GAO

Report to Congressional Requesters

May 1987

NATIONAL DEFENSE STOCKPILE

National Security Council Study Inadequate to Set Stockpile Goals

GAO/NSIAD-87-146

GAO

United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-223657

May 4, 1987

The Honorable Charles E. Bennett
Chairman, Subcommittee on Seapower
and Strategic and Critical Materials
Committee on Armed Services
House of Representatives

The Honorable James A. McClure
Ranking Minority Member
Committee on Energy and Natural
Resources
United States Senate

This report responds to your July 1985 request that we evaluate the National Security Council's (NSC's) study of national defense stockpile goals and that we obtain participating agencies' views on the study A supplement, which provides the classified aspects of NSC's directives, study results, and participating agencies' views will be provided to you under separate cover after NSC has completed its security review of it.

Our assessment is that, although the NSC study methodology was similar to the methods of past studies and made some improvements, the NSC study does not provide a sufficient basis for setting stockpile goals or for other U S. mobilization planning.

This report includes recommendations to the Director, Federal Emergency Management Agency. That agency, the NSC, and the Office of Management and Budget were given an opportunity to comment on the draft report. Overall comments provided by NSC are included

We are sending copies of this report to the Chairmen, Senate and House Committees on Armed Services, the Senate and House Committees on Appropriations, the Senate Committee on Governmental Affairs, and the House Committee on Government Operations; and to the heads of the 12 agencies which participated in the NSC study. Copies will be made available to other interested parties upon request.

Frank C. Conahan
Assistant Comptroller General

Executive Summary

Purpose

On July 8, 1985, the White House announced the results of a National Security Council (NSC) stockpile study. Stating a need to modernize the national defense stockpile, the NSC proposed to reduce the stockpile goal from $16.1 billion to $0.7 billion.

The Chairmen of the Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services; and the Senate Committee on Energy and Natural Resources asked GAO to (1) evaluate the methodology and assumptions used in the NSC study, and (2) compile the views of participating agencies. GAO's report is supplemented by classified appendixes.

Background

To minimize dependence on foreign supply sources, the Congress created a National Defense Stockpile. The stockpile currently consists of 62 materials such as cobalt and titanium, valued at about $10 billion

Stockpile goals represent the difference between estimated supply and projected requirements for each strategic material. The goals have varied widely since the Strategic and Critical Materials Stock Piling Act authorized the present stockpile in 1946. NSC began the most recent stockpile study in June 1983.

To evaluate study methodology and compile participants' views, GAO obtained data from each of the 12 participating agencies and consulted with industry representatives and others with subject area expertise GAO tested the NSC study by both examining the overall study methodology and testing study data for five stockpile materials.

Results in Brief

The NSC study did not fairly represent participants' input. The NSC study results are far more sensitive to assumption changes than indicated by the study report, and key NSC study participants stated that some of the study assumptions are questionable, such as those for the reliability of foreign sources and the planned size of our wartime military force. Because of these concerns, GAO concluded that the NSC study does not provide a sufficient basis for setting stockpile goals, or for other U.S. mobilization planning.

GAO concurs with the NSC's stated goal of stockpile modernization, but identified problems which hinder assessments of stockpile requirements. These problems include a lack of accurate information on raw material

demand and supply and a current lack of organizational capability to plan and manage the stockpile.

Principal Findings

In April 1983, the Director, Office of Management and Budget (OMB), expressed the view that stockpile goals could be reduced by $10 to $13 billion. In a May 1983 joint memorandum, he, the Secretary of the Treasury, and the Chairman of the Council of Economic Advisers suggested that the NSC complete a stockpile review.

Results of the NSC study were announced in July 1985. The NSC report recommended that current stockpile goals of $16.1 billion be reduced to $0.7 billion. The NSC proposed that receipts from the sale of surplus stocks be used to fill stockpile shortfalls or returned to the Treasury. (Only germanium was considered short of proposed goals.) The report also recommended that the assumptions used in conducting the stockpile study be used for other mobilization planning, and made additional classified recommendations. However, the Congress has prohibited reductions in stockpile goals until October 1, 1987.

Study Assumptions Not Fully Disclosed

The study did not adequately reflect major disagreements about the study's assumptions, nor did the report adequately reflect that its results could vary greatly with changes in those assumptions. GAO's tests of NSC's assumptions indicated that stockpile goals could vary by more than $8 billion within a plausible range for six of the major assumptions tested. GAO tested assumptions about the reliability of foreign sources (two tests), defense sector requirements, industrial base investment requirements, industry materials consumption factors, and programs to increase domestic material supply. For example, GAO's tests showed that substituting the most recent alternative reliability ratings for the NSC ratings of foreign sources could increase NSC's baseline goal estimate by almost $2 billion.

Also, the NSC study scenario planned for less than total mobilization, thus limiting the size of the planned force. Presidential and Secretary of Defense guidance direct that U.S. planning include total mobilization. Planning for a conventional war involving fewer people and less equipment would require less production and, ultimately, less raw material.

Concerns of Key Participating Agencies

Key participating agencies expressed concerns about the NSC study and its recommendations, including such matters as the assumptions used, the way the NSC coordinated the study, and the way presidential approval of study results was obtained. For example, the Federal Emergency Management Agency and the Departments of Commerce, Defense, and Interior opposed the submission of interim working group reports to the President. The Secretary of Defense offered the view that working group reports containing unvalidated assumptions and preliminary recommendations should not go forward to the President.

The study report did not fairly represent the nature or content of participants' input. The report often did not disclose participants' qualifications and objections, nor did it always identify agency responsibilities accurately. For example, the report stated that DOD chaired a working group for the war scenario, but GAO did not find documentation indicating that the group was in existence until after the war scenario was developed.

The study did not include direct participation by industry representatives. Industry and agency representatives told GAO that such participation could have improved the accuracy of study data. GAO's information on agency views is based on interviews and available documents, but may be incomplete.

Management of the Stockpile

Keeping existing stockpile goals in place indefinitely is not a reasonable option because goals necessarily change with time. Making the necessary adjustments requires active management of the stockpile.

Although The Federal Emergency Management Agency has responsibility for stockpile policy and planning, the Agency's officials believe they do not have sufficient resources to fulfill those responsibilities. The Stock Piling Act assigns responsibility to the President, and Executive Order 12155 assigns responsibility for planning the stockpile program to the Agency's Director. A July 1986 memorandum from the Agency's Director to OMB noted that OMB had directed that the Agency's personnel for stockpile activities were to be cut by almost 90 percent (to a residual level of 2 work years). However, the agency was not relieved of its stockpile management responsibilities.

Recommendations

GAO's report contains recommendations to the Director, Federal Emergency Management Agency, which aim to improve future analyses of stockpile goals by ensuring

- participants' experience and expertise,
- analyses of a reasonable range of assumptions,
- fair representation of participants' input and views, and
- consistency with assumptions and planning factors used by federal departments for similar purposes.

Agency Comments

GAO requested comments on its report from the Federal Emergency Management Agency, NSC, and OMB. NSC provided comments for the three agencies, and stated that the Administration disagreed with most of GAO's criticisms, and with GAO's conclusion that the NSC study was not a suitable basis for setting stockpile goals. However, NSC stated that it planned to review several assumptions and identified actions that, if done, would partly address GAO's recommendations

GAO cannot agree with NSC's position that the NSC study is valid for use in stockpile planning because available documents show unresolved objections by key study participants about the assumptions, conclusions, and recommendations in the NSC report.

Matter for Consideration by the Congress

NSC states the Administration's position as being that the NSC study is a valid basis for stockpile planning. In view of that position, and of existing Administration directives to implement the NSC study's stockpile goals and recommendations, the Congress should consider continuing its restrictions on changes in the stockpile.

