Program Research Project

THE ROLE OF THE NATIONAL DEFENSE STOCKPILE IN THE SUPPLY OF STRATEGIC AND CRITICAL MATERIALS

BY

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Topic Approved By
Colonel Allen D. Raymond

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The United States has maintained a stockpile of strategic and critical materials, primarily ores and minerals, since 1939. Since the end of the Cold War, the United States government has determined that most of the materials in the National Defense Stockpile (NDS) were excess to defense, industrial, and essential civilian needs, and has begun selling and otherwise disposing of most of the stockpiled materials. Recent concerns regarding the global availability of materials have caused a re-examination of the need for a stockpile and how the NDS might operate in order to serve the defense, industrial and essential civilian needs for materials. This paper reviews the history and current method of operation of the NDS, and discusses two areas where changes to current methods may be appropriate: (1) the process to determine what materials that should be included in the stockpile, (i.e., how to define strategic and critical materials), and (2) the manner and conditions upon which material may be released from the NDS for its intended use.

THE ROLE OF THE NATIONAL DEFENSE STOCKPILE IN THE SUPPLY OF STRATEGIC AND CRITICAL MATERIALS

In 1939, the United States government established a stockpile of strategic and critical materials. The purpose of this stockpile, which eventually came to be known as the National Defense Stockpile (NDS), was to provide a supply of strategic and critical materials in order to reduce the possibility of "a dangerous and costly dependence by the United States upon foreign sources for supplies of such materials in times of national emergency."[1] The law that established the National Defense Stockpile defined strategic and critical materials as those 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] Since its inception, the stockpile has included a wide variety of basic materials, including metals such as zinc and lead, ores such as manganese and chrome, and a wide variety of other materials, including whale oil, hemp, and morphine.[3] The current inventory of the NDS includes 17 basic groups of commodities valued at approximately $1.3 billion.[4]

In the years since it was established, the stockpile has undergone substantial changes, including changes in the federal agencies responsible for its operation, changes in the materials that constitute the stockpile, and changes in the policies regarding acquisition and release of materials from the stockpile. Since 1988 the National Defense Stockpile has been part of the Department of Defense, with day to day operations being conducted by the Defense National Stockpile Center, a field activity of the Defense Logistics Agency.

In 1993, with the end of the Cold War, the direction of stockpile policy changed dramatically. The Department of Defense determined the majority of the stockpiled materials in the NDS to be excess to the needs of the government, and directed the sale of much of the NDS inventory. Since then, the Defense National Stockpile Center has been selling these stockpiled materials, generating substantial revenue for the government. While the proceeds from these sales go into a fund managed by the Department of Defense to pay the operating expenses of DNSC, in the recent past Congress has directed the transfer of money from this account to fund other programs unrelated to the activities of the National Defense Stockpile.[5]

This robust sales program has continued to the present time. Now, however, recent concerns regarding domestic sources and production capabilities, as well as the future availability of materials in the global marketplace, have caused Congress to direct the Department of Defense to re-examine the need for a stockpile of strategic and critical materials and how the NDS might operate in order to meet defense, industrial, and essential civilian needs for these materials.[6] In light of the current state of global markets, dwindling inventory of NDS materials, and the possibility that Congress may continue to direct revenue from stockpile sales to purposes unrelated to stockpiling activity, this review is extremely timely. Now is the time to give serious consideration to NDS operations. If configured properly and based upon a realistic assessment of requirements for materials, the National Defense Stockpile can be a valuable asset to manage the supply of strategic and critical materials required for defense, industrial, and essential civilian needs.

History of the National Defense Stockpile

The National Defense Stockpile has its origins in the Strategic Materials Act of 1939. That statute created the first stockpile of raw materials by directing the Treasury Department to stockpile chromite, quartz, tin, crystals, and rubber, and directed the Army and Navy Munitions Boards to set policy for the use of these materials.[7] The Munitions Boards in turn developed a list of 42 strategic and critical materials required for war time production, based upon the threat of loss of imports resulting from Japanese conquests in Asia and the threat of war in Europe.[8] The stockpiling goals established in the 1939 Act were not met before the beginning of World War II, since Congress did not appropriate all of the money authorized for the program, and the materials stockpiled under the Act were used soon after the war began.[9] During the war the Reconstruction Finance Corporation and other federal agencies began importing and stockpiling many of the materials identified.[10]

