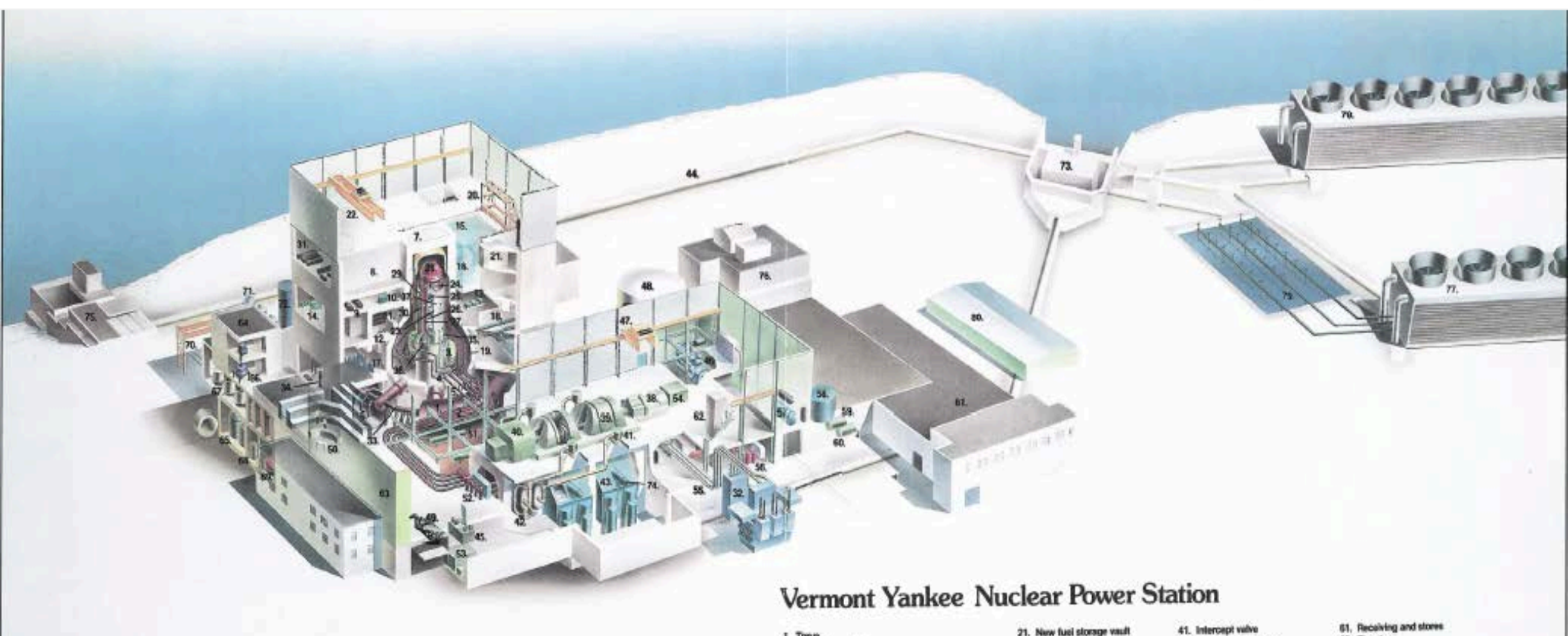


NorthStar VTY Decommissioning



Vermont Yankee Nuclear Power Station

Vermont Yankee Project Review October 2019

- | | | | |
|---|----------------------------------|-----------------------------------|--------------------------------------|
| 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 well | 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 oil-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

