



# DEFENSE LOGISTICS AGENCY

AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY



## Assuring Essential Industrial Base Requirements for Strategic & Critical Materials

May 23, 2012

# Report Documentation Page

Form Approved  
OMB No. 0704-0188

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1. REPORT DATE <b>23 MAY 2012</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2012 to 00-00-2012</b>	
4. TITLE AND SUBTITLE <b>Assuring Essential Industrial Base Requirements for Strategic &amp; Critical Materials</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Defense Logistics Agency, Strategic Materials, 8725 John J Kingman Road, Ste 3229, Fort Belvoir, VA, 22060-6223</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>Presented at the NDIA Environment, Energy Security &amp; Sustainability (E2S2) Symposium &amp; Exhibition held 21-24 May 2012 in New Orleans, LA.</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>17</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



# Bottom Line Up Front

- Global demand for scarce raw materials continues to be a factor as a result of industrial surges in China, India, Russia, Brazil, and other developing countries.
- The U.S. must employ a new, integrated and responsive strategy for identifying and ensuring an adequate supply of strategic and critical materials required by our industrial base for U.S. security needs.



# DLA Strategic Materials

- A part of Defense Logistics Agency
- Operational component of the National Defense Stockpile (NDS)
- NDS was established after WWI to reduce the United States dependence on foreign sources of supply during national emergencies





# Review of Current Stockpile

- National Defense Stockpile (NDS) History
  - NDS Program established in 1939
  - Purpose: to preclude dependence on foreign sources of supply in time of national emergency.
- Reviews of U.S. stockpiling strategies began in 2006
  - A working group was convened in Jan. 2008 by Deputy Undersecretary of Defense for Industrial Policy.
  - Working group included representation from each of the military services, Department of Defense (DoD) Joint Staff, Department of Commerce, U.S. Geological Survey, and Defense Contract Management Agency.
  - **Conclusion: Stockpile Should Be Reconfigured!**



# Reconfiguration Under Way

- Reconfiguration Report submitted to Congress, April 2009.
- Initiatives being implemented and/or considered are:
  - Reconfigure the NDS into the Strategic Materials Security Program
  - Grant the SMSP broad programmatic flexibility
  - Modify the current policy to dispose of materials in the NDS
  - Enhance the acquisition authority to employ risk mitigation strategies
- House Armed Services Committee hearing held in July 2009.
- Implementation plan was submitted and accepted in 2010.



# What is DLA Strategic Materials doing?

- Moving from traditional stockpiling to acquisition support and commodity/specialty metal expertise.
- Performing commodity/specialty metal risk assessments and developing risk mitigation strategies.
- Assessing global marketplace and analyzing geopolitical issues for impact on availability of materials.
- Continuing to collect data and market intelligence
  - On individual elements and on downstream manufacturing into metals, alloys, and semi-fabricated products.
- Establishing relationships with key military material experts.
- Consolidating DoD material requirements.
- Focus on Strategic & Critical Material solutions.



## Section 843 of Public Law 111-383

### FY 2011 National Defense Authorization Act

- Issue: Supply and demand for rare earth materials in defense applications.
- The legislation required the Secretary of Defense to:
  - Submit a comprehensive assessment of DoD uses of rare earths
  - Conduct an analysis of any DoD vulnerabilities to disruptions of rare earth supplies and products
  - Develop a plan that would assure such rare earth supplies and products for the DoD by 2015.
- Department sent report to Congress in March 2012.
- A focal point for information is being established within the Department
  - Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (MIBP)



## Section 853 of Public Law 112-81 FY 2012 National Defense Authorization Act

- Issue: Feasibility and advisability of establishing an inventory of rare earth materials to ensure long-term availability of rare earth materials
- The Act requires:
  - The Administrator of the DLA Strategic Materials to submit to the Secretary of Defense an assessment of the issue
  - A Report to Congress on planned Secretary of Defense actions, e.g., plans, strategies, policies, regulations, resourcing or recommendations.
- A focal point for information is being established within the Department
  - Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (MIBP)



