H-Canyon and L-Basin Alternatives

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Citizens Advisory Board

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Purpose

- To provide potential topics for the Nuclear Materials Committee for use in development of their 2019 Work Plan.

2019 Nuclear Materials Work Plan Topic

Topic 1	Work Plan Item:	***H-Canyon and L-Basin Alternatives***
	Description:	Current law (Title 50 USC section 2633) requires that H-Canyon be maintained in a high state of readiness. There are several options, all dependent on appropriations, that might be pursued in the future to process or store the L-Basin SNF Inventory. SRS DOE EM will provide a briefing on these options. From a community perspective, provide a recommendation to EM SRS as to the option, from those presented or an alternate developed by the CAB, that would best serve the environmental concerns of the community.

Panel Members

- Lakela Lofton – Facility Manager for L-Basin
- Rick Burns – Facility Manager for H-Canyon
- Michael Lewczyk – Engineering Manager for H-Canyon
- Jimmy Winkler – EMO Integration
- Bill Bates – SRNL (Dry Storage)
- Eloy Saldivar – EMO Integration (System Plan)
- Maxcine Maxted – DOE NM Program Manager

Why Operate H-Canyon?

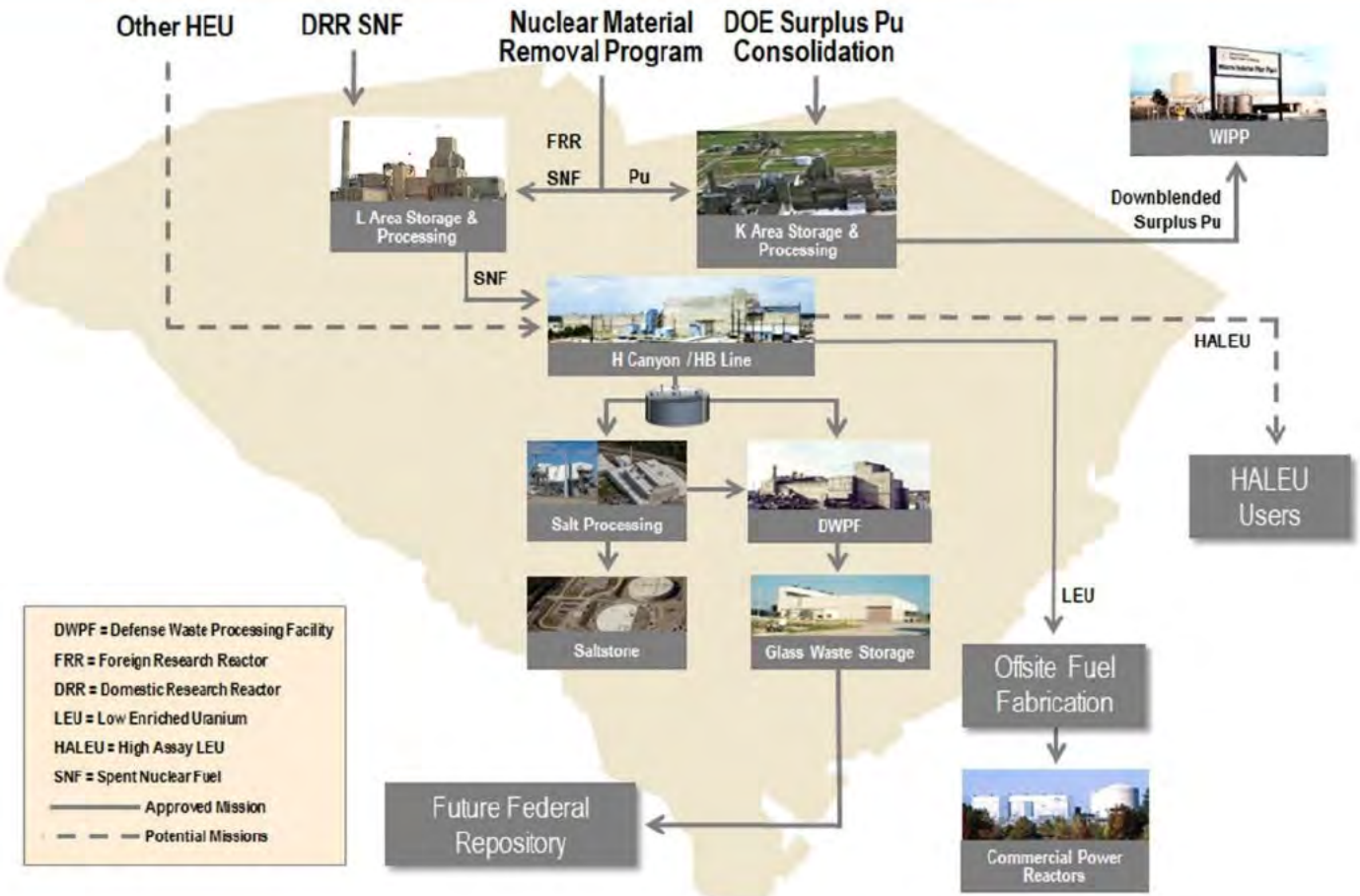
- Law Requires it: 50 U.S. Code § 2633 – Continuation of processing, treatment, and disposal of legacy nuclear materials :

