the Pacific cleanup which Dr. Liverman already referred to and the support of the AMS aircraft. I believe the committee was very helpful a year ago in funding the purchase of this second aircraft so that we can have one of these based at each end of the United States. This AMS aircraft was, in fact, used up in Canada to help with the recent Cosmos 954 problem.

The rest of our budget as shown on the same slide goes into a number of small projects. They do not organize very well into something logical, but each of these projects is somehow born of operational or facility or planned needs.

The budget slide gives comparative funding for the 3 years in budget authority. Most of the increase is in two areas—the top and the bottom area (slide No. 32). The Special Operations refer solely to the support

OFFICE OF ENVIRONMENT
DEPARTMENT OF ENERGY - FY 1979 BUDGET
($ In Thousands - Budget Authority)

OPERATIONAL & ENVIRONMENTAL SAFETY

	FY 1977	FY 1978	FY 1979
ES&H ASSURANCE & MEASUREMENT	$ 330	$1,488	$ 2,361
ES&H STANDARDS & CRITERIA	827	1,292	1,276
ES&H SUPPORT & ASSISTANCE	$ 2,788	4,086	4,364
SPECIAL OPERATIONS	415	506	2,999
	$4,360	$7,372	$11,000

SLIDE 32

of the Pacific cleanup which commenced during the last year. Agreements were reached between us and the Department of Defense and the Office of Management and Budget that clarified our funding role in the radiological support of cleanup.

In the assurance and measurement area, which is the other area of large increase, we are after several things. First of all, we are trying to see if we can define formal safety performance measurement systems which we will be able to use to do objective measurements of how well our plants and facilities are doing to operate safely. We are also trying to institute a uniform safety review system in which the committee showed considerable interest last year and in fact has helped to provide funding for. The intent of the uniform safety review system is to make sure that, before facilities go on stream, or before modifications are approved, or before new facilities are constructed, a thoroughly documented safety review has been made in depth.

We are also interested in quality and reliability assurance viewed as a broad discipline and pioneered and developed very extensively in the Department of Defense and in the NASA program as I am sure you know.

We are interested in seeing whether or not quality and reliability assurance can be applied effectively to safety management. We believe it can. We believe that we can develop more formal audit trails, assurance systems, and other such things that will help the Department not only do a good job but know that it is doing a good job.

I think with that I will stop.

Dr. LIVERMAN. Let me add one comment.

Mr. Hollister's program was just given responsibility very recently for the agency-wide standards program in all areas, not just health and safety. It was a thing that got started in ERDA and was handled by

me but when the DOE came along we had to go up again with an action memo to see in what segment of the Department there would be someone charged with the responsibility to try to see that we get in place standards as the industry is built up, that is, that they were building in standards for solar equipment and related things, for example. It is an overview responsibility again, but there is nothing reflected in this budget to take care of that kind of responsibility either in personnel or in dollars. Is that correct?

Mr. HOLLISTER. Yes, sir, and it would not be the intent that our program would fund all standards development in the Department. I am sure that the bulk of standards development funding will always be through the programs, but there needs to be a focal point, a coordinating point, a policy point and some funding expended on institutionalization of all these activities. I would anticipate that we would be approaching the Congress, if not this year, certainly next year, for some funding to support that activity.

Let me mention one other budget activity that is not directly related to this Division and this program, but we do have a role in it.

You will, I believe, be reviewing the Department's capital construction budget at some point, and in that budget there will be various line items budgeted for what we call upgrading, that is health and safety and environmental protection upgrading requirements. I think you ought to know that we play a role in the Department in determining Dr. Liverman's recommendation for priorities of those projects.

Dr. LIVERMAN. That program is about the level—between $70 million and $100 million a year for which this committee certainly has a major overview responsibility, but it goes into the budgets of each of the other Assistant Secretaries, and it is sometimes difficult to identify.

Mr. HOLLISTER. The other side of that coin is that failure to budget for the upgrading requirements may mean that we need to issue variances or go through some other procedure that will allow plants to operate, in some sense, out of compliance—maybe not out of compliance with law, but, perhaps, out of compliance with policy.

Dr. LIVERMAN. Mr. Chairman, there are other areas we could discuss, but I think that we should close off our formal presentation.

Mr. BROWN. All right, that may be a proper balance of time. I am sure the members of the committee will want to explore some of these areas and maybe some of the other areas——

Mr. Walker, do you have any questions?

Mr. WALKER. Just a couple, briefly, Mr. Chairman, thank you.

Dr. House, when you were testifying I had the impression that what you were talking about in your program in many areas were attempts to do assessments of the impact the technology is going to have. You mentioned specifically the study that you are doing in the coal-based area.

Can you tell me just exactly what happens if this assessment is completed and it shows that a coal-based policy will be an absolute disaster? Now, it seems to me that the Department has already made a commitment to coal-based energy technology. What happens if your assessment comes out and you find out that that would be a disaster for us environmentally.

Dr. LIVERMAN. Maybe I should take the heat for that question.

Mr. WALKER. OK.

Dr. LIVERMAN. As I think you are aware, Mr. Walker, last fall we did a very detailed assessment of the national energy plan as it reached the Congress and we raised a number of questions. From a national standpoint it appeared that one could go ahead and use coal without much impact. But if you pin-pointed a given region of the country, then you find particular problems. For example, there may be too much SO_x in one area or too much water use in another area. What we did was flag those issues not only to the public but to the policymakers within the Department, and I can say that, by and large, the issues were heard. What we say is, look, if you are going to follow a certain energy route, whether it be oil shale or something else, you are going to have to improve the control technology in that area by an enormous amount in order to operate within existing standards. So, our analysis does not stop a project necessarily, but it certainly is flagged to the Secretary's attention and to the policymaking body within the Department, and elsewhere, that there is a problem.

Mr. WALKER. So in other words what you are saying is Dr. House's shop is running down individual things rather than evaluating the policy overall?

Dr. LIVERMAN. The Office of Technology Impacts does both. We are intimately involved in new policy formulation in DOE. We, for instance, have been deeply involved, Mr. Winn raised the question yesterday with Mr. Myers, of what we do if the new source performance standards, or if the Clean Air Act amendments, look like they are going to have major economic impacts or stop the development of the technology by some other route. What we do, and it is through Dr. House's analyses, is bring to bear all of the existing information that can point out what the impact of those proposed or existing regulations will do to a technology. Now, the way we coordinate this internally is with the Environmental Issues Committee. I chair it, but each Assistant Secretary has a representative on the Committee, including policy and evaluation staff under Al Alm.

We will be back tomorrow to discuss this, but we began to have our input and to point to the fact as we were thinking through such matters—should we go solvent refined coal, should we go looking for coal gasification? We said, look, you have these kinds of problems in that area and unless they are resolved, we can be in trouble with the regulations. If we think the regulations do not make sense, then we push that issue. And that could very well end up in a meeting, first at the working level between the two agencies, and eventually even between the Secretary and the Administrator of EPA to discuss the matter to decide if they are based on sound evidence.

Mr. WALKER. In other words, the bottom line on it is that the work that is going on is not very likely to come in conflict with the commitment that has been made toward a coal-based policy?

Dr. LIVERMAN. It very well could. And it it does, then we flag the facts to the Secretary to indicate that we have a major conflict. For example CO_2 question which we are evaluating could, in fact, be a clock stopper. It takes perseverance and awareness to continually alert people to these issues because it is an unpopular position to be in to always stop something. Nevertheless, that is a responsibility that I think the Secretary, and certainly the Deputy Secretary and the Under Secretary, expects us to carry out. We may end up stepping over the en-

vironmental boundaries if we proceed with a given technology, but to flag an issue early could perhaps, enable us to mitigate the effects. If not, it eventually becomes national policy, and the President and the Congress obviously would become involved.

So I think we are expected to take a very hard-nosed attitude and flag the issues that have significant impacts on energy development and use.

Mr. WALKER. The one further area I wanted to explore a little bit is the LNG question. Could you go into a little more detail on just how much progress has been made so far on the LNG study particularly in reference to some of the shipping problems. I think it was in a recent "60-Minutes" broadcast that they talked about the situation in Boston which could be present in an LNG disaster. Then I would like to know what is going to be accomplished on this through 1979.

Dr. LIVERMAN. I would like to ask Dr. Mott to respond to that.

Dr. MOTT. The thrust of our program, so far, has been to identify the research that has been done in the last 15 years and to examine it for informational gaps, and finally to delineate the indicated research, including estimates of time and cost to complete that research.

One of the conclusions from all of this was that a large scale experimental program was required. By large scale, I mean up maybe to 1,000 cubic meters. That comes about because if you are dealing with vessels that carry 135,000, or greater, cubic meters of liquefied natural gas and the experimental data we have is only done at less than 10 cubic meters. Extrapolation from the data to large spills is very difficult to handle. You really do not know what you have at the end.

So we approached it from the point of view that we should look at the maximum program required to answer all of the questions. And that was what was dealt with in the assessment that we did.

The problem with doing it that way, being very candid, is that you identify that it is going to cost a great deal of money to meet all those objectives and sometimes it is more clever to develop a program where you phase it out, and say, well, it will only cost me $10 million to get such and such information, when you truly know you have to go all the way on. And we truly believe in this case that to totally satisfy everyone, we need to complete the total program. For example, the situation discussed in "60-Minutes" was the DeCartes coming into Boston Harbor and what would happen if there were a spill of material. I could say that based on doing a 6-cubic-meter test, I will get such and such an answer. You probably would not like that very much, because you would say you are going to spill perhaps 25,000 cubic meters. The basic answer to your question is that you can make extrapolations on what you expect to happen, but we do not have a data base from which we can come up with firm conclusions.

Mr. WALKER. Is part of your intention for 1979 to establish a firmer data base on this?

Dr. MOTT. Within the funding that we have, we will establish as much as we can. The program that we are hoping to carry out every step of the way will provide new information, but we estimate that to get the kind of information that people would like to have will take upwards of 5 years.

Mr. WALKER. What is going to be the total cost of the LNG program?

Dr. MOTT. The approach that we follow, in our assessment of the situation in terms of trying to answer all of the questions, we estimate

it would cost roughly $50 million, but that is very debatable because you could say, well, you do not need to go to the size tests that we are talking about. You can get the answers with smaller tests. It is a very debatable issue at the moment.

Mr. BROWN. Over 5 years?

Dr. MOTT. Over 5 years, yes.

Mr. WALKER. One final question. Should there be a greater priority in this area given the fact that looking down the pipe we are going to have probably more shipments of LNG? Certainly on the east coast we are becoming more and more dependent on LNG. Should we look toward this as a greater priority kind of area?

Dr. LIVERMAN. I think there are two arguments here, Mr. Walker. One that we hear and with which I do not quite agree. Most of the decisions about where you are going to put LNG terminals are going to be made in the next 5 years; therefore, the decisions are ultimately made before you ever get the information. That may well be true, but it seems to me that the public and the country would be better served to know at some point and definitively whether you have to institute additional control processes to build tankers with double walls and related things.

The only way you will really know definitively about that is to carry out the longer range program. So there is an argument related to timing which suggests the data will be too late. We do not accept that. We believe that there is a real need to get that information and, as I mentioned in my opening comments, we are now doing an update of that plan. The committee has, I believe, a copy of the first plan that we provided, and I think the judgment will be that we must proceed with the full-blown plan in order to have reasonable assurance that we are not going to run into a disaster.

Mr. WALKER. Given that, how much of the $50 million that we are talking about is a NEPA program? How much of that is in fiscal year 1979 budget?

Dr. LIVERMAN. $2 million.

Dr. MOTT. $2 million which is the same level as fiscal year 1978.

Mr. WALKER. So we are really talking about 20 percent of what we should——

Dr. LIVERMAN. It will not be a 5-year program at this rate.

Mr. WALKER. OK.

Thank you very much, Mr. Chairman.

Mr. BROWN. Mr. Watkins?

Mr. WATKINS. Thank you, Mr. Chairman.

Dr. Liverman, just a quick question—you mentioned establishment of standards. Could you elaborate briefly on that?

Dr. LIVERMAN. We do not establish standards in DOE. Other agencies, EPA, NRC, the regulatory agencies, establish standards. What we do is to provide a basis, a scientific basis, on which these standards are established. Now, you may be referring to Mr. Hollister's comments. His program is charged within the Department with seeing that all of our ongoing activities, in fact, are carried out in accordance with the existing laws and regulations and in those cases where such have not yet been established. We have reason to believe that we should be taking steps to restrict the exposure of people to effluents of one kind or another even though there is not in existence any regulatory base.

In such cases, we will put in effect guidelines. An example is that before people go into an area they must wear masks to assure their safety. If there is a reasonable possibility of harm then we begin immediately to work with the regulatory agencies, particularly in this case it would be OSHA, the Occupational and Health Safety Administration and the National Institute of Occupational Safety and Health to determine what should be done.

Does that respond to your question?

Mr. WATKINS. I was wondering in how much depth the DOE is involved.

Dr. LIVERMAN. Well we will be involved along with many other agencies in terms of providing a considerable amount of information and in terms of the ultimate implementation of regulations we will be working very closely with EPA, Food and Drug, and the NIOSH, and OSHA people to get them involved at a very early stage so that, particularly, as the plants go commercial, the regulations, and the information on which they are based, are adequate.

Mr. WATKINS. You mentioned on page 27 of your testimony that additional activity in the area of coal extraction and preparation will focus on determining the feasibility of advanced coal preparation and processing, including the potential for enhanced sulfur removal.

How much do you have going in that area now? Do you have adequate dollars to carry it out?

Dr. LIVERMAN. We do continuing assessement, an overview, of the adequacy of the efforts being carried out by the technology.

Dr. MOTT. Yes; that is correct.

The coal cleaning effort, of course, is one that we consider of very great importance as an environmental control means. And we have always felt that to have precombustion coal cleaning with other means was a very viable option.

Mr. WATKINS. In my district in Oklahoma, we have probably more capability in fossil fuel development than most districts in coal, gas, and oil. The coal has got a tremendous sulfur content, and I am very interested in what you are talking about here. What is being done in this area? I think it is a crucial area.

Dr. MOTT. In some of our initiatives right now, we are looking at the trace elements in the coal and how to remove those trace elements during the coal cleaning process, and from the wastes that are generated from the coal cleaning process, to identify the fate of those trace elements in the processes, and, finally, to assess the advanced coal cleaning processes and what they mean in terms of environmental control requirements.

For example, just as with scrubbers, if you have a coal cleaning process that is going to produce a secondary product that is as difficult to handle as, perhaps, sulfur dioxide after it has gone through the combustion system, then you better proceed with some caution; some of the coal cleaning processes may do that.

Mr. WATKINS. Are you doing a little bit of this with the coal gasification also?

Dr. MOTT. Yes.

Mr. WATKINS. What kind of moneys do you have in there, roughly?

Dr. MOTT. In coal gasification?

Mr. WATKINS. In checking this work with coal?

Dr. LIVERMAN. Dr. Gottlieb?

Dr. GOTTLIEB. On the order of $500,000 to $700,000 for all the coal preparation activities.

Mr. WATKINS. On page 29—at the top of the page there—you discussed enhanced oil and gas recovery methods, by which additional amounts of oil and gas may be extracted from producing fields.

What is being done on that right now?

Dr. MOTT. We, from the environmental control point of view, are looking into the recovery methods to see what would happen to the effluents. As you know, being from Oklahoma, back in the early days of the oil industry, there were problems involved in secondary recovery and with the brackish waters that were produced in some of the rivers out there. We are looking at what might be done with those brackish waters after they are produced.

Mr. WATKINS. Have you been making any analysis in connection with the ground water with this?

Dr. MOTT. Are you asking what has to be done before you can—I mean take the produced water and just put it into the normal channels? Or what is happening in the aquifers?

Mr. WATKINS. Yes.

Dr. MOTT. I do not think we have a direct program relative to aquifers, except in terms of water treatment for possible reinjection.

Mr. WATKINS. I would like to—not belaboring this, but I would like to visit with you and Dr. Liverman, on two or three of these matters, and find out what you are doing.

Just for my own information, how much moneys in research and development in EPA is transferred over to DOE?

Dr. LIVERMAN. There is a $14 million transfer in the control technology area that goes into the fossil programs and not into my program.

Mr. WATKINS. Fossils?

Dr. LIVERMAN. Yes; what happened, in actual fact was that my programs transferred $14 million. About $7 million was in the health area and about $6½ million was in the environmental area are going into EPA. And $14 million is coming out of EPA into the environmental control technology area of the DOE fossil energy program. We are in the process, as I think the letter from the Director of OMB said, over the period of 120 days, of which about 60 have passed, negotiating with EPA precisely what those programs will be, both in the control technology and in the health and safety area. We are meeting with EPA once a week to try to iron out those problems.

Mr. WATKINS. I do not want to ask any other questions, Mr. Chairman. But I would like Dr. Liverman to call me sometime and set up a meeting with me and a couple of his staff members about some of the activities.

Dr. LIVERMAN. I will be very glad to.

Mr. WATKINS. Thank you, Mr. Chairman.

Mr. BROWN. Mr. Winn?

Mr. WINN. Thank you Mr. Chairman.

I think it is a pretty well-established fact that an increase in the coal combustion emissions will probably worsen the acid rain situation.

How much is going to be spent by DOE for the years of 1978 and 1979 on acid rain related studies?

Dr. LIVERMAN. That would be in Dr. Swinebroad's area.

Mr. WINN. Could you identify yourself?

Dr. SWINEBROAD. I am Jeff Swinebroad, manager of the environmental program.

We anticipate spending about $2 million in the acid rain area. This includes a certain amount in transport and transformation of SO_x's and a certain amount of work on effects in agricultural products and forests.

Mr. WINN. How much of this work will be carried out by EPA or other agencies?

Dr. SWINEBROAD. This is the total amount that we——

Mr. WINN. The total amount?

Dr. SWINEBROAD. No; that is just DOE, I should say, in the environmental area of DOE.

Dr. LIVERMAN. Perhaps an equivalent amount is about——

Dr. SWINEBROAD. Yes; an equivalent amount, that is right.

Dr. LIVERMAN. The programs are about the same size in this area.

Mr. WINN. Well, both EPA and DOE have an acid rain research and monitoring program, and I am trying to figure out how the responsibilities in this area have been split. I think what I want to do is get more information on this.

Dr. LIVERMAN. That is precisely the nature of the exercise that the OMB has asked us to achieve in 120 days. The stated purpose of the transfer of funds was to get our attention so that we would focus on this issue, and by that I mean ours and EPA's. So, the attempt in this 120-day exercise is to, if possible, decide those areas which clearly should be done by EPA, those that clearly should be done by the Department of Energy, and to recognize, at least, that there are gray areas in between in which both of us work. The difficulty is in a definition of what those responsibilities are.

Mr. WINN. How about the Department of Agriculture—does it have any responsibility?

Dr. LIVERMAN. They do and they work in the area. This has not been a part of the exercise that we are doing now. We, in DOE, have kept a very close tab on what Agriculture is doing and, as was mentioned yesterday, our instituting an inventory of Federal R. & D. in the biomedical and environmental area of energy activities is meant, specifically, to do exactly what you are talking about. It is to identify what different agencies are doing, but not necessarily to break these out so as to separate them and concentrate them in any one agency, but to consciously be aware of how much is going on and be able to answer the question of how much there is in one area or another. Is there an adequate effort, is it effectively coordinated, and is there undue overlap or are there holes? The basic purpose behind the inventory is to do exactly that.

Mr. WINN. Well, is the Department of Agriculture going to add any funding to what you have already mentioned——

Dr. LIVERMAN. I do not know offhand the size of that. We can certainly provide that for the record for fiscal 1977; that is the latest inventory we have.

Mr. WINN. Well, I will yield. You have a question?

Mr. SPENSLEY. Yes, Mr. Winn, it may be helpful. Dr. Liverman, you mentioned yesterday in the record that you had requested OMB to provide a program definition to help you assist in this area, and perhaps it would be of assistance to Mr. Winn and the subcommittee if you could provide that document for the record when it becomes available.

Dr. LIVERMAN. Dr. Swinebroad has just told me that they have had a meeting with the Departments of Interior and Agriculture on this very point.

Dr. SWINEBROAD. We had a meeting in a more narrow sense than the broad issue. We were interested in the ecological effects of SO_x or acid rain on vegetation. My staff convened a meeting to try to work out a coordinated program. The results of that will be available very shortly. It included representatives of interested parties from the various agencies and from the academic community at the same time, and an attempt was made to recognize that there are all sorts of people going off in different directions and looking at acid rain problems. This was an effort to get scientists and some of the participants in the action together and try to work out a program. I admit it is a little late to do it, but——

Mr. WINN. Yes; it is a little late, but at least you are aware of it. You are on top of it. I am still trying to figure out the amount of money—EPA, Interior——

Dr. SWINEBROAD. That is right—Agriculture and the Electric Power Research Institute should all be included.

Mr. WINN. How much total money?

Dr. LIVERMAN. Could we provide that for the record?

Dr. SWINEBROAD. It is pretty hard to figure out because of differing budget categories among the agencies.

Dr. LIVERMAN. I believe the inventory will allow us to show what was spent in fiscal 1976 and fiscal 1977. We are in the process of accumulating information from all the agencies on what they are doing in fiscal 1978. We could provide that for the record and I will be glad to come back and discuss it with you.

Mr. WINN. Thank you.

Thank you, Mr. Chairman.

[The information follows:]

32-744 O - 78 - 6

ACID RAIN PROJECTS
SUPPORTED BY FEDERAL AGENCIES

	1976		1977	
	No. Projects	Funding	No. Projects	Funding
Environmental Protection Agency	1	$205,000	8	$622,400
Energy Research and Development Administration	2	99,000	3	183,000
Department of Agriculture (Cooperative State Research Service)	-	-	1	not disclosed*

*Information obtained from data base of the Inventory of Federal Energy-Related Environment and Safety Research. Our respondents are under no obligation to supply the information we request.

Mr. BROWN. Mr. Wirth?

Mr. WIRTH. Thank you, Mr. Chairman.

Dr. Liverman, it is good to have you here and I wish I were sure that the rest of the Department has the kind of commitment that you do, as came out yesterday in the questions and the hearing. I will not say any more because I do not want to get you into any more trouble than I already have. [Laughter.]

Dr. LIVERMAN. I need all the help I can get, Mr. Wirth.

Mr. BROWN. With friends like that? [Laughter.]

Mr. WIRTH. Let me pursue a couple of issues that we have talked about over some period of time. As you know the subcommittee has been very concerned about what we do around the country about cleaning up after various facilities, decommissioning, what do we do with waste, what do we do with the impacts of that. I understand that the Department has undertaken a pretty ambitious long-range program on this. Is that correct?

Dr. LIVERMAN. There are some items in the budget which I discussed. You unfortunately could not be here, but in the budget this year there is about a $5 million item which is the kickoff for cleaning up some of about 150 excess sites used in the Manhattan Engineering District. These were laboratories and so on that were utilized during the Manhattan District and subsequently turned back over to the public. But the sites do not meet current standards, and there are about thirty of them. In addition, there is the uranium mill tailings question which is focused essentially in eight Western States, at 22 inactive mill tailing sites. The Department made a decision on my recommendation back about 3 months ago to begin an aggressive program of cleanup over the next 5 years to deal with that question as well as the remedial action for former Manhattan District sites. The moneys that are in this budget reflect this emphasis—there is a $3.3 million increase for the former contractor installations to a total of $5 million, and an increase of $1.8 million in the mill tailings question to begin the work on that. The uranium mill tailings is expected to be a joint effort with the States. The surplus DOE-owned site question which is a $15 million item is one for which the Federal Government is responsible and will be paying total costs.

Mr. WIRTH. It is my understanding that this is also part of a longer range program that has been approved by OMB and they are behind it—is that correct?

Dr. LIVERMAN. Well, if you assume that having let this through the door in this budget that that is an approval of the whole program, the answer is "Yes."

Mr. WIRTH. We are talking about around $150 million?

Dr. LIVERMAN. Somewhere between $80 and $150 million depending upon the 25–75 split between the Federal Government and the States as to what the size will be. In the case say of Salt Lake City, there is a pile that could cost anywhere from $2 million to $40 million to deal with.

Mr. WIRTH. Having established this precedent, I am not asking for purely innocent reasons. I am asking on behalf of a community in Colorado with which you are familiar which is right downwater and downwind from the Rocky Flats plant. As you know there have been significant problems there in terms of emissions into the air and in

terms of some emissions into the soil and most troublesome emissions into the Great Western Reservoir which is the water source for the town of Broomfield. We have been back and forth over how dangerous that is and whether there is any danger, and whether or not there is a danger, there is certainly that significant perception. In the community there is a real problem and a real fear that something would happen if there were another major emission of some kind. For example, a leak of some kind from Rocky Flats into the town's reservoir which I think most people agree is a real fear whether or not it is a reality.

Dr. LIVERMAN. Certainly the people there think so.

Mr. WIRTH. Right.

The question is why does not this whole remedial plan of a program suggest that we could also move in and in some way working with the town of Broomfield, in some remedial fashion, help them in some way develop a new water supply. They had sent in, you remember, in December a $10 million program, $4 million of which was for a short-term emergency water supply from the Denver Water Board, and about $6 million of which was for a long-term development of a new facility. My question is how might we focus or we begin to focus on that long-term operation? You know, if we could save the $4 million and focus on the long term immediately it seems to me we will be ahead of time and be consistent with this overall program on mill tailings and so on.

Dr. LIVERMAN. I certainly think that the issue, as relates to the Broomfield water supply which we have had an opportunity to discuss annually for the last 3 or 4 years, may turn a different complexion on the question. It certainly should be addressed. It seems to me there are other areas that are equally pertinent for exploration, and I'm speaking from just a personal view and perception. The Department has not come to this question either in the context of the excess sites question or in the one I am proposing to mention.

Clearly it is a problem that needs resolution. At least the people in Broomfield perceive it needs one. The question of whether one goes in and builds, for $6 million, a new facility or a new reservoir for an expanded population is a question the Congress and the executive branch both have to deal with. But I do not believe the people of Broomfield will be satisfied until such time as there is available to them a water supply in which they have full confidence that is located remotely from the current Great Western Reservoir.

There may be such options as long-term loans to help them build that expanded water supply. The matter is under discussion now but not in the context that you have just placed it. Perhaps it would be worthwhile for the Department to sit down again with the people in Broomfield and explore what the various options are.

Mr. WIRTH. How might we go about doing that? Given the apparent precedent that is being set here with this $5 million this year and the projected $80 to $150 million program, obviously the Government has shifted its perspective somewhat and I would think that in that shift they would include Broomfield. How would we go about setting up some way in which we might have some new discussions with the people in Broomfield from the Department of Energy.

Dr. LIVERMAN. Since it is a matter that is close to your area and interest, I guess my suggestion would basically be, Mr. Wirth, to per-

haps write a letter to the Secretary raising the question. I will certainly go back and raise it as a result of these hearings.

However you think best to deal with the question. I am certainly prepared to go back and raise it because we have that response from the community, a counterproposal, essentially, to the one that was made by ERDA last year. Perhaps in conjunction with that we could say, let us go back and rediscuss this issue again.

Mr. WIRTH. For the first time maybe the pieces are there. The community has a very specific proposal. We have some kind of authority. Everybody is willing to sit down and, not throw brickbats but talk to a solution for the first time. I think that could be very productive, and I would appreciate anything that you could do internally to expedite it. I will contact Secretary Schlesinger at the soonest possible time and talk to him about the obligations that were incurred before he took over that office. [Laughter]

Dr. LIVERMAN. And clearly the Congress, itself, will have a lot to say about that because there will be legislation coming froward on the mill tailings question and the remedial action question that will give Congress opportunity to work its will on the particular legislative provisions. However, the thrust of it does not actually deal with precisely that kind of question.

Mr. WIRTH. If I might just for a minute, Mr. Chairman, jump to another issue that came up yesterday. That was the outreach issue. A lot of people around the country are concerned about this $10 billion Department, what it is doing. It seems to me we ought to be able to do a better job than just sending out to States, counties and cities the results of the phenomenal amount of research that we hear about on this subcommittee and that could be useful to States, counties, and local government. I have difficulty understanding—as I understand the situation to now exist—why the Secretary for Interdepartmental Affairs is necessarily the only program with this responsibility. That office plays a go-between role more than a technical one. And my hunch is that we probably ought to put a lot more emphasis on getting the people from your operation out, getting the people from the various technical assistant secretary jobs out into the community through outreach programs. Is that something that you have any feeling for in the Department?

