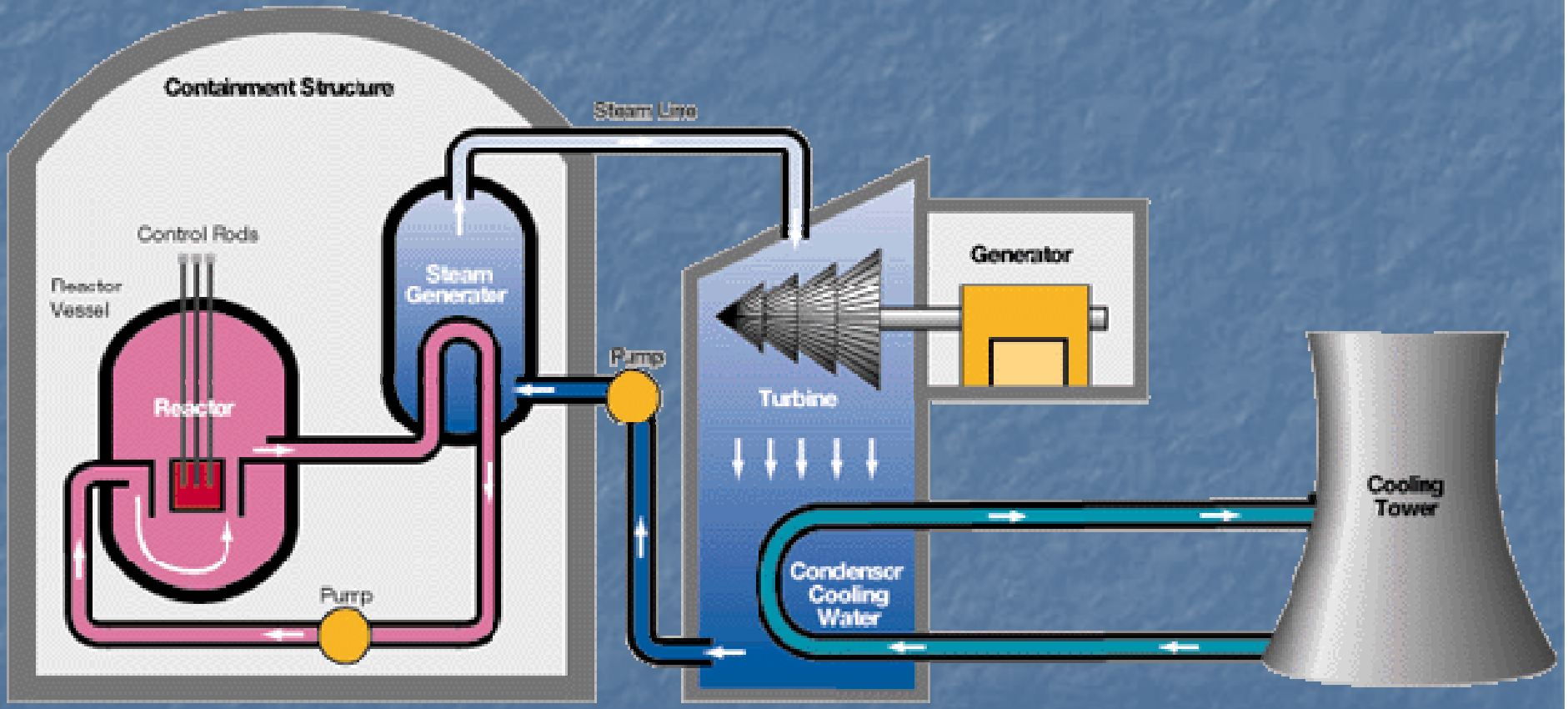
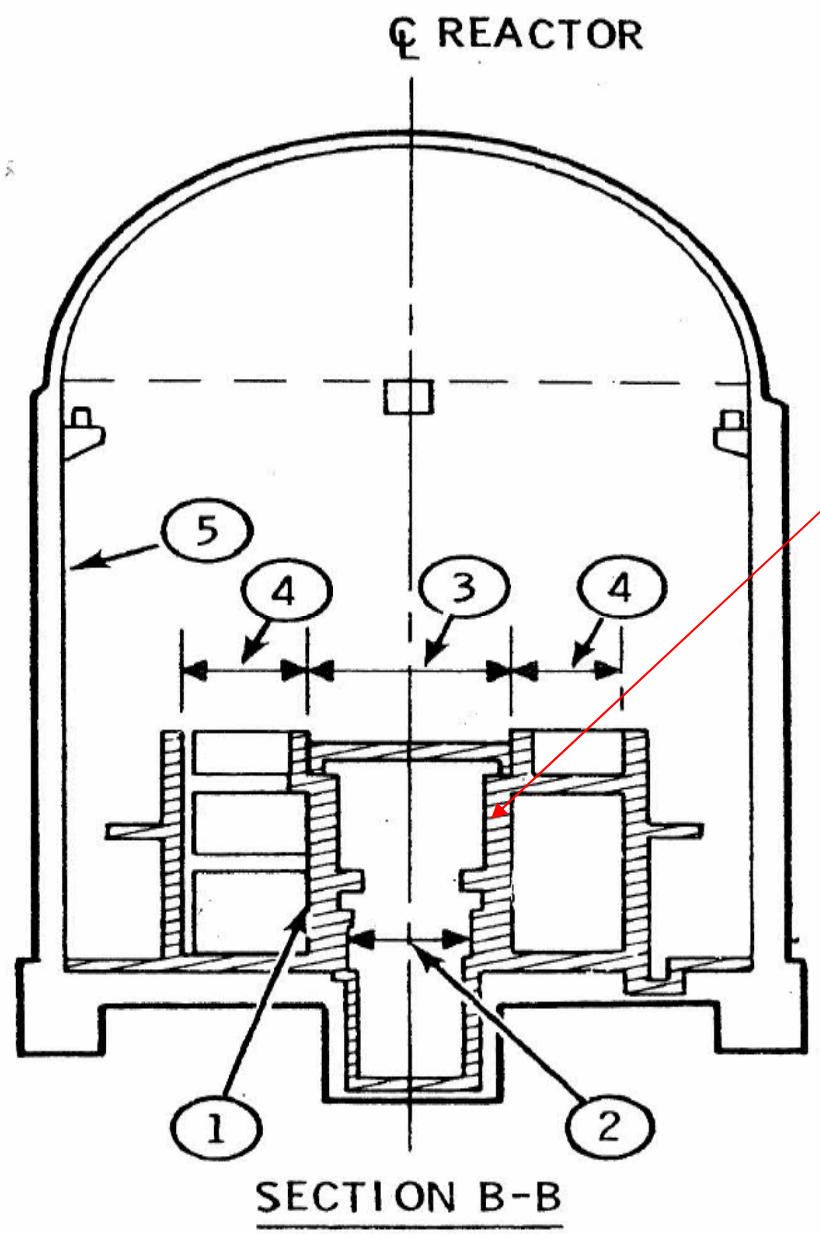
San Onofre PWR