After World War II Congress amended the Strategic Materials Act, creating the Strategic and Critical Materials Stock Piling Act of 1946.[11] This new law authorized the Army and Navy Munitions Board to determine which materials were strategic and critical, and the quantity and form of the materials to be part of the stockpile. The statute also called for refining or processing of materials, rotation of obsolete materials, and the creation of industry advisory committees. Disposal of excess or obsolete stockpile materials could occur six months after notice in the Federal Register and notice to Congress. Under the law no materials were to be disposed of without notice to Congress unless the disposal was due to the obsolescence of the material, and no materials could be released from the stockpile for use without Presidential approval.[12]

The law gave responsibility for purchasing materials for the stockpile to the Treasury Department's Bureau of Federal Supply.[13] By 1950 the bureau had acquired materials valued at $1.6 billion for the stockpile.[14]

When the Korean War began, Congress appropriated substantial funds for the purchase of additional commodities for the stockpile, and requirement objectives increased from $4 billion to $8.9 billion. During the war the President authorized release of materials, primarily aluminum and copper.[15] Also during this time management of the stockpile function transferred from the Treasury Department to the General Services Administration.[16]

During the mid 1950s, stockpile requirements were based on quantities of materials needed for one year of normal use of the material, with the assumption that no imports would be available except from Canada and Mexico. This change in assumptions resulted in stockpile requirements increasing to close to $11 billion. With the advent of the Cold War in the late 1950's, however, planning assumptions changed again to consider a nuclear conflict of shorter duration, from five years to three years, which reduced significantly the requirements for stockpiled materials. These new planning assumptions reduced the number of materials required to be in the stockpile from 75 to 12. Disposal of the now excess commodities from the stockpile was slow and time-consuming due to burdensome administrative requirements, legal restrictions, and resistance from domestic and foreign interests affected by these disposals.[17]

During the Vietnam era, the government released cadmium and copper from the stockpile, as well as zinc, antimony, and lead, due to world-wide shortages of these materials. In addition, the President authorized the release of quinine sulfate from the

stockpile to help combat a strain of malaria that could not be treated with the synthetic quinine that had worked successfully in the past.[18]

The next major revision to the stockpile program occurred with the passage of the Strategic and Critical Materials Stock Piling Act of 1979. This law established what is now known as the National Defense Stockpile, and required the transfer of stockpile administration and policy functions to the Federal Emergency Management Agency.[19] The management for storage, upgrades, acquisitions and sales remained with the General Services Administration. In addition, the statute created the National Defense Stockpile Transaction Fund (the Transaction Fund), established at the Department of the Treasury. Funds generated by the sale of materials from the National Defense Stockpile (NDS) went into the Transaction Fund. The 1979 law established a requirement for a supply of strategic and critical materials sufficient to supply military, industrial, and essential civilian needs during a conflict or national emergency lasting three years.[20]

In the 1980's, the only significant activity related to the NDS was the upgrade of chromite and manganese ore to ferrochrome and ferromanganese. While the upgraded ore was not a stockpile requirement, the mining and processing companies in the United States were in economic decline, and the upgrade program was thought to be necessary to maintain a ferroalloy furnace and processing capability for the national defense industry.[21]

In 1988 the President, by Executive Order, transferred management responsibilities for the National Defense Stockpile to the Department of Defense.[22] The Secretary of Defense delegated the management responsibilities for the NDS to the

Under Secretary of Acquisition, Technology, and Logistics (then the Under Secretary of Defense for Acquisition). Management functions were further delegated to the Assistant Secretary of Defense for Logistics and Material Readiness (then the Assistant Secretary of Defense for Production and Logistics). Operation of the NDS was delegated to the Defense Logistics Agency, which established a field activity, the Defense National Stockpile Center (DNSC), to conduct the day to day management of stockpile operations.[23]

Soon after this significant change in management and policy responsibilities, the NDS went through a significant adjustment in NDS requirements. In the early 1990s, the end of the Cold War caused the predicted reliability of foreign sources of supply to increase. This assumed increase in the availability of materials from overseas resulted in a much lower demand forecast for NDS materials. As a result of this new assessment, requirements for strategic and critical materials were reduced from $7.1 billion to $3.8 billion. Based on this new forecast for NDS requirements, the Defense Authorization Act for Fiscal Year 1993 authorized the sale of the majority of the materials then part of the NDS inventory.

