The Consolidated Interim Storage Facility Project

Pre-Critical Decision-0

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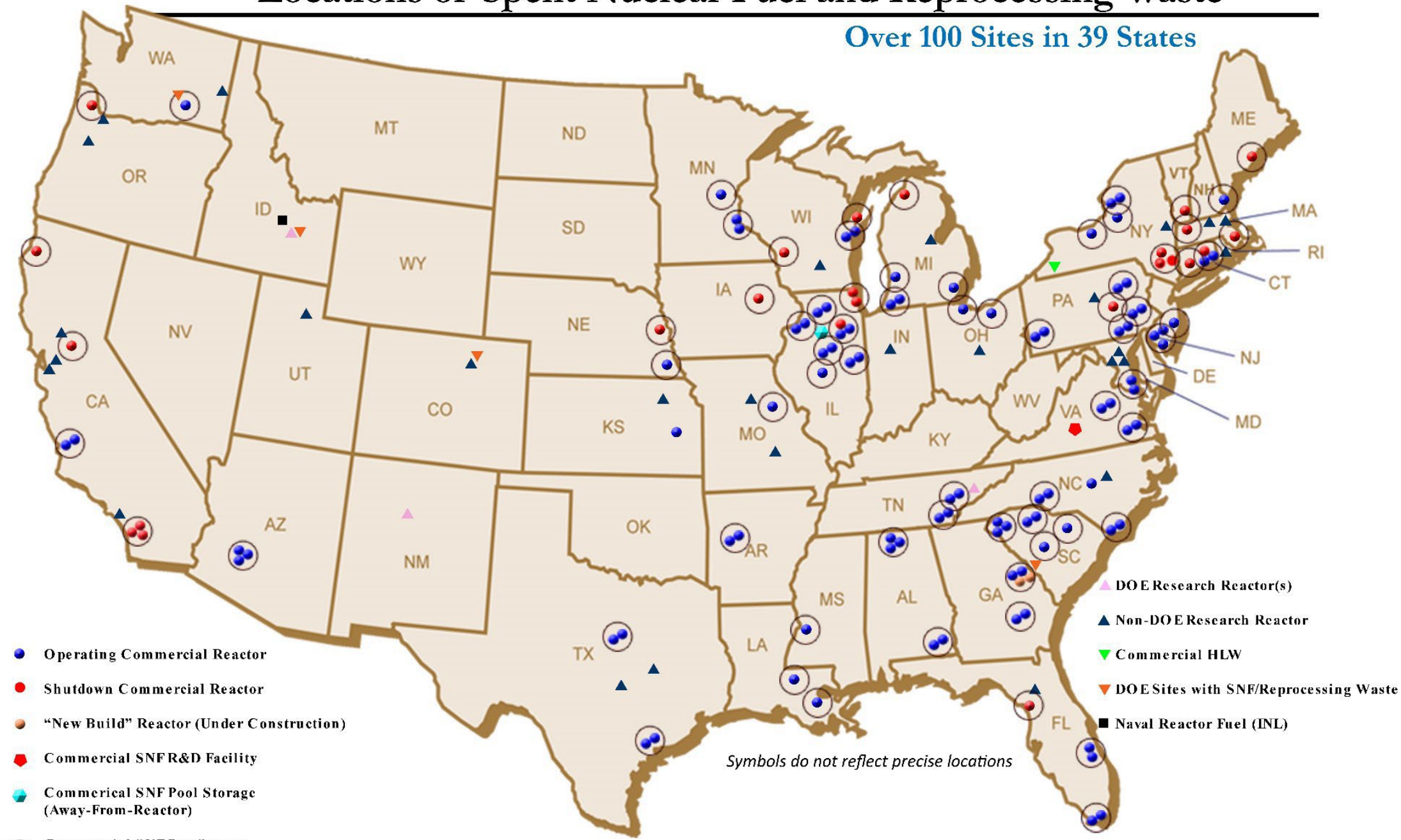
Office of Nuclear Energy DOE


