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FEMA 36 / October 1983

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# Stockpile Report to the Congress

October 1982 — March 1983

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FEDERAL EMERGENCY  
MANAGEMENT AGENCY



# Federal Emergency Management Agency

Washington, D.C. 20472

Honorable George Bush  
President of the Senate

Honorable Thomas P. O'Neill, Jr.  
Speaker of the House of Representatives

Sirs:

The Strategic and Critical Materials Stock Piling Act, as amended, provides that strategic and critical materials be stockpiled in the interest of national defense to preclude a costly and dangerous dependence upon foreign sources of supply in times of national emergency.

The President delegated stockpile planning and policy activities to the Director of the Federal Emergency Management Agency. This Stockpile Report to the Congress for October 1982 - March 1983, together with a Statistical Supplement under separate cover, is submitted in accordance with Section 11 of the Stock Piling Act.

Sincerely,

Louis O. Giuffrida  
Director

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# INTRODUCTION

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This report is prepared in accordance with Section 11 of the Strategic and Critical Materials Stock Piling Act (50 U.S.C. et seq). A new format has been designed to more effectively present the information needed by the Congress. Specific information required to be reported by this Act includes:

- “(1) information with respect to foreign and domestic purchases of materials during the preceding 6-month period;
- (2) information with respect to the acquisition and disposal of materials under this Act by barter, as provided for in section 6(c) of this Act, during such period;
- (3) a statement and explanation of the financial status of the National Defense Stockpile Transaction Fund and the anticipated appropriations to be made from the fund during the next fiscal year; and
- (4) such other pertinent information on the administration of this Act as will enable the Congress to evaluate the effectiveness of the program provided for under this Act and to determine the need for additional legislation.”

In response to this requirement, the report is divided into four major sections: Stockpile Purchase Program, Barter Program, Financial Status of the National Defense Stockpile Transaction Fund, and Stockpile Program Support Activities.

# HIGHLIGHTS

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## **I. STOCKPILE PURCHASE PROGRAM**

- Contracts were signed for the purchase of 1 million long dry tons of metallurgical grade bauxite, 600 troy ounces of iridium and 398 long tons of rubber. These purchases total \$56.9 million, leaving \$63.1 million for the remainder of Fiscal Year 1983.

## **II. BARTER PROGRAM**

- The Ad Hoc Committee on Barter involving FEMA, the General Services Administration, and the Departments of State, Defense and Agriculture, held discussions on potential barter initiatives for various surplus agricultural commodities held by the Commodity Credit Corporation (CCC).

## **III. FINANCIAL STATUS OF THE NATIONAL DEFENSE STOCKPILE TRANSACTION FUND**

- Budget authority for purchases from National Defense Stockpile Transaction Fund moneys was set at \$120 million for Fiscal Year 1983. The President's budget for Fiscal Year 1984 was submitted to the Congress and requested \$120 million for stockpile materials and related outlays.

## **IV. STOCKPILE PROGRAM SUPPORT ACTIVITIES**

- The U.S. Geological Survey (USGS), Department of Interior, in cooperation with the Missouri Department of Natural Resources, developed a new technique for inferring the location of additional base-metal deposits in southeastern Missouri.
- The United States Department of Agriculture (USDA) continued research into the development of guayule as a domestic source of natural rubber.
- An updated Fiscal Year 1983 Annual Materials Plan (AMP) was submitted to the Armed Services Committees.
- Comprehensive industry-specific studies and analyses on a variety of commodities was provided by the Bureau of Industrial Economics (BIE), Department of Commerce (DOC).

# I. STOCKPILE PURCHASE PROGRAM

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In Fiscal Year 1983, Congress provided \$120 million for the purchase of new materials for the National Defense Stockpile (NDS). During the report period, contracts for the purchase of three commodities, valued at \$56.9 million were awarded (see Figure 1, below). This leaves a balance of \$63.1 million authorized for the remainder of Fiscal Year 1983.

Material	Unit	Quantity	Value	Country of Origin
Bauxite	LDT	1,000,000	\$56,315,000	Jamaica
Iridium	TR OZ	600	180,000	South Africa
Rubber	LT	398	408,000	Malaysia, Indonesia and Thailand

Figure 1

## II. BARTER PROGRAM

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Between 1950 and 1967, the USDA conducted a barter program under which approximately 60 strategic materials, with a value of over \$1.6 billion, were acquired from more than 50 different countries. These materials were added to the stockpile in exchange for agricultural commodities owned by the CCC, USDA. The last barter contract under that program was signed in 1967.

The Strategic and Critical Materials Stock Piling Act of 1979 provided a foundation for renewed interest in the barter program and specifically states that "The President shall encourage the use of barter in the acquisition of strategic and critical materials..." In Fiscal Year 1982, of 1.6 million long dry tons of metallurgical grade bauxite that were delivered to stockpile inventories, 400,000 long dry tons were obtained by the USDA through a barter of surplus milk-based agricultural products with the Government of Jamaica.

The Ad Hoc Interagency Committee on Barter met several times during this period to discuss possible barter initiatives involving surplus agricultural commodities held by the CCC. Participants included representatives from the USDA, DOD, Department of State, GSA and FEMA.

### III. FINANCIAL STATUS OF THE NATIONAL DEFENSE STOCKPILE TRANSACTION FUND

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All moneys from the sale of stockpile materials are placed in the GSA-managed National Defense Stockpile Transaction Fund. From its inception in Fiscal Year 1979 through March 31, 1983, sales receipts totaled \$373.4 million. During that same period, Congress approved the utilization of \$277.6 million to purchase stockpile materials, leaving an unappropriated balance of \$95.8 million to help finance future acquisitions.

Of the \$277.6 million available, \$178.9 million has been obligated to finance the purchase of seven materials from numerous world sources. (See Figure 2.) The balance between available and obligated funds, \$98.7 million, will be used to acquire stockpile materials in the remaining months of Fiscal Year 1983 and beyond.

It is anticipated that a Fiscal Year 1984 spending level of \$120 million will be approved by the Congress. The presently unappropriated balance of \$95.8 million plus additional sales receipts on the order of \$40.0 million for the balance of Fiscal Year 1983 should be sufficient to meet the anticipated approved spending level.

Material	Unit	Quantity	Value	Country of Origin
Bauxite, Metallurgical Grade	LDT	2,200,000	\$92,315,000	Jamaica
Bauxite, Refractory Grade	LCT	25,327	3,890,000	China
Cobalt	LB	5,200,000	78,041,000	Zaire
Platinum-Iridium	TR OZ	6,600	2,554,000	South Africa
Quinidine	OZ	74,089	236,000	Netherlands
Rubber	LT	398	408,000	Various*
Tantalum	LB TA	40,164	1,487,000	Various**
Total Obligations			\$178,931,000	

Figure 2

\* Malaysia, Indonesia and Thailand

\*\* Brazil, Australia, Germany, Thailand, Holland, Zaire, Mozambique, Nigeria, Malaysia and Canada

# IV. STOCKPILE PROGRAM SUPPORT ACTIVITIES

## Overview

The Strategic and Critical Materials Stock Piling Act provides that a stock of strategic and critical materials be held to decrease dependence upon foreign sources of supply in times of emergency. Executive Order 12155 vests the primary responsibility for planning the stockpile program in the Director of the Federal Emergency Management Agency (FEMA).

The Stock Piling Act requires that the stockpile inventory be sufficient to cover U.S. needs for not less than three years of a national emergency. The President's approved stockpile policy guidance provides assumptions regarding changes in a wartime civil economy, wartime foreign trade patterns, shipping losses, wartime political and economic stability of foreign nations, and alternate foreign and domestic production levels for stockpile materials.

These guidelines are 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 by the President's policy to ensure a current estimate of our Nation's vulnerability to resource shortages during an emergency.

The stockpile inventory is compared with the goals in Figure 3. Major restructuring of the stockpile inventory is necessary because most of the materials now in inventory were acquired during the 1950's. To fill the goals at March 31, 1983, prices would require purchase of additional materials valued at approximately \$9.8 billion. The stockpile inventory contains \$7.0 billion of the needed materials for a total goal value of \$16.8 billion. Since the stockpile inventory is valued at \$11.1 billion, there is an excess not held for goals of \$4.1 billion.

billions of dollars (rounded)

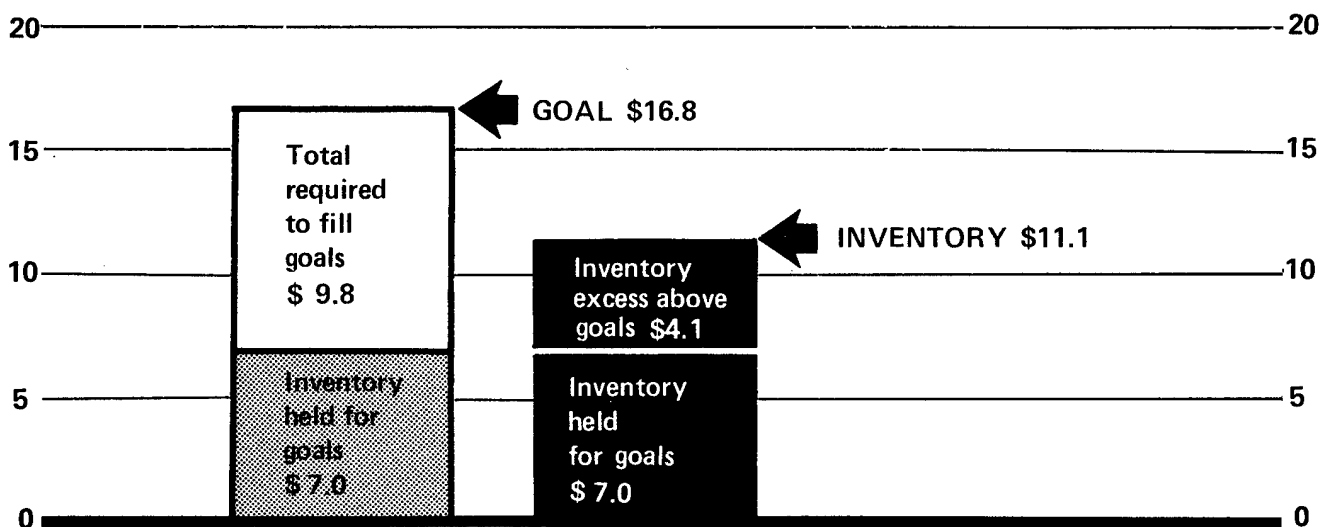


Figure 3  
*Restructuring of stockpile to meet goals.*

As shown in Figure 4, the 61 family groups and individual materials in the stockpile can be divided into two categories:

(1) 24 groups and individual materials with inventory equal to or greater than the goals.

