



U.S. DEPARTMENT OF  
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# High Burnup Cask Demonstration Project

**William Boyle**

**Director**

**Office of Used Nuclear Fuel Disposition  
Research & Development**

**NWTRB Winter Board Meeting  
Washington, DC  
November 20, 2013**



## Goals of the Cask R&D Project

- **The near-term activities focus on experimental and analytical work that can be conducted immediately, without any modification to facilities.**
- **The long-term activities will focus on an actual research and development (R&D) program that will focus on inspection of spent fuel in storage over a longer period of time.**
- **The goals for such R&D include the following:**
  - Benchmarking the predictive models and empirical conclusions that will be developed from short-term laboratory testing for aging of dry storage cask system components; and
  - Building confidence in the ability to predict the performance of these systems over extended time periods.



Prairie Island Dry Storage



Connecticut Yankee Dry Storage



## Dry Storage R&D Project

### ■ Involves

- Loading a commercial storage cask with high burn-up fuel in a utility storage pool
  - Well understood fuel
  - Cask outfitted with additional instrumentation for monitoring
- Drying of the cask contents using typical process
- Cask will be housed at the utility's dry cask storage site
  - Continuously monitored and externally inspected until the first internal inspection at 10 years
- A second cask could be loaded ~5 years following the first with a focus on additional scientific data on fuel behavior
- The issue of where and how the cask will be opened will be solved at a later date.





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## Cask Demo Contract Award

- A contract was awarded to EPRI on April 16, 2013
- The EPRI Team consists of:

**EPRI**

ELECTRIC POWER  
RESEARCH INSTITUTE



**Dominion**



AREVA Federal Services  
AREVA Transnuclear  
AREVA Fuels



## EPRI Contract Summary

Contract Requirement	EPRI Contract
PWR Reactor	Surry or North Anna
Cladding Types	Zircaloy 4 – all fuel vendors Zirlo, - Westinghouse M5 - AREVA
Demo Cask	Trans-nuclear 32
Storage location	Surry or North Anna
Proposed ISFSI	Surry or North Anna
Total Project Cost	\$19.8 million
Total Contract Price	\$15.8 million
Contract Duration	5 years
Cost Share	20%



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## Storage and Transportation EPRI Demonstration Work Effort

### Electric Power Research Institute (EPRI) work

- Prepare the Draft Test Plan
- Incorporate comments received into the Final Test Plan
- Complete final design for all the necessary components, identify sensors and location in the cask, determine data acquisition requirements for incorporation into the Final Test Plan
- Incorporate the technical details and requirements into the Dominion License Amendment Request.
- Address any comments or issues from the review and incorporate them as necessary into the Final Test Plan
- Load an instrumented cask to begin taking readings and measurements
- Collect similar fuel so labs can begin physical testing
- Monitoring and inspection of fuel during storage

**EPRI** | ELECTRIC POWER  
RESEARCH INSTITUTE



**A** AREVA Federal Services  
AREVA Transnuclear  
AREVA Fuels



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## Storage and Transportation National Labs Demonstration Work Effort

### R&D at National Laboratories to Support the Field Demonstration

- Support DOE's review of the Draft Test Plan
- Collaborate with industry to develop monitoring and inspection technologies that will acquire data related to high priority technical gaps
- Collaborate with industry to link the demonstration program to ongoing separate-effects tests that will provide important materials property data for the start of the demo storage period.
- Collaborate with EPRI team to select the used fuel for the demo
- Work and oversee the drying process before sealing the cask
- Analyze data obtained from the monitoring and inspection of fuel during storage
- Work will link the R&D program with the demonstration program to ensure that the maximum benefit will be achieved:





# Draft Test Plan

**EPRI** High Burn-up Dry Storage Cask Research and Development Project: Draft Test Plan  
Contract No.: DE-NE-0000593

High Burn-up Dry Storage Cask Research and Development Project

Draft Test Plan

Prepared by: EPRI

**REVISION LOG**

Rev.	Date	Affected Pages	Revision Description
0	August, 19 2013		Initial Draft Test Plan delivered to DOE
1	September 13, 2013		Incorporate DOE comments
2	October 17, 2013	Exec Summary	Noted possible delay in sister rod schedule
3	October 30, 2013	Exec Summary	FN 8 An examination facility exists
4	October 31, 20123	Exec Summary	Clarification added on location and waste disposition

September 13, 2013

- A Draft Test Plan has been prepared by the EPRI team for the North Anna Generating Station and delivered to the DOE







## Draft Test Plan Content

### ■ Draft Test Plan has been prepared and published for comments

- Discusses the “Why” it is being done
- Discusses the “What” is being done
- The “How” , all sensors to be used and where they will located, frequency of readings, etc will be included in the Dominion License Amendment Request to the NRC



The cask demo will use a metal cask similar to the one shown.  
Picture is taken at INL



# Federal Register Notice for the Draft Test Plan

- Notice of Availability was published in the Federal Register on November 12
- Comments will be accepted until December 12
- A Final Test Plan will be prepared and the EPRI contract modified to perform the work

67348 Federal Register / Vol. 78, No. 218 / Tuesday, November 12, 2013 / Notices

Issued in Washington, DC on November 6, 2013.  
**Patricia A. Hoffman,**  
*Assistant Secretary, Office of Electricity Delivery and Energy Reliability.*  
 [FR Doc. 2013-28977 Filed 11-8-13; 8:45 am]  
 BILLING CODE 6450-01-P

**DEPARTMENT OF ENERGY**

**Invitation for Public Comment on Draft Test Plan for the High Burnup Dry Storage Cask Research and Development Project (CDP)**

**AGENCY:** Fuel Cycle Technologies, Office of Nuclear Energy, Department of Energy.

**ACTION:** Notice; request for public comments.

**SUMMARY:** The U.S. Department of Energy (DOE) is providing notice of request for public comment on its draft test plan for the High Burnup Dry Storage Cask Research and Development Project (CDP). The test plan will guide the Department's activities, research, and development throughout the execution of the High Burnup Dry Storage Cask Research and Development Project. The draft test plan places its focus on "why" the project is being performed and "what" the Department plans to accomplish with the CDP. The details on "how" the test plan will be executed will be added when Dominion Virginia Power, who is part of the Electric Power research Institute (EPRI) team, submits a License Amendment Request for the existing North Anna Generating Station Independent Spent Fuel Storage Installation (ISFSI). The License Amendment Request will be submitted to the NRC in the future. The public will be provided an opportunity to provide comments to the NRC on the CDP test plan at that time. The DOE's Office of Used Nuclear Fuel Disposition Research and Development has coordinated this effort in collaboration with its contractor EPRI and several DOE national laboratories. The DOE is seeking public stakeholder comment to ensure CDP resources are invested wisely to achieve measurable improvements in our Nation's data on High Burnup Casks.

**DATES:** Written comments should be submitted by December 12, 2013. Comments received after this date will be considered if it is practical to do so; however, the DOE is only able to ensure consideration of comments received on or before this date.

**ADDRESSES:** You may submit comments by any of the following methods:

**Electronic Form:** Go to <http://www.id.energy.gov/insideNEID/PublicInvolvement.htm>. Locate the area on the page that pertains to the draft test plan for the High Burnup Dry Storage Cask Research and Development Project (CDP). Click on the link for the electronic comment form. Populate the form and click on "Submit".  
**E-Mail:** [CDP@id.doe.gov](mailto:CDP@id.doe.gov).  
**Mail:** U.S. Department of Energy, C/O Melissa Bates, 1955 Fremont Ave., MS 1235, Idaho Falls, ID 83415.  
**Hand Delivery or Courier:** U.S. Department of Energy, Willow Creek Building Ground Floor, Room 185B, 1955 Fremont Ave., Attn: Melissa Bates, Idaho Falls, ID, between 8 a.m. and 3:30 p.m. MT, Monday through Thursday, except Federal holidays.  
**Fax:** 208-526-6249.

