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REPORT BY THE

Comptroller General

OF THE UNITED STATES

Implementation Of The National Minerals And Materials Policy Needs Better Coordination And Focus

When the Congress passed the National Materials and Minerals Policy, Research and Development Act of 1980, it expected that the generally ad hoc decision and policy coordination used to develop and implement national minerals and materials policy would be replaced by a more formal mechanism. The act also assigned reporting requirements to the President and several agencies.

GAO has been monitoring and evaluating the administration's implementation of the 1980 act. In this report, the last of three, GAO concludes that, while the administration has started to implement the act,

--the mechanism established by the administration to ensure timely, high-level consideration of important minerals and materials policy issues has not provided the continuous decision and policy coordination required by the act and

--the administration's response to the act's multiple reporting requirements has focused primarily on national security without adequately addressing the act's other two policy goals of economic well-being and industrial production.

GAO makes recommendations that address these issues.

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GAO/RCED-84-63
MARCH 20, 1984

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-205446

The Honorable Don Fuqua
Chairman, Committee on
Science and Technology
House of Representatives

Dear Mr. Chairman:

This report, prepared in response to your request of August 19, 1981, is the final in a series of three reports which evaluate the implementation of the National Materials and Minerals Policy, Research and Development Act of 1980 (P.L. 96-479). It discusses the effectiveness of the Cabinet Council on Natural Resources and the Environment in coordinating national nonfuel minerals and materials decisions and policies. It also summarizes agencies responses to the act and the President's April 5, 1982, program plan.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of the report. At that time we will send copies to the Director, Office of Management and Budget; the Secretaries of the Interior, Defense and Commerce; and the Director, Office of Science and Technology Policy. Copies will also be made available to other interested parties upon request.

Sincerely yours,

Charles A. Bowsher

Comptroller General
of the United States

REPORT TO THE CHAIRMAN
COMMITTEE ON SCIENCE
AND TECHNOLOGY
HOUSE OF REPRESENTATIVES

IMPLEMENTATION OF THE NATIONAL MINERALS AND MATERIALS POLICY NEEDS BETTER COORDINATION AND FOCUS

D I G E S T

It was the intent of the Congress in passing the National Materials and Minerals Policy, Research and Development Act of 1980 (Public Law 96-479) to replace the then existing generally ad hoc decisionmaking with a mechanism to coordinate and implement a coherent national minerals and materials policy and program. The act called for materials and minerals policymaking and analysis to be coordinated through the Executive Office of the President and the Cabinet. (See p. 3.)

The act directed the President to prepare a comprehensive plan to, among other things, implement the act's policy to promote an adequate and stable supply of minerals and materials necessary to maintain national security, economic well-being, and industrial production and to submit it to the Congress by October 21, 1981. (See p. 3.) The act also assigned reporting requirements to several agencies. (See p. 25.)

The President's program plan, submitted to the Congress on April 5, 1982, formally assigned responsibility for coordinating minerals and materials policy to the Cabinet Council on Natural Resources and the Environment. The Secretary of the Interior, as Chairman pro tem, serves as the Council's Chairman in the President's absence. The Council's members are the Attorney General and the Secretaries of Agriculture, Commerce, Transportation, Housing and Urban Development, and Energy. The Vice President, Counselor to the President, and the Chief of Staff serve as ex officio members. According to the plan, the Cabinet Council is to ensure high-level consideration of important minerals and materials issues.

Within the President's Executive Office, the Office of Policy Development's Special Assistant to the President for Policy Development serves as the Executive Secretary to the Cabinet Council on Natural Resources and the Environment. This individual, working with the Office of Cabinet Administration, is tasked to coordinate the activities of the Cabinet Council.

The plan focused primarily on one of the three policy goals included in the act--national

security. In addressing national security, it identified solutions to import dependency such as stockpiling, federal subsidies to establish or expand domestic productive capacity and supply, and increasing minerals extraction. According to Interior, the administration's intention is to rely primarily on the free market system to meet the act's other two policy goals of economic well-being and industrial production. The administration expects the market to improve the competitiveness of domestic industries and help reduce U.S. dependence on foreign sources of critical minerals and materials, with some exceptions to assure adequate national security. (See p. 30.)

The Chairman of the House Science and Technology Committee asked GAO to monitor and review the administration's implementation of the act to assist the committee in conducting oversight hearings and to assess the need for further legislation. This is the last of three reports to comply with that request. (See p. 1.)

GAO evaluated (1) the coordination that has occurred within the administration in implementing the act and (2) the substance of the President's program plan. GAO found that while the administration has started to implement the act, the mechanism established by the administration to ensure timely, high-level consideration of important minerals and materials policy issues has not provided the continuous decision and policy coordination required by the act. GAO also found that the administration's responses to the act's multiple reporting requirements have not adequately addressed important minerals and materials issues relating to the policy goals of economic well-being and industrial production.

NONFUEL MINERALS AND MATERIALS DECISION AND POLICY COORDINATION CONTINUES TO BE AD HOC

Since the program plan was submitted to the Congress, executive branch departments and agencies have started to propose and/or begin new programs, conduct studies and analyses and prepare reports on various issues, and reallocate staff and resources both in response and in addition to the program plan. (See p. 7.) To implement these new initiatives, they have established or proposed new councils, committees, working groups, and task forces and continued or reconstituted others. These actions and organizations constitute a positive step

toward developing the programmatic and budgetary proposals and organizational structures to implement a continuing U.S. minerals and materials policy. They have not, however, been coordinated by the Cabinet Council. Moreover, they add to the number of activities that must be coordinated. Therefore, this proliferation of both actions and organizations may, over time, exacerbate, rather than mitigate, the ad hoc coordination conditions which the act expected to be replaced.

Important mineral- and material-related actions have been taken without the coordination required by the act. (See p. 8.) For example, Cabinet Council coordination was not sought by the Department of Defense prior to requesting $200 million in fiscal year 1984 to subsidize defense-related domestic productive capacity and supply. (See p. 9.) Similarly, a decision to include $38 million in the President's fiscal year 1984 budget for a major new materials sciences research initiative to advance high-technology industries was not coordinated through the Cabinet Council. (See p. 11.) GAO believes that these and other actions cited in this report that have been taken without the coordination expected of the Cabinet Council typify the ad hoc coordination that continues to exist as well as the need for a centralized coordination and policy decisionmaking mechanism.

Cabinet Council lacks representative membership

While the Cabinet Council should, under the program plan, become active in minerals and materials decision and policy coordination, it lacks the breadth of membership needed to address minerals and materials issues.

Recognizing that minerals and materials responsibilities are dispersed throughout the executive branch, the administration formed an interagency working group comprised of officials from 18 departments and agencies to develop the program plan. (See p. 5.) This working group, however, has been disbanded. (See p. 25.)

Because the Council is restricted to Cabinet members, agencies on the working group such as the Federal Emergency Management Agency, which oversees National Defense Stockpile policy, and the Environmental Protection Agency, which regulates the activities of the mining and minerals processing

industries, are not included. Moreover, there is no formal procedure for these sub-Cabinet agencies having major minerals and/or materials responsibilities and programs to bring issues to the Council's attention. (See p. 14.)

THE PRESIDENT'S PROGRAM PLAN SHOULD ADDRESS OTHER IMPORTANT MINERALS AND MATERIALS ISSUES

The April 5, 1982, program plan was an initial step toward developing the programs and organizations needed to implement the act. It focused primarily on the act's policy goal of national security. GAO believes, however, that attention also should be given to the act's other two policy goals--economic well-being and industrial production.

For example, the plan overlooked important issues relating to the decline in domestic minerals processing capacity identified by Interior's Bureau of Mines. Addressing this issue is important because if the United States loses its capacity to process minerals into usable materials, the domestic availability of these minerals may become meaningless. Therefore, GAO believes that the program plan should expand upon issues relating to components of materials systems. (See p. 18.)

Further, while addressing the short-term implications of importing strategic minerals critical to national security, the plan did not consider the long-term implications for the U.S. economy and industrial base of the trend toward increased import dependence. While national security is certainly a preeminent issue, import dependence may, in the long-term, also lead to the decline of major domestic minerals industries. (See p. 19.)

Even though the program plan emphasized national security, it did not offer an approach for determining which strategic minerals and materials are most critical or essential to the United States, or for determining how vulnerable the United States is to any disruptions in the supply of these minerals and materials, either through cutoffs or sharp price increases. Without a clear understanding of the importance of these minerals and materials or the risks associated with foreign dependency, it is difficult to determine what the proper federal role should be. (See p. 20.)

CERTAIN REPORTS HAVE NOT BEEN PREPARED

The act requires that the Office of Science and Technology Policy prepare an assessment of national materials needs related to scientific and technological changes over the next 5 years and revise such assessment on an annual basis. The act did not, however, specify a reporting date. Office officials told GAO that the assessment has been given a low priority and has not been prepared.

The act also requires the Department of Defense to prepare "a report assessing critical materials needs related to national security and identifying the steps necessary to meet those needs" and to revise it periodically as deemed necessary. This report was to be made available to the Congress by October 21, 1981. According to Defense, the report was still under review within the administration as of February 1984. (See p. 25.)

The act required Interior to prepare a report summarizing actions initiated to (1) improve the capacity of the Bureau of Mines to assess international minerals supplies, (2) increase the level of mining and metallurgical research by the Bureau in critical and strategic minerals, and (3) improve the availability of minerals data in federal land use decisionmaking. That report, which was to have been made available to the Congress by October 21, 1981, was not submitted until November 10, 1983, over 2 years after the due date. (See p. 25.)

The only federal agency to consistently comply with the act's requirements in a timely manner is the Department of Commerce. The act requires Commerce to continually identify and assess specific critical materials needs cases relating to national security, economic well-being, and industrial production and, as necessary, submit reports to the Congress on these assessments together with recommended programs that would assist in meeting such needs. The Department has prepared two materials case studies--Critical Materials Requirements of the U.S. Aerospace Industry and Critical Materials Requirements of the U.S. Steel Industry. Commerce is now deciding on the subject of a third study in this series. (See p. 26.)

RECOMMENDATIONS

GAO recommends that the Secretary of the Interior, as Chairman pro tem of the Cabinet Council, take actions to improve the Council's effectiveness in implementing the act's coordination requirements.

As a first step, the Secretary should ensure that the Council plays a decision and policy coordination role by establishing a process to provide for timely, high-level consideration of important mineral- and material-related issues. GAO believes that this is consistent with both the requirements of the act and the program plan. So that the full range of minerals and materials policy issues can be considered, this process should include a formal procedure for sub-Cabinet agencies having major minerals and/or materials responsibilities and programs, but not represented on the Council, to bring their issues to the Council's attention. (See p. 16.)