  which states "The Secretary of Energy shall continue operations and maintain a high state of readiness at the H-Canyon facility at the Savannah River Site, Aiken, South Carolina, and shall provide technical staff necessary to operate and so maintain such facility.

(Pub. L 107-314, div. D, title XLIV, § 4453, formerly Pub. L. 106-398, § 1 [div.C, title XXXI, §3137(a)], Oct. 30, 2000, 114 Stat. 1654, 1654A-460; renumbered Pub. L 107-314, div. D, title XLIV, §4453, and amended Pub. L. 108-136, div. C, title XXXI, §§ 3115(a),3141(g)(23)(A), Nov. 24, 2003, 117 Stat. 1745, 1769.)

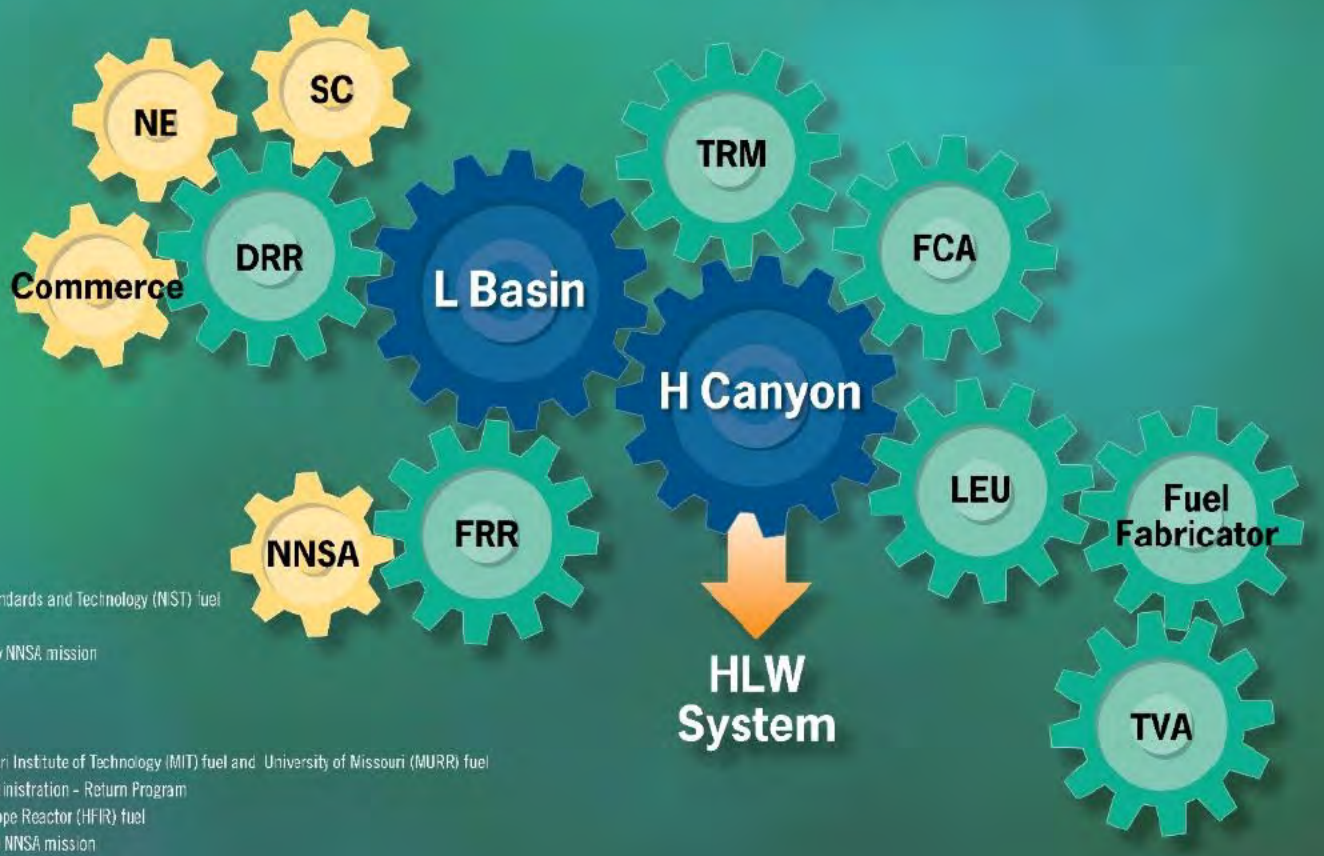
- Benefits of Processing material
  - Puts materials in a more stable condition (versus long term storage) and allows reuse of some materials

