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An AEP Company

DC Cook Turbine Project

"Reducing Costs to Keep the Nuclear Power Plants Viable"

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INPO/NSA Innovation Expo

May 20-22, 2018

Outline

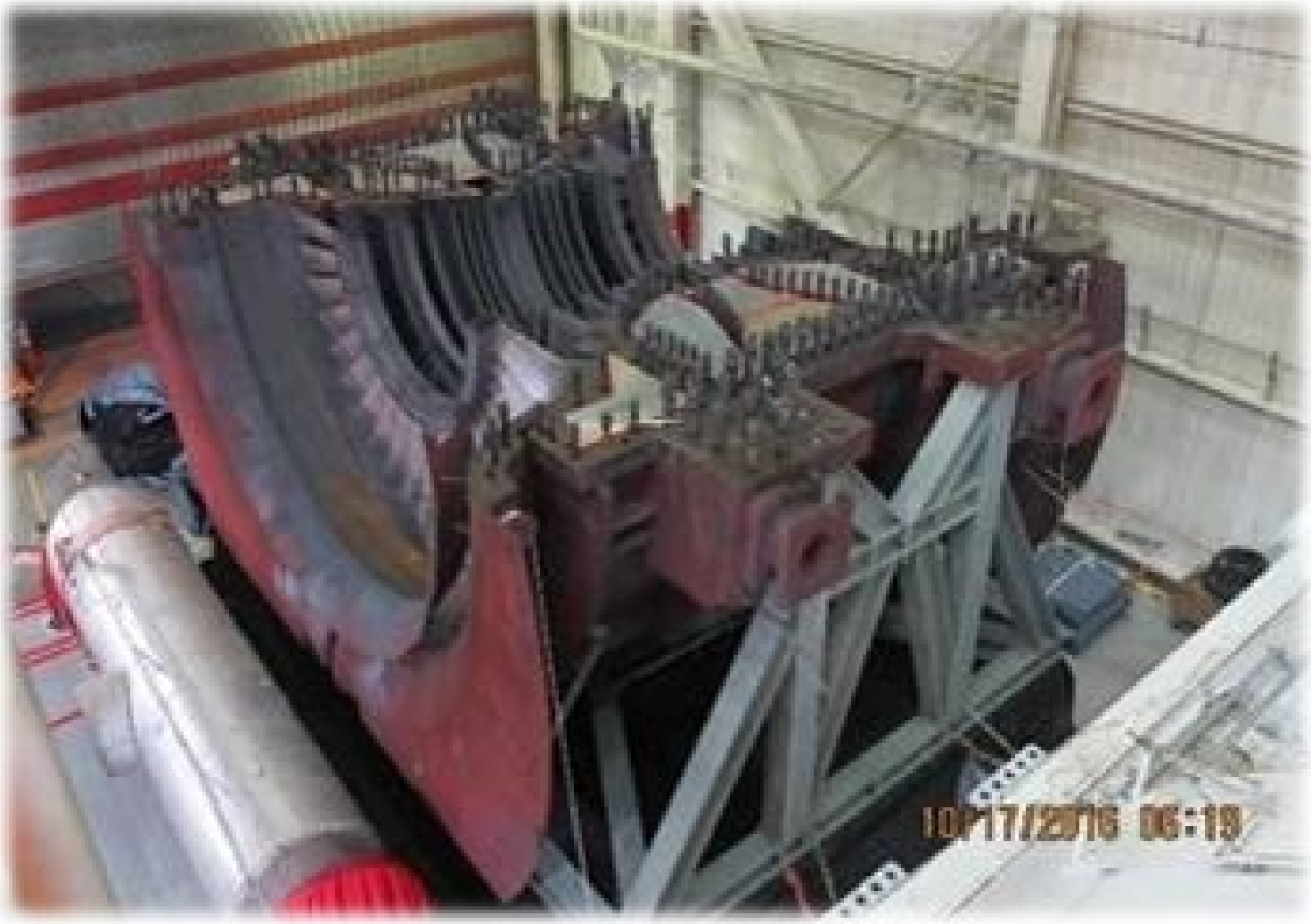
- Background
- Project and Service Update
  - DC Cook Turbine Casings
  - Obsolete Equipment Projects
  - DAW Minimization
- Questions

