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STATEMENT OF

WERNER GROSSHANS, ASSOCIATE DIRECTOR
LOGISTICS AND COMMUNICATIONS DIVISION

BEFORE THE

SUBCOMMITTEE ON SEAPOWER AND STRATEGIC AND CRITICAL MATERIALS
HOUSE COMMITTEE ON ARMED SERVICES

ON

[Comments on H.R. 1325 TO AUTHORIZE THE DISPOSAL OF ~~139.5 MILLION TROY OUNCES~~ Certain Amounts OF SILVER NOW HELD IN THE NATIONAL STOCKPILE] AND H.R. 3385 TO AUTHORIZE THE DISPOSAL OF 15 MILLION TROY OUNCES OF SILVER NOW HELD IN THE NATIONAL STOCKPILE

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to appear before your Subcommittee and discuss our April 10, 1979, report entitled "National Defense Objectives for a Silver Stockpile." This report was requested by the Chairman, Subcommittee on Military Construction and Stockpiles, Committee on Armed Services, United States Senate. Our examination of the national defense requirements for a silver stockpile included:

--Review of the legislative history authorizing the stockpiling program.

--Analysis of the defense requirement for the present silver stockpile and agency inputs used by the Federal Preparedness Agency (FPA) in arriving at the current silver goal.

--Review of the modeling technique used by FPA to determine the stockpile goal for silver, including a sensitivity analysis of selected inputs to the model.

--Conversations with officials of FPA, and the Departments of Commerce, Defense, Interior, and State regarding their role in stockpile goal formulation.

We analyzed the requirement for a silver stockpile primarily on the basis of relationships presented in data used to determine 1976 stockpile goals. Goals for 1977 were not published because new stockpile guidance was expected from the

President. Because of delays experienced in 1978, new goals were to be published in early 1979. The new goals are not yet available.

Today, we would like to quickly recap the legislation authorizing the stockpile and how silver was introduced to it. We will then highlight the major findings in our report which concluded that presently the 139.5 million troy ounces of silver included in the stockpile are not required because the probable wartime supply exceeds projected U.S. requirements.

STOCKPILE LEGISLATION

To prevent what could be a dangerous and costly dependence on foreign supply sources during periods of crisis, the United States stockpiles 93 strategic and critical materials at 117 locations throughout the country. The current stockpile was estimated to be worth $9.4 billion as of September 30, 1978; $0.8 billion of which was silver.

The first major Government program to stockpile strategic and critical materials was authorized and initiated under the Strategic and Critical Materials Stock Piling Act of 1939.

The Government has also stockpiled materials under two other acts: the Defense Production Act of 1950 and the Agricultural Trade Development and Assistance Act of 1954.

STOCKPILE POLICY CHANGES

Numerous changes have occurred in U.S. defense preparedness assumptions since World War II which have affected stockpile policy and caused changes in the types and amounts of materials stockpiled. These assumptions pertained to the duration of conflict and the number of men that would be involved. In effect, they reduced the quantities of materials required for the stockpile and much was sold as excess.

In March 1975 your Subcommittee voted to authorize no further disposals of stockpile material until a new policy study was conducted and the planning period was increased to 3 years from the existing 1-year period. In response to your action, a reevaluation of stockpile policy and goals was made by an Interagency Committee, and the results submitted to the President.

President Ford's policy decision and new stockpile goals were announced on October 1, 1976. The new policy called for a stockpile capable of supporting U.S. defense requirements for the first 3 years of a major war, assuming large-scale industrial mobilization. It also provided for the support of a wide range of basic economic needs to insure the health, welfare, morale, and productivity of the civilian sector during wartime. Quantities to be stockpiled represented the estimated material needs for the first 3 years of a war over and above those which could be provided from domestic production and reliable imports.

In 1977 President Carter reaffirmed the 1976 policy and its underlying assumptions.

SILVER

The present stockpile of silver totals 139.5 million troy ounces. This silver was transferred to the national stockpile from the Treasury in June 1968. There are 49.4 million troy ounces kept at West Point, New York, and 90.1 million troy ounces kept at San Francisco, California. The General Services Administration's Federal Preparedness Agency, which is responsible for planning, programing, and reporting on the stockpile, has determined that no stockpile goal exists for the silver, and would like to dispose of it through phased sales.