Dr. LIVERMAN. Well, I can only give you my perception. As this committee knows, since I have appeared before it a number of times, and as you are also fully aware last year in my fiscal 1978 budget, the Congress reinstituted a $6 million item that had been proposed for deferral. A portion of that was directed precisely to the areas that you have discussed. Namely, how do we convey to the public, who is finally going to be impacted, a sense of their knowing what is going to happen to them and give the people some say in whether they want that to happen or not. One of the mechanisms, obviously, of use is for us to provide to them the information which we have in a digested form so that they are actually dealing with the information and not a bunch of tables.

With the creation of DOE the Congress constituted an Assistant Secretary for Intergovernmental Relations whose responsibilities are to deal with State and local people. It did not however as I read the legislation say that the other Assistant Secretaries should not be involved in this process. In fact, it sort of suggested that maybe they

all should be involved as they moved their programs forward. And I think the Department has not quite decided yet how to fund those programs. But, our funding here should be responsible for interface with the people out there. I brought over from ERDA into my DOE environment shop probably the largest program in the Department in dealing with this kind of an issue. I think that the environmental issue cuts across the fabric of every one of those questions. Certainly environment and socioeconomic issues are the important ones, and within the resources I have, I plan to continue public interface by working closely and as cooperatively as I can with the other technologies and with the intergovernmental relations people. Obviously, if there are constraints on dollars and what have you, it makes it less than possible to be done.

Mr. WIRTH. Mr. Chairman, I am not sure how much our purview permits inquiry into the other Assistant Secretaries in the Department, but I would hope that as we look at the budget of this operation we could really think more about the kind of help. I think people across the country want to see it and have begun to see with the program at Riverside, and the information center in Denver. I think both are beginning to show indications of successful helpful efforts and have truly been used.

Dr. LIVERMAN. We have just entered a program with the Crow Indian Coal Authority related to precisely the same kind of question we have been addressing. How do they deal with what they have, the impacts and benefits of their resources to our country's energy needs. So we have a number of things like that going which I think are important.

Mr. WIRTH. Thank you, Mr. Chairman.

I wanted to bring up one more problem that we have in our backyard and one model—the Denver model—for outreach activities which I think has been helpful. Maybe our parochial perspective can be useful to the whole of the Department and I will look forward to writing to Mr. Schlesinger on the first problem.

I have some other things and if we have another round I would like to get back to those.

Thank you, Mr. Chairman.

Mr. BROWN. We still have not recognized Mr. Walgren.

Do you have any questions?

Mr. WALGREN. Thank you, Mr. Chairman.

Dr. Liverman, where in this budget is the funding for the kind of low-level radiation health damage studies that you have been talking with the Subcommittee on Health and the Environment?

Dr. LIVERMAN. It is in the human health studies line.

Mr. WALGREN. But it is in this request; is that right?

Dr. LIVERMAN. Yes, that is correct.

Mr. WALGREN. I just wanted to explore what steps could be taken to assure the public that those moneys will be spent in a way that people involved have an independent perspective and the public will be able to have confidence in their conclusions.

The chairman of this committee has received a letter from Mr. Rogers, the chairman of the Health and the Environment Subcommittee and just to briefly outline for the record, the Subcommittee on Health had a number of discussions with a number of witnesses including a Dr. Mancuso from the University of Pittsburgh who had

been involved in a study of low-level radiation health damage statistically over the years from 1964. That study was taken away from him and transferred to several different locations within the Department of Energy. The circumstances of that transfer, as revealed in the testimony, certainly lost the confidence of that subcommittee in a number of different ways, so much so that Mr. Rogers, the chairman, indicated in a letter to Mr. Brown that in his view the testimony raised the question whether the Department of Energy properly ought to engage in any new health effects studies whatsoever. I just feel that the least of our responsibilities is to oversee those studies in such a direct fashion that there is no question that the results are unbiased. I would think that as the director of the operation you would have an overriding responsibility to select personnel in such a way that the personnel you select have the confidence of all structures of the public to start out with so that we are not just winding up with a study that large segments of the public will be doubtful and skeptical about.

Can you tell me what steps you might be able to take to assure that kind of confidence in expenditure of these moneys?

Mr. LIVERMAN. Thank you, Mr. Walgren.

It is not always totally clear to me how one achieves public acceptability or public credibility on these issues. But it seems to me that there are one or two important and key steps that can be taken to insure this. One is to be sure that the process of review, scientific review and deliberation, is made as open as is possible and to bring from outside the agency and its contractors, scientists who understand the methodology, who understand what the objectives are and have a thorough-going review of the proposed studies and the conduct of those studies as they proceed.

In addition, it seems to me that the contractor himself, the individual who is carrying out the studies can set up his own external, advisory committee, which can advise him as to whether or not he is proceeding along the correct scientific lines or not. In this way he is getting an independent and very rigorous critique that is independent of the Department concerns and review procedures. That certainly is one way that one can get across a feel for that particular problem to the public.

Obviously, if one goes to a larger organization instead of only a university professor, which is the case with Dr. Mancuso, then one has to build in considerations of the institutional base an adequate review process which is open again, not to a closed corporation but people selected deliberately from outside who observe, review, and report, not to the Department of Energy, but to the institution which is the base from which the program operates. It seems to me that those are two ways that one can go about opening up the process.

Another one is to insist upon publications which are reviewed in the usual manner in which papers are reviewed for scientific journals. The journals operate independently of any bias or apparent control and are not controlled by any aspect of the Federal Government. So it is a review by scientific peers as the papers and the results come out. It seems to me that these three are ways of insuring that, in fact, the research that is done is done untrammeled by any perceptions, preconceived or not, that an agency may have about the results that come out of its researchers' efforts.

Mr. WALGREN. Have you given any specific thought to how the independent advisory contact points should be structured with regard to the study of low-level radiation health damage?

Dr. LIVERMAN. Needless to say, I think, to you who were present at most of those 2 days of hearings, I have had time to give a considerable amount of thought to that particular question.

It seems to me an appropriate step for me to take now is to have an independent committee, perhaps through the National Academy of Sciences, or other suitable group, take a look at all of the low-level studies that are being done anywhere in my organization or by any other organization. These can pass judgment upon whether or not the studies are adequate, whether they are put together correctly to be able to determine after their completion whether or not there is an impact using appropriate statistical methods.

If I may speak, specifically, to the Mancuso study, it seems to me there were two issues being discussed.

The first was circumstances under which the contract with Dr. Mancuso was terminated and transferred—that is one issue.

The second one, a very fundamental one, is whether or not the methodologies utilized by Dr. Mancuso were adequate to draw the conclusions which he reached. And, certainly, the latter one is, in a major way, subject to any peer review by scientists who work in that similar area who are competent to make the judgments about whether or not the conclusions reached were, in fact, possible to be reached on the basis of the methodology used. So, the problem separates into two major portions and I think here we are talking about the second one; namely, how does one insure that the facts get out and also be sure that they are presented as factually as possible and that the conclusions drawn from those facts are as pliable as possible. That always ends up being scientific judgment, not mine and not yours but the judgment of a body of scientists who are knowledgeable in the area. And on that point there is considerable disagreement about Dr. Mancuso's conclusions; not about the results, but about the conclusions he has reached on the basis of the evidence that is in front of him.

Mr. WALGREN. So you feel that some group from the National Academy of Sciences should be assembled to look at Mancuso's conclusions and the methodology behind them——

Dr. LIVERMAN. I did not single out Dr. Mancuso per se but certainly that is a viable option.

Mr. WALGREN. And also the methodology of any ongoing examination of that effort.

Dr. LIVERMAN. I think it is crucially important, at this point in time, not only with the nuclear area but in the areas that we discussed yesterday. Mr. Brown raised the question, What are you doing now to insure that, in fact, 20 years down the road we are not going to have a repeat of this story in fossil or in solar or in some other area? We are here and now with nuclear and have an enormous amount of background of information and data, and I think what Dr. Mancuso's and Dr. Milhaus' findings say are—let us go back and reexamine all of the evidence that has been collected over a period of time to see if we have missed something that is there that was not obvious to the many scientists who have worked on this problem for 30 years, not only here but in other countries around the world. Let us go back and relook at that data,

sharpen our focus, look at it from many different standpoints to see if, in fact, the regulations are wrong. I am willing to believe that it may be revealing of more perception than we, have been able to get to date. It certainly needs to be done because the country is making major decisions about how to proceed.

As you know, the BEIR Committee, which is a committee of the National Academy of Sciences, the United Nations Scientific Committee on the Effects of Atomic Radiation, and others have not looked, in detail, at the specific point of methodology of each scientist although there is an attempt to do that as they reconsider, at periodic intervals of 2 to 3 to 5 years, whether or not there is new evidence that is persuasive in the changing of regulations.

Dr. Radford testified before the committee and his conclusions—I presume they are his own, I do not know whether they reflect the deliberations of that whole committee or whether they are solely his own—were that the standards should be lowered. If that is the judgment that comes out of reviews of the kind we are talking about, then I think it behooves the EPA to address that question directly and independently evaluate all the evidence before them. If that is the way the story reads, then that is the way it reads. I have nothing in particular to say on one side or the other. I am for finding out what the truth behind the situation is because it does in a major way affect the options the country will use for its energy sources.

Mr. WALGREN. The BEIR, the initials. What does that stand for?

Dr. LIVERMAN. Biological Effects of Ionizing Radiation.

Mr. WALGREN. And that is a committee related to the National Academy of Sciences?

Dr. LIVERMAN. Yes; it is one put together by them, approved by Dr. Handler, about every 3 to 4 years to look at new data. It is a different group of people nearly every time but it is put together from the body of scientists who are available to the Academy from the scientific community. We have no control, one way or the other, over who they are nor would we wish any.

Mr. WALGREN. Well, perhaps we can pursue that because it would be certainly one alternative that might increase the confidence of many people in the results of the study and their conclusions.

Thank you, Mr. Chairman.

Mr. BROWN. Thank you, Mr. Walgren.

Dr. Liverman, I do not want to unduly detain you.

Dr. LIVERMAN. I have no other schedule, sir, it is your day.

Mr. BROWN. You make such a good impression while you are here that he probably ought to keep you here longer. [Laughter.]

I note in going over the program that you have the liquefied natural gas (LNG) program which might possibly be considered underfunded to achieve the results that we need in a short period of time, but you also have hydrogen gas programs. The question that arises is whether or not there is any redundancy here that can be taken advantage of. Many of the problems are the same in a hydrogen economy and an LNG economy.

Dr. LIVERMAN. Yes.

Mr. BROWN. The same kind of data is needed to determine the safety of hydrogen as LNG, I would think, although the conditions are different, the factors are different and so on.

Is there some sort of a cross analysis of this—and I am not picking on it specifically—but as an example of a type of problem so that in budgeting and planning you can take advantage of the needs in these different fields.

Dr. LIVERMAN. Dr. Mott may wish to respond to that, but let me attempt a first cut at the question.

It seems to me any time you are dealing with an explosive, whether it be hydrogen, a nuclear weapon, LNG, or liquified petroleum gases which is the butanes and propanes, you are dealing with factors of scale, plus the atmospheric conditions, plus the environmental conditions. The conditions of a spill of any one of these in one area might be quite different. Now hydrogen is far more explosive and it probably is not affected so much by the environmental conditions. The LNG may be affected in a major way by the environmental and atmospheric condition. Certainly the LPG, the liquified petroleum gases which we believe are more explosive than the methane provide an opportunity to crossfeed. As a matter of fact Dr. Mott has gone to the nuclear weapons people in California because of their long experience in SKALOP questions, to have them take a totally different cut unbiased by our perceptions, as to what they view as the best way to address this question. Is it to set up a whole series of experiments or is it to run one experiment, back off, and analyze. This is usually what is done in the weapons program. Then you go back and, having designed another one, test that one so that you have a program going like this utilizing as fully as possible every increment of knowledge you can come up with. So if the answer to your question is, yes, probably the facility that is best for LNG can also be utilized for LPG and again for hydrogen. What is needed is an integrated program which we do not have simply because we just started up that curve and we are now dealing with LNG. But, I agree with you and I suspect that Mr. Watkins, who comes from Oklahoma, would be equally convinced that the problems are so similar in many respects, certainly the instrumentation and what have you, that there ought to be a lot of crossfeedings.

Bill, do you have any comment?

Dr. MOTT. Well, I will just add that in the conceptual design of the facility that I showed you, we have been very careful to include the possibilities of eventually doing hydrogen experimentation as well as LPG experimentation and perhaps even ammonia experimentation at that facility.

There are some similarities between LNG and LPG, of course, that as you evaporate methane and because it is liquefied natural gas you are concentrating, you are getting a mixture now that becomes more concentrated in propane and other higher molecular weight hydrocarbons. As they start coming off you now have resemblances between those vapors and what you get from an LPG mixture. And there are trade-offs and any program should go forward keeping in mind of all these cryogenic materials.

Mr. BROWN. Well, the question I am getting at is partly technical and partly political. I would like to see if Congress as a whole would support moving a little more rapidly to get some answers to some of the critical problems that we have to face in the next few years on energy. I think it would be easier, more politically reasonable, to support an increased LNG safety research program if we thought it was combined

with these other programs in a way that would give us a broader range of answers. And I would hope that we could approach it in that way.

Dr. LIVERMAN. I realize that I am volunteering Dr. Mott's time, but I would like to come back to the staff with a further discussion of this particular point because there are, as more broadly defined in the environmental area, three or four major agencies involved. The Coast Guard, for instance, is involved because of the transportation questions; we are working closely with the Coast Guard. But the question you have raised has not been addressed: namely, would an integrated program looking at all of these potential energy sources make sense in a combined fashion? If the committee would like, we will devote a little thought to that and try to get back to you with a reasonable time.

Mr. BROWN. I think it would be helpful if you would do that and we would appreciate it very much.

Of course, that is again another example of a sort of a system-type problem, how we put all the pieces together in some reasonable way to create a meaningful, larger picture. That is the problem of coordination frequently——

Dr. LIVERMAN. Yes, sir.

Mr. BROWN. It is the health business that we have been talking about, and it is also involved in this CO_2 program.

Dr. LIVERMAN. Precisely so.

Mr. BROWN. You outlined a procedure here which seemed to be imminently reasonable for sort of scoping the problem and seeing who is involved and what the contributions of the various agencies are. That is a problem we have been grappling with in connection with the development of a slightly broader piece of legislation on long-range climate research. In fact the CO_2 is a subset of long-range climate problems, and the procedures that you use will provide valuable information as to how we can best solve this general problem of coordination, and I wanted to explore that just a little bit further, if I could, as to how this CO_2 program is developing.

You have a mandate as I understand it from OMB or somebody to——

Dr. LIVERMAN. The OMB has basically agreed, and I am not sure that we have a letter from them which says so, but they have basically agreed that the Department of Energy should take the initiative on seeing that an adequate program is at least described that will get at what the major lever points are in the activities of this whole committee because if it turns out you cannot go with coal, you have to have other options to proceed on and can lever billions of dollars in the decision process. So, because of that, I believe, they feel that we should take the initiative in seeing that everybody in town whose work is in CO_2 is coordinating efforts to come out with an integrated national plan.

Mr. BROWN. But it has not proceeded so far as the designation of a lead agency or anything like that?

Mr. SLADE. Not formally that I know, sir.

Dr. LIVERMAN. We did attend the National Climate Board, which I believe either you or members of your staff were at, in which we started to lay out this perception of how to move forward. It was generally bought, I think, by the Climate Board. It made sense, not that we would have the whole show, but that we could certainly be a

focal point for seeing that there is an adequate national program in place to do it.

Mr. BROWN. In selecting the 12 scientists that you indicated, who are preparing the plan, I was not quite clear. Do they constitute a sort of a research steering committee also or something of that sort?

Mr. SLADE. Yes; they are an informal research steering committee, about 10 or 11 are from universities and one is from a nonuniversity community. On our formal advisory committee, we have had from the first day, a number of NOAA people—Dr. Wilmot Hess, Director of their Environmental Research Laboratories, has been with us, and the ad hoc chairman of our science group is Dr. Lester Mott, of NOAA, who has also been associated with these programs. So we have been coupled with NOAA from the very beginning, and quite closely coupled with NSF. In fact, this year we will begin joint sharing of a number of programs.

Dr. LIVERMAN. Mr. Chairman, in terms of OMB guidance, I can read you one sentence—the CO_2 program should be developed in accord with the Federal climate program—which is the thing that is near and dear to your own heart—and with the CO_2 efforts funded by NOAA which is the principal funding agency. NSF has some funding and there is a little bit scattered elsewhere. But that is a clear indication that we and NOAA are in a program together to do it in conjunction with a broader Federal pilot program.

Mr. BROWN. Well, that is what I am trying to explore here. Actually this is almost broader than the climate program because some of the important pieces of information are from diverse sources. For example, you mentioned one of them—the world biomass facts, where there is uptake or release, and what is happening to the total global biomass. A piece of information such as that is not readily available and does not come from climatologists, it is going to have to come from the CIA or somebody like that.

I mean this is not facetious—they have the satellite reconnaissance capability to do this and probably the only ones to do it really accurately. But the Department of Agriculture needs to be involved and other agencies. The question is—how do you handle this as a management problem basically similar to your other initiatives in terms of developing inventories of research initiatives?

I am trying to abstract here general principles which can be used to improve programs in general where it is possible to do so.

Dr. LIVERMAN. Well, my perception of this problem in the initial stages, and it happens to coincide I think 100 percent with Mr. Slade's perception, is, that in order to get the attention of the scientific community, as well as the administrative and bureaucratic communities, we needed to establish an office whose sole function was to carry out that activity.

In my perception, there needs to be a focal point in the Government and, perhaps, in each of the agencies which has an effort of any size in the carbon dioxide or climate area, to orchestrate this thing.

Fortunately, as Mr. Slade has pointed out in the case of the carbon dioxide program, Lester Machta who is a senior member of the NOAA staff is the acting scientific director of this program for us. So in this case, the two major agencies involved are, in fact, proceeding along the same general lines with Dr. Hess from NOAA, to begin our ad-

visory committee. But more involvement is needed than that on a day-to-day operational basis. There needs to be someone designated in each of the agencies with precise responsibility to work this problem because of its growing importance and we have tried to start it in that way. That group should make full use of any inventories that we make and continue to evaluate where we are, where we are going, and what yet needs to be done.

If I may add one other comment slightly removed from this. You are aware of a year 2000 study which is being headed by the CEQ. I have a person on my staff who is spending about 50 percent of his time on the air quality aspects of that study, the monitoring and related things. One of the charges I gave him was to be fully aware, in addition to whatever he did, of the carbon dioxide problem and be aware of this committee's specific interest in the national climate program. It is a piece of a far broader issue than just the air quality question with CEQ. My staff man has taken considerable initiative in trying to persuade the leadership of that particular study to, in fact, be as aggressive in pursuit of the objectives as he is. And he is pretty aggressive. If he is successful then the results will be much better than if he had not been involved. So I think our commitment to the climate program, not only because of the carbon dioxide, but, in general, is very heavy.

Mr. BROWN. So the heavy part gets down in another sense to the point where you have an objective review of the problem by the most competent scientists. They identify the areas where you need answers and they give you a scale of resources needed to get the answers within different time frames and it includes a lot of things—monitoring, modeling, you know, the whole gamut. Then the question gets down to the nitty-gritty, who gets what. And the question is do we have here a device which will allow us to say the program will take such and such amount of money and assuming we get the money it should be divided up in such a way so that we play a supporting role without getting somebody out of joint in the process.

Dr. LIVERMAN. I think the situation you describe can be achieved 95 percent without people getting too far out of joint. The other 5 percent is going to have to do with those program areas concerned with leadership. Many agencies would like to be able to take the leadership role. And if one could find a benevolent leader then the system would work and the 5 percent sort of goes away. Lacking the presence of a benevolent leader, and depending upon some generosity on the part of the other agencies, it can move forward. I think the best example probably is the Interagency Committee on Atmospheric Sciences which worked, I would say, about 95 percent because most of the agencies define their own business as opposed to the business of other agencies. So you divide up the pie. Now there is a clinker in that one because it is not clear that that decision by the group ever survives the normal budgetary process. So there has to be some kind of control from a different source—the perspective of the Congress or elsewhere—which says, this is the program which we believe should be in place.

We see before us only 20 percent of the program that the agencies have sent to us, thus far.

Mr. BROWN. Unfortunately, the Congress is not gifted with divine wisdom and these are very technical problems that require experts with broad backgrounds in order to develop the program, I think we may

be helpful in giving some structure to some programs. I am not always sure of that, however.

But the carbon dioxide area is a relatively new field, and my concern is that we use this as a demonstration of how we can handle a complicated cross-cutting program. If we do it well, then we can go back and look at some of the things like human health effects where there are huge vested interests that spend hundreds of millions of dollars and maybe say that they can learn something from the way this program has been structered and coordinated.

Dr. LIVERMAN. I think if you ask me how I would deal with that problem, from an operational standpoint, I would say the way to insure success, would be to place a sizeable amount of the needed resources in a single agency, that hopefully is benevolent, and would pass on money to other agencies more competent to deal with particular aspects, and do it with generosity and understanding. In that way, you have put in place an instrument that can move a program forward. It depends a great deal, however, upon the leadership of the agency in which you placed the funding.

Mr. BROWN. Well, I will not belabor that. I was going to explore some of the systemic problems of a national epidemiologic program with you in a similar way but we can do that some other time, maybe.

Do you have any further questions, Mr. Wirth?

Mr. WIRTH. I had a couple of specific ones and a broader one if I might, Mr. Chairman. Maybe starting with the broader one.

Dr. Liverman, you remember when Mr. Schlesinger was in front of the full Science and Technology Committee a couple of weeks ago. We covered a whole variety of areas and one of those that came up was the question of nuclear waste disposal and where are we going on that front. I guess my reaction to his answer was mixed—one, I was pleased to hear him say that maybe we ought to be doing more on that front if that is an accurate paraphrase, and that is good but on the other hand, why is not more getting done?

We have talked about West Valley. We have talked about a whole variety of issues, and my hunch is that increasingly down the line the questions of nuclear power and where we go with it are going to be less environmental emission problems and more nuclear waste and cost problems. Those are probably going to end up being the biggest barriers to or the biggest problems that have to be solved in the area of nuclear power. The point is not that thesis. The point is how do we better push on this front. I have a feeling that the question of nuclear waste is not being adequately addressed and pushed by this Government. Can you address yourself to that?

Dr. LIVERMAN. I will try to be as brief as possible.

As you are aware, Dr. Deutch, the new Director of Energy Research in the Department, has been charged with coming up with a recommendation to deal with this issue. I believe that you, in fact, may have posed questions to him regarding this issue. That recommendation is supposed to be "on the street" in the very near future.

But, just having put a plan on the street is not adequate. There have been recommendations on the street before. This one, I hope, will have a broader perspective because it is not being put together just by the nuclear people, but by a group with a diversity of views. Once on the street, it is going to take an awful lot of commitment on the part of the

executive branch and on the part of the Congress to "bite the nuclear waste bullet."

Mr. WIRTH. Let us start talking about that commitment. It seems to me from the perspective of this committee that real commitment may well start with our perspective in terms of needed research.

Is there within the Department of Energy or is there outside somewhere a definition of the unanswered problems where we ought to accelerate our research effort in attempting to better get a handle on those nuclear waste problems?

Dr. LIVERMAN. I hope that the policy that is going to come out will address that question. I am not totally convinced yet that it will. But I would suspect that an immediate follow-on of that policy recommendation has to be precisely what you have said. There has to be a far clearer delineation of what research and development has to be done in order to achieve success in this area. As you are aware, however, the greatest block to dealing effectively with the question has to do with public acceptability of disposal sites. My own perception is a personal view, that ultimately one may end up going to the deep ocean or to other sites where there are not heavily vested interests. Whether that is the way it will turn out, I do not know.

Mr. BROWN. You are talking about the common heritage of mankind, you know.

Dr. LIVERMAN. Yes, sir.

Mr. BROWN. Which the deep oceans are.

Dr. LIVERMAN. Which the nuclear waste problem is fast becoming, also.

Mr. WIRTH. Does the environmental development plan begin to get into this? Or is there one for the waste disposal issue?

Dr. LIVERMAN. There is one for the waste disposal issue that I have not concurred in yet. It is still being developed as you are, perhaps, aware. There is the question of a generic environmental impact statement which will address a number of these questions, and that statement is being put together now by the Department. We are having a very heavy guiding hand on the kinds of issues that must be discussed in that statement. It should cover many of the things we worry about.

Mr. WIRTH. We are about to mark up next year's budget, and I am fearful that we are going to miss this if the Deutch template is not out, if the environmental development plan is not out in time, that we are going to be marking up and we are going to miss yet another year in the cycle.

How might we work to speed up the Deutch operation, to speed up the environmental development plan in such a way that the recommendations which come out of that can be addressed by the subcommittee and the full committee in marking up the research and development budget for the Department of Energy.

Dr. LIVERMAN. I think we can certainly provide to you almost immediately a draft of that environmental development plan.

Mr. BROWN. Would you do that as soon as you can?

Dr. LIVERMAN. Yes, we can certainly do that.

Mr. WIRTH. Mr. Chairman, maybe we could get that and maybe the staff might also contact Dr. Deutch's office to begin to get a sense of what is coming out of there so we can see what recommendations will be coming out of these two important areas and can be in a position to deal with that rather than to react to it after the fact.

Dr. LIVERMAN. Let me work with Mr. Spensley on getting to you whatever information we can that will be of help to the committee in your markup session.

Mr. BROWN. The committee would appreciate that.

Mr. WIRTH. A piece of that, Mr. Chairman, goes to your continuing concerns about coordination of this kind of an effort. Clearly, you have a piece of it, Dr. Liverman; Dr. Deutch has a piece of it. There has got to be a variety of agencies around the Government looking at the nuclear waste issue. Now how are all those getting pulled together? Do you have any idea? Is there any commitment to do that? Should we be talking to Eliot Cuttler about making that happen? Where are we on that front? Do you have any sense of that?

Dr. LIVERMAN. Well, I believe the Deutch committee and its interactions, and you can best learn that from Dr. Deutch, does involve people from the State Department, EPA, and others. We are also involved in coming up with that policy document.

The waste management program used to be under my direction. I gave it back to the nuclear people with a provision which was never followed through; namely, there should be an environmental coordinating/overviewing committee working jointly with the technology end of it. The EDP may get us into that mode, where every step a technology is proposing to take has an adequate environmental examination before proceeding. That has not worked as well as it should have in the days of ERDA. But I believe that we are moving into a better position now.

Mr. WIRTH. Mr. Chairman, maybe as we get into this, we ought to consider, if we are not already, getting Dr. Deutch to come up and address the whole interagency piece of this. It is his particular template for research and development, interagency coordination and putting some clout behind it.

Mr. BROWN. Well, I think it would be useful to the subcommittee to have contact with Dr. Deutch. I think it would be more appropriate to have the staff contact him first to see what would be a satisfactory arrangement on both sides.

Mr. WIRTH. May I have 1 minute for one more point?

Mr. BROWN. You may have 1 more minute.

Mr. WIRTH. Thank you, Mr. Chairman.

Dr. Liverman, we have talked about, from time to time, the long-range future of the Rocky Flats plant. You will remember it was built 25 to 30 years ago in what was a pretty rural area and is now surrounded by suburbia. You will remember that the task force set up by Governor Lamm and myself, No. 3 recommendation was to start the process of looking at the future long term of Rocky Flats. Is it going to be there forever from the Government perspective? If so, how do we make it as safe as possible? And we have done that. I think we have made some major steps in that direction, but in very long term, how do we start to think about, say, increasing its work in solar energy and wind power which is now going on? How do we start to think about the transition from being a nuclear facility in suburbia to being a facility which carries some other kind of energy responsibility which I think it could very well.

Has your group done any thinking about that and if so what and where do we go to get that going?

Dr. LIVERMAN. If I may offer a perception as I see it?