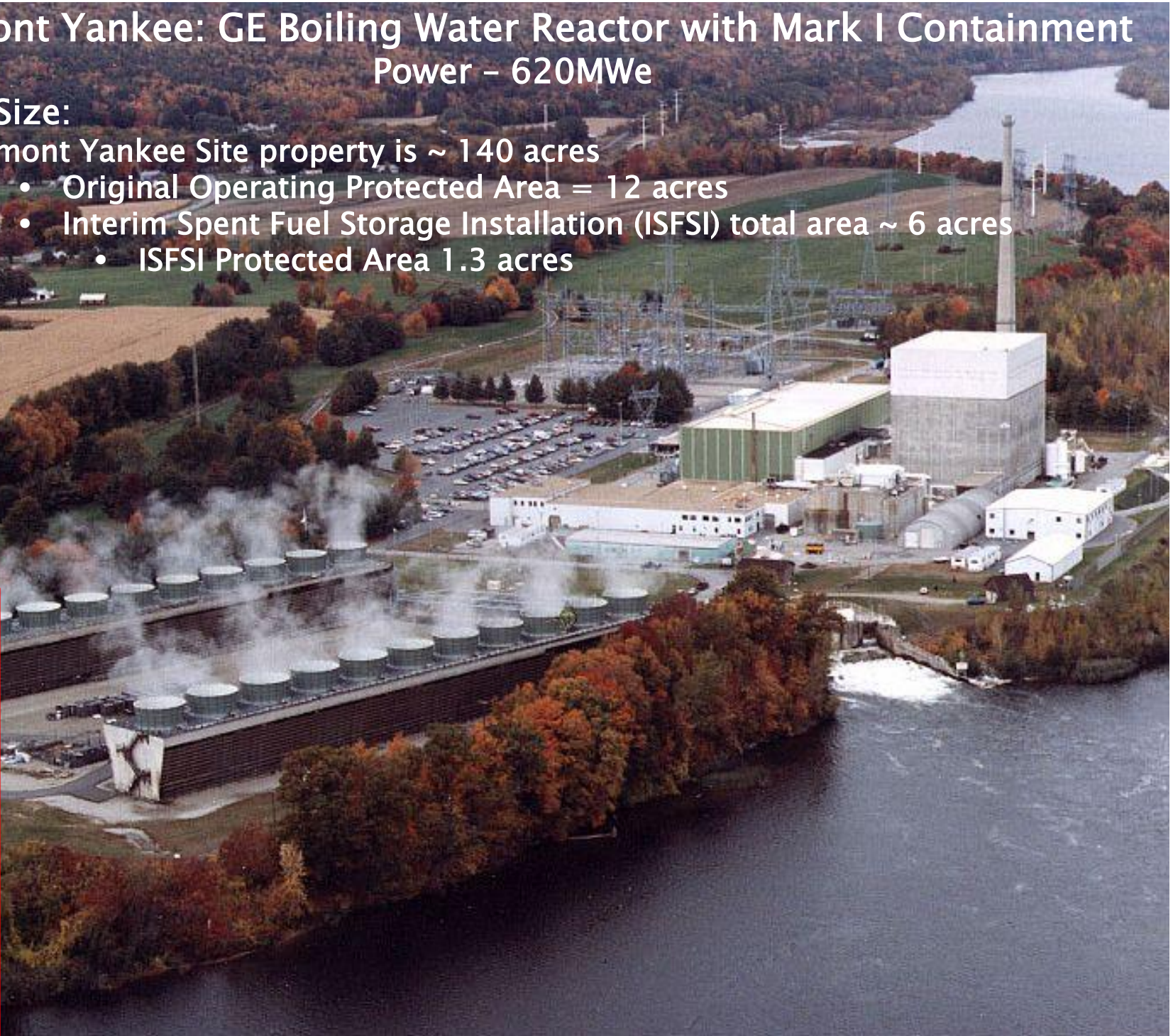
VY Site info/size

Vermont Yankee: GE Boiling Water Reactor with Mark I Containment
Power – 620MWe

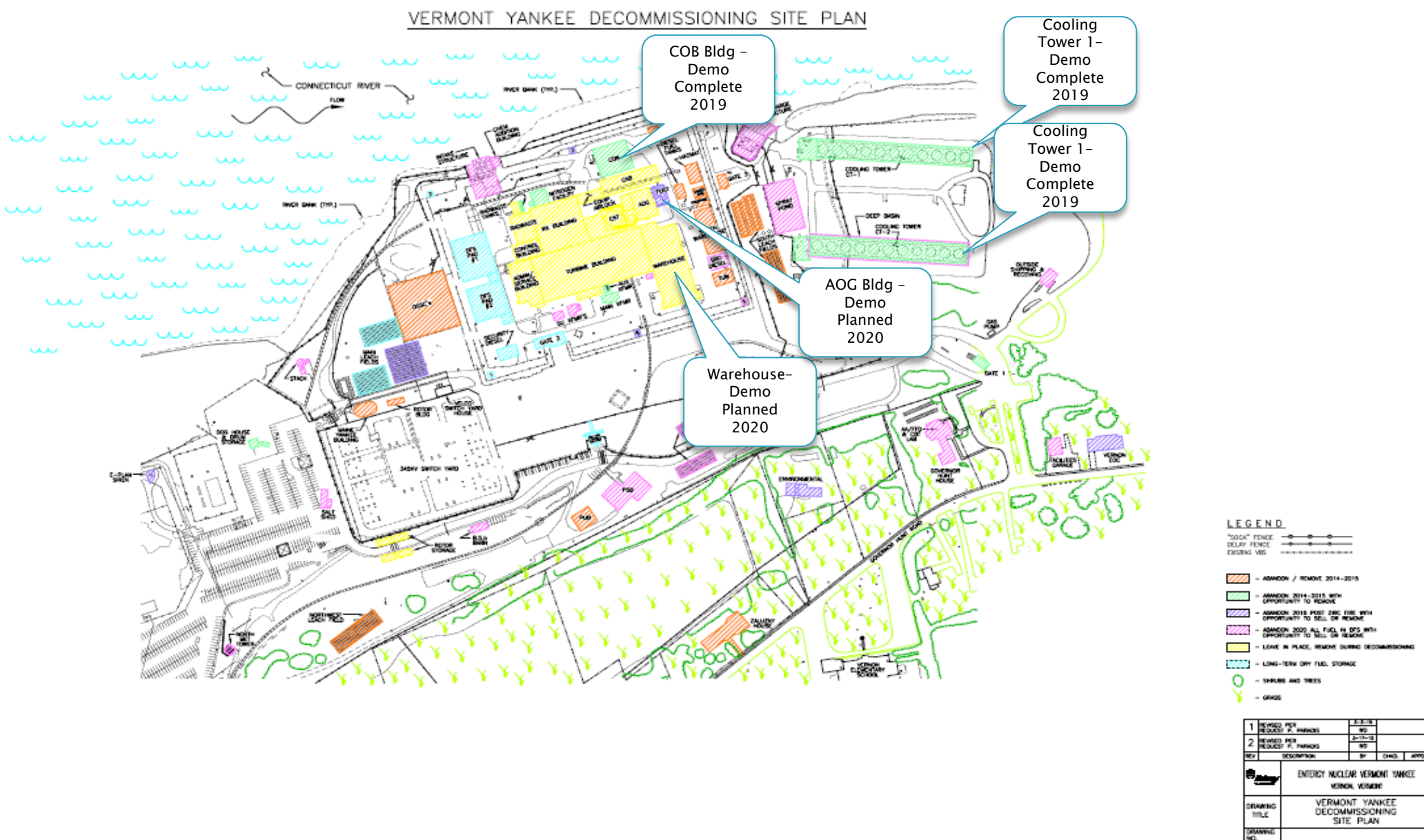
Facility Size:

Vermont Yankee Site property is ~ 140 acres

- Original Operating Protected Area = 12 acres
- Interim Spent Fuel Storage Installation (ISFSI) total area ~ 6 acres
 - ISFSI Protected Area 1.3 acres



Early Superstructure Demo Opportunities



Simple Priorities



SAFETY with all we do: Target Zero (accidents)

Radiological Safety – As Low As Reasonably Achievable (ALARA)

Industrial Safety

Environmental Safety

Do it right. Do it safe.

RADIOLOGICAL ALARA METRICS 2019

- Planned Goal to end of 2019 78.734 person Rem/year
- 2019 Actual as of 9-25-19 35.092 person Rem
- Adjusted 2019 Goal 42.642 person Rem/year