The sale and other disposition of materials from the National Defense Stockpile have continued from that time to the present. More than 99 percent of the materials in the NDS have been determined to be excess to defense needs and have been authorized for disposition via sale or other means.[24] As the sale of commodities from the National Defense Stockpile has continued, Congress has noted occasional shortages of certain materials required for defense purposes and has also noted the increasing reliance on the global marketplace to meet requirements.[25] This global reliance is of

concern, since the political instability of some foreign governments coupled with increased demand for these materials by large developing economies around the world, such as China and India, call into question the assumption that these materials would be available to the United States when it needs them.[26]

Concerns about the availability of strategic and critical materials caused the House of Representatives, in Fiscal Year 2006, to mandate that the Department of Defense "review [its] policy to dispose of material and determine whether the NDS should be re-configured to adapt to current world market conditions to ensure future availability of materials required for defense needs."[27] Likewise, the Senate has also expressed similar concerns. In Senate Report 110-155, accompanying the Defense Appropriations Act for Fiscal Year 2007, the Senate Armed Services Committee directed the Secretary of Defense to submit a report "which describes the materials critical to the strategic defense interests of the United States, domestic suppliers of those materials and their reliance on foreign sources of production, efforts by foreign countries to stockpile critical materials, and the steps that are being taken to ensure that strategic and critical materials not produced domestically will be available to support the defense needs of the United States during a period of protracted conflict."[28]

Current Operations of the National Defense Stockpile

Operations of the National Defense Stockpile are governed by the Strategic and Critical Materials Stockpiling Act.[29] At the outset, the key factor in operation of the stockpile is a determination of the materials that are required to be part of the National Defense Stockpile. The process to determine stockpile requirements is established in Section 14 of the Act. Under this section, every other year the Secretary of Defense is

required to report to Congress the Department's recommendations with respect to stockpile requirements. These recommendations are based upon emergency planning assumptions that are in turn based upon the military conflict scenario used by DOD for budgeting and planning purposes.[30]

The assumptions utilized for the requirements process include the length and intensity of the conflict, the force structure to be mobilized, losses from enemy action, military, industrial, and essential civilian requirements to support the national emergency, available supplies of strategic and critical materials from foreign sources during the mobilization, conflict, and subsequent "period of replenishment," domestic availability of strategic and critical materials during those same time periods, and civilian austerity measures during mobilization and military conflict. The Secretary also is to consider alternate mobilization periods and alternate conflict scenarios addressing more serious threats to national security. [31] The conflict scenarios utilized in this process are based upon the National Defense Strategy. The most recent requirements report, from 2005,[32] was consistent with the capabilities-based planning framework stated in the National Defense Strategy of that year, and included consideration of defense of the homeland.[33] While many of the details associated with the scenario are classified, the basic scenario utilized in the report included an almost simultaneous occurrence of a catastrophic attack on a city of the United States by a foreign terrorist organization or rogue state, two nearly concurrent major combat operations and one small scale contingency.[34]

Based on the military conflict scenario and the alternate scenarios, the Secretary is to develop a list of stockpile requirements sufficient to replenish or replace munitions,

combat support items, and weapons systems required for the conflict. The assumptions, the scenario, and the resulting quantities of strategic and critical materials required to meet the defense and essential civilian needs of the United States are assembled into a report to Congress.

This requirements report to Congress is crucial to the management of the stockpile because of the central role the legislative branch plays currently in the management of the NDS. While the Act provides that the stockpile manager determines that materials should be included in the NDS, and in what quantities and in what form, Congressional authorization via specific legislation is required before any materials can be acquired for the NDS.[35] Such legislation is usually included in the annual Defense Authorization Act.