San Onfre PWR Decom

PWR


Containment Structure
Steam Line
Control Rods
Reactor Vessel
Steam Generator
Reactor
Pump
Pump
Turbine
Generator
Condensor Cooling Water
Cooling Tower

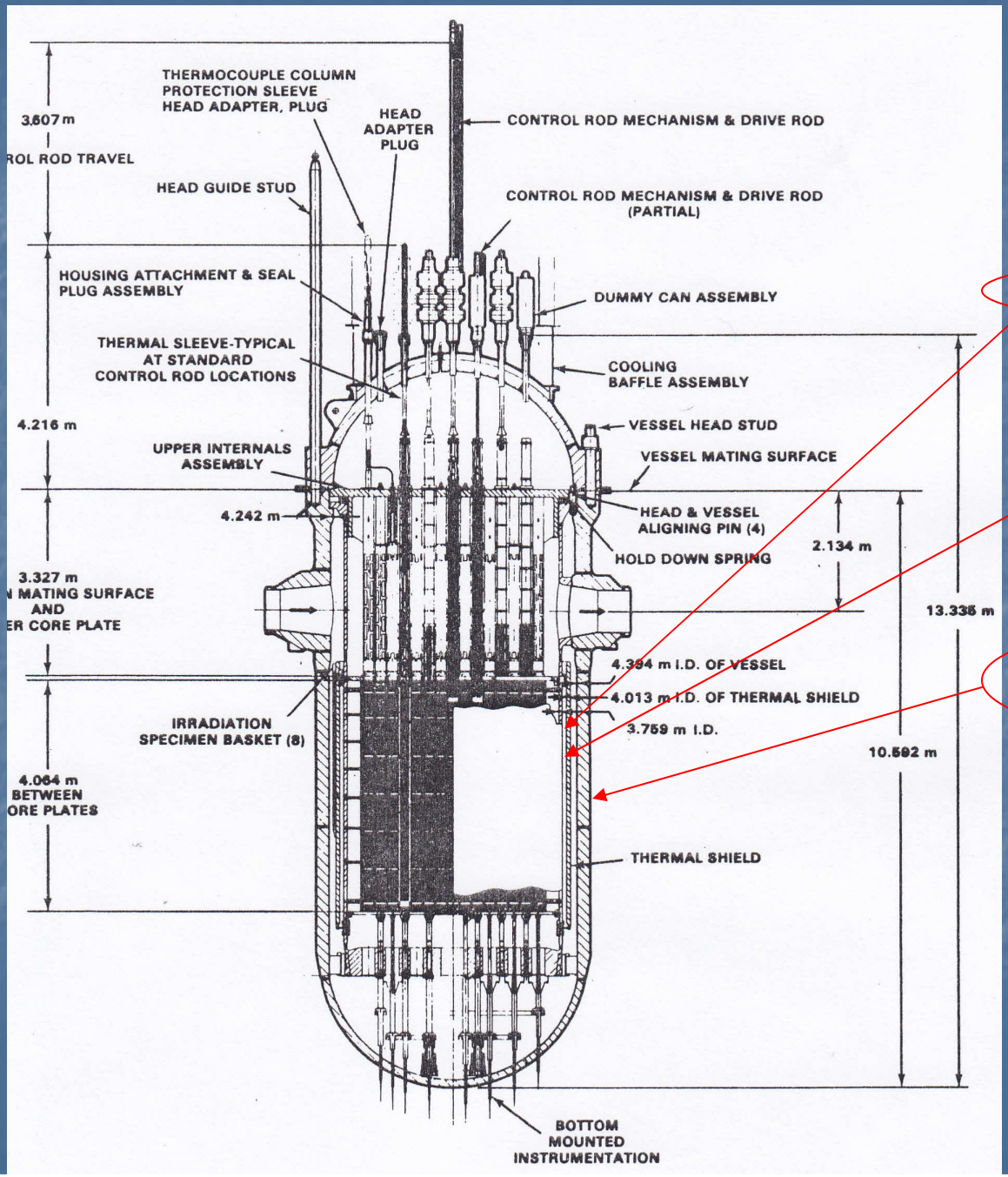
Reactor Building



36 Ci/m^3 [2 – 4 r/h]

1	BIOLOGICAL SHIELD