The technical competence of the Rocky Flats staff does not extend very much beyond the things that are closely weapons related. It is not like at Livermore. It is not like at Los Alamos.

Mr. WIRTH. I realize that.

Dr. LIVERMAN. And in order to change Rocky Flats into something more nearly resembling that requires a deliberate decision on the part of the DOE. If that is not done, then my personal perception is, that because of the massive investment recently of another $150 million, which is a 40-year lifetime, Rocky Flats will, as long as we have nuclear weapons in our arsenal, continue with a heavy nuclear orientation.

How broadly it casts its net into the other energy areas is a decision that the Congress and the executive branch are both going to have to explore in depth if there is a desire to do so.

Mr. WIRTH. What this is really going to take, you are saying, is a top level commitment to——

Dr. LIVERMAN. Diversify, yes.

Mr. WIRTH. To forge a transition and diversify Rocky Flats away from just making triggers for nuclear weapons toward a broader energy base.

Dr. LIVERMAN. That is my perception, yes.

Mr. WIRTH. That is something that Mr. Schlesinger has to address himself to, the OMB would have to address themselves to, presuming with help from a friendly and supportive Congress. [Laughter.]

Dr. LIVERMAN. Yes.

Mr. WIRTH. Thank you, Mr. Chairman.

Mr. BROWN. Thank you, Mr. Wirth.

Dr. Liverman, there may be a few items that we have not covered that we would like to have your help on, and we know you will continue to be cooperative on that.

We thank you very much for your testimony and the members of your staff. This has been extremely helpful and we look forward to hearing from you again.

The subcommittee will be adjourned.

[Whereupon, the subcommittee was adjourned at 12:23 p.m.]

1979 DEPARTMENT OF ENERGY AUTHORIZATION ENVIRONMENT BUDGET

THURSDAY, FEBRUARY 16, 1978

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
SUBCOMMITTEE ON THE ENVIRONMENT AND THE ATMOSPHERE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m. in room 2325, Rayburn House Office Building, Hon. George E. Brown, Jr. (chairman), presiding.

Mr. BROWN. The subcommittee will come to order.

This is the last day of the scheduled authorization hearings on the Office of Environment of the Department of Energy.

Thus far, we have heard testimony concerning the fiscal year 1979 budget and program, and the general responsibilities of the Assistant Secretary for Environment. Today, we will explore the possible overlap in responsibilities between the Office of Environment and other offices of the Department in the area of environmental policymaking with Alvin Alm, Assistant Secretary for Policy and Evaluation.

In addition, we will focus on the details and merits of the proposed exchange of funds and programs between EPA and DOE. The concerned parties are represented by Dr. Stephen Gage, EPA Acting Assistant Administrator for Research and Development; George Fumich, Jr., DOE Acting Program Director for Fossil Energy; and Dr. James Liverman, DOE Acting Assistant Secretary for Environment. We also have two outside witnesses, Mr. Don Kash from the University of Oklahoma and Mr. Sidney Orem, representing the Industrial Gas Cleaning Institute, will also provide comments on the exchange.

However, as our first witness, we have the Honorable James F. Jeffords, a Member of Congress, who will relate some of his concerns about the national energy plan and about the general need for environmental monitoring and research, a subject which I know he has been deeply involved with, and we appreciate his contribution to the hearing this morning.

STATEMENT OF HON. JAMES F. JEFFORDS, U.S. HOUSE OF REPRESENTATIVES

Mr. JEFFORDS. Thank you very much, Mr. Chairman. It is a pleasure to be here, and I certainly have enjoyed working with you on some of these issues.

32-744 O - 78 - 7

I would like to address several issues which have been of major concern to this committee and to other members, including myself, and which are in urgent need of our continuing attention.

I refer to the environmental impacts of our energy activities, and to the need for involving the States and localities which are impacted by our decisions in playing a greater role in our decisionmaking process.

In the report which accompanied the 1978 ERDA authorization, it was stated that one major function of the Office of Assistant Administrator for Environment and Safety is "examination of environmental policy issues involving actual or potential conflicts between environmental and energy development goals."

Certainly the creation of the Department of Energy has not diminished the necessity for such an examination. In fact, it is certain that the national energy legislation now being considered by the conference committee will require extremely detailed examinations of its potential consequences and impacts, as well as increased activity to assure mitigation of any harm to our environment which might result from our efforts to deal with this Nation's energy problems.

Mr. Chairman, in September of 1977, we sent a joint letter to the Department of Energy requesting specific information on the scope and contents of the environmental impact statement being prepared on the National Energy Act. And as you know, you joined me in that letter. Despite repeated inquiries to the Department, to this day we have received no reply. Are we then to assume that such impact analysis does not exist? Are we to assume that no action will be taken?

I believe that before the fiscal 1979 DOE authorization is allowed to become law, an answer must be forthcoming which indicates the administration's ultimate plans for preparation of this document, and that Congress should be kept regularly informed of the results of the research which will aid our understanding of the ramifications of the administration's proposed solution to the energy problem. I would request permission to enter this letter in the hearing record, Mr. Chairman.

Mr. BROWN. Without objection, so ordered.

[The letter follows:]

JAMES M. JEFFORDS
VERMONT CONGRESSMAN

COMMITTEE ON AGRICULTURE
SUBCOMMITTEES:
DAIRY AND POULTRY—
RANKING MINORITY MEMBER
CONSERVATION AND CREDIT

COMMITTEE ON EDUCATION
AND LABOR
SUBCOMMITTEES:
SELECT EDUCATION—
RANKING MINORITY MEMBER
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Congress of the United States
House of Representatives
Washington, D.C. 20515

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September 15, 1977

The Honorable James Schlesinger
Secretary of Energy
Washington, D.C.

Dear Mr. Secretary:

We are seriously concerned about the environmental impacts of the proposed National Energy Plan now moving through the Congress, and, specifically, the process you are developing to address both the short and long-term environmental impacts and uncertainties associated with the coal conversion aspects of the Plan.

We are aware of the President's commitment to the completion of an environmental impact statement. Although the initial legislation forwarded to the Congress did not, as required by the National Environmental Policy Act, include an Environmental Impact Statement Plan, it is our understanding that the President is committed to the completion of an EIS prior to implementation of the National Energy Act.

It is also our understanding that the relevant agencies are in the process of developing environmental analyses on many of the projected short-term impacts expected to occur as a result of the Energy Plan, such as increased emissions of nitrogen oxide, sulfur dioxide, carbon monoxide, particulates, as well as combustion and pollution control wastes, mining and milling wastes, dissolved solids, and general impacts on water quality and quantity. We would ask that you provide a calendar of what analyses are being done, with expected completion, and presentation dates. In addition, please identify the mechanism you will use to keep the Congress informed, i.e., what Committees will be forwarded which analyses.

However, a great many issues exist concerning the long-term effects of this proposed plan, and in many cases the models or data required to resolve these issues have not been developed. The plan does not appear to contain any mechanism for determining planning horizons based on expected changes of evolving energy technology. For example, what are the most distant future impacts that

are relevant to current energy policy decisions and how might they alter the allocation of capital for energy production and conservation? It would seem that any environmental impact statement must be capable of demonstrating that it has considered impacts through all relevant stages of technological innovation and transfer. If the answers to these questions are not known, what research is planned to fill the voids and how will the research design be integrated into the EIS prior to implementation of the N.E.A?

Long-term impacts can arise from two causes. First, impacts which arise in the future and appear simultaneously with their cause. An example is the CO^2 atmospheric heating examined by the recent National Academy of Sciences' report entitled "Energy and Climate." Second, impacts which appear in the future as a result of a significant delay between the introduction of the cause and its effects, such as the loss of agricultural productivity resulting from soil leaching from acid rain.

At the present time, the impacts of these two illustrative side-effects of energy use are imperfectly understood but could prove of great potential importance to the economy, to agriculture, and to the environment.

Comprehensive research, together with a commitment to integrate its conclusions within national energy policy is imperative. Therefore, we would also ask your assurance that:

(A) An inventory of potential long-term impacts, including health, transportation, and environmental impacts, of both types be included as part of the EIS.
(B) A program of research, including relevant tools and models, be developed to examine these impacts for all relevant stages of evolving energy technology and transfer. Suggested impact horizons would be for the years 1985, 2005 and 2030.
(C) A planned program of updating the generic EIS, together with regular reports to Congress be instituted.

In summary, our fundamental concern is that the planned impact studies appear to limit their scope to the near term (1985). There is growing evidence that the decisions we make today, particularly with regard to the capital and technological structure of our energy conservation/ production systems, have ramifications far into the future, possibly as far as 50-75 years away.

As the President stated in his address to the nation on the energy crisis:

> We have always wanted to give our children a world richer in possibilities than we have had ourselves. They are the ones that we must provide for now. They are the ones who will suffer most if we do not act.

We, too, are concerned that limiting our vision to the near future may prove to be extremely dangerous, and that insufficient effort is being directed toward a program of research to develop the possible impacts in these categories. I know that you share these concerns as well.

Thank you for your attention to this matter.

Sincerely,

George E. Brown, Jr.

James M. Jeffords

Mr. JEFFORDS. On a related matter, I would like to voice my concern that a nomination still has not been submitted to fill the permanent position of Assistant Secretary for Environment at the Department of Energy. The permanent appointment to this position of a capable individual is vital if we are to insure that the proper environmental impact analyses are carried out and upgraded through a continuous monitoring program. And I want to emphasize a continuous monitoring program there. Recently, Senator Gary Hart and I, on behalf of the Executive Committee of the Environmental Study Conference, wrote to Secretary Schlesinger to voice our concern about this matter. I am sure this committee shares our concern, and I would hope that nomination will be forthcoming in the very near future. I would request that the text of this letter also be entered into the record, Mr. Chairman.

Mr. BROWN. Without objection, so ordered.

[The letter follows:]

Environmental Study Conference

U.S. Congress
3349 House Office Annex 2
Washington, D.C. 20515
202—225-2988

February 8, 1978

Hon. James R. Schlesinger
Secretary
Department of Energy
Washington, D. C.

Dear Mr. Secretary:

On behalf of the Executive Committee of the Environmental Study Conference, we would like to express our concern that a competent and qualified individual has not been named to fill the permanent position of Assistant Secretary for Environment in the Department of Energy. It has been more than four months since the department began operating and even longer since you have been directing the administration's energy policies. Yet, no one has been selected for this post.

We fear that until someone is named, the environmental issues that must be addressed as part of our national energy policy will not receive the attention they obviously must receive.

We understand that selecting qualified individuals for important positions in government requires careful attention and often time-consuming scrutiny. At the same time, we feel that you could have selected someone by now from the names submitted to you by a number of interested parties.

We would like to meet with you in the very near future to discuss the status of this appointment and the timetable for forwarding a nominee to the Senate. Please call us as soon as possible so that a meeting can be arranged.

Sincerely yours,

James M. Jeffords
Co-Chairman

Gary Hart
Co-Chairman

Mr. JEFFORDS. I know that Dr. Liverman, as DOE's chief environmentalist, has been concerned over the potential climatological consequences of the increased use of coal. In the 1978 authorization, this committee approved the expenditure of $1.5 million for studying the issue of carbon dioxide concentrations in the atmosphere. I would urge that increased dollars be authorized to continue such research. Further, because of increased concentrations of carbon dioxide, sulfur dioxide, nitrogen oxides, and small particulate matter in the atmosphere, and the potential climatological impacts which ensue, such as acid rain, I would suggest that a study be conducted over the next year to design and implement as uniform national monitoring program. Such a task force should include EPA, CEQ, DOE, NSF, USDA, as well as the Departments of HEW and Interior.

Environmental impacts, whether in the form of boomtowns, acid rain, or water pollution, also impact the health and well-being of our economic and social institutions. Therefore, the Congress must remain vigilant in requiring that decisions of the magnitude necessary to solve the energy crisis are made on the basis of minimizing, within reasonable bounds, their effect on the total well-being of the national community. It is my hope that together we can fashion a mechanism to effectively monitor what we are doing in the energy area before we make national decisions in ignorance, which involves unacceptably harsh consequences for our children and future generations.

Finally, Mr. Chairman, I would like to express my concern that attempts to solve energy and environmental problems are too often done within the confines of the Federal research community. These issues, however, touch each of our constituencies in each of our districts. The Congress authorizes large sums of money annually for research necessary to make decisions at the Federal level. Yet, this same knowledge can provide the knowledge necessary to State and local officials. I would urge, therefore, that a program be designed to provide technical assistance to State and local decisionmakers be developed within the offices of each Assistant Secretary in the DOE. I think additional funding for such outreach programs would be a very worthwhile investment.

Thank you, Mr. Chairman, for the opportunity to express these views.

Mr. BROWN. Thank you, Mr. Jeffords. Your statement is extremely cogent and to the point. You have touched on a number, in fact, most of the important issues which have been of concern to this committee for some time and your focus on them I think will be of help in getting whatever action is appropriate for this subcommittee to take.

Do you have any questions, Mr. Winn?

Mr. WINN. No, Mr. Chairman, I do not have any questions.

I do want to commend Congressman Jeffords for his special interest in this field as we all know from receiving Dear Colleague letters from time to time. He has really been one of the leaders in Congress in showing his concern in environmental impacts.

The last few words of your testimony I think deserve a lot of consideration and we have talked about it in previous hearings this week about technical assistance to the States.

I wonder if you would care to enlarge on that concept a little bit—how you think it could be implemented or how it could be set up.

Where you think there might be some weaknesses or gaps in that kind of a system?

Mr. JEFFORDS. I think at present there is very little liaison or very little effort or even as far as I know little or no money available to the Department to try to have the outreach people necessary to go out and assist in the technical areas in these communities and States so that we can enhance the availability of information to the Federal Government and at the same time provide the decisionmakers at the local and State levels with the expertise necessary to better guide their own decisionmaking process. I think that we need to develop that kind of an outreach program in order to better utilize the knowledge that is out there and the knowledge that is within the Federal Government.

Mr. WINN. Would you think that in any way that States should pay a part of the expenses or had you given that much thought at all?

Mr. JEFFORDS. I had not given it that much thought. My feeling would be that there probably are at least sufficient State personnel. The main thing would be better liaison and coordination. It might I think maybe in the local area be more of a need for some assistance which probably should be on cost-sharing basis. I had not really given much thought to the mechanics of that.

Mr. WINN. I think most States have set up some type of environmental director or council——

Mr. JEFFORDS. Certainly our State has and that is the only one I can——

Mr. WINN. I think ours has, too. But I think most of them have set it up or in the process of setting it up since the formulation of DOE.

Thank you very much.

Thank you, Mr. Chairman.

Mr. JEFFORDS. Thank you.

Mr. BROWN. We next have Mr. Alvin Alm, Assistant Secretary for Policy and Evaluation, Department of Energy, and I will ask him to come back up to the table.

If I may I would like to ask the other three gentlemen who are next listed also to come up because we are going to want to have a little dialogue here after we have heard their statements. That includes Mr. Fumich, Dr. Gage, Dr. Liverman, and Mr. Kash, if he wants to come up.

No; Dr. Gage is not here yet.

This is mainly in the interest of saving time and shuffling so there will not be too much shuffling back and forth.

The key problem which I think the subcommittee wants to address, of course, is the understanding of each of you gentlemen as to your relative roles in the area of environmental policy and operations within the Department of Energy, and we are not of course trying to describe any particular role, that is not our function, but we are interested in seeing if there is a coherent understanding on the part of the people who are supposed to be carrying out the environmental research and development function.

And then in connection with that, of course, there is an illustration of the problem—the transfer of $14 million between DOE and EPA and how that exchange of funds is proposed to be handled and the justification for it.

With that Mr. Alm, you can go ahead with your statement.

STATEMENT OF MR. ALVIN ALM, ASSISTANT SECRETARY FOR POLICY AND EVALUATION, DEPARTMENT OF ENERGY

Mr. ALM. Mr. Chairman and members of the committee. I am pleased to come before you today. As Assistant Secretary for Policy and Evaluation, I am responsible for recommendation, development and evaluation of the policies which guide the Department's programs. To accomplish this most effectively, I have established three basic functions: (1) program planning and evaluation; (2) integrated policy analysis; and (3) policy development and coordination. Environmental policies and concerns are an integral part of each functional area. Therefore a number of the major offices have staff with background and experience in environmental matters.

There are several specific steps which I have taken to assure that environmental concerns are well represented at a policy level in DOE. First, I have established a Division of Environmental Planning and Program Evaluation to serve as the primary contact with the Office of the Assistant Secretary for Environment and other environmental programs in DOE. This group represents environmental concerns with the Office of Policy and Evaluation and insures that our activities are coordinated with other environmental groups in DOE. The evaluation function of this group will be necessary to insure that environmental research and analysis throughout the department is effective and timely. We hope to conduct some of these evaluations jointly with staff from the office which manages the program. In addition, this group has the responsibility for overview of environmental plans and budgets throughout DOE which should facilitate policy implementation.

Second, we have reviewed the environmental development plan process and feel that it is an important activity which should continue and be strengthened in DOE. As a result, I am planning to incorporate the EDP as a formal part of the overall policy and program planning system within DOE.

In the area of policy analysis and formulation, my staff must consider the full range of impacts of the development of energy supplies. Environmental concerns, therefore, are one of the major factors in our analysis of any DOE policy. I expect to rely heavily on the Assistant Secretary for Environment for support in understanding the environmental implications of policy options.

In fact, we have already worked closely with Environment on several major issues. A good example for our coordination is the work plan we are developing jointly with the Office of Environment and the Environmental Protection Agency to identify potential problems with upcoming EPA regulations and assign responsibility for necessary analysis to appropriate staff in my office and in Environment. Our approach in past efforts has emphasized coordination and shared responsibility which reflects staff capabilities.

While informal coordination and Environment has been successful thus far, there are other groups with environmental expertise dispersed throughout DOE which also must be routinely involved. To assure that this occurs, we are assisting the Office of Environment in establishing an Environmental Issues Committee. This committee, chaired by the Assistant Secretary for Environment, will provide an

important communication link and will formalize coordination of environmental analysis throughout DOE.

At this point, Mr. Chairman, I would be happy to address the transfer issue that you raised or I can address it later, whatever your pleasure.

Mr. BROWN. I think you might as well go ahead and speak to that subject, Mr. Alm, since your statement is very brief.

Mr. ALM. As you know, there are two aspects involved in the change of responsibilities between the two agencies.

One side of the transfer deals with the control technology program where $14 million will be transferred fom the Environmental Protection Agency to the Department of Energy.

I feel that this transfer is an appropriate one. The technology developed over a number of years at EPA are now in the process of generally widespread applications. As I recall somewhere around 100 plants, excuse me, 100 flue gas desulfurization units are under order at this point in time.

I think it is important because the development of any control technology is fairly closely related to the overall energy strategies that are pursued. When one looks at the resources that the United States has domestically, there is no doubt that coal is going to play a much larger role in the Nation's energy future.

In order to burn coal it will be necessary to meet the environmental requirements of the Clean Air Act as well as State and local requirements. Most coal in the near-term will be burned directly as coal. In the future of course, we will have other technologies, liquefaction and gasification, but in the near-term most coal will be burned directly.

A successful control technology program is a key to allowing coal to be burned while we continue to meet our environmental requirements. Within that context then DOE has a very strong interest in advancing these technologies, to make them more reliable, to insure they can burn all various types of coal, high sulfur coals and the like.

The other transfer deals with the transfer of $14 million for health and ecological effects activities from DOE to the Environmental Protection Agency. From my previous experience, I have been very impressed with the tremendous need to have good health and ecological data in the devlopment of standards. The quality of the technical work is key to both protecting the public health and safety and widespread economic ramifications of any particular regulation.

I think the extent to which EPA scientific expertise and role in the area of health effects research can be enhanced, it is a tremendous advantage to that Agency's ability to set standards to protect the public health.

Mr. BROWN. Thank you, Mr. Alm.

I think, if I may, I would like to go ahead with the other witnesses since their statements are relatively brief before we have a little discussion with the subcommittee members.

So, is there any objection to that from the other members?

In that case which one of you would like to go next?

Mr. Fumich?

[The prepared statement of Mr. Fumich follows:]

STATEMENT OF GEORGE FUMICH, JR., ACTING PROGRAM DIRECTOR FOR FOSSIL ENERGY, U.S. DEPARTMENT OF ENERGY

It is a pleasure to appear before you to discuss Fossil Energy's environmental work and our interactions with the Assistant Secretary for Environment and with other agencies.

In our Fossil Energy Program we seek alternatives to diminishing domestic supplies of oil and natural gas. A major midterm goal is a smooth transition to a more coal-fired economy. However, for promising technologies to reach commercial development, we must identify and resolve environmental concerns in the technology R. & D. process. Failure to do so will kill off the technology as surely as would failure of the process itself. Moreover, stopping a technology late in its development because of environmental concerns can be very expensive and could delay the commercialization of competing processes. Therefore, it is necessary to identify and anticipate the major environmental health and safety issues surrounding each developing technology early in the program. This will allow the necessary R. & D. in environmental control development, emission characterization, and environmental effects analysis to go on parallel to other R. & D., as well as permitting EPA to use the appropriate technical information to set standards.

Since any technologies that are environmentally unacceptable will not be commercialized, in Fossil Energy we must:

1. Incorporate environmental considerations into Fossil Energy program planning from the very beginning of development;
2. Consider environmental issues fully in choosing from among competing projects those that we will fund; and
3. Comply with applicable Federal, State and Local laws.

COOPERATION WITH OTHER ACTIVITIES

Within Energy Technology there are independent environmental activities as well as cooperative efforts with industrial partners, the Assistant Secretary for Envionment, Federal, State and local regulatory agencies, and with the public.

In Fossil Energy we seek to develop technologies acceptable from a standpoint of the physical and biological environment. We are also concerned about the health and safety of workers and the public, and about the communities most affected by technology development. Within these constraints we seek high efficiency of energy production and use at the lowest possible cost.

Both the Assistant Secretary for Environment, and the Assistant Secretary for Energy Technology, through the Program Director for Fossil Energy, have environmental responsibilities and work together in many areas. There are both similarities and differences in our respective roles. Fossil Energy is responsible to the Assistant Secretary for Energy Technology for all of the environmental, socioeconomic, health and safety activities for planned and existing Fossil Energy programs and facilities. In addition, the Environmental Advisor to the Secretary for Energy Technology provides an independent viewpoint in such matters. In contrast, the Assistant Secretary for Environment has an overview and assessment role across the entire Department of Energy for environmental matters. Therefore, his responsibilities are much broader than those of Fossil Energy. However, the interests are similar in that we both want to assure the development of environmentally and socially sound fossil technologies that can be viable in the marketplace. If we do our jobs well, this will happen. We both realize that environmental acceptability of fossil technologies can only come about if we can obtain the necessary environmental, health, safety and socioeconomic data and regulatory and compliance guidelines soon enough to act to resolve potential environmental impediments. Many times, the data needs of Fossil Energy and Environment are similar. For example, Fossil Energy will sample process streams to verify control technology performance, characterize process stream constituents, and identify possible health hazards in the work space. To carry out overview and assessment responsibilities, Environment may need samples from our plants in order to make independent analyses to determine the presence of potentially toxic substances. Also, Environment may use the data as input for regional modeling to determine the possible transport and fate of pollutants from our facilities outside the boundaries of the project and immediate surrounding area.

For the FY 1979 budget, staff from Fossil Energy and Environment have planned and coordinated environmental programs of mutual interest in oil shale, in situ coal gasification, and environmental sampling and monitoring at several coal conversion facilities including Gasifiers—in Industry. The intent is to involve the EPA and the National Institute of Occupational Safety and Health in planning areas of mutual interest, since they too need environmental data from our plants.

There are other areas of coordination with the Assistant Secretary for Environment. One such area is our compliance activities. Fossil Energy prepares site specific and program environmental assessment and impact statements. The Assistant Secretary for Environment approves and coordinates the review of the documents. For planning, Fossil Energy and Environment jointly prepare Environmental Development Plans. In biomedical research, there has been joint project planning at the Morgantown Energy Research Center, and we are discussing starting some projects at the Pittsburgh Energy Research Center.

FOSSIL ENERGY PROGRAM

Among our Fossil Energy environmental activities are policy analysis, planning, regulatory compliance and control technology development. Overall, we will develop new knowledge in fossil energy chemistry, materials, technology, engineering, analysis, sampling and worker and property management and protection. In this context "environmental" refers to health, safety, socioeconomic and energy process conservation issues, as well as the physical impact of Fossil Energy technologies on the environment.

POLICY ANALYSIS

Environmental Policy Analysis is very important because it provides a basis for setting technology goals. Fossil Energy sponsored studies consider how current and emerging laws, standards and regulations affect our programs and technologies and their potential for development. We use the technical performance, resource requirements and economic information from such studies to review regulations and such information is used to help establish a Department position. Often our contributions help provide needed technical input for proposed laws and regulations. Fossil Energy also uses these data internally to review our programs for possible redirection in light of changed environmental laws and standards.

PLANNING

Environmental planning involving both programs and projects assures consideration of environmental problems at the earliest possible stage, an important tool for accomplishing this are the Environmental Development Plans (EDPs), which are prepared for each activity in order to address program considerations. EDPs are management documents which help Fossil Energy and Environment plan, budget, manage and review environmental implications of individual energy technologies. They do this by identifying the environmental issues and requirements to be addressed during each stage of technology development. These plans help us to assure the environmental R&D goes on in parallel with that addressing technical, economic and institutional issues surrounding each technology.

During project planning, procurement and design, we analyze and consider environmental impacts of the proposed plant, including plans to dispose of wastes from plant operation.

CONTROL TECHNOLOGY

Since environmental performance is integral to technology performance, we monitor sites for major projects before construction and during operation to verify the true impacts on the environment. Sampling and monitoring encompass both compliance-oriented data collection and special projects to determine whether processes are environmentally benign or whether new pollutants are introduced into the environment. We carry out projects under representative environmental conditions in order to adequately assess their consequences. Moreover, process conditions are varied in order to provide adequate environmental, safety, health and resource efficiency data. When adequate environmental control technology does not exist, the Department will take steps to develop it.

Although the details have not been fully developed, the integration of certain environmental control technology programs from EPA into DOE/FE will provide a single, balanced national program on coal utilization. The meshing of the con-

trol technologies from EPA with the rest of our Fossil Energy coal utilization program will now permit a total systems approach and a more effective focus of environmental control technology.

Fossil Energy's present program related to environmental control technology consists mainly of:

Fluidized bed combustion, both Atmospheric Fluidized Bed and Pressurized Fluidized Bed, including industrial and utility applications.

Improved physical coal cleaning.

Sophisticated R&D on desulfurization and particulate control of gas, liquid, and combustion streams.

Integrated coal conversion/heat engine systems including gas turbines.

Process modification experiments.

Advanced research on chemical coal cleaning hot gas cleanup, flue gas desulfurization, particulate control, and nitrogen oxide control.

COMPLIANCE

A related major thrust is preparing site-specific and program-specific environmental assessments and impact statements for Fossil Energy programs and projects, in compliance with the National Environmental Policy Act (NEPA). For example, the coal RD&D program Environmental Impact Statement is now out for public comment. Also, we have begun several site specific assessments for the major demonstration plant facilities. Compliance with NEPA will ensure incorporation of environmental matters into Fossil Energy decisions as early as possible.

In summary, if emerging fossil technologies are to contribute significantly to the Nation's energy supply, they must do so with minimal risk to our natural environment and to the health and safety of our population. We will ensure this by constantly monitoring, studying and evaluating critical environmental, health, safety and socioeconomic issues at each stage of a technology process, and by cooperating with others within their area of responsibility.

We appreciate this opportunity to appear before this subcommittee and look forward to continuing communications with you in this extremely important area.

I will now be happy to answer any questions you might have.

STATEMENT OF GEORGE FUMICH, JR., ACTING PROGRAM DIRECTOR FOR FOSSIL ENERGY, DEPARTMENT OF ENERGY

Mr. FUMICH. Mr. Chairman, and members of the committee, it is a pleasure to appear before you to discuss fossil energy's environmental work and our interactions with the Assistant Secretary for Environment and with other agencies.