Even after specific legislation to acquire materials is enacted, there is another step required by the Stock Piling Act before the stockpile manager may acquire the materials, including additional quantities of materials that are already part of the stockpile. Each planned acquisition of materials must be included in the Annual Materials Plan (AMP). The stockpile manager includes in the AMP the proposed acquisitions for the stockpile for the upcoming fiscal year and the following four years.[36] This plan is to be submitted to Congress by February 15 of each year.[37] Any additional quantities of materials cannot be purchased until 45 days after the AMP is submitted to Congress.[38] The last time material was acquired for the stockpile was in fiscal year 1992, when the Defense National Stockpile Center purchased natural rubber, tantalum minerals and tantalum oxide for the NDS.[39]

Once materials become part of the National Defense Stockpile, release of those materials is fairly limited.[40] The President can order the release of material from the NDS at any time under any circumstances.[41] This authority is nondelegable, which means that the stockpile manager, the Undersecretary of Defense for AT&L, cannot on his or her own authority release material from the stockpile.[42] In addition, the President can designate a federal official to have the authority to release materials from the stockpile in times of declared war or national emergency.[43]

In addition to the President's authority, Congress, via duly passed legislation, can direct the release of stockpile material for a specific use. For example, in the National Defense Authorization Act for 1997, Congress directed the release of 250 short tons of titanium per year for six years directly to the Army for use in the main battle tank upgrade program.[44] In addition, materials in the stockpile that have been determined to be excess to defense, industrial, or essential civilian needs (i.e., not a requirement per the requirements report process) can be disposed of via sale or other means, but only after specific legislation has been passed, usually included as part of the annual National Defense Authorization Act.[45] Once material has been authorized for disposal via such legislation, disposal of the material is subject to the requirement previously discussed above regarding the Annual Materials Plan: proposed disposals of materials are included in the AMP and submitted to Congress, and no disposals can take place until 45 days after this submission.[46]

Disposal of material from the NDS can occur by a variety of methods. Materials that have value in the market place can be sold. The Stock Piling Act requires these sales to be conducted using competitive procedures to the maximum extent possible. In

addition, the sale of commodities from the NDS must be done in such a manner as to reduce avoidable loss to the government and to avoid undue disruption of the commodities markets.[47] Transfer of excess materials from the NDS is also authorized. Part 8 of the Federal Acquisition Regulation (FAR) mandates the NDS as the source of strategic and critical materials for government agencies.[48] Under Part 8, DNSC transfers material to federal agencies, which in turn provide it to their contractors as government furnished material. Materials that have no economic value are disposed of.

Revenue generated from commodities sales is transferred into the Transaction Fund.[49] Expenses associated with stockpile operations, including personnel costs, environmental remediation, and commodity management are paid from the Transaction Fund. In addition, funds to acquire additional materials for the NDS come from the Transaction Fund.[50]

Since Congress has not authorized the acquisition of materials for quite some time, the selling of large quantities of NDS materials has resulted in a drawdown of depots and employees associated with depot operations. This draw down translates into reduced operating expenses and a substantial surplus of cash in the Transaction Fund.[51] Congress has, by provisions set forth in previous Defense Authorization Acts, directed that surplus revenue generated from commodities sales be directed to fund specific legislative programs.[52] For example, proceeds from the sales of tungsten, tantalum columbium minerals, industrial diamonds and other commodities have been directed to the Department of Health and Human Services to fund the Federal Hospital Insurance Trust Fund and the Federal Supplementary Medical Trust Fund.[53]

Analysis of NDS Operations and Alternatives

The current method of determining materials requirements, acquiring materials from the stockpile, and releasing of materials from the National Defense Stockpile was designed to address the prospect of a major global conflict requiring a general mobilization of the American economy with substantial notice and time to prepare prior the conflict. With the end of the Cold War and resulting new conflict scenarios, and the growing economic influence of some regions of the world, it is clear that the current method of stockpile operations is outdated and in need of change. The two primary areas where change should be considered are the manner in which NDS requirements are determined, and the manner in which materials may be released from the NDS.