2	REACTOR CAVITY
3	REFUELING CAVITY
4	STEAM GENERATOR
5	REACTOR CONTAINMENT

Reactor

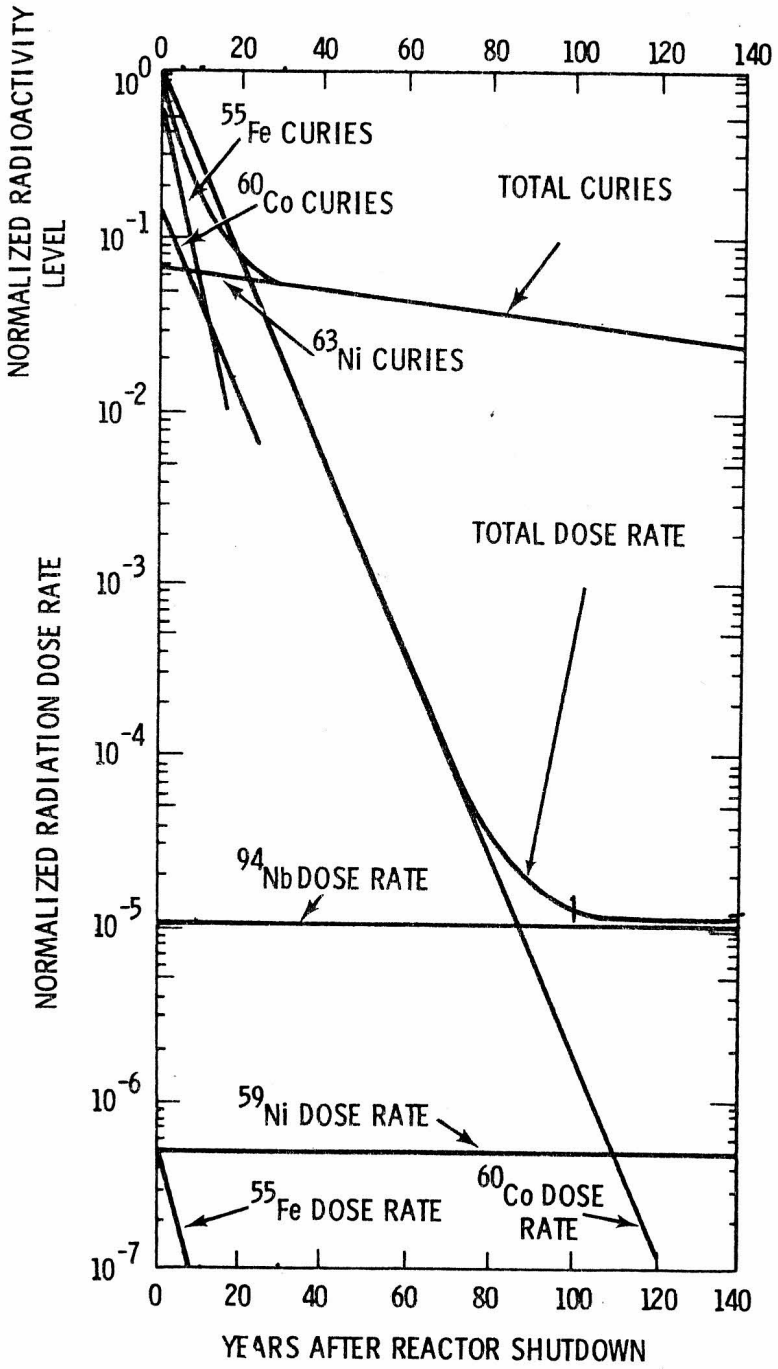


Shroud: 3 million Ci/m^3
[> 600 k r/h]

Thermal shield
0.15 million Ci/m^3
[>80k r/h]

Vessel Inner Cladding
1.58 thousand Ci/m^3
[2 - >5 r/h]