SRS Nuclear Materials Management



Savannah River Site | Integration of Nuclear Materials Program

ENVIRONMENTAL STEWARDSHIP • NATIONAL SECURITY • SCIENCE AND ENERGY



Commerce: National Institute of Standards and Technology (NIST) fuel
DRR: Domestic Research Reactors
FCA: Fast Critical Assembly fuel - new NNSA mission
FRR: Foreign Research Reactors
HLW: High Level Waste
LEU: Low Enriched Uranium
NE: Office of Nuclear Energy – Missouri Institute of Technology (MIT) fuel and University of Missouri (MURR) fuel
NNSA: National Nuclear Security Administration - Return Program
SC: Office of Science – High Flux Isotope Reactor (HFIR) fuel
TRM: Target Residue Materials - new NNSA mission
TVA: Tennessee Valley Authority – Commercial Power

SRNS Corporate Communications 19CC0164-06

Savannah River Site | H Canyon Mission Decisions

ENVIRONMENTAL STEWARDSHIP • NATIONAL SECURITY • SCIENCE AND ENERGY

Key Points

- U.S. Law states that H Canyon must remain in a high state of readiness and operational, but the Integrated Life Cycle Estimate has H Canyon shutting down by 2024
- H Canyon is the nation's only operating production-scale nuclear chemical separation facility, making it a national asset. ALL DOE offices should be considered during decision making
- H Canyon is currently the only technically proven disposition path for Spent Nuclear Fuel
- Existing MOUs define EM's responsibility (and financial liability) for SNF disposition

Rate of Production

(H Canyon Cost Only)

Slow

$200 million = $12 billion

*Per Year — Life Cycle

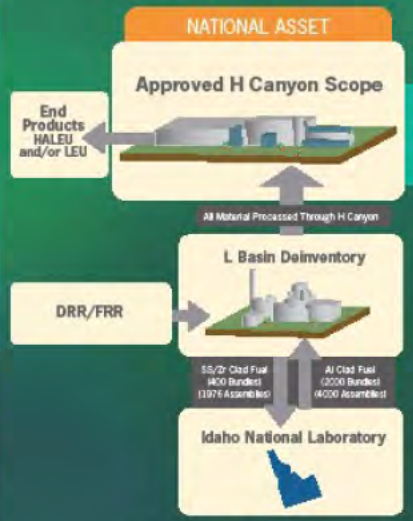
Option 4

($4 billion savings)

