



Decommissioning **San Onofre** Nuclear Generating Station

Decommissioning Update

San Diego Water Board

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Decommissioning
San Onofre
Nuclear Generating Station

Decommissioning Principles

Southern California Edison and co-owners committed to:

Safety
Stewardship
Engagement



Decommissioning
San Onofre
Nuclear Generating Station

Project Location

- Located in San Diego County, halfway between Los Angeles and San Diego
- SONGS onshore facilities located on Marine Corps Base Camp Pendleton
- Offshore facilities on tidal and submerged lands managed by California State Lands Commission (CSLC)

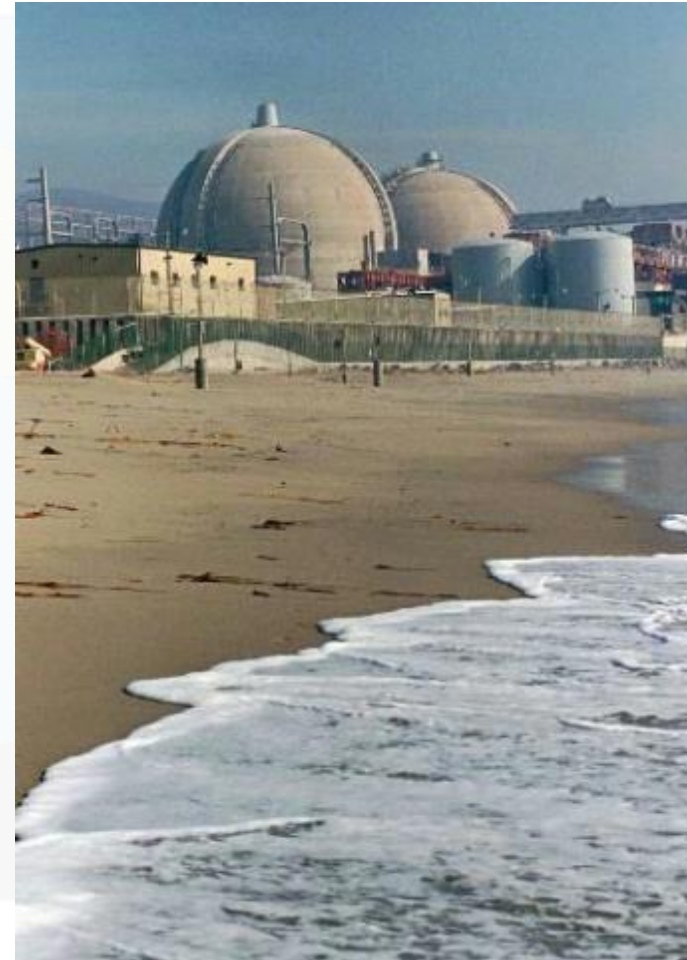




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San Onofre Plant Status

- **Unit 1 retired 1992**
 - Most onshore decontamination & dismantlement is complete
 - Fuel storage facility (ISFSI) constructed 2000
 - Offshore conduits dispositioned 2014, CSLC offshore lease termination in process
- **Units 2 & 3 retired June 2013**
 - NRC submittals filed Sept 2014
 - Offshore conduit lease modification application filed with CSLC Nov 2015
 - Expanded ISFSI completed Jan 2018
 - Transfer of spent nuclear fuel to expanded ISFSI commenced Jan 2018