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

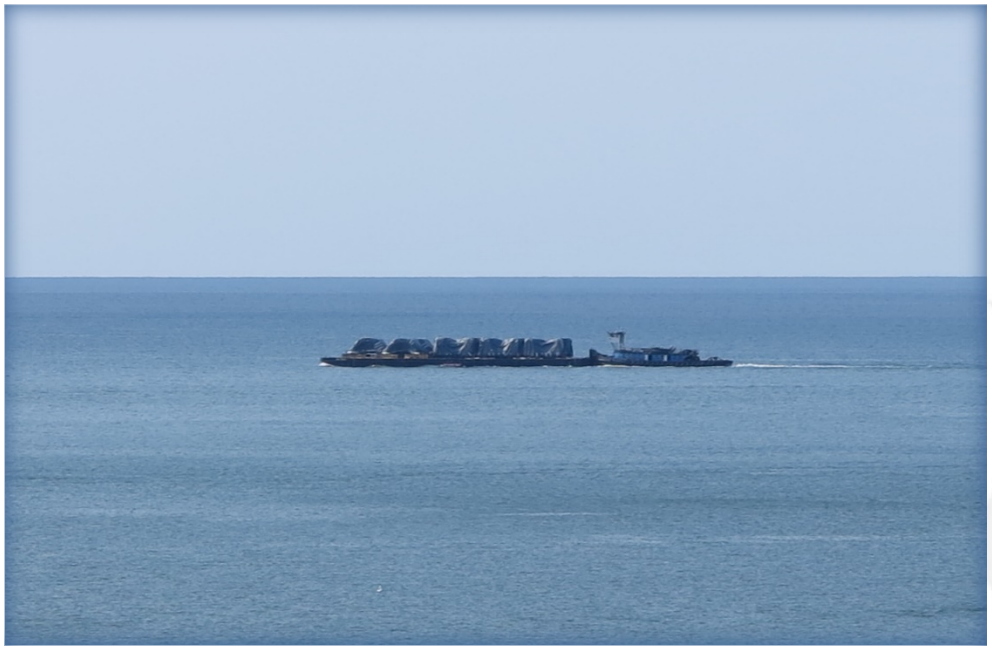
Description	Qty	Length (ft)	Width (ft)	Height (ft)	Weight (lbs)
Inner Casing A – Upper Half	1	30'8"	16'5"	11'10"	155,000
Inner Casing B – Upper Half	1	30'8"	16'5"	11'10"	155,000
Inner Casing C – Upper Half	1	30'8"	16'5"	11'10"	155,000
Lower Casing A with Blade Carrier & Shipping Frame	1	30'8"	20'8"	15'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

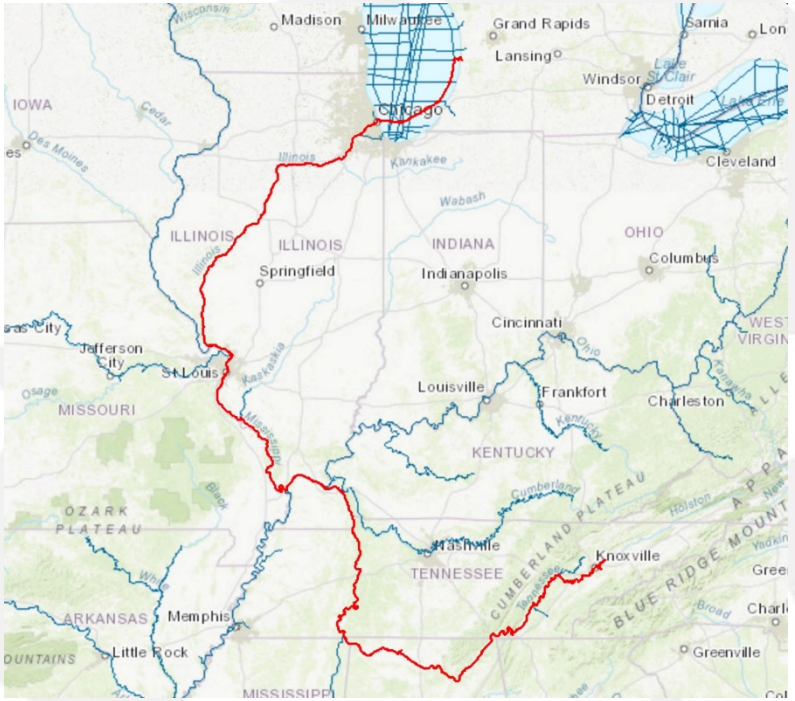
Eliminated Radioactive Waste and saved over $2M

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 10th at 1:00 p.m.





