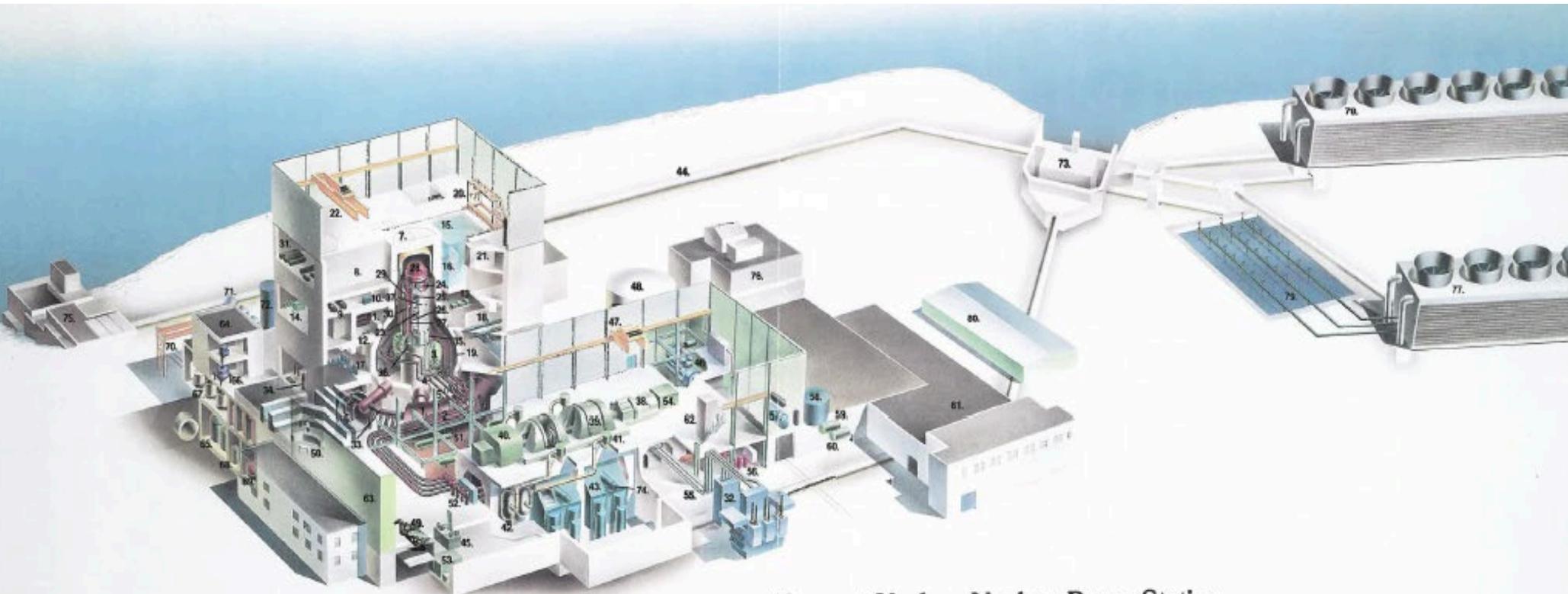


NorthStar VTY Decommissioning



Vermont Yankee Nuclear Power Station

NDCAP Update 5/4/2020

- | | | | |
|---|----------------------------------|-----------------------------------|--------------------------------------|
| 1. Tons | 21. New fuel storage vault | 41. Intercept valve | 61. Receiving and stores |
| 2. Main steam lines | 22. Overhead crane | 42. Moisture separator | 62. Elevator |
| 3. Recirculation pump | 23. Biological shield wall | 43. Main condensers | 63. Turbine building |
| 4. Inboard main steam isolation valve | 24. Steam dryer | 44. Cooling water recirculation | 64. Rad waste building |
| 5. Outboard main steam isolation valve | 25. Steam separator | 45. Turbine oil tank | 65. Condensate phase separator tanks |
| 6. Downcomers | 26. Fuel assemblies | 46. Emergency diesel generators | 66. Centrifuge |
| 7. Shield plug | 27. Reactor vessel | 47. Overhead crane | 67. Cask filling area |
| 8. Dryer/separator storage pool | 28. Vessel head | 48. Condensate storage tank | 68. Spent resin tank |
| 9. Reactor building cooling water heat exchangers | 29. Main steam outlet | 49. Feedwater pump | 69. Waste sludge tank |
| 10. Reactor building cooling water pump | 30. Recirculation water outlet | 50. Control room | 70. Traveling hoist |
| 11. Reactor water cleanup heat exchanger | 31. Uninterruptible power supply | 51. High pressure heaters | 71. Sample tanks |
| 12. Reactor water cleanup pump | 32. Main transformer | 52. Main stop valve | 72. Surge tank |
| 13. Vital AC motor generator set | 33. Ring header | 53. Turbine lube oil storage tank | 73. Discharge structure |
| 14. Recirculation motor generator set | 34. RHR service water pump | 54. Excitation cubicle | 74. Low pressure heaters |
| 15. Fuel pool (spent fuel storage) | 35. Recirculation inlets | 55. Main generator leads | 75. Intake structure |
| 16. Spent fuel rack | 36. Manifold | 56. Make-up demineralizers | 76. Advanced off-gas building |
