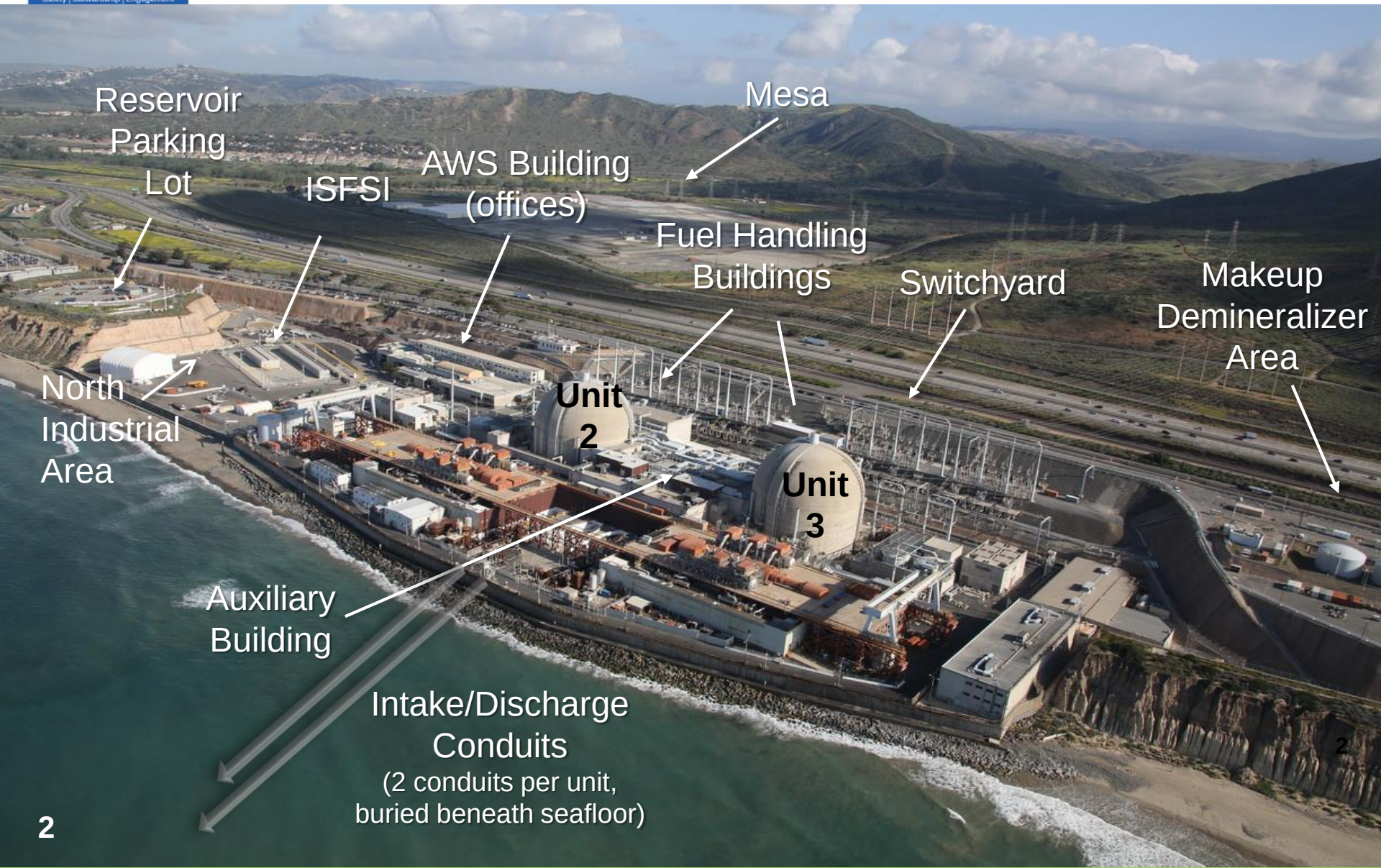
Safety | Stewardship | Engagement

Decommissioning
San Onofre
Nuclear Generating Station

San Onofre Nuclear Generating Station (SONGS) Decommissioning

Nino Mascolo
Southern California Edison
March 13, 2019

SONGS Aerial Overview



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Participants

Southern California Edison
San Diego Gas & Electric
Cities of Anaheim and Riverside

More information on
www.SONGScommunity.com
&
Follow@SCE_SONGS

Decommissioning Principles

Participants are committed to:

Safety

- Safely decommissioning San Onofre
- Safely moving the power plant's used fuel into dry cask storage, until government approved long-term storage options are available

Stewardship

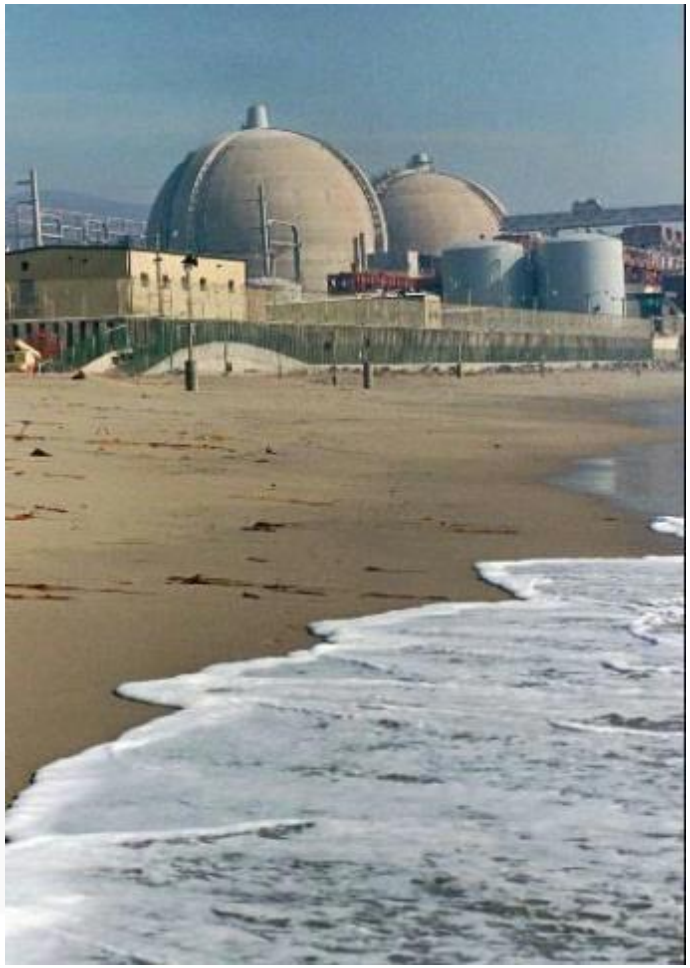
- Spending Nuclear Decommissioning Trust Funds wisely
- Returning any unused money to customers

