



# Pilgrim NDCAP Update



November 27, 2023



HOLTEC  
INTERNATIONAL



# Demolition - Completed

## ■ Demineralized Water Storage Tank



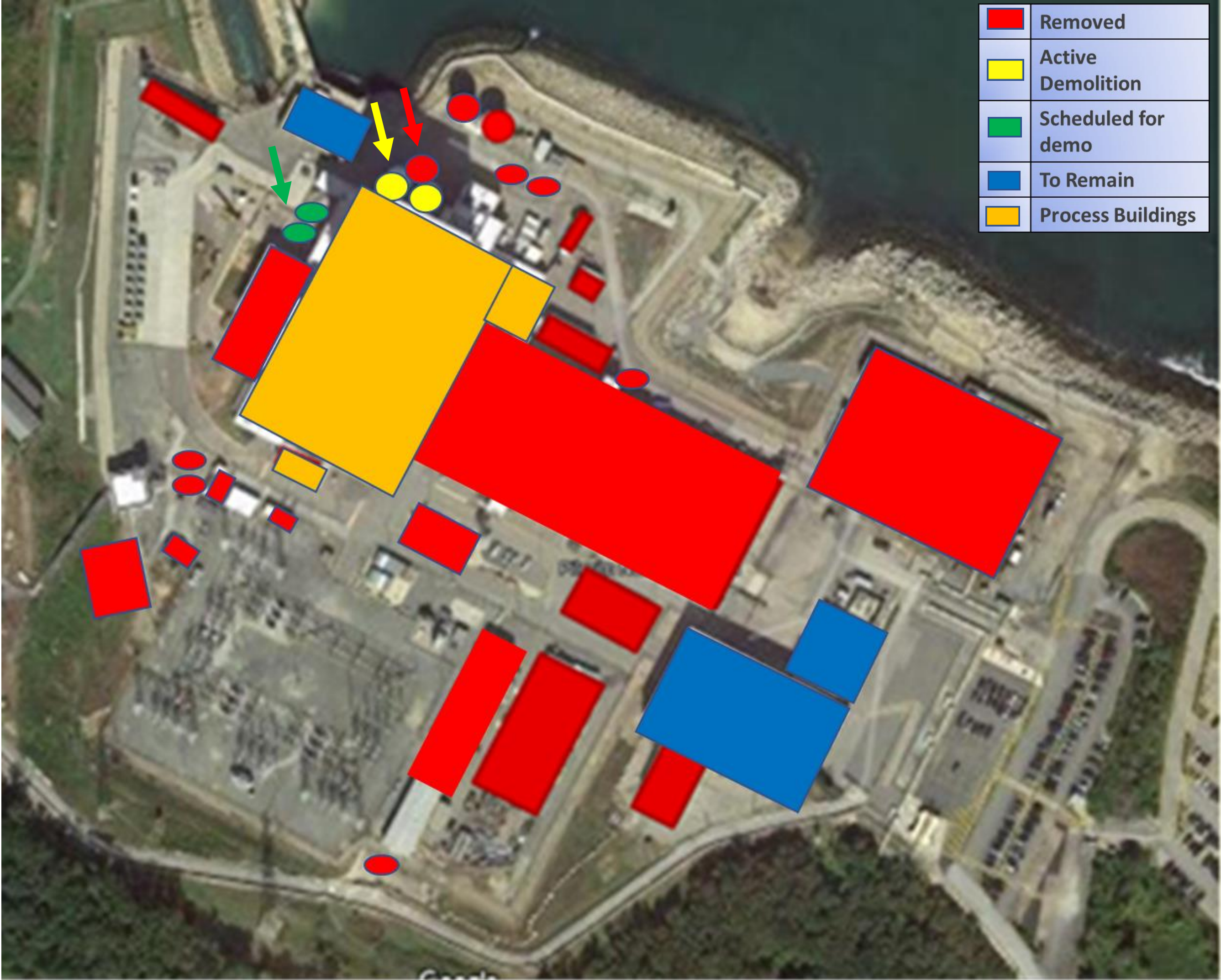