SAFETY METRICS

- Manhours to date – 185,261 manhours
- Reportable – 1 from Subcontractor

ENVIRONMENTAL

- NO unplanned releases

Project Schedule –19 & 20 Overview

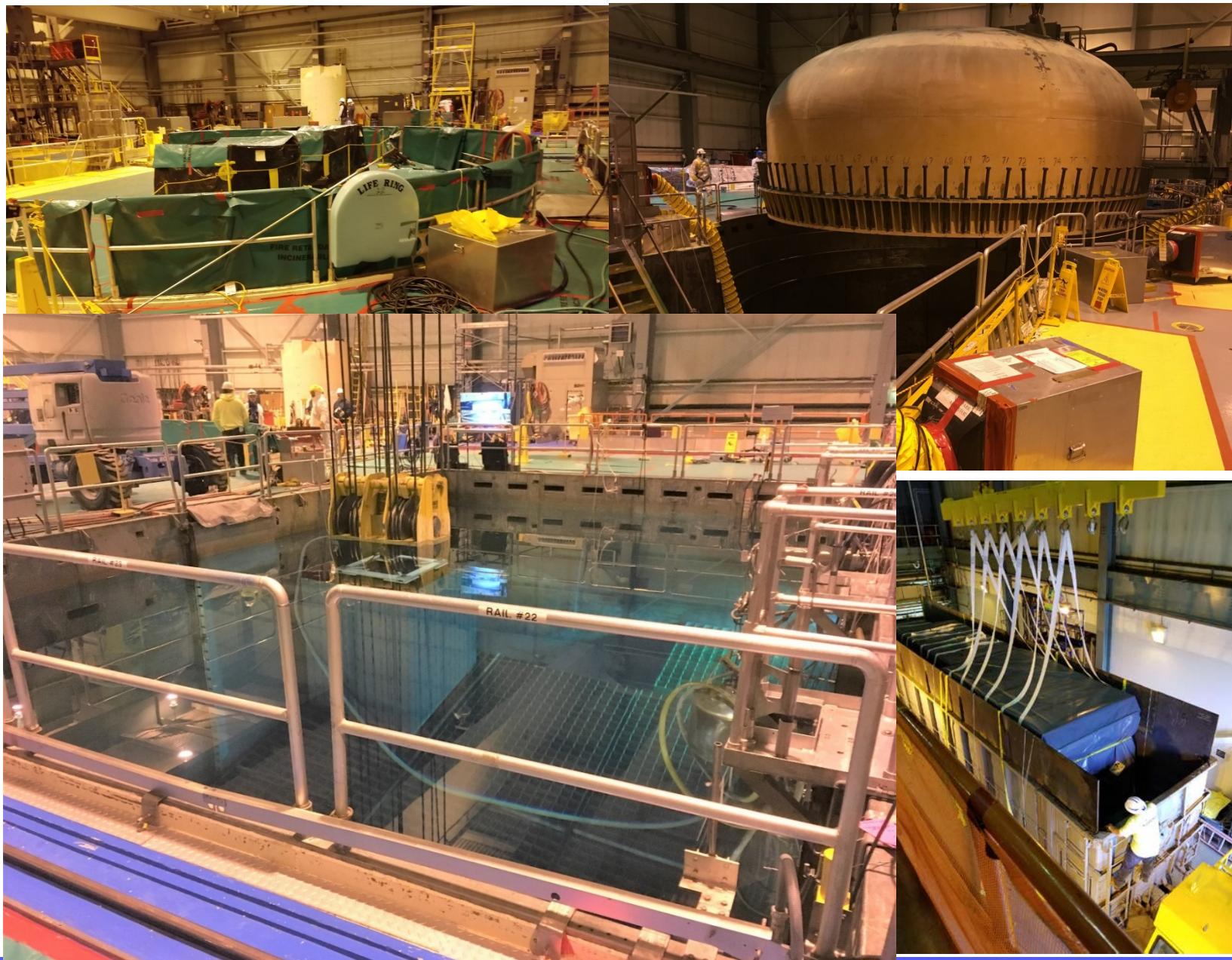
	2019	2020	2021	2022	2023	2024	2025	2026
SFP Rack, and Legacy Waste Removal								
Large Component Removal RPV, RPVI	Complete - Dec 2020							
	Projected Comp April 2021							
Large Component Removal - Turbine	Comp 2019		Comp- 2021					
Large Component Removal - (Torus, Condensor, Transformers, Generators etc.)		Complete - March 2022						
Decontamination & Decommissioning	Complete - December 2026							
Cooling Towers	Comp 2019				Comp 2023			
New Warehouse		Comp 2020			Comp 2023			
AOG		Comp 2020	Comp 2022					
Site Restoration	Complete - December 2026							
Spent Fuel Management	ISFSI Operations and Management							
							Planned	
							Actual	