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

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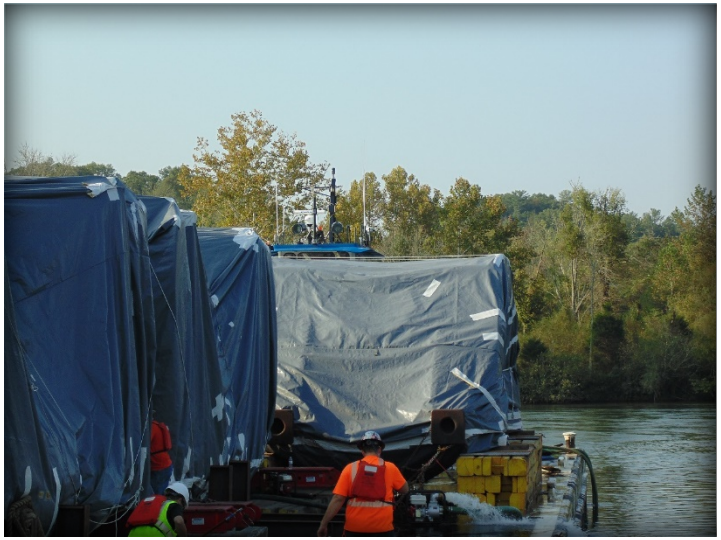
Barge Arrival – Oak Ridge, TN

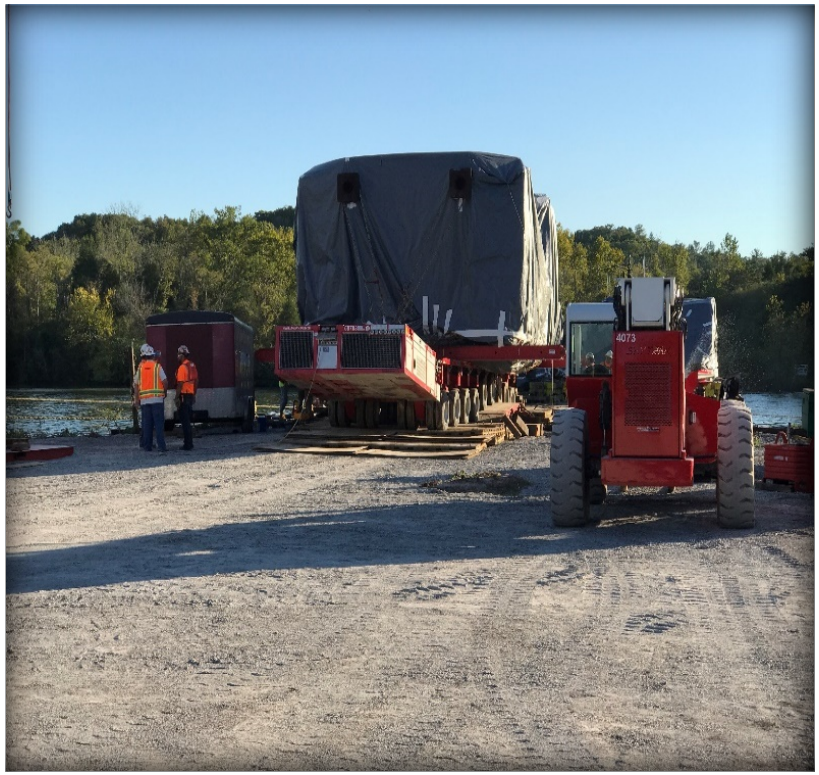
- The barge arrived at 2:00 a.m. on Wednesday, September 27th. **17 ½ days** in transit.
- The barge averaged **6 mph** but never exceeded **8 mph**.