Contents

Appendixes

Table

Figures

Abbreviations

CEA	Council of Economic Advisers
CIA	Central Intelligence Agency
DOD	Department of Defense
EMPB	Emergency Mobilization Preparedness Board
FEMA	Federal Emergency Management Agency
GNP	Gross National Product
GSA	General Services Administration
JCS	Joint Chiefs of Staff
NSC	National Security Council
OMB	Office of Management and Budget

Introduction

Although the United States can provide some of the raw materials it needs from domestic sources, it still must import many materials considered vital to the nation's defense. Therefore, to prevent what could be a dangerous and costly dependence on foreign supply sources during periods of crisis, the Congress created a National Defense Stockpile, which currently consists of 62 strategic and critical materials valued at approximately $10 billion.

On July 8, 1985, the White House announced its intention, based on a 2-year National Security Council (NSC) interagency stockpile study, to modernize the national defense stockpile. The White House proposed to reduce the stockpile goal from $16.1 billion (May 1985 prices) to $0.7 billion, but to retain some materials at least temporarily in a supplemental reserve of about $6 billion.

In July 1985, the Chairman, Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services, and the Chairman, Senate Committee on Energy and Natural Resources requested that we evaluate the methodology and fundamental planning assumptions used in the NSC study and to compile participating agencies' views on the study. In August 1986, we issued an interim response to the request.[1]

Background

Concern for maintaining adequate stores of materials dates as far back as 1939, when the Strategic War Materials Act authorized a government survey of strategic and critical materials to be stockpiled. In 1946, the Congress enacted the Strategic and Critical Materials Stock Piling Act, which authorized the present stockpile.

Since passage of the Act, stockpile goals have varied widely. For example, the stockpile was initially expected to support requirements for 5 years; later the time was reduced, first to 3 years and then to 1 year, and—in 1976—was increased again to 3 years. Goals have been relatively stable since the major reassessment of stockpile policy and goals which President Ford approved in 1976 and President Carter reaffirmed in 1977. In 1979, the Federal Emergency Management Agency (FEMA) recalculated stockpile goals, using then-existing policy guidance, with some changes to improve methodology. In 1979, the Congress passed the Strategic and Critical Materials Stock Piling Revision Act

[1] National Defense Stockpile: Adequacy of National Security Council Study for Setting Stockpile Goals (GAO/NSIAD-86-177BR, Aug. 4, 1986)

(Public Law 96-41, 50 U.S.C. 98 et seq.). The Act changed the stockpile program, consolidating three separate stockpiles and setting a 3-year military contingency as the basis for determining stockpile goals.

The President is to approve stockpile policy guidance assumptions regarding changes in the wartime civil economy, wartime foreign trade patterns, shipping losses, wartime political and economic stability of foreign nations, and foreign and domestic production levels of stockpile materials. His guidance is to be followed in determining the stockpile goals, which represent the difference between estimated supply and projected requirements for each strategic material. Periodic review and updating of the goals are required to ensure a current estimate of U.S. vulnerability to resource shortages during an emergency. For example, germanium was added to the list of strategic and critical materials in 1984.

National Security Council Stockpile Study

On April 5, 1983, the Director, Office of Management and Budget (OMB) briefed the Cabinet Council on Economic Affairs about the need to examine policy assumptions underlying stockpile planning and goal setting. He stated that weaknesses in a previous 1979 study of the stockpile resulted in stockpile goals that were too high. He concluded that past studies tended to underestimate material supply and overestimate civilian consumption of wartime material. He estimated that the use of revised assumptions and procedures could reduce stockpile goals by $10 to $13 billion.

In a May 18, 1983, memorandum to the Assistant to the President for National Security Affairs; the Secretary of the Treasury, the Director of OMB, and the Chairman of the Council of Economic Advisers (CEA) suggested that NSC conduct a stockpile review. They questioned the current stockpile estimates, saying that the goals were based on economic assumptions that biased stockpile goals upward. The memorandum noted possible effects on other areas of national defense policy, such as barter proposals and Section 232 investigations,[2] and suggested finishing the study within 90 days. On June 17, 1983, the NSC established the stockpile goals and mobilization planning study. The interagency review included 12 federal organizations: CEA, Central Intelligence Agency (CIA),

[2]Section 232 of the Trade Expansion Act of 1962 provides that the head of a federal agency or some other interested party may ask the Secretary of Commerce to determine the impact on national security of importing products to the United States The Secretary may investigate and report his findings to the President, who may take such action as he deems necessary

FEMA, General Services Administration (GSA), NSC, OMB, and the Departments of Commerce, Defense (DOD), Energy, Interior, State, and Treasury.

On July 8, 1985, the White House announced the results of the NSC study. This study reviewed 45 stockpile materials which constituted $15.6 billion (97 percent) of the total stockpile goals of $16.1 billion. The study recommended a new stockpile goal of $0.7 billion to meet national security needs.

The Department of Defense Authorization Act for Fiscal Year 1986 prohibited reductions in stockpile goals until October 1, 1986. The Authorization Act for 1987 extended the prohibition until October 1, 1987.

Under the proposed goal, about $9.5 billion of $10.1 billion worth of materials currently in the inventory would be excess. Of the excess, the study proposed that $3.2 billion be declared surplus and sold, and that $6 billion be retained at least temporarily as a supplemental reserve The NSC did not study the remaining materials, valued at about $0.3 billion, but the Administration has proposed selling about $37 million of these materials.

As the heads of Treasury, OMB, and CEA suggested, the study also proposed using its assumptions for other mobilization planning. (The study's additional recommendations are discussed in app. I of the classified supplement to this report.)

The White House proposed that receipts from the sale of materials be used to fill stockpile shortfalls or returned to the Treasury. Germanium was the only material identified by the study as being short of proposed goals. More materials might be later proposed for purchase because over 20 materials (some not included in the NSC study) are to be examined to determine possible need.

Figures 1.1 and 1.2 compare total current and proposed stockpile goals and inventories. Under both goals, the current inventory has too much of some materials and too little of others.

Figure 1.1: Total Existing and Proposed Stockpile Goals

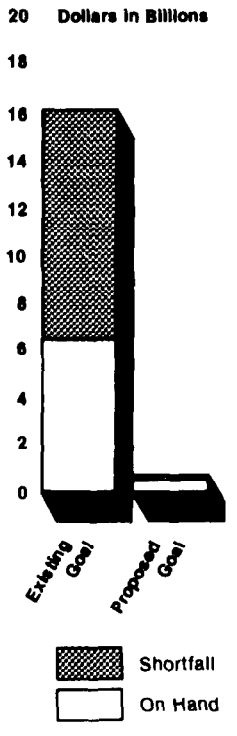
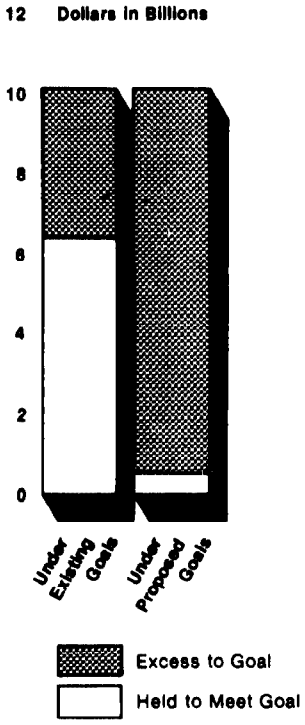


Figure 1.2: Stockpile Inventory Status Under Existing and Proposed Goals



Objectives, Scope, and Methodology

Our objectives were (1) to evaluate both the methodology and planning assumptions the NSC used in its national defense stockpile study and (2) to compile participating agencies' views on the study.

To accomplish these objectives, we obtained data from each of the 12 agencies involved in the study. We interviewed officials who participated in the study to determine their views on study methodology, planning assumptions, and results. We also obtained the views of private sector representatives, such as industry representatives, economic modeling experts, and members of a strategic and critical materials advisory committee to the Secretary of Interior. We obtained a copy of the NSC study and reviewed the results. We requested and obtained documentation from the agencies on their input to and views on the study.

