

## **Nuclear Science User Facilities**

# FY 2016 Challenges

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Annual Program Review Germantown November 1, 2016



## **Outline of Presentation**



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- Program Office Workload
- Advanced Test Reactor Positions
- User Agreements
- Look ahead







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#### A measure of success!







#### Nuclear Energy

Impact of increased volume on staff

#### PICS Work Packages

- Program Finance Initial Pricing, Monthly Reporting
- Program Administrator Work Package Development and Management
- Deputy Director Work Package Development and Management, Review & Approval, Monthly Performance oversight
- Director Work Package Review and Approval, Monthly Performance Approval

#### INL Work Packages

- Program Finance Initial Pricing, Monthly Reporting
- Program Administrator Work Package Development and Management
- Deputy Director Work Package Development and Management, Review & Approval, Monthly Performance oversight
- Director Work Package Review and Approval, Monthly Performance Approval





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Impact of increased volume on staff

#### CINR Pre-applications

- Program Administrator Technical Lead / PI coordination, SOW / Cost Est.
- Chief Scientist Technical Lead oversight, mentoring, development
- Deputy Director SOW / Cost Estimate Review
- Director / Chief Scientist Relevancy Reviews

#### CINR Full Applications

- Program Finance Pricing
- Program Administrator SOW / Cost Estimate coordination
- Chief Scientist SOW review, Technical Lead oversight
- Deputy Director Resource / Schedule / Cost Estimate / Pricing Reviews
- Director / Chief Scientist Relevancy Review, Selection Panel







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#### CINR Awards

- Program Finance Funds Management
- Program Administrator User Agreements, Subcontract placement, accruals, monthly status

#### Rapid Turnaround Experiment Proposals

- Program Administrator Call coordination, Cost Estimates, Review Coordination, Draft Recommendation
- Deputy Director Review Recommendation
- Chief Scientist / Director Relevancy Reviews
- Director Review and Approve Recommendation



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Impact of increased volume on staff

#### Rapid Turnaround Experiment Awards

- Program Administrator Subcontracts, Monthly Reporting
- Chief Scientist Technical Oversight

#### Partner Application Reviews

- Chief Scientist Review Application, Site Visit, Draft Recommendation
- Deputy Director Review Application, Review Recommendation
- Director Review Application, Site Visit, Approve Recommendation





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#### Program Office Staff – Efficient and Hard Working





## Advanced Test Reactor Irradiation Positions



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Demand has exceeded supply

#### Previous NSUF Approach

- Reserve space after award
- Prior to BSU-8242, last irradiation award made in FY 2010 (BSU & UCF)

#### FY 2016 Issues

- BSU-8242 had to be relocated due to space (tensile specimens) and fluence (dpa) requirements
- Space needed for new awards (CSM, GEH, ISU)
  - Information needed in May
- INL internal Conflict Resolution process followed but did not resolve issue
- ATR Hydraulic Shuttle Irradiation Service (aka Rabbit) Out of Service



# Advanced Test Reactor Irradiation Positions



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Demand has exceeded supply

#### FY 2016 Resolution

- Awarded experiments have a position with one exception
  - Boise State University-8242 displaced Cobalt production (A3,A4,A5,A6)
    - New design for this position no basket, similar to A14, A16
  - Colorado School of Mines-10584 (B5 for one cycle)
  - Idaho State University-10537 (B6 for eight cycles)
  - General Electric Hitachi-10393 has an aggressive schedule (B11)
  - University of Central Florida-2 (0.01 / 0.1 dpa) is on hold
- Approval of the FY 2017 ATR ISOP Test Plan complete

#### Look ahead

- New awards will insert in ~ FY 2018
- 2 of 53 "Higher" flux positions available (1/2" Dia. Outboard A)
- 17 of 24 "Low" flux positions available (Medium and Large I)



## **ATR Test Positions**



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### Advanced Test Reactor Irradiation Positions



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#### NSUF wants:

- Four Inboard A positions (A3,A4,A5,A6)
- Two small B positions (B5 and B6)
- Large B Position (B11)
- South Flux Trap
- Center Flux Trap / Loop 2A Two cycles every other year

### FY 2017 Approach

- Chief Irradiation Scientist to Guide Technical Leads / PI
  - Assess readiness for ATR: MITR, HFIR or NCSU more appropriate?
- New Conflict Resolution Process (O'Kelly) under discussion
- Displace more cobalt production (A3,A4,A5,A6)
- No other good options apparent at ATR at this time

Three awards per year Up to three years in duration



## **User Agreements**

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A legal agreement between BEA and the Awarded Institution

#### Prior to FY 2015, NSUF used a standard User Agreement

#### In FY 2015, NSUF initiated a modification to the User Agreement

Standard agreement left ownership of the irradiated material with the USER

#### Modification approved in July, 2016

• Implicit title transfer of material, three year research exclusivity for USER

#### FY 2016 Awards (User Agreement is an appendix in the FOA)

- GE Hitatchi Concerns over background IP, deliverables, advertising
  - 99% resolved after two months of negotiation
- Colorado School of Mines Concern over indemnification
  - Brand new issue, resolution in work



## **User Agreements**

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#### Look Ahead

- Modified version in the FY 2017 CINR FOA
- FY 2017 CINR FOA: The terms and conditions of the User Agreement are non-negotiable and failure to accept the terms and conditions of the User Agreement will terminate processing and review of the NEAMS- 2, NSUF-1, or NSUF-2 applications.
- PI will check compliance box for LOI, Pre-app, Full Application
- Further development of an Industry version?
  - Based on GE version



# **Looking Ahead**

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# Type B Cask Availability for Experiment Shipments (ATR to HFEF)

- We are placing all of our eggs (over 10 inches long) in one basket
  - Battelle Research Reactor (BRR) Cask
  - Primary use to ship spent research reactor fuel to Savanah River and lightly irradiated fuel to research reactors
  - NRC licensed for primary purpose, can amend for other shipments
- Readiness Activities completed by HPRR/M3 program
- Utilized for NSUF EPRI-3 and SAM-1 experiment shipment this summer
- Planned utilization indicates an additional cask needed in FY 2018 (Evaluation of Transportation and Casks Needs at Idaho National Laboratory – June 2016)
  - Utilization by RRI, NSUF, FCR&D, HPRR, M3, KJRR, others
  - ~\$3M acquisition cost, \$100K annual maintenance, \$500K license amend
  - At least a12 month lead-time
  - Funding options being discussed at INL



# **Looking Ahead**

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#### Reducing specimen contamination

- HFEF Containment Box alpha contaminated
- UCSB-1 specimen packs required significant decontamination at LANL
- UCBS-2 specimen packs extracted in air cell
  - A unique, one-time operation, significantly reduced contamination levels
- All samples coming out of HFEF require decontamination (\$)

## Options

- Remote Analytical Laboratory at INTEC
  - Future availability / ownership uncertain
  - Modifications required to handle a Type B cask
- Other Facilities
  - Pilot with International Isotopes for HSIS capsules
  - PNNL or ORNL: Type B cask needed (\$) Possible facility modifications/readiness (\$)
- Sample Preparation Laboratory
  - CD-1 package submitted?