DETERMINING STOCKPILE GOALS

In 1973, FPA implemented a new methodology using a computer-modeling technique to estimate the Nation's wartime strategic and critical materials requirements. The model takes into consideration many complex interactions that occur in the economy and can be thought of as an analytical device for simultaneously interrelating and quantifying the results of many judgmental inputs concerning a wartime economy. The basic modeling technique used is widely accepted by academic researchers and corporate planners alike. The FPA modifies the model based on "inputs" from the Departments of Commerce, Defense, State, and Interior. Inputs are estimates based on

both data showing what past experience has been and expert judgment as to what a future situation could be in a time of war or nearness to war. The inputs are vital to the model and the stockpile goals can vary as a result of changes in them.

Through these inputs, FPA tries to be sure that model results will closely reflect the many complex interrelations present in a wartime economy. Although these inputs are subjective, their credibility is enhanced through independent formulation by the separate agencies involved and final review and approval by the Interagency Stockpile Goal Review Committee. Projections of wartime supply are computed separately from the model. However, a similar process of agency input and review is followed.

FPA has incorporated in its requirements model a structure whereby wartime estimates of supplies and materials requirements are broken down by defense, essential civilian, and general civilian tiers. National security priorities can therefore be taken into account by giving greater priority to meeting defense rather than essential civilian needs for strategic and critical materials and lesser priority to general civilian needs. Although the total stockpile requirement is considered important, the most reliable sources of supply are designated for defense and less reliable sources are designated for the essential civilian and general civilian needs.

The most important segment of FPA's modeling technique is determining what the estimated gross industrial dollar output (production) will be for 109 major categories of industrial sectors for each of the three tiers in each of the first three war years. These estimates are then multiplied by forecasts of corresponding material consumption ratios to obtain strategic and critical materials requirements by each industrial sector, which are then added to obtain the total materials requirements for each tier in each year of the 3-year planning period.

The FPA model's estimates of wartime gross industrial output by sector reflect the level of the economy's mobilization effort required to support a given war scenario. The war scenario is reflected by estimates for 30 major categories of defense expenditures which are supplied directly by the Department of Defense (DOD) and put into the FPA model.

DOD provides estimates to represent two different war scenarios. Each scenario differs in terms of participants, war fronts, and type of war to be waged. The intensity of economic mobilization required to support a given war scenario consists of two major components:

--An "unconstrained" economic scenario.

--An economic scenario altered by Government mobilization planning policy.

I will discuss defense requirements in more detail in a moment.

Strengths of the FPA methodology

FPA's modeling methodology recognizes the complexity of the economy and the many interactions between its economic sectors. The model is also flexible because it allows for several adjustments to be made to better quantify expert judgment regarding the war's probable impact on the economy and the effects of Government policy to influence economic mobilization. FPA's methodology also attempts to quantify the recognition that different sectors of the economy have different priorities during wartime for claims on strategic and critical materials.

FPA's tests of the accuracy of the model's peacetime requirements estimates showed that most were within ± 25 percent of what the past actual requirements were for the items tested. Specific results for silver showed the model understated total peacetime silver requirements by about 3 to 10 percent. Determining requirements under wartime assumptions is a much more speculative process and associated error rates are likely to be greater. However, FPA officials believe that wartime estimates for silver would be accurate within ± 10 percent.

We determined that the FPA model's estimates of wartime silver requirements are sensitive to three major areas of inputs to the model: (1) wartime economic mobilization scenarios

(2) choice of war scenario options, and (3) various values for wartime planning factor parameters which reflect different levels of policy, risk, and substitution of materials. Our estimates were made by calculations apart from FPA's computer hardware. Time constraints and resource limitations of FPA personnel precluded running the FPA model for the specific purpose of determining silver requirements sensitivities. However, our estimates are based on sound methodology and they compare favorably with results FPA previously obtained in actual computer runs where the stockpile dollar volume sensitivity was tested for all materials.

Limitations of the FPA methodology

Modeling techniques such as FPA's are recognized as the best analytical tool the current state of the art has to offer for long-range economic projections. However, there are inherent shortcomings in their use. For instance, assumptions made in such models reflect a type of relationship which is not always present in the real world. However, these types of assumptions must be made because of shortcomings in available data that is necessary for input to the model. The same limitations apply to the key assumptions made in the FPA model because the detail, content, and availaiblity of updated published data is limited.

For example, much of the internal structure of FPA's model is currently based on data that reflects the 1967 industrial technology. Because gathering this data is a complex and resource-consuming task which cannot be undertaken very frequently, published data reflecting the 1972 economy will not be available to FPA until mid-1979.