(2) 37 groups and individual materials with inventory less than the goal. Of these, 17 goals are over 50 percent filled.

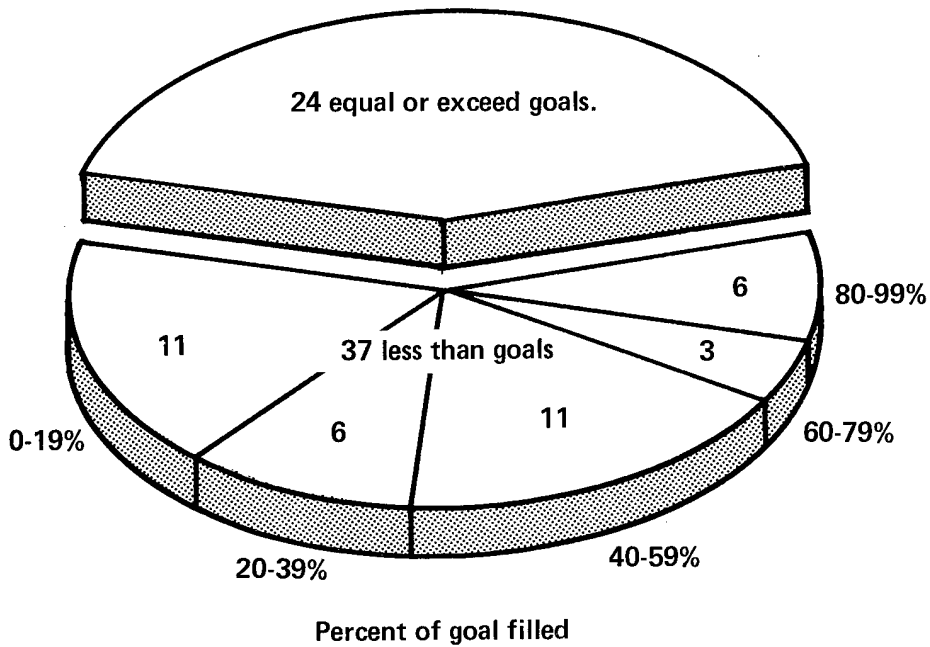


Figure 4

*Status of the 61 family groups and individual materials in the stockpile inventory toward meeting the 1980 goals.*

## **Annual Materials Plan**

Pursuant to Section 11(b) of the Strategic and Critical Materials Stock Piling Act, a planning process for restructuring the stockpile is provided through the development of the Annual Materials Plan (AMP). The AMP is the product of a major interagency effort to develop each year a list of acquisition and disposal actions for stockpile materials. The AMP process is conducted by the AMP Steering Committee chaired by FEMA. The Departments of Agriculture, Commerce, Defense, Energy, the Interior, State, Treasury, the Central Intelligence Agency, GSA, Office of Management and Budget (OMB) and the National Security Council serve as designated members. The objective of the AMP process is to balance the national security stockpile requirements against the statutory market disruption and budgetary constraints.

The AMP process is designed to encourage maximum participation by the various agencies concerned with stockpile requirements and operations. A preliminary list of stockpile actions is developed through a series of proposals and reviews involving various of these agencies operating through two subcommittees. All of the agencies represented on the AMP Steering Committee then review and may recommend revisions to the proposed list of stockpile actions in the light of their respective areas of interest and competence. The Director of FEMA, assisted by the Administrator of GSA, determines if any changes to the preliminary (AMP) are required.

The AMP process is initiated by the Resources Preparedness Office of FEMA, which provides a list of goals, shortfalls, excesses and priorities to GSA. After an evaluation of the market outlook, the Market and Technical Services Division of GSA proposes quantities of commodities for acquisition or disposal. These proposals are provided to the two subcommittees, which furnish their suggested revisions to the full committee. Differences in these proposals and revisions are then resolved by the Steering Committee and submitted to the Director of FEMA for approval.

The two subcommittees and highlights of their duties are:

**Strategic Implications**—chaired by DOD. The other designated members are the Central Intelligence Agency, the Department of Energy, and FEMA. The primary function of this subcommittee is to determine if any of the materials proposed for the AMP will be affected by anticipated changes in defense requirements.

**Market and International Political Impacts**—co-chaired by the Departments of Commerce and State. The other designated members are the Departments of the Treasury, the Interior, DOD, FEMA, and GSA. Under the leadership of DOC this subcommittee evaluates on a case-by-case basis the effects that stockpile acquisitions and disposals will have upon domestic and international commodity markets. Significant trends and areas where stockpile activities could lead to a commodity market disruption are examined. This subcommittee develops market impact statements with assistance from the Department of the Interior (Bureau of Mines) and DOC (Bureau of Industrial Economics and the International Trade Administration).

Under the leadership of the Department of State, this subcommittee also determines the international economic and political impacts of stockpile acquisitions and disposals. In particular, the subcommittee determines the impact that stockpile activities could have on earnings of international producers and producer countries, on international trade patterns, and on international agreements.

The AMP is submitted by the Director of FEMA to the National Security Council for review. Simultaneously, a copy is provided to the OMB for information. Any further revisions are made jointly by the National Security Council, OMB and FEMA. Then the AMP is prepared in final form and submitted to the House and Senate Armed Services Committees.

The AMP for Fiscal Year 1984 was transmitted to the Armed Services Committees during the reporting period. The plan contained proposed acquisitions and disposals of stockpile materials for Fiscal Year 1984 and estimates of these activities for the four forward years (Fiscal Years 1985-1988). This

plan covers proposed cash acquisitions, barter of surplus agricultural commodities, and exchanges of excess stockpile materials for needed stockpile materials. Provision is also made for rotation of deteriorating materials held in the stockpile and for testing the long term storage characteristics of stockpile materials. Information on the materials and associated quantities for acquisitions and disposals remains classified until invitations to bid are announced.

Proposed acquisitions for Fiscal Year 1984 cover 15 Priority I and II materials needed for the stockpile. The estimated acquisitions during Fiscal Years 1985-1988 cover 13 of the same 15 materials plus two additional materials. The disposals of excess stockpile materials proposed in the Fiscal Year 1984 AMP cover 18 materials under existing legislative disposal authority and one material under proposed legislative authority. Proposed disposals for the remainder of the five-year AMP period cover 12 of the same 18 materials under existing legislative authority and five additional materials under proposed legislative authority.

During the period covered by this report, two amendments to the Fiscal Year 1983 AMP were proposed to and accepted by the House and Senate Armed Services Committees. One change authorizes the cash acquisition of one material not previously included in the Fiscal Year 1983 AMP; the other change authorizes the increased acquisition through barter and cash procurement of a previously approved stockpile acquisition material. Both changes are to be conducted within the previously authorized funding limitations for the fiscal year. During the reporting period an updated Fiscal Year 1983 AMP, incorporating these two changes and several other proposed adjustments needed to accommodate changing market conditions, was prepared by the AMP Steering Committee and approved by the Director of FEMA for submission to the Armed Services Committees.

## Legislation

During the report period, there were various actions affecting the stockpile program. Initially, Fiscal Year 1983 funding for acquisitions for the

NDS was provided in Continuing Resolution, H. J. Res. 599, passed October 1, 1982, covering the period through December 1, 1982. A funding level of \$120 million was provided for stockpile acquisitions, of which \$85 million was to be available only during the Continuing Resolution period for the purchase of domestic copper mined and smelted in the United States after September 30, 1982. In this regard, conferees agreed that the stipulation on copper purchases did not mandate the purchases and that all funds made available for such purchase could be used to acquire any strategic or critical materials authorized by the Act.

A funding level of \$120 million for Fiscal Year 1983 for the NDS was continued in H. J. Res 631, covering the period through September 30, 1983. In addition, Section 110 of Public Law 97-377 provided that moneys deposited into the Transaction Fund under Section 9(c) of the Stock Piling Act were made available for acquisition of critical materials. However, for Fiscal Year 1983, not more than \$120 million could be expended from the Transaction Fund in addition to unexpended amounts previously appropriated. This limitation on obligational authority constituted a departure from the previous treatment as an appropriation of budget authority. Public Law 97-377 also provided \$50 million for purchase agreements by DOD under Title III of the Defense Production Act. The law also contained a limitation on sales of silver from the stockpile, not to exceed the equivalent of 10 percent annually of the silver produced from existing domestic producing mines in the preceding 12-month period.

Legislation was introduced during December 1982 which proposed transferring the management of the NDS to the Secretary of Defense (H.R. 7414). No action was taken on the bill during the 97th Congress. At the beginning of the 98th Congress, an identical bill (H.R. 33) was introduced and a hearing was held on February 22, 1983, by the Subcommittee on Seapower and Strategic and Critical Materials, House Armed Services Committee.

Two bills were introduced on January 27, 1983, for the disposal of silver from the NDS. One bill, S. 269, proposed the disposal of silver through the issuance of silver coins, and the other, S. 270, proposed disposal through the issuance of a special series of bonds that could be redeemed for silver.

## Revision of Data

Presidential and Congressional planning guidance calls for a stockpile capable of supporting the United States military, industrial, and essential civilian needs for three years during a national emergency. Presidential guidance contains detailed assumptions regarding changes in a wartime civilian economy, wartime foreign trade patterns, shipping losses, wartime political and economic stability of foreign nations, and alternate foreign and domestic production levels for stockpile materials. These guidelines are incorporated in the econometric model used to estimate stockpile goals. Data used in this model cover many areas, such as consumption, production, capacity, imports and exports, and is revised frequently to ensure that a current estimate will be available.