As stated above, stockpile requirements are based upon analysis of military, industrial, and essential civilian materials needs in light of conflict scenarios found in the National Defense Strategy. The bulk of this analysis is done utilizing computer modeling. First, the model projects the needs for finished products and services related to military, industrial, and essential civilian sectors of the economy. Then, the quantities of strategic and critical materials required to produce these goods and services are estimated using materials consumptions ratios (MCR). The MCR for a particular material is an estimate of the quantity of that material required to produce a dollar's worth industrial output in a particular industrial sector. The MCRs are developed using information provided by the Department of Commerce, the Census Bureau, and the United States Geological Survey.[54]

After the need for materials is determined, the next step of the process is to analyze domestic and foreign supplies of these materials. In analyzing foreign availability of materials, the analysis considers the willingness of foreign governments to

supply materials to the United States, as well as the ability of foreign governments to produce and deliver these materials to the U.S. in light of potential political unrest or breakdown in infrastructure brought about by the conflict. In addition, the analysis includes consideration of the potential demands of third countries (including allies) on the foreign source of the materials.[55] In addressing the issue of the willingness and ability of foreign governments to provide materials to the US, the analysis assumes that the US would be able to obtain materials from the hostile country through third-parties on the global market (i.e., the foreign government cannot sustain an embargo), and that the US would obtain a preferential share of available material from a friendly foreign government over any share transferred to other third countries in need of these materials.[56]

In the final step of the modeling process, the need for certain materials is compared to projected domestic and foreign available supply of these materials. Any material that contains a significant gap between projected need vs. projected supply becomes a candidate for stockpiling.[57] As stated above, the majority of materials considered as part of the requirements determination process are analyzed using this modeling process. In addition, other materials are analyzed outside this modeling process.[58] This analysis is performed utilizing a list of 55 materials developed by DOD. The materials on this list are those that are currently in the National Defense Stockpile, or had been part of the NDS before being disposed of as excess to defense and essential civilian needs.[59] While the origins of this list are unclear, this list with very few variations has been used in this analysis for the past 20 years.[60] Based on this process, the most recent requirements report available, from the year 2005, recommended three

materials to remain in the stockpile: beryllium metal, quartz, and mica. Of these three materials, two of them, quartz and mica, were analyzed outside the modeling process.[61] These recommendations are identical to those found in the requirements reports since 1999, except that the report from 2001 also included antimony.[62]

The modeling process that determined these three requirements utilize “most likely” assumptions for the variables that affect supply and demand for strategic and critical materials, and is referred to in the requirements report as the “base case.”[63] In addition to the base case, the requirements process also analyzes requirements for materials under more stressful and less stressful variations from the base case. This analysis is conducted by changing the assumptions from the base case to alternate plausible assumptions and then determining materials requirements. For example, in the 2005 Requirements Report the base case analysis assumes that the US will have a preference to obtain 50 percent of the excess capacity of third country supplies of materials. The more stressful case assumes that the US will receive no preference in this excess capacity.[64] This more stressful case analysis yields requirements for the following sixteen materials: antimony, bauxite, beryllium, bismuth, boron nitride, cobalt, fluorspar, mica, palladium, quartz crystal, natural rubber, tin, titanium sponge, tungsten, and yttrium.[65] However, the 2005 Requirements Report findings did not change Congressional direction to sell the remaining inventories of these materials in the NDS, or acquire any additional quantities of these additional materials that are no longer part of the NDS.

Considering the changes that have occurred in the planning scenarios over the years, as well as the trend towards globalization and concerns over global availability of

materials given the emerging demand from large developing economies, the fact that the requirements for stockpiled materials have stayed constant over this same time period indicates that the process by which stockpile requirements are determined may not accurately reflect current needs. One problematic aspect of the current requirements process is its exclusive reliance upon economic models. While the modeling process is sound,[66] some of the assumptions that go into the base case may need to be re-examined. The assumption that no foreign government could sustain an embargo, or that the United States would obtain a 50 percent share of excess capacity may not be realistic. The effect on requirements when these assumptions are not included – an increase from 3 materials to 16 that should be considered for stockpiling – is dramatic.

The current process does not consider input from the military services or other defense agencies regarding their needs for strategic and critical materials. Without this input, it is unclear whether the 55 materials currently included in the analysis address all of the materials needed by the services and defense agencies for their current and future requirements. In addition, for the 55 materials that are currently included in the analysis, no mechanism currently exists for the military services and defense agencies to provide an estimation of the quantities of these materials they require to support current and future needs.[67] One reason this input may not be included is because it may not be readily available. There does not appear to be a systemic process within the Department of Defense for acquiring and reporting information related to needs for strategic and critical materials.[68] Part of this analysis should include input from research and development institutions within the Department of Defense to ascertain the future

materials needs based upon current research.[69] For the process of determining materials requirements to be effective, it should include the opportunity for the military services and defense agencies to collect and report data on current and projected types and quantities of materials, and then for that information to be used in the analysis of requirements.