Radioactivity with time



Decommissioning Alternatives

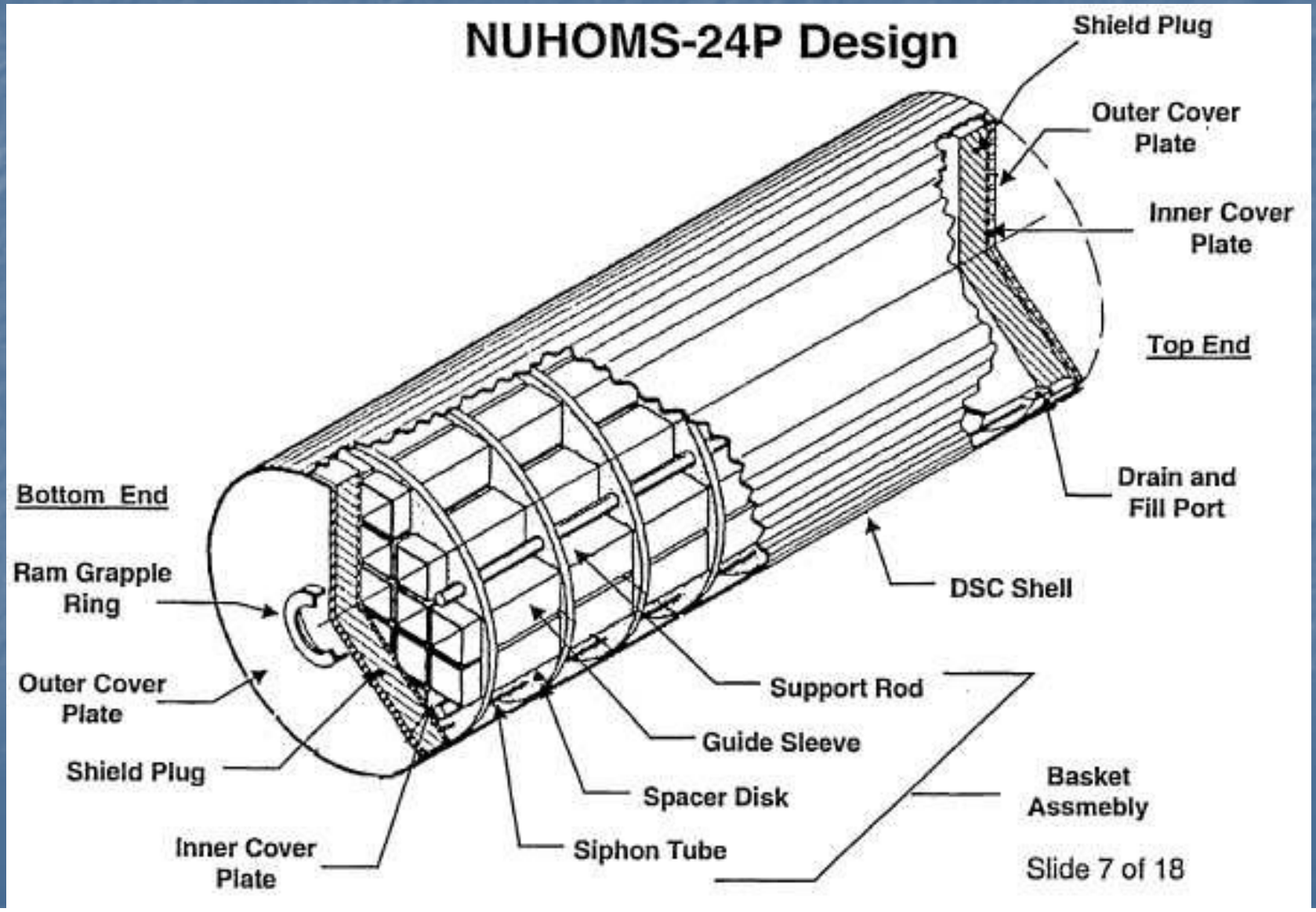
- Dismantlement – remove all radioactive materials. Terminate license, except for spent fuel and hot core components. In VT, hopefully return to greenfield.
- Safstor – remove much of external contamination. After cooling 20 years, all fuel in storage casks. Remove cooling water pipes. Seal up reactor internals and wait. Revise license.