# Demolition - Upcoming

## Above Ground Water Storage Tanks

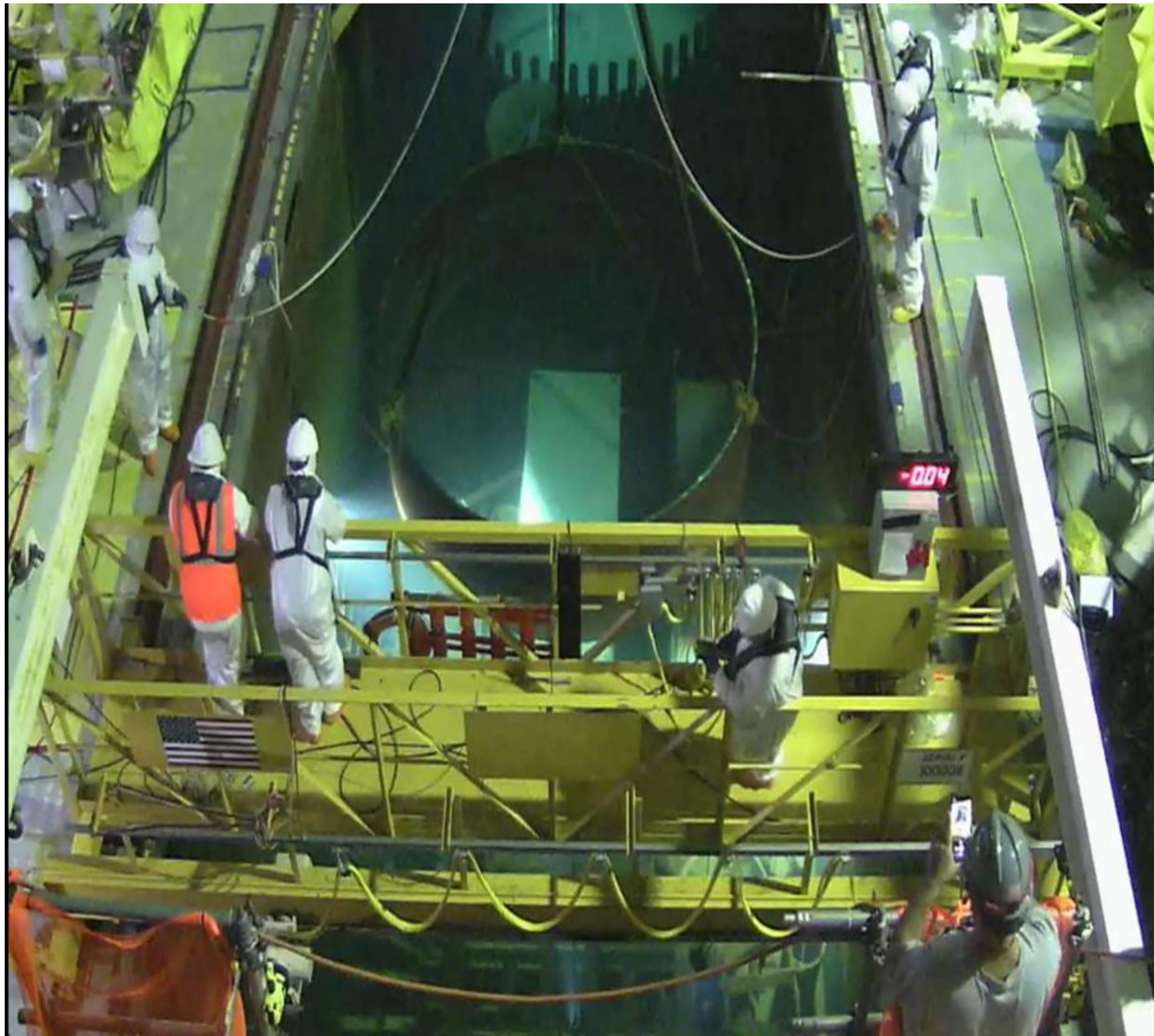
- Condensate Storage Tanks (2) (275,000 gallons capacity each) to be completed by 12/15/23