UNWORKABLE
YUCCA MOUNTAIN PROJECT

Locations of Spent Nuclear Fuel and Reprocessing Waste

Over 100 Sites in 39 States



As of Jan. 1, 2022

Eleven Years Later…

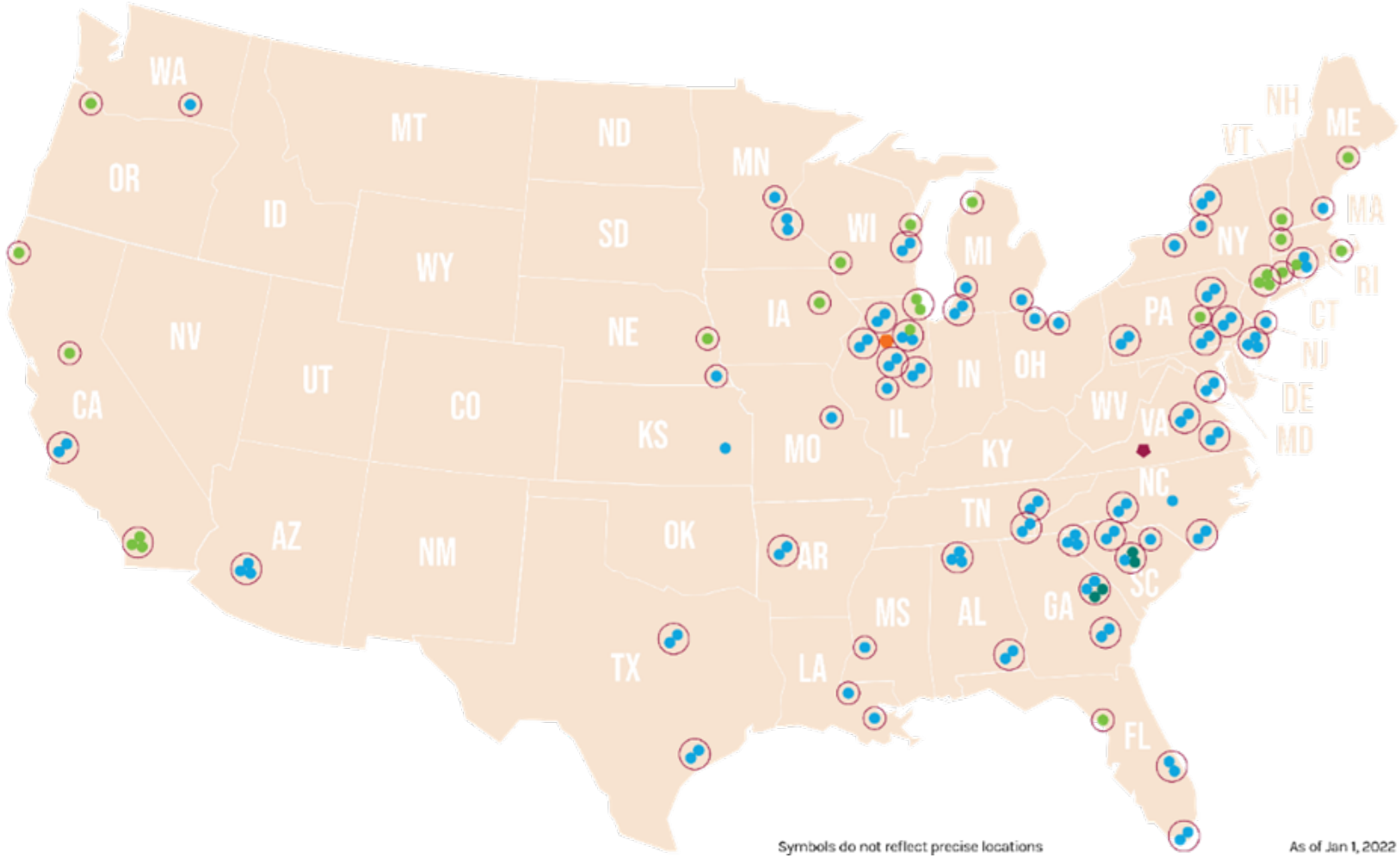
Appropriation Language & Funding

- Identify a site for a federal interim storage facility
- Use a consent-based approach
- Site preparation activities at stranded sites
- Evaluate the re-initiation of regional transport
- Undertake transportation coordination efforts

Year	Amount Appropriated
2021	$38M
2022	$38M
2023	$53M
2024	$55M

LOCATIONS OF COMMERCIAL SPENT NUCLEAR FUEL AND REPROCESSING WASTE

- Operating Commercial Reactor
- Shutdown Commercial Reactor
- Commercial SNF R&D Facility
- Commercial SNF Pool Storage (Away-From-Reactor)
- Commercial SNF Dry Storage (at Non-DOE Sites)



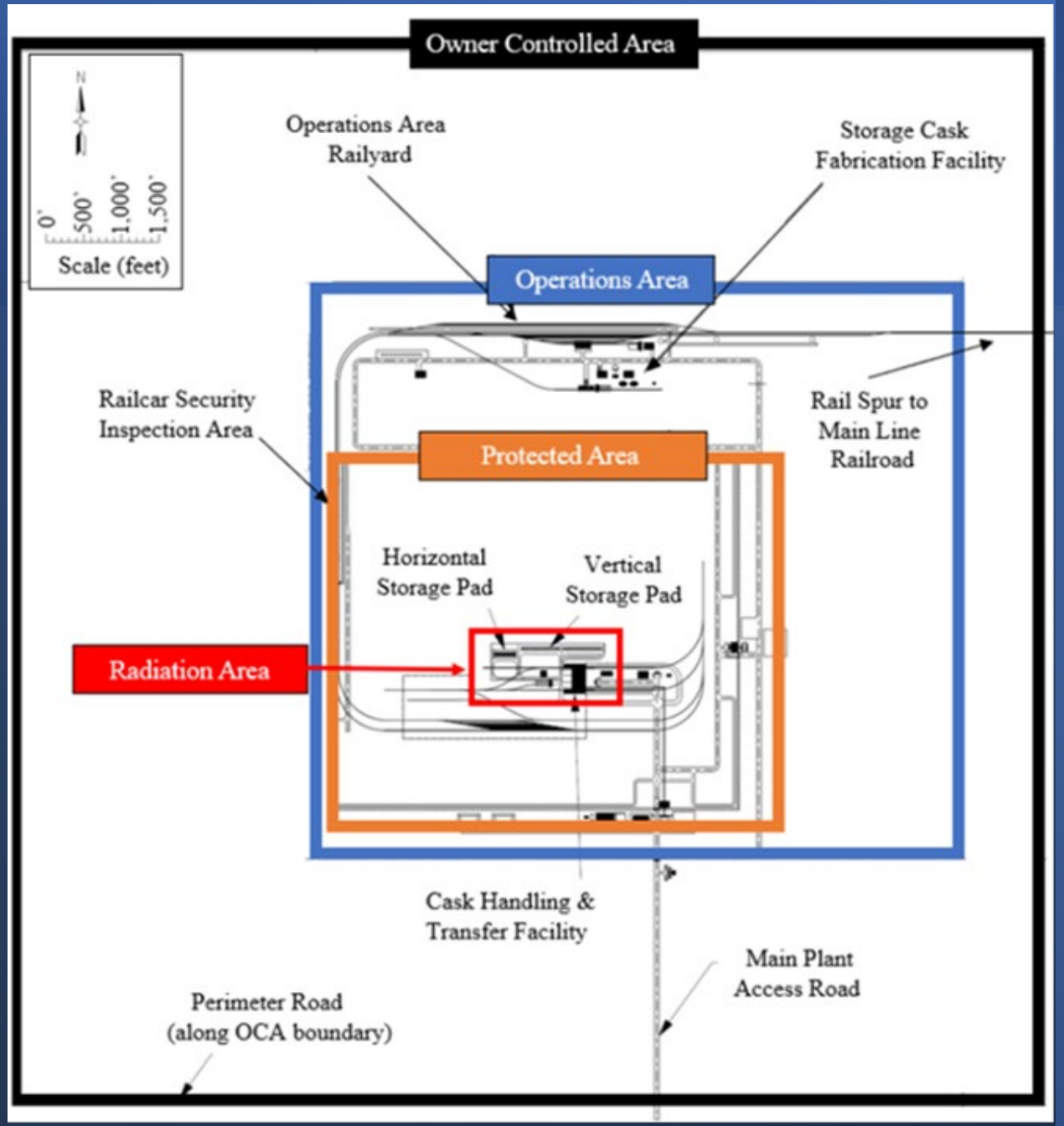
Symbols do not reflect precise locations