Engagement

- Decommissioning process is inclusive, forward-thinking, involving diverse stakeholders

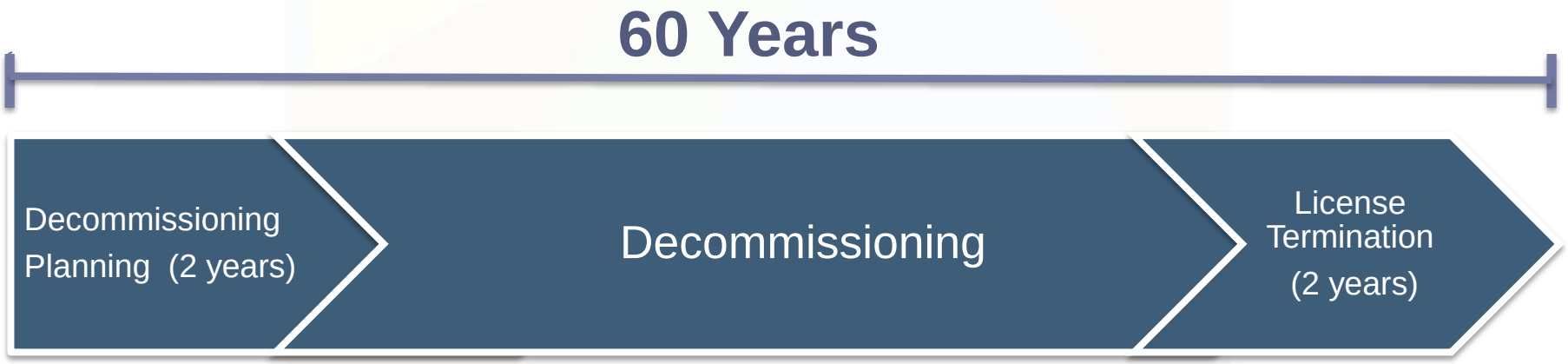
San Onofre Plant History

- **Unit 1**
  - Online January 1968
  - Retired 1992
  - Partially decommissioned 1999 - 2008
- **Unit 2**
  - Online November 1983
  - Removed from service January 9, 2012
- **Unit 3**
  - Online April 1984
  - Removed from service January 31, 2012
- **Units 2 & 3**
  - Retired June 7, 2013



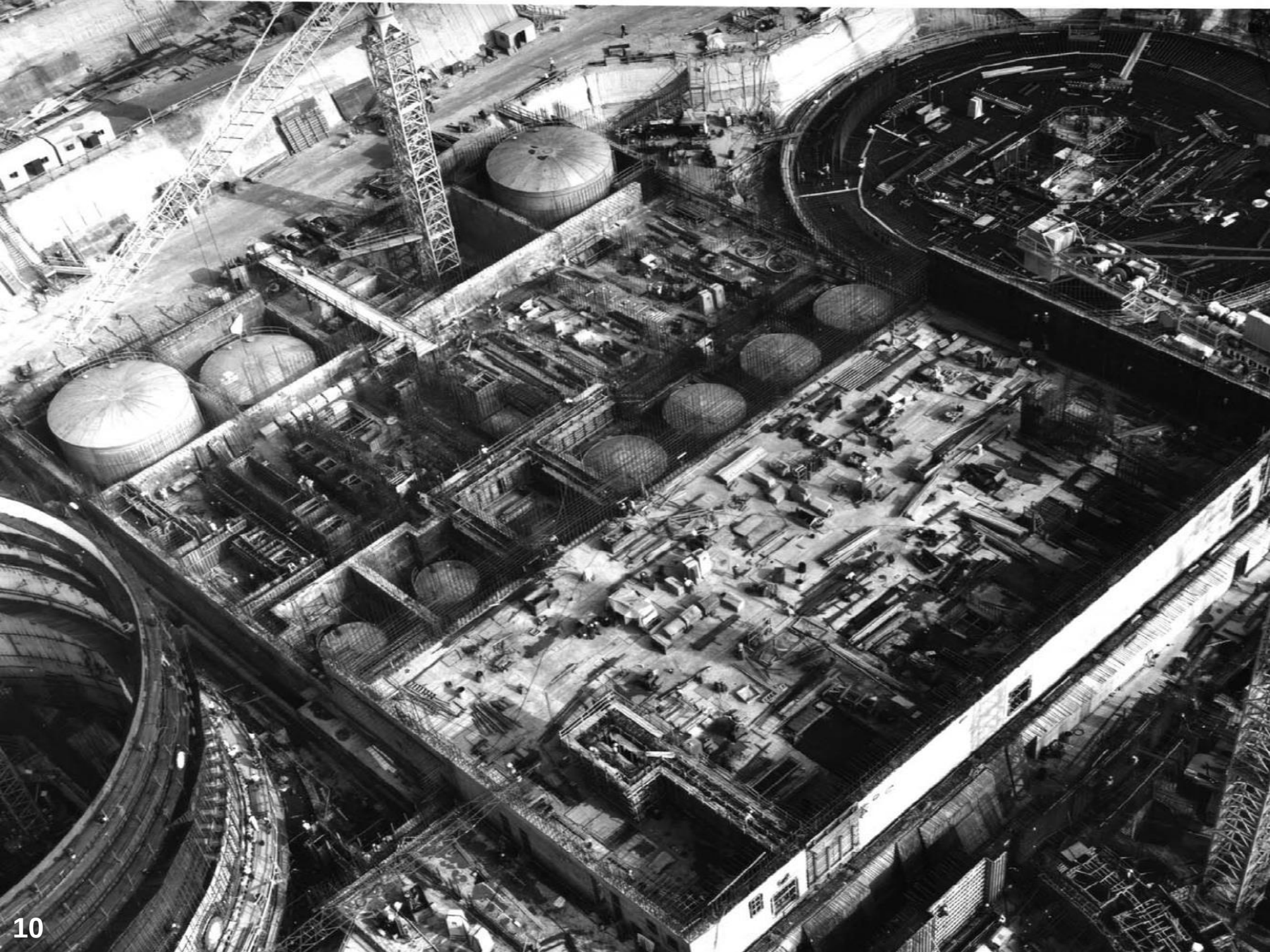
Overview

Once a utility declares cessation of operation, specific activities are governed by NRC Regulations 10 CFR 50.82 with specific time periods:

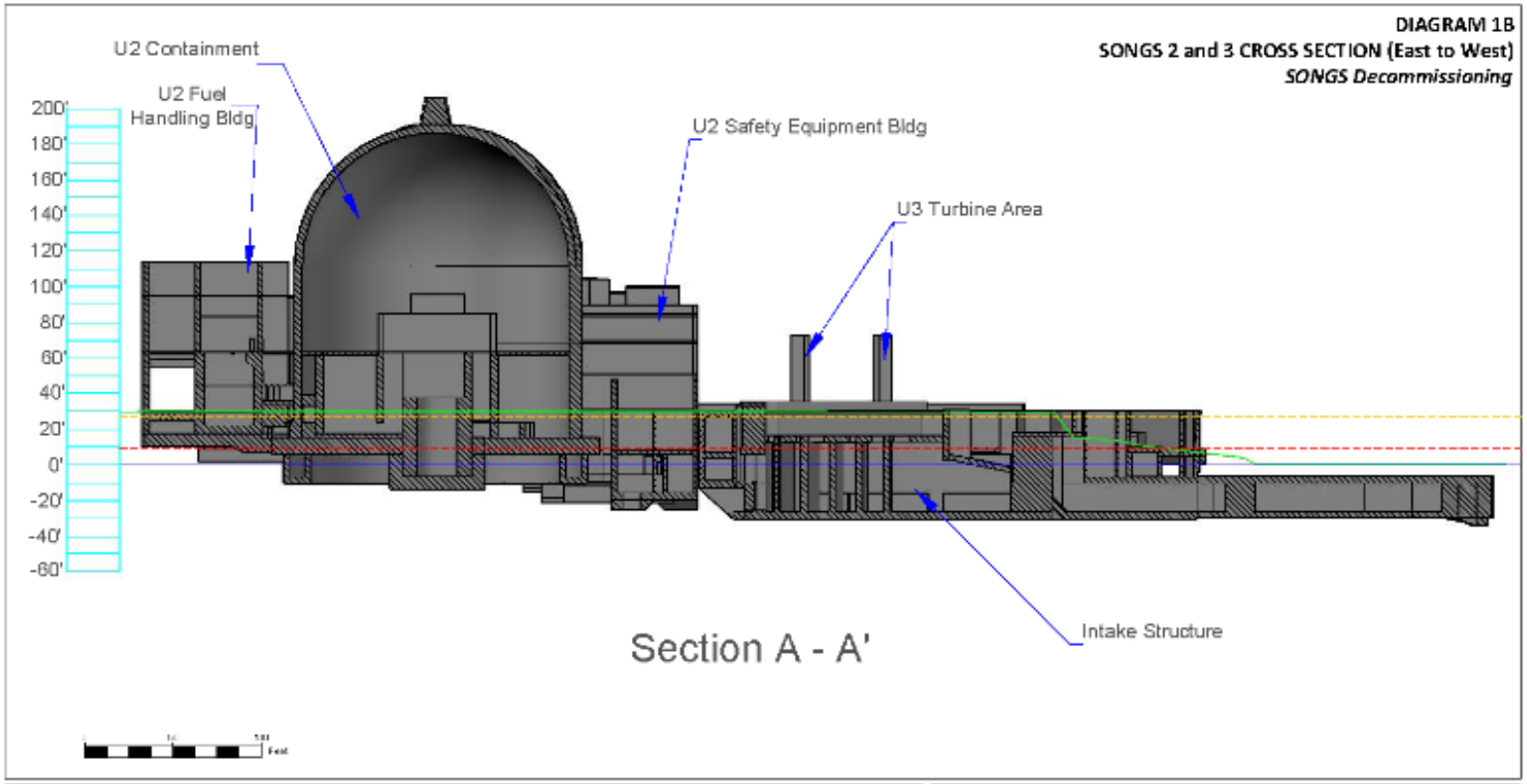


Unit 1

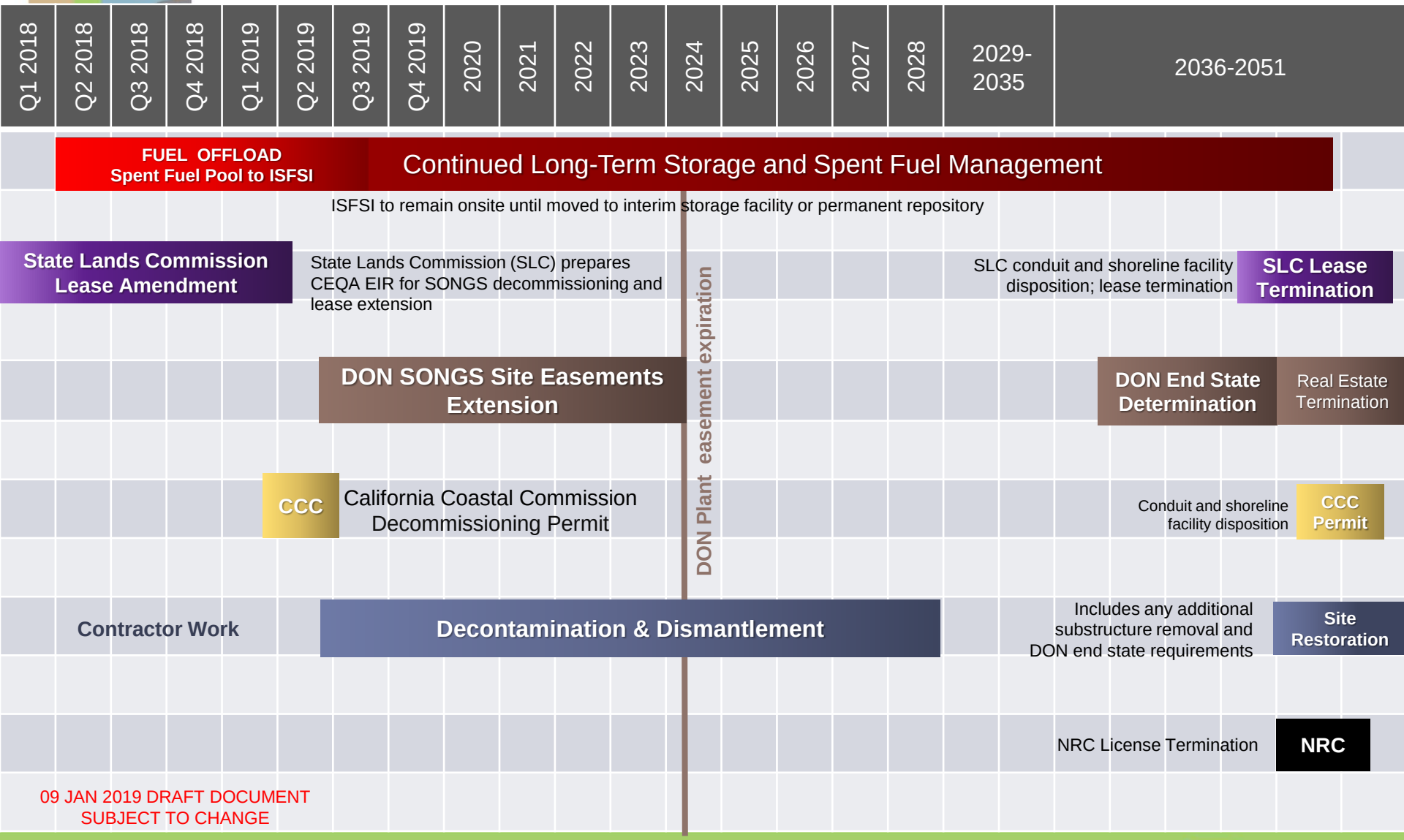
Units 2/3 Construction



Units 2/3 Site Elevation View
(View to South)



SONGS DECOMMISSIONING SCHEDULE



09 JAN 2019 DRAFT DOCUMENT
SUBJECT TO CHANGE

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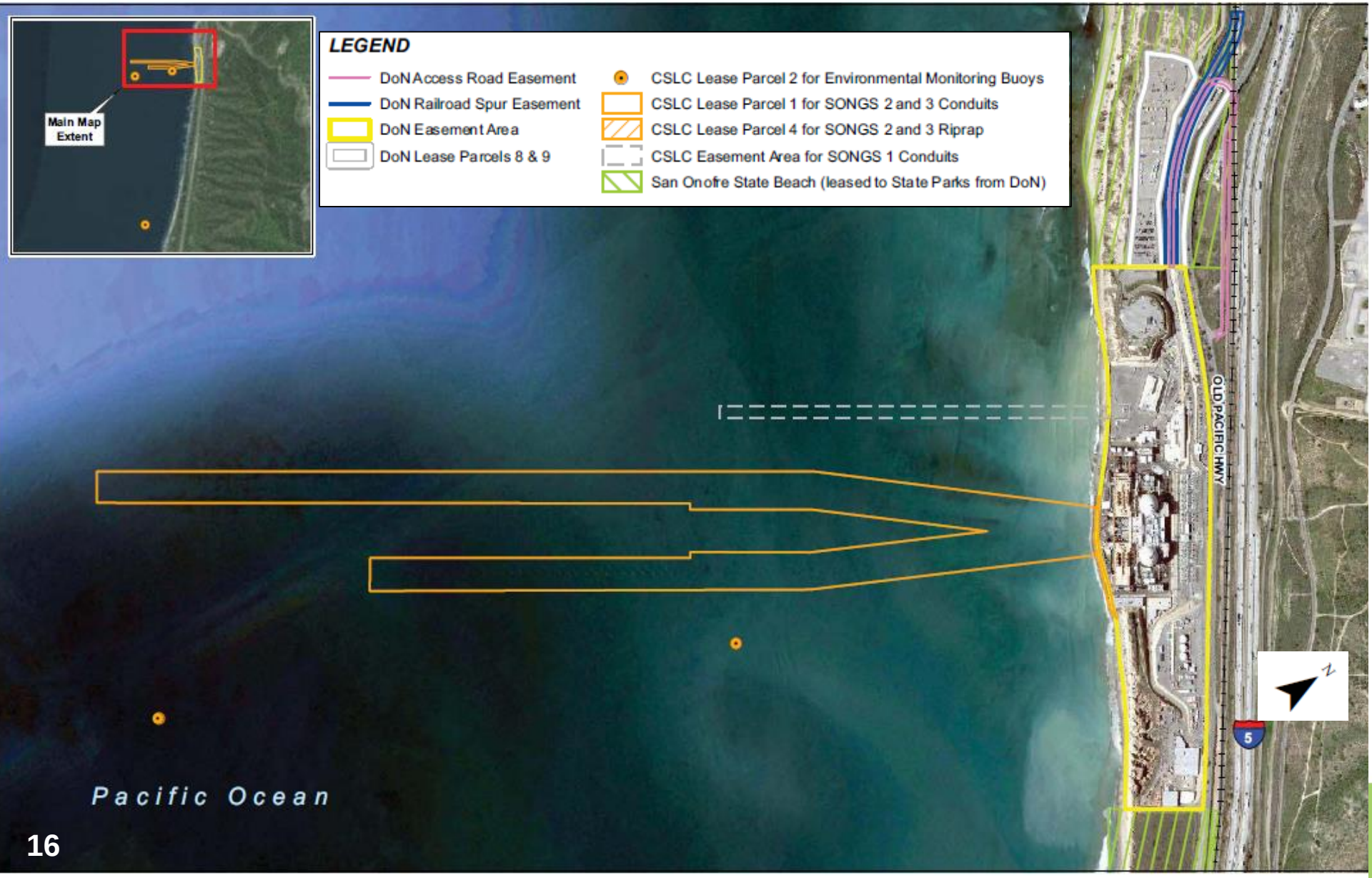
AGENCY JURISDICTION

Key Agency Regulators

- NRC: Exclusive jurisdiction over SONGS radiological issues, including spent fuel; provides oversight for all nuclear plant licensed activities
  - Completed NEPA generic reviews for spent fuel storage and decommissioning
  - No further approvals required to commence decommissioning
- DON: Landowner jurisdiction regarding use of Camp Pendleton
  - No further approvals required to commence decommissioning
  - Land use decisions; including future final site restoration conditions
  - Mean high water line differentiates jurisdiction between DON and SLC
- SLC: Jurisdiction over offshore conduits and some shoreline riprap
  - Lead agency for CEQA environmental review of initial decommissioning (decontamination, dismantlement, and offshore conduit disposition)
- CCC: Jurisdiction over coastal zone activities (onshore & offshore)
  - Issued permits (CDP) for dry cask fuel storage construction
  - CDP required for decommissioning work
  - Will rely upon SLC CEQA Environmental Impact Review