| 17. Hydraulic control units | 37. Feedwater inlet | 57. House heating boiler | 77. West cooling tower |
| 18. Standby gas treatment | 38. Generator | 58. Clearwell | 78. East cooling tower |
| 19. Primary containment wall | 39. Low pressure turbine | 59. Acid storage tank | 79. Spray pond |
| 20. Refueling bridge | 40. High pressure turbine | 60. Caustic storage tank | 80. Warehouse |

NorthStar Nuclear Decommissioning Company, LLC

Simple Priorities



SAFETY with all we do: Target Zero ( accidents)

Radiological, Environmental, Industrial, Nuclear

Do it right. Do it safe.



Project Schedule – Overview (Re-Cap)

	NorthStar Ownership (Target 01.11.2018)			Partial License Termination (Target 12.31.2026)								License Termination (Est. 12.31.2052)	
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027 to 2051	2052
Dry Fuel Storage Program (Fuel on ISFSI - Dec. 31, 2018)	Completed by Entergy												
Large Component Removal (RPV, RPVI, etc.)		Engineering & Planning		Complete - March 2022									
Decontamination & Decommissioning		Pre-Closing Work		Complete - December 2026									
Spent Fuel Management				ISFSI Operations and Management (2019 thru 2026)						ISFSI Only Operations Period (2027 thru DOE Fuel Pick-up)			

Performance Update

- SAFETY: **Acceptable**

Zero NorthStar OSHA Recordable Lost Time Accidents to date with over 350,000+ person hours worked on site

- REGULATORY: **GOOD**

NRC: Zero Cited and Non-Cited Violations for all of 2019, and for 2020 so far to date.

- PRODUCTION: **Acceptable**

Overall project schedule on track. Reactor removal project remains slightly behind, bulk decom work and Site Characterization advancing ahead of initial projections

Reactor Vessel Segmentation Update

Reactor Head DONE

Steam Dryer DONE

Steam Separator DONE

Shroud Head In-Progress

Feedwater Sparger In-Progress

Tooling Checked/Reset/Adjusted

Support systems maintenance
(PCS, water filtration, WPS-AF/FF,
etc.,)



Steam Separator was one of the more (if not the most) complex segmentation efforts.