For input from the military services and defense agencies to be effective, a common definition of "strategic and critical materials" should be considered. As stated above, the Strategic and Critical Materials Stock Piling Act defines that term to mean those 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."[70] Aside from being somewhat circular ("a material is strategic and critical if it's strategic and critical"), it only applies to materials required during a national emergency. For the National Defense Stockpile to provide an adequate supply of necessary materials, the definition of "strategic and critical" would need to be expanded to include materials that are important to the success of defense and essential civilian programs in peacetime so that certain capabilities can be maintained.

One approach to defining strategic and critical materials utilizes a matrix measuring two important aspects of criticality: importance in use and availability.[71] In the matrix, the importance of use aspect is reflected in the vertical axis of the matrix, and is highly dependent on the ease of substitution for the material.[72] The higher the importance (i.e., the more difficult it is to find an adequate substitute), the higher on the vertical axis the material is scored.[73] The availability of the material is reflected on the

horizontal axis of the matrix. Availability translates to risk of supply disruption. The greater the possibility of supply disruption, the further to the right on the axis the material appears.[74] The higher and further to the right of the matrix a material is, the more critical it is. For this criticality matrix to be effective, metrics would need to be developed to assist in the evaluation. If not, criticality determinations might be considered to be subjective and therefore unreliable. The advantage of this criticality matrix is that it considers more than what is needed in times of national emergency, and more accurately reflects ongoing materials needs. Application of a matrix of this type could be utilized to determine strategic and critical materials to be included in the requirements determination process.

Identifying the full range of strategic and critical materials is important to the proper use of the National Defense Stockpile as a tool for supply chain management. Equally as important is the ability to manage the material in the NDS so that it can be used for its designated purpose. The current authorities to release material from the NDS are overly-restrictive, allowing only the President, his designee (in times of national emergency or declared war) or Congress to release material from the stockpile for its intended use. Acquiring material for the stockpile, even if only to add to the quantity of material that already is part of the NDS, requires specific statutory authorization followed by the AMP "report and wait process," as does the disposal of obsolete or excess material from the stockpile.[75]

These restrictive requirements are problematic for a variety of reasons. Obtaining the requisite authorizations takes time and reduces the ability of the government to take advantage of favorable market conditions in the purchase or sale of materials.

Furthermore, for planned purchases of materials, the AMP – a public document -- requires a statement of the quantity of material and expected total expenditure. In this manner, all potential sellers of the material in question will be aware of the price the government is willing to pay for that material, seriously hampering the government's negotiating ability and making it more likely the government will pay a higher price for the material.

For the NDS to become an effective part of the supply chain, the stockpile manager must have the flexibility to acquire and dispose of materials in response to market needs, and to provide those materials to federal agencies or their contractors when doing so makes economic sense. In some circumstances, the stockpile manager should be able to leverage its market power by purchasing quantities of materials to meet the combined requirements of the military services and defense agencies. In other circumstances, the stockpile manager might acquire a certain quantity of a material and stockpile it in response to concerns regarding global availability of the material, and then release the material as needed to government agencies if it becomes unavailable on the global market. These government agencies could in turn provide the material to their contractors as government-furnished material In other circumstances, stockpiled material could be provided to the a government agency or its contractor when global shortages drive the price to an unacceptably high level.

Recommendations and Conclusion

The Congressional requirement to review the need for the NDS and its operation provides an excellent opportunity to conduct in depth consideration of whether a stockpile is needed, and how it can best provide strategic and critical materials for

defense and essential civilian needs. The current method of operation does not provide an effective mechanism for determining requirements, nor does it provide sufficient flexibility in allowing the best use of stockpiled material. In order to be an effective tool in the supply chain of strategic and critical materials, consideration should be made of the following recommendations:

- Define “strategic and critical materials” with sufficient breadth to address all materials potentially required for defense and essential civilian needs.
- Develop a system for determining requirements that includes input from the military services and defense agencies regarding the types and quantities of materials viewed to be essential.
- In the system described above, formalize a process for determining from defense research organizations the types and quantities of materials that may be needed in the future.
- Modify the Strategic and Critical Materials Stock Piling Act to allow increased flexibility in acquiring and releasing materials from the stockpile. These flexibilities include the ability to acquire and dispose of materials in response to market conditions without first receiving Congressional approval, and the ability to release materials from the NDS for use by federal agencies or their contractors in response to unanticipated shortages (and resulting high prices) of these materials in the global market, or in response to the absolute unavailability of the material from any source.