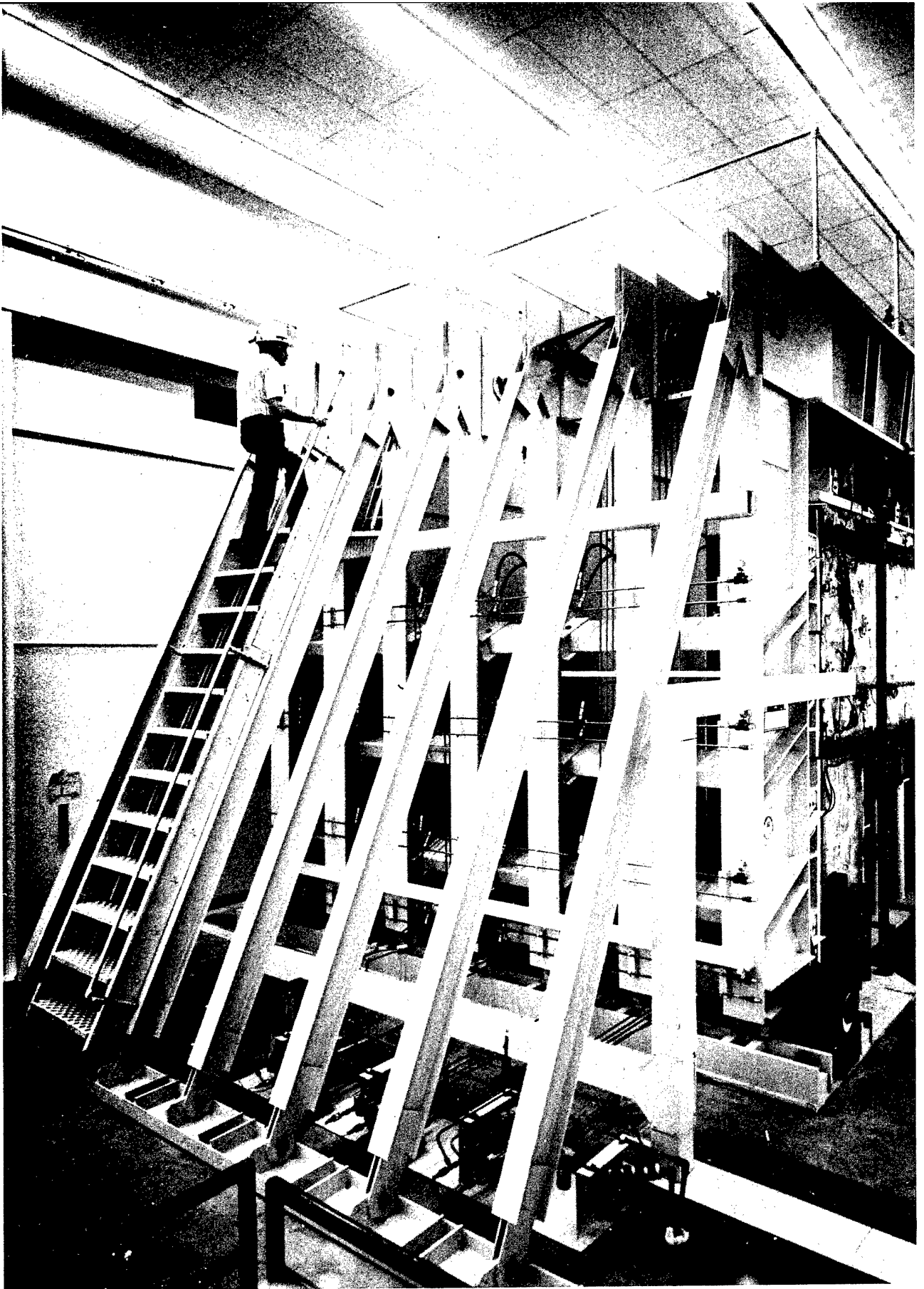
In furtherance of these efforts, the Bureau of Mines participated in several working groups of the Emergency Mobilization Preparedness Board. These working groups were concerned with formulating mineral industry mobilization plans and plans to assure continuity of mineral supply during emergencies as outlined in the President's National Security Decision Directive No. 47 and his National Materials and Minerals Program Plan and Report to the Congress.

Additionally, experts from the Bureau of Mines and the USGS represent the United States in an international group (including the United States, Australia, Canada, South Africa, and West Germany) that is developing a global inventory of strategic mineral resources. Participants are currently compiling worldwide data on mines and deposits of chromium, manganese, nickel and phosphate.

The Bureau of Mines also prepared an extensive study on aluminum plant capacities and locations,

performed in-depth inspections of a number of foreign critical mineral production facilities, participated in lead-zinc supply/demand study groups, and provided detailed accounts of locations of consumers of high carbon ferrochromium so that material could be stored more effectively (i.e., more accessible to consumers).

Further assistance to the stockpile planning effort is provided by the BIE, DOC. The BIE develops industry-specific data, analyses and research for use by both the private and public sectors. The creation of this bureau was a result of the DOC's interest in the increasing number of Federal policy issues requiring comprehensive industry-specific analysis, and recognition that realistic assessment of these issues required a combination of economic and industry expertise. Some of the agencies served by the BIE are FEMA, GSA, and DOD. Essentially, the BIE provides data on consumption, capacity and supply; prepares potential market impact analyses; reviews and provides recommendations on commodity specifications; monitors production costs, prices, financial and labor conditions, technological changes and trade patterns; and researches and studies industrial productivity and energy usage, capital formation, and implementation of industrial emergency mobilization and planning. With these functions, the BIE provides a broad base of specialized industry-specific expertise essential to stockpile planning. Recent studies include the achievability of defense and economic goals, analysis of critical material use by the aerospace and steel industries, a study on fiber optic impact on copper and other strategic metal demand, and a study on the end-use of nonferrous metals. Additionally, the BIE prepares regularly scheduled industrial reports including a bimonthly assessment of industrial trends and developments, biweekly reports on troubled industries, and a triannual survey of industrial diamond consumption.



*Full-scale model of underground mine opening used in Bureau of Mines Research.*

## Research and Development

An alternative to stockpiling of strategic and critical materials is the development of domestic sources of supply. Additions to, or establishment of, domestic supply sources make possible a decrease in the stockpile goals. Therefore, research of a scientific, technologic and/or economic nature to develop domestic production or substitutes for strategic and critical materials is a continuing part of the stockpile program.

During the report period, the Bureau of Mines prepared extensive studies on the substitution of non-critical materials for critical materials, and provided FEMA with a worldwide 5-year supply estimate of stockpiled materials.

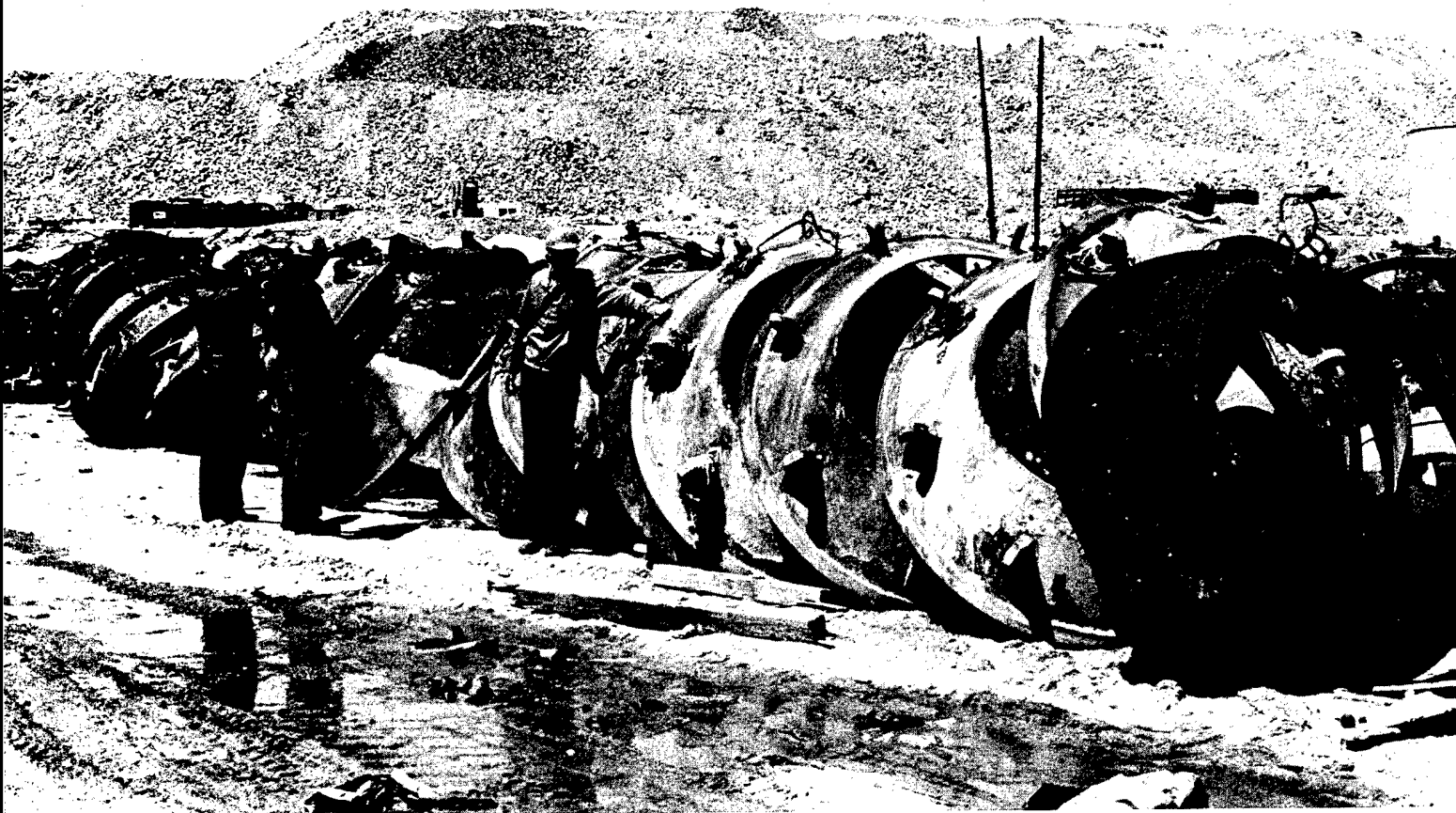
Under the "Central Idaho Wilderness Act of 1980," Public Law 96-312, the Bureau of Mines and the USGS recently investigated the potential for cobalt and other mineral resources in the Special Mining Management Zone of Clear Creek, Idaho. This investigation is intended to be included in a report

by the Secretary of Defense to the Congress regarding the strategic significance of minerals found in the management zone. Field investigations also are being conducted covering several areas of Alaska having strategic and critical mineral resource potential.

In its mining research, the Bureau of Mines is utilizing a full-scale model of a 15-foot wide underground mine opening (see photo) to investigate the stabilization of mine openings, in conjunction with computer analyses of ground support systems. These basic investigations help to develop cost-effective and safer mine plans and ground support designs. Another project involves a prototype compact loader/tramper (see photo) to improve the efficiency of mining narrow vein deposits. It has a rated load capacity of 4,000 pounds and can complete a 100-foot radius, load-and-dump cycle in three minutes. This device was designed to increase productivity in narrow, low headroom areas in underground mining operations. It can be operated from a tether or with a radio remote control to provide greater operator safety.