Next component (primarily the Top Guide, aka; Upper Core Grid) has been carefully evaluated, and designated as Greater Than Class C (GTCC) waste due to higher activation levels

RV Closure
Head

Steam
Dryer

Steam
Separator

Upper
Core Grid

Guide
Tubes

Core Plate
Assembly

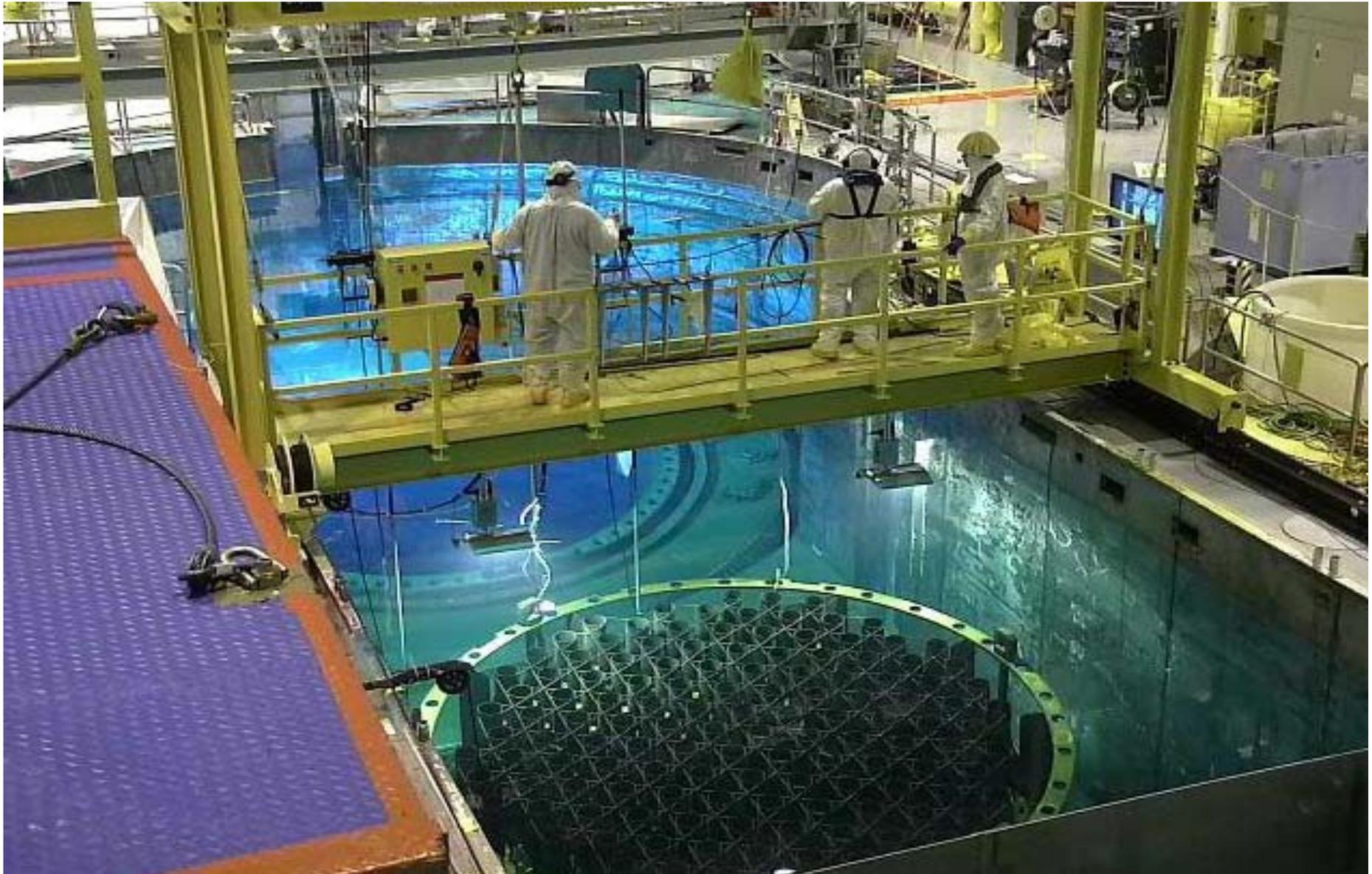
Shroud
Cylinder

Jet Pump
Assemblies

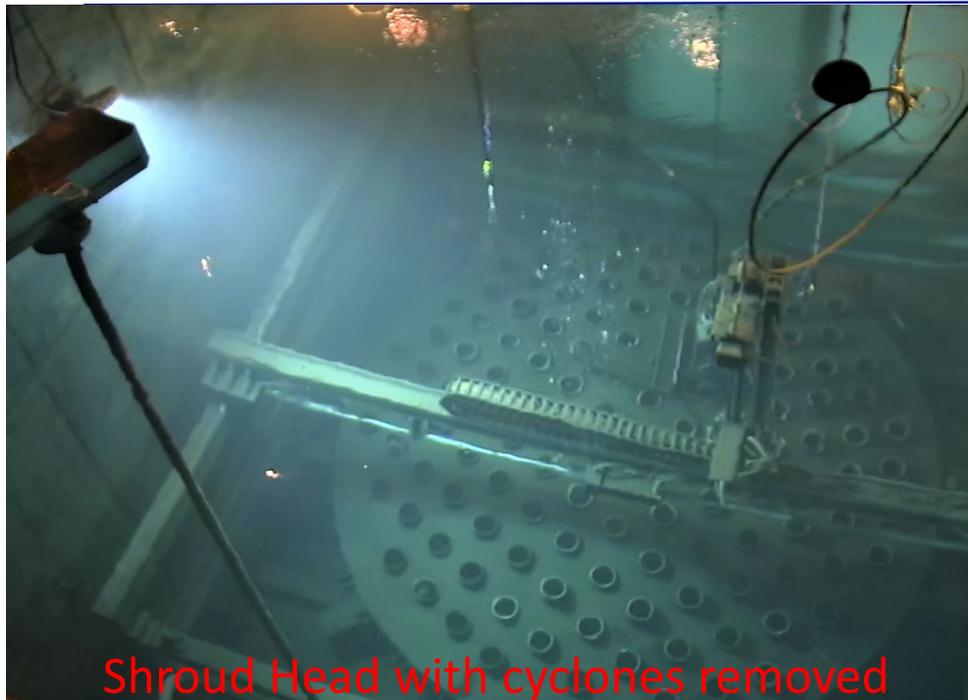
RV
Nozzles

Reactor
Vessel

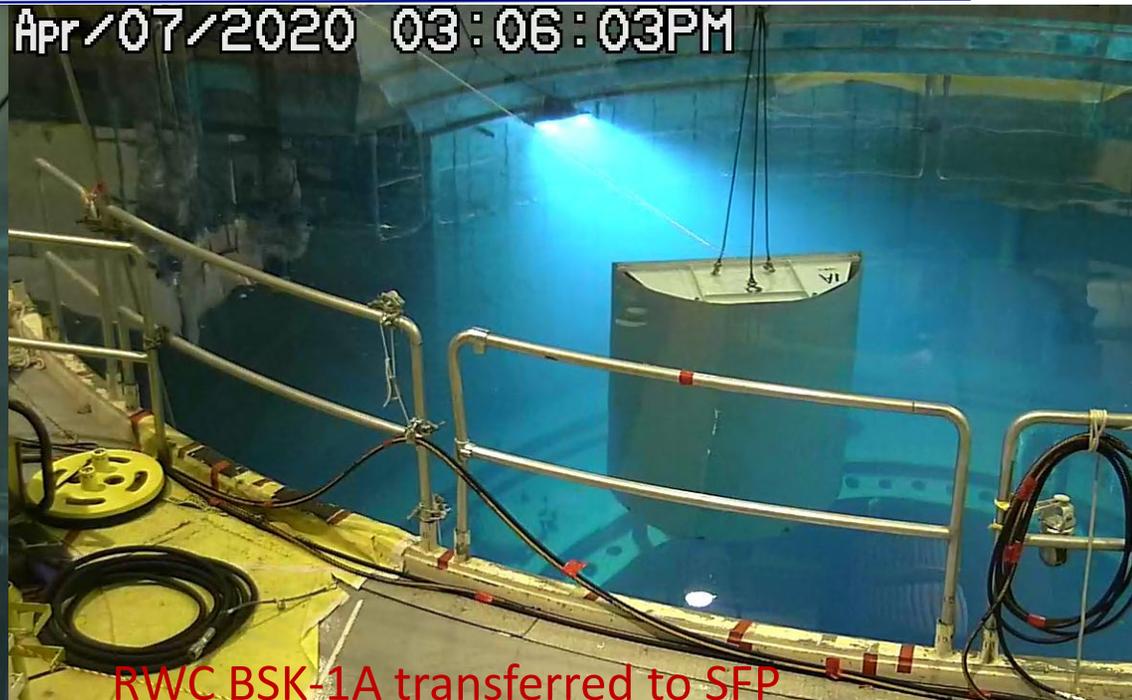
Completion of Steam Separator Segmentation