SONGS Related Land Rights



Used Fuel Management


Columbia
Trojan
DOE TMI-2 Storage
Humboldt Bay
DOE Idaho Spent Fuel Facility
Rancho Seco
Ft Saint Vrain
Diablo Canyon
San Onofre
Palo Verde
Comanche Peak
Monticello
Big Rock Pt
Kewaunee
Prairie Island
LaCrosse
Ft Calhoun
Cooper
Zion
Point Beach
Palisades
Cook
Fitzpatrick
Ginna
Nine Mile
Perry
Davis Besse
North Anna
Surry
McGuire
Sequoyah
Catawba
Robinson
Oconee
Brunswick
Browns Ferry
Arkansas Nuclear One
Vogtle
Hatch
Grand Gulf
River Bend
Farley
Waterford
St Lucie
34 States have at least one ISFSI

Used Fuel Management Strategy

1. Safely manage and store San Onofre's used nuclear fuel until it is removed from site
2. Promptly offload fuel from pools to passive dry cask storage
3. Recover used fuel storage costs from Dept. of Energy
4. Support all safe and reasonable options to remove used nuclear fuel from San Onofre site
   - NRC License required for offsite spent fuel storage
   - Consolidated interim storage and DOE permanent repository
   - Relocate fuel to another nuclear plant; requires NRC license amendment and Licensee consent

On-site Used Fuel Storage

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INITIAL STATE

Spent Fuel Pools

2668 fuel assemblies

Existing ISFSI
50 canisters (1187 fuel assemblies)

EXPANDED ISFSI

73 canisters (2668 fuel assemblies)
+
existing 50 canisters (1187 fuel assemblies)

AS OF AUGUST 2018, 29 CANISTERS HAVE BEEN LOADED ONTO THE ISFSI

FUTURE STATE

3855 fuel assemblies in 123 canisters

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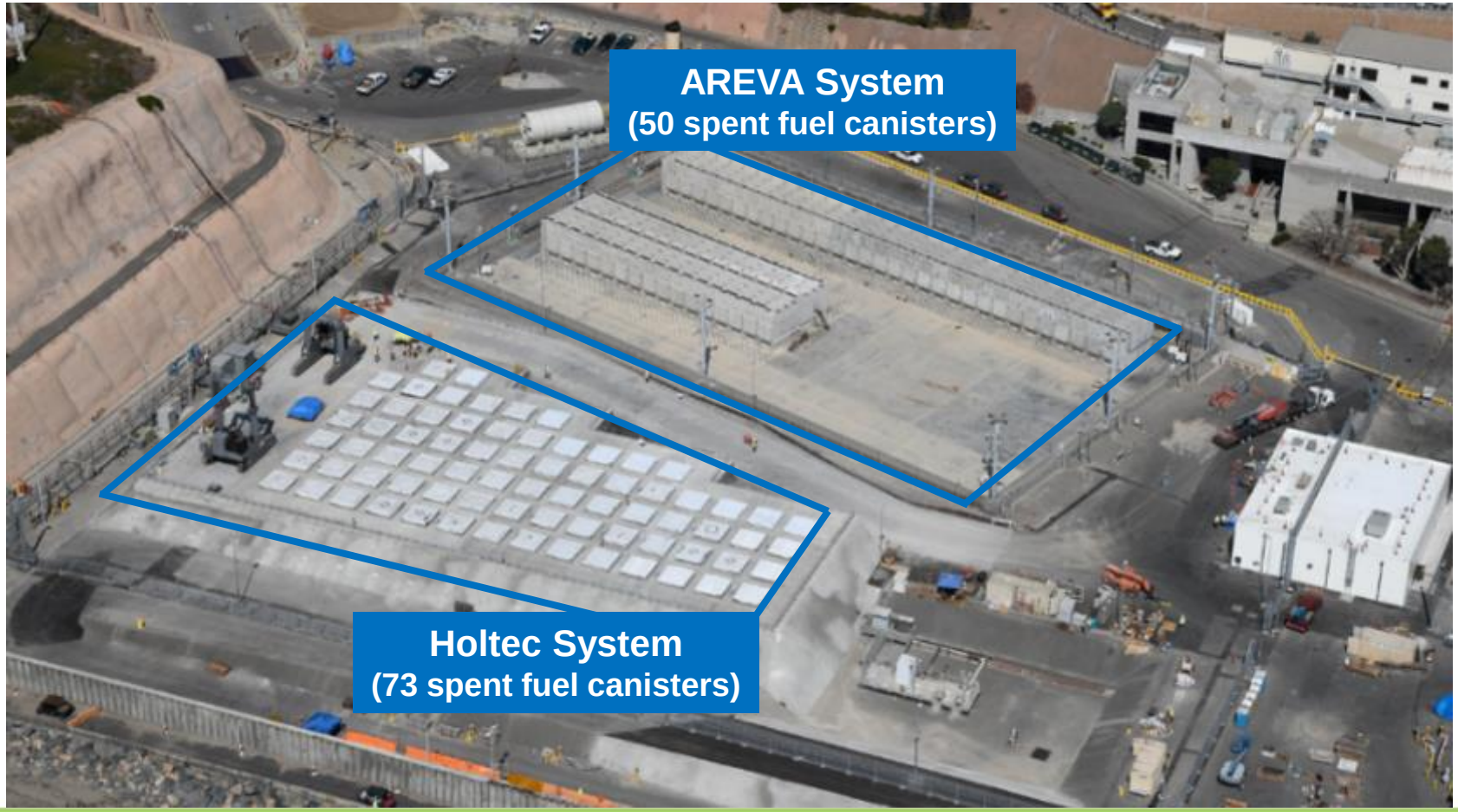
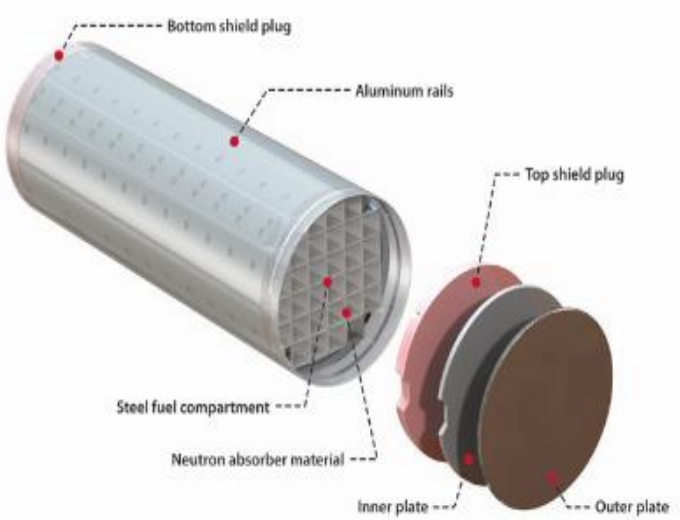
Independent Spent Fuel Storage Installation (ISFSI)