Barge Arrival – (Continued) Close Up



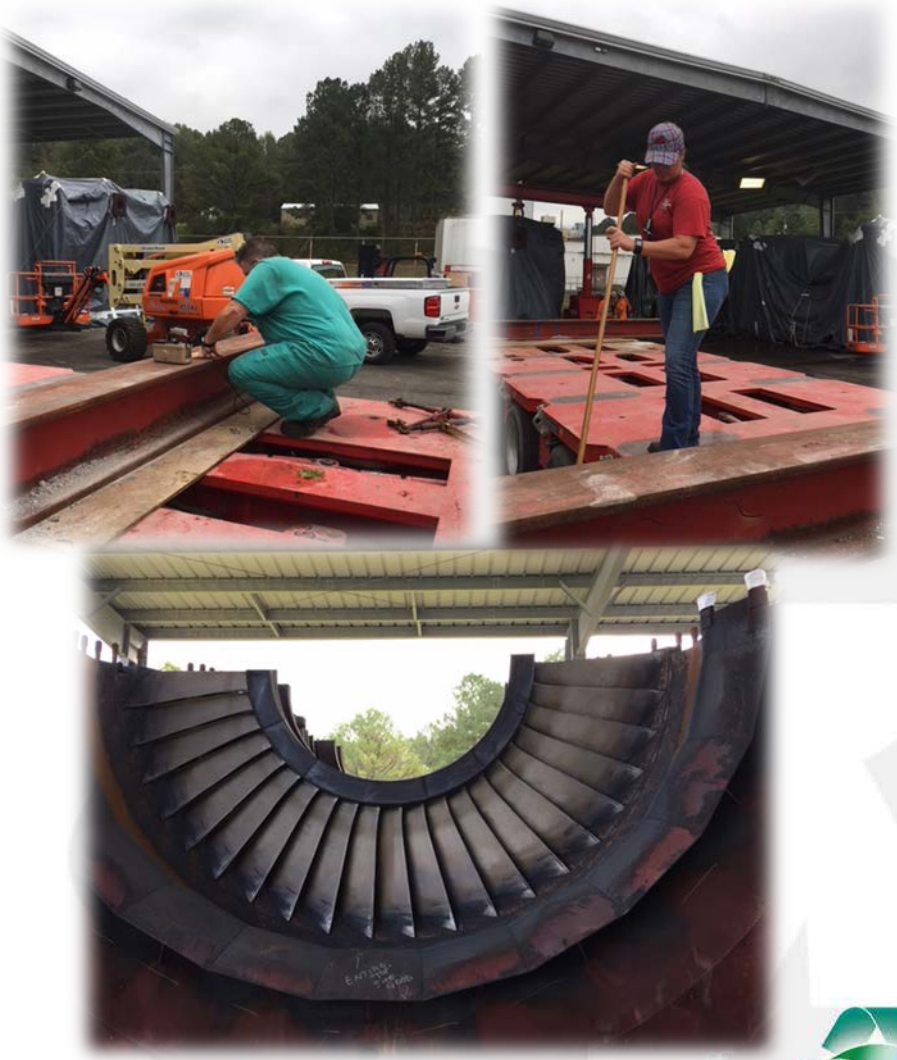
Barge – Unloading (Continued)

- 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.



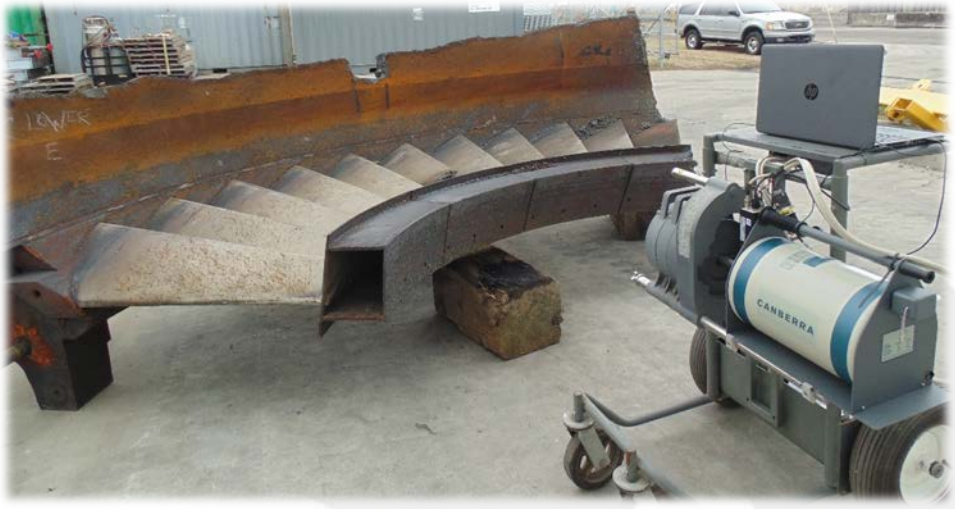
Radiological Monitoring Plan

- 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



Peak Analysis Report 10/17/2017 10:23:08 AM Page 2

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***** PEAK ANALYSIS REPORT *****
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Detector Name: 8234
Sample Title: Upper Casing UA-2
Peak Analysis Performed on: 10/17/2017 10:23:07 AM
Peak Analysis From Channel: 100
Peak Analysis To Channel: 8000