CT Yankee Dry Storage

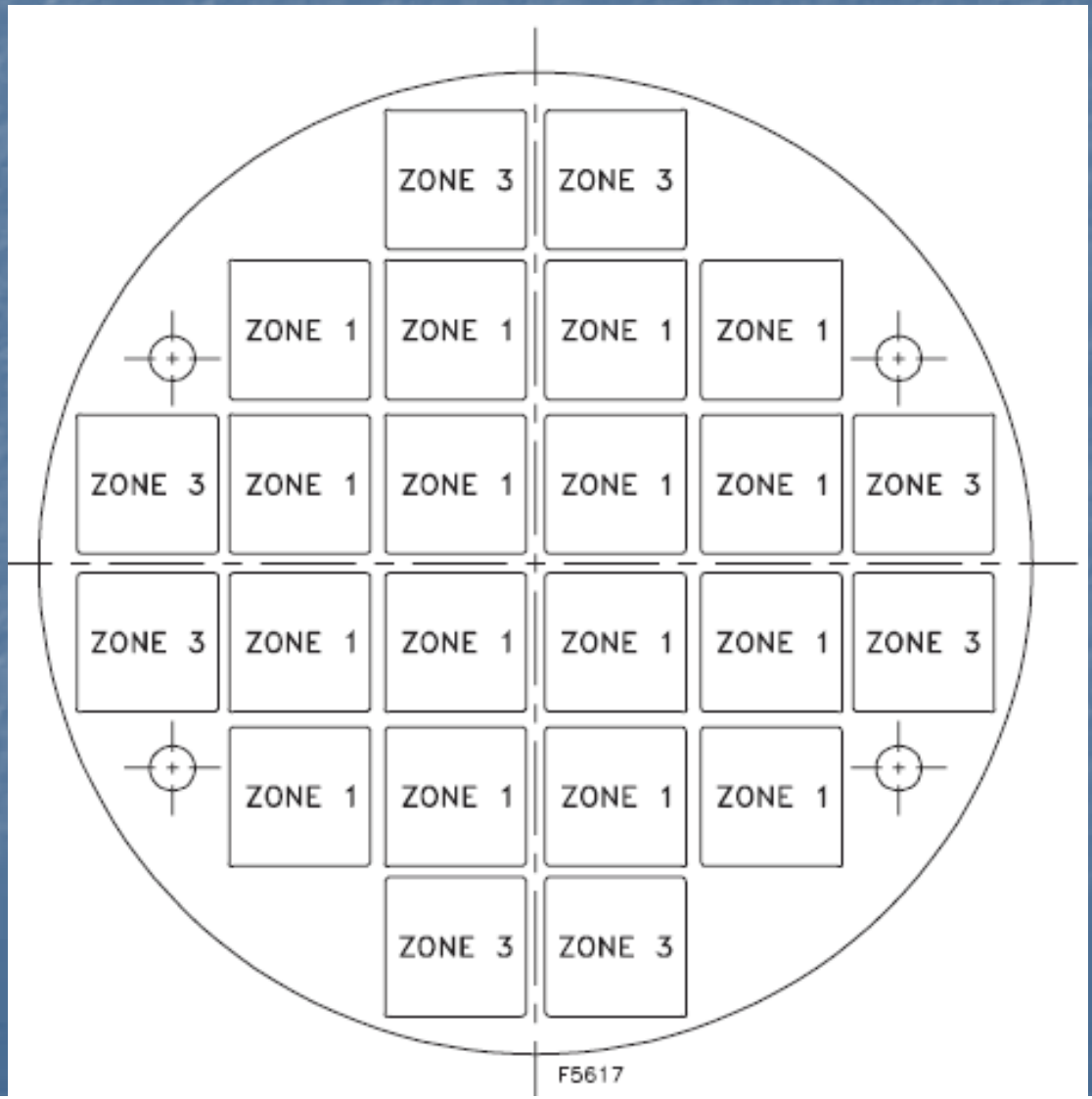
Stonehenge

NUHOMS

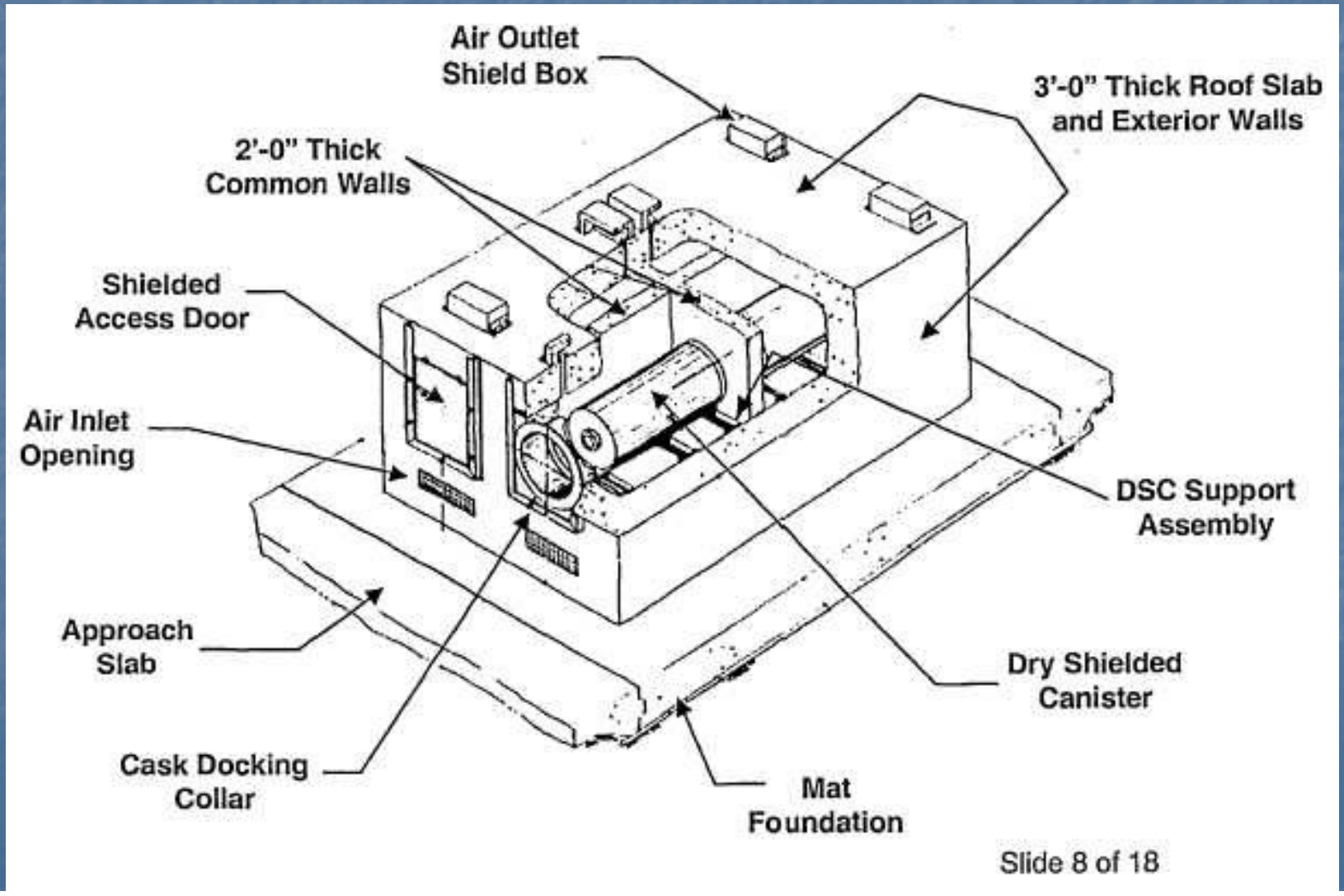
Dry Shielded Canister



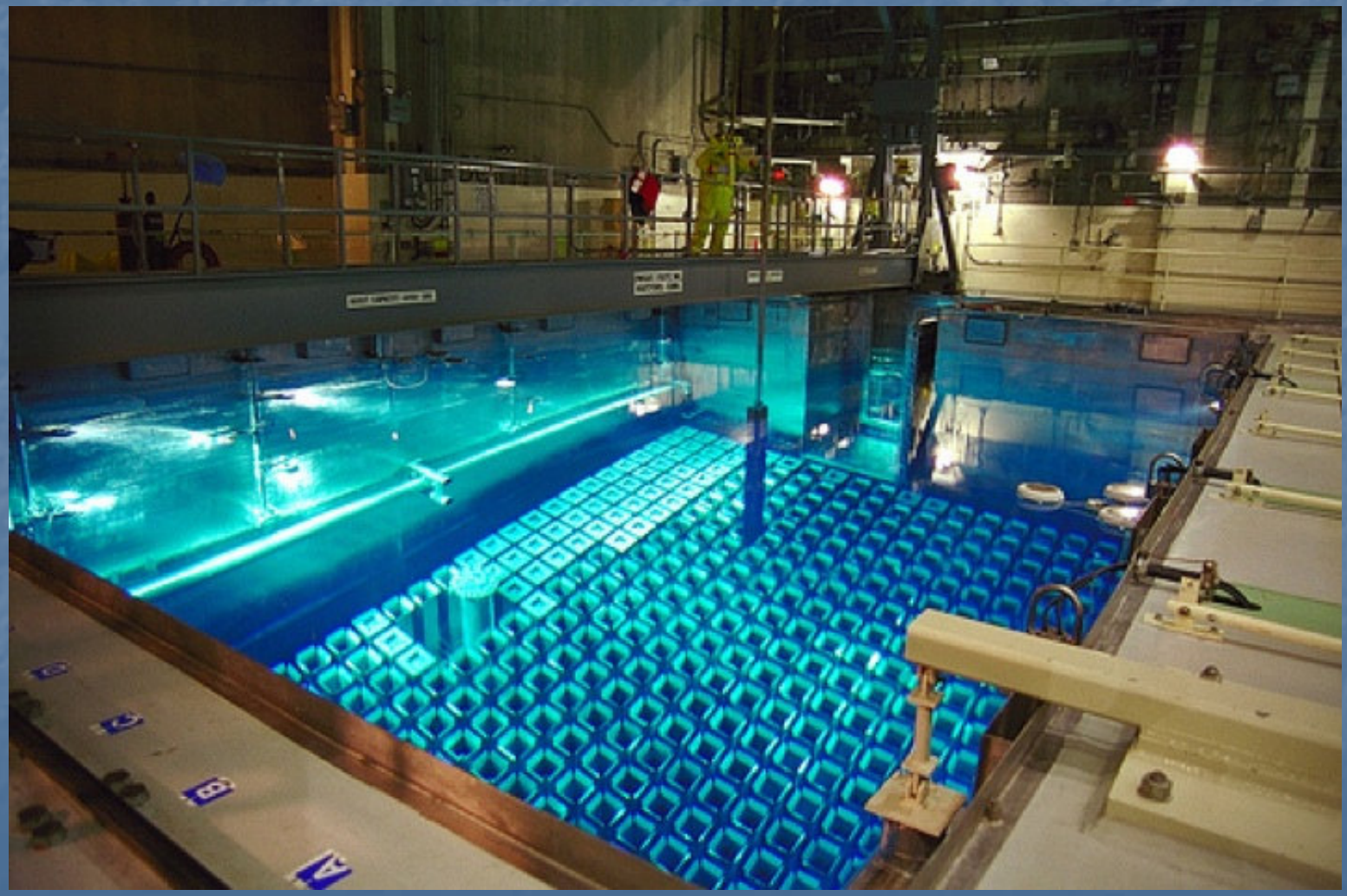
Loading Configuration



Horizontal Storage Module



Spent Fuel Pool

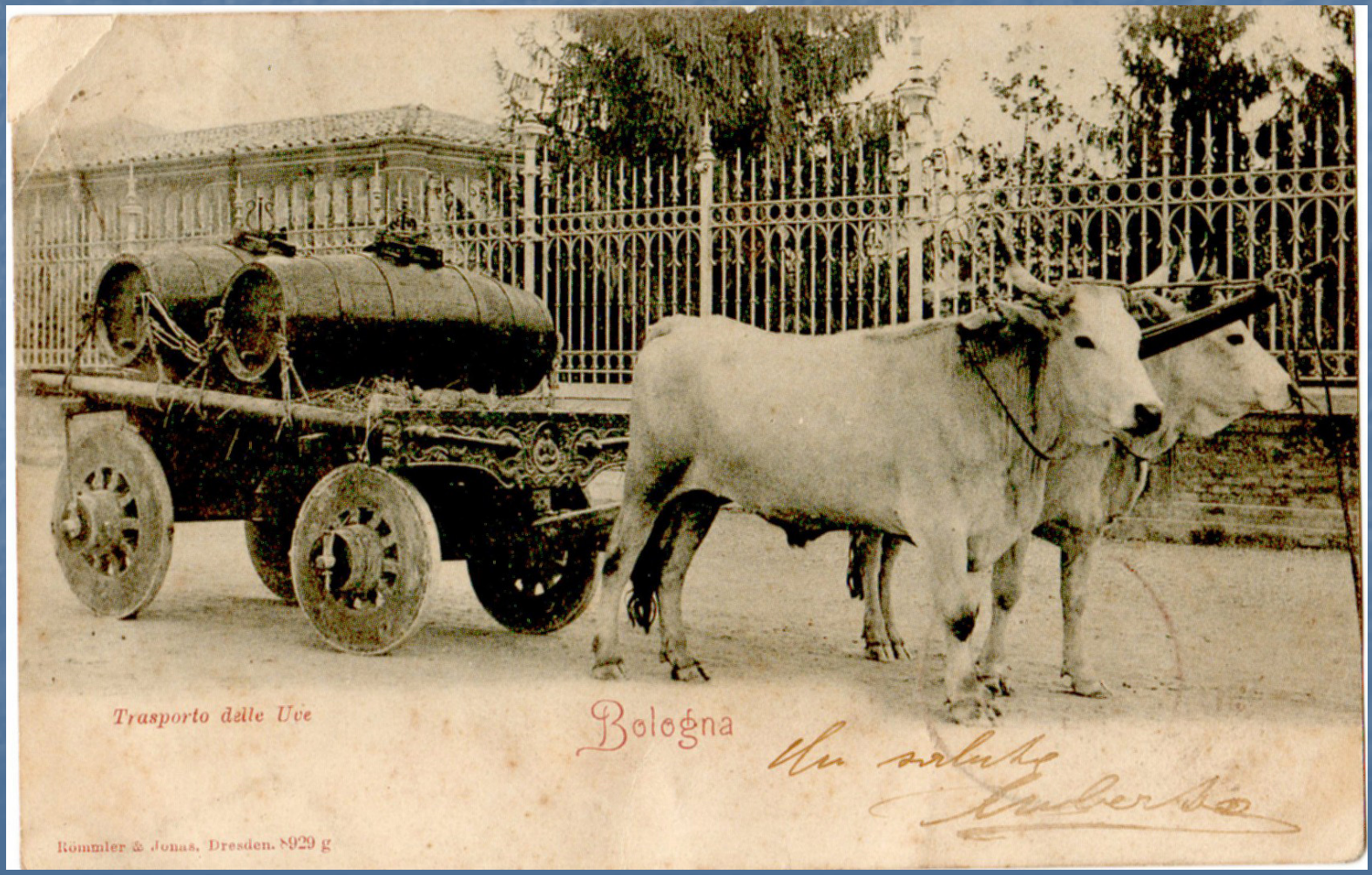


Transfer Cask