The National Defense Stockpile is currently scheduled for almost complete depletion, and Congress has already demonstrated the willingness to use revenue from sales from the NDS for uses unrelated to the country’s needs for strategic and critical materials. To ensure a reliable supply of strategic and critical materials for the nation’s military, industrial, and essential civilian needs, now is the time to consider these changes.

Endnotes

[1] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98a(b).

[2] Ibid., 98h-3(1).

[3] Review of agency contracts and other documents conducted at the Federal Records Center.

[4] Department of Defense, Strategic and Critical Materials Operations Report to Congress for Fiscal Year 2006, May 25, 2007, Appendix E, Table 5, page 53, available at https://www.dnsc.dla.mil/Uploads/Materials/esolomon_6-22-2007_8-54-14_StrategicMaterialsRep2006.pdf. The Operations Report from Fiscal Year 2006 is the most recent published report on NDS activities. Since that report was published, some of the materials listed in Table 5 have been disposed of. The following groups of commodities are still in the inventory: beryllium, chromium, cobalt, columbium, diamond industrial stones, germanium metal, lead, manganese, mercury, platinum group metals, quartz crystals, talc, tantalum, tin, tungsten, vegetable tannin extract, zinc. In person interview with Cheryl Deister, Director of Stockpile Contracts and Marketing, May 6, 2008, Fort Belvoir, Virginia.

[5] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98g. Strategic and Critical Materials Operations Report to Congress for Fiscal Year 2006, Table 3, 9-12.

[6] House Report 109-89, May 20, 2005, 476; Senate Report 110-155, September 14, 2007, 189.

[7] Robert A. Batchelor and James F. Kirby, The National Defense Stockpile: An Organizational Perspective, Thesis (Wright-Patterson Air Force Base: Air Force Institute of Technology, March 1985), 10-11.

[8] National Research Council, Managing Materials for a Twenty-First Century Military (Washington,D.C.: The National Academies Press, 2008), 134.

[9] Ibid.,134. Batchelor, 11.

[10] National Research Council, Managing Materials for a Twenty-First Century Military, 134.

[11] Ibid., 135.

[12] Ibid.

[13] Ibid.

[14] Batchelor, 11.

[15] National Research Council, Managing Materials for a Twenty-First Century Military, 136-37.

[16] Ibid.

[17] Ibid., 138.

[18] Ibid., 139.

[19] Alfred E. Greenwood, The Pros and Cons of the Transfer of the National Defense Stockpile to the Department of Defense, Study Project (Carlisle Barracks: U.S. Army War College, 20 December 1984), 3-4.

[20] National Research Council, Managing Materials for a Twenty-First Century Military, 140.

[21] Ibid. General Accounting Office, National Defense Stockpile: Views on DOD's 1992 Report to the Congress and Proposed Legislation (Washington, DC: United States General Accounting Office, March 1993), 28-30.

[22] Executive Order 12626, February 25, 1988.

[23] National Research Council, Managing Materials for a Twenty-First Century Military, 140-41.

[24] Strategic and Critical Materials Stockpile Report to Congress for Fiscal Year 2006, page 1. For materials with no value on the commodities market, DNSC disposes of them in a manner consistent with environmental laws, using money from the transaction fund. Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98h(b)(1)(I) and (J).

[25] House Report 109-89, May 20, 2005, 476. This report specifically mentions titanium as a strategic material in short supply in the global marketplace.

[26] National Research Council, Managing Materials for a Twenty-First Century Military, 16-18. In person interview with Cheryl Deister, Director, Stockpile Contracts and Marketing, DNSC, May 7, 2008 at Fort Belvoir, Virginia. According to Ms. Deister, countries with developing economies are importing increasing quantities of materials, and using more of the materials produced domestically. In addition, some of these countries are adopting the environmental regulations and policies established in more developed countries, resulting in restricted production and limited supply of some materials.

[27] House Report 109-89, May 20, 2005, 476.

[28] Senate Report 110-155,September 14, 2007, 189.