We examined the NSC's data, assumptions, and methodology, and compared them with corresponding data from previous studies and actual U.S. wartime experience. We obtained the views of modeling experts to provide perspective on NSC changes to prior study models. We used the

expert opinions of macroeconomic modelers and data from past actual U.S. wartime experience to identify plausible ranges of values for key assumptions. We selected several key assumptions and determined how sensitive the estimated stockpile goals were to changes in assumptions, both individually and in combination with other assumptions.

We also selected five minerals—beryllium, cobalt, copper, germanium, and titanium—and traced the commodities through the computations NSC used to determine stockpile levels. We interviewed specialists in FEMA, the Departments of Commerce and Interior, and the private sector, about the issues involving each mineral. Our selection of minerals for review considered factors such as the quantities on hand, changes in proposed goals, and the views of various government and private sector representatives as to which materials were the most critical.

We conducted our review between September 1985 and December 1986 in accordance with generally accepted government auditing standards.

Impact of Assumption Changes on NSC Stockpile Study Results

In our August 1986 interim report, we concluded that the NSC study did not appear to provide a sufficient basis for setting stockpile goals, or for other U.S. mobilization planning. Our completed evaluation of the NSC study has confirmed the preliminary assessment.

Although the methodology of the NSC study was similar to that of past studies, NSC used different assumptions, and its report did not adequately reflect major disagreements among study participants about key assumptions. Furthermore, the study did not show that its results could vary greatly with changes in its assumptions. Such variances, which can be quantified by doing sensitivity tests on the assumptions used, were a key part of prior studies, and provided decision makers a better basis for assessing the studies' conclusions

Our tests indicated that, using the NSC methodology, stockpile goals vary by over $8 billion within a plausible range of six assumptions tested. This chapter and app. II of our classified supplement describe our tests of the six assumptions.

NSC Study Methodology

The fundamental approach of the NSC study was to estimate material demand and supply for 3 years of war and to compare the two. The study estimated material demand by (1) using macroeconomic models to estimate industry-output dollar levels for a wartime economy and (2) converting these industry-output levels into demands for critical materials expressed in physical units. The study estimated material supply by

- estimating world production capacity of raw materials;
- subtracting some, but not all, materials demand of foreign countries; and
- reducing overseas supply for such reasons as war damage, attrition during transportation, and unreliability of some foreign sources of supply.

The methodology included limited tests of the sensitivity of stockpile goal estimates to changes of some study assumptions The NSC initially computed a stockpile goal of $230 million, using October 1984 prices. The NSC then increased the goal to $691 million, based on assumption changes and May 1985 prices. The limited changes assumed increased material requirements for the defense and industrial sectors and reduced world supply.

NSC Study Assumptions

The Stock Piling Act stipulates two basic principles for the President to use in determining stockpile goals:

- The stockpile is to be used only for national defense and is not to be used for economic or budgetary purposes.
- The quantities of the materials stockpiled should be sufficient to sustain the United States for a period of not less than 3 years in the event of a national emergency.

The President could approve other assumptions. The NSC report included numerous assumptions which could significantly affect stockpile results. For example, demand-related assumptions included the

- war scenario (such as the amount of warning time before onset of hostilities and the intensity of conflict);
- wartime changes to the U.S. economy (such as the rate of growth during the warning and war years and the expected impact of such outside factors as energy limitations);
- sectors of the economy which stockpiles must support (such as investments for the basic industrial sector, which needs tools to produce military equipment); and
- quantities of materials that industry would consume for given levels of output.

Significant supply-related assumptions included the

- reliability of foreign sources of supply; and
- ability to increase domestic availability of materials.

Impact of Assumption Changes on Stockpile Goals

In August 1986, we reported that the NSC study did not include adequate sensitivity analyses to show the impact of changes in major assumptions. We noted that stockpile goals were extremely sensitive to changes in such assumptions and estimated that plausible changes in the assumed demand of the defense sector and the ability of programs to increase domestic materials supply could increase stockpile goals to $1 6 billion—well above the upper limit of $0 7 billion the NSC study cited.

Our tests of additional assumptions indicated that potential stockpile goals can rise even more quickly as more assumptions are changed. The tests showed that, using the NSC study methodology for sensitivity testing, stockpile goals could be over $8 billion under plausible changes for six assumptions. The assumptions that we tested involved reliability

of foreign sources (two tests), defense sector requirements, industrial base investment requirements, industry materials consumption factors, and programs to increase domestic material supply.

Before proceeding with our tests, we requested data on sensitivity analyses that study participants had done, and were told that nothing was documented beyond the limited tests described in the NSC report. The NSC tests were limited in that the tests for some assumptions covered only part of the possible ranges. (For example, NSC's test for defense sector requirements increased demand far less than the 50 percent increase in our test.) Also, most tests simply adjusted output data for material supply and demand. The proper method of changing assumptions would have been to enter new data in the initial stages of the model-estimation process and to allow the models to determine what material supply and demand changes resulted. The method used would not measure possible secondary effects, such as production bottlenecks or interactive changes in world market shares for imports.

We also reported in August 1986 that additional sensitivity analyses were needed to better determine the impact of different assumptions that key study participants and outside experts favored. However, we did not reach a mutually satisfactory arrangement with NSC to perform the additional analyses using the NSC model. Thus, we proceeded with limited and simple tests of our own, using sensitivity-testing methods similar to those the NSC study used.

Because we did not have access to all of the models the NSC study used, we were unable to do a full analysis. Consequently, the sensitivity test results in this report are intended to show a need for accurate analyses of apparent wide swings in stockpile-goal levels, not to predict actual goals for a given set of assumptions.

In its comments on our draft report, NSC stated that the combination of assumptions we tested added up to an implausible wartime economy and that they were not appropriate for goals estimation. NSC stated, for example, that a 50 percent increase in both defense production and nonessential civilian production would not occur in a wartime economy restrained by oil shortages. However, Department of Energy representatives had stated that energy was not a problem under the selected scenario, and we also noted that the oil constraints in NSC's scenario were more severe than in the scenarios submitted by the EMPB. To determine whether or not realistic oil constraints would prevent defense production increases requires running stockpile models under the assumptions

agreed to by study participants. A test of oil availability impact was one of the sensitivity tests for which we requested, but did not obtain, NSC assistance. Finally, our tests reallocated civilian production, but did not increase it as indicated by NSC.

Effect of Assumptions Regarding the Reliability of Foreign Sources

The reliability of foreign sources is important because the United States relies on imports for many critical materials, such as chromium, germanium, cobalt, and graphite. The NSC study assigned one of three reliability ratings to each of 39 potential exporting countries. The ratings reflected the ability of the United States to rely on imports of critical materials from each country under the selected war scenario. Highly reliable supply was assumed to be available for all wartime production, including critical defense items. Fairly reliable supply was assumed to be available for all production except that of defense Unreliable supply was assumed to be unavailable. Unrated sources were also assumed to be unavailable in most cases.

In one sensitivity test, the NSC reduced all foreign sources by 10 percent, but did not measure the effect of changes in individual sources' assumed reliability of supply. Therefore, we tried to estimate the impact of changes to individual sources within a reasonable range of assumptions. We obtained reliability ratings developed in 1982 for stockpile planning, using survey responses from State Department personnel.

We found substantial differences between the assumptions used in 1982 and those used for the NSC study. For example, the NSC rated 17 more foreign sources as highly reliable than was done in 1982. Furthermore, the NSC increased the reliability ratings in spite of input from the State Department which raised concerns to us about the capability of some of the sources to provide materials. Further information on reliability ratings and State Department input is shown in appendix II of the classified supplement.