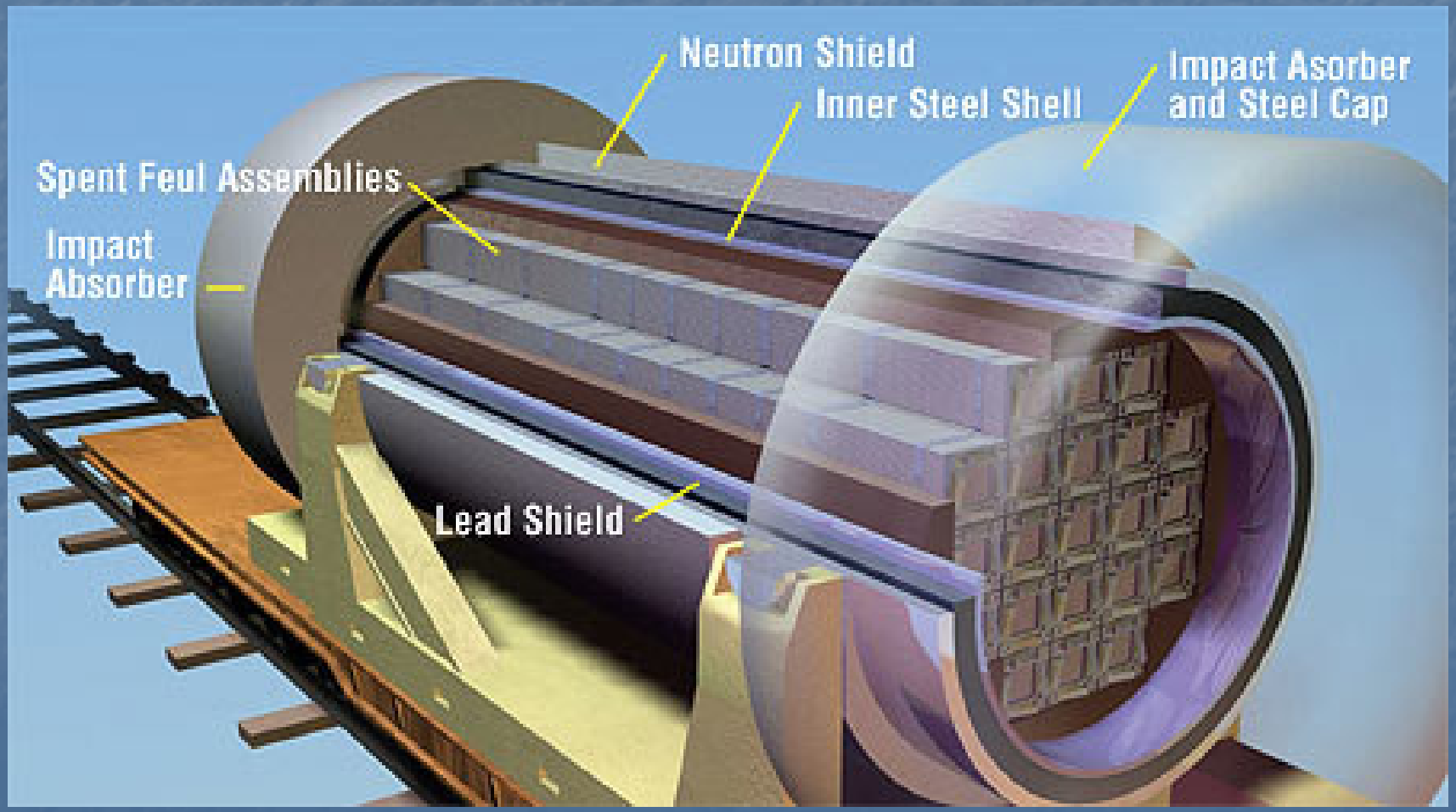
Key Issues

- Burnup: heat of individual fuel assemblies and the total. Requires distributed heat load; hottest on outside; some SONGS fuel too hot; cool down over 20 years
- Criticality –must be some burnup; boral plate thickness
- 32PTH2 DSC not licensed for high burnup fuel