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Regulatory Overview

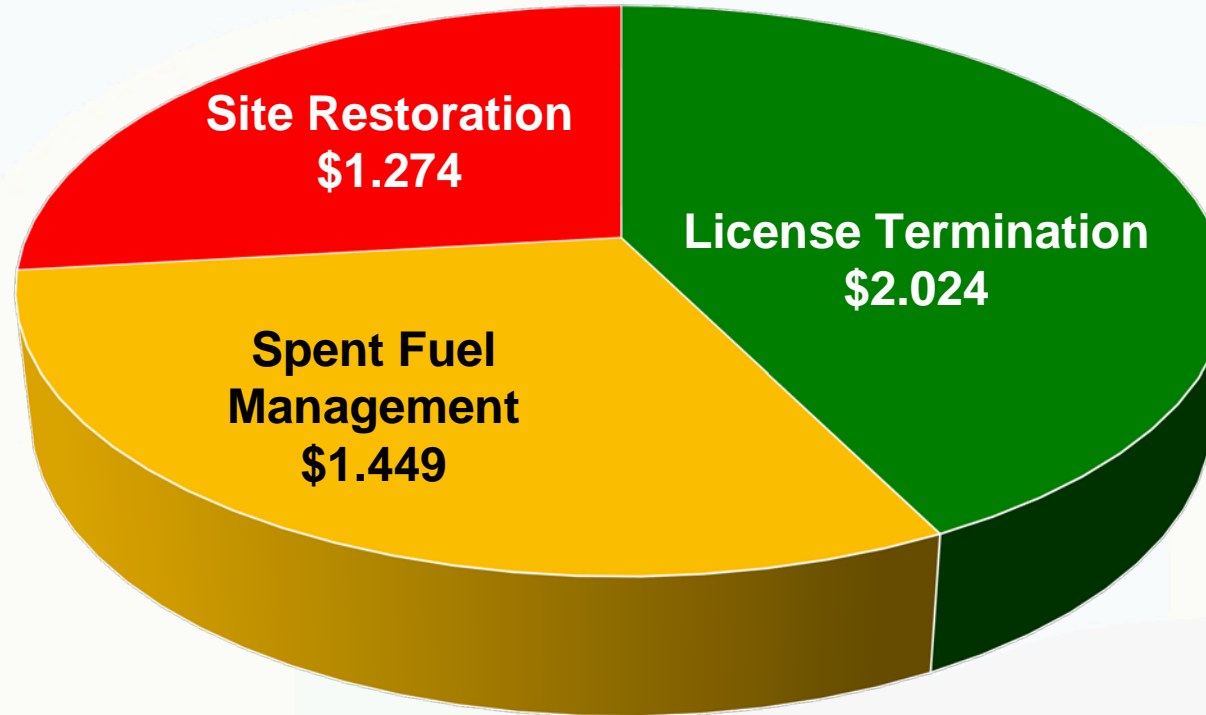
Once a utility declares cessation of operation, specific activities are governed by NRC Regulations 10 CFR 50.82 with specific time periods:





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SONGS Trusts Fully Funded



- Total estimate = \$4.747 Billion (100% share, 2017\$\$)
- Current trust fund balances expected to fully fund decommissioning

Decommissioning Activities and Schedule

- Major activities completed
 - Met all US NRC requirements by 3Q 2015
 - Evaluated and selected a Decommissioning General Contractor (DGC): January 2017
 - Completed construction of an expanded Independent Spent Fuel Storage Installation (ISFSI): January 2018
- Major activities in-progress
 - CA Environmental Quality Act (CEQA) review and Coastal Development Permit (CDP): Target Q4 2018
 - Transfer used fuel to Independent Spent Fuel Storage Installation (ISFSI): Target mid-2019

Decommissioning Plan

Approved ISFSI (2015 to 2035)

Ongoing ISFSI operation and maintenance approved under existing CDP

Proposed Project (2019 to 2028) – Analyzed in EIR

Prompt D&D of onshore facilities to meet NRC requirements for unrestricted use of site and disposition offshore conduits

Future Activities (~2035) – Subject to future CEQA and NEPA reviews

ISFSI removal, additional substructure removal (Units 1/2/3), shoreline structure disposition (seawall, walkway, and riprap), and final site restoration (2035 or later)*

* Subject to availability of suitable offsite fuel storage facility

State Agency Approvals for D&D

- CSLC EIR and Offshore Lease
 - As CEQA lead agency, CSLC reviewing potential environmental impacts of Proposed Project (onshore & offshore)
 - Determining final disposition for offshore conduits
 - Considering SCE's lease application for offshore conduits and riprap through 2035
- CA Coastal Commission (CCC) Coastal Development Permit
 - Responsible agency as part of CSLC's CEQA review
 - Develop staff report for decommissioning – expected to rely heavily on CSLC EIR
 - Issue CDP for decommissioning



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Other Areas of Interest



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SEA LEVEL RISE (SLR)