In response to our August 1986 briefing report, NSC stated that even though the NSC study had assumed that more imports would be available than in the past, "most of the increase in import availability was not needed to meet wartime requirements " However, we found that the NSC study had not tested the impact of this assumption change. Our tests showed that substituting the 1982 ratings for the NSC ratings could result in a significant increase in stockpile goals, indicating that the imports would be needed to meet wartime requirements The test results

indicate that this change alone could increase the NSC base estimate of $230 million by almost $2 billion.

In its comments on our draft report, NSC stated that its approach for developing political reliability ratings relied on the agencies with preponderant expertise: the CIA, the Defense Intelligence Agency, and the State Department. NSC stated that our sensitivity tests involved a methodology used in 1979 that was considered and rejected for the 1984 study. Had available documents showed that the NSC study had considered all pertinent factors and relied on the agencies with expertise, we would agree with the validity of NSC's approach. Our concern is that the documents we saw did not show that such a process had occurred. Furthermore, we believe it is important for decision makers to know that the impact of changes in the reliability of foreign sources on stockpile goals can be significant, rather than negligible, as stated by NSC

Changes in the world political climate could result in both the 1982 and NSC ratings being too optimistic in some cases where both estimates agreed. For example, we tested the impact on stockpile goals if one source were considered unreliable because the political climate had deteriorated. We estimate that, if other assumptions remained constant, eliminating the one source could cause estimated goals to increase from the NSC's $230 million estimate to about $420 million.

In its comments on our report, NSC stated that a recent classified intelligence estimate for the above country "appears consistent with the rating that was determined in the 1984 study." The intelligence estimate was not made available to us, but as noted above, both the 1982 data and NSC had similar ratings for this foreign source. Our intent is to show that even one source could noticeably affect stockpile goals.

Effect of Other Assumptions on Stockpile Goals

We tested alternative values of several other key assumptions. Table 2.1 shows the sensitivity test estimates of the effects of individually changing six assumptions in the NSC study.

Table 2.1: Estimates of the Effects of Changes to Individual Assumptions in the NSC Study (Change From NSC Baseline Goal of $230 Million)

Dollars in millions

Assumption change tested	Estimated increase in goal
Substitute foreign source reliability rating data from 1982	$1,950
Eliminate one foreign source	190
Increase requirements for defense sector material by 50 percent	750
Add industrial investment requirement (eliminated in the NSC study)	130
Increase material consumption factors by 15 percent (to simulate previous safety factor methodology)	180
Reduce domestic materials supply increases during the first 2 war years	250

The above estimates indicate only the effect of individual assumption changes on stockpile goals. However, the combined impact of changing more than one assumption at once is significantly greater than the sum of individual changes.

The reason for the increased impact of combined assumptions is that many materials had a stockpile goal of zero, both with and without a particular assumption change. Thus, although the assumption had no impact by itself, combined assumption changes could increase goals for such materials.

Our tests of the impact of combined assumption changes showed that the above changes made simultaneously could increase stockpile goals by about $8 1 billion (from $230 million to almost $8.4 billion) For example, if the other five assumption changes were already made, increasing defense sector requirements by 50 percent could increase stockpile goals by as much as $3.8 billion (from $4 6 billion to $8.4 billion). By itself, the change increased the goal by $750 million.

The NSC study's reported sensitivity results, which show a maximum value of combined sensitivity tests to be $691 million, are much less than our test results. All assumption changes that we tested increased the estimated goals. None of the experts we interviewed and none of the past data we examined indicated values for assumptions which would have reduced NSC's baseline goal estimate of $230 million The remainder of this chapter provides additional information on the NSC study scenario, which directly affects the above assumption dealing with defense sector material requirements. A discussion of the range of each of the above assumptions is included in appendix II of the classified supplement.

The NSC Scenario

In commenting on the preliminary results in our August 1986 report, NSC and OMB officials told us that stockpile goals were driven primarily by defense planning assumptions and that they believed the NSC study's assumptions to be consistent with defense planning. In a September 20, 1986, memorandum to us, the NSC Executive Secretary stated that the NSC had selected "the most severe of a number of war scenarios." However, the NSC statement is incorrect. From five scenarios the Emergency Mobilization Preparedness Board (EMPB) submitted, NSC identified the two scenarios most similar to that required for stockpile planning. After modifying the scenarios, NSC selected the less demanding of the two.

We found that the NSC study scenario allowed a lower level of materials demand and a higher level of supply than would have resulted if a more demanding scenario (such as submitted by the EMPB or used in prior studies) had been used. The primary ways in which the NSC scenario was less demanding than others were that the NSC study scenario planned for

- less than total mobilization; and
- a war whose intensity diminished after the first year and was concluded in 3 years, rather than the first 3 years of a war of indefinite duration.

Other areas where the NSC modified provisions of the EMPB scenarios included the impact of oil availability and assumed shipping losses. In some cases, the NSC deleted economic provisions thought necessary by military planners. The oil availability changes were made in spite of a 1985 memorandum in which Energy Department officials said that their estimates indicated that "energy is not a problem" even with the constraints of the NSC scenario.

War scenarios generally describe in detail the environment before a war, the length of the warning period, the extent of mobilization, the duration of war, the zones of action, and the environment after the war.

In late 1982, at the request of the EMPB Military Mobilization Working Group, representatives of the Joint Chiefs of Staff (JCS) developed five wartime scenarios for use in planning by federal civil departments and agencies. The EMPB accepted the five scenarios on August 10, 1983; thus, the five scenarios were the ones accepted for general use at the time of the NSC study The scenarios depicted a chronology of events for conventional and nuclear war. Stating its belief that none of the scenarios were appropriate for stockpile planning, the NSC developed a composite scenario from two of the five scenarios provided by the EMPB. The NSC used its composite scenario to develop two options, which differed primarily

in the size of the force used to fight the war. The NSC chose the scenario with the smaller force.

The scenario used in the NSC study projects a 3-year war with intense conventional combat in the first 2 months. This is followed by lower levels of intensity, with combat activity again increasing near the end of the war.

The scenario begins with increasing tensions and Soviet presence in the Middle East, a reduction of oil supply, and increased U.S. military preparedness. After an invasion of a Persian Gulf nation and a further reduction of the oil supply, the United States commits its forces to that region. Upon deployment of Warsaw Pact forces against North Atlantic Treaty Organization forces, the United States and its European allies declare war on the Soviet Union. When North Korea attacks South Korea, Japan declares war on the Soviet Union, beginning war in the Pacific.

Assumed Size of U.S. Forces

The NSC study scenario planned for full, rather than total, mobilization, thus limiting the size of the planned force. Planning for a war involving fewer people and less equipment would require less production and, ultimately, less raw material. (DOD estimates of relative force sizes for full and total mobilization are discussed in app. II of the classified supplement.)

DOD defines mobilization as the act of assembling and organizing national resources to support national objectives in the time of war or other emergencies The most demanding mobilization categories are full and total. In full mobilization, the military fills the existing approved force structure. In total mobilization, the military generates additional units and supporting resources to meet total wartime needs.

The President, in his National Security Decision Directive Number 47, dated July 22, 1982, Emergency Mobilization Preparedness, directed that the military should have the capability to "expand the size of the force from partial through full to total mobilization." The Secretary of Defense, in his guidance to the military services, directed that planning be done for both full and total mobilization. In his guidance dated March 2, 1984, the Secretary stated the following:

"We will continue total mobilization planning. The JCS planning force will be used as an initial basis for force expansion requirements. Preparations for total mobilization of industry and the economy to support expansion of our armed forces will also continue. A plan, including a summary budget for contingency use in crisis or wartime, will be developed providing for the fleshing out of current forces, sustainability improvements and, as appropriate, force expansion."