Although modeling techniques have their limitations, it is widely recognized that they often represent the best analytical tools available for making economic projections which, because of their complexity, cannot be approached using other techniques. The general technique used by FPA is widely accepted and used by academic researchers and corporate planners alike. FPA continues to refine the methodology used in the model andupdates it with the latest data as soon as it becomes available--although substantial timelags still exist before this data can be obtained from published sources.

In our opinion, the methodology FPA used to determine stockpile goals is a reasonable approach representing a variation of the generally accepted state-of-the-art for this type of economic analysis.

WARTIME REQUIREMENTS FOR SILVER

As I mentioned earlier, wartime estimates of materials requirements for stockpile planning are divided into defense, essential civilian, and general civilian tiers. Stockpile

goals for the three tiers total 636.3 million troy ounces with a projected 3-year supply of 771.1 million troy ounces. (See appendix I for details.)

Defense uses of silver include batteries, brazing alloy, X-ray and photographic film, and medical uses. Silver is very important to any war effort. Its essentiality in photography and electrical applications requires that the United States ensure its availability in case of national emergencies.

Defense silver usage for the 3 fiscal years, 1976, 1977, and 1978, was approximately 4.7, 3.2, and 2.7 million troy ounces, respectively. The single largest defense use of silver during the period was in batteries, accounting for over 7 million troy ounces of the approximate 10.6 million troy ounces used. The Navy was the single largest defense user of silver, accounting for about 5.9 million troy ounces of the approximate 10.6 million troy ounce total. The defense silver requirement would of course be much higher under a projected wartime situation.

The defense wartime silver requirement, based on the 1976 goals, averages about 38.4 million troy ounces a year; an increase of 34.9 million troy ounces a year over peacetime consumption. The total 3-year defense requirement of 115.1 million troy ounces is more than offset by 478.1 million troy ounces of projected supply, of which 324 million troy ounces is from U.S. domestic production alone.

The total 3-year essential civilian and general civilian wartime silver requirement, based on the 1976 goals, is 521.2 million troy ounces. The projected 3-year supply is 656 million troy ounces including supply excess to defense wartime needs. All essential civilian requirements and part of the general civilian requirements could be met from domestic production and expected wartime supply from Canada and Mexico. The remaining silver requirement could be more than filled by other supplier countries.

Past wartime experience has shown that the United States was able to meet its wartime silver requirements from domestic production and imports. Available data shows that silver supply actually exceeded wartime demand during World War II and the Korean conflict. During the Vietnam era, domestic production and import levels were unaffected and remained at peacetime levels. During this period, the Treasury was selling off large amounts of silver and industry's increased wartime need for silver was easily filled from these sales. Consumption figures were also higher during this period because no wartime austerity measures were imposed on the civilian population.

POSSIBLE ADDITIONAL SILVER SOURCES NOT INCLUDED IN FPA'S SUPPLY PROJECTIONS

The FPA uses only projections of domestic production and expected import levels from foreign suppliers to determine the silver supply available to meet the needs of the wartime economy.

However, additional sources of silver do in fact exist and have, in the past, supplied silver to meet the needs of the United States. For instance, some nations supplying silver to the United States are thought to have silver stocks of their own.

Also, according to FPA and various silver experts, there are several other sources of silver on hand that could be used, if needed in a national emergency. DOD silver stocks to be provided to contractors as Government-furnished material amounted to about 7 million troy ounces at the end of 1978. The Treasury retained approximately 39 million troy ounces for coinage. Approximately 138 million troy ounces were held in industry, Commodity Exchange, and Chicago Board of Trade stocks at the end of 1978. The peacetime economy of the United States has occasionally depended on these stocks to meet fluctuations in its demand and export needs. As I mentioned earlier, the increased demand for silver during the Vietnam conflict from 1964 to 1972 was met by Treasury silver sales to industry. The Strategic Stockpile of silver was not affected.

