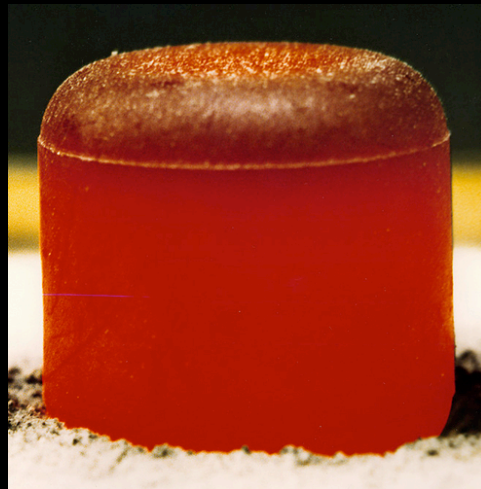


# DoE RPS Infrastructure Review Status



# Review Committee Membership

- NASA Membership
  - **Jim Adams** Chair, NASA Deputy Chief Technologist
  - **David Schurr** NASA PSD Deputy Division Director
  - **Hal Bell** NASA Deputy Chief Engineer
  - **Frank Bellinger** NASA Facilities Engineering & Real Property Director(former);  
NASA WFF Technical Director
  - **Kevin Gilligan** Committee Executive Secretary; NASA OCFO Program Analyst
- Non-NASA Consultants
  - **Ralph McNutt** APL, NRC RPS Study Chair
  - **Mark Rokey** The Aerospace Corporation
  - **Tim Frazier** DOE Radioisotope Program Director (former)
- Ex-Officio Observers
  - **Len Dudzinski** NASA PSD Liaison
  - **Alice Caponiti** DOE NE-75 Liaison

# DOE RPS Infrastructure Capabilities

**DOE manages RPS assembly, delivery and analysis capabilities and RPS development and system integration contracts**

- Physical infrastructure at INL, ORNL, LANL
  - Material handling
  - Material storage
  - Safeguards and security
  - Safety
  - Waste management
- Personnel skills
  - Professionals and technicians
  - Corporate knowledge
  - Succession
- Assemble, test and deliver power systems
- Analyze safety and risk of RPS deployment and operations
- Knowledge Bases
  - Safety: in design, production and use for worker safety in production and public safety in application
  - Quality assurance: in production, assembly and testing to assure product quality
  - Program knowledge: the integration of all processes and participant organizations
- Provide launch support and emergency response
- Manage plutonium-238 supply
- Provide international leadership on safe use of space NPS
- Manage customer funded RPS System Integration Contracts

# Select Observations

*Pu-238 is an exceptionally difficult material with which to work.*

*Disposal of waste products is a significant factor in the process.*

*The processes observed at the sites did not show excess.*

*The role of DOE in the process is essential.*

*RPS's are a critical resource to execute most missions from the National Research Council's National Academy of Science Decadal Survey of Planetary Science for the period 2013-2022.*

*If the need for plutonium-238 grows beyond the 1.5kg annual production rate currently planned, significant changes will be necessary.*

*Fine-weave pierced fabric is a critical resource in the production of general-purpose heat source modules.*

# Select Recommendations

*Together, NASA and DOE should derive production rates that maintain proficiency across the DOE sites, as well as meet NASA's future mission needs.*

*Ensure the availability of fine-weave pierced fabric in order to enable general-purpose heat source module production.*

*Communications between NASA and DOE need to be free and open, while authority needs to be formalized.*

*Regularly scheduled meetings should be held between the leadership of NASA and DOE at all levels.*

*Continued on next slide...*

# Select Recommendations (cont.)

*Though NASA is providing infrastructure funding, the responsibility, accountability, and ownership of these assets should remain with DOE.*

*NASA should ensure sufficient funding is available to DOE so as to not impact ongoing operations*

*The investigation of new processes should be considered routinely, coupled with a long-term continuous improvement program.*



# ASRG Status

# Background

- The Science Mission Directorate (SMD) and Planetary Science Division (PSD) are under *tighter* fiscal constraints for FY13 and beyond than when the ASRG project was established.
  - No Flagship missions were identified in the President's FY14 budget request that would require ASRGs.
  - The Discovery and New Frontiers Announcements of Opportunity (AOs) will have a slower than historical cadence under the FY14 budget levels, reducing the concerns about Plutonium limitations.
- Pu-238 availability, incorporating new production, will be sufficient to support the cadence that PSD can support using MMRTG technology



# Go Forward Plan

- PSD has been directed to maintain the infrastructure, technology, expertise, and production capabilities for the Nation's RPS capabilities.
  - This has to be our highest RPS priority
- PSD's technology program, and the RPS Program, is re-scoped to optimize production and sustaining of existing capabilities, to support the expected missions and mission cadence of the Planetary programs
- PSD has directed DOE to terminate the existing ASRG flight project, and the RPS Program Office to develop options to continue Stirling research as a technology development project

# Plutonium Availability