The Secretary reiterated this direction in his guidance to the services dated April 11, 1985, and December 31, 1985, telling them to "plan for full and total mobilization." The last guidance above was intended as biennial guidance, thus the next guidance update is expected in about another year.

Study participants told us that, during the NSC study, DOD objected to planning for less than total mobilization. In response to our questions, NSC and OMB officials told us that they limited the study scenario to the lower level of mobilization because planning for a higher level was not, in their view, realistic.

In commenting on our report, NSC stated that it had based its stockpile goal on full mobilization plus an increase as an insurance factor. NSC said it is planning to take another look at this issue with DOD to determine whether adjustments in the insurance factor should be considered.

Duration of Conflict

The NSC scenario reduced the duration of conflict from that used in prior stockpile planning. The scenarios during the Ford and Carter Administrations stipulated the first 3 years of a war of indefinite duration, whereas the NSC scenario stipulates a war that is concluded in 3 years. Although both scenarios measure the conflict in terms of the "period of not less than three years," required by the Stock Piling Act, the difference is significant

The material requirements of a war that concludes within 3 years would be less than requirements of the first 3 years of a continuing war. The reduced intensity of fighting during negotiations to end hostilities would reduce the requirements for such expendable supplies as ammunition, and could be expected to reduce losses through damage to facilities and equipment. Also, rates of industrial production near the end of a 3-year war could be less than if government and industry expected the war—and its material requirements—to continue for an indefinite period.

Inconsistencies in Economic Assumptions in the NSC Study Scenario

We found that the economic assumptions in the NSC's scenario are inconsistent with the EMPB-approved scenarios submitted to the NSC, and with DOD's guidance to the services. Also, the NSC study indicates little need for industrial expansion, and that only a few of the industries will require government incentives. However, industry representatives expressed their belief that the study does not fully consider production constraints and that price rises alone would be an insufficient incentive for the NSC's assumed industrial expansion. Finally, DOD guidance to the services envisions direct government investment for industrial capacity.

Summary of Participants' Input to the NSC Study

Key participating agencies expressed concerns about the NSC study and its recommendations. The concerns included such matters as the assumptions used, the way NSC coordinated the study, and the NSC's obtaining presidential approval of interim study data For example, FEMA, and the Departments of Commerce, Defense, and Interior opposed the submission of interim working group reports to the President DOD stated that it did not believe that working group reports containing unvalidated assumptions and preliminary recommendations should go forward to the President.

The NSC study report often did not disclose qualifications and objections made by study participants In 1976, the last published study included participants' separate views. This chapter and appendix III of the classified supplement summarize each agency's input to the study.

The NSC report did not always accurately identify agency responsibilities in the conduct of the study. For example, the NSC report shows no supervisory roles for OMB, but other documents show that OMB chaired two working groups Also, the NSC reported that DOD chaired a working group for the war scenario, but we did not find any documentation indicating that the group was in existence until after the war scenario was developed.

Officials of the Department of Interior and an industry advisory committee told us that the NSC study did not include direct participation by industry representatives. They expressed the view that participation by industry representatives could have improved the accuracy of study data.

Although we believe that the following information on agency input and views is representative, we are not sure that it is complete. In a letter to the Chairman, Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services; the Assistant to the President for National Security Affairs stated that the Administration "does not plan to release individual policy deliberative documents to GAO." Also, each agency's comments may have been limited by the fact that NSC requests for comments on study results allowed little time to prepare responses.

Council of Economic Advisers

CEA was involved in setting ground rules for the study and also in conducting the study. A March 1983 agenda showed that a meeting of the Cabinet Council on Economic Affairs would discuss the "Economic

Impact of Strategic Stockpile Goals." The CEA Chairman was one of the three officials who signed the May 18, 1983, memorandum suggesting that NSC "conduct a review of the economic assumptions, procedures, and petroleum and other supply constraints embodied in the stockpile methodology." This memorandum suggested "the active policy level participation of agencies with economic or foreign policy expertise." (Since each of the suggested organizations had participated in materials planning under FEMA direction, CEA was suggesting a reduced role for FEMA.) A CEA Senior Staff Economist chaired two working groups: the Macroeconomic Study group and the Industrial Output and Investment Study group.

The NSC study appears to have fully incorporated CEA's input. The NSC study appears to have been conducted as suggested by the May 18, 1983, memorandum. Also, the CEA staff person who chaired the two working groups stated that he had drafted the groups' reports and that these reports had been included as chapters 4 and 5 of the NSC report

National Security Council

The NSC set forth study ground rules in a June 1983 memorandum and continued to be closely involved throughout the study. In August 1983, the NSC scheduled a Stockpile Review Steering group meeting to decide on a suitable war scenario and prepared an option paper that recommended the scenario ultimately selected. Later, the NSC set up a procedure whereby working group chairmen were to provide their reports directly to the NSC study chairman, thus initially bypassing agency heads who had expressed views on the study. The agency heads' views were to be later incorporated by the NSC study chairman.

NSC actions did not appear to require a consensus of study participants. As previously noted, the NSC sent interim working group reports to the President for approval in spite of agency objections.

The NSC took initiatives to ensure that study assumptions were applied beyond the stockpile study, even before the overall study was approved. In an April 1985 memorandum on an ongoing assessment of the civil sector capability to support military mobilization (Federal Resource Assessment System), the NSC noted that "the President has already approved the bulk of the NSC study for use in other appropriate industrial preparedness programs."

Office of Management and Budget

OMB had significant input in planning and implementing the NSC study and in finalizing the study report.

In April 1983, the Director, OMB briefed the Cabinet Council on Economic Affairs on economic policy assumptions underlying the national defense stockpile goals. The Director concluded that revision of prior assumptions and procedures could reduce stockpile goals by $10 to $13 billion. He recommended that revised procedures and assumptions be used in computing new stockpile goals and in assessing imports needed for national security.[3]

The NSC study report does not discuss OMB input, but our discussions with study participants indicate close involvement by OMB officials throughout the study Study participants stated that OMB officials participated in working group meetings during the study, and met with agencies after the study to discuss their comments. NSC documents indicate that OMB representatives chaired two working groups (on energy and on sealift attrition).

Except for some omissions involving OMB-chaired working groups that were later chaired by DOD (see discussion of DOD input on pp. 27-28) OMB's input appears to have been fully incorporated in the NSC study. The input from the energy working group was approved by the President. Also, study participants indicated significant OMB involvement throughout the study—some expressed the view that OMB's influence on the conduct of the study was greater than NSC's.

Department of Commerce

The Department of Commerce participated in the study and provided comments on working group reports and the draft NSC report. A representative of the Department's Office of Economic Affairs chaired a working group on U.S. Material Demand.

A Department official did not fully concur with initial working group reports and opposed sending the reports to the President for approval. The Department also expressed concerns about the final NSC study report and the manner in which NSC staff were attempting to resolve differences The Department's classified comments questioned NSC

[3]Our analysis of briefing data indicates that some of the information in the OMB briefing was incorrect or subject to misunderstanding However, since the recommendation in the briefing was simply to re-examine stockpile study methodology, we did not perform a detailed analysis of the briefing and focused instead on the ensuing stockpile study

assumptions on a point-by-point basis. The Department's comments on the overall study do not appear to have been addressed.

Although the NSC report included input from the U.S. Material Demand working group (chaired by the Department representative), NSC omitted some information, including qualifications on study methodology. For example, a supporting report on substitution characterized its own estimates as highly judgmental. It also said that the deadlines imposed and the lack of specific assumptions, data, and methodology made any in-depth analysis impossible.

The NSC study included a March 1984 "final" report by the Department's working group but did not include an August 13, 1984 update, which stated that necessary data was not fully developed and validated.

Department of Defense

DOD representatives provided input during the study by providing technical data, chairing several working groups, and commenting on working group reports and the study report. DOD provided data on defense expenditures for use in the NSC study's economic model.