GAO also recommends that the Secretary of the Interior expand the April 5, 1982, program plan to bring it into line with the act's three policy goals of national security, economic well-being, and industrial production. The expanded program plan should be resubmitted to the Congress. (See p. 28.)

Finally, GAO recommends that the Director of the Office of Science and Technology Policy and the Secretary of Defense take steps to meet their reporting responsibilities required by the act. (See p. 29.)

AGENCY COMMENTS AND GAO'S EVALUATION

The Special Assistant to the President for Policy Development was requested but did not comment on a draft of this report. In its written comments on the draft (see app. I), the Department of the Interior did not comment on GAO's recommendations to improve the effectiveness of the Cabinet Council in coordinating national nonfuel minerals and materials policy and programs, but it did provide examples of activities and coordination efforts ongoing within the Department. (See p. 30.) These examples have been summarized and incorporated into the report, where applicable.

The Office of Science and Technology Policy stated that the draft report was incomplete (see app. II) since it made "little mention of the substantial progress that has been made in the relatively short period since the Plan was submitted to the Congress in April 1982." (See p. 34.) GAO agrees that implementation of the program plan is proceeding and has added a section capsulizing actions being taken and organizations established or proposed by the administration. (See p. 7.) These actions and

organizations have not, however, been coordinated by the Cabinet Council as required by the act. (See p. 8.) The Office did not comment on GAO's proposed coordination recommendations.

The Department of Defense provided official oral comments on the reasons why the Cabinet Council has not coordinated implementation of the program plan as fully as GAO believes it should. According to Defense, interagency coordination as well as Cabinet Council oversight were obtained when developing the program plan and no further decision and policy coordination are required except when agency actions are inconsistent with the program plan.

Conversely, GAO believes that the act requires that decision and policy coordination encompass the continuous implementation of a national nonfuel minerals and materials policy. (See p. 7.) The act's central purpose was to establish a mechanism to coordinate and implement both a policy and program. (See p. 15.) The act also assigned major coordination requirements for measures needing continuous attention. (See p. 3.) To accomplish these objectives, coordination cannot be limited only to implementation of the program plan, but it must also include other activities which the administration believes will help domestic minerals and materials industries. (See p. 8.) Moreover, the Secretary of the Interior has said that the program plan is not intended to be a detailed master plan and that there is currently no timetable for implementing it. (See p. 4.) Without continuous coordination, the activities being taken within the administration to implement the program plan (see p. 7) may not be accomplished. Therefore, coordinating only those actions agencies regard as inconsistent with the program plan does not, in GAO's view, sufficiently accomplish the act's objectives. Defense also provided clarification and explanation of various issues which have been included in this report, where appropriate.

Interior did not comment on GAO's recommendations to expand the program plan, other than to disagree on the need to develop an approach to measure U.S. minerals and materials vulnerability. Interior stated that it did not see the practical relevance of defining "strategic" and "critical" since the terms have been used without differentiation since World War II. (See p. 31.) Defense agreed with GAO's recommendation that the Department's report required by the act should be made available to the Congress. Defense, however, stated that it is not

Tear Sheet

necessary for the report to quantify the magnitude or degree of U.S. vulnerability in a given nonfuel minerals or materials market since administration policy on this issue was made clear in the program plan.

GAO found that the program plan did not help to clarify what minerals and materials are deemed strategic and critical. (See p. 20.) Further, GAO believes that identifying minerals and materials critical or essential to national security addresses only half of the needed assessment. Until the probability of a supply disruption has been estimated on the basis of strategic factors such as (1) the political and economic stability of major foreign suppliers, (2) concentration of production and/or processing capacity in one or several foreign countries and their geographic proximity to the United States, and (3) political, military, and economic ties with the United States, the steps necessary to meet national security needs cannot be adequately justified.

While the Office of Science and Technology Policy did not comment on GAO's recommendation that the Office prepare its assessment required by the act, Office officials told GAO that the report will not be prepared. Interior, however, stated that the administration intended that the Committee on Materials (COMAT)[1] would constitute the primary means through which the Office would carry out the act's reporting requirements. (See p. 32.) Since neither the program plan nor COMAT's activities to date assess national materials needs related to scientific and technological changes over the next 5 years, GAO believes that this reporting requirement has not been met.

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[1]COMAT is a committee of the Federal Coordinating Committee on Science, Engineering, and Technology within the Executive Office of the President. It is comprised of assistant secretary-level representatives from federal departments and agencies concerned with minerals and materials and is chaired by the Office of Science and Technology Policy's Assistant Director for National Resources. The program plan tasked COMAT with coordinating the act's minerals and materials research and development activities.

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ABBREVIATIONS

COMAT	Committee on Materials
FEMA	Federal Emergency Management Agency
GAO	General Accounting Office
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy

CHAPTER 1

INTRODUCTION

The National Materials and Minerals Policy, Research and Development Act of 1980, Public Law 96-479, 30 U.S.C. 1601 et seq., enacted on October 21, 1980, was the culmination of almost 30 years of congressional and executive branch recognition of the need for a sound national nonfuel minerals and materials policy. Its central purpose was to establish a "mechanism" which will lead to the formulation of such a policy.

The Chairman of the House Science and Technology Committee asked us to monitor and review the administration's implementation of the act to assist the committee in conducting oversight hearings and to assess the need for further legislation. This is the last in a series of three reports to comply with that request. We previously issued two interim status reports[1] which examined executive branch efforts undertaken to meet the act's multiple reporting requirements.

BACKGROUND

The United States is the most industrialized nation in the world. As such, materials development has been a central factor in the evolution of American society. Fuels, electricity, steel, aluminum, copper, other metals, brick, glass, cement, chemicals, plastics, and fertilizers, all of mineral origin, are the lifeblood of U.S. industry.

Americans comprise only about 6 percent of the world's population, yet use more than 30 percent of the energy and approximately 40 percent of metals and other nonenergy minerals consumed annually. The present American lifestyle requires in excess of 40,000 pounds of new materials annually for each citizen--20,550 pounds of nonmetallic materials, 17,300 pounds of minerals fuels, 1,340 pounds of metals, and 2,310 pounds of organics.

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[1] Interim Status Report on Executive Branch Implementation of the "National Materials and Minerals Policy, Research and Development Act of 1980" (EMD-81-124, July 27, 1981,) and Status Report on Executive Branch Implementation of the "National Materials and Minerals Policy, Research and Development Act of 1980" (EMD-82-27, Nov. 18, 1981).

The United States has used more minerals and minerals fuels during the past 30 years than all of the people of the world used previously. If this exponential growth were to continue, it would entail a further doubling of consumption to meet the needs of people now living in the United States through the remainder of their lifetimes.

The need for a national nonfuel minerals and materials policy has been addressed in more than 25 studies and reports over the past 30 years. In 1952 the President's Materials Policy Commission (the Paley Commission) stated that there must be a "mechanism for looking at the (materials) problem as a whole, for keeping track of changing situations and the inter-relation of policies and programs." The Commission recommended that this "mechanism" be located within the Executive Office of the President--a recommendation embodied within the 1980 act almost 30 years later.

In the interim, the Congress enacted two 1970 minerals and materials-related acts. The National Materials Policy Act of 1970 called for the establishment of a commission to develop a national materials policy without assigning a leadership role to an executive department. The Mining and Minerals Policy Act of 1970 assigned responsibility for advancing national minerals policy to the Secretary of the Interior.

In a July 2, 1976, report, Need to Develop a National Non-Fuel-Mineral Policy (RED-76-86), we recommended that the Secretary of the Interior exercise responsibility under the Mining and Minerals Policy Act of 1970 by taking action that would help develop a clear national nonfuel minerals policy, particularly with respect to growing U.S. import dependence. In an April 19, 1979, report, Learning to Look Ahead: the Need for a National Materials Policy and Planning Process (EMD-79-30), we stated that the time had come to establish an institutionalized planning process for the materials area which consciously and consistently seeks to reconcile this nation's need for materials with its energy and environmental goals. We said that the essence of this process must entail some form of continuous monitoring and reporting to assure that future materials issues receive "sustained attention at the highest levels of Government."

In August 1979 the President's Domestic Policy Review of Nonfuel Minerals found that nonfuel minerals policymaking was generally ad hoc and often conducted without adequate coordination among all appropriate policymakers. The review found that there was no ongoing coordinating mechanism and that achieving needed coordination was complicated by the fact that the policies and programs of more than 20 different federal departments, agencies, councils, and commissions significantly affected nonfuel minerals supply and consumption. Furthermore, these decision units operated under more than 80 different laws, executive orders, and regulations which dealt directly, specifically, or by implication with nonfuel minerals.

The 1980 act

In enacting the 1980 act, the Congress similarly found that the United States still lacked a coherent national minerals and materials policy and a coordinated program. The act assigned the leadership role to the Executive Office of the President.

Section 5 of the act required the President to submit a program plan to the Congress by October 21, 1981. The plan was to include the programmatic and budgetary proposals and organizational structures to implement a continuing U.S. policy

> "to promote an adequate and stable supply of materials necessary to maintain national security, economic well-being and industrial production with appropriate attention to a long-term balance between resource production, energy use, a healthy environment, natural resources conservation, and social needs."

As defined in the act, the term "materials" means

> "substances, including minerals, of current or potential use that will be needed to supply the industrial, military, and essential civilian needs of the United States in the production of goods or services, including those which are primarily imported or for which there is a prospect of shortages or uncertain supply, or which present opportunities in terms of new physical properties, use, recycling, disposal or substitution, with the exclusion of food and energy fuels used as such."

Under section 5 of the act, interagency coordination was to be provided at the Cabinet level[2] with materials and minerals policy decisionmaking within the President's Executive Office. The policy sections of the act, sections 3 and 4, also assigned certain major coordination responsibilities to the Executive Office. The act assigned the Executive Office responsibility for coordinating federal departments and agencies to, among other measures, (1) identify materials needs and assist in the pursuit of measures that would assure the availability of materials critical to commerce, the economy, and national security,

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[2]The President's Cabinet is composed of the heads of the 13 executive departments and certain other executive branch officials to whom the president accords Cabinet rank. It focuses on broad issues affecting the entire federal government and on overall budgetary and fiscal matters and advises the President on any subject on which he requests information.