Refuel Floor Set up / Steam Separator Segmentation



Shroud Head with cyclones removed



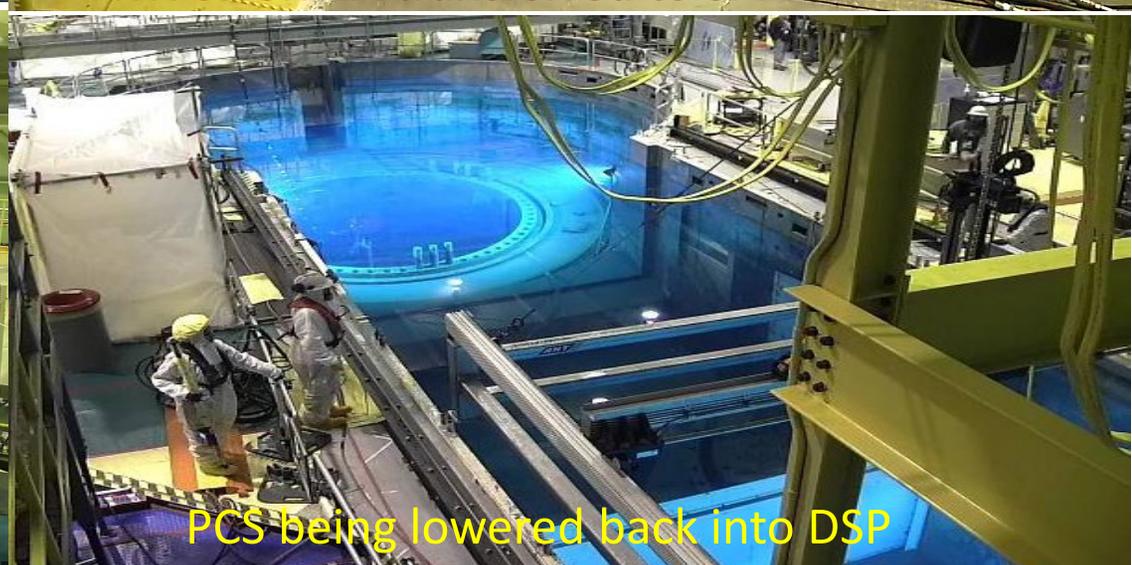
Apr/07/2020 03:06:03PM

RWC BSK-1A transferred to SFP



Apr/10/2020 08:28:49AM

PCS being removed for maintenance



PCS being lowered back into DSP

Steam Separator Segmentation (Rx internals)



Setting up final segmentation Bandsaw



Installing final segmentation Bandsaw in SFP



Apr / 08 / 2020 08 : 24 : 04 AM

Guiding basket (of cyclones) thru xfr canal



Baskets full of cyclones awaiting packaging

Turbine Building / Steam Plant Demo



Turbine Building / Steam Plant Demo



With insulation abatement complete, workers prep/remove smaller steam lines with hand tools, gaining access to larger piping & components, such as Turbine Stop/Control valves.

Turbine Building/ Steam Piping & Component Removal



Workers prep to cut Feedwater system piping/valve for removal.

