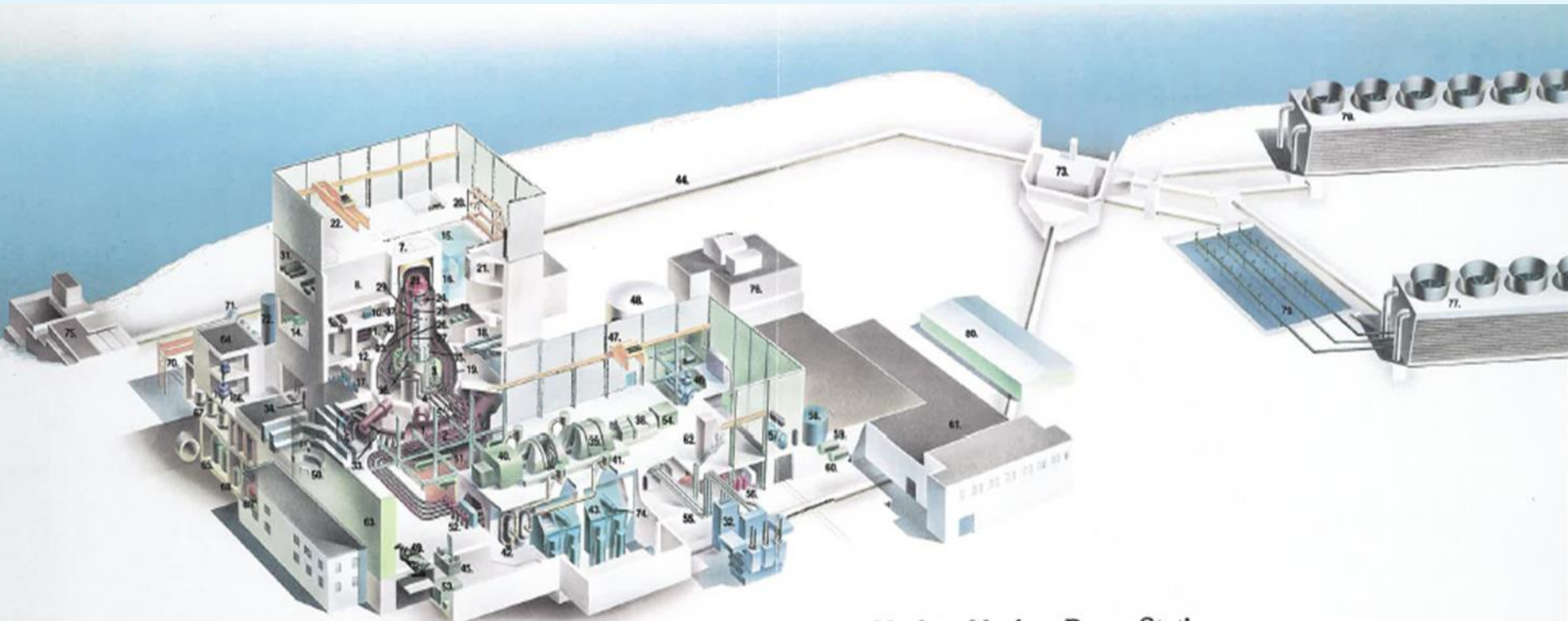


# NorthStar Nuclear Decommissioning Company, LLC



Vermont Yankee Nuclear Power Station

- |   |                                  |                                   |                                      |
|---|----------------------------------|-----------------------------------|--------------------------------------|
| 1. Torus  | 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 cranes               | 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. Exclusion 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. Advanced 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. Generator                     | 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                        |

Rotary Club Discussion  
3/13/2019

# Who is NorthStar?



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## THE WORLD'S MOST COMPREHENSIVE FACILITY & ENVIRONMENTAL SOLUTIONS COMPANY - WE BRING ANSWERS.

- **Facility Demolition-** Turnkey decontamination and decommissioning (D&D) including structural deconstruction and asset recovery with a full suite of regulatory compliance knowledge and experience.
- **Abatement-** Asbestos, Lead, radon, mold, and specialty materials remediation, universal waste removal, and tailored services for industrial, utility, commercial and government building/facilities.
- **Environmental Services-** Soil and water remediation, cleaning and restorative services, including integrated processes for characterization, recovery planning and execution.
- **Response & Restoration-** Time-critical recovery and innovative cleanup solutions for damaged properties. Customer focused approach to address spills, fires, floods, storms increasingly, reconstruction and restoration.

# Why Vermont Yankee?



Most of the US Nuclear fleet is reaching or past initial 40 year operating license.