As of Jan 1, 2022

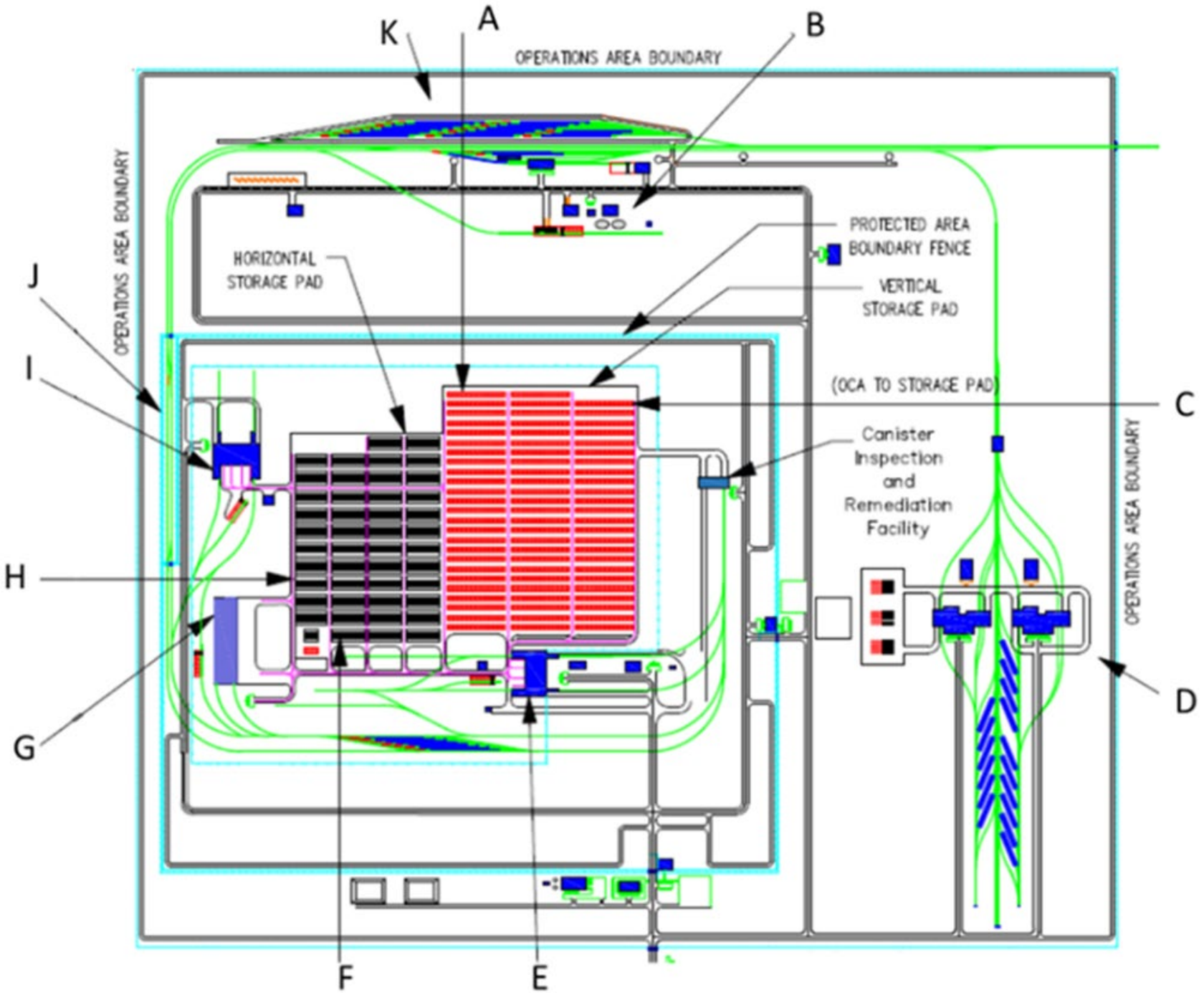
DOE O 413.3B
11-29-2010

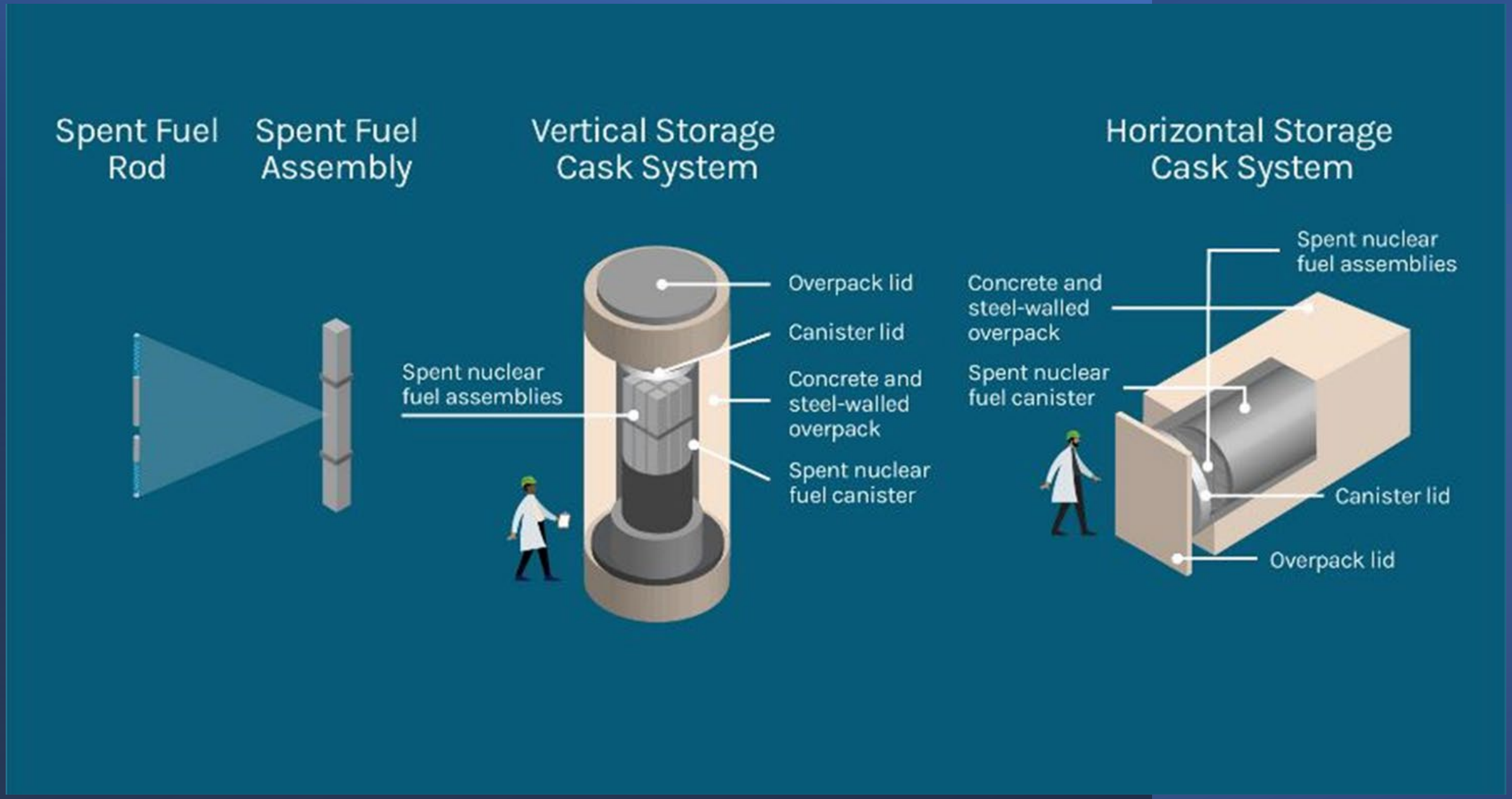
Table 2.0 CD-0 Requirements[1]

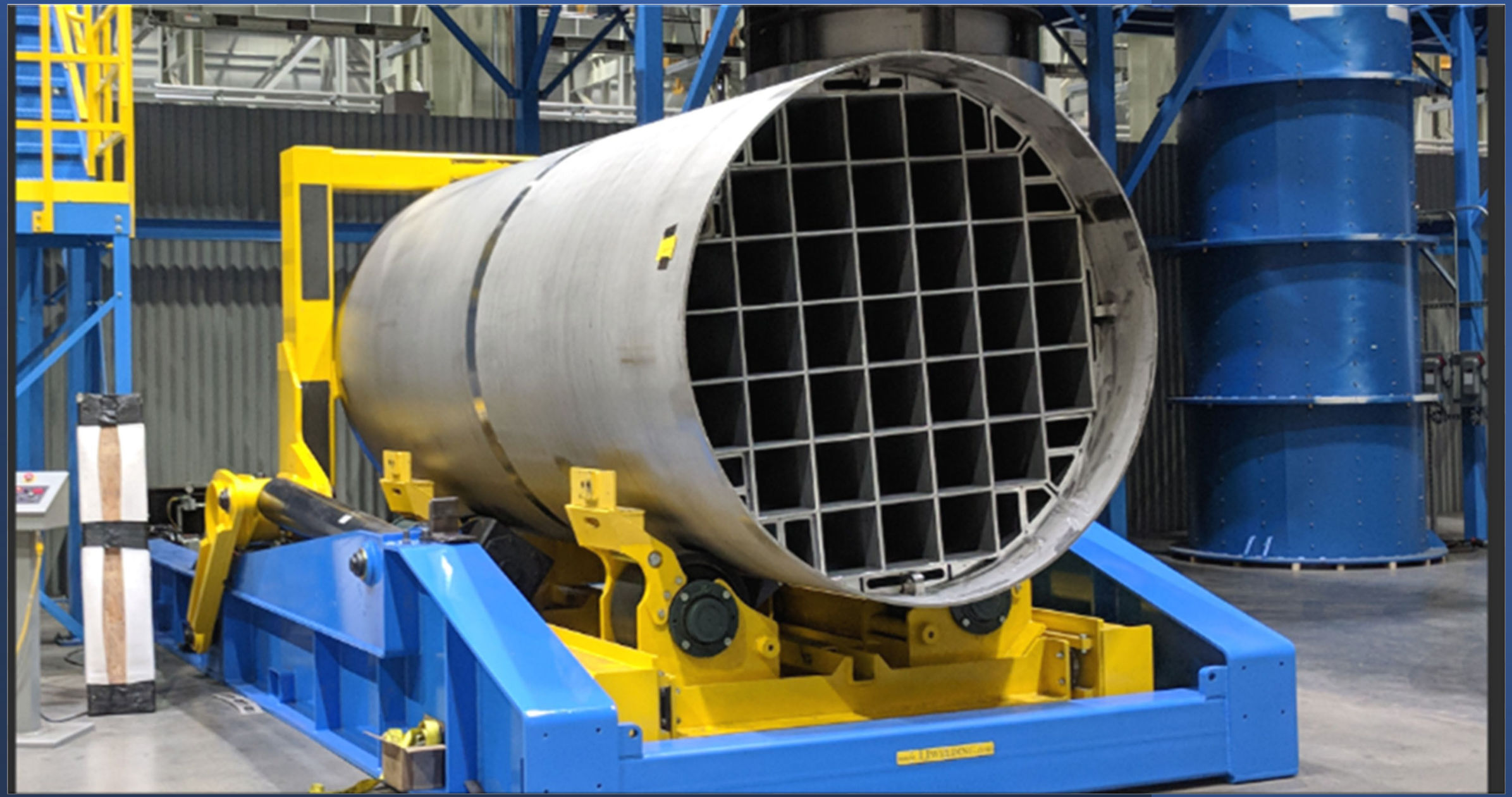
Prior to CD-0
Perform Pre-Conceptual Planning activities that focus on the Program Offices' strategic goals and objectives, safety planning, design, development of capability gaps, high-level project parameters, a ROM cost range, and schedule estimates.
Perform a Mission Validation Independent Review on all Major System Projects. (Refer to DOE G 413.3-9.)
Approve a Mission Need Statement Document with recommendation from PM for projects with a TPC ≥ $100M. (Refer to DOE G 413.3-17.)
For Major System Projects, or for projects as designated by the CE, PM will conduct an Independent Cost Review (ICR).
For Major System Projects, the Project Management Risk Committee (PMRC) will review and analyze the CD and make recommendations to the ESAAB, CE, or PME, as applicable, before approval.
For NNSA only, prepare a Program Requirements Document that defines the ultimate goals which the project must satisfy. (Refer to NNSA Business and Operating Policy.)
***For Hazard Category 1, 2, and 3 nuclear facilities**, and to the specificity possible, document DOE expectations for Safety-in-Design. (Refer to DOE-STD-1189-2016.)*