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Purpose of Study

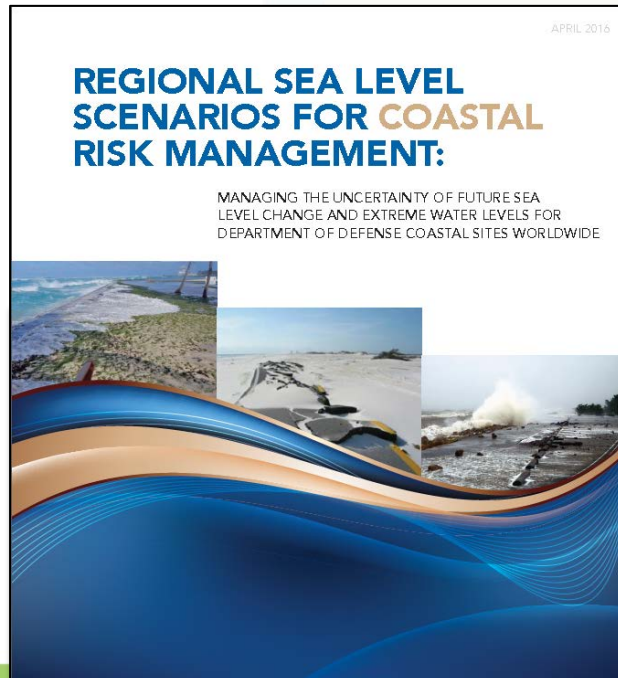
- To better understand interaction between coastal processes and SONGS substructures after removal of the seawall
- To inform SCE's end-state proposal to the Navy as landowner
- Planning tool that helps estimate future conditions at site when fuel and seawalls are removed



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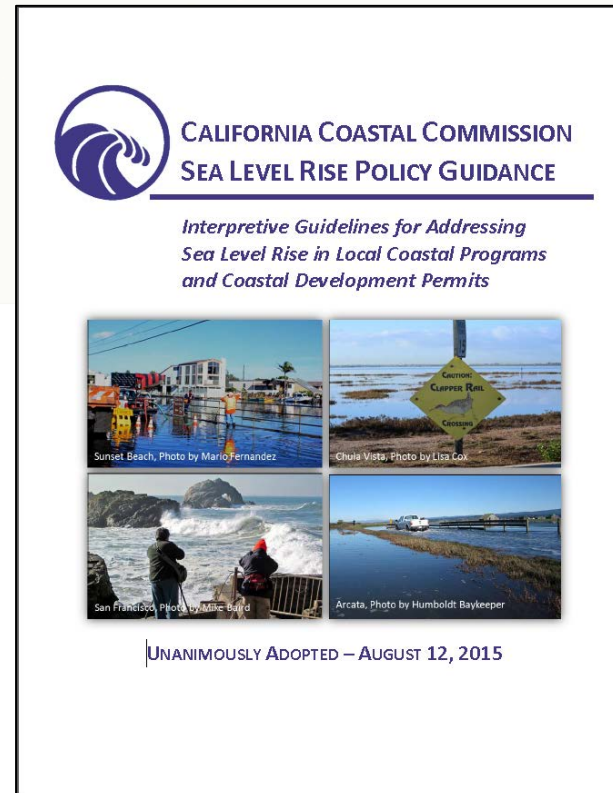
Sea Level Rise Inputs

- Utilized 3 Sea Level Rise (SLR) guidance documents (4 projections)



REGIONAL SEA LEVEL SCENARIOS FOR COASTAL RISK MANAGEMENT:

MANAGING THE UNCERTAINTY OF FUTURE SEA LEVEL CHANGE AND EXTREME WATER LEVELS FOR DEPARTMENT OF DEFENSE COASTAL SITES WORLDWIDE