The economic landscape for de-regulated power generation will likely further challenge the ability for commercial nuclear power generating facilities to remain viable. (99 reactors at 62 sites.)

Prompt decommissioning is the most responsible option.

NorthStar has a developed a highly specialized division leveraging several partnerships with expertise to self perform commercial nuclear facility decommissioning.

Orano (Vessel and vessel internals segmentation)

WCS (Waste and material packaging/transportation/disposal)

Burns & MacDonald (Licensing and engineering)

Haley & Aldrich (Environmental sampling/characterization/remediation)

# General Narrative



- **We have THE RIGHT TEAM: NorthStar Holding Co. / NorthStar Nuclear Decom Co. LLC**
  - **Responsible Ownership** of the VTY facilities and SNF (by NHC) and the project execution (by NNDC). Team understands the necessity and is committed to a transparent and collaborative process. **We are committed to nurture a Team Approach and our strategy for decommissioning is intended to meet all stakeholder needs.**
  - **We are employing Talented and Experienced Subject Matter Experts** for all major projects.
  - **Knowledgeable incumbent staff** retained (Over 30 prior VY employees currently)
  - **NorthStar- De-construction Experts** with partner expertise (Orano/WCS/ B&M/H&A)
  - **ISFSI Operations-** Proven staff absorbed for continuity as Licensee / Decom Team
  
- **SAFETY/PERFORMANCE: Target Zero**
  - Job Hazard Analysis and Safety Assessment processes are iterative, and performed as part of the NorthStar Work Control Process for all tasks– primarily done by those doing the work.
  - Everyone is accountable and success can only be achieved if done with effective Radiological, Environmental and Industrial safety performance.
  - NRC Inspection Week of 1/28/2019. Exit meeting this morning--No findings/No issues.
  
- **PROJECT PROCESS: Graded Approach and Project Driven Tasking/Resourcing/Planning**
  - **Project Driven**
    - Safety & Compliance
    - Schedule and Cost Control
    - Work Authorization thru IWCP
    - Contract and Procurement synergies

# Priorities/Upcoming Efforts/Projects



## NorthStar Priorities:

- **Prudent Financial Management** to protect/preserve the NDT
- ✓ **Project Driven** Organization with **Fixed Costs**
- ✓ **Streamlined** Programs, Work Authorization and Implementation Processes
- ✓ **Self Perform** with the right talent/equipment and ability to leverage scale.
- ✓ **Regulatory compliance** focused.
- ✓ **Transparent** with stakeholders. MOU with State and Local entities.
- ✓ **Community Partner** that will source local talent, resources and partnerships wherever possible while maintaining engagement & accountability.

# Priorities/Upcoming Efforts/Projects

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Near Term Schedule Targets and Optional Work in 2019:

Major Near Term Work/1<sup>st</sup> Phase/Critical Path:

- Refuel Floor Alignment
  - Crane and Material Handling equipment (design/fab & checks)
  - Spent Fuel Pool Clean Out/Rack Removal
  - Vessel Re-flood and Preparation
  - Drywell assessment and tooling set up/testing & placement
- 
- Streamline – Systems and Processes
  - Schedules blended and optimized to support Vessel work, abatement/component removal
  - Ensuring all Memorandum Of Understanding commitments met
  - Complete environmental assessment and fully scope remediation planning

# Priorities/Upcoming Efforts/Projects

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## Additional Short Term Schedule Targets and Optional Work in 2019:

- Facility Management –minor changes to the Site security and access controls ( for safety)
- Infrastructure Changes
  - New rail spur / Temp Bldg erection
  - Container Pad and RWC Horizontal Storage Structure
- COB demolition
- Cooling Towers demolition
- Turbine Building
  - Abatement / Large Component Removal  
(Turbine/Generator/Main Transformer, etc.)

# Project Schedule - Overview

	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									Final Site Restoration & License Termination
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)	

Overall Schedule:

- Critical Path
  - Large Component
    - RVI/RV Segmentation – 2019 to 2020
    - Large Components – 2019 - 2022
- D&D
  - with Short Term Schedule Targets and Optional Work 2019 - 2026
- Spent Fuel Storage – ISFSI Management



# Things to Consider

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Over 99% of the radiological hazard that exists at VY is now contained safely and securely within the Dry Fuel Storage Casks on the ISFSI

- Some localized abatement scope remains (Asbestos, Lead, PVCs, etc,)
- Majority of remaining Decommissioning Project is:
  - Material Handling, Transportation and Disposal.
  - Large Scale Demolition
  - Site Restoration consistent with terms of MOU (with State of VT)