# Demolition Status



# Reactor Internal Segmentation



In Progress

- Cut and Segment Shroud Ring
- Jet Pumps (20) removal and packaging
- B/C Waste packaging and staging scheduled to complete January 2024

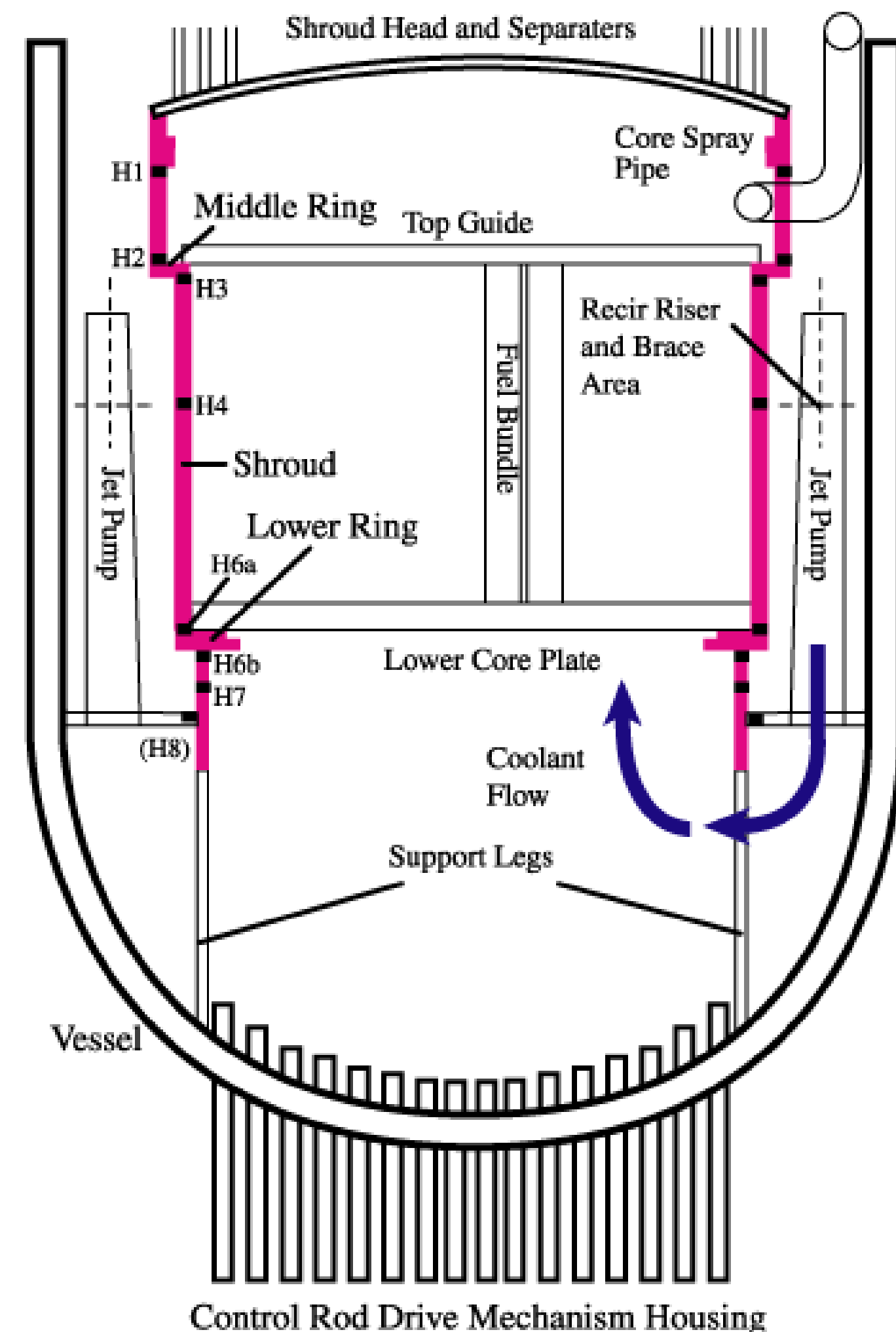


Figure is illustrative and not Pilgrim specific

# Site Characterization

- Confirmatory Groundwater Flow Gaging and Sampling were conducted 10/30/23 – 11/2/23
- 24 wells were sampled according to MassDEP approved sampling plan including target, upgradient, and downgradient wells for MCP reportable conditions
- Results expected in mid-December