(2) establish a mechanism for the coordination and evaluation of federal materials programs, (3) establish a long-range assessment capability concerning materials demands, supply, and needs, and provide for the policies and programs necessary to meet these needs, (4) promote a vigorous, comprehensive, and coordinated program of materials research and development, (5) assess the need for and make recommendations concerning the availability and adequacy of technically trained personnel, (6) establish early warning systems for materials supply problems, (7) recommend to the Congress appropriate measures to promote industrial innovation in materials and materials technologies, (8) assess federal policies which adversely or positively affect all stages of the materials cycle and make recommendations for equalizing any existing imbalances or removing any impediments, and (9) assess opportunities for the United States to promote cooperative multilateral and bilateral agreements for materials development in foreign nations.

We believe that the Congress recognized that many of the programmatic and budgetary proposals and organizational structures required by the act could not be adequately addressed until the congressional policy and goals set forth in the act were further refined. Senate Report 96-937, which accompanied the applicable bill, states that the "purpose of the measure is to establish a mechanism which will lead to the formulation of a national materials policy." (Emphasis added.)

The President's program plan

The President's National Materials and Minerals Program Plan and Report to the Congress was submitted on April 5, 1982. The Secretary of the Interior has stated that it is not intended to be a detailed master plan complete with time-phased milestones and, therefore, there is currently no timetable for implementing the various parts of the report. He continued that the plan instead is

> ". . . designed as a broad and decisive pronouncement of Presidential policy and commitment to the problems facing the country today. . . . this historic document, the first in nearly 3 decades, intends to guide the several departments and agencies of the Federal Government as they discharge their various minerals and materials related responsibilities."[3]

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[3]Statement of James G. Watt, the Secretary of the Interior, before the Senate Committee on Commerce, Science, and Transportation, June 23, 1982.

The President's program plan was developed in an ad hoc manner by an interagency working group. The group, known as the Strategic Materials Working Group, was formed at the direction of the President's Cabinet Council on Natural Resources and the Environment. It was comprised of officials from 18 executive branch departments and agencies[4] and was chaired by Interior's Deputy Assistant Secretary for Energy and Minerals.

The Cabinet Council on Natural Resources and the Environment is one of five interagency cabinet councils established by the presidential statement on February 26, 1981. The Secretary of the Interior, as Chairman pro tem, serves as the Council's chairman in the President's absence. The Council's members are the Attorney General and the Secretaries of Agriculture, Commerce, Transportation, Housing and Urban Development, and Energy. The Vice President, Counselor to the President, and the Chief of Staff serve as ex officio members.

Within the President's Executive Office, the Office of Policy Development's Special Assistant to the President for Policy Development serves as the Executive Secretary to the Cabinet Council on Natural Resources and the Environment. This individual, working with the Office of Cabinet Administration, is tasked to coordinate the activities of the Cabinet Council.

A draft of the program plan was disseminated to federal departments and agencies having minerals and/or materials responsibilities. Their comments were incorporated by Interior and the plan submitted to the President's Cabinet Council on Natural Resources and Environment which approved it after holding two meetings.

OBJECTIVES, SCOPE, AND METHODOLOGY

To respond to the Chairman's request, the objectives of our review were to evaluate (1) the coordination within the administration in implementating the act, including the role of the President's Cabinet Council on Natural Resources and the Environment and (2) the President's April 5, 1982, program plan. To accomplish these objectives we relied extensively on both interviews with officials of and analyses of documents, reports,

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[4]Membership in this Working Group included representatives from the Departments of Energy, Transportation, Agriculture, Justice, Commerce, Treasury, Defense, and State as well as individuals from the Office of Management and Budget, the National Security Council, the Council of Economic Advisers, the Environmental Protection Agency, the Federal Emergency Management Agency, the Office of Science and Technology Policy, the Central Intelligence Agency, the Office of the Special Trade Representative, the General Services Administration, and the Office of Policy Development.

and studies provided by officials of the (1) federal departments and offices assigned specific responsibilities under the act, including the Departments of Commerce, Defense, and the Interior and the Office of Science and Technology Policy and (2) federal councils and commissions delegated responsibility for implementing the act, including the Cabinet Council and its Strategic Materials Working Group, the Committee on Materials (COMAT), and the Interagency Minerals Information Coordinating Committee. We also thoroughly analyzed the 1980 act's legislative history and participated in the Seventh Biennial Conference on National Materials Policy held in July 1982. Much of the discussion at the conference centered on the initiatives taken and issues raised by the President's program plan. The conference offered the opportunity for more than 100 persons with special expertise in materials management, education, and research to assess the accomplishments of the 1980 act and to provide recommendations on what remains to be done.

To identify important mineral- and material-related actions that have been taken without the required coordination, our approach was to examine minerals and materials issues requiring congressional action, such as fiscal year budget requests. We then approached department and agency officials as well as Cabinet Council representatives concerning the Council's involvement in the actions taken. Their views have been included in this report where applicable.

Our audit work was conducted primarily from April 1982 through July 1982. However, applicable sections of this report have been updated on the basis of actions taken by the administration through December 31, 1983. Our review was performed in accordance with generally accepted government auditing standards.

CHAPTER 2

NONFUEL MINERALS AND MATERIALS DECISION AND POLICY COORDINATION CONTINUES TO BE AD HOC

The central purpose of the act was to replace the generally ad hoc mineral- and material-related coordination and policymaking that existed with a mechanism which will lead to the formulation of a sound national nonfuel minerals and materials policy and program. To accomplish this, the act assigned responsibility to the Executive Office of the President for coordinating various measures requiring continuous attention. (See p. 3.) The Congress believed that:

> "Elevating the leadership role to the Executive Office of the President should assure that departments and agencies will be permitted to exercise their responsibilities with an oversight of decision and policy coordination provided by the President."[1]

The April 5, 1982, program plan formally assigned responsibility for coordinating national minerals and materials policy to the Cabinet Council on Natural Resources and the Environment. Our work has shown that, since the program plan was approved, the Cabinet Council has yet to provide the continuous decision and policy coordination required by the act. Further, we believe that the Council lacks the breadth of membership needed to address dynamic minerals and materials issues.

IMPLEMENTATION OF THE PROGRAM PLAN IS PROCEEDING

The administration has started to implement the program plan, and the Departments of the Interior and Commerce have submitted reports required by the act. (See p. 25.) The Office of Science and Technology Policy's COMAT completed an inventory of fiscal year 1982 federal minerals and materials research and development in June 1983. (See p. 34.) The Federal Emergency Management Agency has contracted for studies to assess the quality of stockpiled cobalt and chromium and address specific quality assessments. (See p. 36.) The Department of Defense has requested funds to determine whether circumstances exist under which the use of federal subsidies to establish or expand domestic productive capacity and supply would be more cost-effective than stockpile purchases. (See p. 9.) The Department of Energy has established a new initiative in advanced materials research to serve as a model for joint cooperation among government, industry, and academia. (See p. 36.)

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[1]S. Rep. No. 96-937, 96th Cong., 2nd Sess. 6(1980).

Consistent with the administration's intent to rely primarily on the free market system in addressing the act's policy goals of economic well-being and industrial production, initiatives have also been taken which were not identified in the program plan, but which the administration believes will help domestic minerals and materials industries to effectively operate at home and to freely compete abroad. These initiatives have focused on international trade, antitrust and patent policy, productivity and innovation, and education. (See p. 34.)

Implementation of the program plan has also resulted in the establishment of, or proposals to establish, numerous new committees, working groups, and task forces. For example, the Cabinet Council has proposed a Minerals and Materials Industry Advisory Committee. (See p. 34.) Similarly, COMAT has established interagency task forces to coordinate high-priority areas of material-related research, including welding technology, rapid solidification technology, and substitution for and conservation of essential materials. (See p. 35.) Other coordinating groups, such as COMAT's Interagency Materials Group which coordinates federally funded materials research (see p. 35) and Interior's 96 interagency minerals commodity committees maintained by the Bureau of Mines (see p. 31), continue to exist. In addition, the Bureau of Mines chairs an Interagency Minerals Information Coordinating Committee which operates through two working groups--the Minerals Data Working Group and the Analytic Systems Working Group. (See p. 32.)

THE CABINET COUNCIL IS NOT COORDINATING IMPLEMENTATION OF THE PROGRAM PLAN

According to the program plan, the Cabinet Council is to ensure high-level consideration of important minerals and materials policy issues on a timely basis, with the capability of prompt action on such issues by the President. Although the Cabinet Council could fulfill this function, it has not.

Since the program plan was submitted to the Congress, the Cabinet Council or its members have assisted in developing presidential statements relating to materials issues, including the convention of the law of the sea, the exclusive economic zone of the United States, and environmental and natural resources management. (See p. 30.) The Council has not, however, served as a mechanism to coordinate implementation of the program plan. Instead, the federal departments, agencies, offices, councils, committees, working groups, and task forces delegated authority for discharging the various mineral- and material-related responsibilities have proceeded independently. The programs, initiatives, studies, analyses, and reports that they are implementing or initiating may, over time, exacerbate, rather than mitigate, the ad hoc coordination conditions which the act expected to be replaced by adding to the number of activities that must be coordinated. The examples below illustrate the ad hoc coordination that continues to exist.

Cabinet Council coordination not sought by Defense prior to requesting funds to subsidize domestic productive capacity and supply

One important materials policy issue highlighted in the President's program plan, which we believe that the Cabinet Council was to coordinate, was the national defense requirement for a secure and reliable supply of minerals and materials to enhance our industrial mobilization capability. An alternative to meeting this need is Title III of the Defense Production Act of 1950, as amended (50 U.S.C. App. 2061 *et seq.*), which authorizes loans, loan guarantees, purchases, commitments to purchase, and floor price guarantees to establish or expand domestic productive capacity and supply. Two agencies on the Strategic Materials Working Group, Defense and the Federal Emergency Management Agency, favored supporting title III to subsidize domestic materials industries.

The President's program plan stated that an analysis was ongoing to determine whether circumstances exist under which the use of title III "would be more cost-effective than stockpile purchases." According to the Department of Defense, this analysis includes cost-effectiveness decisions reached as an integral part of the contract evaluation process for potential title III projects. Therefore, in a March 22, 1982, letter to the Director of the Office of Management and Budget (OMB), the Secretary of Defense proposed to fund title III from Defense's budget. A December 6, 1982, letter from the Under Secretary of Defense for Research and Engineering to the OMB Program Associate Director for National Security detailed the coordination that had occurred between the two agencies and Defense's decision to "move forward with the funding agreements needed for instituting purchase commitments required for reliable support of weapon system production, deployment, and logistics." In January 1983, Defense requested $200 million in fiscal year 1984 for title III purchase commitments of metals, minerals, and materials. Defense did not coordinate its decision to request these funds through the Cabinet Council.