In our fossil energy program we seek alternatives to diminishing domestic supplies of oil and natural gas. A major midterm goal is a smooth transition to a more coal-fired economy. However for promising technologies to reach commercial development, we must identify and resolve environmental concerns in the technology R. & D. process. Failure to do so will kill off the technology as surely as would failure of the process itself. Moreover, stopping a technology late in its development because of environmental concerns can be very expensive and could delay the commercialization of competing processes. Therefore, it is necessary to identify and anticipate the major environmental health and safety issues surrounding each developing technology early in the program. What I am trying to say is that we do not want to happen to fossil energy what happened to nuclear energy. Millions of dollars were expanded, and here we are in a big battle. I think that our responsibility is to make sure that we can look at the environmental concerns at each stage of the technology, and surface potential problems so that everyone will know that this is being done in good faith with the necessary inputs to carry the technology ahead.

The Nation is in too critical a situation to do anything that would make the people suspicious about the technology that is being developed. Unfortunately, I think we are involved in some of that today. The only way to go is to conduct the necessary R. & D. in environmental control development, emission characterization, and environmental effects analysis in parallel to other R. & D., as well as permit EPA to use the appropriate technical information to set standards.

Since any technologies that are environmentally unacceptable will not be commercialized, in Fossil Energy we must:

(1) Incorporate environmental considerations into fossil energy program planning from the very beginning of development.

(2) Consider environmental issues fully in choosing from among competing projects those that we will fund.

(3) Comply with applicable Federal, State, and local laws.

COOPERATION WITH OTHER ACTIVITIES

Within Energy Technology there are independent environmental activities as well as cooperative efforts with industrial partners, the Assistant Secretary for Environment, Federal, State, and local regulatory agencies, and also with the public.

In Fossil Energy we seek to develop technologies acceptable from the standpoint of the physical and biological environment. We are also concerned about the health and safety of workers and the public, and about the communities most affected by technology development.

As an aside to that, when I came on board, my boss, Bob Thorne, told me that one of the main considerations that we had to address was the socioeconomic concern particularly in the western part of the country because these concerns had not been addressed properly before. Within these constraints we seek high efficiency in energy production and use at the lowest possible cost.

Both the Assistant Secretary for Environment, and the Assistant Secretary for Energy Technology, through the Program Director for Fossil Energy, have environmental responsibilities and work together in many areas. There are both similarities and differences in our respective roles. Fossil Energy is responsible to the Assistant Secretary for Energy Technology for all of the environmental, socioeconomic, health and safety activities for planned and existing Fossil Energy programs and facilities. In addition, the environmental adviser to the Assistant Secretary for Energy Technology provides an independent viewpoint in such matters. In contrast, the Assistant Secretary for Environment has an overview and assessment role across the entire Department of Energy for environmental matters. Therefore, his responsibilities are much broader than those of Fossil Energy. However, the interests are similar in that we both want to assure the development of environmentally and socially sound fossil technologies that can be viable in the marketplace. If we do our jobs well, this will happen. We both realize that environmental acceptability of fossil technologies can only come about if we can obtain the necessary environmental, health, safety and socioeconomic data and regulatory and compliance guidelines soon enough to act to resolve potential environmental impediments. The Assistant Secretary for Environment has the overview responsibility for this whole area.

Many times, the data needs of Fossil Energy and Environment are similar. For example, Fossil Energy will sample process streams to verify control technology performance, characterize process stream constituents, and identify possible health hazards in the work space. To carry out overview and assessment responsibilities, Environment may need samples from our plants in order to make independent analyses to determine the presence of potentially toxic substances, and to alert fossil energy on any unforeseen problems. Also, Environment may use the data as input for regional modeling to determine the possible transport and fate of pollutants from our facilities outside the boundaries of the project and immediate surrounding area.

For the Fiscal Year 1979 budget, staff from Fossil Energy and Environment have planned and coordinated environmental programs of mutual interest in oil shale, in situ coal gasification, and environmental sampling and monitoring at several coal conversion facilities including Gasifiers—in industry facilities. The intent is to involve the EPA and the National Institute of Occupational Safety and Health in planning areas of mutual interest, since they too need environmental data from our plants.

I want to give you an example of what I consider a typical example. We have a project at the University of Minnesota in Duluth, in the gasifiers-in-industry project and we have EPA, OSHA, the Assistant Secretary for the Environment in DOE and ourselves all involved in that particular project. Not only that, we have EPA and OSHA funding that along with ourselves. I think that this is the type of arrangement that we need all across—not only in Fossil Energy but throughout DOE and I am sure it is going to happen.

There are other areas of coordination with the Assistant Secretary for Environment. One such area is our compliance activities. Fossil Energy prepares site specific and program environmental assessment and impact statements. The Assistant Secretary for Environment approves and coordinates the review of the documents. For planning, Fossil Energy and Environment jointly prepare environmental development plans.

Incidentally, we have a development plan, across the board, for each one of our major technologies. We intend to continue this policy.

In biomedical research, there has been joint project planning at the Morgantown Energy Research Center, and we are discussing starting some projects at the Pittsburgh Energy Research Center. Again, these are other examples of joint activities.

FOSSIL ENERGY PROGRAMS

Among our Fossil Energy environmental activities are policy analysis, planning, regulatory compliance and control technology development. Overall, we will develop new knowledge in fossil energy chemistry, materials, technology, engineering, analysis, sampling and worker and property management and protection. In this context, environmental refers to health, safety, socioeconomic and energy process conservation issues, as well as the physical impact of Fossil Energy technologies on the environment.

Policy analysis—Although the Assistant Secretary for Environment has the lead responsibility in this area, we feel that environmental policy analysis is very important because it provides a basis

for setting technology goals. Fossil Energy-sponsored studies consider how current and emerging laws, standards, and regulations affect our programs and technologies and their potential for development. We use the technical performance, resource requirements and economic information from such studies to review regulations and such information is used to help establish a department position. This is our input into the departmental position. Often our contributions help provide needed technical input for proposed laws and regulations. Fossil Energy also uses these data internally to review our programs for possible redirection in light of changed environmental laws and standards.

Planning—Environmental planning involving both programs and projects assures consideration of environmental problems at the earliest possible stage. An important tool for accomplishing this is the environmental development plans, which are prepared for each activity in order to address program considerations. EDP's are management documents jointly prepared by ourselves and the Assistant Secretary for Environment, in which Fossil Energy and Environment plan, budget, manage, and review environmental implications of individual energy technologies. They do this by identifying the environmental issues and requirements to be addressed during each stage of technology development. These plans help us to assure that environmental R. & D. goes on in parallel with work addressing technical, economic, and institutional issues surrounding each technology.

During project planning, procurement and design, we analyze and consider environmental impacts of the proposed plant, including plans to dispose of wastes from plant operation.

Involving control technology, again the Assistant Secretary for Environment has the overview responsibility for independent assessment to the adequacy of the development of the particular technologies involved. Since environmental performance is integral to technology performance, we monitor sites for major projects before construction.

FOSSIL ENERGY CONTROL TECHNOLOGY PROGRAMS

And without going through the rest of the statement, I would like to give you some indications of the family of technologies that we have within the control technology activity that Secretary Alm was discussing. This gives us a good idea of the trade-offs, some of the supplementary type programs, and some of the marriages that might be involved between the different technologies of that particular area.

For instance, it is our feeling that there is a possibility that coal cleaning or a combination of coal cleaning and stack gas technology might be the best way to go in certain instances.

Here is a list of some of the other technologies that we are involved in:

Fluidized-bed combustion, both atmospheric fluidized bed and pressurized fluidized bed, including industrial and utility applications.

Improved physical coal cleaning and chemical coal cleaning.

Sophisticated R. & D. on desulfurization and particulate control of gas, liquid, and combustion streams.

Integrated coal conversion/heat engine systems including gas turbines.

Process modification experiments.

Advanced research on chemical coal cleaning hot gas cleanup, flue gas desulfurization, particulate control, and nitrogen oxide control.

We also have low-Btu coal gasification and combined cycles activities in this area. Also fuel cells. So it gives you an indication of what we have in that immediate area.

Besides these, we also have major programs in MHD technology, liquefaction and high-Btu gasification. So we feel that since these are all being developed by people in the same general area and also subject to the analysis of Secretary Alm's shop, we have an in-depth type of trade-off and review analysis capability.

Mr. Chairman, I would be happy to answer any questions.

Mr. BROWN. Thank you very much, Mr. Fumich.

Let us see, who should we have next, Dr. Liverman?

Dr. LIVERMAN. I have no prepared statement.

Mr. BROWN. Well, why don't we just save you then for the exchange later.

Dr. Kash, do you have a statement that you could proceed with at this time?

STATEMENT OF DR. DON KASH, DIRECTOR, SCIENCE AND PUBLIC POLICY PROGRAM, UNIVERSITY OF OKLAHOMA

Dr. KASH. The remarks that I will be making today are really joint remarks of mine and Mike Divine who is sitting over here at the other end, a colleague of mine at the University of Oklahoma.

Mr. BROWN. Is he going to back you up on this?

Dr. KASH. Yes; actually he is the one with some judgment and information and I am the more handsome of the two. [Laughter.]

Mr. BROWN. I might say by way of a fuller introduction that in addition to his handsomeness, Dr. Kash has had widespread experience with the assessment of energy technologies in connection with his program at the University of Oklahoma, and we are very happy to have him here to contribute to our thinking on this subject.

Dr. KASH. Thank you, Mr. Chairman.

We appreciate this opportunity to testify on the proposed two-way transfer of environmental control technology and environmental research activities between the Environmental Protection Agency and the Department of Energy. Our comments today are divided into three categories. First, and most important, we would like to address the major issues raised by the transfer of EPA environmental control technology to DOE. Second, we will discuss the transfer of environmental research from DOE to EPA. And, finally, we will express some views on the overall needs for environmental research.

The decision to centralize responsibility for environmental control technology in a single agency, DOE, represents a major change in management philosophy. Simply stated, it reflects the belief that centralized management will have more payoff than the previous situation of interagency competition. Previously, technologies for controlling air pollution from coal were divided among three groups: The Bureau of Mines took primary responsibility for precombustion cleaning of coal; ERDA had responsibility for fluidized-bed combustion and synthetic fuels; and EPA had control over flue gas desulfurization. With the proposed transfer, DOE will take over all three of

these programs. That is the final step in concentrating these programs in DOE.

We know that under the competitive situation, EPA's flue desulfurization technology has moved rapidly to a point where it is now widely believed to be proven and is commercially available. What we do not know is whether more rapid or equal progress would have resulted from the centralized management that is now being implemented.

The rationale behind this move to centralized management is that it will increase efficiency by reducing the waste inherent in the overlapping functions associated with interagency competition. We do not find this rationale compelling in the case of environmental control technology. If the policy goal is rapid development of control technology, we believe the competitive situation is to be preferred. This is especially so when the technologies being developed are controversial and likely to be resisted by industry, as has been the case with air pollution control technologies.

Linked to the issue of centralization is the issue of inherent agency bias. In noting agency bias, we emphasize that bias flows from the congressionally mandated or assigned agency missions, and we do not mean to question the values or motives of the leadership of the two agencies. DOE's primary mission is increased energy production and efficiency. EPA's mission is environmental protection. In the process of developing new energy technologies, compromises will have to be evolved between these two missions. One point seems certain; it is that those interests in society who give primary emphasis to environmental protection will believe that DOE will weight the compromises in favor of production and efficiency, just as industry often complains that EPA has not given enough attention to the cost and reliability of flue gas desulfurization.

The central issue, then, is that of credibility. Credibility is the measure of confidence interested parties have that programs or actions of government are looking after their concerns. The proposed transfer will likely reduce the credibility of the Government's energy program to environmental interests and probably increase it with industry.

The third, and perhaps most crucial issue, and I really want to underline this, the third and perhaps most crucial issue that the subcommittee should consider as it reviews the transfer of control technology concerns the impact on EPA's technological base for supporting its environmental regulation function. Two factors make state-of-the-art knowledge of environmental control technologies essential to the EPA regulatory function. First, although many of EPA's regulations are supposed to be based on scientifically determined fate-effects relationships, in fact, there is only very limited scientific understanding of these relationships for most pollutants. In practice, then, if EPA regulations are to be neither impossibly stringent, nor unacceptably loose, they must be influenced by up-to-date knowledge of what environmental control technologies can accomplish. It is our impression that to date knowledge of control technologies has been essential to the realistic establishment of those regulations which are supposed to be based on scientific knowledge of health and environmental effects. Second, existing legislation, in fact, requires EPA to establish some technology-based standards. For example, the new source performance

standards established in the Clean Air Act Amendments are to be technology based.

The apparent rationale for the transfer is that DOE will have integrated programs for the development of energy production and environmental control technologies. EPA will then use DOE data in developing its environmental regulations. Given the different and potentially conflicting missions of DOE and EPA, we find the proposed arrangement less than satisfactory. We believe EPA must have the authority and resources to continue its own program in control technologies. Without the ability to be a major participant in control technology programs, EPA will have no say over what technologies are pushed and at what rate. Also, EPA is likely to lose the personnel expertise that is necessary to develop sound regulatory programs and to observe and evaluate the technology development programs being carried out in industry and other Federal agencies. In sum, this transfer of function could result in EPA being subjected to the same criticism the U.S. Geological Survey has faced in regulating offshore oil and gas without its own independent base of technical expertise.

Finally, the importance of each of the preceding issues might be less if both the history and expectations of close and meaningful cooperation between DOE—previously ERDA—FEA, and EPA were high. It is our impression that such cooperation has not been, and is unlikely to be, the case. Please note this expectation is in no way a reflection of the quality, motives, or good will of the people involved. Rather, it is a reflection of the organizations. The success of the two organizations is defined differently, and to make either organization's success dependent on the other seems less than wise. Stated simply, society is more likely to benefit if each organization has the full range of resources necessary to carry out its mission.

The previous four points have all dealt with the consequences of transport of those residuals and the dose-response relationships.

Our fifth point concerns the quid pro quo transfer of environmental research funds from DOE to EPA. To achieve the implied purpose of this transfer, it is necessary to define a clear line of responsibility between the two agencies in the area of environmental research. In the abstract, such a line may appear to be easily defined. For example, DOE might have responsibility for research on the various energy technologies, while EPA would have responsibility for research on the transport of those residuals and the dose-response relationships.

Unfortunately, the limited understanding and the complexity of the environmental effects of energy technologies, for example coal, make dividing research responsibilities highly questionable in our view. Research on dose response or pollution transport may very well lead to the need to investigate residuals that were previously viewed as of minor significance. For example, recent concern with trace elements and whether or not they should be regulated requires that EPA be concerned with both coal characteristics and coal conversion processes. Different coals and different conversion processes can affect the emission rates of the trace elements, the chemical forms in which they appear, and the waste stream in which they are emitted; that is, in the stack gas, the ash, or the scrubbing sludge. Such information is essential to structuring fate-effect studies and in regulatory decisions.

A second issue regarding this transfer is the loss by DOE of expertise concerning environmental effects that it must have to guide its

technology R. & D. program. The issue is parallel to the one identified earlier regarding the loss to EPA of its required technology base.

In sum any separation among agencies of research on the effects of coal residuals is likely to be an impediment to both environmental regulation and technology development. Our view is that both EPA and DOE should be free to study any part of the system associated with environmental effects that they feel is important to their mission. That is, both agencies should have freedom to pursue research in this area. Of course, there should be enough interagency communication and coordination, for example, as carried out by the Federal interagency energy/environment R. & D. program, to preclude significant amounts of overlap and redundancy.

Finally, we want to briefly touch on another point that is a subject of these hearings; that is, the size of the overall, Federal environmental research budget for fossil fuels, especially coal. The data we have indicate an absolute reduction in environmental R. & D. within DOE and an increase within EPA. However, we did not have information as to how these funds would be divided among coal, nuclear, and so forth. Present understanding of the environmental effects of coal utilization is very limited, much less than for nuclear, for example, and that is not in such good shape, I am told. The clear need is for more coal-related environmental research over the next few years, not less, no matter what agency funds it.

Thank you, Mr. Chairman.

I would be happy to respond to questions.

Mr. BROWN. Thank you very much, Dr. Kash.

As a matter of fact your statement makes many of the points which I must say have run through my own mind in going over this situation and it does it much better than I would have done it, I think.

If I may just correct or at least indicate my understanding with regard to that last statement that you made on the Federal environmental R. & D. budget. There has been a substantial increase in the EPA budget overall, but a minimal increase in the R. & D. section of that budget, as I think Dr. Gage could probably clarify for us.

Mr. BROWN. Dr. Gage, are you up to speed on what we are doing here? Do you think you could proceed with your statement?

STATEMENT OF DR. STEPHEN GAGE, ACTING ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT, ENVIRONMENTAL PROTECTION AGENCY

Dr. GAGE. Yes; I could immediately, if you want me to.

Mr. BROWN. We are trying to get the introductory statements out of the way before we enter into questions. So if you will proceed, Dr. Gage, who is the Acting Assistant Administrator for Research and Development of the Environmental Protection Agency, and we are pleased to have you here.

Dr. GAGE. Thank you, Mr. Chairman, I am pleased to appear before the subcommittee at this time to testify on the realignment of certain energy-related environmental research in the Environmental Protection Agency and the Department of Enengy.

As you have been discussing here this morning, the President's fiscal year 1979 budget provides for a change in program emphasis, under

existing agency authorizations, in the environmental research activities of EPA and DOE. In general, the new emphasis establishes EPA as the lead agency responsible for research in support of long range environmental goals and regulatory standards. Similarly, the action establishes DOE as the lead agency responsible for development of energy environmental control technology.

As part of this realignment in responsibilities, which you have been discussing, $14 million worth of health and environmental effects research currently conducted in DOE's National Laboratories will be incorporated in the EPA research program.

Also, $14 million of pollution control technology projects conducted by EPA will be administered in the future by DOE. The specific details of this action—namely, identification of the projects to be transferred and the arrangements for orderly transfer and future management—will be worked out by EPA, DOE, and the Office of Management and Budget during the next 3 months.

In fact Dr. Liverman and I will be meeting again tomorrow morning.

Mr. BROWN. I understand you meet weekly—is that right?

Dr. GAGE. That is correct.

The intent of this realignment is to improve the overall Federal effort in environmental research and environmental technology development. At the current time, there are significant overlaps in EPA's and DOE's mandates for environmental research and environmental technology development. These have arisen during recent years as a result of earnest attempts by both agencies to see that adequate scientific and technological data be available so that decisionmakers could make informed decisions. This realignment will clarify EPA and DOE responsibilities in the two designated areas.

During the past 3 years—which have included rapid growth in energy-related environmental research and formation of first the Energy Research and Development Administration and later the Department of Energy—there have been continuing attempts by EPA and ERDA/DOE to coordinate their programs. Some segments of the programs have been well coordinated, for example, those activities under the Interagency Energy/Environmental R. & D. program administered by EPA. However, these programs included but a fraction of the energy-related research conducted by EPA and DOE. In DOE's case, the pass-through funding from EPA was a miniscule fraction of its total research resources. The sheer enormity, over $300 million, and complexity, thousands of projects connected by several dozen laboratories across the country, of the combined EPA/DOE programs has, of course, made the problem of coordination extremely difficult.

With this realignment and the establishment of a permanent EPA/DOE interagency working group operating under the auspices of OMB, we can expect improved coordination across the full spectrum of energy-related environmental research conducted by the two agencies.

Further, by connecting the improved understanding of the combined EPA/DOE programs with the budgeting process, we could assure that Federal research resources are directed at the highest priority problems and that serious research gaps are filled. An approach to effect the best allocation of resources might be cross-agency zero base budgeting, a new concept recently described by OMB Acting Director James McIntyre.

One of the most significant benefits to EPA in the realignment will be the direct access to the outstanding expertise in national laboratories. Although we have not completed the identification of national laboratory projects to be transferred to EPA, we are confident that direct contracting with the national laboratories will expand markedly the capabilities we can draw on in developing the scientific data essential for environmental standards and regulations. We have supported research by the national laboratory personnel in the past and generally have been quite pleased with the work. We anticipate that, beginning with the projects transferred in the $14 million realignment, we can build upon the centers of expertise in the national laboratories to give us important future support both in regulation-oriented research and long-term environmental research.

I should also mention that the national laboratories, since they are operated by contractors, have considerably more flexibility in adjusting the size and skill mix of their staff than do Government laboratories operating under Civil Service Commission rules. This may be very important to EPA since our regulatory priorities evolve rather quickly while the personnel ceilings and skill mixes in our laboratories change very slowly.

The other part of the realignment involves the assumption of lead responsibility by DOE for pilot and demonstration plant projects in energy environmental control technology. EPA retains its current engineering and technical assessment capabilities as well as resources to continue bench-scale research on energy control technologies in order to advance the state of the art and to be able to specify best available pollution control technologies such as new source performance standards for existing and emerging energy technologies.

In the past, EPA has undertaken demonstration plant projects only in the area of sulfur oxides control. Noteworthy are the successful demonstrations of the magnesium oxide scrubbing process in cooperation with the Boston Edison Electric Co., and the highly promising Wellman-Lord scrubbing process now underway in cooperation with Northern Indiana Public Service Co. The Wellman-Lord demonstration will be carried through to completion, as will the double alkali scrubbing demonstration conducted with Louisville Gas and Electric Co., during the next 1½ years under EPA management. As you see, scrubber technology has been brought to a relatively high degree of maturity by EPA and the electric utility industry within the last few years.

Thus, in the scrubber area, the realignment basically affects future investment decisions on pilot and demonstration plants for advanced scrubber concepts. Since the Federal R. & D. resources could be allocated either to advanced scrubber concepts or to alternative clean energy technologies such as fluidized bed combustion, or to some mix of both, it is logical that such decisions should be made within a common set of decision criteria. Through careful weighing of technological, economic, and environmental factors, the most cost-effective use of Federal resources can be achieved.

Control of nitrogen oxides emissions presents a substantially different picture. Although some progress has been made in reducing NO_x from large coal-fired powerplants, the state of currently available NO_x control techniques, namely, certain modifications in the combustion process, is not adequate to check the nationwide growth in NO_x emis-

sions during the coming decade. This fact, coupled with increasing use of coal, demands a technological breakthrough.

At least one technique, low NO_x pulverized coal burners, however, does show promise of controlling nitrogen oxides emissions to the 80- to 90-percent level, well beyond the current 40- to 50-percent level. That is why EPA, in support of the President's national energy plan, sought a substantial supplement to its fiscal year 1978 budget to accelerate the development of this technique, which does appear to be applicable on conventional pulverized coal boilers. To assure the optimum conditions for success of this effort, the realignment excludes this ongoing effort, leaving EPA engineers responsible for carrying it through to completion. Future initiatives for NO_x control will, of course, be the responsibility of DOE.

Other EPA energy-related control technology R. & D. efforts have been primarily at bench-scale and pilot-plant levels with a flexible definition of bench-scale efforts—such as $\frac{1}{100}$ to $\frac{1}{30}$ of commercial scale plants—many of EPA's past contributions to the state of the art of pollution control would have qualified as the results of bench-scale efforts. We are confident that we can continue to press ahead with new innovations under the terms of the realignment.

The realignment does not relieve EPA in any way of its responsibilities to carry out the intent of the Clean Air Act, the Clean Water Act, and the other relevant authorities. We will continue bench-scale research, as I have explained, and we will also continue to test and evaluate control technologies developed by DOE and private companies so that we are fully aware of the capabilities of new control techniques and approaches. Further, through the permanent interagency working group and other mechanisms, we will urge DOE to carefully consider our priorities for funding of energy environmental control technologies.

An extremely important part of the realignment is DOE's guarantee that EPA will have access to all facilities, data, and methodology employed in the energy technology program. While we have negotiated specific arrangements with ERDA/DOE in the past 2 years, they have been limited to relatively narrow areas of concern, for instance, fluidized bed combustion. Where we have achieved agreement, the working relationships have been excellent and have involved genuine cooperation. With the broad DOE guarantee, we feel that we will have access to the information we will need to shape and set environmental regulations for the new energy technologies.

This concludes my formal presentation, Mr. Chairman. I would be happy to answer any questions you have.

Mr. BROWN. That is a very positive statement, Dr. Gage, one which would indicate the possibility that this matter could be satisfactorily resolved to the advantage of everybody concerned it seems to me.

We have not heard from Dr. Liverman, and at this point I will ask him just to offer any comments that he might have with regard to the presentations that we have heard so far.

STATEMENT OF DR. JAMES LIVERMAN, ACTING ASSISTANT SECRETARY FOR ENVIRONMENT, DEPARTMENT OF ENERGY

Dr. LIVERMAN. Thank you.

I did not come with any prepared statement in accordance with your staff's instructions. I could comment on two or three statements that have been made.

I think Mr. Alm spelled out, quite clearly, for you how the relations are between his office and mine in terms of policy implications of what is being done by the Assistant Secretary for Environment. I would say that since the formation of the Department only 4 months ago, we have made tremendous strides forward in working out effective relationships between us and addressing jointly those environmental questions that impact on the Department's policy. I am personally quite pleased with the way these relationships are going.

In the case of Mr. Fumich's comments, I think that this committee is fully aware, from its long knowledge about my own programs, that there have been times in the past in ERDA, when the fossil energy and environmental programs were not always happy with each other. I have to say, in all honesty now, that the relationship with George Fumich and Auggie Pitrolo, since they have taken that over, has had a very positive turn. George Fumich described for you some of the reasons for interactions between our two groups such as the gasifiers in industry program. We are also working together in the solvent refined coal area. Other things that George outlined indicate to me that the relationships are greatly improved. From the discussions that George and I have had in the last few weeks, I think that any problems that may have existed before are either ironed out now or will be ironed out because we are determined at the policy level that they will be ironed out; those views will be passed down to lower echelons in the Department.

I think Don Kash's comments about the public perception question is one which this committee wrestles with from time to time and there may be no way to clearly resolve what the public perception may turn out to be. I think that it behooves us all—Steve Gage and myself and everybody else involved—with this new approach that the President has said we should begin to achieve, to take every step we can to open up the process so that the public is fully informed about what we are doing at all stages of our programs, and measures to involve them so that they do feel that they are part of the decisionmaking process on these issues and are fully informed and therefore they will at least be confident they are being told the whole truth and will be given an opportunity to talk about those things with which they do not agree.

Don's comments about whether or not the total environmental programs of the Nation are receiving adequate support is certainly an issue before this committee, over and over and over again. I have my own perceptions of that problem. I think it is important that we utilize all of the resources we have, not only that in the technologies, that in the EPA, but that in the other 25 or 30 agencies in this town who are involved in areas related to the energy/environment interface questions and try to make maximum use of that to insure that in fact, I think in Don's words, that there is not redundancy, but more importantly that there are no holes in the R. & D. That needs to be done to insure environmental integrity of these systems as they move forward.

I think I would voice much the same view that Steve does that where there is a will there is a way, and if we march forward on this program of interchange of programs and funds, if it ends up in having a clear delineation of the responsibilities of the two agencies, it seems to me one comes out with a picture somewhat as follows: The EPA has a broad responsibility to work in this area. DOE has broad responsibilities to work in this area. And there is clearly a gray area and that will always remain, and we must insure that in that gray area there is not unnecessary redundancy. I think that the pressures that this committee, and others, that the OMB will bring to bear that we will be forced to talk to each other more vigorously and coordinate more vigorously than perhaps we have always done in the past, and I think that sort of summarizes where I come out.

Mr. BROWN. Thank you, Dr. Liverman.

Let me just make a few comments of my own.

I think I personally and I suspect most Members of Congress feel that there is not any magic about the particular forms of organization which guarantee the fulfillment of the public purpose. And it is not my intent to second-guess any legitimate organizational effort, exchange of programs, or whatnot that seem to be based upon any reasonably sound grounds.

What I am concerned about—and I think this is a shared concern by other Members of Congress—is that there be what we frequently designate by the shorthand term—"adequate coordination." This word does not convey very well all of the things that we are interested in, they obviously include that there be no unnecessary duplication of expensive work. It obviously includes an effort to analyze the existence of gaps in a research program.