Schedule:

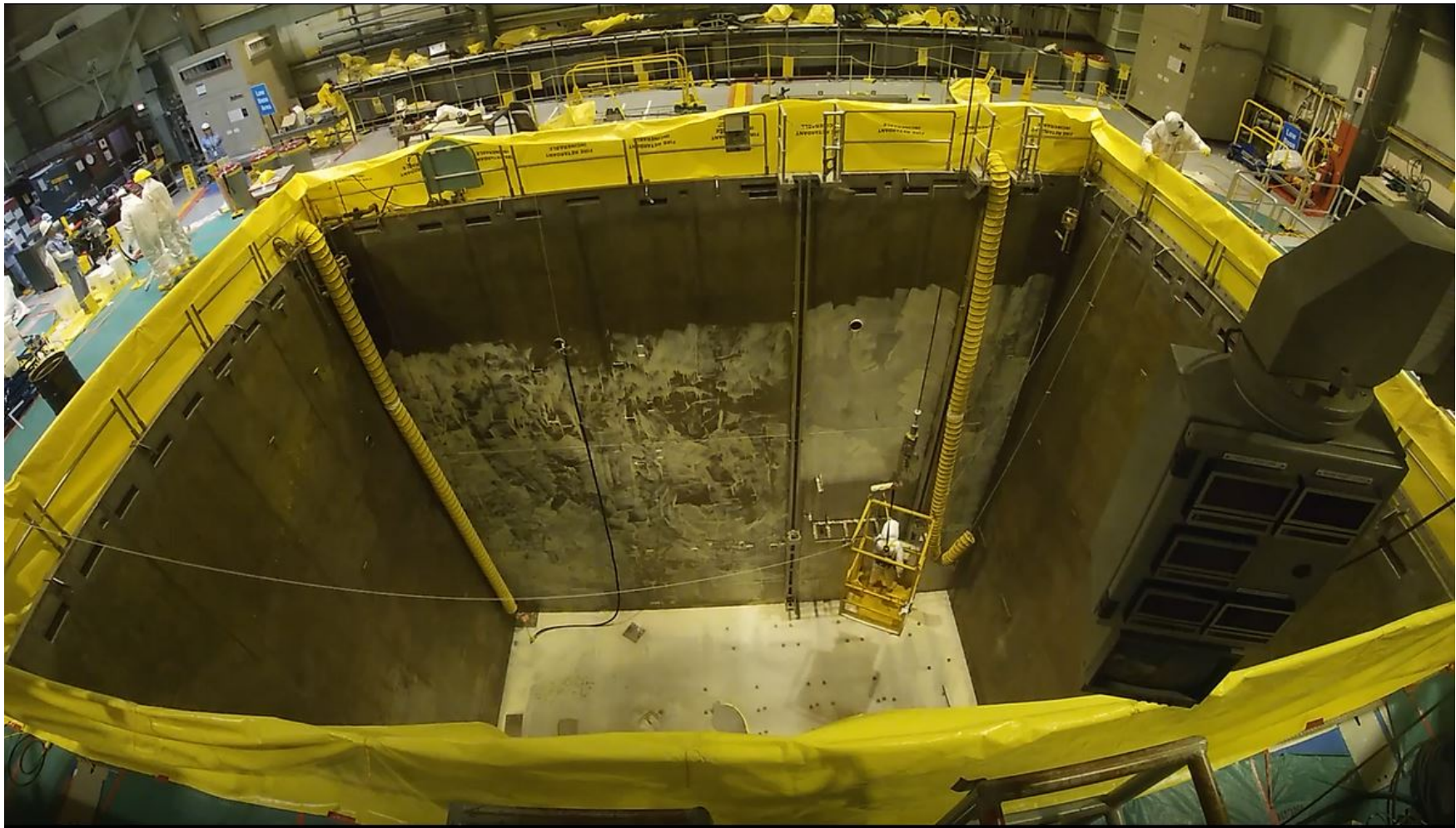
- Critical Path 2019
 - Large Component
 - RVI/RV Segmentation - 2019 to 2020 (ORANO Critical Path)
 - Large Components - 2019 - 2022
 - 2019 - Turbine component (concurrent NS Critical Path)

2019 Reactor Building – Refuel Floor Preparations

RB Preparations
for RVI/RV
Segmentation–
Dryer Beam, Gun
Barrel,
BioShields,
Insulation
Packages,
Drywell head;
and finally Fuel
Racks and SFP
cleanup.