In its comments on our draft report, Defense stated that the above action "was entirely consistent with the President's plan" and that "no further coordination was required." While these statements reflect Defense's interpretation that the act requires only that the actions taken by affected agencies that are inconsistent with the program plan be coordinated, we believe that continuous coordination to implement a national nonfuel minerals and materials policy is required by the act. Moreover, the decision within the administration not to coordinate Defense's title III initiative through the Cabinet Council reflects the dichotomy of minerals and materials policy decisionmaking and interagency coordination which currently exists within the administration. Interior did not comment on this issue.

The Cabinet Council was not involved in resolving a stockpile funding issue

Another important materials policy issue highlighted in the President's program plan was the role of the National Defense Stockpile in filling basic national security objectives. The stockpile, comprised of 61 individual and related groups of materials, is maintained to prevent a dangerous and costly dependence on foreign supply sources during national emergencies. To fill the stockpile would require the purchase of additional materials valued at approximately $12.5 billion.

The program plan states that the administration endorses "the policy that the stockpile should be sufficient to meet military, industrial, and essential civilian needs in support of the national defense in a crisis." The plan states that the administration will seek congressional appropriations to acquire necessary stockpile materials and will provide a fiscal year annual materials plan that "matches annual budget ceilings, market conditions, immediate strategic requirements, and GSA (General Services Administration) purchase activities." It concluded that the President's acquisition and disposal program "demonstrates a serious commitment by this Administration to enhance significantly the national security."

The Strategic and Critical Materials Stock Piling Act, as amended (50 U.S.C. 98 et seq.) states that, except for (1) rotations and disposals of excess materials that may cause a loss to the federal government if allowed to deteriorate and (2) releases required for national defense,

> "no disposal may be made from the stockpile . . . if the disposal would result in there being a balance in the National Defense Stockpile Transaction Fund . . . after September 30, 1983, . . . in excess of $500,000,000."[2]

The President's fiscal year 1983 budget projected $592 million in disposal receipts and $120 million in acquisition expenditures with an end-of-year Transaction Fund balance of $741 million, or $241 more than the congressionally mandated limitation. However, $402 million in receipts was contingent on congressional approval to dispose of stockpile silver. (Further, the Federal Emergency Management Agency's 5-year plan projected that at the end of fiscal year 1987, the Fund would be at $1.8 billion--$1.3 billion above the $500 million limitation.)

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[2]The National Defense Stockpile Transaction Fund is a separate fund in the U.S. Treasury where all moneys received from the sale of stockpile materials are deposited. Moneys in the Transaction Fund are only for the acquisition of stockpile materials.

In a July 16, 1982, report,[3] we stated that according to an OMB official, OMB does not support the congressionally mandated limitation on the Transaction Fund balance. OMB intended to propose amending the legislation to either eliminate or increase the $500 million limitation if it appeared that the limitation would be exceeded by disposing of the stockpiled silver.

Congressional approval to dispose of stockpile silver was not received during fiscal year 1983; therefore, the $500 million limitation on the Transaction Fund was not exceeded and OMB did not propose amending legislation. However, in our report, we concluded that the administration appeared to have given priority to using the Transaction Fund to help balance the federal budget instead of acquiring needed stockpile materials and that no apparent attempt had been made to correlate the budget with the President's program plan.

In our report, we stated that, while the President's fiscal year 1983 budget and long-range projections reflect an intention to dispose of excess stockpile materials, we did not believe that they reflected the "serious commitment" to acquire additional materials stated in the program plan. As in Defense's decision to request funding for title III, the Cabinet Council did not coordinate plans regarding the Transaction Fund. We believe that since the Cabinet Council has been assigned primary responsibility for coordinating national minerals and materials policy, it should have provided the oversight of decision and policy coordination needed to resolve this discrepancy and to assure that the proposed stockpile acquisitions correlated with the presidential stockpile policy included in the plan. This issue was not addressed in agency comments.

Materials research and development decisions made without benefit of Cabinet Council coordination

A third materials policy issue highlighted in the President's program plan was the administration's intent to concentrate federally financed research and development on "long-term, high-risk, high potential payoff projects with the best chance of wide generic application to materials problems and increased productivity." The Cabinet Council did not, however, coordinate the decision implementing this materials policy directive.

The program plan reestablished the COMAT, comprised of assistant secretary-level representatives from federal departments and agencies concerned with minerals and materials and chaired by the Office of Science and Technology Policy's Assistant Director

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[3] Implementation of National Defense Stockpile Plans Would Require Amending Existing Legislation (GAO/EMD-82-111, July 16, 1982).

Policy's Assistant Director for Natural Resources. The plan tasked COMAT with coordinating the act's minerals and materials research and development activities and the Council with providing policy resolution of materials research and development questions.

COMAT completed an inventory of fiscal year 1982 federal minerals and materials research and development in June 1983. This inventory, coupled with administration policy, was to be used to recommend redirection, where appropriate, of federal minerals and materials research and development programs. In the interim, however, the President's fiscal year 1984 budget included $38 million for a major new initiative in materials sciences within the Department of Energy--the Center for Advanced Materials Research at the Lawrence Berkeley Laboratory in Berkeley, California. (See p. 36.) The overall goal of this research initiative is to improve linkages among academic, national laboratory, and industry sciences for the future advancement of high technology industries.

According to the Office of Science and Technology Policy (OSTP), Energy's initiative was based partly on a National Academy of Sciences study which suggested opportunities to extend the frontiers of materials science and increase the flow of materials knowledge to the marketplace. OSTP said that members of COMAT and OSTP's Federal Coordinating Council on Science, Engineering, and Technology were involved in the conception and proposal of this new initiative, which is also part of the administration's effort to better focus federal laboratories' research on current national problems. (See p. 36.)

We take no position on the appropriateness of Energy's initiative, only that the policy decision was made before COMAT had formulated a position on the need for the new initiative and that the initiative was not coordinated through the Cabinet Council. This occurred despite the clear directive in the program plan that the Cabinet Council is to provide policy resolution of materials research and development questions. We believe that the policy decision to fund Energy's initiative should have been coordinated with the Cabinet Council.

The Cabinet Council was not involved in a decision to subsidize Mexican copper expansion

Finally, although the program plan states that the administration's position is to help ensure a healthy and vigorous economy and create American jobs, the Cabinet Council did not coordinate a July 1982 policy decision to provide federal support for an estimated $1-billion expansion of a Mexican copper mining and smelting operation.

In 1982 the U.S. copper industry experienced sharp declines in demand, production, prices, and profitability. Yet, the competitive Mexican expansion was to be financed, in part, by a $75.7-million capital equipment loan from the U.S. Export-Import Bank and a $50-million loan from the World Bank's International Finance Corporation. The Corporation had agreed to syndicate an additional $400 million for the project with the remaining financing reportedly being assembled by the Mexican company. Mexico is already a net exporter of copper, and the proposed expansion would have increased Mexico's overall copper production capacity by 100,000 metric tons per year.

In an early 1983 letter to the President, six senators and eight congressmen expressed their concern that the formulation of administration policy on the project "appears to have lacked any serious interagency coordination." The letter stated that the Secretary of the Interior had registered his Department's opposition to the loans in a letter to the executive director of the World Bank. Yet, Interior's position was neither sought by nor made available to the U.S. representative to the International Finance Corporation Board, and the representative joined the rest of the Board in unanimously approving the loan.

We believe that the Cabinet Council should have acted to provide the interagency coordination needed to assure a coherent administration position on this policy issue. Instead, legislation was introduced in the Senate to limit loans by international lending institutions to developing countries to produce minerals commodities already in surplus in the world market. One bill would have discouraged loans to overseas mining projects costing more than $25 million if the project would not be economically feasible unless subsidized. The other would have required the National Advisory Council on international monetary and financial problems to inform the Congress of any applications for International Monetary Fund assistance that would increase the production of commodities such as copper which are already in surplus. This bill would also have required the National Advisory Council to set guidelines for the Fund and the World Bank directing them to consider the effect of assistance on industry sectors and on international commodity markets. The Mexican mining and smelting operation loan request was later withdrawn, and the bills were not enacted by the Congress.

We believe that the above examples show that the Council has not provided the required nonfuel minerals and materials decision and policy coordination or advised the President on important issues relating to the formulation of a sound national nonfuel minerals and materials policy and program. Instead, the ad hoc decisionmaking and coordination which the act intended to replace still exists.

THE CABINET COUNCIL LACKS REPRESENTATIVE MEMBERSHIP

While the Cabinet Council should, under the program plan, become active in nonfuel minerals and materials decision and policy coordination, it lacks the breadth of membership needed to address dynamic minerals and materials issues. Missing from the Council's membership are sub-Cabinet agencies having important materials responsibilities and programs, such as the Federal Emergency Management Agency, responsible for stockpile policy, and the Environmental Protection Agency, responsible for environmental regulations affecting the mining industry.

The February 26, 1981, presidential statement establishing the five interagency cabinet councils stated that the Council's meetings are open to Cabinet members (see p. 3) only and that presidential decisions, made in or after Council meetings, will follow full discussion by any Cabinet member who wishes to participate. Thus, sub-Cabinet agencies technically cannot participate in the decision and policy coordination relating to minerals and materials issues, some of which affect their materials responsibilities and programs.

Although the impact of excluding sub-Cabinet agencies from membership on the Cabinet Council is difficult to measure, we believe that the necessity of including them in the formulation of a coherent, continuing national nonfuel minerals and materials policy and program is reflected in the administration's decision to include them in the Working Group tasked with developing the President's program plan. (See p. 5.) This Working Group, however, has been disbanded. (See p. 25.) We believe that a formal procedure should be established for subcabinet agencies having major minerals and/or materials responsibilities and programs to bring issues to the Council's attention.

CONCLUSIONS

The central purpose of the National Materials and Minerals Policy, Research and Development Act of 1980 was to establish a "mechanism" which will lead to the formulation of a sound national nonfuel minerals and materials policy. The April 5, 1982, program plan formally assigned responsibility for coordinating national minerals and materials policy to the Cabinet Council on Natural Resources and the Environment. The Council is to ensure high-level consideration of important minerals and materials issues on a timely basis with the capability of prompt action on such issues by the President.