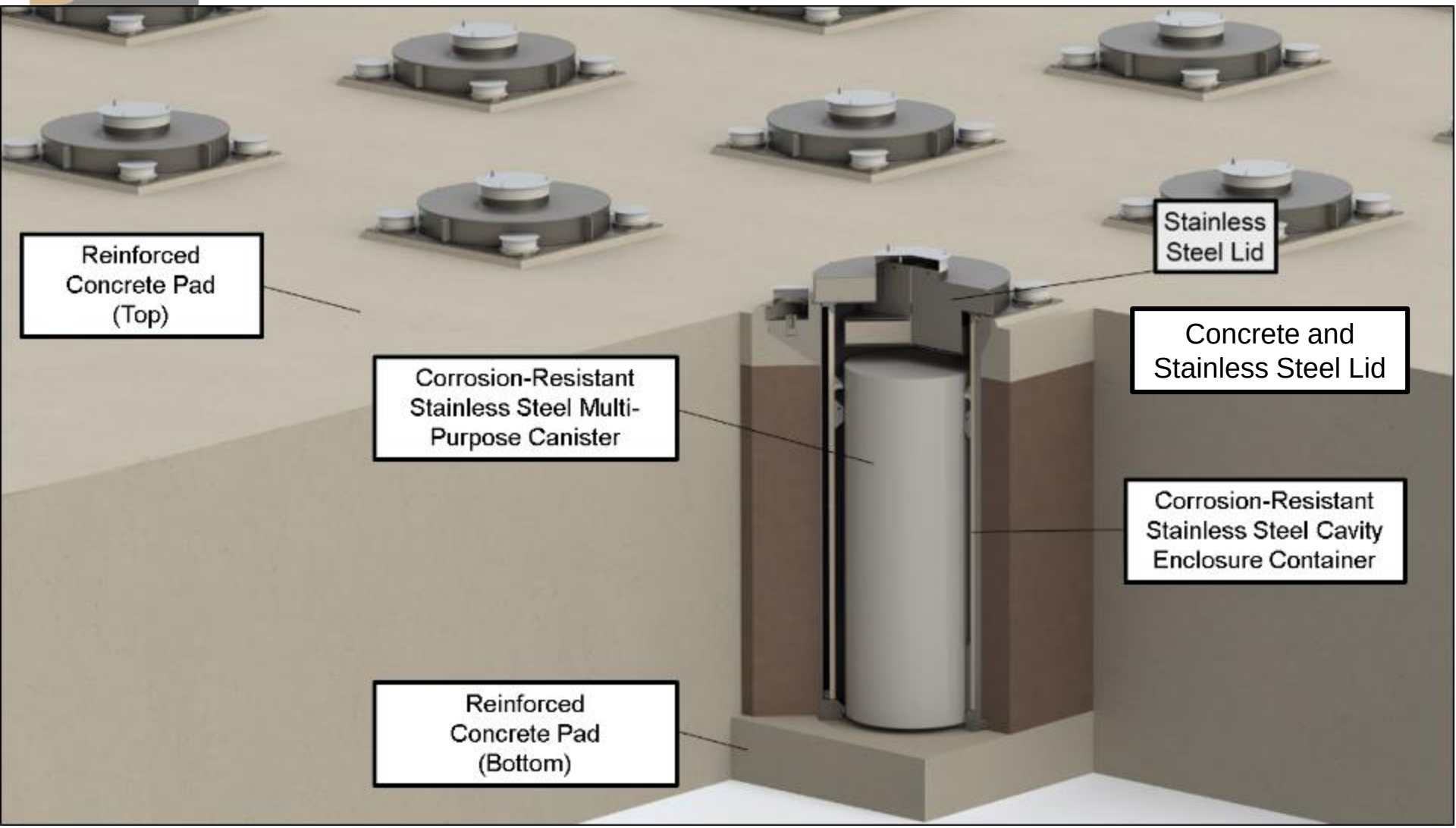
Provides Passive Dry Cask Storage for Spent Fuel While On Site