These dual purposes require that in some fashion there be a mechanism for understanding the total program. You cannot very well determine gaps if you do not understand what the total program is trying to achieve, and this has been the most common defect of most forms of bureaucratic organization. Bureaucrats do not think in each of their shops in terms of the total program which is sought to be achieved to serve the public interest, and the Congress very frequently contributes to this and we are willing to accept the blame. But more and more I think you will find the Members of Congress concerned with remedying both the defects that we may have caused and the defects which may have arisen without our system. This is the purpose of an examination of the sort that we are talking about here.

Very frankly, it is far more important, I think, to the success of both of the agency's programs in terms of serving the public welfare, that we have accomplished what Dr. Gage refers to as EPA access to all the facilities, data, and methodology employed in the energy technology program.

You are not working in classified areas, gentlemen. You are working in areas in which you are both seeking to achieve the same purpose.

Now obviously there are times when bureaucratic rivalries or even frictions can develop and which there is a little dragging of feet here and there and it is very difficult to find this out sometimes.

But ultimately it tends to surface in one form or another and it is on those occasions that I personally become very incensed, because somewhere there is a defect that should have been corrected within the organization without it having to be brought up to the level of the

President and OMB or the Congress. It adds to our work and it is very unsatisfying. It causes us to make enemies and lose friends and none of us likes to do that.

So these are the concerns that we have.

Now, having pontificated to that extent, let me ask if any of you gentlemen would care to add to your original statement as to what you perceive the prospects for success in this realignment or the realignment of programs and in the organization of the environmental R. & D. policy functions.

On that one point, let me say, that I have no criteria that I could apply that would say that Dr. Liverman has to do all of the environmental R. & D. policy work in DOE. I think it quite properly has to be distributed between you and Mr. Alm and Mr. Fumich. But the important thing is that there be a recognition of the relative role that each of you is playing in this operation so that you can do just as you have to do in connection with outside agencies; make decisions which incorporate all of the facts and all of the necessary data.

Dr. LIVERMAN. Mr. Chairman, may I add one comment to my—I would pick up on the words of Don Kash—which really has to do with the perceived needs by an agency, and I think this sort of bears on the diversity which he felt is needed in order to insure that you bring to bear all the viewpoints.

Now today EPA and DOE could separate programs and start down the road. They will reach a point of disagreement about whether or not something is important in the other one's area that needs to be done but for their own purposes. And that will continue to exist, and I think that says, again, that there is a very important requirement imposed upon both agencies as well as the other agencies in town in this area, and that is that they work together on planning the R. & D. that they carry out. Because if EPA does not carry out something for which they have responsibility and which we feel a need, it is very clear we are going to go on and do it because we feel we have to have it in order, and the same thing is true of EPA looking at our side.

Perhaps if we develop the mechanism which you referred to insure that not only in the implementation of the budgets and R. & D. that we have ongoing, but in the planning of that we work closely together, perhaps it can be assured. But I think lacking that then we are going to be back in the same boat again later on.

Mr. BROWN. Mr. Alm, you mentioned an environmental issues committee, is that the kind of a mechanism which can help to achieve the goal that Dr. Liverman is talking about, or is this something that you put up to take the heat if something goes wrong? [Laughter.]

Mr. ALM. It may not be bad for that purpose, but that was not the reason I mentioned it.

The Environmental Issues Committee is designed to bring together the people within DOE that have environmental responsibilities under the purview of the Assistant Secretary for Environment.

As Mr. Fumich mentioned, the fossil energy program has environmental responsibilities, other direct program activities have environmental responsibilities, my office has environmental responsibilities.

It is important that within EPA and within DOE there be a group that focuses comprehensively on a series of environmental issues.

The second issue is how we are assured that DOE is coordinated with the Environmental Protection Agency. I indicated before that we have a regular working relationship with EPA. There are 21 groups working on individual problems. One group is implementing this notion of an overview of the DOE budget by EPA and vice versa. One of EPA's legitimate concerns which came out in a meeting that I had with Doug Costele is that EPA get involved rather early in the development of our budgets so that they can have the kind of input on the control technology side. That agreement has been developed. It is run out of the Office of Environment—Mr. Coleman, who works for Dr. Liverman, is the responsible official on our side for that coordination.

I guess my feeling is that these two mechanisms, one within DOE and one between DOE and EPA, provide a pretty good framework.

Now having said that, we realize that any coordinating mechanism is going to run into problems, and I think it is incumbent upon us to continually review how well we are doing and to work very closely with the committee and establish a dialogue on how well these mechanisms are working.

You have information that does not normally come to our attention. Problems come up on our side which you should be informed about.

Mr. BROWN. Well, we are particularly involved in this issue in this committee because we will look at both the environmental research and development budget in DOE and in EPA. And we are very much concerned that the momentum of critical high-priority programs be maintained, but if there is some question as to which agency is doing what, and one agency is reducing its budget whereas the other may be increasing it, it is rather difficult to see if this fits within a total plan of maintaining an adequate priority in that particular area.

Obviously other people including the Appropriations Committee and OMB look at this, but it has to be something that can be understood in a rational way by all of those who have some input into the policy process. And I hope that will include us to some degree.

Continuing on this Environmental Issues Committee within the Department for a moment. There are, as I indicated, two closely related issues. One is what you might narrowly define as coordination and the other is more broadly defined as coordination but includes sort of an overview of the total subject that is being coordinated to determine if the overall program within the agency, between agencies, with other agencies is adequate.

Now, can something like the Environmental Issues Committee do this or should there be a broader mechanism that can look in a very broad way at the total programs. Should we have such an organization or mechanism of some sort. Or, maybe we do, and if we do, what is it?

Mr. ALM. I think there are probably two dimensions to the question. One is the question of, To what extent do the environmental programs fit into the Nation's overall energy strategy? That is a critical issue because, as I indicated before, in the medium term, coal is going to be the major area of domestic energy growth. In the longer term we are talking about the use of coal for various synthetic products.

There are a number of constraints in the development of any series of technologies, including infrastructure, financing, and the like, but environment is one of the most important. You can either call it a constraint or an opportunity in terms of a new technology.

The function of evaluating constraints to energy production is a function of my office working very closely with other offices. The function of evaluating all DOE environmental programs, what progress is being made, and how well are we coordinated internally are issues the Environmental Issues Committee is most appropriate to perform. So I think these two functions can fit very nicely together.

Obviously, it all comes down ultimately to working relationships and the desire of people to make things work. And I can assure you we plan to do that. We work very closely together.

Mr. BROWN. Let me give you two simple examples of what I am talking about.

You have a perfect setup for internal coordination of environmental research and development in your Department and now you have developed a perfect relationship with EPA so that all energy environmental matters are adequately provided for.

However, it so happens that we have a huge problem stemming from another sector—agriculture, say, fertilizers and pesticides are getting into the streams and ending up in the ocean and we are all getting cancer from it, and the energy stream contribution is merely a small section of this whole thing.

Is there some way of looking at this other phase? Or if you cut it another way, as another example, you are doing an excellent job on the health effects of the energy production stream of carcinogens. You have got this perfectly under control. You have a beautiful cancer research program. But NIH has got another cancer program and they are fumbling away at the same problem. Are you able to develop an adequate way of optimizing our resources in this fashion? These are two separate additional aspects of the problem that have to be looked at it seems to me.

Mr. ALM. I think in many respects the question you are asking me probably is more directed at EPA. But since I am a former official——

Mr. BROWN. I will be glad to do that.

[Laughter.]

Mr. ALM. But since I am a former official, I think it is fair for me to make a comment or two before passing it on to my friend, Dr. Gage.

It is always a difficult problem with the diversity of Federal research and development and other activities. I remember in the particular area you mentioned of cancer research. We had a series of meetings with the Department of HEW dealing with the activities of both NIH and NIEHS. We developed some working arrangements at that time. These arrangements were in the nature of agreements. In the energy research and development area, on the other hand, there was a more formal mechanism established through passthrough of funds from EPA to other agencies.

The point I am making is that you should structure your coordinating mechanisms to the problem at hand. There is no one perfect pattern for coordination.

Dr. Gage, do you want to comment on that?

Dr. GAGE. Yes; I would like to, Al, thank you.

I would have to echo your point. There is no single mechanism; there is no single committee structure, or approach which can be used to get at the variety of problems that you described, Mr. Brown.

For instance, we essentially have a mirror image of the Environmental Issues Committee of DOE within EPA. This is an effort which was originally started by Mr. Alm when he was the Assistant Administrator for Planning and Management with EPA. It is called an Energy Policy Committee. Basically, we try to identify those cross-cutting issues that affect several offices within EPA. We then attempt to address the issues to make sure that we are coordinated within the agency and have a designated official to deal with the issues outside the agency.

This was more complex, I remember in Mr. Alm's day, because the activities were more splintered in the energy area. We had to deal with parts of Interior, with the Federal Power Commission, with the Federal Energy Administration, and with ERDA. We have found it necessary to reinvigorate that policy committee, and the chairman of the committee is Mr. Drayton, who succeeded Mr. Alm in the position of the Assistant Administrator for Planning and Management. I am a full member of that committee, and we have representatives from our Air, Water, and Toxic Substances Office as well.

With regard to the other types of issues, I think that we have a variety of mechanisms which are ongoing right now and interfacing with the National Institutes of Health. We have arrangements to use data developed by the National Cancer Institute on preliminary results of screening and the early identification of potential threats from compounds. We even get that information on a confidential basis before they have confirmed the results to a degree that they feel they can announce them publicly—just so we have very early warning of problems which may arise.

Another area—and I think a more difficult, more obtuse area—that we have to continue to worry about is the more subtle or secondary or tertiary interactions. You mentioned pesticides and agriculture chemicals. These chemicals certainly have an environmental impact. They also have a very strong influence on the productivity of American cropland. Further, they are a major component of energy demands with fuels being used to form the fertilizers and pesticides and with a great deal of fuel being used in the application to cropland. Those are the kind of interactions that I think we need to spend a lot more time working on. Hopefully some of the many issues might settle down and we can start worrying about some of the more subtle longer term issues that may be at the heart of future problems.

Mr. BROWN. I recognize when I phrase points of this sort in rather broad ways, it runs the risk of becoming such a broad issue that it becomes fuzzy and we cannot address it properly.

But basically, what I am looking for and whatever merit my position has, I think the same view will be shared by other Congressmen is cross-cutting ways in which we can approach this problem. For example, we have looked with considerable favor on the development of broad scale data base with full accessibility to all the agencies that are involved in a particular kind of problem. Similarly we have focused on systems like comprehensive monitoring systems which meet the needs of a number of agencies which need to be planned in a coordinated way.

We see these as ways in which we can strengthen our total program effort in broad areas and at the same time possibly simplify the structures which currently exist, and I do not need to tell any of you gentlemen how important today from a political standpoint is the need to simplify and rationalize our various different Government programs and Government organizations.

And it is only when we can see things that are of concern to a number of agencies and see mechanisms by which they can work together to meet a common purpose hat we have any chance of simplification. Otherwise we are going to create a national monitoring bureau or a national something else. It will probably go down the drain like the Consumer Protection Act did because it represents another layer of Government or another bureaucratic establishment.

So the purpose behind my sometimes fanatic pushing on these things is really to encourage more thinking that would look in a network fashion at ways we can develop these necessary systems without complicating an already complicated existence.

Dr. LIVERMAN. Mr. Chairman, may I take 2 minutes to talk to the mechanism thing?

Mr. BROWN. Yes.

Dr. LIVERMAN. I think your positions are always very restrained—whatever you may say of your positions.

As you and the committee are well aware we have started environmental development plans which attempt to lay out the problems in the energy technologies which get commented upon by EPA and the other agencies in town, the industry and the environmental groups hoping to identify problem areas.

Point No. 2—we have attempted jointly with the some 25 other agencies to identify the ongoing efforts in the environmental and related areas. Steve and his people in EPA about, I think, 3 years ago almost, as a result of the existence of the pass through exercise pulled together in Pinehurst, N.C.—and we did not have time to go golfing, it was too cold—but pulled together a workshop of about 100 people in the health area specifically looking at particular aspects of the health area by those people currently involved in the R. & D. efforts related to the health impact of energy pollutants.

I think if you take those three separate systems and weld them together in an effective relationship, then you in some large measure will have achieved the kind of coordination of which you speak, particularly if the workshop area is broadened to include the researchers that are not necessarily funded by EPA or by DOE, but the researchers who are doing work in that closely related area. What you then end up with is the environmental development plan gives you those areas which need more research done on them. The inventory tells you what is being done currently, and you get together the people who are working, and it really sharpens up the priority focus from a health and environmental impact of what should really be getting the top priority and what should not be getting the top priority. If you couple that then back to the EDP and the time frame that the technology needs answers in order to give you the decision process to go forward or not, then you have wrapped together what to me would seem to be a pretty effective mechanism for taking advantage from a regulatory and from a development standpoint all of the information we have, thoroughly

evaluated and be sure that you are putting your dollars on the target on which it should be located.

Mr. BROWN. You have described very well the kind of process which I have been trying to emphasize and I think you can count on continued encouragement from this committee in initiatives of that sort.

Now I have been monopolizing the conversation here too much.

Mr. Watkins, would you care to explore any of these issues?

Mr. WATKINS. Yes, I would, Mr. Chairman, I appreciate your yielding a few minutes to me. I am also glad to hear that you might feel that you are a fanatic about something because I know some folks probably feel like I am very much a fanatic about utilization of laboratories, and so forth.

Also, Dr. Liverman, your comment about the restraint of the chairman, let me assure you, I try to be very restrained too in my situation when I see, I think, the lack of coordination, the lack of adequate utilization of our laboratories and the lack of, I think, just the effort to sit down and try to say how can we utilize these programs.

Mr. Kash, I am from the State of Oklahoma, and I have not had the opportunity to visit with you and talk with you, but I think a centralized point I would like to begin with was briefly mentioned by you on page 3 of your testimony and that is credibility.

I think we have got a serious credibility gap and maybe a lack of a sincere effort to get some things resolved. I think we have a credibility gap here within the agencies of our Government. But let me assure you one thing, and I think Mr. Kash might have alluded to it, we have a tremendous credibility gap out here with the public. And I think, as our chairman said, there is a little political concern, I think, of a lot of us of just why we cannot resolve a lot of it.

I think a lot of it is in that second or third paragraph down, Mr. Kash, stated—first, although many of EPA's regulations are supposed to be based on scientifically determined fate-effects relationships—and I think that most of the people, and I have said this I do not know how many times, are willing to accept certain restrictions if they are based on adequate scientific research that might affect the health, or might affect the operation of agriculture, water, or whatever. I think they are willing to tighten their belt and work it out, but I think so much of these regulations come out without that proper basis.

And second, and if I am thinking wrong, I can be corrected. When we find something on scientific analysis and research, we should also come up hopefully with a different alternative. I mean not put the people with such a barrier on something and say you cannot utilize this any more, you cannot do this any more. Here is an alternative. People accept it. Our credibility would be increased tremendously in the energy field as well as all facets of it.

Now, one of the things I have suggested close to a year ago, and I have not seen anything done about it, maybe there is something happening on it. I would like to ask you all. I discussed the possibility of some joint research through interagency agreement in some of the laboratories, like an EPA laboratory. And just briefly, because I would like to get some brief answers because I have to catch a 12:15 flight to Oklahoma.

Are we doing anything in this area from the Department of Energy on environmental studies? Are we doing any research in EPA labs on interagency agreement?

Dr. LIVERMAN. We transfer very little money into the EPA, although there is a small amount. I do not know exactly what that is.

EPA, on the other hand, is carrying out a sizable amount of it, and I guess, Steve, the number must be $6 million?

Dr. GAGE. About that, Jim.

Dr. LIVERMAN. $6 or $8 million a year in our various laboratories, and many of these are joint programs between my program and, say, George Fumich's program and Steve's program. And George mentioned the case of the—not in the laboratories but essentially the same—the University of Minnesota project looking at gasifiers for the university there in which not only Dr. Gage, but Mr. Fumich and me and OSHA, all have joint programs. So that when they come out with a regulation, it will be based on facts that we all agree are facts, which I think, you know, leans a great deal to what the credibility——

Mr. WATKINS. I caught that statement, but I have talked for a year about the possibility of needing a joint laboratory as such in order to carry out some of this because I am deeply concerned about the credibility. And I think if we did some joint work, maybe in some laboratories, on petrochemical, petroleum, or on energy, such as the water labs, we would probably get more credibility, and I would like to see some of this take place. I have got many notes here and I know I am going——

Dr. GAGE. Mr. Watkins, I would certainly welcome the transfer of any DOE funds to EPA laboratories. [Laughter.]

Mr. WATKINS. I would like to, too, since I have seen all the evidence, Dr. Gage, it looks like you are going to attempt to close down the energy petroleum research at the laboratory in Ada, Okla. I get deeply concerned about the direction when I see research going in all directions, and we have laboratories, Government facilities, that are 40 percent in operation. Now, it is costly to pay the overhead for a lot of research to go in many other areas, especially when we set with laboratories 40 percent occupied. That is something in behalf of the taxpayers that I hope we can get an answer to and we can see if we can place some research in some of these laboratories to not let them just be there as shelter.

Now, I would like to go with another statement which concerns me, which Mr. Kash made, and I think it is something we should not let go lightly.

He says—finally, the importance of each of the preceding issues might be less if both the history and expectations of close and meaningful cooperation between DOE and EPA were high. It is our impression that such cooperation has not been and is unlikely to be. I hope we can in-house develop that cooperation, and I understand there are efforts being made to do that, because I think it is crucial, and I would like to see some of that cooperation done by seeing where we can better utilize some of the facilities. I am deeply concerned, Dr. Gage, in evidence I see about basically the long-term agreement, I think, we have. It looks like the plans are to shut down certain areas. I want to discuss this with you after this. And I do not think this was anywhere in our discussion.

Let me ask Dr. Gage a couple more questions along these lines.

Are agencies or managers of our environmental research programs adequately considering the full utilization of these laboratory facilities?

Dr. GAGE. We have had several discussions about this before, Mr. Watkins, and I assure you again that utilization of our laboratories and, probably more importantly, of our personnel is a daily preoccupation. As I have explained to you, we are under very limited manpower ceilings. Our manpower has essentially remained constant over the last 4 years within the Environmental Protection Agency's research and development program. One of the unfortunate things is that we just cannot turn dollars which we have been getting in increasing amounts for the conduct of the research program into Federal civil servants which we need to hire into our laboratories. There may be some other mechanisms such as bringing some contract or other personnel into our laboratories on a cost-reimburseable basis, of course. But let me assure you the best utilization of what we have——

Mr. WATKINS. How about the interagency agreements we would like to deal, we used to do some environmental studies in some of these——

Dr. LIVERMAN. You are addressing the question to me——

Mr. WATKINS. Yes; I am.

Dr. LIVERMAN. I think the issue again here hinges on the point that Steve makes, that the activities in their laboratories, if we transfer money to them, gets carried out through the use of civil servants, so they are blocked by the ceilings that the President places on the laboratories. Now, the other option which DOE uses extensively as you know and except almost totally except for George Fumich's program in fossil, the energy research labs is done by contractor employees. And the ceiling there is limited by the number of dollars that you can put into the place. So I think the case in Ada is that it has principally and historically been a civil servant staff laboratory, and if it becomes a contractor-operated-and-run laboratory, then the question only then becomes one of are there programs that make good sense to put there.

I would like Dr. Gage to comment on what I have said, but I think that is essentially true.

Dr. GAGE. I think you have exactly described the situation. I do think there are programs which can be operated very effectively out of the Ada laboratory. We have, in fact, begun a new initiative for fiscal year 1979 at Ada in the area of ground water reseach. This is an area which has not received enough attention. It is one of those areas that sort of slipped between the cracks of the various environmental authorizations in the past few years, although there has been some attention given to it in the Resource Conservation and Recovery Act and the Safe Drinking Water Act. Nowhere is there a comprehensive approach to the treatment of ground water problems, and I certainly would like to welcome the Department of Energy and any other Federal agency that would have an interest in working with us to build up the capability in the ground water research area as quickly as possible.

Mr. WATKINS. I am very enthused about that, and I am looking at that flexibility and some of these barriers that we might have. I would appreciate from you some indication on those.

Let me ask you a question.

Is the utilization of these existing facilities given little or no priority in carrying out research?

Dr. GAGE. The utilization of our facilities is a major factor to take into account, but it cannot be something which is unrelated to the

utilization of the personnel that is involved. First and foremost you must have someone who is capable and experienced in the area to put in charge of a project or you must have some new positions that you can place in a facility which can be filled with people having that type of expertise. Putting all those factors together we try to allocate our resources the best way possible.

Mr. WATKINS. I will not continue this because I know you and I have an appointment next week. I want to visit with you on that in great length. I read your statement and I will probably have some more questions on that, Dr. Gage.

Mr. Fumich, let me ask you another question.

I understand reorganization has established an environmental adviser to this Assistant Secretary—has that been filled?

ENVIRONMENTAL ADVISER TO THE ASSISTANT SECRETARY

Mr. FUMICH. I do not think it has been filled yet, sir. I know that Mr. Thorne is looking for someone, but I do not think that position has been filled yet.

Mr. WATKINS. Has there been any indication of when it might be filled?

Mr. FUMICH. He was talking about the very near future, in other words something is imminent.

Mr. WATKINS. I just wondered—maybe that is part of our problem down there. We lack personnel slots being filled, and I understand the problem because there are a lot of similar situations in Oklahoma. With personnel slots not being filled you cannot get the job done.

Dr. LIVERMAN. I think Mr. Fumich is correct because Mr. Thorne and I have actually discussed possible candidates for that position in his organization because he feels it is important that whoever occupies that, they have a very close relationship with the Assistant Secretary for Environment. So I think it is a positive answer——

Mr. FUMICH. He also wanted to make sure that I, and the others, got his message. [Laughter.]

Mr. WATKINS. Let me ask Mr. Fumich another question.

In your testimony, on pages 7–8, you listed some of the programs that you presently have going and I have tried to outline each one of these.

Briefly, what are some of your new programs that you plan for fiscal years 1979 and 1980? You mentioned some of the existing programs with as much emphasis being placed on some new technology and alternatives.

NEW TECHNOLOGY DEVELOPMENT

Mr. FUMICH. Well, in many cases it involves third-generation activities. I will just give you an example. We have been involved in gasification technology for quite some time.

I have been involved in it myself for about 15 years, and there is quite a bit of controversy on the status of second-generation technology. Some people say it is about 15 percent more efficient than first-generation technology. Others say that it is not. However, we feel that we are involved in research right now which can lead to a breakthrough in increased efficiency. In any gasification process, the reactor comprises only about 5 percent of the capital investment of a complete

commercial plant involving over $1 billion investment. So if you only work at improving the reactor and even though you make a major breakthrough, you will not make a major impact in that particular technology.

On the other hand, if you work not only on improving the reactor but on cutting down or eliminating many of the downstream capital requirements, then you can make a major improvement. These are the areas of R. & D. that we are getting involved in.

I will give you another example—improved coal cleaning. We have been involved in physical coal cleaning for quite some time, but chemical coal cleaning is something really new. We have about seven processes now where we think that by utilizing chemical cleaning we can get much of the organic sulfur out of coal. And we feel that maybe two or three of these processes can pass muster and we can move ahead in a major development scheme.

Of course we also have the fuel cell technology that was transferred to us recently from the conservation group within ERDA and we think that this as great promise, particularly when we start moving into the second- and third-generation technology. So it is not alone in looking for new areas, it is looking at what we have already and seeing where we can make these major improvements. Because, to be completely candid with you, if we are going to do something in the next 10 years, it is not going to be by finding new technology. It is going to be by making major improvements in areas where we have already spent a lot of money. Then of course we can also move ahead these other areas that you are considering.

Mr. WATKINS. Just a quick comment on that and another quick question.

As Mr. Kash knows, the area I represent probably has tremendous potential with the fossil fuel development—oil, gas, and coal—and I am deeply interested in and concerned with the sulfur work you have done there.

The question I have is what are you doing along the lines of enhanced oil recovery?

ENHANCED OIL RECOVERY

Mr. FUMICH. Enhanced oil recovery is one of our more promising technical areas.

Unfortunately, when we extract oil we only extract about one-third of the oil in place. A good way to show the technical problem in this area may be that 1 cubic foot of sediment spread out equals about the area of a football field. So when you scrape all the oil off the top of that football field you come up with 1 gallon. This is the type of problem that we are involved in underground. You cannot get all of this oil out because it is either too thick or viscous or the permeability of the sediments there is too low or too heterogeneous. So you have to fracture them or use chemical or thermal recovery methods and, as a result of the combination, you can bring out more oil.

Unfortunately, like in everything else you have something that puts a cap on that activity and that is economics. Chemicals cost a lot of money, so if we can find a new way of doing this, we can increase our oil availability. I think this is one of our more important areas so we are increasing this effort.

Mr. WATKINS. That is probably one of the greatest things in the decade ahead of us—our coal development. This issue will require increasing attention in the very near future, and I can see a couple of questions we have to get answered: ground water and some other things associated with enhanced oil recovery. I do not know if anyone has sat down and tried to discuss this problem or not. I think this is an opportunity for us to develop an abundance of oil that has not to date been available in this country. I think we need to try to find this answer.

Mr. ALM. Mr. Watkins, I would just like to make one comment.

Tertiary recovery of oil under the national energy plan would receive the world price. This is the case where focusing both the regulation efforts of the Department and the research efforts we would develop the techniques of advanced recovery on the one hand and on the other hand provide the economic incentives for the actual development.

Mr. WATKINS. Mr. Chairman, I would like to thank you for having this meeting this morning. I stayed over last night, though I had planned on leaving, because I felt the importance of this meeting. Some coordination and some policies need to be worked out and developed by all of you, and I hope for some answers concerning the utilization of our laboratories. I think the effort has got to be made and I hope that each of you knows the priority the chairman has placed on this kind of work since I have got to run like mad now to catch a plane before it takes off. I appreciate your willingness to sit down and do what you can to work some of these problems out. I think, Mr. Kash, your statement about credibility sums it all up.

Thank you, Mr. Chairman.

Mr. BROWN. Thank you, Mr. Watkins.

I want to ask the staff to help me with a few questions which need to be answered. This will just take a few minutes. We are trying to complete our authorization hearings on this subject of environmental R. & D. so that we can get a bill marked up in the near future. I unfortunately have a tendency to neglect some of the details of this process while I concentrate on larger and sometimes less important matters. [Laughter.]

Mr. BROWN. Mr. Spensley?

Mr. SPENSLEY. I would like to explore a little bit the role differentiation between the three areas that are represented today, and I would like to start with Mr. Alm.

Can you give me some idea in your own words of the difference in role in the area of environmental control technology development or environmental control technology activity between the Assistant Secretary for Environment and in the fossil fuel program?

Mr. ALM. I am pretty much in agreement with what has been said today. The overview responsibility is the responsibility of the Assistant Secretary for Environment. Much of the detailed work would be conducted by the Fossil Fuel Office, as indeed it should be. The development of any technology has to have the environmental component developed from the very start. And the Office of Environment is responsible to make sure this occurs. For example, the environmental development plans process is very important. We now have 33 completed and 26 have been approved by the Assistant Secretary for Environment.

Mr. SPENSLEY. Would you be more specific on that statement, because I think that is the statement that has been echoed by the other witnesses as well.

Let us take the case of policy development in the environmental area or in environmental control technology tradeoffs as an example. Where should that activity principally be?

Mr. ALM. That, Mr. Spensley, depends on the particular issue. If you are developing an overall supply strategy, you have questions about the use of various fuels, let us say coal, and then you have questions about the contributions of individual technologies such as atmospheric fluidized bed combustion, low Btu gas or coal burned as coal. These are issues that policy and evaluation would get into because we would be dealing with the whole variety of departmental tools to bring about the development of energy supplies.

I would say the trade-offs also get involved with Dr. Liverman's overview role——

Mr. SPENSLEY. Maybe it would help if I were a little more specific.

Take the example of trade-offs between the environmental control technology activities across the technology development area. Presumably that would be an activity that would be in Dr. Liverman's shop because it would include more than fossil. Do you agree with that?

Mr. ALM. Yes.

Mr. SPENSLEY. Now where within the fossil program should examination of environmental trade-offs among environmental control technology activities for a variety of fossil applications be?

Mr. ALM. It depends on the issue. In general——

Mr. SPENSLEY. Let us say an examination of the trade-offs, the economics, or the environmental acceptability of the various environmental control technology strategies across the fossil program.