We recognize that, in implementing the act, the administration was faced with the difficult problem of developing an institutional approach in an area where few precedents exist. However, given the act's central purpose to replace the generally ad hoc coordination and policymaking that existed, our work has

shown that the Cabinet Council has not provided the decision and policy coordination required by the act. Instead, the federal departments, agencies, offices, councils, committees, working groups, and task forces delegated authority for discharging the various mineral- and material-related responsibilities in the act and program plan have proceeded independently. The programs, initiatives, studies, analyses, and reports that they are implementing or initiating may, over time, exacerbate rather than solve the problems associated with the ad hoc coordination which the act intended to replace by adding to the number of activities that must be coordinated.

Important material-related actions arose which required decision and policy coordination. In each instance, the Cabinet Council did not provide the high-level consideration of these actions required by the act and the program plan. Further, the Council lacks the breadth of membership needed to address dynamic minerals and materials issues. As a result, national minerals and materials policy and program planning continues to be primarily ad hoc and unstructured.

AGENCY COMMENTS AND OUR EVALUATION

The Assistant to the President for Policy Development was requested but did not comment on a draft of this report. The Department of the Interior did not comment on the need for a centralized coordination and policy decisionmaking mechanism. Conversely, the Department of Defense gave insight into why the Cabinet Council has not provided the decision and policy coordination required by the act.

According to Defense, coordination occurred among the 18 executive branch departments and agencies which developed the program plan with Cabinet Council oversight and approval. Once the plan was submitted to the Congress, however, no further decision and policy coordination on a case-by-case basis was required. Defense stated that individual actions taken by affected agencies are only required to be consistent with the President's plan. There is no requirement for agencies to coordinate on a case-by-case basis as we imply.

We believe that the act requires that decision and policy coordination encompass the continuous implementation of a national nonfuel minerals and materials policy. For example, the act states that the Congress found that

> "the United States lacks a coherent national materials policy and a <u>coordinated program</u> to assure the availability of materials critical for national economic well-being, national defense, and industrial production . . . ." (30 U.S.C. 1601) (Emphasis added.)

Similarly, the program plan stated that:

> "There is a clear need for coordinated and focused attention to ensure the full and complete implementation of a national materials policy and the capability of the United States to address and respond to materials problems, particularly where the national security is concerned . . . . It is therefore the position of this Administration that national materials policy will be coordinated through the Cabinet Council on Natural Resources and the Environment." (Emphasis added.)

Therefore, we believe that coordinating only those actions the individual agencies regard as "inconsistent" with the program plan will not sufficiently accomplish the act's objectives.

RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR

If the administration continues to coordinate national nonfuel minerals and materials policy and programs through the Cabinet Council on Natural Resources and the Environment, we recommend that the Secretary of the Interior, as Chairman pro tem of the Cabinet Council, establish a process to provide for decision and policy coordination and high-level consideration of important mineral- and material-related issues on a timely basis. This is consistent with requirements of the act and the program plan. This process should include a formal procedure for subcabinet agencies having major minerals and/or materials responsibilities and programs, but not represented on the Cabinet Council, to bring their mineral- and material-related issues to the Council's attention.

CHAPTER 3

THE PROGRAM PLAN SHOULD ADDRESS OTHER IMPORTANT MINERALS AND MATERIALS ISSUES

In the act, the Congress "declares that it is the continuing policy of the United States to promote an adequate and stable supply of materials necessary to maintain national security, economic well-being and industrial production . . . ." The act required that the President submit to the Congress a program plan to, among other things, implement this policy.

The April 5, 1982, program plan is the administration's initial effort at minerals and materials policy analysis. It represents the first step toward developing the programmatic and budgetary proposals and organizational structures to implement the Congress' desire for a continuing U.S. minerals and materials policy. The program plan reflects the administration's intention to rely primarily on the free market system to improve the competitiveness of domestic industries and help reduce U.S. dependence on foreign sources of critical minerals and materials, with some exceptions to assure adequate national security. (See p. 30.) Therefore, the plan focused primarily on one of the three policy goals included in the act--national security--and solutions to import dependency such as stockpiling, federal subsidies to establish or expand domestic productive capacity and supply, and increasing minerals extraction. We believe that more attention should be given to the act's other two policy goals--economic well-being and industrial production.

Some issues received only passing attention in the program plan. These include (1) what the proper federal role should be in addressing decreasing domestic processing capacity and (2) the long-term economic consequences, as opposed to the more immediate national security implications, of the trend toward increased dependence on foreign supplies of an array of major metals. Moreover, even though the plan recognized the national security implications of import dependency, it did not offer an approach to measure the magnitude or degree of U.S. vulnerability to supply disruptions or sharp price increases in given nonfuel strategic and critical minerals and materials markets. Yet, without a clear understanding of the importance of these minerals and materials and the risks associated with import dependency, it is difficult to determine what the proper federal role should be. These issues may not be addressed further since the act does not explicitly require nor does the administration anticipate updating the program plan.

Further, certain reports required by the act have not been made available to the Congress by the Department of Defense and the Office of Science and Technology Policy. This has limited refinement of the congressional policy and goals set forth in the act.

IMPORTANT MINERAL- AND MATERIAL-RELATED ISSUES GIVEN LITTLE ATTENTION

The act explicitly addressed "extraction, production, processing, use, recycling, and disposal of materials. . . ." It defined materials to include "substances . . . which present opportunities in terms of new physical properties, use, recycling, disposal or substitution . . . ." It also addressed the need to develop "improved methods for the extraction, processing, use, recovery, and recycling of materials." However, important components of materials systems, such as processing capacity and levels/types of consumption,[1] are given little attention in the program plan.

Decreasing domestic smelting capacity is an example of an industrial processing issue which we believe requires policy analysis to determine what the proper federal role should be. A 1981 report by Interior's Bureau of Mines[2] concluded that although the outlook for copper supply in the United States is, on the whole, favorable over the next 20 years, the outlook for copper smelting is less favorable. The report noted that a major U.S. copper producer, Anaconda, closed its smelter and the associated refinery in September 1980, which reduced U.S. copper smelter and refinery capacity by 8 and 9 percent, respectively. The report projected that several other U.S. smelters may very likely close by 1988 and noted that only one new smelter had been constructed in this country over the past 20 years. The report identified the promotional policies of foreign governments as one factor that has placed U.S. copper producers at a competitive disadvantage.

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[1]Examples of GAO analyses of various components of minerals and materials systems other than extraction are The U.S. Mining and Mineral Processing Industry: An Analysis of Trends and Implications (ID-80-04, October 31, 1979); Policy Conflict--Energy, Environment and Materials: Automotive Fuel-Economy Standards' Implications for Materials (EMD-80-22, Feb. 5, 1980); Domestic Aluminum Resources: Dilemmas of Development (EMD-80-63, July 17, 1980, and EMD-81-96, June 29, 1981); New Strategy Required for Aiding the Distressed Steel Industry (EMD-81-29, Jan. 8, 1981); Potential Impediment of Foundry Capacity Relative to National Defense Needs (EMD-81-134, Sept. 15, 1981); and Need for Better Monitoring and Analysis of Foundry Data by the Department of Commerce (EMD-82-15, Nov. 10, 1981).

[2]Louis J. Sousa, The U.S. Copper Industry Problems, Issues, and Outlook, Bureau of Mines, Department of the Interior, October 1981.

The report said that many of the problems identified are similar to those facing several other mature industries in the economy, especially the major metals. According to the Bureau, the "bottom line with these industries, as with copper, is that our ability to efficiently satisfy our needs from domestic sources appears to be eroding." Other examples identified included steel, aluminum, and the ferroalloys.[3]

If we lose our capacity to process minerals into usable materials, the availability of these domestic minerals may become meaningless. Therefore, we believe that the program plan should expand upon issues relating to components of materials systems other than just minerals extraction and should establish the "early warning systems" for materials supply problems called for in the act.

The program plan also gave no consideration to important mineral- and material-related industrial infrastructure[4] issues affecting the act's other two goals of economic well-being and industrial production. We believe that not addressing these goals may result in ad hoc, piecemeal remedies that in the long term may not measurably improve productivity, self-sufficiency, or investment opportunity.[5]

For example, while the program plan addresses the short-term national security implications of importing strategic minerals critical to national defense, it does not consider the long-term economic implications of the trend toward increased dependence on foreign supplies of major metals. Metals such as nickel, iron ore, copper, and bauxite are, in terms of volume as well as value, of day-to-day importance to the U.S. economy. The implications

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[3]A ferroalloy is any of various alloys of iron used in manufacturing steel. They are named for the added metal such as ferrochromium and ferromanganese.

[4]Infrastructure relates to the basic installations and facilities on which the continuance and growth of the nation depend, such as roads, schools, powerplants, transportation, and communication systems.

[5]Examples of GAO analyses of these problems are Changing Ownership Within the U.S. Minerals Industry: Possible Causes and Steps Needed to Determine the Effects (EMD-82-41, Apr. 26, 1982); The Impact of Antitrust Enforcement on the Country's Mineral Posture (EMD-82-11, Oct. 7, 1981); Assessing the Impacts of Federal and State Taxes on the Domestic Minerals Industry, (EMD-81-13, June 8, 1981); and New Means of Analysis Required for Policy Decisions Affecting Private Forestry Sector (EMD-81-18, Jan. 21, 1981).

this trend will have on domestic producers and consumers and on the evolution of national materials policy should be carefully examined to determine what the proper federal role should be.

We believe that not paying adequate attention to the infrastructure issues relating to the act's goals of economic well-being and industrial production may, in turn, adversely affect the act's third goal of national security since defense ultimately depends on a sound general economy. Since defense has no separate industrial base, it must compete with the civilian sector for productive capacity in periods of peacetime and demand surges, including military buildups.

The National Materials Advisory Board has found that "materials problems will have their initial impact on the economy of the country and through that on the national security and national welfare."[6] Similarly, the Department of Defense defines "national security" as including the ability of the nation's industrial base to acquire the products needed during (1) peacetime, (2) demand surges, including military buildups, and (3) mobilization for national emergencies. Therefore, a broad and decisive policy committed to the materials problems facing the United States must reach beyond immediate national security considerations and address long-term infrastructure problems affecting the U.S. industrial base.

AN APPROACH TO MEASURE U.S. MINERALS AND MATERIALS VULNERABILITY WAS NOT DEVELOPED

The President's program plan focused on the important congressional goal of the national security implications of import dependency. The administration is justifiably concerned with the preeminent issue of increasing U.S. dependence on and vulnerability to insecure foreign sources for strategic minerals deemed critical for national defense. As such, the plan's broad initiatives in the areas of land availability, data collection, research and development, the National Defense Stockpile, and regulatory reform were directed toward decreasing U.S. supply vulnerability in minerals markets considered essential to national security. However, the program plan did not offer an approach to measure the magnitude or degree of U.S. vulnerability to supply disruptions or sharp price increases in given nonfuel minerals and materials markets to determine what the proper federal role should be.