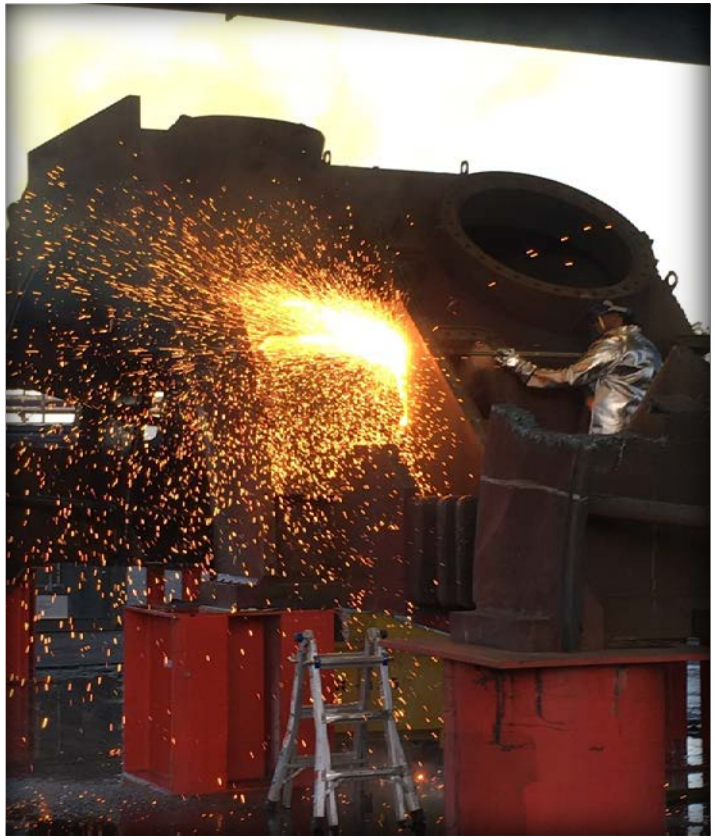
	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
F	1	814-	825	819.30	295.06	0.83	3.81E+001	18.16	9.05E+001
F	2	4046-	4061	4053.85	1459.67	2.09	4.54E+001	13.58	0.00E+000

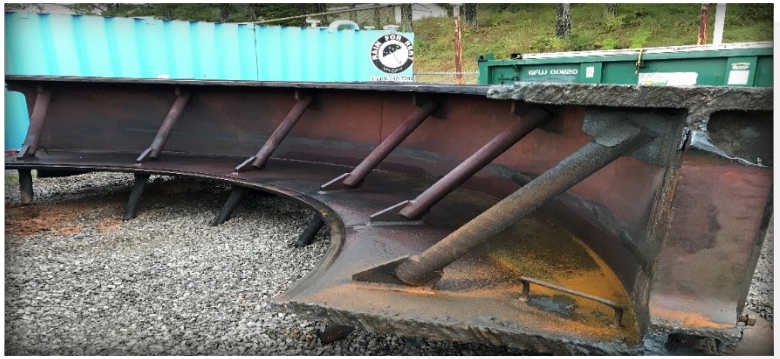
M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

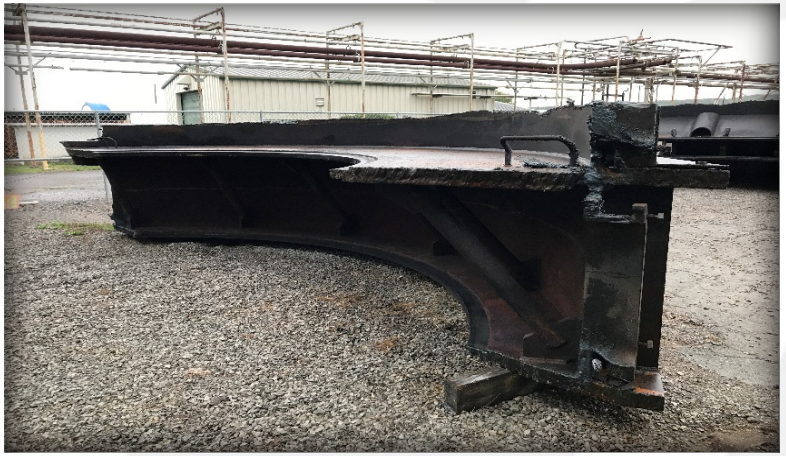
Errors quoted at 1.960 sigma

ORSC Processing (Upper Casings)