AREVA NUHOMS ISFSI



HOLTEC UMAX System



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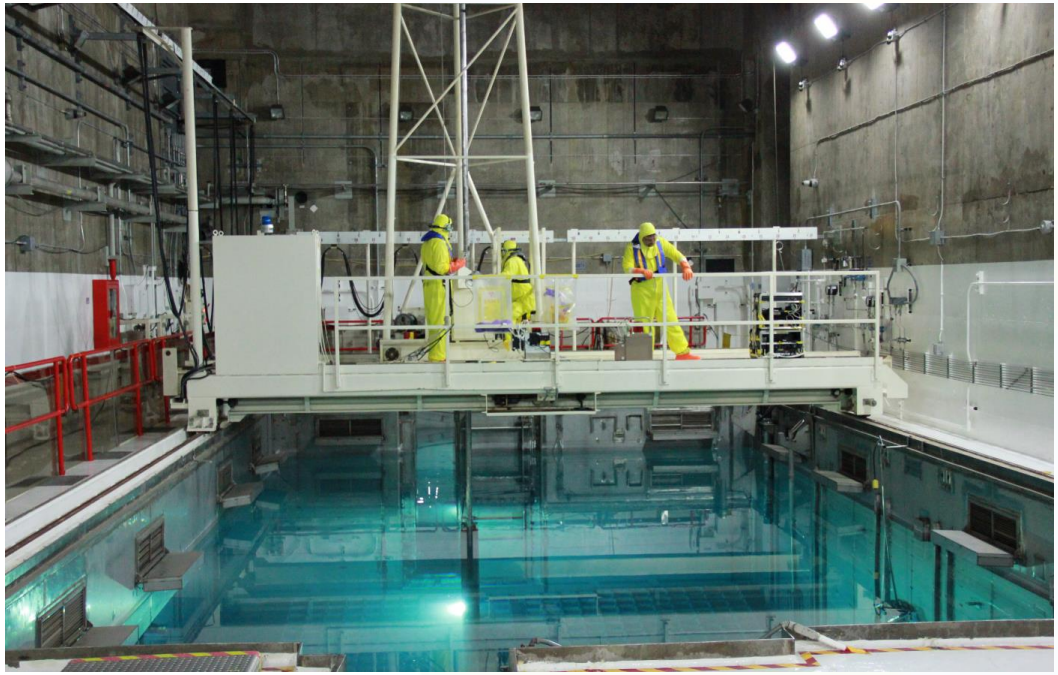
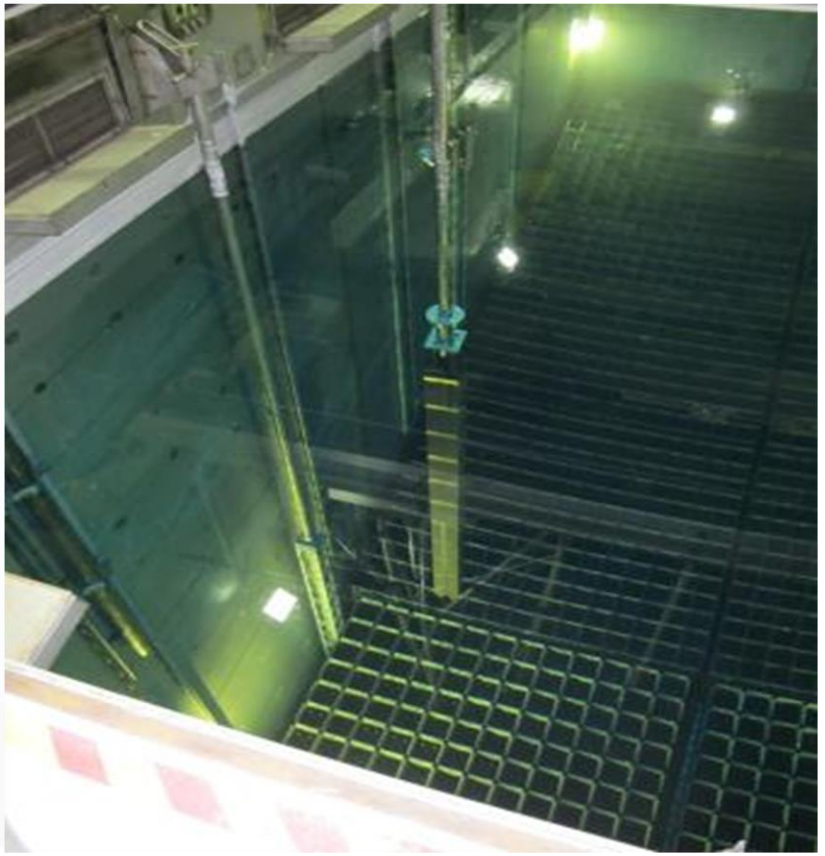
Spent Fuel Pool "Wet" Storage





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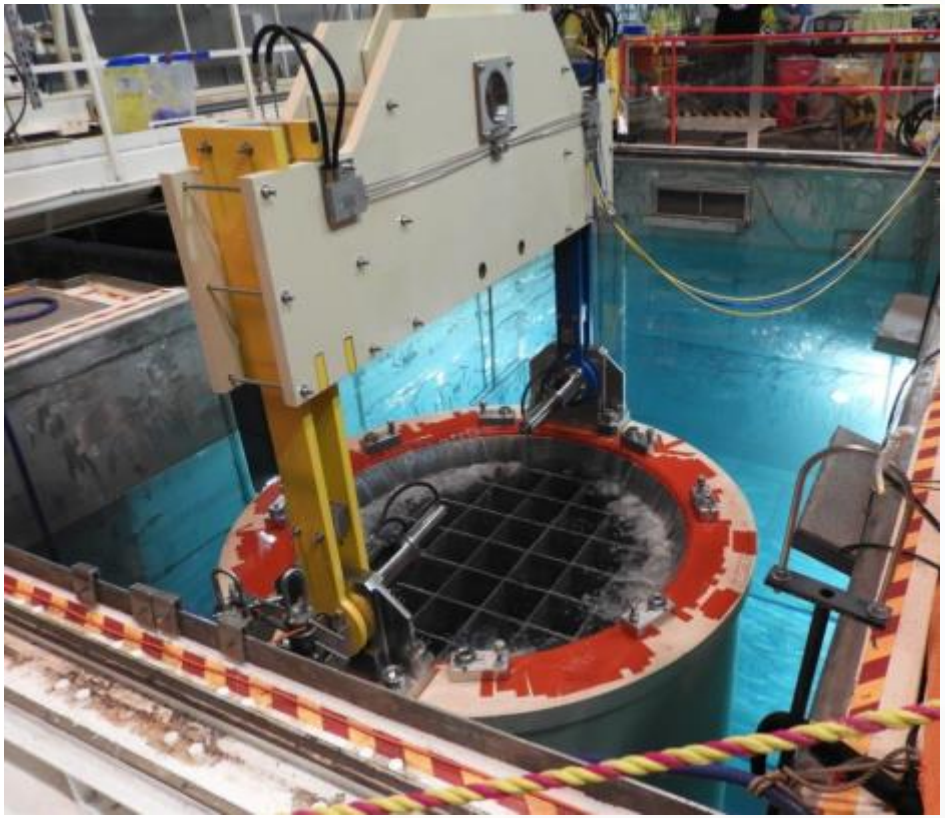
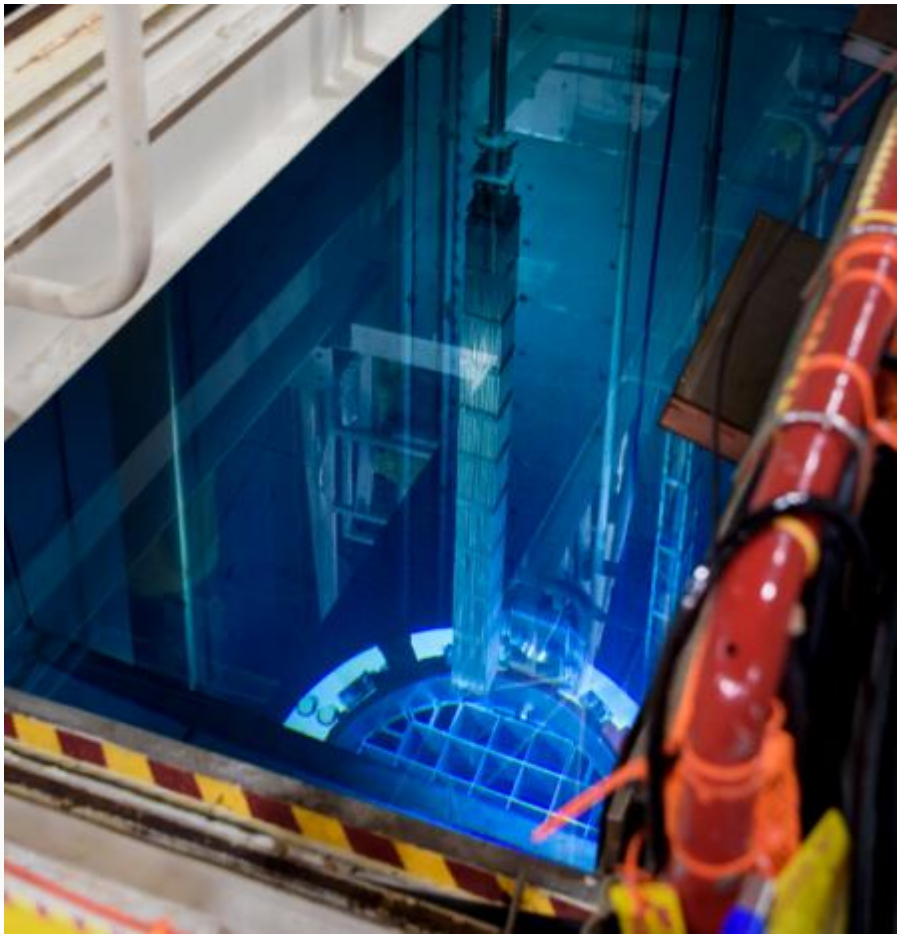
Transfer of Spent Fuel to Canister