*Compact loader/tramper developed by the Bureau of Mines.*





*The wear of large mineral processing equipment is costly not only for replacement parts, but reduces productivity. For example, these worn out cone crusher liners made of high-manganese steel originally weighed 4,000 pounds each and represent less than one year's worth of discarded liners from a western mining operation.*

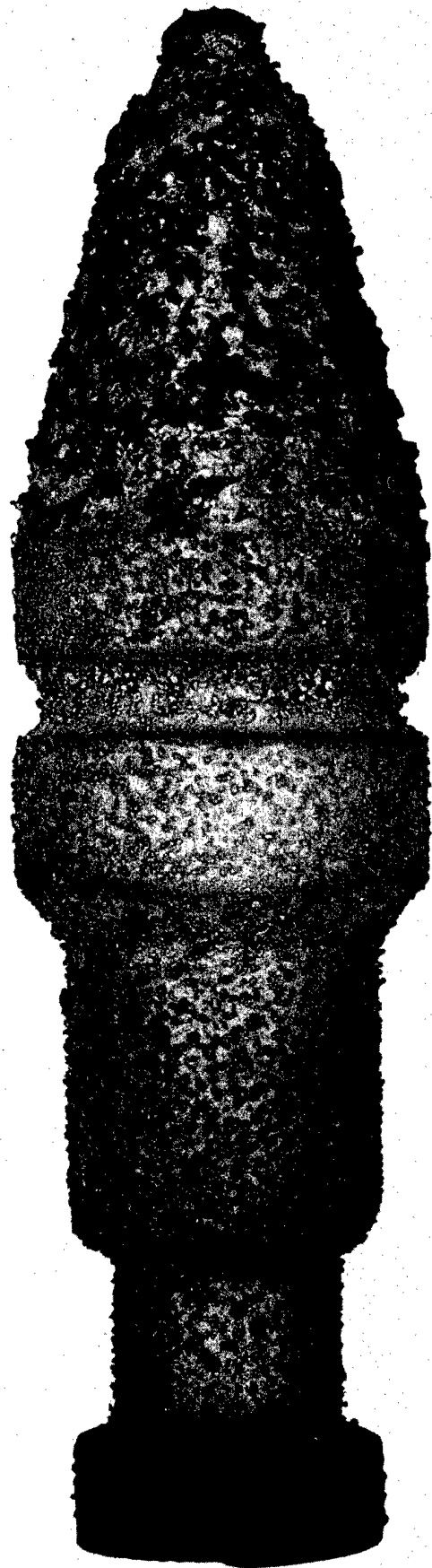
Substitution, conservation and recycling of strategic and critical materials is an important area of Bureau of Mines research. Losses due to wear have been estimated as approaching five times the losses caused by corrosion. Wear losses are especially heavy in the minerals industry where large amounts of material must be handled under severe operating conditions. In many cases, wear involves the loss of strategic and critical materials that are being used in increasing amounts to impart wear resistance to mining equipment. (See photo: cone crusher liners). Methods for reducing material losses due to wear are being investigated by several approaches so that wear of various types can be measured precisely. By these means, a large number of alternate alloys is being compared with conventional materials for wear resistance, with the goal of reducing the consumption of strategic and critical materials by alloy substitution and also by increased service life. Although emphasis is on problems in the minerals industries, this research

should have much wider application in the future. Another approach being studied for material conservation is the application of claddings or coatings of hard materials onto steel surfaces. High-manganese steel alloys are being bonded by vacuum hot rolling to carbon steel or low-alloy steel. This approach should be less costly and have fewer drawbacks than conventional methods of hard facing such as weld overlays, which are energy and labor intensive. Still another approach being studied for applying surfaces of hard, wear-resistant materials to less costly substrates is integrally casting low-alloy steels in molds that are surface coated with abrasion-resistant powders. (See photo: titanium carbide bit). This procedure should result in formation of a composition gradient from the hard outer surface into the softer body of the casting, thereby eliminating problems associated with thermal stress that are encountered in other methods of hard surfacing.

The brines of Searles Lake in California's Mojave desert have been known for more than 40 years to contain a significant quantity of tungsten—estimated to be equivalent to 170 million pounds of tungsten oxide. Bureau researchers have demonstrated an ion exchange technique that recovers the tungsten from brine feed while simultaneously rejecting nearly all other brine components. The Bureau-patented resin that is used in this process has been tested successfully at the lake site, together with a unique method for removing the recovered tungsten from the resin—a method also patented by the Bureau. Testing in progress is directed at answering the few remaining questions associated with a fully integrated tungsten recovery process.

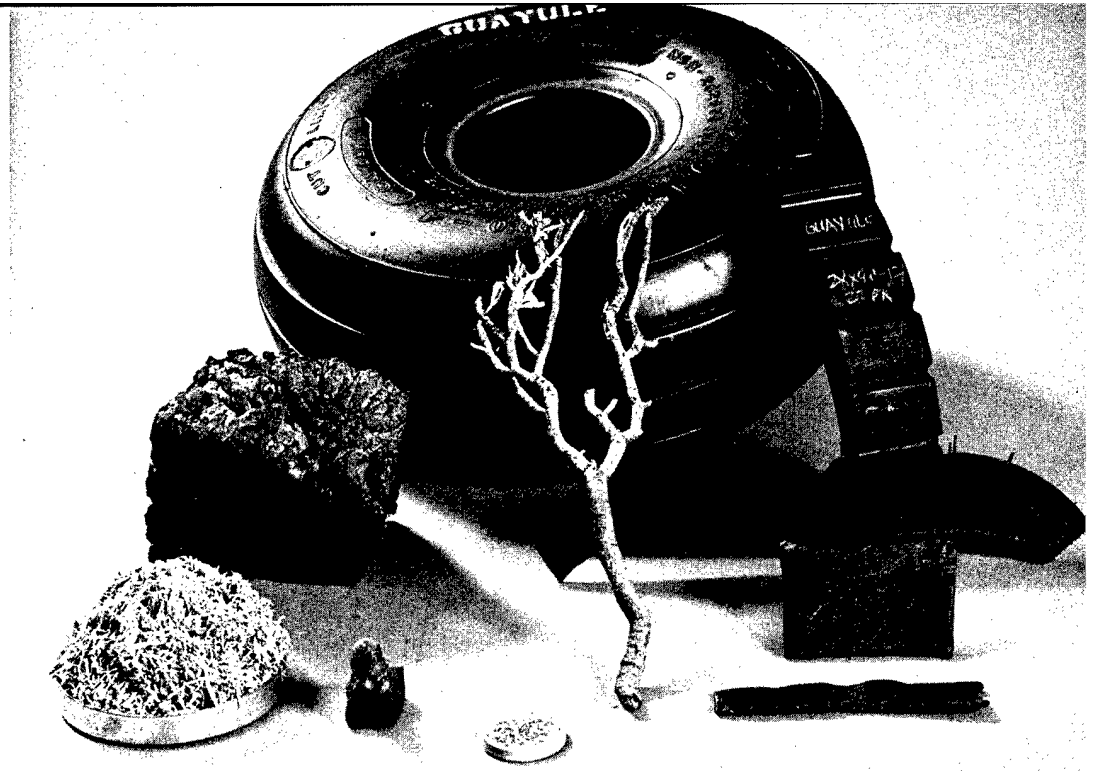
The USGS, in cooperation with the Missouri Department of Natural Resources, developed a new technique for inferring the location and extent of additional Mississippi Valley-type base-metal deposits in southeast Missouri. The technique employs geochemical characterization of rocks in the subsurface through mineralogic, spectrographic, and chemical analyses of drill-hole samples collected on a regional basis. By “mapping” relative metal abundances and correlating this information with all the other known geologic, geochemical, and geophysical parameters of the Rolla quadrangle, the USGS identified three areas in the quadrangle with a high probability for the existence of undiscovered Mississippi Valley-type deposits which could contain lead, zinc, copper, silver, nickel, and/or cobalt. In addition, areas having high potential for the occurrence of iron ores, barite deposits, tin-tungsten vein deposits, and uranium—at depths greater than 1,000 feet—were outlined.

*A titanium carbide tip and particles embedded in the surface can increase service life of this coal cutter bit. The cutter bits are used on continuous coal mining machines.*



SCALE:

1 inch



*The complete cycle of Guayule from seed to finished product.*

Other areas of research include the development of guayule as a domestic source of natural rubber. The DOD initiated a guayule test and evaluation program in 1977 to determine if guayule could be substituted for hevea in military applications. Approximately 20 percent of the tests were conducted prior to exhausting imported supplies of processed guayule. In order to complete the testing requirements, DOD instituted a loan guarantee program under Title III of the Defense Production Act. A contract was awarded to the Gila River Indian Community (GRIC) on September 29, 1982. Under the contract, the loan guarantee will be applied to crop establishment and harvest, processing and factory design, and construction. This design and construction is being accomplished under a subcontract between the GRIC and Firestone Tire and Rubber Company. Service research and development funds were applied to the contract for procurement of a factory demonstration (1988) and a final technical report. Upon completion, the Services will implement the Joint Test and Evaluation Master Plan (JTEMP) by contracting for selected guayule rubber and items and subjecting them to the individual test and evaluation requirements. A final report on commercialization feasibility will be submitted to the Office of the Secretary of Defense upon program completion (estimated during Fiscal Year 1992). Program objectives are to (1) establish a domestic prototype guayule industry, (2) qualify

guayule rubber as a substitute for hevea rubber in military applications, and (3) provide incentive to industry for a commercial effort.

Additionally, the Joint Commission on Guayule Research and Commercialization, formed as a result of the Native Latex Act of 1978, and consisting of the Departments of Agriculture, Commerce, and Interior and the National Science Foundation, is working closely with various agencies in developing guayule as a domestic source of natural rubber. Studies performed by the World Bank and other sources indicate a potential shortfall between world production and consumption of natural rubber sometime around 1990. Present research and development efforts toward development of guayule as an alternate source of natural rubber should allow a small commercial industry to develop sometime between 1985-1987, which should offset this shortfall and yet not compete with hevea latex from foreign rubber producing countries.

Various grants have been provided by the Departments of Agriculture and Commerce for research in guayule's agronomic requirements and the chemical extraction and processing of latex and resin from the guayule plant (see photo). This research has developed to a point where it is ready for commercial production.