[29] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, secs. 98 et seq.

[30] Ibid., 98h-5(b).

[31] Ibid.

[32] The 2007 Requirements Report was put on hold given the need to first respond to the Congressional Reporting mandates in House Report 109-89 and Senate Report 110-155.

[33] 2005 Report to the Congress on National Defense Stockpile Requirements, Department of Defense, March 31, 2006, S-1, 1.

[34] Ibid.

[35] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, secs. 98b(a) and (c)(2), 98d(a) and (b).

[36] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98h-2(b).

[37] Ibid.

[38] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98b(c).

[39] Department of Defense, Strategic and Critical Materials Operations Report to Congress for Fiscal Year 1992, March 22, 1993, 5.

[40] In this paper, "release" is defined as the transfer (whether or not for value) of NDS material for a defense or essential civilian need. "Disposal" is defined as the sale or discard of material that is excess to defense or essential civilian needs.

[41] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98f(a).

[42] Ibid., 98h-7(c).

[43] Ibid , 98f(a)(2). Section 98h-3(2) defines "National Emergency" as "a general declaration of emergency with respect to the national defense made by the President or by Congress."

[44] The Defense Authorization Act for Fiscal Year 1996, Public Law 104-106, section 3305.

[45] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98d(b). See, for example, the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, Public Law 105-261, Section 3303.

[46] Ibid., secs. 98h-2(b)(2), and 98e(d)(2). The statutory authorization to dispose of a certain commodity usually includes a substantial quantity of material, usually more that the market for the commodity can absorb in a single year. The AMP process informs Congress of the proposed quantities of the total amount to be released each year.

[47] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98e(d).

[48] Federal Acquisition Regulation, Part 8.003(d), available at http://farsite.hill.af.mil/.

[49] Strategic and Critical Materials Stock Piling Act, U.S. Code, vol. 50, sec. 98h-1.

[50] Ibid.

[51] Strategic and Critical Materials Operations Report to Congress for Fiscal Year 2006,13. This is the latest published annual report on stockpile operations, and reports a cash balance in the Transaction Fund of approximately $1.4 billion.

[52] Ibid., Table 3, page 12 provides a summary of these programs.

[53] Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, Section 3303. Strategic and Critical Materials Stockpile Report to Congress for Fiscal Year 2006, Table 3, 12. Authorizations for these programs limit sales via revenue to be generated, quantity of materials

to be sold, or an end date. As sales approach these limits, the basic law is amended to increase the limits and allow continued sales of these commodities determined to be excess to defense needs.

[54] National Research Council, Managing Materials for a Twenty-First Century Military, 110-11. 2005 Requirements Report, 2-3.

[55] 2005 Requirements Report, 4.

[56] Ibid., 4-5.

[57] 2005 Requirements Report 3; National Research Council, Managing Materials for a Twenty-First Century Military, 111-12.

[58] 2005 Requirements Report, 6.

[59] See 2005 Requirements Report, Table 1, for the list of materials analyzed as part of the requirements process.

[60] National Research Council, Managing Materials for a Twenty-First Century Military, 128.

[61] 2005 Requirements Report, Table 1, 10.

[62] 2005 Requirements Report, 6. National Research Council, Managing Materials for a Twenty-First Century Military, Table 6-4, 113-16.

[63] 2005 Requirements Report, 2-7.

[64] 2005 Requirements Report Table 2, 11.

[65] 2005 Requirements Report, 10.

[66] National Research Council, Managing Materials for a Twenty-First Century Military, 125-26.

[67] Ibid., 126.

[68] Ibid., 15-16.

[69] Personal interview with former Administrator J. Wayne Kulig, May 6, 2008, at Fort Belvoir, Virginia.

[70]Strategic and Critical Materials Stock Piling Act, 50 U.S.C. § 98h-3(1).

[71] National Research Council, Minerals, Critical Minerals, and the U.S. Economy (Washington, DC: The National Academies Press, 2008), 31-34.

[72] Ibid., 110-12.

[73] Ibid.

[74] Ibid., 113-19. In this study, of the eleven minerals evaluated under the criticality matrix, five were determined to be critical: platinum group metals, rare earths, indium, manganese, and niobium. Ibid., 10-11.

[75] See notes 36-38, 46 and accompanying text.