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Multi Purpose Canister

Hi Trac

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Hi Port

Vertical Cask Transporter

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Used Fuel Readiness for Transportation

- Some fuel qualified for transport now
- Remaining fuel qualifies over time

	NOW	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	TOTAL
Units 2/3 AREVA NUHOMS 24PT4	33												33
Unit 1 AREVA NUHOMS 24PT1	2				1					5		9	17
Units 2/3 HOLTEC MPC-37		67		2	2		1			1			73

ISFSI Design

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Support Foundation Pad

~532 tons of rebar

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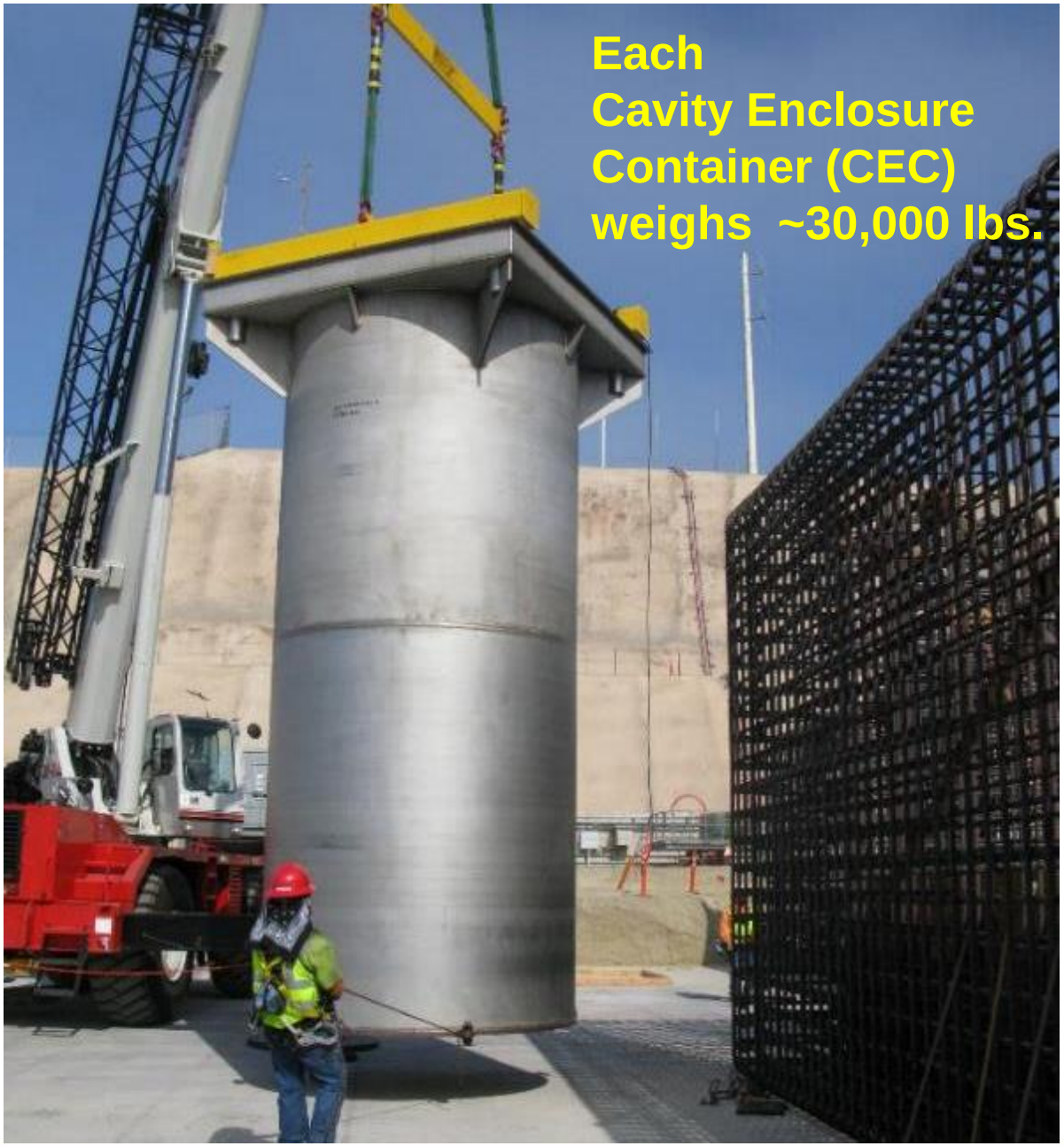

CEC placement

Support Foundation Pad
Concrete Strength = 5,000 psi

Top Pad of ISFSI

Spent Fuel Storage Facts

Canisters…

- Cannot explode
- Cannot create a Fukushima-like disaster
- Cannot “go critical”
- **Can** be inspected
- Provide *defense-in-depth* protections