# Regulatory and Licensing

- 5 low activity sources unaccounted for during periodic inventory
- Sources are three Nickel 63 sources ranging in activity from 7.1 to 7.6 mCi, 1 Barium 133 source 0.0458  $\mu$ Ci, and 1 Tritium source 1.81  $\mu$ Ci
- Sources likely disposed of as radioactive waste during process building cleanout activities
- Causal analysis is in process to identify any concerns for extent of the causes or conditions noted.
- Due to the low activity associated with these sources, there was no impact to the health and safety of plant workers or the public

# Waste Management

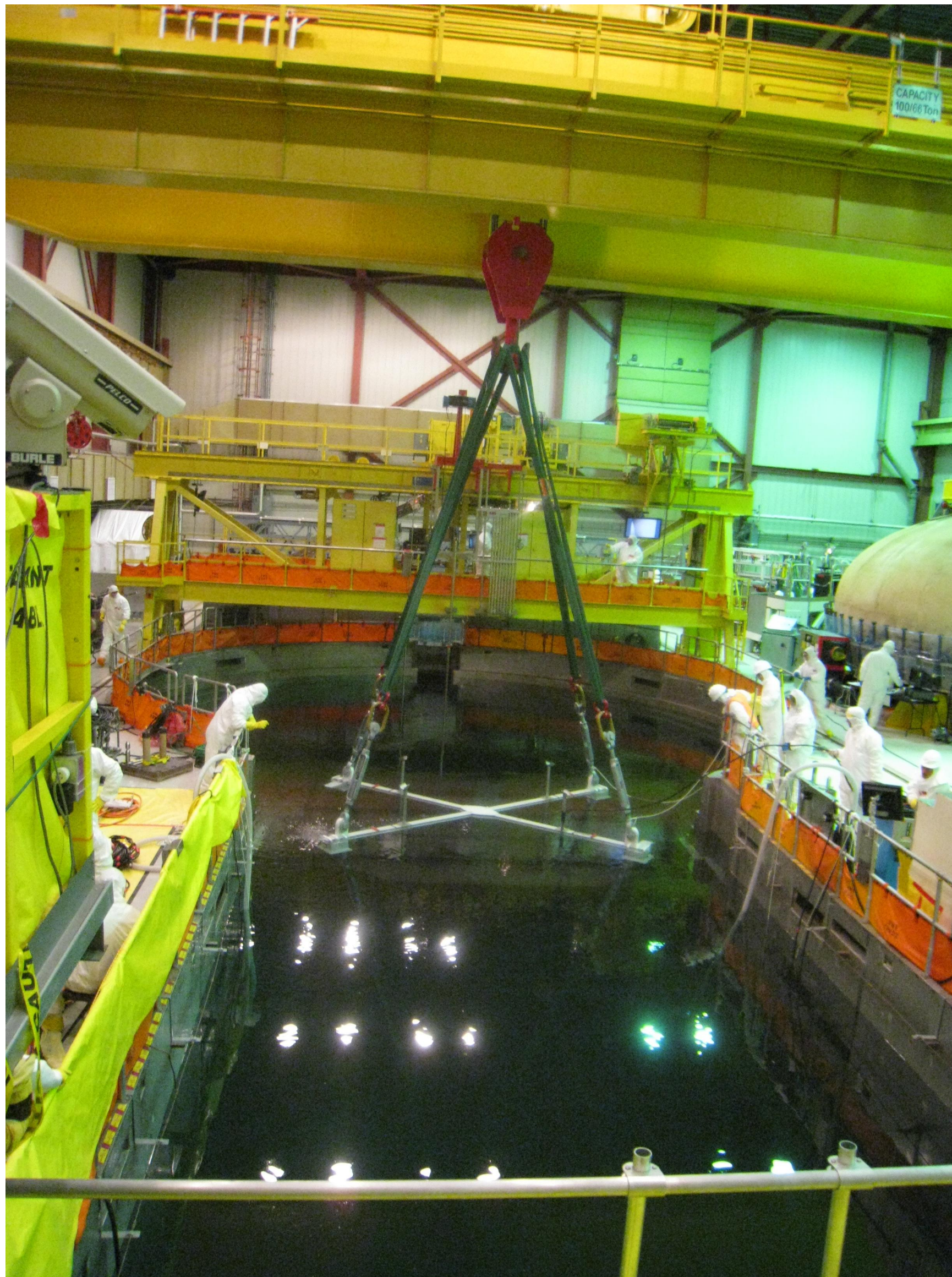
Rounded values for waste shipped for disposal