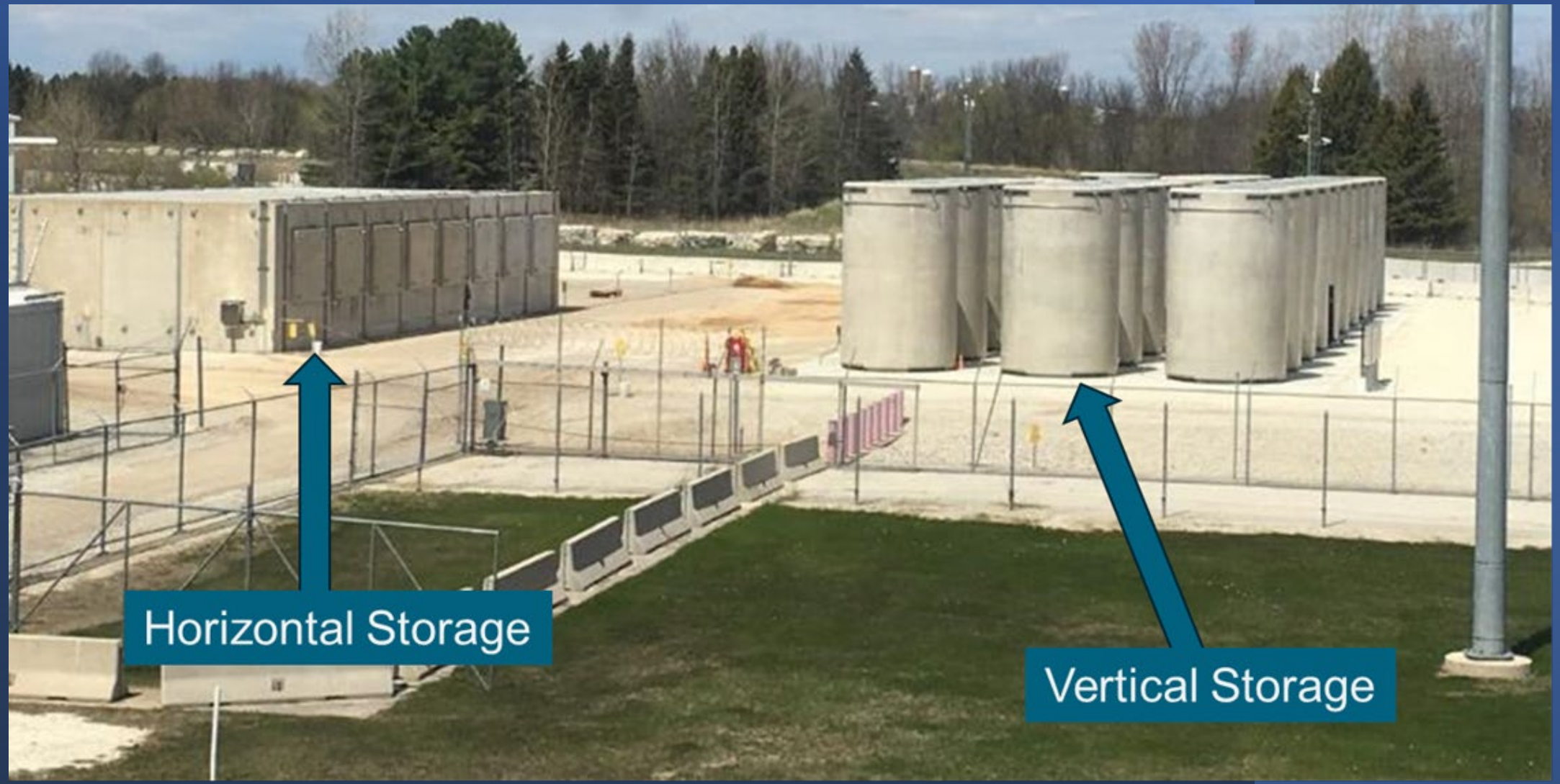

Owner Controlled Area
N
0'
500'
1,000'
1,500'
Scale (feet)
Operations Area Railyard
Storage Cask Fabrication Facility
Operations Area
Railcar Security Inspection Area
Protected Area
Rail Spur to Main Line Railroad
Horizontal Storage Pad
Vertical Storage Pad
Radiation Area
Cask Handling & Transfer Facility
Main Plant Access Road
Perimeter Road (along OCA boundary)