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



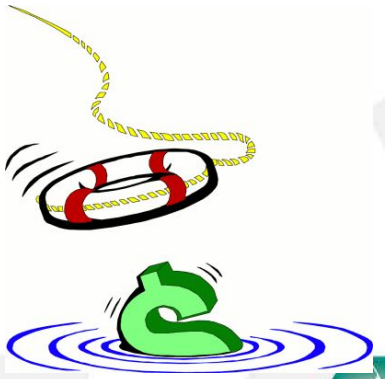




Project Summary

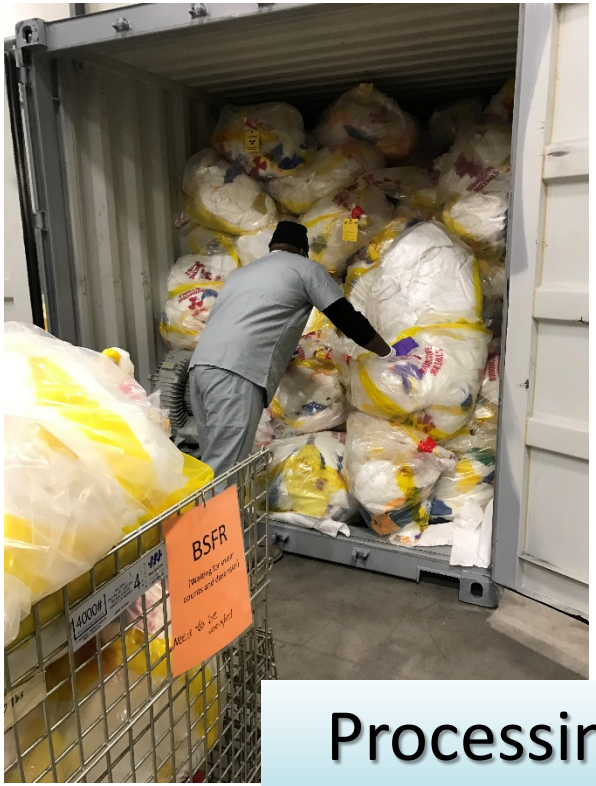
The Final Disposition breakdown is as follows:

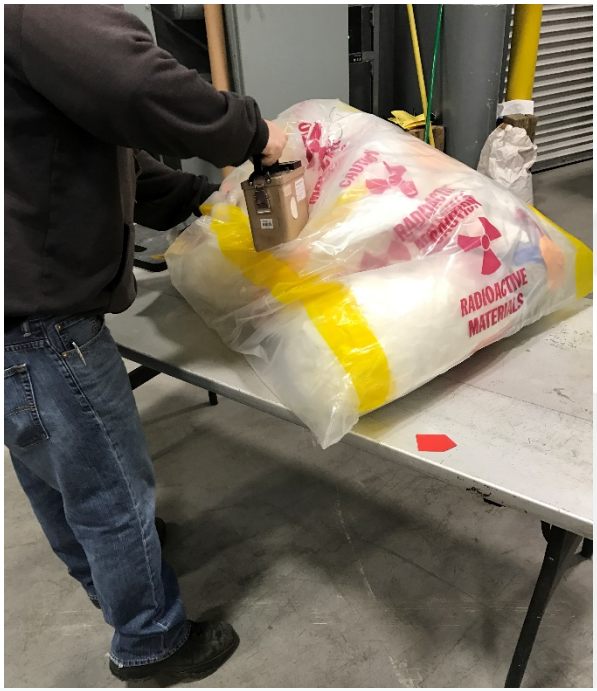
- **LLRW**: 0% of material or 0 pounds (100% Free Released)
- **Recycle**: 98% of material or 1,457,430 pounds
- **80+% savings** over Radioactive Waste Burial - **$2,000,000+** plus the following benefits:
  - Saved volume of radioactive waste, both environmental, political and regulatory benefits to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

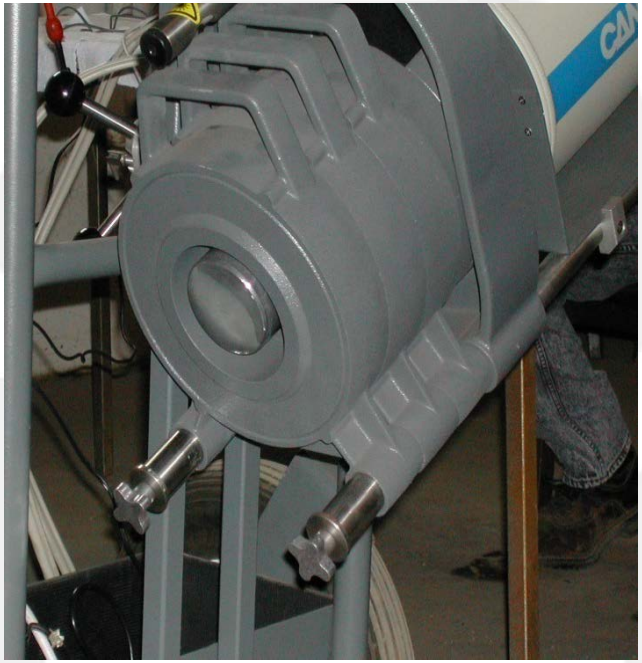


Additional Savings at DC Cook further reduce Radioactive Waste $'s

- 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)

