DEFENSE LOGISTICS AGENCY

AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY

DLA Strategic Materials Informational Briefing

Watt Lough
June 30, 2011

National Defense Stockpile (NDS)

History

- NDS Program established in 1939
- Purpose: to preclude dependence on foreign sources of supply in time of national emergency
- Prior to 1988, jointly managed by Federal Emergency Management Agency and General Services Administration
- Executive Order 12626 – President Reagan designated the Secretary of Defense as the “Stockpile Manager”
- Starting in Fiscal Year (FY) 1994, Congress began authorizing the sale of excess NDS inventory
- Since 1994, commodity sales have totaled approx $7 billion
- In 1994 there were 90 NDS-managed commodities; today there are 25
- In 1994 there were 85 NDS storage locations; today there are 14
- Market value of remaining NDS inventory is approx $1.37 billion

Strategic and Critical Materials Stock Piling Act

- 50 U.S.C. 98 et seq.
- Purpose: Ensure availability of Strategic & Critical (S&C) materials needed for national defense
- Key elements:
  - Identify requirements under military conflict scenarios
  - Acquire, barter, upgrade, or dispose material as needed
  - Material development and research
  - Avoid market disruptions
  - Obtain best value for U.S. Government
- Stockpile Manager resides at the Office of the Secretary of Defense (OSD); however, DLA Strategic Materials manages the NDS

Why the Interest in Strategic and Critical Materials?

Major Raw Material Supply Disruptions Have Occurred in the Recent Past

- Unrest in the Congo causing concern with respect to metal supplies such as Tin, Tungsten, and Tantalum
- Nickel workers strike in Canada (2009/2010)
- China stopped Rare Earth Oxide from being exported to Japan over a diplomatic dispute (2010)
- Natural disasters, such as the earthquake in Japan (2011), have caused many supply chain disruptions

US Reliance on Imports is Expanding at an Accelerated Rate

1997 U.S. NET IMPORT RELIANCE FOR SELECTED NONFUEL MINERAL MATERIALS

Commodity	Percent	Major Sources (1993-96)[1]
ARSENIC	100	China, Japan, Hong Kong, Germany
BAUXITE and ALUMINA	100	Australia, Guinea, Jamaica, Brazil
COLUMBIUM (niobium)	100	Brazil, Canada, Germany
FLUORSPAR	100	China, South Africa, Mexico
GRAPHITE (natural)	100	Mexico, China, Canada, Madagascar, Brazil
MANGANESE	100	South Africa, Gabon, Australia, France
MICA, sheet (natural)	100	India, Belgium, China, Brazil
STRONTIUM	100	Mexico, Germany
THALLIUM	100	Belgium, Mexico, Canada
THORIUM	100	France
YTTRIUM	100	China, Japan
GEMSTONES	99	Israel, Belgium, India
TIN	85	Brazil, Bolivia, Indonesia, China
TUNGSTEN	85	China, Russia, Germany, Bolivia
PLATINUM	84	South Africa, Russia, United Kingdom, Germany
TANTALUM	80	Australia, Thailand, Germany, Brazil
COBALT	76	Norway, Zambia, Finland, Canada, Russia
PALLADIUM	76	Russia, South Africa, United Kingdom, Belgium
CHROMIUM	76	South Africa, Turkey, Russia, Kazakstan, Zimbabwe
POTASH	76	Canada, Russia, Belarus, Israel
BARITE	72	China, India, Mexico, Morocco
ZINC	70	Canada, Mexico, Spain, Peru
IODINE	65	Japan, Chile, Canada
STONE (dimension)	64	Italy, India, Brazil, Canada
PEAT	56	Canada
NICKEL	54	Canada, Norway, Russia, Australia
DIAMOND (dust, grit, and powder)	45	Ireland, China, Germany
SELENIUM	41	Canada, Philippines, Belgium, Japan, United Kingdom
ASBESTOS	36	Canada
SILICON	34	Norway, Russia, Brazil, Canada
CADMIUM	33	Canada, Mexico, Belgium, Germany
MAGNESIUM COMPOUNDS	33	China, Canada, Austria, Greece
GYPSUM	30	Canada, Mexico, Spain
ALUMINUM	23	Canada, Russia, Venezuela, Mexico
IRON and STEEL	21	European Union, Canada, Japan, Brazil, Mexico
PUMICE	21	Greece, Turkey, Ecuador
SILVER	17	Canada, Mexico, Germany, Peru, Chile
IRON ORE	15	Canada, Brazil, Venezuela, Australia
CEMENT	14	Canada, Spain, Venezuela, Mexico
LEAD	14	Canada, Mexico, Peru, Australia
NITROGEN (fixed), AMMONIA	14	Trinidad and Tobago, Canada, Mexico
SALT	14	Canada, Mexico, Chile, The Bahamas
COPPER	12	Canada, Chile, Mexico
RARE EARTHS	12	Australia, France
SODIUM SULFATE	12	Canada, Mexico, Japan, Germany
PERLITE	11	Greece
SULFUR	11	Canada, Mexico, Germany
MAGNESIUM	10	Canada, Russia, China, Mexico, Ukraine
MICA, scrap and flake (natural)	3	Canada, India, Finland, Japan
IRON and STEEL SLAG	2	Canada, South Africa
LIME	1	Canada, Mexico