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[6] National Non-Fuel Minerals Policy Planning Process. National Materials Advisory Board, National Research Council, NMAB-384, 1981.

The administration's focus on the national security implications of import dependency is not uncommon. In considering the act, the Congress found that peaks of interest within the federal government on the need for a national materials policy have been associated with international events which threatened our national security. The most recent resurgence of interest in the security of materials supplies was largely stimulated by the actions of the Soviet Union and Cuba in southern Africa from which many minerals, such as cobalt, chromium, and platinum, of critical strategic importance to the United States are imported. Yet, the Congress found that while it "has, over the years, passed legislation which was motivated by concern about materials supplies, these laws have not resulted in a coherent set of interrelated policies, institutional structures, and programs." Thus, the act is intended to begin a process which will lead to such policies, structures, and programs.

In a June 3, 1982, report,[7] we stated that the program plan, while identifying measures to diminish U.S. minerals and materials vulnerability, does not adequately address the fundamental, rudimentary issues of

--what constitutes a strategic and critical mineral or material,

--what is the magnitude of potential U.S. vulnerability in a given nonfuel minerals or materials market, and

--what is the proper federal role, including the benefits and costs associated with various mitigating alternatives.

Therefore, to focus attention on those markets where the United States is most vulnerable to supply disruptions or sharp price increases, we recommended that the Secretary of the Interior, as Chairman pro tem of the Cabinet Council, (1) clearly define the terms "strategic" and "critical," (2) measure the magnitude of the potential problem in a given market based on consistently applied criteria, and (3) assure that the legislative, budgetary, and programmatic proposals required by the act address not only long-term, national nonfuel minerals and materials goals, but also the long-term goals of other federal policies. Subsequent GAO reports addressing alternatives to mitigate U.S. vulnerability in strategic and critical mineral markets have reached similar conclusions and recommendations.[8]

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[7]Actions Needed to Promote a Stable Supply of Strategic and Critical Minerals and Materials (GAO/EMD-82-69, June 3, 1982).

[8]Federal Encouragement of Mining Investment in Developing Countries for Strategic and Critical Minerals Has Been Only Marginally Effective (GAO/ID-82-38, Sept. 3, 1982), and Uncertainties Surround Future of U.S. Ocean Mining (GAO/NSIAD-83-41, Sept. 6, 1983).

In a February 17, 1983, letter responding to our June 3, 1982, report, Interior, while agreeing with our general aim, took exception to our first two recommendations. Interior stated that it did not see the practical relevance of proceeding to define what is "strategic" and "critical," that existing estimation techniques do not permit reduction of all the elements in the vulnerability problem to simple and reliable measures, and that such reduction efforts probably face insurmountable difficulties. The letter concluded that Interior believed that the President's plan is a solid start in laying down the foundation on which to build.

The absence of an approach to measure U.S. minerals and materials vulnerability in determining what the proper federal role should be in a given strategic and critical nonfuel minerals or materials market can only serve to diminish the potential effectiveness of the administration's focus on national security. For example, the President's program plan states that the "United States imports more than half of our total supplies of twenty (20) strategic materials" (emphasis added) without identifying either the 20 materials or the degree of vulnerability associated with the import dependency. The plan then goes on to address "the 61 family groups and individual materials" (emphasis added) in the National Defense Stockpile considered to be "strategic and critical." As stated previously (see p. 10), the stockpile is maintained to prevent a dangerous and costly dependence on foreign supply sources during national emergencies.

Conversely, in August 1979, the President's Domestic Policy Review of Nonfuel Minerals found that only several imported minerals were critical. Of these, only four minerals presented the greatest concern. Subsequently, these four minerals were referred to as "critical minerals," "key commodities," and "strategic materials" by Interior's Assistant Secretary for Energy and Minerals and the Director of Interior's Bureau of Mines at March 13, 1980, House appropriation hearings for fiscal year 1981. The Bureau's fiscal year 1981 budget justification, however, identified 34 "selected critical commodities," including clay, stone, sand and gravel, and sulfur.

In his March 13, 1980, testimony, Interior's Assistant Secretary for Energy and Minerals stated that the four minerals--cobalt, chromium, manganese, and the platinum group metals--were considered strategic materials because of (1) their importance to the economy and the defense of the nation and (2) the instability of main U.S. suppliers. Using a similar definition, COMAT, in its September 1981 Survey: Materials Life Cycle Research and Development in the Federal Government Fiscal Year 1980, identified 18 strategic and critical commodities. Thus, within a 3-year period, the number of minerals and materials commodities deemed strategic and critical ranged from 4 to 61.

Interior's January 16, 1984, comments did not offer an explanation for the wide disparity among the number of minerals and materials commodities deemed strategic and critical. Instead, Interior's comments questioned the need to further define the terms "strategic" and "critical" since they have been used without differentiation for National Defense Stockpile planning since World War II. (See p. 31.)

Our June 3, 1982, report addressed the definition of the term "strategic and critical materials" included in the Strategic and Critical Materials Stock Piling Revision Act of 1979. The report also stated that the Federal Emergency Management Agency (FEMA) had clarified this term in its operational definition used to formulate national stockpile policy and planning guidance. FEMA defines "strategic" as the relative "availability" of a material and "critical" as its "essentiality." FEMA then relies on factors provided by other federal agencies to measure the availability and essentiality of a given stockpile material and, using a computer modeling methodology, sets stockpile goals. Moreover, stockpile materials proposed for purchase and/or sale are ranked according to national security priorities. Our report recommended that the factors identified by FEMA and others be considered in establishing definitive criteria for measuring the magnitude or degree of U.S. vulnerability in a given strategic and critical nonfuel minerals or materials market and that the methodology for their application build on the analytical techniques developed by FEMA and others.

Interior's January 16, 1984, comments said that much of the Department's work proceeds on a generic basis rather than on a material-by-material basis. This includes examinations of mineral occurrences on public lands, mining and metallurgical research within Interior's Bureau of Mines, and cooperative government-industry-university research in such areas as mine systems design, crushing and grinding, waste treatment and recovery, and respirable dust. (See p. 31.)

We believe that this type of work is necessary to develop basic data and information relating to domestic minerals availability, extraction, processing, and recovery. However, this generic work should be complemented by an effort to assure U.S. access to future strategic and critical minerals and materials supplies by developing long-term plans tailored for specific minerals and materials that consider their extraction, processing, and consumption systems.

For example, in a 1981 report, Manganese Reserves and Resources of the World and Their Industrial Implications (NMAB-374), the National Academy of Sciences' National Materials Advisory Board stated that assuring U.S. access to future manganese supplies will require a long-term plan involving complex international, political, and economic strategies that can neither be devised nor carried out by the U.S. steel and ferromanganese

industries alone. The report concluded that, since similar situations are being encountered in procuring other critical materials, a national minerals policy must recognize and resolve U.S. minerals dependence problems by considering a given mineral's ". . . supply, processing and use chain."

By not developing an approach to measure U.S. minerals and materials vulnerability, the administration leaves the Congress in the position of trying to address a national materials issue which has not been precisely defined and whose scope fluctuates. Thus, a coherent plan to reduce U.S. minerals and materials vulnerability may be difficult to implement, and the limited federal funds available may not be expended in the most cost-effective manner.

Prior to the program plan, the President established the Emergency Mobilization Preparedness Board on December 17, 1981, to ensure that America's capability to field and sustain fighting forces in the event of war or national emergency is not curtailed by a shortage of critical raw materials. The Board's purpose is to ensure that a capability exists to respond rapidly and effectively to meet national needs in the event of major peacetime and wartime emergencies. The Board consists of representatives from 23 key federal departments, agencies, and executive offices at the deputy or under secretary level and is chaired by the Assistant to the President for National Security Affairs.

The Board is charged with the responsibility of producing a national policy on emergency mobilization and an action plan to improve emergency mobilization preparedness. As part of its responsibilities, the Board is to address the goals for the National Defense Stockpile and the overall strategies for achieving these goals. The Board is also responsible for monitoring federal agency implementation of this policy and resolving mobilization preparedness issues.

The Board's role and responsibilities are identified in the program plan. However, the plan does not make clear the relationship between the Board and the Cabinet Council, which has responsibility for coordinating the much broader issue of national minerals and materials policy. We believe that the Secretary of the Interior, as Chairman pro tem of the Cabinet Council, could assign responsibility for strategic and critical minerals and materials to the Board, consistent with the program plan. However, any action by the Board relating to these minerals and materials should be coordinated with the Cabinet Council.

THE PROGRAM PLAN MAY NOT BE UPDATED

The above issues may not be addressed further since the act does not explicitly require nor does the administration anticipate updating the program plan. Section 5 of the act required only

that the President submit a program plan to the Congress by October 21, 1981. Moreover, the Strategic Materials Working Group which developed the April 5, 1982, program plan (see p. 5) was viewed by several chairpersons of the Working Group's subcommittees and agency officials as a temporary, ad hoc group established to meet a one-time legislative reporting requirement. Since the plan was issued, the working group has been disbanded, and no updates are planned.

CERTAIN REPORTS HAVE NOT BEEN PREPARED

Refinement of the congressional policy and goals set forth in the act is contingent, in part, on policy analyses and subsequent reports by several units within the executive branch. However, certain reporting requirements have not been met. For example, the act requires that the Office of Science and Technology Policy (OSTP) prepare an assessment of national materials needs related to scientific and technological changes over the next 5 years and revise such assessment on an annual basis. The act, however, does not specify a reporting date. OSTP officials told us that the assessment has been given a low priority and has not been prepared.

The act also requires the Department of Defense to prepare "a report assessing critical materials needs related to national security and identifying the steps necessary to meet those needs" and to revise it periodically as deemed necessary. This report was to be made available to the Congress by October 21, 1981. According to Defense, this report was completed for consideration in preparing the President's program plan and provided to the Cabinet Council, but was still under review within the administration as of February 1984.

We believe that any report assessing critical materials needs related to national security and the steps necessary to meet those needs should be based on potential U.S. vulnerability in a given nonfuel minerals or materials market. (See p. 20.) While this would require using a methodology to quantify the magnitude or degree of U.S. vulnerability, existing analytical techniques within FEMA, Interior, and others could be built on in determining the need for federal intervention.