Calendar Year	Volume (CF)
2019*	11,300
2020	8,410
2021	58,000
2022	87,100
Thru 11/13/2023	66,346
2019-2023 Totals	231,156

\* Includes a small quantity of waste shipped during the last operating cycle



# Evaporation



Fuel Pool, Cavity, and Dryer Separator Pit and to a certain extent the torus are open pools of water that evaporate. The amount of evaporation is determined by a number of factors including:

- Temperature of the water
- Temperature of the surrounding air
- Air flow across the water surface
- Ambient relative humidity of the air
- Agitation of the water's surface

# Evaporation

Water that evaporates includes Tritium in proportion to the concentration of tritium in the water. The total remaining tritium in the water volumes at Pilgrim is less than **12 Curies**

Calendar Year	Offsite Dose (mr)*	Gaseous Tritium Released (Ci)	Equivalent Dose Released due to Tritium (mr)
2022	0.16	2.38	0.000070**
2021 FOP	0.30	8.00	0.000235**
2020	0.14	7.70	0.000265**
2019 SD	0.47	30.6	0.0009**
2018	0.71	34.0	0.001**
2017	0.76	48.0	0.0014**
2016	0.77	64	0.00188**

\*Total offsite dose to a postulated most affected individual includes: direct radiation dose + airborne radioactivity (including food chain deposition and bioaccumulation) + liquid discharge associated dose (including food chain deposition and bioaccumulation)

\*\* This value derived from 2022 data where 0.000070 mrem was attributed to 2.38 Ci of tritium and 0.000042 Ci of particulate radionuclides. The particulate radionuclides were discounted in this table and the entire gaseous effluent dose was (conservatively) attributed to tritium.

# Heating of Reactor Cavity

Heaters were installed at the beginning of 2023 to:

- Reduce drying time of containerized waste removed from the pool
- Improve localized working conditions for individuals on the refueling floor
- The facility's design review process was followed and found comprehensive by NRC's inspection

The net impact of operation of the heaters was to raise average water temperature in the reactor cavity to approximately 100°F

- 25°F below the maximum temperatures in the Spent Fuel Pool and Reactor Cavity during plant operation and defueling
- An approximate tritium release of 1.2 Curies and an offsite dose of .00003 millirem

Calendar Year	Gaseous Tritium Released (Ci)	Equivalent Dose Released due to Tritium (mr)
<b>1<sup>st</sup> and 2<sup>nd</sup> Qtr 2023 (91 days) heating period / prorated for year</b>	<b>1.2 / 4.8</b>	<b>0.00003 / 0.00012</b>
2022	2.38	0.000070**
<b>2021 FOP</b>	<b>8.00</b>	<b>0.000235**</b>
2020	7.70	0.000265**
<b>2019 SD</b>	<b>30.6</b>	<b>0.0009**</b>
2018	34.0	0.001**
2017	48.0	0.0014**
2016	64	0.00188**

# Heating of Reactor Cavity and Spent Fuel Pool

Heaters in the reactor cavity and spent fuel pool were energized 11/22/23:

- Improve localized working conditions for individuals on the refueling floor
- Support heat transfer to reactor building to prevent fire and other system freezing
- The net impact of operation of the heaters is to raise average water temperature in the reactor cavity and spent fuel pool
- maintain below the maximum temperatures in the Spent Fuel Pool and Reactor Cavity during plant operation and defueling