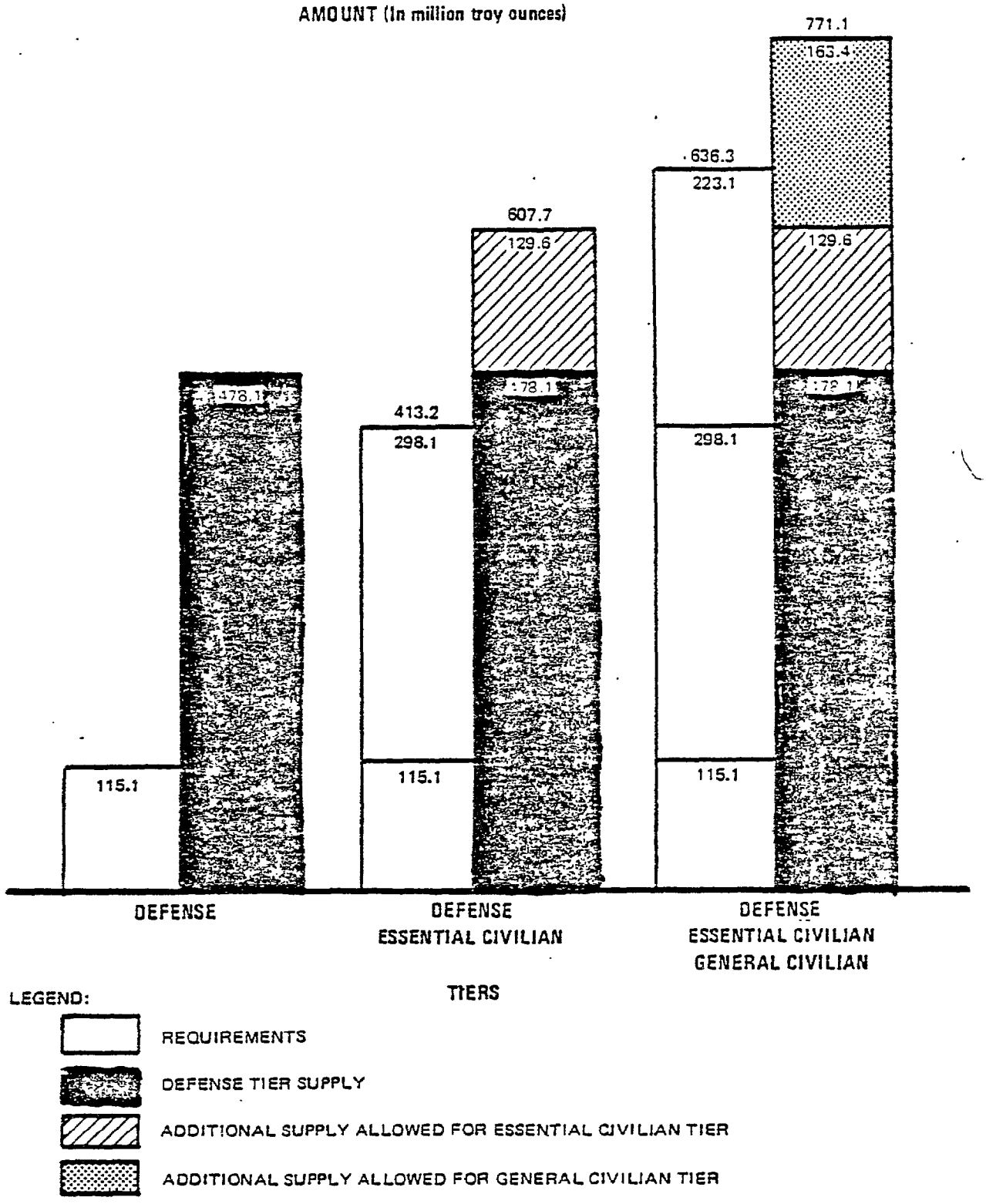
Another less feasible source of silver would include silver bullion, jewelry, tableware, and coins privately held by U.S. citizens.

CONCLUSIONS

In conclusion, we believe the methodology used by FPA to determine the 1976 stockpile goal for silver is a reasonable approach and represents a variation of the generally accepted state-of-the-art for this type of economic analysis. Using this methodology, FPA in 1976 determined that there was no requirement to stockpile silver. Our work indicates that an excess of silver supply exists over projected wartime requirements. Although it is possible that changes in projected silver requirements and supply relationships could occur in the distant future, no such occurrences are foreseen at this time. Therefore, we agree with FPA that 139.5 million troy ounces of silver currently stored in the stockpile are not needed to support estimated national defense requirements.

Mr. Chairman, that concludes my statement. We will be happy to answer any questions you might have.

SILVER SUPPLY AND REQUIREMENTS—1976 GOALS (ADJUSTED)



NOTES: ALL THREE YEARS OF SUPPLY AND REQUIREMENTS ARE INCLUDED FOR EACH TIER. THE DEFENSE TIER IS SUPPLIED BY THE UNITED STATES, CANADA, AND MEXICO. UNITED STATES PRODUCTION ALONE ACCOUNTS FOR ABOUT 324 MILLION TROY OUNCES OF THIS EXPECTED SUPPLY.