The NSC report stated that DOD representatives chaired four NSC study working groups. However, other documents show that OMB chaired one of the groups for a significant part of the study and another group was not in existence until after the key work was already done. Specifically:

- A Sealane Attrition working group was reported as chaired by a representative of the Assistant Secretary of the Navy for Shipbuilding and Logistics. However, at 6 months into the study, NSC had identified an OMB representative as the sealift chairman.
- A War Scenario working group was reported as chaired by a mobilization planner from the Office of the Joint Chiefs of Staff. However, we found no document indicating that a war scenario working group was in existence when the scenario was developed. Documents in our possession did show that NSC suggested the desired scenario, and the NSC study Steering Group was to select the scenario.

During the study, DOD told the NSC that, although it believed NSC had improved study methodology, time constraints required many simplifying assumptions and gross estimates. DOD said that it had serious reservations that the simplified procedures may not represent the actual behavior of the economy during wartime. DOD said that it could not concur in seven interim working group reports that NSC proposed to send

to the President, and that working group reports containing unvalidated assumptions and preliminary recommendations should not go forward to the President.

In classified memoranda, the Secretary of Defense provided further comments on the study and draft reports. Our discussion of the degree to which the NSC report addressed the Secretary's concerns about the overall NSC conclusions is in appendix III of the classified supplement.

The NSC's final report did not always accurately reflect DOD input or include qualifications that DOD placed on the data. For example:

- The report incorporated defense expenditure data that DOD had provided in February 1984. The NSC report did not indicate that the data should be considered interim data because better data was being developed.
- The report's treatment of the petroleum scenario indicated that the items included were excerpted from the war scenario task group's report, however, most of the items were NSC's additions.
- The report's treatment of sealane attrition was essentially as described in a Navy memorandum. However, the Navy's qualification that JCS and FEMA comments were not incorporated was not included in NSC's report.

The Secretary and other DOD officials expressed reservations about using study assumptions and methodology for mobilization planning other than for the stockpile. For example, the Chairman of the EMPB Military Mobilization Working Group said a test of the Federal Resource Assessment System for Military Mobilization was at an impasse, with NSC and OMB staff opposed to a plan by 17 other federal agencies. The Chairman also expressed concern about NSC's demand that the EMPB test use only the scenarios and assumptions approved specifically for the NSC's ongoing stockpile study.

Department of the Interior

A representative from the Department of the Interior chaired the World Materials Supply working group, and the agency provided technical data for the study. This data, along with a summary of the Chairman's qualifying comments, were included in the body of the NSC report. However, the qualifications were not in the overall NSC summary, and the summary's conclusions and recommendations appeared in some respects to be inconsistent with the qualifications in the body of the report. Specific examples are in appendix III of the classified supplement.

A National Strategic Materials and Minerals Program Advisory Committee, also known as the "Mott Committee," considered the NSC study and provided recommendations. The committee was formed to advise the Secretary of the Interior, and included representation from government and industries. Some of its recommendations were cited in comments made in January 1985 by the Secretary of the Interior. (The Secretary had earlier headed the NSC.) He said that his classified comments raised serious questions, and he suggested alternatives to the NSC's recommendations.

Department of the Treasury

The Secretary of the Treasury was one of the three signers of the previously noted May 18, 1983, memorandum which proposed that a new stockpile study be done under revised guidelines. A Department representative (Director, Office of Commodity Policy) chaired the working group on International Supply/Demand Balance and Stockpile Goals. The working group's report was incorporated into the NSC study, but apparent reservations about the adequacy of study data were not incorporated. For example, the NSC report did not include the group's qualification that the report was "the best that can be produced given the time, staff, data and other resource limitations."

Department of Energy

The Department of Energy's input to the study dealt primarily with energy supply and with selected stockpile materials needed for the nuclear industry. An Energy representative chaired a subgroup on Oil Supply/Demand/Price Relationship.

When asked for comments by the NSC, Department officials noted that the time granted was extraordinarily short, and provided comments that were not incorporated in the final report.

The NSC report emphasized its view that energy shortages would restrict the U.S. economy, thus reducing material needs and stockpile goals. However, the report did not reflect the Department's qualifications. For example, in May 1985, Energy officials stated that their preliminary estimates of energy requirements indicated that energy was not a problem for two reasons:

1. "There was sufficient energy during each scenario year to support the military, essential civilian, and industrial tiers...."

2. "The Energy Disaggregated Input-Output (EDIO) model tends to overestimate the energy input required to produce a constant dollar of output, so the results ... are regarded as conservative...." (The model had been used to estimate energy requirements for the NSC study.)

The Department also commented on NSC's conclusions about material requirements. For example, the Department stated that, "The report claims [that] estimates of required critical materials [are] conservative. In a quasistatic economy this may be true; however, in an economy undergoing a rapid transition to wartime production there will be unavoidable waste, inefficiencies, misallocations, and delays which will require more inputs, not less."

Federal Emergency Management Agency

Although Executive Order 12155 delegates responsibility for stockpile oversight to FEMA, FEMA appears to have had no role in overseeing the NSC study. FEMA provided comments before the study began, provided data and participated in the implementation of the study, and commented on study results. Although FEMA had previously coordinated interagency stockpile studies, it had no responsibility for the NSC study or any of its working groups.

Before the NSC began the study, FEMA commented on OMB's briefing to the Cabinet Council on Economic Affairs. FEMA questioned OMB's challenge to prior methodology but expressed greater concern with OMB's recommendation that a separate interagency group deal with the stockpile. The FEMA Director said he believed that the Administration had already assigned stockpile policy to the EMPB. FEMA recommended that elements of the EMPB review wartime economic policy assumptions for the stockpile. However, an ad hoc group—not the EMPB—performed the study.

During the study, FEMA provided comments during working group meetings and also commented on some working group draft reports. For example, in commenting on the Political Reliability working group's report, FEMA objected to an "apparent attempt" to convince the NSC study's Steering Committee that agreement on the report was unanimous. FEMA stated its belief that the study had serious limitations.

In commenting on a draft of the NSC study report, FEMA said that the study included some significant improvements, but raised issues which it believed had not been adequately addressed. The NSC's proposed stockpile goals and the recommendation to use study assumptions for

other mobilization planning besides stockpile were approved in spite of FEMA's objections.

Input of Other Agencies

The CIA, Department of State, and GSA had less involvement in the NSC study.

The CIA's main role was a staff member's conducting a portion of the study. According to the NSC's report, an Assistant National Intelligence Officer for Economics chaired the working group on Political Reliability of Exporting Nations The NSC report did not include the working group's full report, but the NSC apparently used the data to arrive at the NSC study results.

The State Department provided technical data on political reliability to the NSC study group but did not chair a working group. We could not assess how the Department's input was incorporated because the political-reliability section did not contain the information needed for such an assessment. However, some of the State Department's data did raise questions about the political-reliability ratings assigned in the NSC study The NSC study group raised the political-reliability rating for a number of countries in spite of State Department input showing reasons for concern.

GSA officials told us that they provided material price data, but did not otherwise participate in the study. Our comparisons showed that price data in the NSC study generally agreed with GSA data.

Stockpiling Issues and Options

Although the Administration's stated goal of stockpile modernization is reasonable, the NSC study does not provide a sufficient basis for setting new stockpile goals or for other U.S. mobilization planning. The NSC study results are far more sensitive to assumption changes than the NSC reported, and we, along with key NSC study participants, have reservations about the NSC's assumptions.

Keeping existing stockpile goals in place indefinitely is not a reasonable option because goals necessarily change with time. Also, our evaluations of prior stockpile studies also identified weaknesses, and, in our opinion, there is a clear need to redetermine stockpile requirements. In a classified 1980 report,[4] we pointed out that government projections indicated consumption and import dependencies to be increasing for many strategic and critical materials, and that such trends pointed to a larger, more expensive stockpile. We recommended that stockpile assumptions be separately priced, so that the trade-offs between options could be better analyzed by the executive branch and the Congress.