Empty Spent Fuel Pool



2019 Legacy Waste, large component Turbine demo and Turbine Bldg prep

Turbine Building—
large component
turbine, prep of TB –
abatement and
component removal



2019 Infrastructure Upgrade for D&D

- Refurbish rail line and install of new spur and side rail to support shipping and improve efficiency/safety



- D&D Temporary Covered structure erected for facilitation of Waste Processing and Rail loading operations



2019 Schedule Targets - Building and Structure Demolition

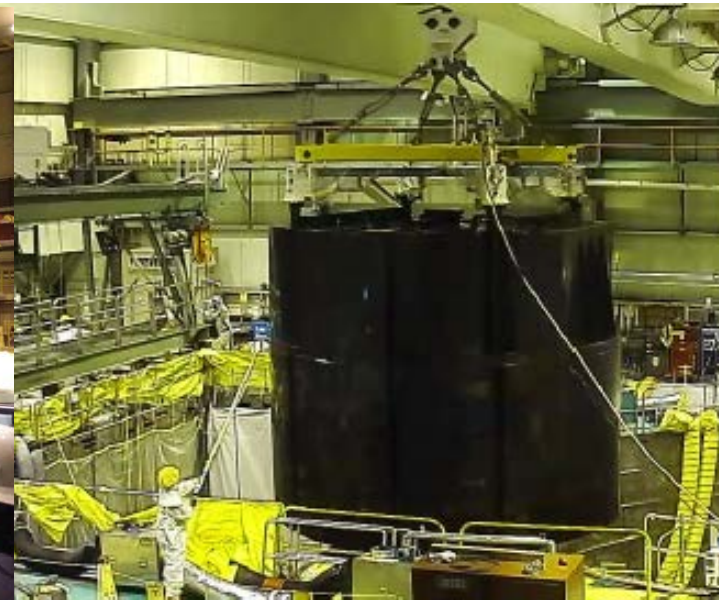
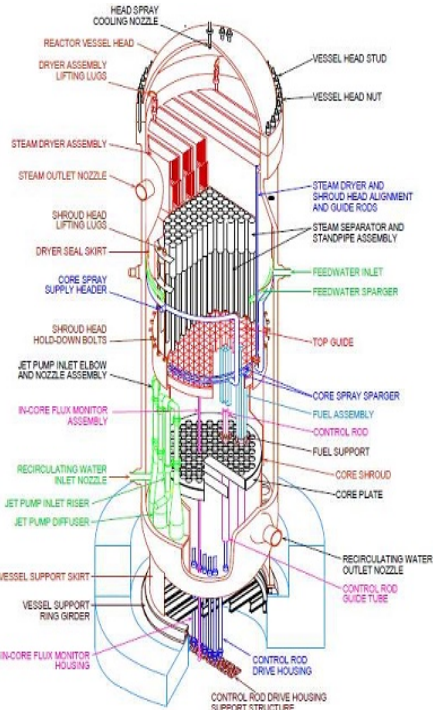
- Demolition of legacy Construction Office Building



- Demolition of Cooling Towers



ORANO Segmentation of Reactor and Internals



- : Reactor Head
- : Steam Dryer
- Next up
- : Reactor studs
- : Underwater setup
- : Steam Separator Cyclones

ORANO - Custom Boxes and Rad Waste Containers



Custom Box A
– w Reactor
Head for WCS
MCC in Texas



RWC ready to load, temp storage HTS onsite,
MP197HB transport cask, and placement in WCS
MCC in Texas



Waste Shipped to Texas



Most waste has qualified for disposal at the RCRA, Low Activity Waste Cell

- ❖ 56,029 cubic feet
 - ❖ Spent Fuel Racks
 - ❖ Components from the Spent Fuel Pool
 - ❖ Large Turbine Components
 - ❖ DAW – conventional trash – protective clothing, rags, bags
 - ❖ Insulation – Asbestos Containing and Non Asbestos
- Compact Waste Facility
- ❑ One liner of Class A waste
 - ❑ One Custom Box – Reactor Vessel Head Class A