Mr. ALM. The programatic responsibility would be with Mr. Fumich. Dr. Liverman would have an overview function.

Mr. SPENSLEY. I do not understand overview. That is my problem.

Mr. ALM. Overview, I think, almost speaks for itself. Dr. Liverman has responsibility for evaluating the program, for helping set priorities, and if conflicts exist ultimately either resolving them, or getting a resolution from the Secretary.

Mr. SPENSLEY. Moving to another area for a minute, what do you see as the role of the Assistant Secretary for Environment in examining environmental impacts and considerations of the soft energy paths as an energy strategy?

Mr. ALM. That is a critical effort that Dr. Liverman has to undertake. In fact, this is something that we talked about very recently and we are now looking at particular work in dividing the policy component from the component dealing with the environmental impact.

Mr. SPENSLEY. Finally, we this morning had a short meeting with one of the CEQ members, and we understand that they are now in the process of asking for comments by the various agencies on their proposed regulations.

I am curious to know whether the Department of Energy has provided any comments, and if so, who prepared the comments and who reviewed them before they were submitted.

Dr. LIVERMAN. Do you want me to answer that?

Mr. ALM. Why don't you answer that. [Laughter.]

By the way, I have read the comments, but with the concurrence system we have I am not sure who prepared them.

Mr. SPENSLEY. Did you concur in them—the comments?

Mr. ALM. Yes.

Dr. LIVERMAN. The comments were—when the regs came in they were taken by my NEPA office and sent out to all of the Assistant Secretaries and the Administrators and the Directors and there are some 25 of them or something, and consolidated by my shop and put together. As you have seen they are focused on two or three areas, specifically the question of the extent to which NEPA was required to analyze impacts in the foreign arena and whether NEPA should require that environment was given superior or equal status with economics and other national policies were ones that gave some trouble within the Department.

And they were concurred in as they went out the door by everybody and I believe they went over the signature of the Deputy Secretary, it could have been the Under Secretary.

Mr. SPENSLEY. Did you make comments, substantive comments in your shop, or did you just simply consolidate——

Dr. LIVERMAN. No, no, we made substantive comments also.

Mr. SPENSLEY. Could you provide a copy of your comments of the CEQ regulations for our records?

Dr. LIVERMAN. Sure—what time frame do you wish those.

Mr. SPENSLEY. As soon as possible.

[The document follows:]

Department of Energy
Washington, D.C. 20461

FEB 6 1978

Mr. Charles Warren, Chairman
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

Dear Mr. Warren:

The Department of Energy (DOE) has reviewed the draft regulations proposed by the Council on Environmental Quality (CEQ) to implement the procedural requirements of the National Environmental Policy Act (NEPA), which were transmitted by your letter of December 12, 1977. DOE has also reconsidered the merits of the proposed Executive order, originally circulated to Federal agencies on August 19, 1977, as requested.

DOE fully supports the President's objectives to reduce paperwork, simplify procedures, and improve the effectiveness of the environmental review process. However, on the basis of this review, we have substantial concerns regarding the policy and procedural implications of the proposed Executive order and regulations.

Background

President Carter, in his Environmental Message of May 23, 1977, noted that NEPA

> has had a dramatic--and beneficial--influence on the way new projects are planned. But to be more useful to decisionmakers and the public, environmental impact statements must be concise, readable, and based on competent professional analysis. They must reflect a concern with quality, not quantity.

Accordingly, the President issued E.O. 11991, directing CEQ to issue regulations to implement the procedural provisions [Section 102(2)] of NEPA. A complete overhaul of the environmental impact statement (EIS) process was not required.

In the course of preparing the Environmental Message, and subsequent thereto, CEQ sought additional authority, by means of a proposed Executive order, to implement the substantive goals of NEPA. These efforts were firmly opposed by each of the major constituent agencies incorporated into DOE. Further, we understand that other Federal agencies expressed major concerns in this regard.

Comments on the Proposed Executive Order

The proposed Executive order does not differ from the version previously reviewed, and therefore, is not responsive to prior agency comments. It would require, among other things, that Federal agencies: (1) select the alternative that is least harmful to the environment, unless there are specific overriding national policy considerations; (2) use all practicable means to avoid or minimize significant environmental harm; and (3) adopt a concise public finding which states that all practicable means have been adopted and enforced to minimize or avoid significant environmental harm and which provides reasons for choosing an alternative other than the one which is least harmful to the environment.

DOE maintains that such requirements misconstrue the primary purpose of NEPA and make such a substantive and fundamental change in the implementation of public policy, with potential adverse inflationary and energy resource development impacts, that the substance of this initiative should be submitted for Congressional consideration rather than activated by Executive order (see Tab A for detailed comments).

Comments on the Proposed Regulations

The DOE review of the proposed regulations (see Tabs B and C for detailed comments) has identified four major policy issues that require resolution as well as major concerns regarding: (1) the appropriate scope of the regulations consistent with the mandate of NEPA and E.O. 11991; and (2) areas of unwarranted administrative burden, insufficient guidance, lack of clarity, and technical inconsistencies.

Major Policy Issues

The following major policy issues, raised in the regulations, with respect to the role of CEQ and the application of NEPA in Federal decisionmaking need to be resolved:

(1) Requirement to Identify the Environmentally Preferable Alternative

This requirement, coupled with the requirement in the draft Executive order, misconstrues the primary purpose of NEPA and, as noted above, could lead to severe impacts. Further, as discussed in Tab A with respect to the proposed Executive order, as well as in Tab C with respect to the regulations, it is generally unworkable to require agencies to identify the environmentally preferable alternative. This proposal also exceeds the authority of E.O. 11991 by attempting to infuse substantive goals into procedural regulations.

(2) Transformation of the EIS Process into the Agency Decisionmaking Process

Certain requirements of the draft regulations, such as publication of a judicially-reviewable record of decision stating how the EIS was used by the agency in its decisionmaking and justifying why the least environmentally harmful option was not selected, as well as expansion of the referral process to all agencies and extension of the time to implement the decision because of interagency disagreements on the EIS, appear to transform the EIS process into the predominant agency planning and decisionmaking process, with strong potential for delay and even deterrence of significant agency activities. Such an approach tends to "judicialize" and inhibit administrative decisionmaking, and exceeds the mandate of NEPA and E.O. 11991.

(3) Role of CEQ in Disagreements Involving Environmental Issues and Other Matters of National Policy

The expanded referral process (involving agencies other than the Environmental Protection Agency) would elevate CEQ above all other departments, agencies, and other governmental bodies, including the Office of Management

and Budget (OMB), in resolving such major issues. DOE believes that this proposal improperly broadens the meaning of Section 102(2) and that CEQ's responsibilities as an environmental advisor to the President preclude it from resolving issues of this nature.

(4) International Reach of NEPA

DOE has serious reservations regarding the potential impairment of the U.S. international competitive position, particularly in regard to the export of energy sources, including nuclear facilities, equipment and material, if agencies are required by the proposed regulations to inquire into the environmental effects in foreign nations of their major actions.

These issues are fundamental to the interagency review of the proposed regulations and should be addressed through the normal OMB issue process. DOE believes that the development of the proposed regulations cannot logically proceed until these issues are resolved.

Other Major Deficiencies

Pending resolution of the major policy issues, CEQ should begin to address other shortcomings in the proposed regulations relative to the mandate of E.O. 11991. These include: (1) extension of the regulations beyond recognized boundaries of NEPA law and policy; (2) extension of the regulations beyond the mandate of E.O. 11991; (3) increase in Federal paperwork burden; (4) increase in time requirements and potential delays; (5) additional potential for litigation; (6) unworkable requirements for participating agencies; (7) insufficient guidance in crucial areas; and (8) insufficient clarity, coherence and precision for a regulatory document.

Recommendations

We believe that the analyses enclosed will firmly support our recommendations that CEQ:

(1) withdraw its proposed Executive order;

(2) prepare issue papers to permit resolution of the major policy issues underlying the proposed regulations through the OMB issue process; and

(3) redraft its proposed regulations and recirculate them for agency review prior to their publication in the Federal Register.

We would be pleased to provide further input on any of these comments if desired.

Sincerely,

/s/

John F. O'Leary
Deputy Secretary

Enclosures

cc: James T. McIntyre, Jr.
Acting Director
Office of Management and Budget

Tab A

DOE Comments on the Executive Order Titled "Relating to Protection and Enhancement of Environmental Quality"

In response to CEQ's request of December 12, 1977, DOE has reviewed the proposed Executive order entitled "Relating to Protection and Enhancement of Environmental Quality," that was previously submitted to Federal agencies for comment on August 19, 1977. During the first review, the Federal Energy Administration, Energy Research and Development Administration, and other elements now comprising DOE expressed severe reservations regarding the proposed Executive order. DOE finds no changes in the re-proposed Executive order that would allay any of the original concerns. Therefore, we are providing below our full detailed comments on the Executive order in the hope that we can better convey to CEQ our problems with the approach under reconsideration.

The proposed Executive order amends Executive Order No. 11514, and requires the following: (1) Federal agencies in choosing among alternatives in environmental impact statements and in planning and carrying out agency actions, must select the alternative that is least harmful to the environment, unless there are specific overriding national policy considerations; (2) agencies use all practicable means to avoid or minimize significant environmental harm; and (3) each agency, when choosing among alternatives in environmental impact statements, adopt a concise public finding that states that all practicable means have been adopted and enforced to minimize or avoid significant environmental harm and provides the reasons for choosing any alternative other than the one which is least harmful to the environment.

In DOE's view, the proposed Executive order is unacceptable as a matter of policy and is in conflict with the basic purposes of the National Environmental Policy Act ("NEPA"). We have the following major concerns:

1. There is a substantial legal question as to whether NEPA is an adequate statutory basis for the issuance of this Executive order. There is not agreement among legal scholars or the Federal courts as to whether and

to what extent NEPA contains substantive requirements as well as procedural ones. If NEPA is only procedural in nature, the proposed Executive order is without legal foundation.

2. Even assuming NEPA has sufficient substantive content to sustain this Executive order as a matter of law, the proposed Order misconstrues the primary policy of NEPA. NEPA declared a national policy to "use all practicable means and measures"..."to create and maintain conditions under which man and nature can exist in productive harmony," and "fulfill the social, economic, and other requirements of present and future generations of Americans." Consequently, with respect to any substantive NEPA content and its impact on Federal decisionmaking, the range of objectives to be considered are evidently broad and often competing. Given this broad definition of environment, it is excessively simplistic to attempt to determine which of several alternatives might be the least environmentally harmful. In fact, it is a contradiction to suggest in Section (1)(a)(3)(ii) that the alternative "which involves the least harm to the environment" ("harm" being more readily applied to physical damage) and the "environmentally preferable alternative" (encompassing broader objectives) are necessarily one and the same. Furthermore, even with respect to the natural environment, the task of forecasting the magnitude of environmental impacts is often imprecise and unquantifiable. Therefore, any attempt to rank alternatives as required by the Executive order will be subject to major questions and challenge while injecting inefficiency and uncertainty in the decisionmaking process.

3. As a matter of policy, the substance of this initiative should be submitted for Congressional consideration rather than be actuated by an Executive order because it makes such a substantial and fundamental change in the implementation of public policy by Executive Branch agencies. In setting the nation's public policy through enactment of legislation, Congress determines the basic priorities through enactment of substantive laws as well as appropriations. A change such as that proposed represents, in effect, a substantial reordering of national priorities. Laws which

mandate that specific agency action be undertaken in accordance with specific statutory standards will, in their implementation, have added to them a new standard which requires that a certain approach be taken absent "overriding considerations of national policy." This type of fundamental adjustment of national priorities should not be undertaken except through the legislative process--including the hearings and broad public debate the issue deserves.

4. This radical alteration in the framework of environmental regulation is being proposed without any evidence that agencies are not currently giving sufficient weight to environmental considerations in the decision-making process. Our experience demonstrates the opposite, that the substantive objectives of NEPA are being largely met by the agencies through the Section 102(2)(C) process. In contrast, we have yet to see the rationale for the Executive order or an estimate of the benefits that could be expected from it. We believe that prior to further consideration of the Order CEQ should provide a statement of the incremental benefits to be derived from the proposed Executive order. Further, should such benefits exist, then achievement through the Executive order appears inappropriate in light of the major substantive environmental protection afforded the country through other environmental protection statutes. These basic environmental protection statutes (i.e., the Clean Air Act, Federal Water Pollution Control Act, Coastal Zone Management Act, Surface Mining and Reclamation Act, etc.), provide for the necessary and appropriate protection and restoration of environmental quality. Furthermore, these statutes afford protection not only for Federal activities but also encompass private, State and local activities. If additional substantive environmental protection authorities are deemed necessary, amendments to those basic statutes should be proposed by the Administration.

5. The proposed Executive order should be accompanied by an estimate of the inflationary impact of the proposed requirements. Because of the wide ranging scope of NEPA on Federal and non-Federal actions and projects, the shift from the traditional "least cost" criterion

to the "environmentally preferred" criterion could result in a substantial cost to the Nation. No restructuring of the balancing process inherent in NEPA can logically be contemplated until an in-depth study of the economic impacts has been completed.

6. Adoption of this Executive order could well lead to pressure for similar requirements with respect to public policies which are every bit as critical as environmental issues. Thus, there could be a requirement that agencies choose the "least energy consuming" alternative, or the "most unemployment reducing" alternative. The possibilities and the legitimate justifications are endless - as would be the paperwork, confusion, and improper public administration caused by such an approach.

7. An additional policy factor weighing heavily against the issuance of this proposed Executive order is the possible adverse energy impact that could result from delay. The Federal Government's ownership of energy resources as well as its licensing activities are substantial and represent a significant percentage of future energy supply. The addition of the concepts of "least harmful alternatives," "environmentally preferable alternative" and "overriding considerations of national policy" are invitations to litigation with respect to the development of these resources.

For the above reasons, DOE continues to oppose the issuance of the proposed Executive order. We suggest that the proposal has failed to support itself on merit and that it should be removed from further consideration.

DOE Comments on Proposed CEQ Regulations: Summary and Index

DOE Comments on Proposed CEQ Regulations: Summary and Index

Section		Exceeds NEPA	Exceeds E.O. 11991	Additional Paperwork	Additional Time/Delay	Litigation Potential	Insufficient Guidance	Vague/ Unclear/ Inconsistent	Page # Tab C
Part 1500. Purpose									
1500.1	Purpose	X	X						1
1500.2	Policy	X	X						4
1500.3	Mandate		X						6
1500.4	Reducing Paperwork						X		7
1500.5	Reducing Delay						X		7
1500.6	Agency Authority		X						8
Part 1501. Agency Planning									
1501.1	Purpose		X						9
1501.2	Apply NEPA Early	X		X			X	X	10
1501.3	When to Prepare an EA			X			X	X	12
1501.4	Whether to Prepare an EIS						X	X	13
1501.5	Lead Agencies				X		X	X	16
1501.6	Cooperating Agencies			X	X			X	19
1501.7	Scoping			X	X	X		X	22
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Part 1502. EIS's									
1502.1	Purpose	X	X						27
1502.2	Implementation		X					X	27

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Section		Exceeds NEPA	Exceeds E.O. 11991	Additional Paperwork	Additional Time/Delay	Litigation Potential	Insufficient Guidance	Vague/ Unclear/ Inconsistent	Page # Tab C
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1502.23	Cost-Benefit Analysis	X		X					48
1502.24	Methodology								48
1502.25	Environmental Review Requirements				X		X		48
Part 1503. Commenting									
1503.1	Inviting Comments				X			X	49
1503.2	Duty to Comment								49
1503.3	Specificity		X						50
1503.4	Response							X	50
1504. Predecision Referrals									
1504.1	Purpose	X							51
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1505. Decisionmaking									
1505.1	Decisionmaking Procedures	X	X	X				X	55
1505.2	Record of Decision	X	X	X		X			56
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Section		Exceeds NEPA	Exceeds E.O. 11991	Additional Paperwork	Additional Time/Delay	Litigation Potential	Insufficient Guidance	Vague/ Unclear/ Inconsistent	Page # Tab C
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1502.4	Major Federal Actions						X	X	30
1502.5	Timing							X	32
1502.6	Interdisciplinary Preparation						X	X	33
1502.7	Page Limits					X	X	X	34
1502.8	Writing							X	34
1502.9	Supplemental Statements						X	X	35
1502.10	Recommended Format			X				X	37
1502.11	Cover Sheet						X		38
1502.12	Summary						X		38
1502.13	Purpose and Need						X		39
1502.14	Alternatives	X	X			X	X	X	40
1502.15	Environmental Consequences						X	X	43
1502.16	Affected Environment								44
1502.17	List of Preparers			X	X	X			44
1502.18	Appendix							X	45
1502.19	Circulation of the EIS				X			X	46
1502.20	Tiering						X		47
1502.21	Incorporation by Reference							X	47

Section		Exceeds NEPA	Exceeds E.O. 11991	Additional Paperwork	Additional Time/Delay	Litigation Potential	Insufficient Guidance	Vague/ Unclear/ Inconsistent	Page # Tab C
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1506.4	Combining Documents							X	61
1506.5	Agency Responsibility							X	62
1506.6	Public Involvement	X	X	X	X			X	63
1506.7	Further Guidance							X	64
1506.8	Legislative Proposals						X	X	65
1506.9	Filing Requirements						X	X	66
1506.10	Timing of Agency Action				X			X	67
					X				68
1506.11	Emergencies								
1506.12	Effective Date							X	69
Part 1507. Agency Compliance									
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1507.2	Agency Capability						X		70
1507.3	Agency Procedures						X		71
Part 1508. Terminology									
1508.1	Terminology							X	72
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1508.4	Categorical Exclusion							X	72

Section		Exceeds NEPA	Exceeds E.O. 11991	Additional Paperwork	Additional Time/Delay	Litigation Potential	Insufficient Guidance	Vague/ Unclear/ Inconsistent	Page # Tab C
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1508.12	Finding of No Impact								76
1508.13	Human Environment	X		X				X	77
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1508.16	Major Federal Action	X						X	78
1508.17	Matter								78
1508.18	Mitigation							X	78
1508.19	NEPA Process		X					X	79
1508.20	Notice of Intent			X					79
1508.21	Proposal							X	79
1508.22	Referring Agency								79
1508.23	Scope							X	80
1508.24	Significantly								80
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Index								X	80

Paragraph 1

The first statement of the regulations, that NEPA "is our basic national charter for protection of the environment," is debatable and inappropriate in these regulations. NEPA establishes broad national "policy" with respect to the environment; other statutes (e.g., the Clean Air Act, Federal Water Pollution Control Act, Coastal Zone Management Act, Surface Mining and Reclamation Act, etc.) provide for the necessary and appropriate protection and restoration of environmental quality. NEPA does not encompass private, State and local activities, and in the Federal sphere, it recognizes the need to balance environmental protection goals with "other essential considerations of national policy."

Paragraph 1 states that the purpose of these regulations is "to tell federal agencies what they must do to comply with the procedures and advance the goals of the Act." While we agree that Federal agencies have a responsibility to advance the goals of NEPA, such a requirement is clearly beyond the authority of E.O. 11991 and should be deleted from the regulations.

Paragraph 1 also refers to a responsibility for "enforcing" NEPA "so as to achieve the substantive requirements of section 101." Since there is not agreement among legal scholars or the Federal courts whether and to what extent NEPA contains substantive requirements, and since the substantive provisions of NEPA are goals which agencies should strive to attain, rather than requirements to be achieved or enforced, the last sentence of Paragraph 1 should be deleted.

Paragraph 2

This paragraph exceeds the authorities of NEPA and E.O. 11991 and includes vague and sweeping language (The information must be of high quality, public scrutiny is essential to implementing NEPA, etc.) that is inappropriate in regulations. The paragraph should be deleted.

Paragraph 3

The subject of this paragraph also exceeds the authority of E.O. 11991, which does not direct CEQ to seek to improve Federal decisionmaking through NEPA regulations. Rather, the regulations are to make the EIS process more useful to decisionmakers. Therefore, Paragraph 3 should be deleted.

Section 1500.2 Policy

General

It is inappropriate under the mandate of E.O. 11991 for CEQ to attempt to propose regulations based on provisions of NEPA other than Section 102(2). Direct and indirect references to other sections of NEPA should be deleted or appropriately described as goals, not requirements, which are beyond the legal purview of these regulations. Any statements of policy should be limited to the procedural provisions of NEPA and E.O. 11991.

Section 1500.2(a)

This section is a restatement of Section 102(1) of NEPA, which is not covered by CEQ's authorities and should be deleted. Furthermore, the phrase, "to the fullest extent possible" is applicable only to Section 102 of NEPA, not to the policies set forth "in these regulations," as inserted by CEQ.

Section 1500.2(b)

In this section (and elsewhere) the CEQ regulation uses the term "NEPA process." This is an improper and misleading paraphrasing of E.O. 11991, which uses the term "environmental impact statement process." DOE perceives a significant difference in the two terms and they should not be used interchangeably. (CEQ also views "the NEPA process" as substantially broader than "the EIS process," as evidenced by the definition at Section 1508.19.) The remainder of this subsection is a paraphrase of E.O. 11991. CEQ should quote precisely, however, to avoid changes in meaning (i.e., "in order to emphasize the need to focus on real environmental issues and alternatives" rather than "to emphasize real environmental issues and alternatives").

Section 1500.2(c)

The phrase "to the fullest extent possible" should not be proposed as applicable to the goal of integrating NEPA requirements with other environmental review procedures until the implications of that stringent test are assessed. CEQ has provided no guidance as to how this goal might be achieved. Without detailing appropriate procedures to effect such integration, the unintended result is likely to be delays in the EIS process. We suggest that CEQ complete its study of Federal environmental review requirements, as

the President directed CEQ to do in his Environmental Message of May 23, 1977, and recommend specific measures, including legislation and administrative actions, to clarify and integrate them, as appropriate. Until that study is complete, the regulations should either not address the subject or utilize a "to the extent practicable" test, which would allow agencies the requisite discretion.

Section 1500.2(d)

The phrase "to the fullest extent possible" applied to public involvement in decisions should also be deleted from this subsection, as such a requirement is not imposed either by NEPA or E.O. 11991. Furthermore, there is nothing in the E.O. which indicates that the public should be "involved" in decisionmaking, per se. NEPA requires only that EIS's be made available to the public and views solicited; E.O. 11991 requires that EIS's be "more useful" to the public. Accordingly, this section should be deleted in its entirety or revised as follows: "Encourage and facilitate public involvement in the EIS process."

Section 1500.2(e)

Given the broad definition of "effects" (Section 1508.8), it would appear almost impossible in many situations to define alternatives that "avoid" adverse effects. However, since standards for harm to the physical and natural environment, as well as to human health, are often better defined than those for economic and social well-being, this section would introduce a bias into the range of alternatives that would be available to a Federal decisionmaker. Furthermore, this subsection inappropriately infers that "the proposed action" is less desirable environmentally, while "alternatives" will avoid or minimize adverse effects. Accordingly, the wording should be changed to read: "Identify and assess all reasonable alternatives to the proposed action, including those that may avoid or minimize adverse environmental impacts of these actions upon the quality of the human environment."

Finally, the phrase "the NEPA process" should be changed to "the EIS process." (See comment, Section 1500.2(b).)

Section 1500.2(f)

This subsection should be deleted, as it is clearly beyond the scope of procedural regulations. Of further concern is the fact that CEQ has improperly combined phrases from Section 101(a) and Section 101(b), thereby seriously misrepresenting the Act. Maintaining consistency with other considerations of national policy is a requirement of the Act, contrary to the meaning conveyed by the sentence structure.

Section 1500.3 Mandate

The last sentence of this section should be deleted. These regulations should be designed to implement Section 102(2) of NEPA; CEQ's mandate here does not extend to the entire Act. NEPA carefully separates policy from procedures. Neither Congress nor the courts have clearly shown how NEPA policy and Section 102(2) procedures should be integrated. Without such definitive guidance, CEQ should avoid any direct or indirect references in these regulations to, and interpretations of, the purported substantive provisions of the Act.

Section 1500.4 Reducing Paperwork

This entire section should be deleted as it is unnecessary and cumbersome in regulations. A summary or cross-reference, if used, should be incorporated in the Federal Register preamble. However, it is not at all clear that the provisions cited in 1500.4 will, in fact, reduce paperwork, as CEQ contends. Furthermore, there are other provisions of the proposed regulations which will increase the Federal paperwork burden. For example, items 1500.4(d), writing in plain language, (h), circulating a summary, and (l), requiring comments to be as specific as possible will not necessarily reduce paperwork. Other provisions of the regulations, e.g., requirements for scoping meetings, expanded public notification, preparation of an index, preparation of a record of decision, reports to commenting agencies on the implementation of mitigating measures, and others, will significantly increase paperwork.

CEQ needs to carefully analyze the regulations as a whole, with input from the affected Federal agencies, to determine the cumulative paperwork impacts of its proposed regulations. Without such an analysis, CEQ cannot support its claims that it has satisfied the mandate of E.O. 11991 with respect to reducing paperwork.

Section 1500.5 Reducing Delays

For the reasons discussed in our response to Section 1500.4, this section should be deleted. It is not at all clear that the cumulative impact of the CEQ regulations will be to reduce delay in the EIS process. On the contrary, additional delays may be caused by such provisions as scoping meetings, integration of other statutory environmental review requirements, public notice requirements, broadening the referral process to all agencies and extending the time to implement the decision because of interagency disagreement on the EIS, etc. Therefore, CEQ should carefully assess the timing impacts of its proposed regulations.

Section 1500.6 Agency Authority

This section should be deleted as it is a reference to Section 102(1) of NEPA, which is beyond the authority of these regulations. Furthermore, the language suggests that agencies have not complied with NEPA during the past seven years by requiring agencies to view "traditional" policies and missions in light of NEPA and to revise policies, procedures, and regulations, as necessary, to comply with the Act. Finally, it should be noted that existing law may grant an exemption from NEPA compliance or EIS preparation. In such cases, compliance is not prohibited or impossible, but is not required.

Part 1501. NEPA and Agency Planning

Section 1501.1 Purpose

General

The thrust of this section should be modified to reflect the integration of the EIS process, not the NEPA process, with agency planning, in keeping with the limitations to CEQ authority. The language should be revised to eliminate unwarranted implications of conflicts in the EIS process. The following changes are considered essential to minimize ambiguity regarding the purpose of this section.

Section 1501.1(a)

Change to read: "Integrating the EIS process into early planning to insure appropriate consideration of environmental factors and to avoid delay at later stages of decisionmaking and implementation."

Section 1501.1(b)

Change to read: "Emphasizing early consultation among agencies prior to EIS preparation."

Section 1501.1(c)

Change to read: "Providing for the early determination of lead and cooperating agency EIS preparation responsibilities."

Section 1501.1(d)

Change to read: "Identifying as many significant environmental impacts as possible at an early stage and defining the scope of the EIS accordingly."

Section 1501.1(e)

Change to read: "Encouraging time limits for the completion of particular phases of the EIS preparation process."

Section 1501.2 Apply NEPA Early in Process

General

This section is vague and proposes unrealistic requirements. The introductory sentence should be changed to read: "Agencies shall integrate the EIS preparation process with other planning at the earliest practicable time to insure that planning and decisions reflect consideration of environmental values and to avoid delays and potential conflicts later in the process."

The CEQ regulations should reflect the fact that there are clearly situations where it is too early to begin preparation of an EIS. The courts have acknowledged that it is not always possible to pinpoint the time in agency planning when a proposal is "ripe" for EIS preparation. An EIS prepared too early without proper formulation of alternatives and accumulation of basic planning information would be of poor quality and increase the potential for litigation and delay. CEQ regulations should also reflect the balancing of competing values required by NEPA and acknowledge that decisions may not always reflect environmental values, but that they should reflect consideration of those values.

Section 1501.2(a)

The CEQ regulations provide no guidance here other than to quote the Act. DOE finds little value in this approach.

Section 1501.2(b)

This section requires substantial redrafting for the reasons outlined below. First, it is simplistic to assume that environmental, economic and technical considerations warrant equal detail and simultaneous attention. NEPA does not require equal treatment; it does require appropriate consideration of environmental amenities and values along with (not at the same time as) economic and technical considerations. Further, the CEQ regulations imply an even greater than equal treatment in the words "in at least as much detail," which is clearly beyond the requirements of NEPA. The level of detail should be determined by the test of "appropriateness," which is a function of the significance, complexity, and relevance to various program activities of each area of analysis.