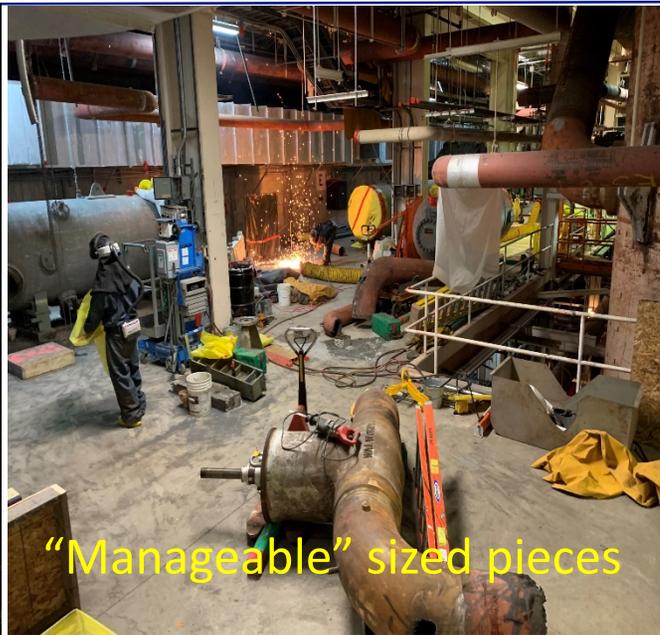


Diamond wire saws used to reduce large components into manageable sized pieces. (1/2 of a Feedwater Heater shown)

Feed Water Sys/ Steam Piping & Component Removal



Steam/Feedwater pipe cuts



"Manageable" sized pieces



Turbine Stop Valves removed



All steam lines "must go"



Lifting Feed Htrs to Turb Deck



Packaging Gondola Railcars

Shipping and Material Volumes

- Currently shipping about 3 rail cars per week to WCS (averaging 11 shipments per month 1/06/20 thru 4/24/20)
- Total number of shipments to date: 98
- Total Volume 226,800 ft³ (8,400 cyd)
- Total Weight 10,600,000lbs (5,300 tons)
- Total Activity 147 curies
- Rail car inventory increased to eliminate turn-around-time impact and accommodate higher volumes anticipated as demolition rate continues to improve.

Non-Rad Site Characterization/Remediation

Much progress made with support and efforts of regulatory agencies.

ANR/ATC review complete of SSI Report submitted 1/31/20 and comments received. Changes/revisions in process.

The revised Supplemental Field Program and Supplemental Site Investigation reports submitted on January 31, 2020 included updated information on a number of AOCs;

AOC 3 - South Warehouse

AOC 7 - Fuel Storage Tanks

AOC 8 – Transformers

AOC 5 - Turbine Building Area

AOC 12 – Edson’s Garage

AOC 13 – Septic System and
Residual Spreading Areas

AOC 15 - Cooling Towers

AOC 16, - Railroad

AOC 17 – Groundwater

Non-Rad Site Characterization/Remediation

- What's Happening now
 - Remediation plans (3 so far) designed and submitted to ANR on 4/13/20 to clean up and close out those Areas of Concern (**AOC's 3,7 & 8**) (CAPs presently in Public Comment period)
 - Four rounds of Quarterly Groundwater Sampling completed. NO anomalies or new source terms identified.
 - Next groundwater sampling planned in May, in coordination with ANR/ATC representatives. Four additional wells drilled/developed to improve sample data accuracy.
 - Annual Report submission on track for end of April.

Non-Rad Site Characterization/Remediation

- What's Happening now? (Cont'd)
 - Revised/completed SWPPP Plan
 - Completed Post Mold Abatement Sampling evaluation (with No Further Action recommended)
 - Iterative (additional) select sampling of paint/coatings, building materials per State Agencies' direction to ensure effective characterization and controls prior to demo activities.
 - Submittal to and concurrence from ANR on building characterization for removal of the Warehouse and AOG structures.
 - Continued collaboration with VT ANR, DEC via Bi-Weekly calls to maintain alignment.

Upcoming Demo for Warehouse & AOG (re-cap)



QUESTIONS?