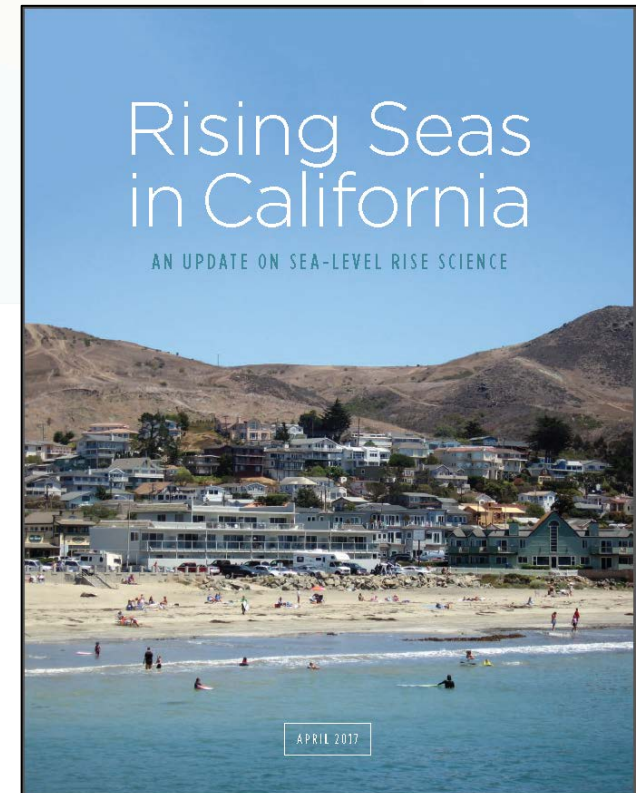


CALIFORNIA COASTAL COMMISSION SEA LEVEL RISE POLICY GUIDANCE

*Interpretive Guidelines for Addressing
Sea Level Rise in Local Coastal Programs
and Coastal Development Permits*



UNANIMOUSLY ADOPTED - AUGUST 12, 2015



Rising Seas in California

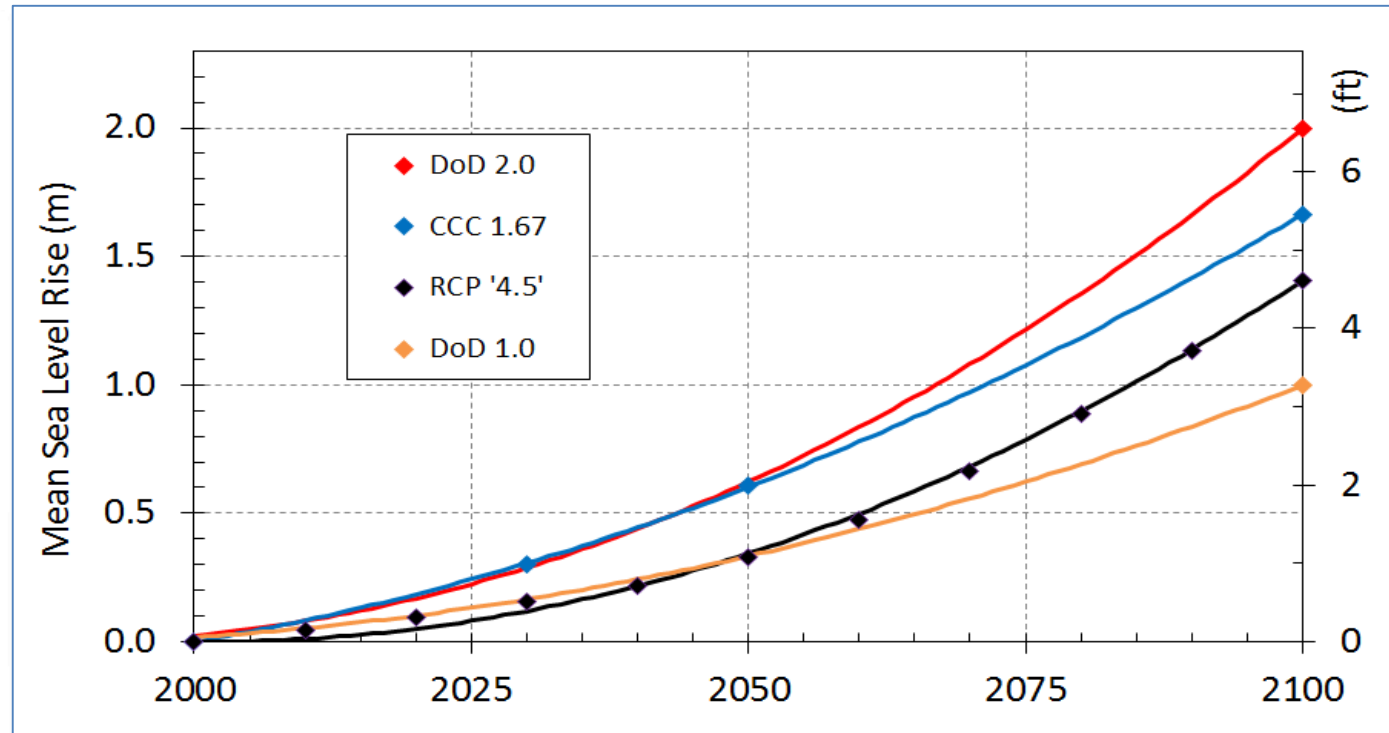
AN UPDATE ON SEA-LEVEL RISE SCIENCE

APRIL 2017

SOUTHERN CALIFORNIA
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SLR Agency Projections