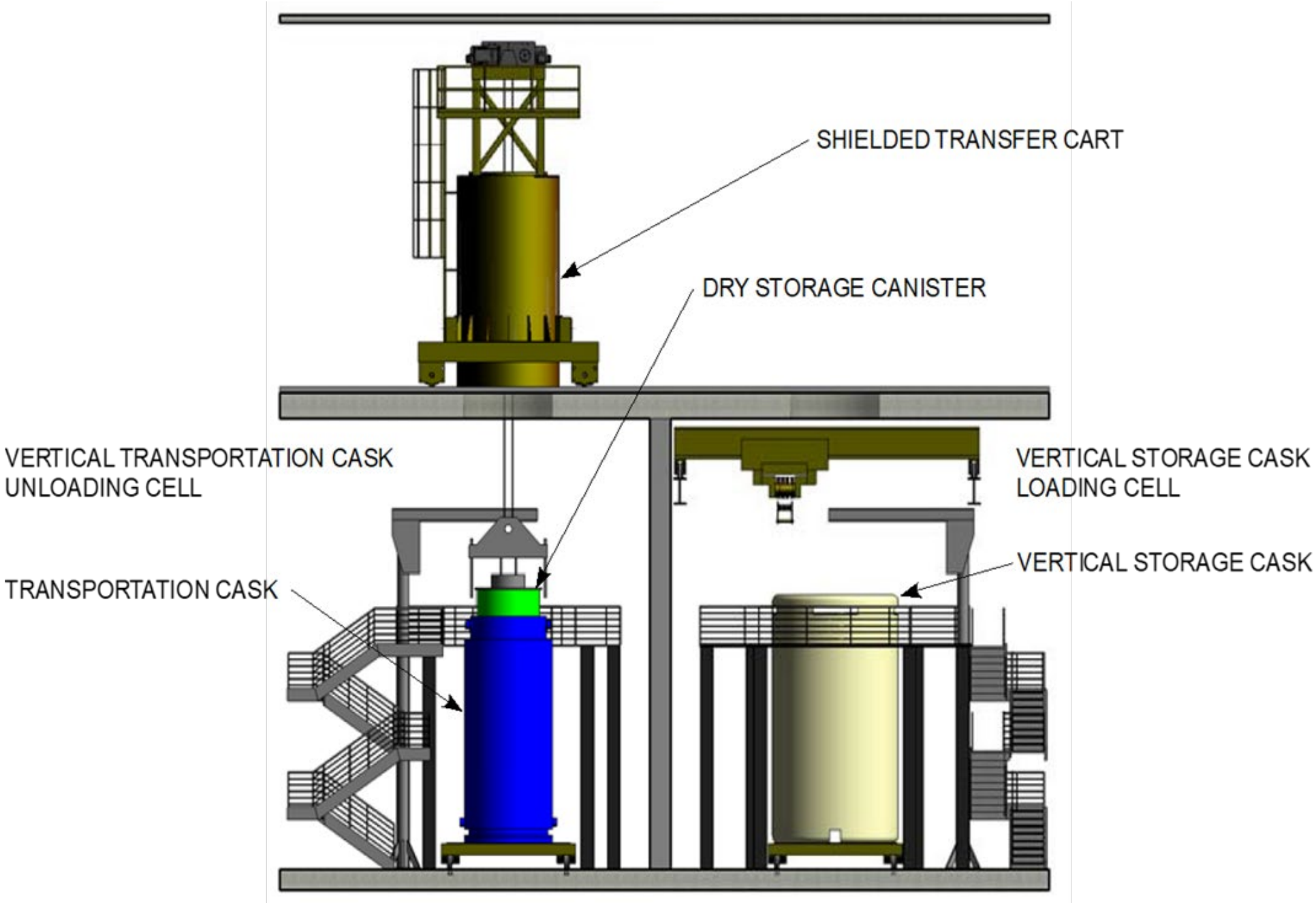
A. Storage Pads
B. Storage Cask Fabrication Facility
C. Vertical Storage Pads
D. Cask Maintenance Facility
E. Cask Handling and Transfer Facility (CHTF 1)
F. Storage Pads
G. Packaging Facility (placeholder, if necessary)
H. Horizontal Storage Pads
I. CHTF 2 (placeholder for a second facility for increased capacity if necessary)
J. Railcar Security Inspection Area
K. Railcar Fleet Maintenance Facility