## Management

Executive Order 12155 delegates responsibility for the management of the day-to-day operations of the NDS to the Administrator of General Services. Within GSA, the Federal Property Resources Service (FPRS) is assigned stockpile activities: market analyses, buying and selling stockpile materials, managing stockpile funds and budgets, and the storage, quality assurance, shipping, inspection, maintenance and security of the physical inventories.

Since its inception on July 30, 1979, through March 31, 1983, the Transaction Fund has received \$373.4 million from stockpile sales. Moneys in the Transaction Fund are used to purchase materials needed for the NDS and are, at present, the only source of funds for such acquisitions. To promote efficient management of the Transaction Fund, FPRS has instituted an automated system to keep top management apprised of moneys credited to the Transaction Fund from the sale of excess materials.

FPRS inspected, analyzed and accepted into the NDS, 2,400 troy ounces of iridium and implemented a test program to evaluate the effects of long-term storage of Technically Specified Rubber (TSR). Four hundred tons of TSR were acquired from Malaysia, Indonesia and Thailand. This material will be stored at three locations selected for their distinctly different environmental conditions.

Additionally, FPRS has an ongoing quality assessment survey program for specific materials presently in the NDS. The material selected for the program during this report period was chrysotile asbestos. Samples were taken from 8,821 tons of material and analyzed to establish a uniform grading classification, utilizing current standards, for all chrysotile asbestos in the NDS.

FPRS continues to be an active participant in the Interagency Committee for Stockpile Purchase Specifications and Special Instructions. This Committee is responsible for developing chemical and physical requirements in the National Purchase Specifications for stockpile materials. Such participation was instrumental in the six commodity specifications which were published during this report period.

## Purchase Guidelines

The Interagency Committee for Stockpile Purchase Specifications and Special Instructions, chaired by DOC, Office of Industrial Resource Administration, has representation from the Departments of Defense, Interior (Bureau of Mines), Agriculture, State, Commerce (National Bureau of Standards and Bureau of Industrial Economics), GSA (Office of Stockpile Management), and FEMA.

Since the inception of the Committee in 1976, it has developed, reviewed and approved the publication of Purchase Specifications and Special Instructions covering 51 materials. GSA continues to be an active participant in this Committee. The Committee is responsible for developing chemical and physical requirements in the National Purchase Specifications for stockpile materials. Six commodity specifications were published during this report period. The specifications published were for ferrochromium, ferro manganese, quinidine sulfate, beryllium, nickel and Jamaican bauxite.

## Purchases

The Government-owned William Langer Jewel Bearing Plant located at Rolla, North Dakota, produces jewel bearings for sale to the stockpile and to defense contractors. Orders by defense contractors from the plant during the report period totaled 387,546 units of jewel bearings and related items. Of this amount, orders for related items totaled 32,064 units and those for jewel bearings totaled 355,482 units. In addition to its NDS activities, in Fiscal Year 1981, the Langer Plant was requested by FEMA to undertake a pilot project for the production of dosimeters, a radiation measuring device. Plans were developed in Fiscal Year 1982, and manufacturing activities are expected to commence in August 1983. Present plans call for pilot production of 10,000 low-range and 10,000 high-range dosimeters.

Additionally, during the report period, contracts were awarded for the purchase of iridium, Jamaican bauxite, and a small quantity of TSR:

**Iridium:** Basic Ordering Agreements (contractual agreements complete except for prices) remain in force with several responsible suppliers of iridium

to provide individual procurement actions in order to take quick advantage of market opportunities during the agreement period. As of March 31, 1983, 600 troy ounces of iridium were ordered for delivery to the depot at Fort Knox, Kentucky.

**Metallurgical Grade Bauxite:** A contract was signed with the Bauxite and Alumina Trading Company of Jamaica Limited (BATCO), for delivery of 1,000,000 long dry tons of bauxite to storage locations at Gregory, Texas, and Gramercy, Louisiana. The maximum value of this contract is \$56.3 million. Bauxite deliveries are scheduled to be completed by March 25, 1984.

**Rubber:** Approximately \$400,000 was used to purchase 890,750 pounds of TSR. Funds were provided by the revenue from the sale of deteriorated stockpile rubber. There is little historical information presently available as to the effect of long-term storage or storage conditions on this type of material. The material purchased under this particular acquisition will help determine if it is suitable for NDS purposes. FPRS currently is testing to determine what rubber presently in the NDS has deteriorated to a degree which warrants rotation.

## Sales

Sales during the report period totaled approximately \$24.7 million for the Transaction Fund. Fifteen commodities were sold during this period. Only three of these commodities—diamond stones, tin, and vegetable tannin quebracho—had sales over \$1 million. Total dollar sales continued to drop,

reflecting reduced industrial demand. The biggest contributor to the decline was tungsten, as sales of tungsten ores and concentrates plunged from \$4.6 million during the previous reporting period to less than \$0.5 million.

**Diamond Stones:** The demand for industrial diamond stones continued strong. Bids were accepted on 492,851 of the 500,000 carats made available for the first offering in the new fiscal year. The average price per carat rose from \$14.86 to \$15.95 per carat, and provided nearly \$7.9 million in receipts for the Transaction Fund. A total of 1,500,000 carats is available for sale this fiscal year.

**Tin:** Tin sales continue to fluctuate. Average prices for this bi-annual period rose from \$5.44 to \$5.88 per pound, and have been above \$6.00 per pound since March, but stockpile sales declined to \$12.9 million from \$14.7 million in the previous period. Apparently the price rise has resulted more from a reduction in world supply, as the producing countries imposed export controls, than from any increase in demand from the industrial users. This may be changing, because stockpile sales have been stronger during early 1983 than they were in late 1982.

**Vegetable Tannins:** Sales of vegetable tannins have rebounded. As the average price for chestnut, quebracho and wattle extracts improved from 30.62 to 31.51 cents per pound, sales jumped to \$1.6 million from \$1.0 million. As previously expected, one established tanner left the industry, but this should not impact potential sales as the operation is being maintained under new ownership.

**TABLE 1**  
**DISPOSAL OF NATIONAL DEFENSE STOCKPILE INVENTORY MATERIALS**  
**October 1, 1982 - March 31, 1983**

Material	Unit	Quantity Sold	Value (Dollars)	Balance of Disposal Authorization Quantity
Antimony	ST	306	473,494	1,694
Asbestos, Amosite	ST	--	--	30,024
Asbestos, Crocidolite	ST	--	--	831
Asbestos, Chrysotile	ST	--	--	4,000
Celestite	SDT	--	--	13,415
Diamond, Industrial Stones	KT	492,851	7,861,182	2,522,294
Diamond, Industrial Crushing Bort	KT	--	--	192,817
Kyanite	SDT	--	--	1,187
Iodine	LB	45,000	253,350	1,726,386
Manganese, Chemical Grade	SDT	--	--	151,152
Manganese, Dioxide, Battery, Natural	SDT	3,731	331,170	80,196
Manganese, Metallurgical Grade	SDT	--	--	669,246
Mercuric Oxide	LB	--	--	712,202
Mercury	FL	1,500	490,200	41,424
Mica, Muscovite Film 1st & 2nd Quality	LB	22,265	77,325	77,735
Mica, Muscovite Block Stained & Lower	LB	--	--	100,000
Mica, Muscovite Splittings	LB	57,000	173,850	5,112,711
Mica, Phlogopite Splittings	LB	2,200	3,300	744,384
Quartz Crystals	LB	300	2,200	1,801,790
Rare Earth Oxide	SDT	--	--	488
Talc, Block & Lump	ST	10	4,000	886
Talc, Ground	ST	--	--	1,089
Thorium Nitrate	LB	--	--	6,055,529
Tin	LT	997	12,915,156	23,703
Tungsten Ores & Concentrates	LB W	102,165	473,754	60,844,589
Vegetable Tannin, Chestnut	LT	446	303,124	5,919
Vegetable Tannin, Quebracho	LT	1,611	1,118,016	87,686
Vegetable Tannin, Wattle	LT	319	226,004	378
<b>Total from National Defense Stockpile Inventories</b>			<b>\$24,706,125</b>	

# STOCKPILE INVENTORY

## Explanation of Table 2

The National Defense Stockpile total inventory as given in Table 2 excludes quantities that were sold but not shipped from depots to the purchasers. In the Statistical Supplement (available from the General Services Administration) the inventory is listed as "Total Inventory in Storage" with a separate line for "Unshipped Sales."

The Table 2 inventory quantities combine stockpile and nonstockpile grade materials, while separate lines can be found for each type in the Statistical Supplement. Nonstockpile grade material may vary only slightly from the stockpile grade and in some cases is temporarily credited toward goals.

For some materials where a goal deficit occurs, the excess of another form of the material is held to offset the shortage as indicated in the footnotes at the end of Table 2. The term "offset" means allocating one form of a material for an equivalent amount of another form.

Materials are grouped by "families," and a summary line for each basic family group is included. The materials have been grouped in each family according to their status as raw materials, semifinished products or finished products that contain the same common ingredient. The values shown in the summary line for each family group are expressed in the basic unit common to all members of the group. In all but three cases, this basic unit is the metal equivalent for each form. There is a different conversion factor for each form because each requires different technology and incurs different conversion losses. The factors used for calculating these equivalent amounts and the calculation procedures are in Appendix 2.

Market values are prices at which comparable materials are being traded, or in the absence of trading, values are estimates. They are not necessarily the amount that would be realized if the material were sold.