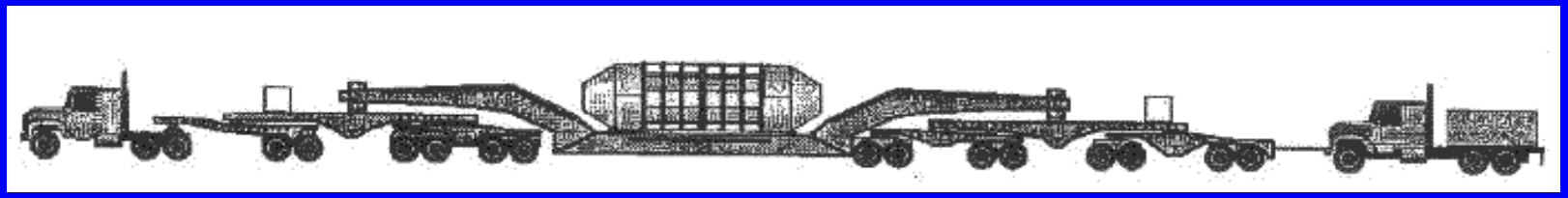
Cask 1.0



Then what? Canister into transport overpack



Heavy Haul Configuration



220 feet

6 ft	15 ft	20 ft	30-40 ft	70 ft
bicycle	car	van	bus	Legal-Weight Truck Cask

Source of irradiated fuel shipping drawings: Kelderhouse, 1999. "LWT, HH and Rail transportation graphics," electronic communication with attachment to R. Best (Jason Technologies Corporation), JAI Corporation, Las Vegas, Nevada.

Issues

- Timing – 20 year cooldown, high burnup fuel
- Who pays? DOE fuel, decom fund adequacy, heat exchanger screw-up
- What remains? Fuel mausoleum, valuable site is wasteland
- What can be done? Navy evicts SCE?