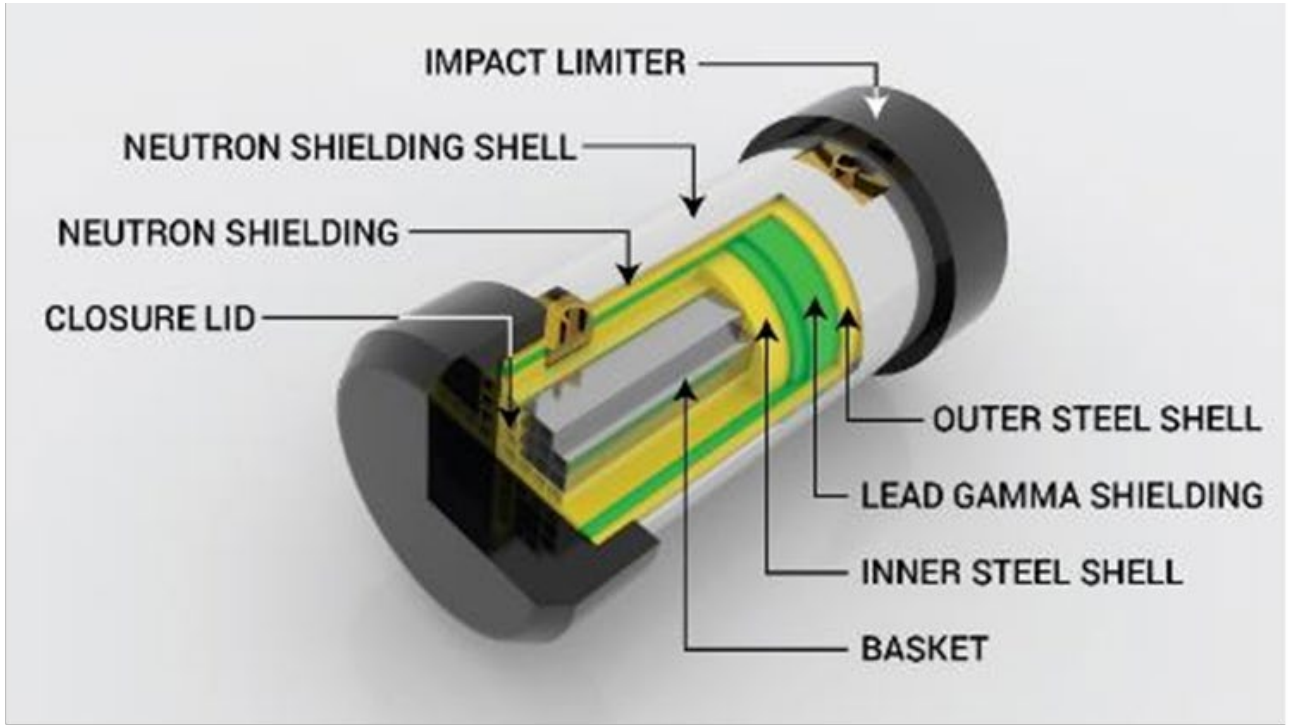

Spent Fuel Rod
Spent Fuel Assembly
Vertical Storage Cask System
Horizontal Storage Cask System
Spent nuclear fuel assemblies
Overpack lid
Canister lid
Concrete and steel-walled overpack
Spent nuclear fuel canister
Spent nuclear fuel assemblies
Concrete and steel-walled overpack
Spent nuclear fuel canister
Canister lid
Overpack lid

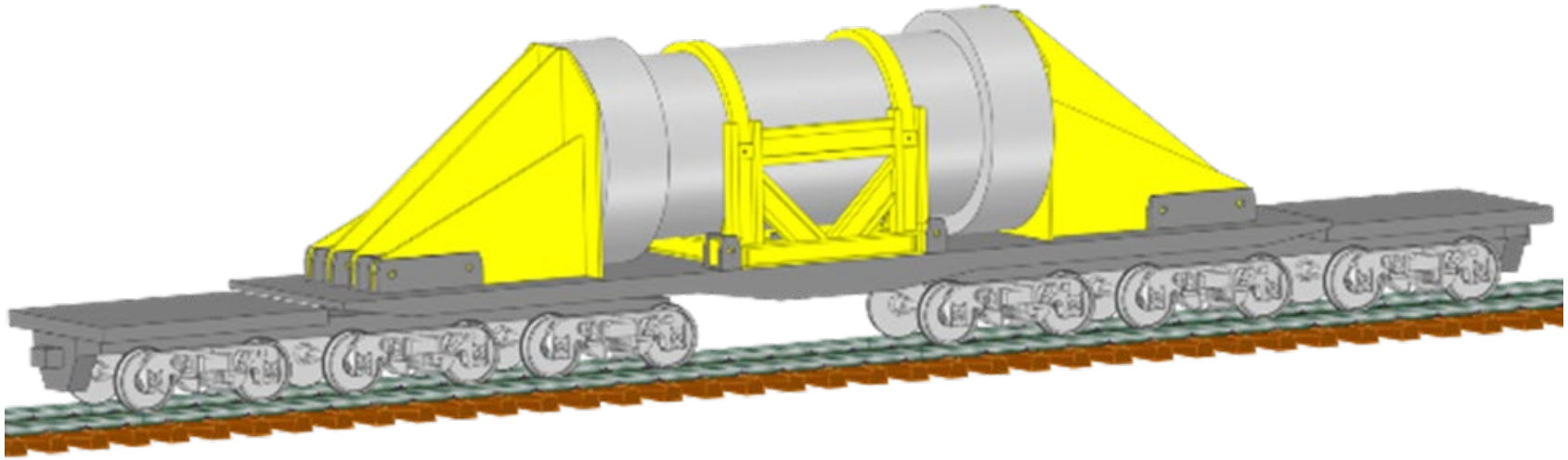



Horizontal Storage
Vertical Storage


SHIELDED TRANSFER CART
DRY STORAGE CANISTER
VERTICAL TRANSPORTATION CASK
UNLOADING CELL
VERTICAL STORAGE CASK
LOADING CELL
TRANSPORTATION CASK
VERTICAL STORAGE CASK


IDOX 030001


IMPACT LIMITER
NEUTRON SHIELDING SHELL
NEUTRON SHIELDING
CLOSURE LID
OUTER STEEL SHELL
LEAD GAMMA SHIELDING
INNER STEEL SHELL
BASKET



CONSENT-BASED SITING PROCESS

for Federal Consolidated Interim Storage of Spent Nuclear Fuel

Exploring the background, fundamentals, roles, and more associated with DOE's consent-based siting process

www.energy.gov/consentbasedsiting

U.S. DEPARTMENT OF ENERGY | Office of NUCLEAR ENERGY | CONSENT-BASED SITING

Stage 1: Planning and Capacity Building

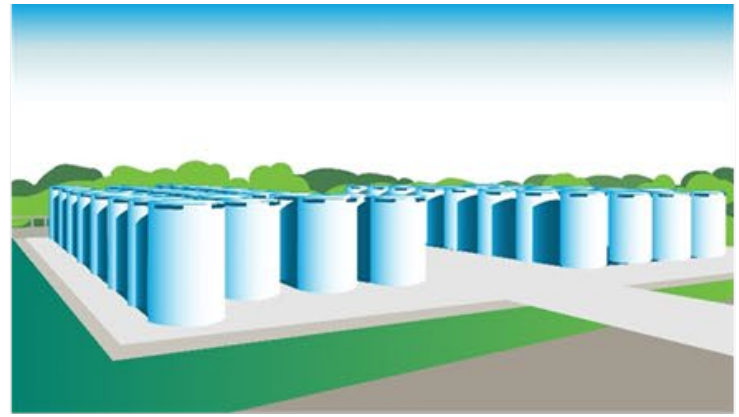
Build relationships, encourage mutual learning, develop a common understanding of nuclear waste management-related topics.

Phases 1A & 1B
Anticipated remaining duration
2-3 years

Stage 2: Site Screening and Assessment

Share screening and assessment criteria; **issue a national call for volunteers**; preliminary and detailed site assessments in collaboration with volunteer communities.