### Abbreviations

AMA Lb	- Anhydrous Morphine Alkaloid (Pounds)	LCT	- Long Calcined Ton
AvOz	- Avoirdupois Ounce	LDT	- Long Dry Ton
FL	- Flask (76-Pound)	LT	- Long Ton
KT	- Carat	MT	- Metric Ton
LB	- Pound	PC	- Piece
LB Cb	- Pounds of Contained Columbium	SDT	- Short Dry Ton
LB Co	- Pounds of Contained Cobalt	ST	- Short Ton
LB Mo	- Pounds of Contained Molybdenum	ST Ni+Co	- Short Tons of Contained Nickel plus Cobalt
LB Ta	- Pounds of Contained Tantalum	ST V	- Short Tons of Contained Vanadium
LB W	- Pounds of Contained Tungsten	TrOz	- Troy Ounces

Table 2

## NATIONAL DEFENSE STOCKPILE INVENTORY OF STRATEGIC AND CRITICAL MATERIALS

March 31, 1983

Commodity	Unit	Goal	Inventory	Value of Inventory (Millions \$)	Quantity After Crediting Excess	Offset Deficit
1. Aluminum Metal Group	ST Al Metal	7,150,000	3,813,679	695.9		3,336,321
Alumina	ST	0	0	-		-
Aluminum	ST	700,000	2,080	3.2		697,920
Bauxite, Metal Grade, Jamaica Type	LDT	21,000,000	10,458,000	428.8		10,542,000
Bauxite, Metal Grade, Surinam Type	LDT	6,100,000	5,299,597	263.9		800,403
2. Aluminum Oxide, Abrasive Grain Group	ST Ab Grain	638,000	259,124	128.6		378,876
Aluminum Oxide, Abrasive Grain	ST	0	50,904	63.6	a	a
Aluminum Oxide, Fused, Crude	ST	0	249,867	65.0	a	a
Bauxite, Abrasive Grade	LCT	1,000,000	0	-		a
3. Antimony	ST	36,000	40,402	161.6	4,402	
4. Asbestos, Amosite	ST	17,000	42,534	29.8	25,534	
5. Asbestos, Chrysotile	ST	3,000	9,957	18.0	6,957	
6. Bauxite, Refractory	LCT	1,400,000	199,926	40.7		1,200,074
7. Beryllium Metal Group	ST Be Metal	1,220	1,061	201.2		159
Beryl Ore (11% BeO)	ST	18,000	17,987	24.2		13
Beryllium Copper Master Alloy	ST	7,900	7,387	88.1		513
Beryllium Metal	ST	400	229	88.9		171
8. Bismuth	LB	2,200,000	2,081,298	4.8		118,702
9. Cadmium	LB	11,700,000	6,328,809	6.3		5,371,191
10. Chromium, Chemical and Metallurgical Group	ST Cr Metal	1,353,000	1,324,923	979.1		28,077
Chromite, Chemical Grade Ore	SDT	675,000	242,414	13.6		c
Chromite, Metallurgical Grade Ore	SDT	3,200,000	2,488,043	237.6		c
Chromium, Ferro, High Carbon	ST	185,000	402,696	238.4		
Chromium, Ferro, Low Carbon	ST	75,000	318,892	418.0	c	
Chromium, Ferro, Silicon	ST	90,000	58,357	43.3		c
Chromium, Metal	ST	20,000	3,763	28.2		c
11. Chromite, Refractory Grade Ore	SDT	850,000	391,414	42.6		458,586

Table 2 (continued)

Commodity	Unit	Goal	Inventory	Value of Inventory (Millions \$)	Quantity After Excess	Crediting Offset Deficit
12. Cobalt	LB Co	85,400,000	45,995,714	574.9		39,404,286
13. Columbium Group	LB Cb Metal	4,850,000	2,532,419	23.3		2,317,581
	LB Cb	100,000	21,372	.6		78,628
	LB Cb	5,600,000	1,806,218	15.5		d
	LB Cb	0	930,911	5.6	d	
	LB Cb	0	44,851	1.6	d	
14. Copper	ST	1,000,000	29,048	46.1		970,952
15. Cordage Fibers, Abaca	LB	155,000,000	0	-		155,000,000
16. Cordage Fibers, Sisal	LB	60,000,000	0	-		60,000,000
17. Diamond, Industrial Group	KT	29,700,000	38,723,355	432.4	9,023,355	
	PC	60,000	25,473	1.1		34,527
	KT	22,000,000	22,192,880	38.8	192,880	
	KT	7,700,000	16,530,475	392.5	8,830,475	
18. Fluorspar, Acid Grade	SDT	1,400,000	895,983	161.3		504,017
19. Fluorspar, Metallurgical Grade	SDT	1,700,000	411,738	51.5		1,288,262
20. Graphite, Natural, Ceylon, Amorphous Lump	ST	6,300	5,499	10.7		801
21. Graphite, Natural, Malagasy, Crystalline	ST	20,000	17,899	35.8		2,101
22. Graphite, Natural, Other Than Ceylon & Malagasy	ST	2,800	2,804	2.0	4	
23. Iodine	LB	5,800,000	7,525,930	51.9	1,725,930	
24. Jewel Bearings	PC	120,000,000	71,246,385	61.0		48,753,615
25. Lead	ST	1,100,000	601,032	261.4		498,968
26. Manganese, Dioxide, Battery Grade Group	SDT	87,000	218,405	20.6	135,136	
	SDT	62,000	215,394	16.4	e	
	SDT	25,000	3,011	4.2		e

Table 2 (continued)

Commodity	Unit	Goal	Inventory	Value of Inventory (Millions \$)	Quantity After Crediting Excess	Offset Deficit
27. Manganese, Chemical & Metallurgical Group	ST Mn Metal	1,500,000	1,970,722	513.8	470,722	
Manganese Ore, Chemical Grade	SDT	170,000	221,044	18.1	51,044	
Manganese Ore, Metallurgical Grade	SDT	2,700,000	3,370,104	178.3		f
Manganese, Ferro, High Carbon	ST	439,000	599,978	262.5		
Manganese, Ferro, Low Carbon	ST	0	0	-		
Manganese, Ferro, Medium Carbon	ST	0	28,920	22.0		f
Manganese, Ferro, Silicon	ST	0	23,574	11.6		f
Manganese Metal, Electrolytic	ST	0	14,172	21.3		f
28. Mercury	FL	10,500	182,815	61.2	172,315	
29. Mica Muscovite Block, Stained & Better	LB	6,200,000	5,212,445	27.8		987,555
30. Mica Muscovite Film, 1st & 2nd Qualities	LB	90,000	1,252,138	14.7	1,162,138	
31. Mica Muscovite Splittings	LB	12,630,000	18,157,850	27.2	5,527,850	
32. Mica Phlogopite Block	LB	210,000	130,745	.7		79,255
33. Mica Phlogopite Splittings	LB	930,000	1,678,742	3.4	748,742	
34. Molybdenum Group	LB Mo	0	0	-		
Molybdenum Disulphide	LB Mo	0	0	-		
Molybdenum, Ferro	LB Mo	0	0	-		
35. Morphine Sulphate and Related Analgesics	AMA LB	130,000	71,303	26.2		58,697
Crude	AMA LB	0	31,795	4.9		
Refined	AMA LB	130,000	39,508	21.3		g
36. Natural Insulation Fibers	LB	1,500,000	0	-		1,500,000
37. Nickel	ST Ni+Co	200,000	32,209	211.9		167,791
38. Platinum Group Metals, Iridium	Tr Oz	98,000	23,590	14.1		74,410
39. Platinum Group Metals, Palladium	Tr Oz	3,000,000	1,255,003	169.4		1,744,997
40. Platinum Group Metals, Platinum	Tr Oz	1,310,000	452,642	215.0		857,358
41. Pyrethrum	LB	500,000	0	-		500,000
42. Quartz Crystals	LB	600,000	2,063,827	12.4	1,463,827	
43. Guinidine	Av Oz	10,100,000	1,874,504	6.7		8,225,496

Table 2 (continued)

Commodity	Unit	Goal	Inventory	Value of Inventory (Millions \$)	Quantity After Crediting Excess	Offset Deficit
44. Guinine	Av Oz	4,500,000	3,246,164	8.2	1,253,836	
45. Ricinoleic/Sebacic Acid Products	LB	22,000,000	12,524,242	9.2	b	
46. Rubber	MT	864,000	120,475	149.4	743,443	
47. Rutile	SDT	106,000	39,186	12.7	66,814	
48. Sapphire and Ruby	KT	0	16,305,502	.2	16,305,502	
49. Silicon Carbide, Crude	ST	29,000	80,550	36.2	51,550	
50. Silver, Fine	Tr Oz	0	137,505,946	1,460.0	137,505,946	
51. Talc, Steatite Block & Lump	ST	28	1,081	.4	1,053	
52. Tantalum Group	LB Ta Metal	7,160,000	2,426,387	136.9	4,733,613	
	LB Ta	0	28,688	4.7	h	
	LB Ta	0	201,133	44.2	h	
	LB Ta	8,400,000	2,584,195	71.0	h	
53. Thorium Nitrate	LB	600,000	7,131,812	19.6	6,531,812	
54. Tin	MT	42,700	193,642	2,652.6	150,942	
55. Titanium Sponge	ST	195,000	32,331	353.4	162,669	
56. Tungsten Group	LB W Metal	50,666,000	79,181,354	525.2	28,515,354	
	LB W	2,000,000	2,032,942	23.3	i	
	LB W	0	2,025,361	24.8	i	
	LB W	1,600,000	1,898,911	24.5	i	
	LB W	55,450,000	86,044,819	452.6	i	
57. Vanadium Group	ST V Metal	8,700	541	6.5	8,159	
	ST V	1,000	0	-	1,000	
	ST V	7,700	541	6.5	7,159	
58. Vegetable Tannin Extract, Chestnut	LT	5,000	15,068	10.3	10,068	
59. Vegetable Tannin Extract, Quebracho	LT	28,000	135,506	93.5	107,506	
60. Vegetable Tannin Extract, Wattle	LT	15,000	15,386	10.9	386	
61. Zinc	ST	1,425,000	378,316	290.3	1,046,684	