## Section 1080, House Conference Report 112-329 FY 2012 National Defense Authorization Act

- Issue: Feasibility and desirability of recycling, recovering, and reprocessing rare earth elements, including fluorescent lighting in DoD facilities, batteries, and neodymium iron boron magnets used in weapon systems and commercial off-the-shelf items such as computer hard drives
- The Act requires Secretary of Defense to prepare a report on a DoD recycling program for rare earth materials
- DLA Strategic Materials will conduct research and provide info to DoD by August 2012
- A focal point for information is being established within the Department
  - Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (MIBP)



# Beryllium Upgrade

- Converting inventory of Beryllium Hot Pressed Powder (HPP) to metal powders
- Actions planned to substantially improve readiness:
  - Conversion from HPP for use by most domestic manufacturers that produce beryllium containing products
  - Timeline: Begin Fall 2012 and continue for at approx 5 years
  - Metal powders will be returned to DLA Strategic Materials and stored at DLA-operated storage facilities
- Current inventory of Vacuum Cast Beryllium will be held for Department of Energy (DOE) applications
  - This form is acceptable for DOE applications and will not be included in the conversion project.



# Germanium Upgrade

- Upgrading 3,000 kg of germanium metal ingots to epitaxial-ready wafers for use by National Security Space programs
- Wafers will be vendor managed because they have 3 year shelf lives and need to be rotated
- Project eliminates reliance on foreign processing of this material currently required before it can be used in domestic production processes



# Rhenium Upgrade

- We are reviewing an Air Force pilot project to reclaim rhenium containing super alloys from jet engines
- Viewed as a method to offset substantial reliance on foreign sources of supply for this material
- Process involves:
  - Demilitarization of expended engines
  - Reclaiming the alloys
  - Salvaging non-strategic materials recovered from the engines
- Non-strategic materials go to contractor to offset the costs of reclaiming the alloys
- Recovered strategic materials would be candidates for National Defense Stockpile inventory



# TCB/TATB Upgrade

- Materials used by DOE and DoD to produce Insensitive High Explosives (IHE)
  - TCB is the chemical pre-cursor required to manufacture IHE products
  - TCB is manufactured in India and China so we are 100% reliant on foreign sources of supply
  - England and Germany produce TATB and IHE products for DoD until those producers terminated operations in 2009
  - Since 2010, primary source is residual supplies and recovered materials
- DLA plan:
  - Secure a buffer inventory of TCB this year
  - Upgrade TCB to TATB and 5 variants of IHE molding powders in FY13/14
  - Long term solution – stockpile TATB and IHE molding powders in quantities that would support sustained operations if TCB supplies are depleted



# Cadmium Zinc Tellurium (CZT) Upgrade

- CZT substrates are used to produce the heat detecting components in military satellites
- Substrates currently come from a single supplier in Japan
- The March 2011 tsunami drew attention to the heavy reliance DoD has on a single, foreign source of supply
- DoD is developing a Title III project to fund a domestic producer to manufacture these substrates, but that will not be in place until late FY15
- DLA plan:
  - Secure a buffer inventory of CZT substrates in late FY12 and hold it through FY15
  - Disburse the buffer inventory if the Title III project is successful
  - Add it to the Stockpile if Title III project is unsuccessful



# Lithium Ion Batteries

- National Security Space (NSS) platform managers are in the process of proving Lithium Ion batteries for space and other applications
- The process takes 5 to 7 years for the various vehicles
- NSS batteries are non-standard technology so sources of supply for the pre-cursor materials are not emerging
- The Air Force has funded a plant in California to produce the pre-cursor materials and some of the batteries, but needs a reliable reserve
- DLA plan is to add the three pre-cursor materials to the National Defense Stockpile over a 4 year period starting in FY14



# QUESTIONS?

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