The act required Interior to prepare a report summarizing actions initiated to (1) improve the capacity of the Bureau of Mines to assess international minerals supplies, (2) increase the level of mining and metallurgical research by the Bureau in critical and strategic minerals, and (3) improve the availability of minerals data in federal land-use decisionmaking. That report, which was to have been made available to the Congress by October 21, 1981, was not submitted until November 10, 1983, over 2 years after the due date. (See p. 31.) It was precipitated by a June 14, 1983, letter from the Chairman, Subcommittee on Transportation, Aviation and Materials, House Committee on Science

and Technology, to the Secretary of the Interior. The letter said that if Interior did not move quickly to submit the report, " . . . the Subcommittee will be forced to consider additional legislative action."

The only federal agency to consistently comply with the act's requirements in a timely manner is the Department of Commerce. The act requires Commerce to continually identify and assess specific critical materials needs cases relating to national security, economic well-being, and industrial production and, as necessary, submit reports to the Congress on these assessments together with recommended programs that would assist in meeting such needs. The Department has prepared two materials case studies--Critical Materials Requirements of the U.S. Aerospace Industry and Critical Materials Requirements of the U.S. Steel Industry. Commerce is now deciding on the subject of a third study in this series. In conducting these studies, Commerce has displayed the willingness to address important industrial infrastructure issues affecting our industrial base which are not included in the program plan. (See p. 19.)

CONCLUSIONS

The April 5, 1982, program plan is the administration's initial effort at minerals and materials policy analysis. It represents the first step toward developing the programmatic and budgetary proposals and organizational structures to implement Congress' continuing U.S. minerals and materials policy. The plan focuses primarily on one of the three policy goals included in the act--national security. However, we believe that more attention should be given to the act's other two goals--economic well-being and industrial production.

Issues receiving only passing attention in the program plan include (1) what the proper federal role should be in addressing decreasing domestic processing capacity and (2) the long-term economic consequences, as opposed to the more immediate national security implications, of the trend toward increased dependence on foreign supplies of several major metals. Moreover, even though the plan recognized the national security implications of our import dependency, it did not offer an approach to measure the magnitude or degree of U.S. vulnerability to supply disruptions or sharp price increases in given nonfuel strategic and critical minerals and materials markets. Without a clear understanding of the importance of these minerals and materials and the risks associated with import dependency, it is difficult to determine what the proper federal role should be. These issues may not be addressed further since the act does not explicitly require nor does the administration anticipate updating the program plan.

Further, two reports required by the act have not been made available to the Congress. This has limited refinement of the congressional policy and goals set forth in the act.

We believe that a program plan that responds to Congress' three policy goals should include the following. First, for the goal of national security, the plan should clearly define the terms "strategic" and "critical" to focus attention on those minerals and materials markets where the United States is most vulnerable to supply disruptions or sharp price increases and develop an approach to measure the magnitude of the potential problem in a given market on the basis of consistently applied criteria. The economic and national security benefits and costs of various mitigating alternatives, such as stockpiling, expanding domestic productive capacity and supply, and developing substitutes, should then be weighed in developing a long-term plan tailored for a specific strategic and critical mineral or material that considers its extraction, processing, and consumption system.

Second, the program plan should reach beyond the goal of national security and include infrastructure issues affecting the act's goals of economic well-being and industrial production which are now being addressed in a piecemeal fashion by Interior, Commerce, and others. One issue which we believe should be addressed is the economic causes and consequences of the trend toward increased dependence on foreign supplies of several major metals which, in terms of volume as well as value, are of day-to-day importance to the U.S. economy.

Finally, when weighing alternatives, the program plan should address the appropriate future role of high-technology materials research and development. This alternative should be developed within the context of (1) the annual assessments of national materials needs related to scientific and technological changes over the next 5 years which OSTP is required by the 1980 act to prepare and (2) the recommended redirection resulting from COMAT's inventory of federal minerals and materials research and development programs. (See p. 11.)

AGENCY COMMENTS AND OUR EVALUATION

The Department of the Interior did not comment on our proposals to expand the program plan, other than to disagree on the need to develop an approach to measure U.S. minerals and materials vulnerability. (See p. 31.) The Department of Defense agreed with our proposal that the report assessing critical national security materials needs and the steps necessary to meet those needs required by the act should be made available to the Congress. Defense agreed with Interior, however, that it is not necessary to quantify the magnitude or degree of U.S. vulnerability in a given nonfuel minerals or materials market.

We believe that identifying minerals and materials critical or essential to national security addresses only half of the needed assessment. Until the probability of a supply disruption has been estimated on the basis of strategic factors such as (1) the political and economic stability of major foreign suppliers,

(2) concentration of production and/or processing capacity in one or several foreign countries and their geographic proximity to the United States, and (3) political, military, and economic ties with the United States, the steps necessary to meet national security needs, such as Title III of the Defense Production Act, cannot be adequately justified.

OSTP did not comment on our proposal that it prepare the assessment of national materials needs related to scientific and technical changes over the next 5 years as required by the act. Interior, however, stated that the administration intended that COMAT would constitute the primary means through which the Office would carry out the act's reporting requirements. (See p. 32.) Since neither the program plan nor COMAT's activities to date assess national materials needs related to scientific and technological changes over the next 5 years, we believe that this reporting requirement has not been met.

RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR

We recommend that the Secretary of the Interior, as Chairman *pro tem* of the Cabinet Council on Natural Resources and the Environment, and given responsibility for coordinating national minerals and materials policy:

--Expand the President's April 5, 1982, program plan to (1) address the broad issue of adequate materials availability, including an approach that considers all the components of materials systems such as extraction, production, processing, use, recycling, and disposal as well as mineral-related industrial infrastructure issues affecting the act's goals of economic well-being and industrial production, (2) develop an approach to measure the magnitude or degree of U.S. vulnerability to supply disruptions or sharp price increases in given strategic and critical minerals and materials markets, and (3) address what the proper federal role should be in a given minerals or materials market, including the appropriate future role of high-technology materials research and development. The Secretary could assign responsibility for developing an approach to measure U.S. vulnerability to the Emergency Mobilization Preparedness Board, consistent with the program plan, as long as any action taken by the Board relating to strategic and critical minerals and materials is coordinated with the Cabinet Council. The expanded program plan should be resubmitted to the Congress.

RECOMMENDATION TO THE DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY POLICY

The act requires the Director, OSTP, to prepare an assessment of national materials needs related to scientific and technological changes over the next 5 years and revise such assessment on an annual basis. To date, the assessment has been given a low priority and has not been prepared. We recommend that the Director prepare the required assessment which, in turn, should be used together with any recommended redirection resulting from COMAT's inventory of federal minerals and materials research and development programs to evaluate the Department of Energy's proposed new initiative in materials sciences and coordinate the initiative through the Cabinet Council on Natural Resources and the Environment.

RECOMMENDATION TO THE SECRETARY OF DEFENSE

The act also requires the Secretary of Defense to make available to the Congress "a report assessing critical materials needs related to national security and identifying the steps necessary to meet those needs" by October 21, 1981, and to revise it periodically as deemed necessary. According to Defense, this report has been under review within the administration for almost 2 years. Therefore, we recommend that the Secretary make this report available to the Congress as required by the act. We believe that the report should address the magnitude or degree of U.S. vulnerability in materials markets critical to national security and the appropriateness of the federal role proposed.

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

Mr. J. Dexter Peach
Director
Resources, Community and Economic
Development Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

We have reviewed the draft of the GAO report RCED-84-63 entitled, "Implementation of Our National Nonfuel Minerals and Materials Policy Could be Improved."

Without question any major Federal Government activity can be improved. For example: the recent realignment of functions announced by the Secretary on December 22, 1983 (enclosure "A"), had as its purpose effecting improvements in the Department's management not only of nonfuel minerals matters, but also of other related responsibilities.

This Administration has stated clearly its philosophical approach to the goals stated in the relevant Acts. With some exceptions necessary to assure adequate national security, the proper Federal role in economic well-being and industrial production is to minimize manipulation of the market and to allow private firms the flexibility and resources necessary to remain vigorous. Government actions which involve subsidies, create trade limitations, or otherwise attempt to manipulate the market not only are costly in Federal outlays, but also create inefficiencies which in the long run do more harm than good. Policies which advocate unimpaired operation of the market also assure that industry remains vigorous, that new technologies emerge, and that new mineral resources are discovered and developed. The Administration's policies which promote the exploration of public lands, reduce the costs of investment, and focus Federal research on basic questions are designed to allow a vigorous private minerals and materials sector of the economy.

In the period since the President forwarded his April 5, 1982, "National Materials and Minerals Program Plan and Report to Congress" several related important Presidential statements have been issued which were developed and cleared through appropriate interagency mechanisms including the Cabinet Council on Natural Resources and Environment, chaired by the Secretary of the Interior. These Presidential statements include those of July 9, 1982, on the Convention of the Law of the Sea, March 10, 1983, on the Exclusive Economic Zone of the United States of America, and June 11, 1983, on Environmental and Natural Resources Management (enclosures "B," "C," and "D").

Perhaps because it was prepared some time ago, the GAO draft report states on pages v, 25, and 36 that the Department of the Interior had not submitted a detailed required report. This report, however, was indeed submitted on November 10, 1983, by the Secretary, and a copy is supplied herewith (enclosure "E") that should provide much of the information sought by the GAO as to detailed actions that have been taken.

While the GAO report continues to stress the need for differentiation of materials into classes that might be labeled "strategic" on the one hand and "critical" on the other, with perhaps further assessment of relative importance and/or vulnerability material-by-material, it must be noted that the term "strategic and critical" has been used without differentiation in stockpiling matters ever since World War II as set forth in Public Law 520 - 79th Congress, July 23, 1946, as amended in 1979 by 50 U.S.C. 98 - especially Sec. 12 of the latter, and Sec. 103 (c)(5) of the National Security Act of 1947, Public Law 253, 80th Congress. Further, when the Congress amended the Defense Production Act by Public Law 96-294, June 30, 1980, new Sec. 106 provided that "For purposes of this Act, "energy" shall be designated as a "strategic and critical material." The semiannual "Stockpile Report to the Congress" issued by the Federal Emergency Management Agency (FEMA) and predecessor agencies refers to 93 individual "strategic and critical materials" (80 of mineral origin and 13 of agricultural origin) grouped into 61 "family groups." Of course, in its stockpile management process through the Annual Materials Plan, FEMA endeavors to prioritize, material-by-material, stockpile acquisitions and excess disposals through logical procedures in which the Department of the Interior regularly participates. Likewise the Department of the Interior has regularly assisted other agencies, such as the National Security Council, the Department of Defense, and the Department of State in the formulation and implementation of programs involving strategic and critical minerals.