Second, with respect to the timing of the environmental analyses, there are numerous instances where a preliminary feasibility analysis without environmental impact analysis may be appropriate. For example, it would be pointless to conduct an environmental review of projects that are clearly technically infeasible. NEPA requires agencies to consider environmental factors prior to decisionmaking, but not necessarily at the identical time that other factors are considered.

Finally, the CEQ regulations are unrealistic in requiring that the same individuals who review all other planning documents (cost-benefit analyses, engineering drawings, etc.) will be the ones to review the environmental documents (notices of intent, environmental assessments, findings of no significant impact and EIS's.)

Section 1501.2(c)

DOE perceives no value in merely repeating the Act. CEQ should provide guidance as to how this provision should be implemented.

Section 1501.2(d)

This section is too vague to provide any useful guidance. The only "provision" the agency can make is to request that the non-Federal entity notify the agency during the action's planning stage. If so notified, the agency may request that studies be initiated. However, clarification is needed regarding the extent of agency authority to require non-Federal applicants to participate in the EIS process at pre-application stages. CEQ should specify the type of studies sponsors should initiate, e.g., environmental baseline studies, appropriate alternatives analyses, mitigating measures, etc., as well as specific Federal procedures for assuring early coordination. It would be improper for the agency to begin its own environmental studies in anticipation of a project, because that project might never materialize or might deviate substantially from original plans. In addition, item (3) should be revised to read: "The Federal agency commences its EIS preparation process at the earliest practicable time." (See general comment, Section 1501.2.)

Section 1501.3 When to Prepare an Environmental Assessment (EA)

The CEQ proposal here leaves gaps in the logical sequence and conditions of EA preparation. For example, it does not adequately deal with: (1) actions which normally require EIS's, but which nevertheless may require EA's or other levels of review; (2) actions which normally do not require EIS's, but nevertheless could require EA's or EIS's; or (3) a process by which emerging or unanticipated actions are classified into appropriate categories. In other words, CEQ has not provided clear guidance as to when an EA should be prepared, and has, in fact, opened the door to the possibility of preparing many more EA's then necessary.

DOE believes it essential that this section be redrafted to focus specifically on when an EA is required and not simply on certain conditions when it might not be prepared. In our view, an EA should be prepared only when it is unclear whether an EIS is required. If an EIS is clearly required, then the agency should commence EIS preparation, without preparing an EA. If an EIS is clearly not required, even though the proposed action has not been explicitly excluded in agency regulations, then it should not be necessary to prepare an EA in order to complete the requisite environmental review. Environmental analyses (as opposed to the more formal EA) may and should be performed whenever necessary to assist agency planning and decisionmaking.

Section 1501.4 Whether to Prepare an Environmental Impact Statement (EIS)

General

This section does not present a logical framework or set of criteria for an agency faced with the decision of whether to prepare an EIS. CEQ should begin by stating that an EIS is required for a "major Federal action significantly affecting the quality of the human environment," and then proceed to define these terms, or reference their definitions elsewhere.

Section 1501.4(a)

DOE supports the concept of categorical inclusions or exclusions as an aid in determining whether to prepare an EIS. However, CEQ should recognize that the scope of an agency's activities is not fixed, and that agencies must be permitted to add to these categories on a case-by-case basis, if necessary. The list of potential agency actions may expand, due to new legislative authorities, administrative initiatives, emergency circumstances, etc. Agencies cannot predict the appropriate category for all potential actions.

CEQ should also define "normally" in the context of these exclusions. Neither this section, nor Section 1507.3, nor Section 1508.4, gives any indication as to what constitutes an "abnormal" situation which requires the preparation of an EA or EIS in the case of an action "normally" excluded, or no EIS (or EA) in the case where an EIS is "normally" required.

Section 1501.4(b)

This section would require more EA's than actually are necessary to comply with NEPA requirements. With the passage of new energy legislation, for example, EA's would be required for every proposed action which had not been previously included in or excluded from EIS requirements. DOE strongly recommends that CEQ adopt the principle of requiring EA's only when it is unclear whether to prepare an EIS. If an EIS is clearly not required, the EA is unnecessary; if an EIS clearly is required, then EIS preparation should begin without preparation of an EA.

Public notice of intent to prepare an EA is unnecessary and poses a significant addition to the Federal paperwork burden. On the other hand, DOE recommends expanded notification of

the availability of an EA and its accompanying "finding of no significant impact." [See response to Section 1501.4(e).] As a practical matter, preparation of an EA is a relatively short-term effort, (particularly as defined at Section 1508.9) so that advance public notification that an EA is being prepared is unlikely to provide any input to the document. However, it is appropriate to allow the public to review the findings of the EA and public notice should be required.

Section 1501.4(c)

The language proposed by CEQ is not precise. An agency may make its determination based on the EA, if one has been prepared. Section 1501.4(a) allows the agency to make its determination based on the categorical inclusions or exclusions. In addition, CEQ should permit an agency to go straight to an EIS, without preparing an EA, if it is "clear" from the outset that an EIS is required.

Section 1501.4(d)

The benefit of a scoping meeting for every EIS is extremely questionable. Flexibility is required here. (See response to Section 1501.7.)

Section 1501.4(e)

This section contains unclear and imprecise language which obscures the intended meaning. The first clause refers to "the agency," while the second refers to "the lead agency." Would one agency make the determination not to prepare an EIS, while another agency (the lead agency) prepares the finding of no significant impact? If the agency makes a "tentative" determination, how and when does it become final?

Subsection 1501.4(e)(1) requires the finding of no significant impact to be made available to "the affected public." Subsection 1501.4(e)(2) refers to "public" review prior to a final determination in two limited circumstances. Is "public" broader than "the affected public?" If so, does (2) require a Federal Register notice while (1) may not? This entire process is confusing.

To clarify and improve the EA "finding" process, DOE recommends that:

(1) EA's should be required only when it is "unclear" whether to prepare an EIS.

(2) Environmental analyses (but not the more formal EA) may and should be prepared whenever useful to planning and decisionmaking.

(3) A notice of availability of an EA should be published in the Federal Register, accompanied by a tentative "finding" (i.e., EIS required or no EIS required).

(4) Other forms of public notice may also be employed, as appropriate.

(5) The finding automatically becomes final 15 days after publication in the Federal Register, unless the agency determines, based on comments received during that period, to reconsider its determination.

(6) An agency may take no action with respect to the subject of a tentative finding prior to expiration of the 15-day period, except that appropriate waivers are permitted for the emergency or overriding circumstances contemplated in Section 1506.11.

While DOE prefers to enhance public notification through publication of a notice of availability and a "finding" for all EA's, we suggest that if a more limited approach is advocated by CEQ, then subsection (2)(ii) needs to be expanded to, at a minimum, include decisions in which there is significant interest or controversy surrounding the potential environmental impacts. This matter raises a general question as to whether agencies will in their implementing regulations be able to go beyond the requirements of the CEQ regulation. (See response to Section 1507.3.)

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Section 1501.5 Lead Agencies

General

The CEQ regulations do not provide clear and sufficient guidance to assure the prompt and rational selection of lead agencies. The proposed process is cumbersome and would require a minimum of two months to conclude. Further, there is no provision for the early initiation of the selection process. We suggest that the entire section be rewritten, based on a thorough reconsideration of lead agency problems and the comments provided herein.

In general, CEQ should recognize that a major part of the lead agency problem with respect to preparation of a required EIS is related to inertia and lack of initiative, rather than overt agency "disputes." Therefore, CEQ should establish specific procedures for selection of lead agencies and the delegation of supportive responsibilities among participating or cooperating agencies, rather than rely heavily on an appeals process in the event of disagreement. Based on our analysis of the problem, CEQ should focus its attention on procedures for:

(1) determining those circumstances in which there may be lead and cooperating agency participation in EIS preparation (e.g., multiple Federal permits for the same project; geographically or functionally related projects or programs sponsored by multiple agencies; essential expertise in one agency (energy supply/demand analysis by DOE) regarding a proposal under consideration by another agency (pipeline approval or coal lease sale proposed by DOI);

(2) determining whether an EA or EIS is required, based on the total Federal involvement, in specific cases;

(3) identifying the appropriate division of responsibilities for EA/EIS preparation;

(4) resolving interagency disputes concerning the need for an EIS, designation of the lead agency, or appropriate divisions of responsibility for EIS preparation; and

(5) establishing generic lead agency agreements.

Section 1501.5(a)

The lead agency must assume supervisory responsibility for the preparation and content of the EIS. In addition, the language must be sufficiently broad to encompass all potential situations where more than one agency is involved in a proposed program or project.

Therefore, change (a) to read: "A lead agency shall be designated to supervise the preparation of an EIS, if required, when more than one Federal agency:

(1) is directly involved in a project or program or in a group of projects directly related to each other, either functionally or geographically; or

(2) possesses essential expertise regarding a proposed project or program, without which the project or program may not proceed."

Section 1501.5(b)

This sentence infers that two or more State or local agencies could act as joint lead agencies without participation of a Federal agency, a result that is available under Section 102(2) (D), if at all, under very limited circumstances. CEQ should reword the sentence to state: "A Federal agency may act as joint lead agency with one or more other Federal, State, or local agencies to prepare an EIS."

Section 1501.5(c)

The section does not establish a clear process whereby one agency proposing an action can learn of other agencies proposing the same or related actions, and potential lead agencies determine which is to be the lead agency. The first step is for the first agency on the proposal development continuum to notify, as early as possible, all other agencies which will have a part in approval of the proposal. After such notification, the agencies involved should consult with each other regarding the need for an EIS. Then, an interagency meeting would be necessary to define the probable scope of the EIS, particularly with regard to the proposed action and its alternatives, in order to determine which agency should most logically assume lead agency responsibility Other specific steps are also required and should be defined in the regulations.

The factors proposed by CEQ for determining lead agency designation are too restrictive. Change to read: "The following factors shall guide the involved agencies in determining the appropriate lead agency:"

Further, DOE questions the validity of the descending order of importance as postulated by CEQ in all or even most situations. Finally, the distinction between (1) and (2) requires clarification. DOE recommends that the various factors be listed without judgment as to priority.

Section 1501.5(d)

This step is likely to have little or no value in resolving lead agency questions. No timetable is provided. (Agencies shall resolve the lead agency question in a manner that will not cause delay.) An affected party should be able to make such a request at any time in the process, the earlier the better.

Section 1501.5(e)

DOE disagrees strongly with the process whereby an applicant can make the detailed statement of why each potential lead agency should or should not be the lead agency and the agencies are required to react to that statement. Particularly if the applicant is a private applicant for a Federal permit, CEQ may not be presented with an unbiased case. As a policy matter, we believe this analysis is a Federal responsibility. Therefore, Section 1501.5(e)(2) should be deleted and a provision inserted to require CEQ to conduct such an analysis.

Section 1501.5(f)

The section requires extensive redrafting based on CEQ analysis and preparation of a tentative finding of lead agency. (See comment above, Section 1501.5(e).) The sequence of events should include: (1) submission of the request to CEQ, (2) agency comment to CEQ (optional), (3) CEQ analysis and preparation of tentative finding (in consultation with OMB to address budgetary matters), (4) circulation of tentative finding by CEQ to affected agencies, (5) agency comments, and (6) final determination by CEQ.

Further, the language regarding the timing of the CEQ determination is unclear. Twenty days after the receipt of responses would be 40 days after the filing of the appeal.

Section 1501.6 Cooperating Agencies

General

Since this section addresses both lead agency and cooperating agency responsibilities, it would be more appropriate to combine Sections 1501.5 and 1501.6 into one section which encompasses all aspects of multi-agency EIS preparation. The referenced memorandum of understanding [Section 1501.5 (c)] regarding lead agency designation could also include cooperating agency responsibilities.

DOE questions whether CEQ has carefully considered the impacts of its proposal to require that any Federal agency "upon request of the lead agency shall be a cooperating agency." This approach hardly seems the way to foster interagency cooperation. In addition, and potentially more important is the fact that there are obvious manpower and funding implications, the extent of which are unknown. The task of anticipating lead agency EIS preparation resource requirements is exceedingly difficult. Providing sufficient resources for cooperating agency responsibilities may be impossible. Since a discussion of energy requirements and conservation potentials is mandatory for all EIS's under Section 1502.15(e), DOE could be required to be a cooperating agency for a large number of EIS's. Similarly, EPA involvement, by virtue of its special expertise with respect to environmental impacts, may be required for all EIS's.

In our view, this section needs to be reworked, allowing for discretion and flexibility regarding the participation of potential cooperating agencies. DOE suggests the following language:

"Any Federal agency, other than the lead agency, which has jurisdiction by law or special expertise with respect to any environmental impact included in the scope of an EIS, and any State or local agency with similar qualifications, may at its option provide support to the lead agency in its preparation of an EIS, as a cooperating agency. Lead agencies shall identify and consult with potential cooperating agencies at the earliest practicable time."

Section 1501.6(a)

To provide needed flexibility, change item (1) to read: "Invite the participation of each potential cooperating agency in the EIS process at the earliest practicable time."

With respect to item (2), DOE has serious concerns with respect to requiring "to the maximum extent possible" that agencies adopt the analysis and proposals of cooperating agencies. This approach has several disadvantages: (1) cooperating agencies are not free from bias; (2) the lead agency's responsibility for the contents of the EIS is diminished; (3) this discourages the lead agency from developing its own environmental expertise and encourages the lead agency to defer to the "expertise" of the cooperating agency; (4) it raises questions as to how comments on that portion of the EIS prepared by a cooperating agency will be handled; and (5) it may result in significantly greater confusion, delay, paperwork, etc., due to the substantial difficulties in preparing a coherent document with multi-agency participation. The potential detriment here to the EIS process is significant. Therefore, this approach should be discarded.

The proposed list of lead agency responsibilities is incomplete. Appropriate additions may include: define scope of cooperating agency input, set EIS preparation schedules, provide funding for cooperating agency participation, allow cooperating agencies to review their input as it will appear in the EIS, etc.

Section 1501.6(b)

Consistent with previous comments, change item (1) to read: "Participate in the EIS process at the earliest practicable time."

Item (2) indicates (appropriately) that the scoping meeting is optional. However, this is inconsistent with Section 1501.7.

As discussed under Section 1501.6(a) above, we believe it is unwise for a cooperating agency to "assume responsibility" for a portion of an EIS. Therefore, item (3) should be deleted or revised to reflect cooperating agency assistance, but not direct preparation or responsibility. CEQ should recognize the potential abuse of this provision; e.g.,

agencies could delegate a major portion of their EIS preparation responsibilities to EPA. DOE believes that only through the actual preparation of an EIS does a lead agency become intimately familiar with the environmental consequences of its proposed actions.

With respect to item (4), cooperating agency staff support must be discretionary, due to budgetary and manpower realities. Furthermore, this provision is inconsistent with Section 1507.2, which requires that agencies have the requisite interdisciplinary capability and Section 1506.5, which requires any environmental document to be prepared directly by the lead agency. The last sentence of this item is misplaced as it refers to a lead agency responsibility.

Section 1501.7 Scoping

General

The concept of early planning and involvement of affected parties in the preparation of an EIS is a sound one in theory. However, the approach proposed in these regulations does not weigh the potential benefits against practical limitations and the potential for increased litigation and other delays in the EIS process, and should be reconsidered by CEQ.

An absolute requirement that a scoping meeting be held for every EIS is unreasonable and unwarranted. Such a requirement presents a substantial additional burden for every EIS preparation effort, with potentially little benefit in many cases. Therefore, DOE recommends that the early scoping meeting be optional. Agencies should consider such factors as: magnitude of the project, degree of controversy, and uncertainty as to probable impacts when determining whether to convene a scoping meeting.

Agencies routinely consult with affected Federal, State, and local agencies and other interested persons, on an informal basis, to assist in determining the appropriate scope and emphasis of an EIS. Requiring a formal meeting will not necessarily provide better input and adds another step at the beginning of the EIS process which delays actual EIS preparation. Multiple meetings in Washington and in affected regions would pose further delays. Such meetings would become unwieldy when programmatic EIS's with national and international concerns are considered.

In addition, the approach outlined potentially opens up new areas of litigation and raises questions of financial assistance to affected parties as discussed below.

Section 1501.7(a)

With respect to item (1), it is not clear how an agency, at the earliest stages of EIS planning, can identify all interested persons (or points of view) who may support or oppose a proposed action. Furthermore, there is no guarantee that those persons who chose to attend a scoping meeting would accurately represent all affected interests. For example, one could imagine an energy development proposal where the private proponent and a major environmental group would be represented at the scoping meeting, but the resident

adjacent to the site or the worker potentially employed at the project would not. This would open up a new area for potential litigation, even before the EIS gets underway, based on unfair representation at the scoping meeting. This question of representation could be complicated by requests for financial assistance to attend the scoping meeting. In point of fact, the scoping meeting approach delineated here could inhibit public participation by allowing certain special interest groups to exercise excessive influence on the scoping process.

Despite these difficulties, item (3) would allow those present at the scoping meeting to eliminate from detailed study issues deemed insignificant. From the standpoint of the agency responsible for the contents of the EIS and for its defense in court, this approach would on balance appear to create significant risks.

With respect to item (4), see our response to Section 1501.6.

Item (6) is vague and unclear. CEQ should specify how the identification of other environmental review requirements will enable their integration with the EIS process.

Section 1501.7(b)

Any EIS page limits or time limits should be in the form of targets or goals. See response to Section 1501.8.

Section 1501.7(c)

If the Notice of Intent is published in the Federal Register after the scoping meeting, other "interested persons" may emerge. We suggest that the Notice of Intent be prepared as soon as practicable after a decision is made to prepare an EIS and that it precede the scoping meeting, if held. Interest expressed as a result of the Notice of Intent would be a factor to consider in determining whether a scoping meeting is appropriate and necessary. It should also be noted that there may be situations where advance notice of EIS preparation may not be desirable due to an essential policy consideration; this flexibility should be maintained.

Section 1501.7(d)

Determining the appropriate scope of an EIS is a dynamic process, which responds to information developed during the course of EIS preparation. It is unnecessary, however, to make formal changes in the scope, as CEQ suggests. Further, this part implies that a formal determination of scope was required under Section 1501.7(a) and 1501.7(b); however, the procedures for that determination are unclear.

Section 1501.8 Time Limits

General

DOE believes that the "time limit" approach of this section is somewhat illusory for it does not provide mechanisms for reducing unnecessary delay. We suggest that the thrust of this section should be to encourage agencies to establish (and publish as part of the Notice of Intent, if appropriate) EIS preparation schedules, which agencies would endeavor to attain, to the extent consistent with NEPA and other statutory responsibilities. Such schedules would not be mandatory or enforceable, but would place a burden on an agency to justify why it may be necessary to deviate from the estimated timetable. Publication of the schedule in the Notice of Intent would assist the public and other Federal agencies in their planning and decisionmaking with respect to the proposed project or program.

Therefore, we recommend that the introductory sentence be changed to read: "Agencies shall endeavor to establish, and publish in the Federal Register Notice of Intent, as appropriate, EIS preparation schedules. Such schedules are not binding; however, to the extent practicable, agencies shall adhere to the estimated timetable."

Section 1501.8(a)

In keeping with the above comments, we suggest the following changes with respect to item (1):

Change (1) to read: "Consider the following factors in determining an EIS preparation schedule:"

Change (i) to read: "Significance of the potential adverse environmental impacts."

Change (vi) to read: "Degree to which relevant information is known and if not known the time required to obtain it."

Add: "(vii) Statutory deadlines, program effectiveness, and pending emergency situations."

With respect to item (2), DOE opposes any provision which grants applicants leverage in accelerating the EIS process. The interests of the applicant in obtaining a speedy approval are not necessarily compatible with the public interest to

provide an adequate study of the impacts of the proposal and its alternatives. Therefore, any time limits with respect to an applicant proceeding must clearly be goals or targets, which are not binding on the agency. It should also be noted that in many instances the applicant is directly responsible for EIS delays by not providing adequate information to support the EIS.

Section 1501.8(b)

In both items (1) and (2), change "the NEPA process" to "the EIS process."

While this section provides for optional time limits, we would point out that item (ii), determining the scope of an EIS, is a dynamic process, not subject to a fixed time frame. Also, a time limit for preparation of a final EIS would be difficult to set without knowing the number and merit of comments on the draft.

Part 1502. Environmental Impact Statements

Section 1502.1 Purpose

We question the need for this statement of "purpose," which duplicates the language of Sections 1500.1 and 1500.2. Further, the CEQ language clouds the distinction between the procedural and substantive provisions of NEPA. We believe the primary purpose of the EIS is to insure the consideration of environmental impacts in agency decisionmaking.

Therefore, if this section is deemed warranted, we suggest the following language: "The purpose of the EIS is to assure identification and consideration of potential environmental impacts in agency decisionmaking. The EIS shall inform decisionmakers and the public of the direct and indirect effects of proposed major Federal actions and their alternatives."

Section 1502.2 Implementation

General

In our view, the proposed regulations have failed to achieve their intended purpose, i.e., "to make the environmental impact statement process more useful to the public and decisionmakers." We suggest that CEQ focus greater attention and effort in this section towards improving the EIS process.

Section 1502.2(a)

This admonition is vague and without regulatory meaning. Furthermore, the two terms are not necessarily in opposition. "Analytic" is defined as: that which separates into constituent parts; "encyclopedic" is defined as: comprehensive in scope. CEQ's intention here is unclear.

Section 1502.2(b)

In this section (and elsewhere), the terms "impacts" and "issues" are used interchangeably. We believe this is improper and misleading. "Impact," as defined by CEQ, is synonymous with "effect." An "issue" is a matter subject to dispute. As discussed elsewhere, we recommend that the EIS process focus on the more objective environmental "impacts" of a proposed action, and that the depth of discussion of impacts be based primarily on the significance of impacts, rather than issues.

Section 1502.2(c)

The phrase, "no longer than absolutely necessary to comply with NEPA," is vague and unclear. CEQ should specify in detail the required contents of a legally sufficient EIS in order that agencies may condense the size of their EIS's without increasing the risk of litigation.

The proposed criteria for determining appropriate length are too limited. We suggest the following: "Length may vary with the significance of potential environmental impacts, the magnitude of the proposed project in terms of resources committed, the complexity of the environmental impacts involved, and the existence of public controversy with respect to the environmental impacts of the proposed project."

Section 1502.2(d)

This proposed provision, based on Section 101 and 102(1) of NEPA, appears to exceed the authority of E.O. 11991 and should be deleted. This requirement would add a new section to each EIS, which would tend to be self-serving and of limited value. It certainly would not advance CEQ's goal of reducing EIS length.

Section 1502.2(e)

EIS's, particularly programmatic EIS's, may address a number of alternative scenarios intended to encompass the range of options and impacts under consideration. The precise alternative ultimately presented to the agency decisionmaker may not have been specifically identified in the EIS, although its impacts fall between two scenarios which were considered in detail. Therefore, we suggest the following: "EIS's shall encompass the range of alternatives considered by agency decisionmakers."

Section 1502.2(f)

The phrase, "shall not commit resources prejudicing selection" is vague and confusing. Does this preclude planning activities? We suggest the following: "Agencies shall take no action with respect to the proposed project that would significantly affect the quality of the human environment or curtail the range of alternatives under consideration until completion of the EIS process."

Section 1502.2(g)

This type of wording unfairly suggests that agencies have been preparing EIS's to justify decisions already made. We suggest that the provision be deleted or changed to read: "EIS's shall serve as the means of assessing the environmental impact of proposed agency actions and of their reasonably available alternatives."

Section 1502.3 Statutory Requirements for Statements

This section merely repeats the text of NEPA. We suggest that it be deleted or combined with other sections.

Section 1502.4 Major Federal Actions Requiring the Prepration of Environmental Impact Statements

General

The purpose of this section is unclear. There is no definitive guidance here with respect to the identification of "major Federal actions requiring the preparation of EIS's."

Section 1502.4(a)

To improve understanding, we suggest the first sentence be revised to read: "Agencies shall clearly define the proposed action which is the subject of the EIS."

The CEQ definition of "proposal" (Section 1508.21) is vague and apparently inconsistent with the use of the term in this section. The definition suggests that not all proposals require EIS's. Section 1502.4(a) states that "proposals or parts of proposals"... shall be evaluated in a single EIS. It is also unclear whether the terms "proposed action" and "proposal" are synonymous.

Section 1502.4(b)

The term "broad Federal action" is vague and ambiguous. The verbiage in this section provides no regulatory guidance, e.g., "special care" and "policy relevant." This section should be deleted or redrafted to furnish clear guidance.

Section 1502.4(c)

CEQ's intent here is obscured by the imprecise language. The term "may find it useful" is inappropriate in a regulation. Also, is CEQ suggesting in the first sentence that a "proposal" may be proposed by one or more agencies or that it may be evaluated by one or more agencies, or is some other meaning intended?

In item (1), CEQ suggests that the geographic proximity of multiple proposed actions may necessitate a "broad" EIS. However, there may be no logic or justification for combining two or more separate actions in "an ocean" or "region" when the impacts are in no way additive. CEQ should provide the appropriate criteria or rationale for determining which geographically related projects are also related in terms of their cumulative environmental impact and therefore warrant coordinated review in a single EIS.

Section 1502.4(d)

The meaning of "to relate broad and narrow actions" is unclear. Furthermore, this provision appears to be repetitive or out of place.

Section 1502.5 Timing

General

In the first sentence, it is not clear whether CEQ is referring to a draft or final EIS or whether the timing refers to the initiation or completion of the document. The phrase "makes a proposal" can be interpreted to mean that the agency takes some formal action, such as a Federal Register notice. If the first sentence refers to a final EIS, then this section would require completion of final EIS's prior to publication of a proposed rulemaking. The second sentence requires that an EIS be prepared early in the planning process. However, the CEQ regulations should also acknowledge that EIS preparation may begin too early.

We suggest that in order to provide more meaningful guidance to agencies, CEQ adopt the following introductory language:

"An EIS shall be prepared as early as practicable in the planning and decisionmaking process of a proposed action. EIS preparation shall begin early enough to provide a useful contribution to decisionmaking, but late enough in the formulation of the proposed project or program to permit analysis of the potential environmental impacts of the proposal and its alternatives. The EIS shall be prepared before major resources are irreversibly committed or alternatives foreclosed, and prior to taking any action with respect to the proposed project which may cause significant environmental impact, except as provided in Section 1506.11."

Section 1502.5(a)

This section should be revised to provide essential flexibility; it is often not appropriate to commence EIS preparation prior to the completion of a preliminary feasibility analysis. Clearly, a vast amount of unnecessary paperwork would be generated in support of projects which are found to be wholly infeasible. Furthermore, if the proposal is not sufficiently well-defined, adequate analysis of the environmental impacts of the proposed project and its alternatives may not be possible. We suggest the sentence be revised as follows: "For projects directly undertaken by Federal agencies, such statements shall be prepared no later than immediately prior to a "go- no-go" decision to construct or irreversibly commit major resources which foreclose alternatives."

Section 1502.5(b)

This section suggests an impossible burden for agencies by requiring EIS preparation to begin prior to receipt of an application for a Federal permit, license, etc. CEQ has identified no early notification system from applicants so that agencies may be apprised of forthcoming EIS requirements. Furthermore, this section requires immediate EIS preparation and does not allow for the cases where no EIS or an EA is required.

Section 1502.5(c)

In cases under adjudication, a public hearing may be held on a draft EIS. However, the proposed CEQ regulation requires completion of a final EIS prior to a public hearing. The intent here is unclear and appears to be at odds with enhancing public participation in the EIS process.

Section 1502.6 Interdisciplinary Preparation

CEQ regulations should clarify the language of Section 102(2)(A) (e.g., the environmental design arts) and specify appropriate procedures for implementation.

Further, the requirement that the disciplines of EIS preparers shall be correlated to the "scope and issues identified in the scoping process" could open up a new area for litigation and force suspension of work on EIS's until the appropriate disciplines are identified and incorporated into the EIS preparation team. This requirement should be deleted.