Although we continue to be concerned about the need to identify the cost impact of key stockpile options, other problems may also impede the government's ability to accurately assess stockpile requirements. These include the lack of accurate information on raw material demand and supply, and the reduced capability of organizations with stockpile planning and management responsibilities to fulfill their roles.

Better Information on Material Supply and Demand Required

Stockpile planning should be based on reasonably complete and accurate estimates of (1) military and civilian wartime demand, and (2) raw materials supply, including both domestic and foreign sources. However, we found available information insufficient to determine whether wartime production could meet military and civilian needs.

Demand

The NSC study did not have available a complete and accurate estimate of DOD's wartime requirements for raw material. During the study, DOD notified the NSC that it was developing better information on wartime expenditures, which could be used in stockpile planning models. These efforts are still underway. Also, in December 1983, the JCS recommended

[4] Actions Needed to Improve the Viability of the Strategic and Critical Materials Stockpile (C-EMD-81-1, Nov 24, 1980)

improving estimates of stockpile requirements by using a "bills of material" system taken from actual billings for raw materials that make up major weapon systems. The JCS noted that

"Material needs are traditionally calculated by projecting wartime expenditure rates and using input-output models However, there is considerable uncertainty as to the accuracy of these estimates due to data limitations and the assumptions made in the models "

DOD has an ongoing effort to determine defense raw material requirements from bills of materials. Although such an approach could improve data reliability for some requirements, the costs to gather such data are not yet known Also, the approach does not address non-military requirements related to the war effort. Civilian and industry requirements may still necessitate an economic modeling approach such as that used in the NSC study

Supply

Information on U.S. raw materials is incomplete. In 1978, we reported[5] that the Department of Interior's information on mineral resources availability was "incomplete and therefore, of limited value for providing a sound long-term view of domestic supply capabilities." In May 1986, an advisory committee to the Secretary of Interior recommended a complete review of federal land holdings to determine their mineral content. Recently the Department of the Interior began conducting an inventory of public lands to determine their mineral content and plan for future use. However, the inventory efforts are not expected to be complete until the 1990s.

The United States may still suffer from material shortages even if it has known raw material deposits. Unless the deposits can be mined and processed, the materials may not be available for defense use. Thus, accurate assessments of industry capacity to mine and process raw materials are needed.

NSC study participants told us that U.S industry is relying increasingly on foreign raw materials, even where domestic capability exists. Our examination of individual commodities supported such statements. For example, from 1983 to 1985, the number of active copper mines in the United States decreased almost 30 percent, from 105 to 74. During the same period, the number of U.S. copper processing facilities decreased

[5]Interior Programs for Assessing Mineral Resources on Federal Lands Needs Improvement and Acceleration (EMD-78-83, July 27, 1978)

by about 38 percent. The NSC study did not reflect the declines in both mining and refining capacity.

Need for Organizational Capability to Assess Stockpile Requirements

Before the NSC study, FEMA oversaw the stockpile within the framework of an Annual Materials Plan Steering Committee, an advisory group to the Director, FEMA. This oversight responsibility was in accordance with the Strategic and Critical Materials Stock Piling Act, which assigns responsibility to the President, and Executive Order 12155, which delegates responsibility for planning and overseeing the stockpile program to the Director, FEMA.

Since inception of the NSC study, however, FEMA has had a less active role in stockpile planning and management. For example, FEMA had no management responsibility for the NSC study. Also, a National Security Decision Directive dated June 10, 1985, indicated a greater role for NSC to manage the stockpile, and stated that an NSC interagency group would prepare the necessary modifications to presidential policy documents and legislation to carry out changes recommended by the NSC stockpile study.

In a July 10, 1986, memorandum to OMB, the Director, FEMA noted that OMB had directed that FEMA's stockpile activities were to be diminished substantially, with personnel reductions totaling almost 90 percent to a residual level of 2 staff years. The Director, FEMA, stated that FEMA must either curtail the stockpile functions or be provided the resources with which to accomplish them. He provided suggested changes to Executive Order 12155 which would relieve FEMA of stockpile responsibilities.

OMB neither relieved FEMA of the responsibilities nor rescinded the staffing reductions. On September 15, 1986, OMB circulated a revised draft Executive Order 11490, "Responsibilities of the Federal Departments and Agencies for National Security Emergency Preparedness," to federal agencies. The draft order reaffirms FEMA's overall management roles stating that the Director, FEMA shall "formulate and carry out plans for stockpiling strategic and critical materials, with the assistance of other federal departments and agencies."

Also, the National Defense Authorization Act for Fiscal Year 1987 modified the stockpile legislation to require that by February 15, 1987:

"The President shall designate a single Federal official to perform the functions of the President under this Act The official designated shall be an officer who holds a

civilian position to which the person was appointed by the President, by and with the advice and consent of the Senate."

On February 13, 1987, the President designated the Director, FEMA, to be the National Defense Stockpile Manager.

Modernizing the Stockpile

The NSC study cited a need to modernize the stockpile. We agree that the stockpile should reflect the changing material needs of weapon systems. However, the study addressed only materials already in the stockpile and concluded that the stockpile held an excess of all but one material. Future wars will not only be fought by soldiers carrying rifles and bullets made from the same materials as during previous wars, but also by weapons needing such materials as carbon fibers, resins, and other new technology materials.

Our August 1986 report noted that materials already in the stockpile inventory may need improvements in quality. Commodity experts among the study participants and advisory committees say that some materials may need to be upgraded in quality to meet the needs for which the materials are being stockpiled. Commodity experts also noted, however, that assessments of the need to upgrade materials depends on better information about the condition of existing stockpile inventories.

Conclusions and Recommendations

We support the stated objective of improving overall mobilization planning and modernizing the stockpile, and recognize that reaching these objectives is a long-term effort. However, we do not believe that the NSC study should be used as a basis for setting stockpile goals, or for other mobilization planning.

Many of the study's limitations appear to be related to the NSC's inadequate recognition of input from the agencies with subject area responsibility and expertise. The cases where study working groups dealing with specialized issues were not chaired by the agency with expertise (such as the energy policy group chaired first by OMB and then NSC) also appear to have affected study results. We do not know what the size or composition of the stockpile should be, but we believe that improvements are needed in the process used in the NSC study to determine stockpile goals.

Despite having had to absorb substantial personnel cuts, FEMA is still the manager of the stockpile. Consequently, it is the most appropriate

organization to which to address our recommendations for improving future analyses of stockpile requirements. Accordingly, we recommend that the Director, FEMA, ensure that future analyses of stockpile requirements incorporate the following improvements:

- Analyses directed and performed by the individuals and organizations with subject-area experience and expertise.
- Analyses containing direct input from the industries involved in materials mining and processing.
- Analyses considering a reasonable range of assumptions, with the results of major options provided to decision makers.
- Study participants' inputs fairly presented, and major dissenting views, if any, clearly reported.
- Economic models verified or supplemented, where practical, by the best available direct measures of material requirements.
- Assumptions and planning factors consistent with those used by federal departments for similar purposes. For example, military scenarios and requirements in the analyses should be consistent with the best available data from DOD.

Matter for Consideration by the Congress

In its comments on our report, NSC stated the Administration's position that the NSC study is a valid basis for stockpile planning (see agency comments below) In view of that position, and of existing Administration directives to implement the NSC study's stockpile goals and recommendations, the Congress should consider continuing its restrictions on changes in the stockpile.