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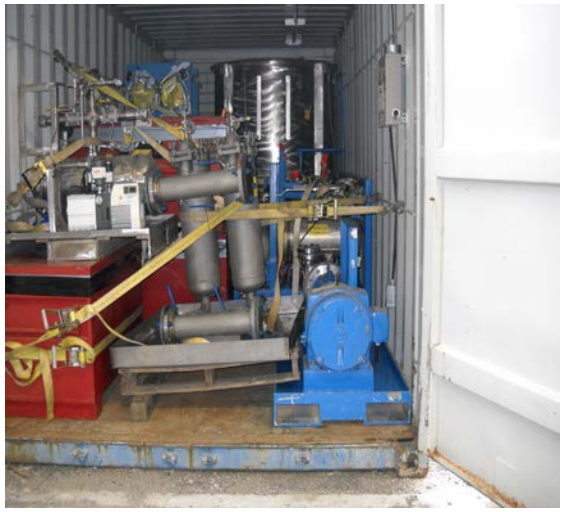
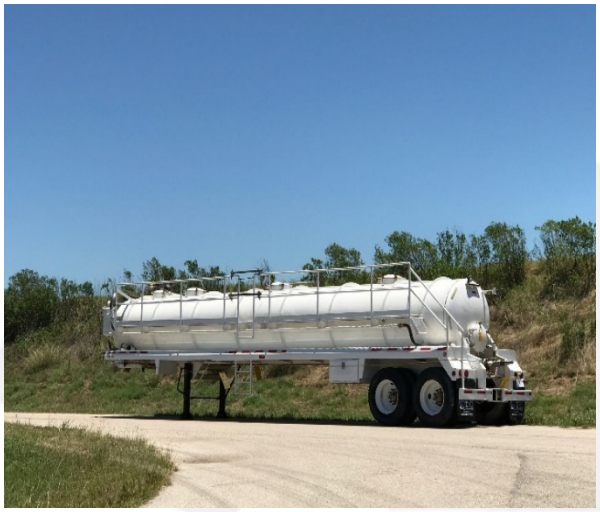
Obsolete Equipment Project Example 1

This obsolete equipment project consisted of 195,868 pounds.

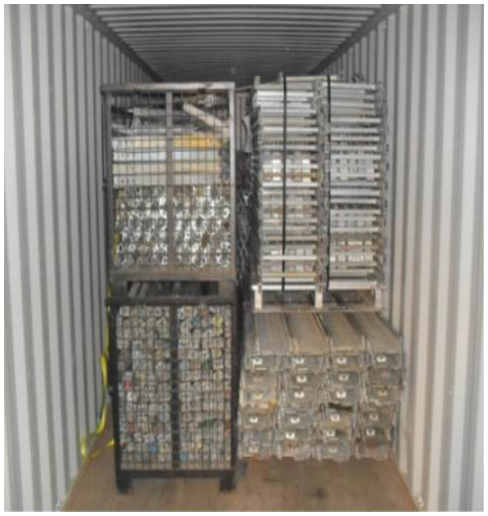


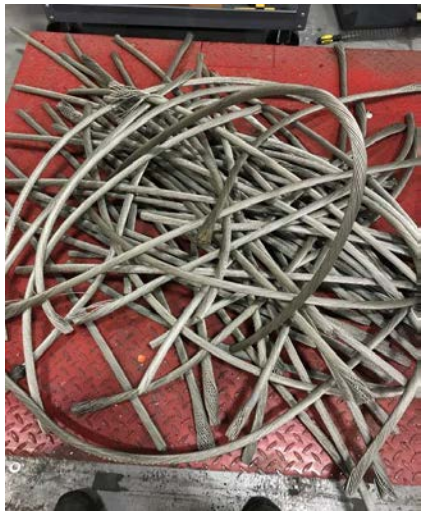


- UniTech ORSC worked with Compact and customer to ensure the Compact rules were honored. Only 27,231 pounds of LLRW was volume reduced and returned to customer for LLRW disposal. 86% went BSFR, Free Release, Recycling.
- Type of equipment included: Pumps, motors, tanks, skids, racks, platforms, sea vans, frac tanks, test equip, valves, heat exchangers, instruments, pipes, steel liners, wood, etc.
- Per the customer, based on industry pricing, the estimated savings were greater than **$1 Million**.

