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COOK PLANT

# DC Cook Turbine Project “Reducing Costs to Keep the Nuclear Power Plants Viable”

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R3 Workshop

Blackstone Hotel - Chicago, IL



# Outline

- Background
- Project and Service Update
  - DC Cook Turbine Casings
  - Obsolete Equipment Projects
  - DAW Minimization
- Questions

# Background

## Disposition of Potentially Contaminated DC Cook Turbine Casings

1,515,000 pounds of turbine casing material was dispositioned thru monitoring, cutting, and decontamination methods to release & recycle over 90% of the material resulting in significant savings to the Cook plant.

# Legacy Contaminated Turbine Casing at DC Cook



# Project: Disposition of DC Cook Turbine Casings (Potentially Contaminated)

## Six Casings for Processing/Disposition – 1,515,000 Pounds

Description	Qty	Length	Width	Height	Weight
		(ft)	(ft)	(ft)	(lbs)
Inner Casing A – Upper Half	1	30'8"	16'5"	11'10"	155,000
Inner Casing B – Upper Half	1	30'8"	16'5"	11'10"	155,000
Inner Casing C – Upper Half	1	30'8"	16'5"	11'10"	155,000
Lower Casing A with Blade Carrier & Shipping Frame	1	30'8"	20'8"	15'	350,000
Lower Casing B with Blade Carrier & Shipping Frame	1	30'8"	20'8"	15'	350,000
Lower Casing C with Blade Carrier & Shipping Frame	1	30'8"	20'8"	15'	350,000

Eliminated Radioactive Waste and saved over \$2M

# DC Cook – Barge Departure

After months of planning and analysis the site awarded a contract to both Barnhart for transport and UniTech for disposition.

The barge departed from St. Joe, Michigan on Sunday, September 10<sup>th</sup> at 1:00 p.m.



The barge traveled through the Mississippi, Ohio, and Tennessee navigable river systems (~ 1200 miles).

# Barge Arrival – Oak Ridge, TN

- The barge arrived at 2:00 a.m. on Wednesday, September 27th. **17 ½ days** in transit.
- The barge averaged **6 mph** but never exceeded **8 mph**.



# Barge Arrival – (Continued) Close Up





# Barge – Unloading (Continued)

- Barnhart used a Goldhofer to unload the casings.
- It took 2 full days to unload and stage all 6 casings from barge to staging area.



# Radiological Monitoring Plan

- UniTech preformed 100% direct radiological survey of the upper and lower casing in accordance with UniTech Procedure RP-062, NRC IE Circular 81-07, & Reg. Guide 1.86.
- All areas of the casings were 100% surveyed and free released prior to cutting for final disposition



# Radiological Monitoring Plan

- UniTech also used a Canberra (ISOC) counting system to survey the casings and verify the materials met release standards. (Double check and verification of frisking procedure)
- After sectioning and cutting the casings all materials were resurveyed with the ISOC system prior to disposition



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Peak Analysis Report:                               10/17/2017 10:23:08 AM                Page: 2
.....
***** PEAK ANALYSIS REPORT *****
.....

Detector Name: 0230
Sample Title: Upper Casing UA 2
Peak Analysis Performed on: 10/17/2017 10:20:07 AM
Peak Analysis Flow Channel: 100
Peak Analysis TO Window: 8000

Peak No.  ROI      ROI      Peak      Energy      FWHM      Net Peak      Net Area      Continuum
No. start end  centroid  [keV]     [keV]      Area          Uncert.      Counts
-----
F 1  812- 825  818.38  205.36  0.88  3.81E+001  1.1%  0.03E+001
F 2  888- 901  894.81  185.57  2.09  2.82E+001  1.3%  0.03E+000

H = First peak in a multiplet region
a = Other peak in a multiplet region
F = Fitted singlet

errors quoted at 1.960 sigma
    
```

# ORSC Processing (Upper Casings)

- All 3 upper casings were cut up for Recycle by 2:30 a.m. on October 5<sup>th</sup>. (Less than 72 hours for processing the 465,000 pounds of upper casings).



# Project Summary

The Final Disposition breakdown is as follows:

- **LLRW:** 0% of material or 0 pounds (100% Free Released)
- **Recycle:** 98% of material or 1,457,430 pounds
- **80+% savings** over Radioactive Waste Burial - **\$2,000,000+** plus the following benefits:
  - Saved volume of radioactive waste, both environmental, political and regulatory benefits to recycle vs radioactive waste.
  - Eliminated Risk of onsite cutting and rigging.
  - Barge to TN cheaper than Cut up and Rail to Utah.



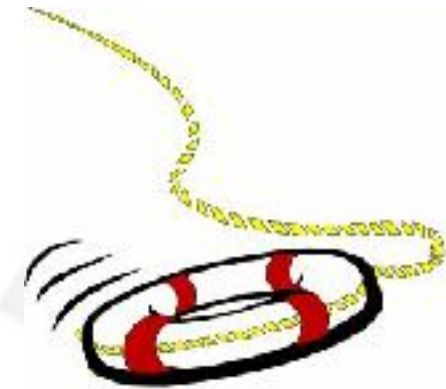
# Additional Savings at DC Cook further reduce Radioactive Waste \$'s

Sort waste into categories (tools/equipment (recycle), BSFR level, items for decontamination, potential for free release /scrap value.



Processing DC Cook Waste – 85% BSFR  
Saving \$0.65/lb + (30-40% Savings)

# *“Reducing Costs to keep plants viable”*



# Questions