[1]In descending order of importance

Additional commodities for which there is some import dependency but data are withheld or are insufficient to determine import-reliance levels:

Antimony	China, Mexico, Bolivia, South Africa	Mercury	Russia, Canada, Spain, Kyrgyzstan
Bismuth	Mexico, Belgium, China, United Kingdom, Canada	Rhenium	Chile, Germany, Netherlands, United Kingdom, Russia
Gallium	France, Russia, Canada, Germany, Hungary	Rutile	Australia, South Africa, Sierra Leone
Germanium	Russia, United Kingdom, China, Belgium, Ukraine	Titanium (sponge)	Russia, Japan, China, Kazakstan
Ilmenite	South Africa, Australia, Canada	Vanadium (ferrovanadium)	Russia, Canada, Belgium, Austria
Indium	Canada, Russia, France, Italy, China	Vermiculite	South Africa, China
Kyanite	South Africa	Zirconium	Australia, South Africa

2010 U.S. NET IMPORT RELIANCE FOR SELECTED NONFUEL MINERAL MATERIALS

Commodity	Percent	Major Import Sources (2006-09)[1]
ARSENIC (trioxide)	100	Morocco, China, Belgium
ASBESTOS	100	Canada
BAUXITE and ALUMINA	100	Jamaica, Brazil, Guinea, Australia
CESIUM	100	Canada
FLUORSPAR	100	Mexico, China, South Africa, Mongolia
GRAPHITE (natural)	100	China, Mexico, Canada, Brazil
INDIUM	100	China, Canada, Japan, Belgium
MANGANESE	100	South Africa, Gabon, China, Australia
MICA, sheet (natural)	100	China, Brazil, Belgium, India
NIOBIUM (columbium)	100	Brazil, Canada, Germany, Estonia
QUARTZ CRYSTAL (industrial)	100	China, Japan, Russia
RARE EARTHS	100	China, France, Japan, Austria
RUBIDIUM	100	Canada
STRONTIUM	100	Mexico, Germany
TANTALUM	100	Australia, China, Kazakhstan, Germany
THALLIUM	100	Russia, Germany, Netherlands
THORIUM	100	United Kingdom, France, India, Canada
YTTRIUM	100	China, Japan, France
GALLIUM	99	Germany, Canada, China, Ukraine
GEMSTONES	99	Israel, India, Belgium, South Africa
BISMUTH	94	Belgium, China, United Kingdom, Mexico
PLATINUM	94	South Africa, Germany, United Kingdom, Canada
ANTIMONY	93	China, Mexico, Belgium
GERMANIUM	90	Belgium, China, Russia, Germany
IODINE	88	Chile, Japan
RHENIUM	86	Chile, Netherlands
DIAMOND (dust, grit and powder)	85	China, Ireland, Russia, Republic of Korea
STONE (dimension)	85	Brazil, China, Italy, Turkey
POTASH	83	Canada, Belarus, Russia
COBALT	81	Norway, Russia, China, Canada
TITANIUM MINERAL CONCENTRATES	81	South Africa, Australia, Canada, Mozambique
SILICON CARBIDE	77	China, Venezuela, Netherlands, Romania
ZINC	77	Canada, Peru, Mexico, Ireland
BARITE	76	China, India
TIN	69	Peru, Bolivia, China, Indonesia
VANADIUM	69	Rep. of Korea, Czech Republic, Canada, Austria
TUNGSTEN	68	China, Canada, Germany, Bolivia
SILVER	65	Mexico, Canada, Peru, Chile
TITANIUM (sponge)	64	Kazakhstan, Japan, Ukraine, Russia
PEAT	59	Canada
PALLADIUM	58	Russia, South Africa, United Kingdom, Belgium
CHROMIUM	56	South Africa, Kazakhstan, Russia, China
MAGNESIUM COMPOUNDS	53	China, Austria, Canada, Brazil
BERYLLIUM	47	Kazakhstan, Kenya, Germany, Ireland
SILICON (ferrosilicon)	44	China, Russia, Venezuela, Canada
LITHIUM	43	Chile, Argentina, China
NICKEL	43	Canada, Russia, Australia, Norway
NITROGEN (fixed), AMMONIA	43	Trinidad and Tobago, Russia, Canada, Ukraine
ALUMINUM	38	Canada, Russia, China, Mexico
MAGNESIUM METAL	34	Canada, Israel, China, Russia
GOLD	33	Canada, Mexico, Peru, Chile
COPPER	30	Chile, Canada, Peru, Mexico
MICA, scrap and flake (natural)	27	Canada, China, India, Finland
GARNET (industrial)	25	India, Australia, China, Canada
PERLITE	25	Greece
SALT	24	Canada, Chile, Mexico, The Bahamas
VERMICULITE	22	China, South Africa
SULFUR	17	Canada, Mexico, Venezuela
GYPSUM	15	Canada, Mexico, Spain
PHOSPHATE ROCK	15	Morocco
IRON and STEEL SLAG	10	Japan, Canada, Italy, South Africa
CEMENT	8	China, Canada, Republic of Korea, Taiwan
IRON and STEEL	7	Canada, European Union, China, Mexico
PUMICE	7	Greece, Turkey, Iceland, Mexico
DIAMOND (natural industrial stone)	3	Botswana, South Africa, Namibia, India
LIME	2	Canada, Mexico
STONE (crushed)	1	Canada, Mexico, The Bahamas