- Future projections vary substantially and are bounded by the DoD scenarios
- Global sea level is rising and likely that it will continue to do so at an accelerating rate into the future



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Key Takeaways for SONGS

- Effects of coastal processes on the site are negligible until seawalls are removed
- After removal of the seawalls in 2051, the rate and magnitude of retreat of the cliff face is strongly correlated with the rate of sea level rise
- In the long term, coastal processes will impact remaining onshore substructures at SONGS



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SONGS Site



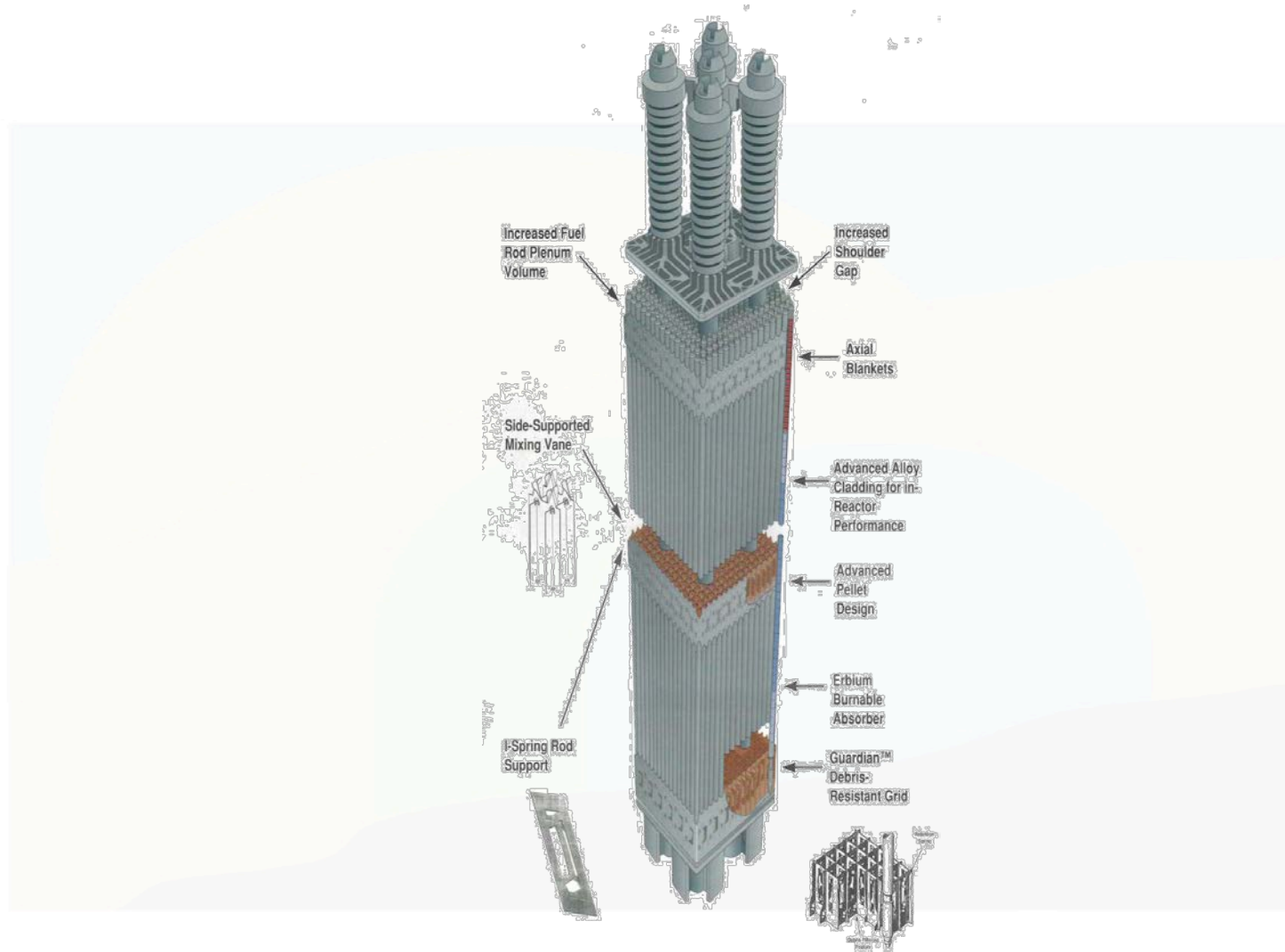
SCE's Spent Fuel Management Strategy

- Safely manage and store San Onofre's spent nuclear fuel until it is removed from site
- Promptly offload fuel from pools to passive dry cask storage
- Recover spent fuel storage costs from DOE
- Support all safe and reasonable options to remove spent nuclear fuel from San Onofre site