Obsolete Equipment Project Example 2

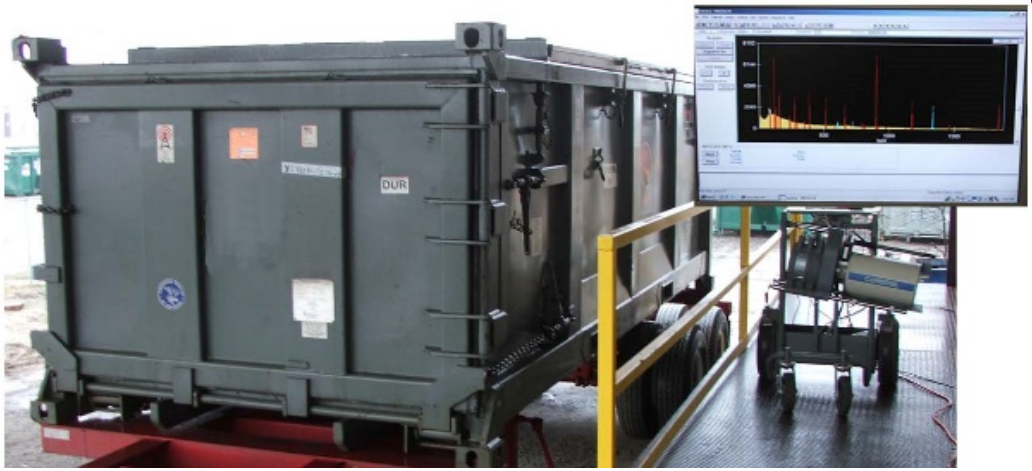
This obsolete equipment project consisted of 277,457 pounds.

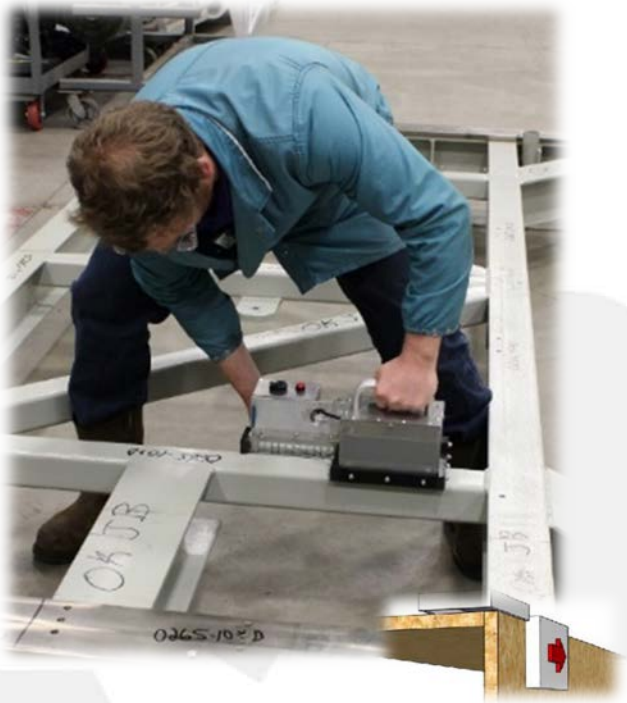


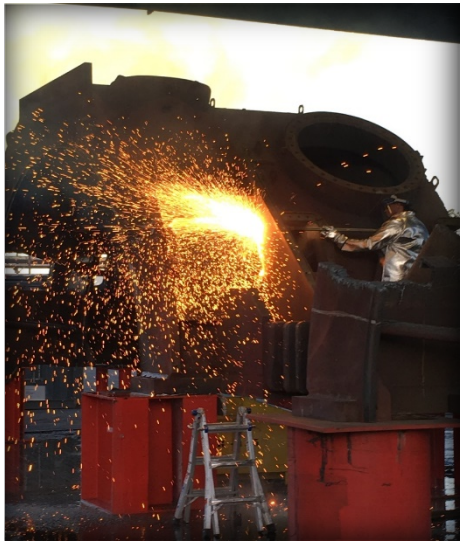


- UniTech ORSC worked with customer to ensure the most cost effective packaging and transportation. Only 14,311 pounds was sent for of LLRW disposal. 95% went BSFR, Free Release, Recycling.
- Type of equipment included: Large metal boxes, legacy waste, sea lands, wood pallets, copper, DAW, scaffolding, etc.
- Per the customer, based on industry pricing, the estimated savings were greater than **$520,200.00.**
- Phase 2 will continue through 2018.

"Innovating to meet your needs"







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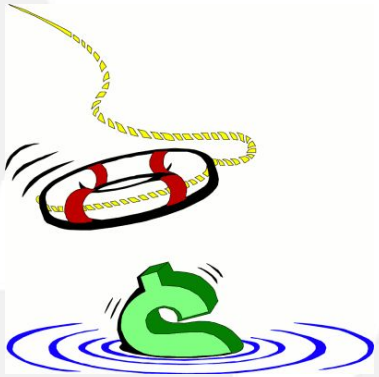
REDUCE, REUSE, RECYCLE



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Questions