Agency Comments and Our Evaluation

In an April 22, 1987, letter (see app. IV), NSC stated that the Administration disagrees with most of our criticisms, and with our conclusion that the NSC study was not a suitable basis for setting stockpile goals. However, NSC stated that it recognized the value of reviewing several of the assumptions, and that it planned to review them. NSC stated that future analyses should continue to involve the appropriate agencies, analyze a reasonable range of assumptions, provide due process, and apply assumptions consistent with related programs. It agreed on the need to examine potential requirements for new materials and the condition of the existing inventory.

In an April 13, 1987, meeting with NSC, OMB, and FEMA officials to discuss their preliminary comments on our draft report, we asked whether additional documentation was available which would indicate that the participating agencies' objections described in our report had been met. Additional documents were not provided. We therefore cannot agree with NSC's statement that the NSC study is valid for use in stockpile planning because available documents show unresolved objections by key study participants about the assumptions, conclusions, and recommendations in the NSC report. Also, our analyses of alternative assumptions presented by study participants and economic experts show that changes in the assumptions can have a significantly greater effect on stockpile goals than reported by NSC.

NSC also stated that it believed there were areas of misunderstanding on how the NSC study was conducted, and NSC attributed the misunderstandings to our inability to establish detailed audit trails during our review. NSC described how agency views were incorporated in the study:

- As each of the study tasks was completed, policy officials were asked to comment on draft task reports.
- Final reports were also circulated for comment.
- Agency heads were given the opportunity to discuss reservations at an NSC meeting attended by the President.

We asked whether we would be provided access to the minutes of the NSC meeting, but were told they were not available. Although we agree that there are gaps in data made available to us, the documents we have indicate that participants' objections to the study have not yet been met:

- Policy officials criticized interim working group reports and objected to sending unvalidated interim reports to the President. However, NSC sent the reports, and we found no evidence that NSC advised the President of the agency heads' objections.
- Agencies expressed concern over the short time frames allowed for review of working group reports, and continued to criticize the final reports.
- Although we did not receive the minutes of the cited NSC meeting, study participants told us that the early presidential approval of the controversial interim reports and the high-level nature of the NSC meeting may have served to inhibit discussion of specific objections to the NSC study report.

Additional specific comments have been incorporated in the body of this report and in the classified supplement.

Agency Comments

Note GAO comments supplementing those in the report text appear at the end of this appendix

NATIONAL SECURITY COUNCIL
WASHINGTON D C 20506

2995

April 22, 1987

MEMORANDUM FOR FRANK C. CONAHAN
Assistant Comptroller General
General Accounting Office

SUBJECT: National Defense Stockpile Study Report

This letter conveys the comments of the Office of Management and Budget, the Federal Emergency Management Agency, and the National Security Council staff on your March 12 draft report on the 1984 National Defense Stockpile study. These comments were discussed informally at an April 13 meeting between staffs of these agencies and the General Accounting Office (GAO).

The Administration disagrees with the GAO finding that the 1984 study was not a suitable basis for setting stockpile goals. The Administration also disagrees with most of the criticisms in the GAO report concerning the methodology and assumptions used in the 1984 study, noting that in at least several instances the disagreements reflect differences in policy orientation.

We also note that there appear to be areas of misunderstanding on how the 1984 study was conducted, particularly as to policy level reviews of segments of the technical analyses. We ascribe the misunderstandings to GAO's inability to establish detailed audit trails during their review. More could have been and still can be done to assist in documenting these events. In that regard, twelve departments and agencies participated in the study. As each of the study tasks were completed, policy officials were asked to comment on draft task reports. Final reports were also circulated for comment. Moreover, agency heads were given the opportunity to discuss any reservations they might have had at a National Security Council meeting attended by the President. All of the participating agencies were represented at that meeting.

GAO has addressed the central issue affecting stockpile goals, i.e. the planning assumptions. Stockpile goals are driven by these assumptions and only by reaching an agreement on them can the goals be estimated. While we do not agree with your assessment of the 1984 study, we recognize the value of reviewing several of the assumptions on the level of defense mobilization and related industrial investment to determine if they need to be refined to reflect changes in the world situation or related planning developments. Therefore, the NSC is planning to conduct a review of these study assumptions.

The Administration agrees that future analyses should continue to involve the appropriate agencies, analyze a reasonable range of assumptions, provide due process and apply assumptions consistent with related programs. We also agree on the need to examine potential need for new materials and the condition of the existing inventory.

Grant S. Green, Jr.
Executive Secretary

Attachment

Tab A - Technical Concerns

Technical Concerns

1. It is our understanding that the composite of the GAO sensitivity assumptions was not intended to be interpreted as an alternative "scenario" upon which stockpile goals should have been based but was intended to show that under plausible wartime planning assumptions stockpile goals would be greater than the sum of the increases from GAO's individual sensitivities. As expressed in the April 13 meeting, we view these assumptions as adding up to an implausible wartime economy and not appropriate for goals estimation. A 50% increase in both defense production and nonesssential civilian production would not occur in a wartime economy restrained by oil shortages and straining to produce needed wartime materiel. Moreover, an economy that large would certainly be able to provide several billion dollars in investment for increased domestic minerals production in the first two years of a war.

We are also concerned that there may have been a misunderstanding of the macroeconomic projections that were used in the 1984 study. These projections indicate that due to the impact of oil shortages in the scenario developed from the Emergency Mobilization Preparedness Board and its Military Mobilization Working Group scenarios, it would not be feasible for the economy to expand sufficiently to provide resources for both defense production and very high levels of nonessential civilian production as indicated in the composite of the GAO sensitivity assumptions.

2. GAO observes that the Department of Defense guidance calls for planning to support both full and total mobilization, whereas the stockpile goals were based on full mobilization (plus an additional percentage increase as an insurance factor).

There needs to be a balance between shorter term capabilities (e.g. expendables such as munitions that are needed immediately) and longer lead-time items produced from stockpile materials that would not be available for several months or longer. However, we are planning to take another look at this issue with the Defense Department to determine whether adjustments in the insurance factor should be considered.

3. The interagency process through which the political reliability ratings were developed relied principally upon the agencies with the preponderant expertise, the CIA, DIA and State Department. We believe that this is a sound approach. The GAO sensitivity involves a methodology used in the 1979 study that was considered and rejected for the 1984 study.

A classified National Intelligence Estimate has recently been issued on the nation for which GAO conducted an alternative poiticial reliability rating. The intelligence community findings appear consistent with the rating that was determined in the 1984 study. It is our continued intention to ensure that political reliability ratings of individual nations reflect current intelligence community judgements.

See Comment 1

4. Another alternative assumption covered by GAO is an increase in nonessential industrial investment. The GAO report is not entirely clear on this point since it refers both to "support[ing] the war effort" and to nonessential production and investment.

The GAO alternative assumption recategorizes 50% of the nonessential category in the 1984 study as "essential civilian" production and investment for inclusion in stockpile determinations. We do not believe that it is a reasonable alternative to arbitrarily shift nonessential production to the essential category. Moreover, this apppears to be contrary to the spirit of the Stock Piling Act.

If it was GAO's intent to simulate increased essential industrial investment, the methodology used is inadequate. It does not provide information identifying the elements of essential industrial investment.

See Comment 1

5. GAO sensitivities on concerted programs are not supported by experience. Historically, we have been able to increase supplies tremendously during national emergencies. Aluminum production was increased over 100% in one year during World War II. Tungsten production increased almost 50% in one year during the Korean War.

The 1984 study assumed that only half (50%) of the concerted program output estimated by interagency experts would actually be available during the first year of the scenario conflict. Moreover, domestic production of only a few of these materials is needed during this first year.

GAO Comments

The following is GAO's comment on the agency comments.

1. Comments 4 and 5 are addressed in appendix II of the classified supplement.

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are $2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

United States
General Accounting Office
Washington, D.C. 20548

Official Business
Penalty for Private Use $300

Address Correction Requested

First-Class Mail
Postage & Fees Paid
GAO
Permit No. G100