Offsets

- a. Aluminum Oxide, Fused Crude: Hold 50,904 ST of aluminum oxide abrasive grain and 249,867 ST of aluminum oxide fused crude as offset against 379,253 LCT of bauxite abrasive grade.
- b. Ricinoleic/Sebacic Acid Products: Sebacic acid inventory is credited toward goal at the rate of 2.5 to 1.
- c. Chromium Group, Chemical and Metallurgical Grades: Metallurgical grade ore goal is 3,200,000 SDT of specification grade; inventory 1,956,824 SDT; shortfall 1,243,176 SDT.
- (1) Hold 217,695 ST of Fe Cr high carbon against shortfall of 544,238 SDT of specification grade ore.
  - (2) Hold 243,892 ST of Fe Cr low carbon against 609,730 SDT of specification grade ore.
  - (3) Hold 89,208 SDT of non-specification grade metallurgical ore against the balance of the 89,208 SDT specification grade ore shortfall.
  - (4) Hold 47,466 SDT of non-specification grade metallurgical ore against a shortfall of 31,644 ST of Fe Cr Si.
  - (5) Hold 56,830 SDT of non-specification grade metallurgical ore against a shortfall of 16,237 ST of chromium metal.
  - (6) Hold 337,715 SDT of non-specification grade metallurgical ore against 337,715 SDT of chemical grade ore shortfall.
- d. Columbium Group:
- (1) Hold 930,911 pounds Cb as Fe Cb against 1,095,189 pounds Cb as concentrates.
  - (2) Hold 44,851 lb Cb as Cb metal against 52,766 lb Cb as concentrates.
- e. Manganese, Dioxide, Battery Grade Group:
- Hold 21,989 SDT of manganese, battery grade, natural ore against a shortfall of 21,989 SDT of manganese, battery grade, synthetic dioxide.
- f. Manganese Group, Chemical and Metallurgical Grades: Metallurgical grade ore goal is 2,700,000 SDT; inventory 2,409,377 SDT; shortfall 290,623 SDT of stockpile grade ore.
- (1) Hold 14,172 ST of Mn metal against 35,428 SDT of metallurgical ore.
  - (2) Hold 23,574 ST of Fe Mn Si against 42,433 SDT of metallurgical ore.
  - (3) Hold 28,921 ST of Fe Mn medium carbon against 57,842 SDT of metallurgical ore.
  - (4) Hold 77,460 ST of Fe Mn high carbon against 154,920 SDT of metallurgical ore.
  - (5) Hold remaining 83,304 ST of Fe Mn high carbon against reduction of ore value in desired inventory mix.
- g. Opium: Hold 31,795 AMA lb of opium gum against 31,795 AMA lb of opium salt goal.
- h. Tantalum Group:
- (1) Hold 201,133 lb Ta as Ta metal against 237,337 lb Ta as concentrates.
  - (2) Hold 28,688 lb Ta as Ta C against 33,852 lb Ta as concentrates.
- i. Tungsten Group:
- (1) WC powder goal is 2,000,000 lb W; stockpile grade inventory 1,921,167 lb W; shortfall 78,833 lb W. Hold 111,775 lb W as non-specification grade WC to offset 78,243 lb W as WC specification grade (assume 70% recovery of usable W).
  - (2) W metal powder goal is 1,600,000 lb W; inventory stockpile grade 1,566,964 lb W; shortfall 33,036 lb W. Non-stockpile grade W metal powder inventory is 331,947 lb W. Assume 70% recovery as usable material, then 331,947 x .70 = 232,363 lb W. Hold 47,194 lb W as non-specification grade powder to offset shortfall of 33,036 stockpile grade W powder.
  - (3) Hold balance of non-stockpile grade W powder 232,363 - 33,036 = 199,327 lb W as powder against 234,209 lbs W as concentrate.
  - (4) Hold 840,752 lbs W as Fe W stockpile grade against 987,884 lb W as concentrate. Hold 1,184,609 lb W nonstockpile grade Fe W at 70 percent recoverable against 974,341 lb W concentrate.

## APPENDIX I

### STRATEGIC AND CRITICAL MATERIALS STOCK PILING ACT

(50 U.S.C. 98 *et. seq.*)

SEC. 1. This Act may be cited as the 'Strategic and Critical Materials Stock Piling Act'.

#### FINDINGS AND PURPOSE

SEC. 2. (a) The Congress finds that the natural resources of the United States in certain strategic and critical materials are deficient or insufficiently developed to supply the military, industrial, and essential civilian needs of the United States for national defense.

(b) It is the purpose of this Act to provide for the acquisition and retention of stocks of certain strategic and critical materials and to encourage the conservation and development of sources of such materials within the United States and thereby to decrease and to preclude, when possible, a dangerous and costly dependence by the United States upon foreign sources for supplies of such materials in times of national emergency.

#### MATERIALS TO BE ACQUIRED: PRESIDENTIAL AUTHORITY AND GUIDELINES

SEC. 3. (a) The President shall determine from time to time (1) which materials are strategic and critical materials for the purposes of this Act, and (2) the quality and quantity of each such material to be acquired for the purposes of this Act and the form in which each such material shall be acquired and stored. Such materials when acquired, together with the other materials described in section 4 of this Act, shall constitute and be collectively known as the National Defense Stockpile (hereinafter in this Act referred to as the 'stockpile').

(b) The President shall make the determinations required to be made under subsection (a) on the basis of the following principles:

(1) The purpose of the stockpile is to serve the interest of national defense only and is not to be used for economic or budgetary purposes.

(2) The quantities of the materials stockpiled should be sufficient to sustain the United

States for a period of not less than three years in the event of a national emergency.

(c) The quantity of any material to be stockpiled under this Act, as determined under subsection (a), may not be revised unless the Committees on Armed Services of the Senate and House of Representatives are notified in writing of the proposed revision and the reasons for such revision at least 30 days before the effective date of such revision.

#### MATERIALS CONSTITUTING THE NATIONAL DEFENSE STOCKPILE

SEC. 4. (a) The stockpile consists of the following materials:

(1) Materials acquired under this Act and contained in the national stockpile on the day before the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(2) Materials acquired under this Act on or after the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(3) Materials in the supplemental stockpile established by section 104(b) of the Agricultural Trade Development and Assistance Act of 1954 (as in effect from September 21, 1959, through December 31, 1966) on the day before the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(4) Materials acquired by the United States under the provisions of section 303 of the Defense Production Act of 1950 (50 U.S.C. App. 2093) and transferred to the stockpile by the President pursuant to subsection (f) of such section.

(5) Materials transferred to the United States under section 663 of the Foreign Assistance Act of 1961 (22 U.S.C. 2423) that have been determined to be strategic and critical materials for the purposes of this Act and that are allocated by the President under subsection (b) of such section for stockpiling in the stockpile.

(6) Materials acquired by the Commodity Credit Corporation and transferred to the stockpile under section 4(h) of the Commodity Credit Corporation Charter Act (15 U.S.C. 714b(h)).

(7) Materials acquired by the Commodity Credit Corporation under paragraph (2) of section 103(a) of the Act entitled 'An Act to provide for greater stability in agriculture; to augment the marketing and disposal of agricultural products; and for other purposes', approved August 28, 1954 (7 U.S.C. 1743(a)), and transferred to the stockpile under the third sentence of such section.

(8) Materials transferred to the stockpile by the President under paragraph (4) of section 103(a) of such Act of August 28, 1954.

(9) Materials transferred to the stockpile under subsection (b).

(b) Notwithstanding any other provision of law, any material that (1) is under the control of any department or agency of the United States, (2) is determined by the head of such department or agency to be excess to its needs and responsibilities, and (3) is required for the stockpile shall be transferred to the stockpile. Any such transfer shall be made without reimbursement to such department or agency, but all costs required to effect such transfer shall be paid or reimbursed from funds appropriated to carry out this Act.

#### AUTHORITY FOR STOCKPILE OPERATIONS

SEC. 5. (a) (1) Except for acquisitions made under the authority of paragraph (3) or (4) of section 6(a), no funds may be obligated or appropriated for acquisition of any material under this Act unless funds for such acquisition have been authorized by law. Funds appropriated for such acquisition (and for transportation and other incidental expenses related to such acquisition) shall remain available until expended, unless otherwise provided in appropriation Acts.

(2) If for any fiscal year the President proposes certain stockpile transactions in the annual materials plan submitted to Congress for that year under section 11(b) and after that plan is submitted the President proposes (or Congress requires) a significant change in any such transaction, or a significant

transaction not included in such plan, no amount may be obligated or expended for such transaction during such year until the President has submitted a full statement of the proposed transaction to the appropriate committees of Congress and a period of 30 days has passed from the date of the receipt of such statement by such committees or until each such committee, before the expiration of such period, notifies the President that it has no objection to the proposed transaction. In computing any 30-day period for the purpose of the preceding sentence, there shall be excluded any day on which either House of Congress is not in session because of an adjournment of more than three days to a day certain.

(b) Except for disposals made under the authority of paragraph (4) or (5) of section 6(a) or under section 7(a), no disposal may be made from the stockpile (1) unless such disposal, including the quantity of the material to be disposed of, has been specifically authorized by law, or (2) if the disposal would result in there being a balance in the National Defense Stockpile Transaction Fund in excess of \$1,000,000,000 or, in the case of a disposal to be made after September 30, 1983, if the disposal would result in there being a balance in the fund in excess of \$500,000,000.

(c) There is authorized to be appropriated such sums as may be necessary to provide for the transportation, processing, refining, storage, security, maintenance, rotation, and disposal of materials contained in or acquired for the stockpile. Funds appropriated for such purposes shall remain available to carry out the purposes for which appropriated for a period of two fiscal years, if so provided in appropriation Acts.

#### STOCKPILE MANAGEMENT

SEC. 6. (a) The President shall—

- (1) acquire the materials determined under section 3(a) to be strategic and critical materials;
- (2) provide for the proper storage, security, and maintenance of materials in the stockpile;
- (3) provide for the refining or processing of any material in the stockpile when necessary to convert such material into the form most suitable for storage and subsequent disposition;

(4) provide for the rotation of any material in the stockpile when necessary to prevent deterioration of such material by replacement of such material with an equivalent quantity of substantially the same material;

(5) subject to the notification required by subsection (d)(2), provide for the timely disposal of materials in the stockpile that (A) are excess to stockpile requirements, and (B) may cause a loss to the Government if allowed to deteriorate; and

(6) subject to the provisions of section 5(b), dispose of materials in the stockpile the disposal of which is specifically authorized by law.

(b) Except as provided in subsections (c) and (d), acquisition of strategic and critical materials under this Act shall be made in accordance with established Federal procurement practices, and, except as provided in subsections (c) and (d) and in section 7(a), disposal of materials from the stockpile shall be made by formal advertising or competitive negotiation procedures. To the maximum extent feasible—

(1) competitive procedures shall be used in the acquisition and disposal of such materials;

(2) efforts shall be made in the acquisition and disposal of such materials to avoid undue disruption of the usual markets of producers, processors, and consumers of such materials and to protect the United States against avoidable loss; and

(3) disposal of such materials shall be made for domestic consumption.

(c)(1) The President shall encourage the use of barter in the acquisition of strategic and critical materials for, and the disposal of materials from, the stockpile when acquisition or disposal by barter is authorized by law and is practical and in the best interest of the United States.

(2) Materials in the stockpile, the disposition of which is authorized by law, shall be available for transfer at fair market value as payment for expenses (including transportation and other incidental expenses) of acquisition of materials, or of refining, processing, or rotating materials, under this Act.

(3) To the extent otherwise authorized by law, property owned by the United States may be bartered for materials needed for the stockpile.

(d)(1) The President may waive the applicability of any provision of the first sentence of subsection (b) to any acquisition of material for, or disposal of material from, the stockpile. Whenever the President waives any such provision with respect to any such acquisition or disposal, or whenever the President determines that the application of paragraph (1), (2), or (3) of such subsection to a particular acquisition or disposal is not feasible, the President shall notify the Committees on Armed Services of the Senate and House of Representatives in writing of the proposed acquisition or disposal at least thirty days before any obligation of the United States is incurred in connection with such acquisition or disposal and shall include in such notification the reasons for not complying with any provision of such subsection.