[1]In descending order of import share.

from USGS Mineral Commodity Summaries

Review of Current Stockpiling Strategies

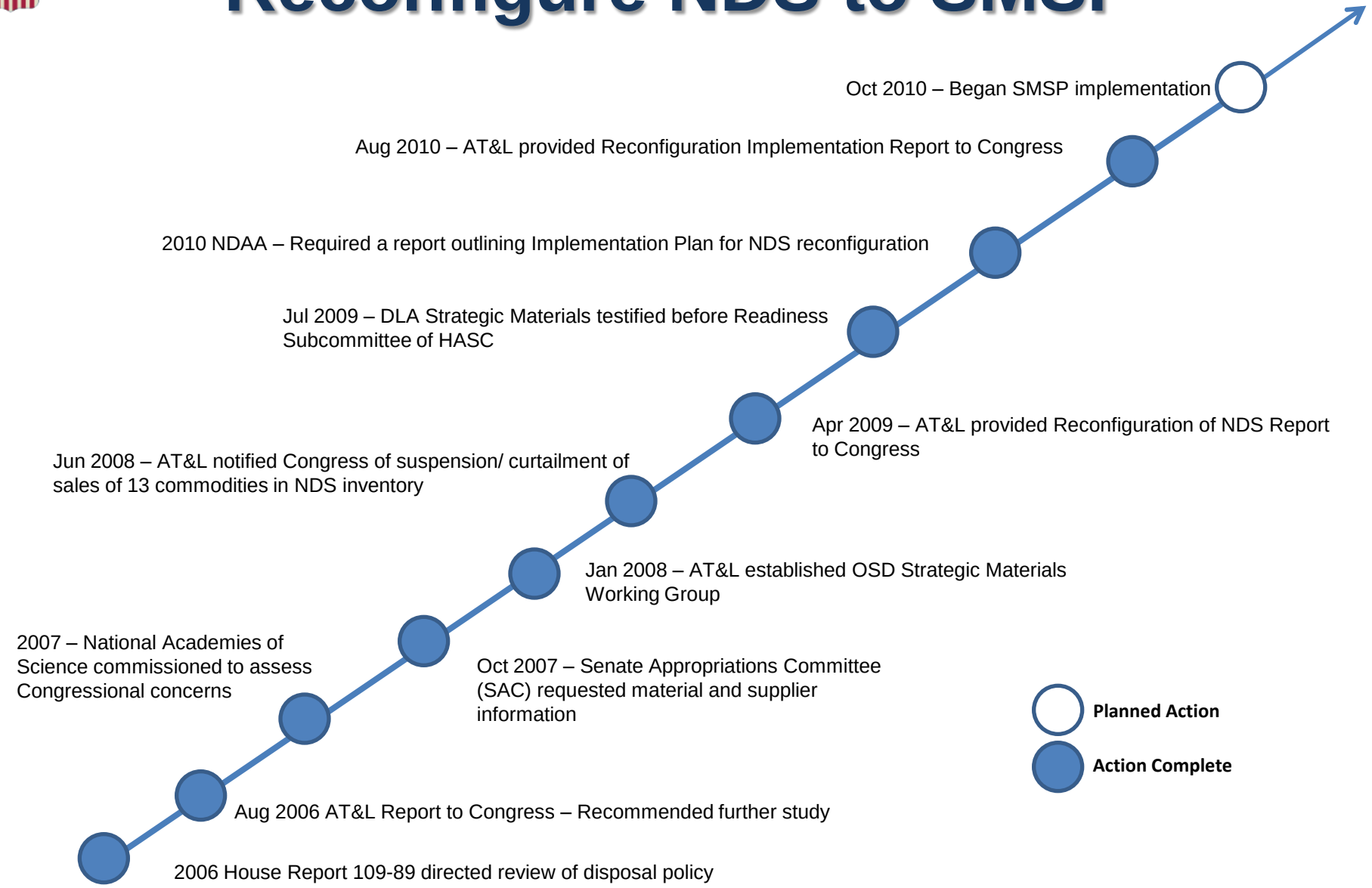
- Reviews of U.S. stockpiling strategies began in 2006
  - A working group was convened in Jan. 2008 by Deputy Undersecretary of Defense for Industrial Policy.
  - Working group included representation from each of the military services, DoD Joint Staff, Department of Commerce, U.S. Geological Survey, and Defense Contract Management Agency.