**FOR FURTHER INFORMATION CONTACT:** Mrs. Melissa Bates, Contracting Officers Representative, High Burnup Dry Storage Cask Research and Development Project, U.S. Department of Energy—Idaho Operations Office, MS 1235, 1955 Fremont Ave., Idaho Falls, ID 83415, (208) 526-4652, [batesmc@id.doe.gov](mailto:batesmc@id.doe.gov).

**SUPPLEMENTARY INFORMATION:** The Department of Energy (DOE) has performed recent assessments focusing on long-term aging issues important to the performance of the structures, systems, and components of the dry cask storage systems for high burnup spent nuclear fuel. A number of technical issues and research and data needs have emerged from these assessments. DOE has determined that a large scale cask research and development project using various configurations of dry storage cask systems and experiments would be beneficial.

A draft test plan for the High Burnup Dry Storage Cask Research and Development Project (CDP) has been drafted by DOE's contractor the Electric Power Research Institute (EPRI) to document what is planned to be accomplished by the CDP. DOE is soliciting comments from the public to obtain feedback on what the Department plans to execute.

A copy of the draft test plan can be found at the following link: <http://www.id.energy.gov/insideNEID/PublicInvolvement.htm>. Locate the area on the page that pertains to the High Burnup Dry Storage Cask Research and Development Project (CDP). Click on the link for the draft test plan.

**Submitting Comments**

Stakeholder's comments should be aligned, if possible, with the goals and objectives of the CDP. All comments will be considered that are received by the deadline that appears in the DATES section.

**Instructions:** Submit comments via any of the mechanisms set forth in the ADDRESSES section above. Identify your name, organization affiliation, comments on the draft test plan, email, and phone number. If an email or phone number is included, it will allow the DOE to contact the commenter if questions or clarifications arise. No responses will be provided to commenters in regards to the disposition of their comments. All comments will be officially recorded without change or edit, including any personal information provided.

**Privacy Act:** Data collected via the mechanisms listed above will not be protected from the public view in any way. DOE does not intend to publish the comments received externally; however, data collected will be seen by multiple entities while comments are resolved.

Dated: November 5, 2013.

**Jay Jones,**  
*Office of Fuel Cycle Technologies, Office of Nuclear Energy.*  
 [FR Doc. 2013-28977 Filed 11-8-13; 8:45 am]  
 BILLING CODE 6450-01-P

**DEPARTMENT OF ENERGY**

[OE Docket No. PP-362]

**Notice of Availability for the Draft Environmental Impact Statement and Announcement of Public Hearings for the Proposed Champlain Hudson Power Express Transmission Line Project; Correction**

**AGENCY:** U.S. Department of Energy.

**ACTION:** Notice of availability and public hearings; correction.

**SUMMARY:** The Department of Energy (DOE) published a document in the Federal Register of November 1, 2013, announcing the availability for the Draft Environmental Impact Statement and public hearings for the proposed Champlain Hudson Power Express transmission line project. This document corrects an error in that notice.

**FOR FURTHER INFORMATION CONTACT:** Requests for additional information should be directed to Brian Mills at [Brian.Mills@hq.doe.gov](mailto:Brian.Mills@hq.doe.gov).

**Correction**

In the Federal Register of November 1, 2013 in FR Doc. 2013-26080, 78 FR 65622, please make the following correction:



## Current Schedule

- **Modifications to the cask lid are currently being designed**
- **Schedule for obtaining pins of similar nature as to be loaded in the cask (similar pins)**
  - Similar pins will may be pulled in 2014 or 2015
  - Similar pins will be shipped in 2015 or 2016
- **Cask Loading**
  - Two scheduled outages will occur at North Anna in 2016
  - Cask loading will occur in 2017
- **EPRI Contract will run until 2018**



Metal Storage and Transportation Cask similar to what will be loaded