~$350 million = $8 billion

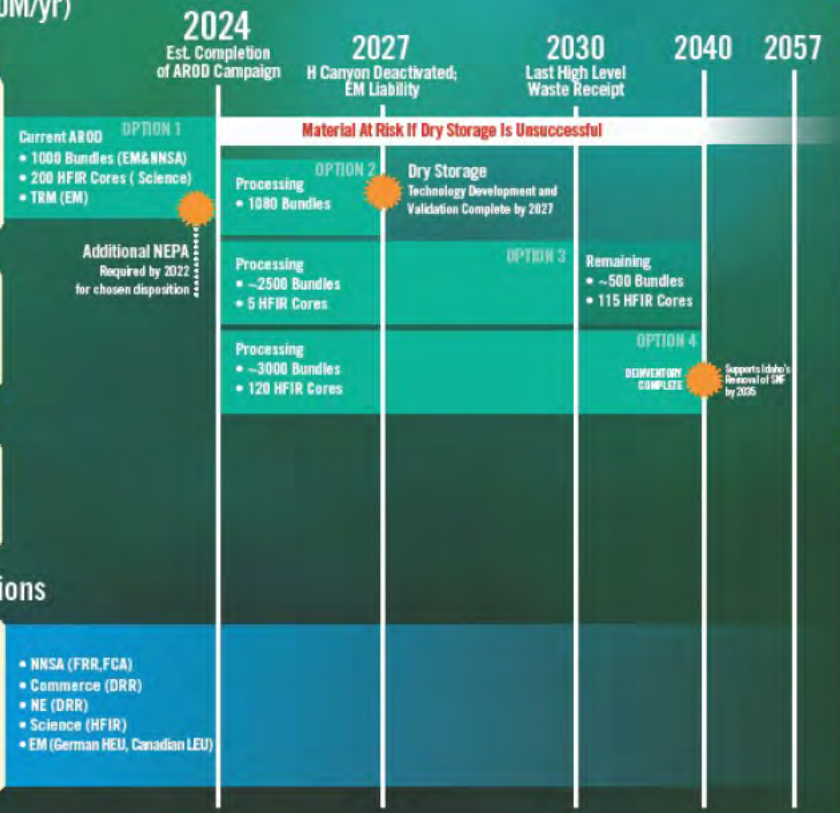
Per Year (including infrastructure and ALT HLW dispesition) — Life Cycle

Current Mission (EM ~$200M/yr)



Potential Future Missions

- NNSA (FRR,FCA)
- Commerce (DRR)
- NE (DRR)
- Science (HFIR)
- EM (German HEU, Canadian LEU)



Key Decisions

How fast/long does it run?

- Slow/Flat Funding
- Accelerated (Full) Operations

Option 1
Through AROD (2024)

Option 2
Through Dry Storage (2027)

Option 3
Up Until HLW Decoupling (2030)

Option 4
Through ALL SNF Processing (2040)

Other Decisions

What feed to process?

- MTR
- HFIR
- TRM
- ATR
- FCA

What product?

- LEU
- HALEU

October 2018

* $200M/yr provides insufficient funding to meet the 2024 completion date for processing of the 1000 bundles and 200 HFIR cores reflected in the current EM liability.

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Now you will hear from others on the panel

Wrap Up of Discussion

- Just reminder of everything presented today
  - L-basin
  - H-Canyon
  - Dry Storage
  - System Plan

- This should provide you with information necessary to discuss the public's opinions on what is the CAB's position on what level of processing DOE should be proceeding with in regards to SRS SNF inventory and H-Canyon operations

- Panel is now available for questions.