- **Conclusion: Transform NDS into the Strategic Materials Security Program (SMSP)**

Reconfiguration Under Way

- Reconfiguration Report submitted to Congress, April 2009
- Initiatives being implemented and/or considered are:
  - 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.
- A legislative package has been prepared and is in review.

Reconfigure NDS to SMSP



Mission of DLA Strategic Materials

- Manage and administer the SMSP
  - Legislative Proposal has been prepared and is currently in coordination
- Surveil global marketplace and analyze geopolitical issues for impact on availability of materials
- Evaluate the impact of the technological changes relative to material needs
- Conduct material risk assessments
- Identify and recommend appropriate risk mitigation strategies and determine most effective procurement approach and timing for entering the markets
- Conduct material expertise and acquisition support

DLA Strategic Materials' Expanded Mission

- Moving from traditional stockpiling to acquisition support and S&C 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
  - On downstream manufacturing into metals, alloys, and semi-fabricated products
- Establishing relationships with key military material experts
- Consolidating DoD material requirements

Example of Expanded Mission at Work

- Working with U.S. Army Armament Research, Development and Engineering (ARDEC) to support their Titanium and other S&C material requirements
- Collaborating with Tinker Air Force Base on a super alloy recovery program for Rhenium and other alloys of interest
- Exploring U.S. Air Force and National Reconnaissance Office (NRO) concerns over wafer production

Addressing Rare Earths Elements

- Rare earths are a family of 17 elements

Element #	Name	Element #	Name
21	Scandium	64	Gadolinium
39	Yttrium	65	Terbium
57	Lanthanum	66	Dysprosium
58	Cerium	67	Holmium
59	Praseodymium	68	Erbium
60	Neodymium	69	Thulium
61	Promethium	70	Ytterbium
62	Samarium	71	Lutetium
63	Europium		

- Used in numerous defense applications such as missile defense, laser weapons and electronic warfare
- Susceptible to supply disruption; not easily substituted
- 7 of the 17 elements are identified as shortfall materials in our FY11 Requirements Report
- Considerable Congressional interest

What's Next?

- Performing risk assessments
- Exploring risk mitigation strategies for select at-risk materials
- Working to re-acquire and expand material expertise (in house)
- Proposing changes to Stockpiling Act
  - Significantly shorten material response timeframes

Additional Actions

- Serving as DoD Lead Office on 2011 NDAA Sec. 843 rare earth report to Congress
- Expanding Outreach
  - Departments of Energy, Interior, State and Commerce, US Geological Survey (USGS)
  - Canada, Japan (JOGMEC) and South Korean Stockpile
  - National Aeronautics and Space Administration (NASA)
  - United States Army Armament Research, Development and Engineering Center (ARDEC)
  - Yale University, Penn State University, National Academies of Sciences

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