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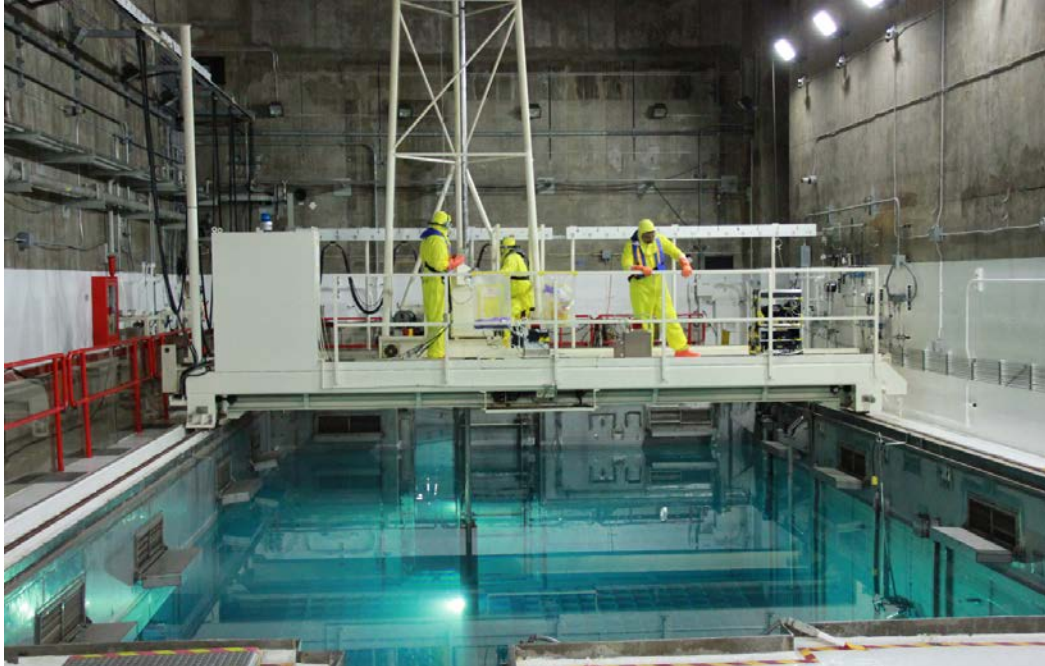
Fuel Assembly





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Spent Fuel Pool “Wet” Storage