Much of the work of the Department of the Interior proceeds on a generic basis rather than a material-by-material basis. For example, in examinations of the public lands by the U.S. Geological Survey, the Bureau of Mines, and the Bureau of Land Management, the mission is to identify all mineral occurrences and assess where possible mineral resources, rather than to look just for cobalt or chromium or tantalum or platinum which might happen to be rated high on some lists of potential problems. Further, the mining and metallurgical research of the Bureau of Mines is generally of broad applicability to a large number of strategic materials: mining technology, crushing, grinding, concentrating, smelting, refining, and recycling--all being required for most strategic and critical minerals. The recently established Generic Mineral Technology Centers under Bureau of Mines direction are intended to further facilitate government-industry-university cooperative research in such across-the-board areas as mine systems design and rock mechanics, comminution (crushing and grinding), pyrometallurgy, mineral industry waste treatment and recovery, and respirable dust.

With respect to interagency coordination, the Bureau of Mines maintains 96 interagency mineral commodity committees which were established as a result of a series of interagency meetings in the fall of 1975. Committees meet on call only when there is a need, but membership is updated annually on a regular

[See GAO note 1, p. 33.]

basis. The current structure of the committees was formulated after consultation with representatives of the following Federal agencies:

Department of Agriculture
Central Intelligence Agency
Department of Commerce
Commodity Futures Trading Commission
Council of Economic Advisors
Department of Defense
Department of Energy
Federal Emergency Management Agency
General Services Administration
Department of the Interior
  Geological Survey
  Bureau of Mines
International Trade Commission
Department of State
Office of the U.S. Trade Representative
Department of Transportation
Department of the Treasury

There was general agreement that it would be desirable to have a quick mechanism for obtaining the latest coordinated information available within government on any commodity to help in developing recommendations for dealing with actual or foreseeable problems. For example, while the Bureau of Mines has substantial data and expertise in the overall minerals area, other participating agencies also have a significant input potential, occasioned by their respective responsibilities and experience in various aspects of the individual commodity areas. In any problems calling for committee consideration, a meeting of an interagency commodity committee can be called by any agency having a need therefor, and that agency should normally chair the committee for the purpose of the business at hand. In the mineral field, the Bureau of Mines agreed to have each of its commodity experts serve as Executive Secretary of the interagency committee covering their respective commodity area. In addition, the Interagency Minerals Information Coordinating Committee, chaired by the Bureau of Mines, brings together representatives of 11 Federal departments and agencies. It operates through two working groups, the Minerals Data Working Group and the Analytic Systems Working Group. The Minerals Data Working Group has published the 1983 edition of the "Minerals Data Source Directory," Bureau of Mines Information Circular 8935. It contains descriptions of government minerals information sources in 32 agencies. The Directory was prepared from a computer data base and includes a KWIC (Key-Word-In-Context) index. The Minerals Data Working Group also developed a Memorandum of Agreement (MOA) for collection of data relating to the types of exploration activities on Federal lands. This area has previously been identified as an important data gap. The MOA was signed by the Directors of the Bureau of Land Management, U.S. Geological Survey, Bureau of Mines, and the Chief, Forest Service. A pilot data collection project is currently underway under this MOA. The Analytic Systems Working Group completed an inventory of models being used to analyze mineral problems and policies. The results of this activity will be published in the near future as a Bureau of Mines Information Circular entitled, "Nonfuel Mineral Models Directory."

The GAO report makes reference to the role of COMAT (Committee on Materials) which, in accordance with the President's April 5, 1982, "National Materials and Minerals Program Plan and Report to Congress," was reestablished in June 1982 by the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET), Executive Office of the President. It was intended that COMAT would constitute the primary means through which the Director of the

Office of Science and Technology Policy (OSTP) would carry out the provisions in Sec. 5(b) of Public Law 96-479, "National Materials and Minerals Policy, Research and Development Act of 1980," as well as other items indicated in the President's Program Plan. COMAT's principal objective is coordination of Federal minerals and materials research essential to the national security, economy, and standard of living. As such, COMAT is intended to identify key points of emphasis, as well as problems, related to national minerals and materials technology needs and to coordinate the development of long-range plans for an effective R&D program to meet clearly defined national objectives. The Department of the Interior has been active in the affairs of COMAT as long as it has been in existence. In fact, from 1977, when the then President disestablished COMAT, until 1980 the committee was kept active as an ad hoc interagency group by Interior's Bureau of Mines. Since the June 1982 reestablishment of COMAT, the Department of the Interior has had participants in all of COMAT's activities. Interior provided the Executive Secretary for COMAT. Interior representatives have chaired the Working Groups on the Inventory of Federal Materials Research and Technology for fiscal year 1982 and on Essential Materials. They have also participated in the Working Groups on Rapid Solidification Technology, Welding Technology, and Basic Research.

Thank you for the opportunity to comment on this draft report.

Sincerely,

Robert N. Broadbent

Assistant Secretary
for Water and Science

5 Enclosures

[GAO note 1: Page references in this appendix which referred to the draft report were changed to reflect their location in this final report.

GAO note 2: Enclosures A through E are available on request from GAO. They were not included in this report because they (1) were voluminous, comprising 25 typed pages, (2) were adequately summarized in the comments above, and (3) did not, by themselves, result in any material change to the draft report.]

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

January 13, 1984

Dear Dr. Peach:

We have reviewed the draft GAO report entitled "Implementation of our National Nonfuel Minerals and Materials Policy could be Improved," and we offer the following comments.

It was our understanding that the intent of the GAO report was to provide an assessment of the progress being made by the Administration toward implementing PL 96-479 (the Act) through the National Materials and Minerals Program Plan of April 1982 (the Plan). In that respect we find the report incomplete since there is little mention of the substantial progress that has been made in the relatively short period since the Plan was submitted to Congress in April 1982. Certainly, much work remains to be done and we are continuing our efforts to fully implement the provisions of the Plan.

The key policy concerns of the Act are being addressed, through implementation of the Plan, with efforts being focused not only on the specific problems of materials and minerals supply and processing, and research needs, but also on the important related issues including international trade, antitrust and patent policy, productivity and innovation, and education. These important related issues affect many key economic and national security needs and are not always discussed solely within the context of materials and minerals and therefore may not be very visible to the materials community. The Cabinet Council on Natural Resources has been involved in a number of materials-related issues. It has proposed a Minerals and Materials Industry Advisory Committee. It has been involved in Defense Stockpile issues, particularly with regard to purchases and sales; the coal slurry pipeline issue; and the President's proclamation establishing an offshore exclusive Economic Zone in which the U.S. retains minerals and fishing rights.

In the area of materials and minerals research and development, a number of goals have been met and there is continuing progress toward reaching additional goals. To coordinate the federal materials and minerals R&D programs, the Federal Coordinating Committee on Science, Engineering, and Technology Committee on Materials (COMAT) was reaffirmed within OSTP. One of the first priorities of COMAT was the preparation of an inventory of all

federal R&D for minerals which could be used in assessing long-range R&D plans. A report was completed in June 1983 which provided the basic inventory data, for the approximately $1 billion spent on federal materials research in FY 1982. In addition, the report included a background on the history of federal materials coordination efforts, agency descriptions and materials concerns, and a proposed classification system which can allow for a greater degree of inventory detail for use in assessing the adequacy of programs to meet specific objectives. We are now looking at ways to improve future inventories, especially for long-range planning purposes.

An important part of the Plan implemented by COMAT has been the establishment of interagency task forces to coordinate high-priority areas of materials related research. In response to a Department of Defense concern that the national effort in welding technology was too fragmented, we set up a task force to work with the private sector to assess national needs and improve government-industry coordination. The successful result of the task force efforts has been a new private sector initiative (the American Welding Technology Applications Center) to establish a focal point for cooperative welding research among government, industry, and universities. A strong U.S. capability in welding is essential to the competitive position of many of our industries and to national security and this new Center will enhance those capabilities.

In recognition of the strategic importance of Rapid Solidification Technology (RST), another task force has held a number of workshops to ensure the best possible coordination among the agencies and with industry with this new area of materials science.

An Essential Materials task force was established to coordinate interagency R&D efforts to reduce our vulnerability to interruptions in the supply of imported materials, focusing on substitution and conservation.

A fourth task force, the Interagency Materials Group, was already in existence and will continue to coordinate federally-funded materials research, particularly basic research in universities, with special focus on research instrumentation needs.

One issue of fundamental importance to materials and minerals research is how we can better use and develop our R&D resources. It is vitally important to our national interests that we retain our leadership in materials as well as other research endeavors. The future advances in materials science and technological innovation that will be required to retain our leadership will depend to a significant degree on the quality and availability of our scientists and engineers. We are taking steps that will improve the quality of engineering education. We are also studying ways in which we can better utilize federal R&D to

respond to national needs, and improve cooperation between government-industry-and university research programs. These steps will help to ensure that we improve the infrastructure needed to produce the technological advances we will need. In some cases, bold new steps are called for. Partly as a result of a NAS study which suggested opportunities to extend the frontiers of materials science and increase the flow of material knowledge to the marketplace, a new model for materials research was established - the Center for Advanced Materials Research at Lawrence Berkeley Laboratory. Members of COMAT and FCCSET were involved in the conception and proposal of this new Center, which is also part of our effort to better focus the federal laboratories' research on current national problems.

OSTP has played a role in other materials and minerals issues. In implementing the plan concerning the quality and form of the Defense Stockpile, report studies were contracted for by FEMA to assess the quality of stockpiles of cobalt and chromium. The cobalt report has been completed which categorizes its findings and recommendations under 3 quality grades. A preliminary report on chromium is nearly complete and is expected to be available by this Spring. A third report, being prepared by the National Academy's National Materials Board, concerns more specific quality assessments, and is also due this Spring. OSTP has also played a major role during the past year in international cooperation involving materials technology. Following the 1982 Economic Summit in Versailles, the United Kingdom and the U.S. proposed materials science and technology as one of the research topics for international cooperation. At the 1983 Williamsburg Summit, the seven participating countries submitted specific research proposals.

Significant progress is being made under the National Materials and Minerals Program Plan. Through the COMAT and other interagency groups, the strategic and critical materials and minerals interests of the Nation are being addressed and needed action continues to be pursued.

Sincerely yours,

Wallace R. Kornack

Wallace R. Kornack
Assistant Director

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