(2) Materials in the stockpile may be disposed of under subsection (a)(5) only if the Committees on Armed Services of the Senate and House of Representatives are notified in writing of the proposed disposal at least thirty days before any obligation of the United States is incurred in connection with such disposal.

(e) The President may acquire leasehold interests in property, for periods not in excess of twenty years, for storage, security, and maintenance of materials in the stockpile.

#### SPECIAL DISPOSAL AUTHORITY OF THE PRESIDENT

SEC. 7. (a) Materials in the stockpile may be released for use, sale, or other disposition—

(1) on the order of the President, at any time the President determines the release of such materials is required for purposes of the national defense; and

(2) in time of war declared by the Congress or during a national emergency, on the order of any officer or employee of the United States designated by the President to have authority to issue disposal orders under this subsection, if such officer or employee determines that the release of such materials is required for purposes of the national defense.

(b) Any order issued under subsection (a) shall be promptly reported by the President, or by the officer or employee issuing such order, in writing, to the

Committees on Armed Services of the Senate and House of Representatives.

### MATERIALS DEVELOPMENT AND RESEARCH

SEC. 8. (a)(1) The President shall make scientific, technologic, and economic investigations concerning the development, mining, preparation, treatment, and utilization of ores and other mineral substances that (A) are found in the United States, or in its territories or possessions, (B) are essential to the national defense, industrial, and essential civilian needs of the United States, and (C) are found in known domestic sources in inadequate quantities or grades.

(2) Such investigations shall be carried out in order to—

(A) determine and develop new domestic sources of supply of such ores and mineral substances;

(B) devise new methods for the treatment and utilization of lower grade reserves of such ores and mineral substances; and

(C) develop substitutes for such essential ores and mineral products.

(3) Investigations under paragraph (1) may be carried out on public lands and, with the consent of the owner, on privately owned lands for the purpose of exploring and determining the extent and quality of deposits of such minerals, the most suitable methods of mining and beneficiating such minerals, and the cost at which the minerals or metals may be produced.

(b) The President shall make scientific, technologic, and economic investigations of the feasibility of developing domestic sources of supplies of any agricultural material or for using agricultural commodities for the manufacture of any material determined pursuant to section 3(a) of this Act to be a strategic and critical material or substitutes therefor.

### NATIONAL DEFENSE STOCKPILE TRANSACTION FUND

SEC. 9. (a) There is established in the Treasury of the United States a separate fund to be known as

the National Defense Stockpile Transaction Fund (hereinafter in this section referred to as the 'fund').

(b)(1) All moneys received from the sale of materials in the stockpile under paragraphs (5) and (6) of section 6(a) shall be covered into the fund. Such moneys shall remain in the fund until appropriated.

(2) Moneys covered into the fund under paragraph (1) shall be available, when appropriated therefor, only for the acquisition of strategic and critical materials under section 6(a)(1) of this Act (and for transportation related to such acquisition).

(3) Moneys in the fund, when appropriated, shall remain available until expended, unless otherwise provided in appropriation Acts.

(c) All moneys received from the sale of materials being rotated under the provisions of section 6(a)(4) or disposed of under section 7(a) shall be covered into the fund and shall be available only for the acquisition of replacement materials.

### ADVISORY COMMITTEES

SEC. 10. (a) The President may appoint advisory committees composed of individuals with expertise relating to materials in the stockpile or with expertise in stockpile management to advise the President with respect to the acquisition, transportation, processing, refining, storage, security, maintenance, rotation, and disposal of such materials under this Act.

(b) Each member of an advisory committee established under subsection (a) while serving on the business of the advisory committee away from such member's home or regular place of business shall be allowed travel expenses, including per diem in lieu of substance, as authorized by section 5703 of title 5, United States Code, for persons intermittently employed in the Government service.

### REPORTS TO CONGRESS

SEC. 11 (a) The President shall submit to the Congress every six months a written report detailing operations under this Act. Each such report shall include—

(1) information with respect to foreign and domestic purchases of materials during the preceding 6-month period;

(2) information with respect to the acquisition and disposal of materials under this Act by barter, as provided for in section 6(c) of this Act, during such period;

(3) a statement and explanation of the financial status of the National Defense Stockpile Transaction Fund and the anticipated appropriations to be made from the fund during the next fiscal year; and

(4) such other pertinent information on the administration of this Act as will enable the Congress to evaluate the effectiveness of the program provided for under this Act and to determine the need for additional legislation.

(b) The President shall submit to the appropriate committees of the Congress each year with the Budget submitted to Congress pursuant to Section 201(a) of the Budget and Accounting Act, 1921 (31 U.S.C. 11(a)), for the next fiscal year a report containing an annual materials plan for the operation of the stockpile during such fiscal year and the succeeding four fiscal years. Each such report shall include details of planned expenditures for acquisition of strategic and critical materials during such period (including expenditures to be made from appropriations from the general fund of the Treasury) and of anticipated receipts from proposed disposals of stockpile materials during such period.

## DEFINITIONS

SEC. 12. For the purposes of this Act:

(1) The term 'strategic and critical materials' means materials that (A) would be needed to supply the military, industrial, and essential civilian needs of the United States during a national emergency, and (B) are not found or produced in the United States in sufficient quantities to meet such need.

(2) The term 'national emergency' means a general declaration of emergency with respect to the national defense made by the President or by the Congress.

## IMPORTS

SEC. 13. Notwithstanding any other provision of law, on and after January 1, 1972, the President may not prohibit or regulate the importation into the United States of any material determined to be strategic and critical pursuant to the provisions of this Act, if such material is the product of any foreign country or area not listed as a Communist-dominated country or area in general headnote 3(d) of the Tariff Schedules of the United States (19 U.S.C. 1202), for so long as the importation into the United States of material of that kind which is the product of such Communist-dominated countries or areas is not prohibited by any provision of law.

## APPENDIX 2

### CALCULATION PROCEDURE FOR FAMILY GROUPINGS OF MATERIALS

The following example is designed to help the reader perform and understand the conversions and calculations used in preparing summary lines for basic family groupings. The purpose in using basic units for each of the families or groups of materials is to place the content of the primary material into a common denominator for easier comparison.

In time of emergency, there would be a need for a mix of various forms of each metal element. The stockpile goal for a metal is a mix of products at various stages of upgrading. The goal is calculated by examining expected wartime requirements, availability, and domestic capacity to produce each of the upgraded forms.

There is a different factor for converting each of the forms into a common denominator, usually the basic metal equivalent. The conversion factors are different because process conversion losses vary. The calculations and conversions used for the aluminum oxide abrasive grain group are shown as an example.

The aluminum oxide abrasive grain group has a surplus of aluminum oxide abrasive grain and of aluminum oxide fused crude but has a deficit of bauxite abrasive grade. Both aluminum oxide abrasive grain and fused crude are used to offset the shortfall in the abrasive grade bauxite but in different proportions for each because of upgrading processing losses.

### PROCEDURE

1. Both aluminum oxide abrasive grain and aluminum oxide fused crude are upgraded products of abrasive grain bauxite. In converting each of these materials from bauxite a process loss was incurred. Therefore, to use them as offsets against the deficit in abrasive grade bauxite, conversion factors greater than 1.0 are used to convert them back to equivalent amounts of bauxite.

2. The available surplus of aluminum oxide abrasive grain is 50,904 ST. To calculate the abrasive grade bauxite equivalent in LCT, multiply by the conversion factor: 1.55999 times 50,904 equals 79,410 LCT of bauxite equivalent.

3. The available surplus aluminum oxide fused crude is 249,867 ST. To convert this into bauxite equivalent in LCT, multiply by the conversion factor: 1.200 times 249,867 equals 299,840 LCT bauxite equivalent.

4. Add the two bauxite equivalents to find the total offset: 79,410 plus 299,840 equals 379,250 LCT.

5. The bauxite abrasive grade goal is 1,000,000 LCT; therefore subtract the offset of 379,250 LCT leaving a deficit of 620,750 LCT.

## Factors Used for Converting Materials Into Family Groups

Materials	Unit	Multiple Factor	Basic Family Unit
Alumina .....	ST	0.518	Metal Equivalent, Aluminum
Aluminum Oxide, Fused, Crude .....	ST	0.833	Aluminum Oxide, Abrasive Grain
Bauxite, Abrasive Grade .....	LCT	0.641	Aluminum Oxide, Abrasive Grain S.T.
Bauxite, Metal Grade, Jamaica Type ...	ST	0.231	Metal Equivalent, Aluminum
Bauxite, Metal Grade, Surinam Type ...	ST	0.264	Metal Equivalent, Aluminum
Beryl Ore (11% BeO) .....	ST	0.028	Metal Equivalent, Beryllium
Beryllium Copper Master Alloy (4% Be)	ST	0.04	Metal Equivalent, Beryllium
Chromite, Chemical Grade Ore .....	ST	0.286	Metal Equivalent, Chromium
Chromite, Metallurgical Grade Ore ....	ST	0.286	Metal Equivalent, Chromium
Chromium, Ferro, High Carbon .....	ST	0.714	Metal Equivalent, Chromium
Chromium, Ferro, Low Carbon .....	ST	0.714	Metal Equivalent, Chromium
Chromium, Ferro, Silicon .....	ST	0.429	Metal Equivalent, Chromium
Columbium, Concentrates .....	LB	0.850	Metal Equivalent, Columbium
Diamond Dies, Small .....	PC	0.50	Carat
Manganese, Dioxide, Battery Grade ..	SDT	1.000	Manganese, Dioxide, Battery Grade, Synthetic
Manganese, Chemical Grade .....	ST	0.400	Metal Equivalent, Manganese
Manganese, Metallurgical Grade .....	ST	0.400	Metal Equivalent, Manganese
Manganese, Ferro, High Carbon .....	ST	0.800	Metal Equivalent, Manganese
Manganese, Ferro, Medium Carbon ...	ST	0.800	Metal Equivalent, Manganese
Manganese, Ferro, Silicon .....	ST	0.720	Metal Equivalent, Manganese
Opium Gum .....	AMA LB	1.000	Opium Salts
Tantalum Minerals .....	LB	0.85	Metal Equivalent, Tantalum
Tungsten Ores and Concentrates .....	LB	0.851	Metal Equivalent, Tungsten