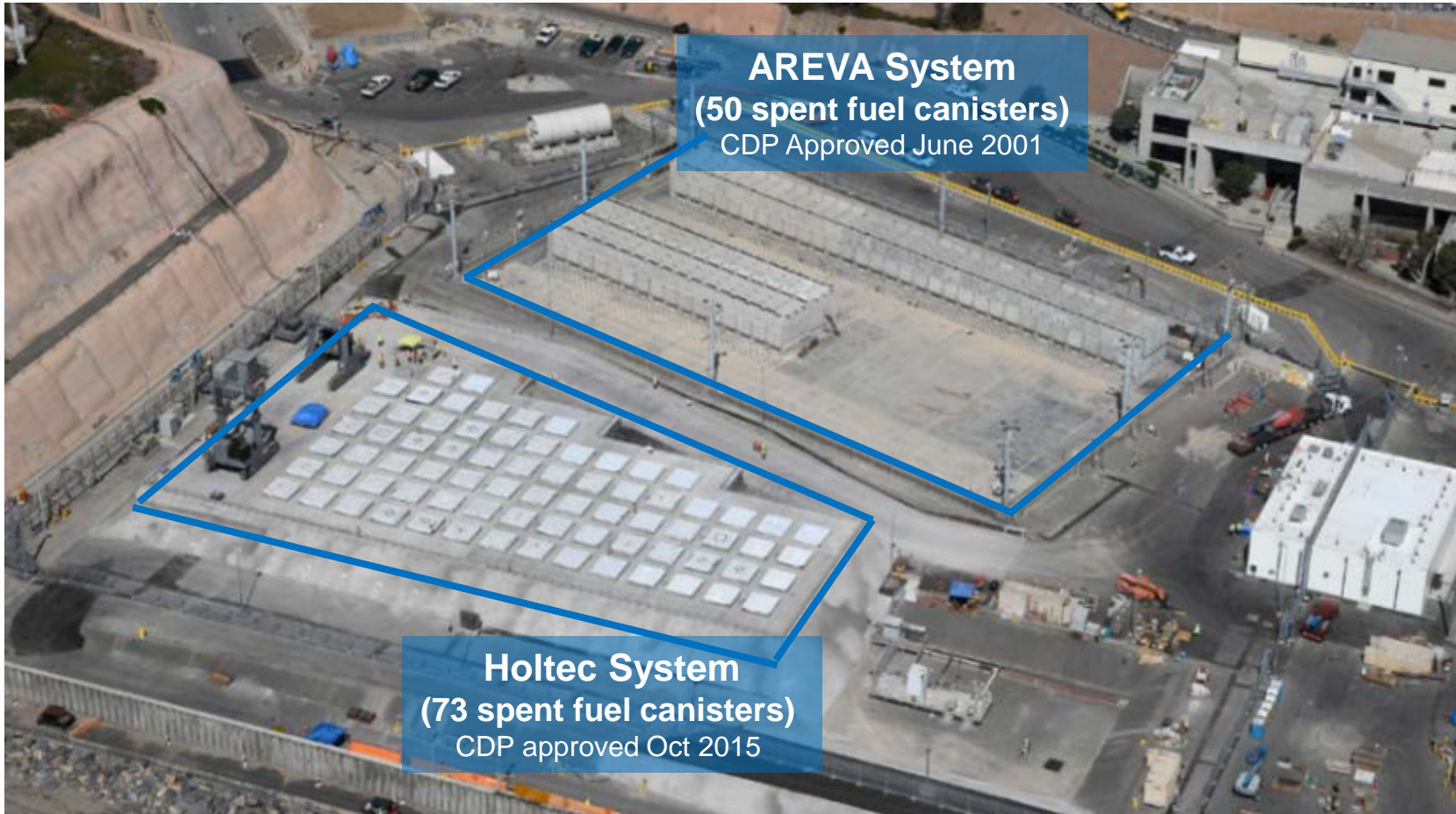




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SONGS Independent Spent Fuel Storage Installation (ISFSI)