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Section 1502.7 Page Limits

DOE believes that the proposed CEQ regulations offer little guidance in accomplishing the goal of reducing the size of EIS's. On the contrary, Section 1501.2 requires environmental analyses to be at least as detailed as economic and technical analyses, and Section 1501.7 requires that significant issues "be analyzed in depth" in the EIS. Establishing arbitrary limits for all EIS's of 150 or 300 pages appears to be unrealistic and subject to legal challenge. Furthermore, by excluding appendices from the page totals, the CEQ regulation would merely encourage agencies to restructure their EIS's so that information deemed necessary to assure a legally sufficient EIS will be relegated to appendices. As a result, the overall bulk of EIS's will not be reduced.

The page limit approach should be reconsidered; we suggest that CEQ attack the root cause of the "length" problem, by providing specific guidance as to what analyses and discussion are and are not required in various kinds of EIS's.

Section 1502.8 Writing

"Plain" language is not always "precise" language. Legal principles, scientific analysis, and the like often may not be reduced to "plain" language without loss of accuracy. DOE would suggest deletion of this section.

Section 1502.9 Draft, Final and Supplemental Statements

Section 1502.9(a)

The requirement that draft EIS's "shall be prepared in accordance with the scope decided upon at the scoping meeting" leaves no room for agency flexibility. Since the scope of an EIS may be modified during the course of the environmental analyses, CEQ regulations should not limit the scope to that which was determined at the scoping meeting (if held).

The second sentence of the section repeats requirements specified elsewhere in the regulations and should therefore be deleted.

The fourth sentence refers to a draft EIS which is "so inadequate as to preclude meaningful analysis." CEQ should specify how and by whom such inadequacy is determined or delete this thought.

The fifth sentence requires agencies to "make every effort to disclose and discuss all major points of view." DOE believes that the burden of "every effort" exceeds the requirements of a draft EIS, and would likely require circulation of a preliminary draft EIS for comment. An agency may not be aware of all major points of view prior to circulation of the draft EIS, despite reasonable efforts regarding public notification. This sentence requires appropriate revision.

Section 1502.9(b)

This section should be redrafted. It does not describe what a final EIS is or what it should contain. It repeats information also specified in Part 1503. As written, the section implies that the final EIS contains only the responses to comments and a discussion of any responsible opposing views not adequately addressed in the draft EIS.

Section 1502.9(c)

This section is too restrictive in requiring a supplement to an EIS if there are "substantial changes in the proposed action." Such changes need to be assessed in terms of their

potential environmental impacts, which may or may not be significant enough to warrant preparation of a supplement to the EIS. Similarly, the existence of significant new information bearing on the proposed action or its impacts may not be sufficient to trigger an EIS supplement. Therefore, CEQ regulations should clarify the circumstances in which a supplement to an EIS is required, under NEPA. In addition, procedures to distinguish draft and final supplements should be provided. DOE suggests the following language:

"Whenever substantial new information pertinent to an existing EIS becomes available, or whenever a modification of an action covered by an EIS is proposed that may be environmentally significant, agencies shall consider the need for a supplement to the EIS. Based on the significance of the modification and environmental impacts involved, relative to the impacts originally discussed, the agency shall determine whether to prepare a supplement to the EIS and, if so, whether it shall be a draft (relative to either a draft or final EIS) or a final (related to a final EIS only) supplement. Draft supplements will be subject to the preparation and review procedures for draft EIS's specified in this Part. When a final supplement is prepared, agencies shall publish a notice of availability in the Federal Register and distribute copies to agencies and persons who have expressed interest in the proposed action. Agencies shall take no action with respect to the subject of a final supplement until 15 days after publication of the notice of availability and shall consider any comments received during that period."

Section 1502.10 Recommended Format

General

The antecedent for "it" in the first sentence is unclear. Presumably, the CEQ regulation intends to say: "Agencies shall use a format for EIS's which will encourage good analysis and clear presentation of the proposed action and its alternatives." In this sentence, CEQ appears to be encouraging innovation and creativity in EIS formats. However, the second sentence discourages any such innovation by requiring "a compelling reason" for deviating from the standard format prescribed by CEQ. DOE suggests that better EIS's would result if agencies were free to adapt a general format to the particular need of specific projects and programs.

Section 1502.10(e)

DOE interprets Section 102(2)(E) as a requirement separate from the EIS in Section 102(2)(C). We suggest that CEQ reconsider whether the provisions of Section 102(2)(E) are appropriate in this context.

Section 1502.10(f)

Section 102(2)(C)(i), (ii), (iv) and (v) of NEPA are limited to the proposed action. The proposed CEQ format here does not provide for the discussion of the environmental impacts of alternatives, as required by Section 102(2)(C)(iii).

Section 1502.10(h)

DOE strongly objects to a requirement that EIS's shall include a list of preparers. (See response to Section 1502.17.)

Section 1502.10(j)

DOE sees no benefit to a requirement that all EIS's shall include an index. While an index may be appropriate in a lengthy EIS, it may be unnecessary in a short EIS, particularly if it includes a detailed table of contents.

Section 1502.11 Cover Sheet

Section 1502.11(a)

The cover sheet should clearly specify the lead agency which is responsible for the contents of the EIS. (See also response to Section 1501.5.)

Section 1502.11(e)

A one paragraph abstract of the statement will provide little information. CEQ should specify whether this paragraph should describe the proposed action, summarize its impacts, list the alternatives, or provide other information. It is not possible to distill an entire EIS into one paragraph.

Section 1502.11(f)

If CEQ intends for the cover sheet to include the date by which comments must be received, then, in most cases, the cover sheet cannot be bound with the EIS, but must be a separate insert. This is due to the fact that uncertainties with respect to printing schedules and publication of the Federal Register notice of availability (either by EPA or the preparing agency) make it impossible to determine when to start counting the 45-day review period for a draft EIS or a 30-day review period for a final EIS. DOE recommends alternatively, that the date by which comments must be received be included in the transmittal letter.

Section 1502.12 Summary

DOE supports the inclusion of a summary in EIS's. However, the language used in the proposed CEQ regulation to describe the contents of the summary is inappropriate and should be redrafted. On the one hand, the first sentence requires the summary to "adequately and accurately" summarize the statement. On the other hand, the second sentence requires the summary to "stress" areas of controversy, which does not encourage an impartial and accurate reflection of the EIS. Furthermore, EIS's are not conclusory documents; therefore, the summary cannot "stress the major conclusions." We suggest that the summary include a comparative evaluation of the environmental impacts of the proposed action and its alternatives

Section 1502.13 Purpose and Need

The "purpose and need" section of an EIS can be a very significant part of the analysis of a proposed project, and its role should not be diminished by the CEQ regulations. DOE strongly objects to the requirement that this section normally shall not exceed one page. Furthermore, DOE recommends that CEQ provide specific guidance regarding the contents of this section.

In our view, the reasonable alternatives to a proposed action can be identified and evaluated only if the purpose and need of the proposed project have been clearly and adequately demonstrated. Unless the "problem" is clearly defined, appropriate solutions cannot be developed. Often, detailed discussion, including underlying assumptions, supply/demand forecasts, external constraints, etc., is required to support the assertion of need. This "need" is a major factor in evaluating the relative significance of the resultant environmental impacts.

This section may be particularly important in an energy development proposal where the urgency or "need" for the proposal may determine the viability of the conservation alternative.

Section 1502.14 Alternatives Including the Proposed Action

General

As discussed in more detail below, DOE strongly objects to the language of this section which would make the EIS the decisionmaking document and infuse the substantive goals of NEPA into these procedural regulations. This section exceeds both the mandate of NEPA itself as well as the authority of E.O. 11991. Subsections (a), (b), (c), (f) and (g) require substantial redrafting; subsection (e) should be deleted in its entirety.

With respect to the proposed introductory language, DOE questions whether this section is properly the "heart" of the EIS. In our view, the section dealing with environmental impacts should be the focus of the EIS. Again, the regulations use the word "issues," whereas the appropriate term is "environmental impacts."

Section 1502.14(a), (b), (c) and (d)

As a matter of regulatory form, DOE suggests that these subsections should be consolidated into one which defines a "reasonable" alternative and the appropriate treatment of alternatives in an EIS.

Subsection (a) should specify that alternatives are to be evaluated in terms of their environmental impacts. The comparative evaluation does not extend to all aspects of each alternative. CEQ should elaborate on the "reasonableness" test, so that agencies may eliminate from the EIS those alternatives which are not "reasonable."

Subsection (b), requiring substantially equal treatment of each alternative, is unrealistic and inconsistent with other sections of these regulations which require the discussion to be in proportion of the significance of environmental impacts. CEQ should avoid the use of the word equal. We suggest that the discussion of each alternative "should be in sufficient detail to permit comparative evaluation of the environmental impacts of the proposed action and its (reasonable) alternatives."

Subsection (c) requires discussion of alternatives not within the jurisdiction of the lead agency, without qualification. DOE strongly recommends that the definition of "reasonable alternatives" be limited to those actions "within the Federal sphere." Alternatives which would not be within the legal authority of any Federal agency to implement would not be considered reasonable. Agencies should not be required to engage in speculation on what might be done if laws and regulations were amended. DOE suggests the following language: "The discussion of an alternative the implementation of which lies wholly within the private sphere, or State or local units of government, and which is expected to remain within the jurisdiction of those entities, shall be at the agency's discretion."

Section 1502.14(e)

This section should be deleted not only because it exceeds the authority of E.O. 11991, and EIS's are not, in our view, expected to be conclusory, but also because the notion, that "the environmentally preferable alternative"--particularly where a broad definition of the term "environment" is adopted, as in these regulations--could be identified, is unrealistic. (See also DOE's response to the proposed CEQ Executive Order.) Since the above terminology is subject to varying interpretations, the obvious result of such a provision would be for agencies to identify and defend their preferred alternative as "the environmentally preferable alternative." The consequences would be: (1) no benefit to decisionmaking, and (2) a clouding of the "real environmental issues and alternatives," contrary to E.O. 11991, and (3) the opening up of major new areas of litigation.

Section 1502.14(f)

The CEQ regulations should allow for situations in which an agency may not wish to identify a preferred alternative in a final EIS for reasons of program effectiveness, e.g., situations where land acquisition costs may rise. Furthermore, there should be no requirement in the CEQ regulations that precludes an agency from completing the EIS process prior to identifying its preference, based on the EIS as well as other subsequent technical, economic, and planning documents or political considerations.

Section 1502.14(g)

The purpose of this requirement is unclear. Does CEQ intend for mitigating measures to constitute a separate section in the EIS, or should mitigators be incorporated as part of the alternatives? If the latter interpretation is correct, DOE would object to the provision, since various combinations of alternatives and mitigators would unreasonably extend the number of options to be evaluated. In addition, it is unclear whether the environmental impacts of mitigating measures should be considered.

Section 1502.15 Environmental Consequences

General

By not citing Section 102(2)(C)(iii) of NEPA, which refers to alternatives, while specifically citing Section 102(2)(i), (ii), (iv) and (v), which refer to the "proposed action" or proposal," it is not clear how this section applies to the evaluation of alternatives. This distinction and the intent of these provisions need to be clarified. As the phrases from NEPA are combined in this section, it is unclear whether CEQ intends the environmental impact analyses of the alternatives, as well as the proposed action, to include discussions of unavoidable adverse impacts and irreversible and irretrievable commitments of resources.

Section 1502.15(a) and (b)

If the terms "direct effects" and "indirect effects" are to be defined (somewhat differently) at 1508.8, it is unnecessary and confusing to define them here. We also suggest that the two sections be combined to read: "Direct and indirect effects of the proposed action and its alternatives, and the relative significance of those effects." (See also response to 1508.8.)

Section 1502.15(d)

This section duplicates Section 1502.15(a), as revised, and should be deleted. See also comments regarding Section 1502.14.

Section 1502.15(e)

As worded, this section suggests that energy requirements and conservation potential should be discussed for some, but not all, alternatives and mitigating measures. CEQ's intent should be clarified. DOE suggests that energy-related impacts should be discussed, as appropriate. Formal energy audits are generally not appropriate in an EIS, however.

Section 1502.15(f)

This section appears to duplicate Section 1502.14(g) and should therefore be deleted or clarified.

Section 1502.16 Affected Environment

For clarification, the first two sentences should be changed to read: "The EIS shall succinctly describe the environment of the area or areas which may be affected by the proposed action and its alternatives. Such descriptions shall be no longer than is necessary to understand the potential environmental impacts discussed in Section 1502.15."

The use of the word "importance" is unclear in the third sentence. Is the term synonymous with the word "significance," as discussed in Section 1501.7?

The fourth and fifth sentences should be deleted or placed elsewhere, as they constitute a statement of purpose, rather than procedures regarding the EIS.

Section 1502.17 List of Preparers

DOE strongly objects to this provision and recommends that this concept be abandoned as unworkable and without demonstrated benefit. Authorship of complex documents is not easy to establish. The contributions of numerous individuals may be edited or integrated in a fashion that precludes direct identification. Furthermore, individual professionals should not be subject to harrassment and/or lobbying from special interest groups based on their role in EIS preparation. DOE believes that it is sufficient that the agency stands behind and assumes responsibility for the contents of the EIS.

On the other hand, DOE suggests that it is appropriate to require agencies to designate one or more central points of contact (e.g., the NEPA office) for questions or comments concerning the content of EIS's.

Section 1502.18 Appendix

The function of the appendix remains unclear. If its purpose is to segregate detailed, technical information and analyses from the less technical body of the EIS, CEQ should so state. As proposed, the appendix may be viewed as the means of satisfying the page limitations suggested by CEQ without reducing the overall bulk of the EIS.

Subsection (b) should be revised to state that the appendix contains relevant environmental material which supports the analyses contained in the body of the EIS. As written, this subsection could require a large number of appendices in an EIS.

The term "policy relevant" in subsection (c) is unclear. It would seem that information which is "policy relevant" should appear in the body of the EIS.

Subsection (e) regarding the circulation of appendices poses problems with respect to requests for extensions of review periods. If an agency elects to make its appendices "readily available on request," rather than to circulate them with the body of the EIS, would it be obligated to extend the comment period, as provided in Section 1502.19 with respect to the circulation of a summary? CEQ should clarify these points and avoid any requirement that would oblige the agency to extend the comment period. The CEQ approach results in delay with no evident reduction in paperwork.

Section 1502.19 Circulation of the Environmental Impact Statement

General

This section is vague, contradictory, and incomplete, and should be completely redrafted. The first sentence, by requiring the entire EIS to be circulated, contradicts the previous Section 1502.18(e), which allows an agency to make the appendix to an EIS "readily available on request." The exception noted is incorrectly cited. The phrase "unusually long" would indicate that a summary may be circulated only for EIS's which exceed CEQ's page limits of 150 and 300 pages. CEQ's intent here should be clarified. We suggest the following introductory language: "Agencies shall circulate draft and final EIS's in their entirety, except as provided in Section 1502.18(e) and Section 1503.4(c). In addition, if an EIS is lengthy, the agency may circulate only the summary, except that the entire EIS (with the exceptions noted) shall be furnished to:..." Furthermore, we suggest that this section reference Section 1506.9 regarding filing EIS's.

Section 1502.19(a)

DOE recommends the addition of the phrase: "applicable to the action proposed" at the end of this sentence, to logically complete the intent here. (See also comment on Section 1503.1(a).)

Section 1502.19(b)

The regulations need to clarify whether such requests shall be honored at any time, within the designated comment period, or some other qualification, and what the implications on comment periods are.

Section 1502.19(c)

The last sentence after subsection (c) appears out of place. In any case, the regulations should define the term "timely" in this context. Furthermore, this provision would discourage agencies from circulating summaries, since (1) administratively it would probably be easier to circulate the entire document, rather than respond to numerous individual requests, and (2) such a process would most surely extend the comment period by 15 days in all cases. DOE suggests that CEQ reconsider its approach here.

Section 1502.20 Tiering

The CEQ regulations should define "program," "plan," and "policy" EIS's, either here or at Part 1508. It is essential that any such definitions are consistent with the concept of "proposal," as defined in Kleppe v. Sierra Club.

The second sentence of Section 1502.20(b) should be deleted as it repeats the sense of the introductory paragraph.

Section 1502.21 Incorporation by Reference

The CEQ regulations should clarify that the process of incorporating by reference and making such material available for inspection will not require an extension of the review period.

Section 1502.22 Duty to Know

Section 1502.22(a)

While the general intent here has merit, there is sufficient ambiguity to pose significant problems. If an agency wishes to pursue an action for which information is not available, or only available at an exorbitant price, a cautious and conservative approach is obviously warranted. However, if the missing information pertains to an alternative to the proposed action, it may not be reasonable to expect the agency to delay decisionmaking with respect to the proposed action (whose impacts are predictable), pending quantification of the impacts of all alternatives, if the time required to generate such information is excessive. This section should be rewritten to allow the agency to proceed if either the financial or the time costs required to fill all data gaps are exorbitant. Such gaps and uncertainties, however, should be identified in the EIS.

Section 1502.22(b)

In order to assure a fair comparison among alternatives, a "worst case analysis," if employed, should be applied to all alternatives, including the proposed action. Such analysis should be based on a credible worst case.

Section 1502.23 Cost-Benefit Analysis

The first sentence of this section should be qualified to clearly make incorporation of a cost-benefit analysis optional. Furthermore, such cost-benefit analyses need be considered in the EIS only if available during the same timeframe.

The discussion required by the second sentence does not appear to be required by Section 102(2)(B), and would establish a new section in EIS's without demonstrated benefit. DOE strongly recommends that this provision be deleted.

Section 1502.24 Methodology and Scientific Accuracy

No comment.

Section 1502.25 Environmental Review and Consultation Requirements

The CEQ regulations have failed to outline procedures whereby such environmental reviews may be integrated with the EIS process. In our view, this is a serious omission. (See also response to Section 1500.2(c).) Therefore, it is not appropriate for the CEQ regulations to use the phrase "to the maximum extent possible." With such a requirement, the EIS process could be significantly and unnecessarily delayed by attempts to conduct related environmental reviews concurrently. The phrase "and other environmental review laws" is vague and unacceptable. Based on the above comments, this section should be deleted or entirely reworked. DOE encourages CEQ to study the multiple Federal environmental review requirements and propose appropriate specific procedures for integrating them with the EIS process.

Part 1503. Commenting

Section 1503.1 Inviting Comments

General

This section overlaps considerably with Section 1502.19. CEQ should consider a major reorganization of its proposed regulations to avoid such duplication.

Section 1503.1(a)

In item (1), the proposed regulation requires agencies to obtain the comments of other Federal agencies, but does not specify what agencies should do if those comments are not forthcoming. It is unrealistic to require agencies to comment (without additional resources), and it is unfair to expect a lead agency to wait beyond the designated review period for receipt of comments. Therefore, DOE suggests that the following be added: "If comments are not received within the designated review period, the agency may presume that no comment is to be made." Also, the word "appropriate" should be inserted to modify the phrase "which is authorized to develop and enforce environmental standards," in keeping with the language of Section 102(2)(C). This qualification is necessary since several Federal agencies are involved in the development and enforcement of environmental standards (e.g., EPA, HEW, NRC) which may not be applicable to a particular EIS.

Section 1503.1(b)

To clarify this provision, DOE suggests the following change: "An agency may request comments on a final EIS, and shall consider any comments received prior to its final decision on the proposed action."

Section 1503.2 Duty to Comment

This proposed requirement is unrealistic without assurances that adequate resources will be available. Even if agencies were to provide only a perfunctory review and a "no comment" response, this provision would add substantially to the Federal paperwork burden. CEQ should allow agencies to establish priorities with respect to their EIS commenting responsibilities, particularly since the resource requirements are unpredictable. The language should be changed to read: "Agencies...shall endeavor to comment..."

Section 1503.3 Specificity of Comments

These regulations should address the EIS process, not Federal decisionmaking. In our view, comments should be limited to the adequacy of the EIS or the significance of any environmental impact involved. Agencies should not be required to respond to comments addressing the non-environmental merits of the alternatives discussed.

Section 1503.4 Response to Comments

Section 1503.4(a)

This section needs to be redrafted to answer a number of questions. As written, it is unclear whether an agency may assess, consider, and respond to comments collectively. By modifying the proposed action, as suggested in item (1), would an agency have to circulate a revised draft? Item (2) suggests that an agency had deliberately ignored the requirements of NEPA. The provision should be changed to read: "Develop and evaluate reasonable alternatives not previously known by the agency."

Section 1503.4(b)

The requirement that "all substantive comments" or summaries should be attached to the final EIS is far too burdensome. Many comments on a draft EIS are quite "substantive" (actual, real, firm), but not relevant. In our view, the provision should be revised to require inclusion of "all relevant substantive comments."

Part 1504. Predecision Referrals to the Council of Proposed Federal Actions Found to be Environmentally Unsatisfactory

Section 1504.1 Purpose

The policy and process envisioned in this section would broaden the referral process into a separate decisionmaking process on major policy questions, displacing the role of the Office of Management and Budget and elevating the role of CEQ in such decisionmaking above all other departments, agencies, and governmental bodies.

DOE believes that the referral process proposed here goes beyond the legal foundation of NEPA and Section 309 of the Clean Air Act. First, we believe that the legislative history surrounding these Acts makes it clear that EPA's role under Section 309 was intended to be unique; i.e., to raise properly focused environmental concerns of a substantive nature to the Executive Office. Second, even if the language of Section 102(2)(C) were construed so as to extend this role to other appropriate "agencies which are authorized to develop and enforce environmental standards," we believe that that language is clearly focused on physical, natural, and health-related impacts, and see no basis to extend such a role to "other Federal agencies" (paragraph 3) via a broadened definition of environmental acceptability.

Therefore, we believe it essential that this Section be redrafted to reflect a referral process consistent with NEPA, Section 309 of the Clean Air Act, and E.O. 11991.

Assuming that reorientation will be accomplished, DOE offers the following further suggestions. The paraphrasing of Section 102(2)(C) in the third paragraph goes beyond the intent of NEPA. The word "acceptability" should be deleted, and the paragraph revised to read: "Under Section 102(2)(C) of the Act, appropriate Federal agencies, which are authorized to develop and enforce environmental standards, may be required to review EIS's. Copies of such comments and views on the EIS shall be made available to the President, the Council, and the public."

Section 1504.2 Criteria for Referral

This section needs to be reworked to differentiate between those agencies authorized to raise substantive issues of environmental acceptability and those that cannot, and to confine the referral process to questions of environmental acceptability or, at a minimum, to define "issues deserving national attention" within the context of questions of environmental acceptability raised by agencies authorized to develop and enforce standards.

Further, the proposed criteria for referral do not provide for the resolution of questions of environmental acceptability in cases not deserving national attention. DOE suggests that there may be a number of such questions involving strictly local standards.

With respect to item (a), the term "environmental policies" is too vague to be meaningful in this referral process and should be deleted or clarified.

Section 1504.3 Procedure for Referrals and Response

General

The proposed referral process is too cumbersome. It could take months to resolve the issue of environmental "acceptability. In some instances, this may be an unacceptable delay.

Section 1504.3(a)

The process described is vague. CEQ should specify the manner in which an agency shall advise (in writing?) the lead agency that it intends to refer a matter to the Council. Such advice may not be possible in comments on the draft EIS, as required by item (2), if the lead agency has not identified a "preferred alternative" in the draft EIS. With respect to item (4), presumably one copy of such advice is sufficient for the Council. If not, CEQ should specify how many copies are required.

Section 1504.3(b)

It is unclear whether (a) and (b) entail a two-step or three-step process: (1) an agency advises the lead agency that it intends to make a referral; (2) the referring agency sends a copy of such advice to the Council; (3) the referring agency delivers a referral to the Council. CEQ should clarify who gives what to whom and when.

Section 1504.3(c)

It is unclear whether (c) adds a fourth step: the referring agency delivers a copy of the referral to the lead agency.

With respect to item (2), the CEQ regulations should clarify the intended meaning of "environment" in this context; also, a "violation of policy" is unclear.

Section 1504.3(e)

This last step in the referral process improperly gives CEQ the role of arbiter in interagency disputes. This is clearly beyond the authority of NEPA and E.O. 11991, which limits CEQ's function in conflicts between agencies to the making of a "recommendation as to their prompt resolution." DOE objects strongly to giving CEQ the authority to "conclude" unilaterally and arbitrarily that a matter has been "successfully resolved" by the referral process, as proposed in item (1). Similarly, CEQ should not place itself in the

role of "mediator," as proposed in item (2), since as the President's environmental advisors CEQ cannot be presumed to be a disinterested third party.

Secondly, this step is entirely open-ended. There are no time constraints placed on CEQ for determining its recommendation. This is not consistent with reducing EIS-related delays.

Based on the above comments, we suggest the following language:

"Within 30 days after receipt of a referral, or within 10 days after receipt of a response from a lead agency as provided by Section 1504.3(d), whichever is later, CEQ shall publish its findings and recommendations with respect to the referral and the lead agency response. Prior to making its recommendation, CEQ may hold public meetings or hearings to obtain additional information or views, or CEQ may meet with the affected agencies in an effort to resolve the dispute. If either the lead agency or the referring agency (or both) does not concur in the Council's recommendation, the objecting party(ies) shall notify CEQ in writing, which shall immediately submit the matter to the President for decision. Until the Presidential decision is made, the lead agency may not take any action with respect to the matter which may cause a significant environmental impact."

Part 1505. NEPA and Agency Decisionmaking

Section 1505.1 Agency Decisionmaking Procedures

General

This section exceeds the authority of E.O. 11991 by extending to the substantive goals of NEPA and the decisionmaking process, rather than being limited to Section 102(2) and the EIS process.

Section 1505.1(a)

This provision should be deleted, as it exceeds the authority of E.O. 11991.

Section 1505.1(b)

This section is vague and unworkable and should be deleted. Decisionmaking is dynamic and not conducive to predetermined schedules. Furthermore, the CEQ regulation does not specify how such decision points should be designated, e.g., a Federal Register notice or a new document.

Section 1505.1(c)

Presumably, the CEQ regulations would require an additional (unnecessary) document. This provision should be deleted.

Section 1505.1(f)

Based on comments provided on Section 1502.2, the first sentence should be changed to read: "Requiring that the alternatives considered by the decisionmaker are encompassed by the range of alternatives discussed in the EIS."

The second sentence is clearly beyond the authority of E.O. 11991. Furthermore, it should be noted that Congress, in enacting the Freedom of Information Act, has allowed agencies to withhold such documents from the public in order to foster freedom of expression during the predecisional stage. The comprehensive and critical comparison of alternatives, prepared by staff members and made available to the decisionmaker, may be constrained if the staff is aware that the document will be released to the public. Agency discretion with respect to the release of pre-decisional information should not be narrowed by the CEQ regulations.

Section 1505.2 Record of Decision

General

This provision is clearly beyond any requirements of Section 102(2) of NEPA and the authority of E.O. 11991 and should be deleted in its entirety. Furthermore, it should be noted that the "record of decision" would constitute another document to be prepared, presumably accompanied by a Federal Register notice and other forms of public notification, which would add to the Federal paperwork burden. CEQ regulations to implement Section 102(2) procedures are not the proper vehicle for insuring overall documentation of agency decisions. This end, if desired, should be pursued through revisions to the Administrative Procedures Act and overall agency practices.

Section 1505.2(b)

As a point of information, it should be noted that the phrase "least harm to the environment" is not synonymous with "the environmentally preferable alternative." Clearly, if "environment" encompasses social, economic and energy impacts (as the CEQ regulation proposes), then the alternative which offers the greatest environmental benefits (i.e., environmentally preferable) may not involve the least environmental harm. As phrased, the CEQ regulations would tilt the balance in favor of avoiding adverse physical impacts as opposed to providing positive social, economic, and energy impacts. This points up the impracticability of requiring such determinations and the potential legal challenges that could result.

Section 1505.2(c)

This sweeping requirement would add a new and complex analysis to the EIS process. Agencies would be required to identify all potential mitigators and assess their practicability. Further, agencies would have to adopt (and apparently maintain for an indeterminate time) a monitoring and enforcement program for each mitigator adopted. The benefits of this provision relative to cost are unclear; even if it were within the purview of these regulations, it should be deleted as a matter of unsupported policy.