Phases 2 – 4
Anticipated duration
4-7 years



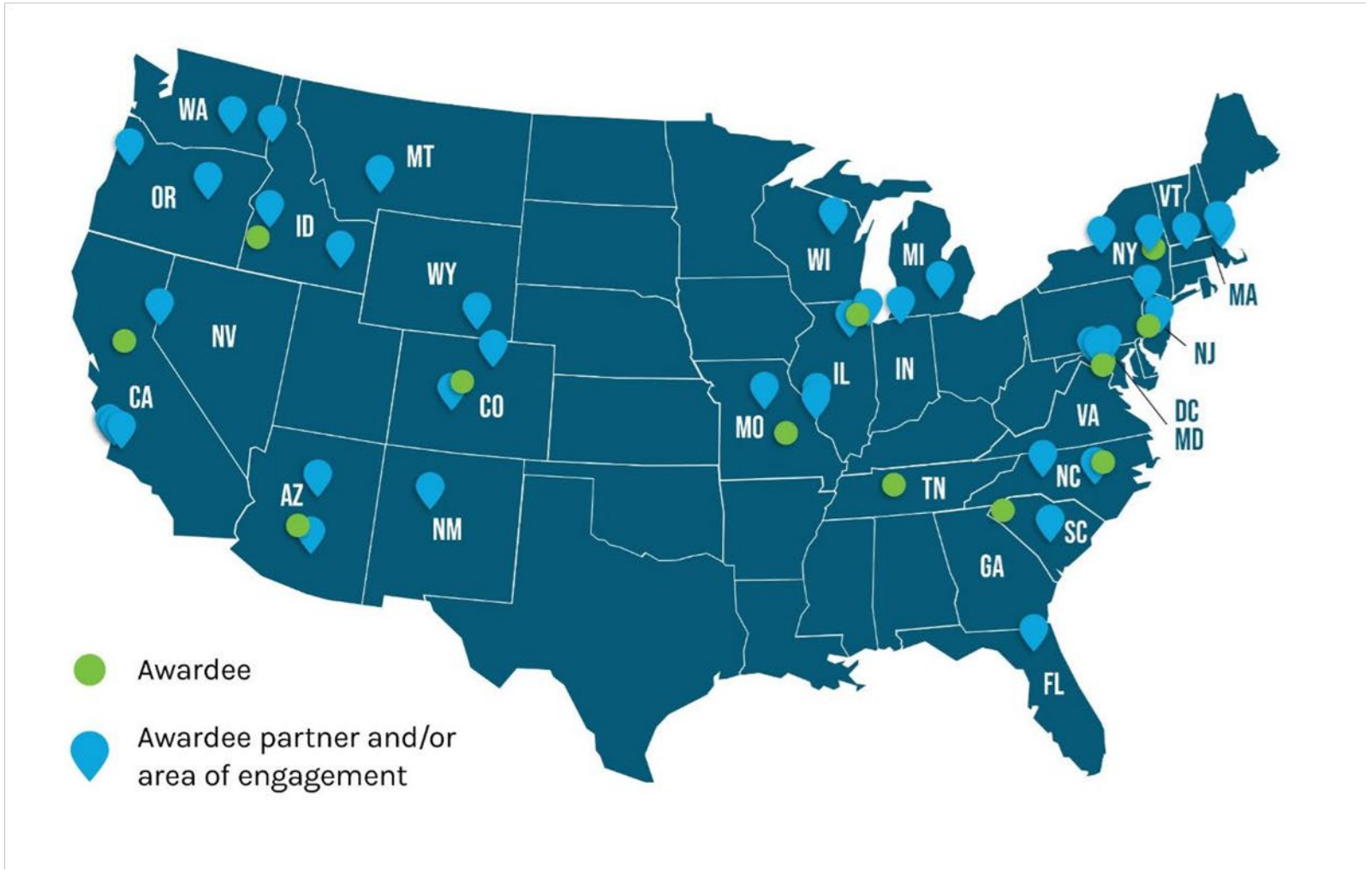
Stage 3: Negotiation and Implementation

Negotiate agreements with willing and informed host communities with licensing, construction, and operation activities to follow.

Phases 5, 6A, & 6B
Anticipated duration to initial operation readiness

Consent-Based Siting Consortia

- American Nuclear Society
- Arizona State University
- Boise State University
- Clemson University
- Energy Communities Alliance
- Good Energy Collective
- Holtec International
- Keystone Policy Center
- Missouri University of Science and Technology
- North Carolina State University
- Rensselaer Polytechnic Institute
- Vanderbilt University



CD-0 Checklist

IPT – ROM Cost and Schedule Range	August 2023
Safety-In-Design	August 2023
MVIR Final Report	August 2023
ICR Final Report	November 2023
Mission Need Approval	
PMRC Approval	
ESAAB Briefing Scheduled	

Mission Validation Independent Review

Consolidated Interim Storage Facility

A Major Systems Acquisition Project

U.S. Department of Energy
Office of Nuclear Energy

Mission Validation Independent Review Team Charter

April 2023

PRIVILEGED AND CONFIDENTIAL
PRELIMINARY DELIBERATIVE THOUGHTS AND IDEAS
ATTORNEY-CLIENT PRIVILEGED

Independent Cost Review

Project Element	IPT Team	ICR Team
Point Cost Estimate ($million) Dollars escalated to future years from NE-82 Integrated Project Team (IPT) 2023 estimate	5,827	5,842
Cost Range ($million) Dollars escalated to future years from IPT 2023 estimate	4,192 to 6,828	4,600 to 10,500
Schedule Range (CD-4A, Start of Operations)	FY37 to FY41	N/A, only evaluated CD-4
Schedule Range (CD-4, Project Completion)	FY44 to FY48	FY42 to FY47

CD-0 Checklist

IPT – ROM Cost and Schedule Range	August 2023
Safety-In-Design	August 2023
MVIR Final Report	August 2023
ICR Final Report	November 2023
Mission Need Approval	February 2024
PMRC Approval	February 2024
ESAAB Briefing Scheduled	Late April or Early May 2024

PART 72—LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL, HIGH-LEVEL RADIOACTIVE WASTE, AND REACTOR-RELATED GREATER THAN CLASS C WASTE

Challenges

- Need Construction and Operations Authorization from Congress
- How much consent is enough and who gets to consent
- Progress on a final disposition solution
- Independent organization in DOE or a Federal Corporation
- Long time-scales for this kind of effort is multi-generational

LEARN MORE

CONSENT-BASED SITING

For Federal Consolidated Interim Storage of
Spent Nuclear Fuel

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THANK YOU