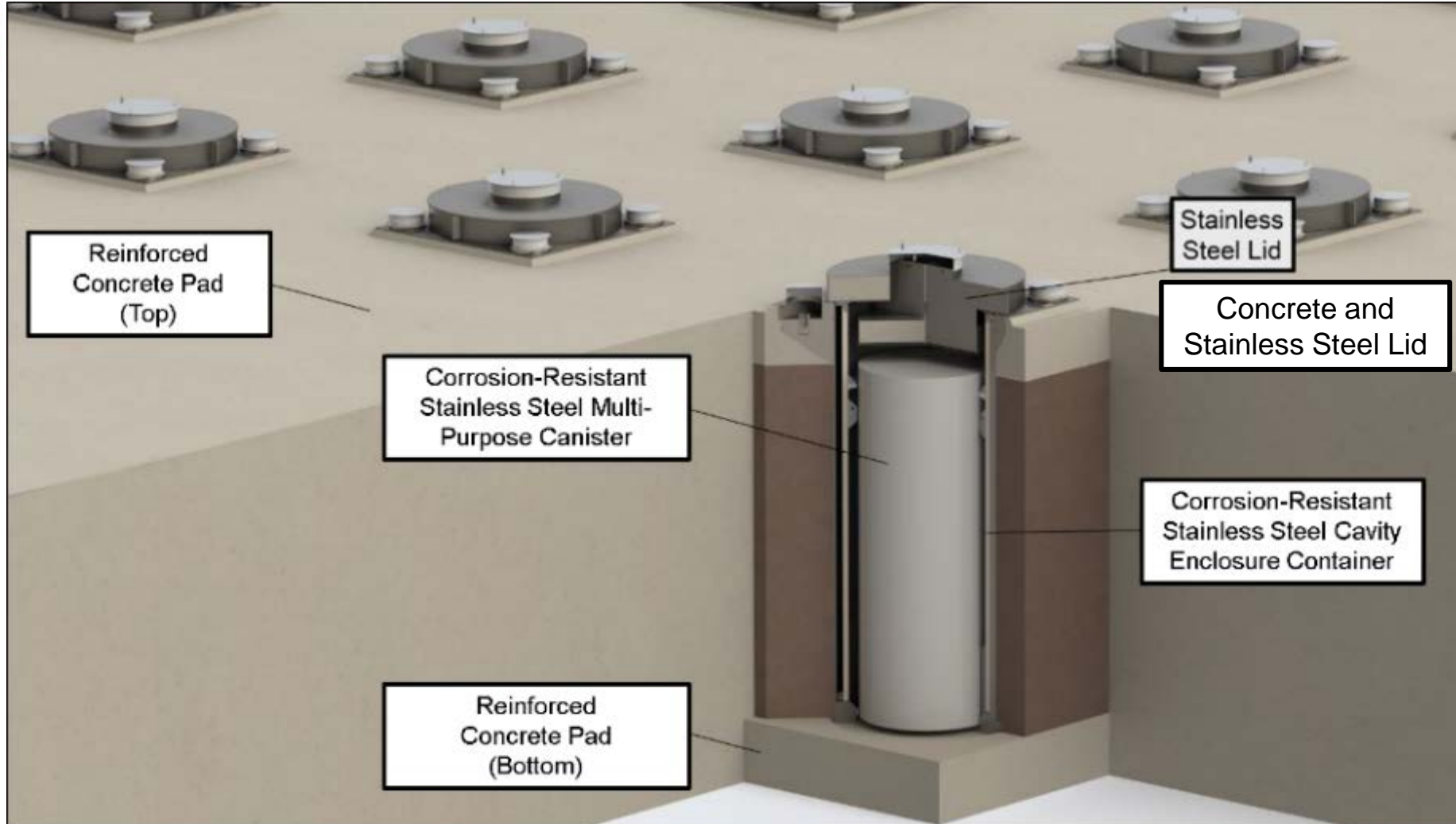
Provides Passive Dry Storage for Spent Fuel





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HOLTEC UMAX System



On-site Spent Fuel Storage

INITIAL STATE

Spent Fuel Pools
2668 fuel assemblies

Existing ISFSI
50 canisters (1187 fuel assemblies)

EXPANDED ISFSI

73 canisters¹
(2668 fuel assemblies)
+
existing 50 canisters
(1187 fuel assemblies)

[Link to Fuel Transfer Video: Fuel Transfer Video](#)

FUTURE STATE

3855 fuel assemblies in 123 canisters

Note 1: As of May 15, 2018 eleven canisters (407 fuel assemblies) have been loaded onto the expanded ISFSI



Used Fuel Readiness for Transportation

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

| | NOW | '19 | '20 | '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | TOTAL |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| Units 2/3 AREVA NUHOMS 24PT4 | 27 | 6 | | | | | | | | | | | | 33 |
| Unit 1 AREVA NUHOMS 24PT1 | 2 | | | | | 1 | | | | | 5 | | 9 | 17 |
| Units 2/3 HOLTEC MPC-37 | | | 67 | | 2 | 2 | | 1 | | | 1 | | | 73 |



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Community Engagement



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San Onofre Community Engagement Panel



- Created in 2014 to serve as an open conduit between the public and the utility
- Eighteen representatives from surrounding cities and counties, including:
 - Elected officials and agency representatives
 - Local law enforcement
 - Representatives of the U.S. military
 - Business and labor communities
 - Local environmental organizations
 - Local schools and academic institutions



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Visitors

Since 2014, 2000+ visitors including:

- The Public - walking tours twice monthly
- High school students, teachers and parents
- California Energy Commission
- Members of Congress: Darrell Issa (R-49), Scott Peters (D-52), Mimi Walters (R-45); John Shimkus (R-IL)
- Native American Tribal Nations
- City of San Diego Fire Department
- Orange County Coastkeepers
- Ocean Institute
- San Diego Union Tribune
- Sierra Club, Los Angeles and San Diego Chapters
- Surfrider Foundation

More information on www.SONGScommunity.com



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