

CEP Regular Meeting
**Strategic Plan to Relocate SONGS Spent
Nuclear Fuel Offsite**

Thursday, March 18, 2021

5:30 - 8:30 p.m.

Virtual Meeting for Social Distancing

THIS MEETING IS BEING RECORDED

1Q CEP Agenda Topics	Presenter(s)	Time
CEP and SCE opening comments	David Victor Doug Bauder	5:30 – 5:35
CEP general community updates <ul style="list-style-type: none">CEP membership changesCEP member consultation meetingNRC panel meeting	David Victor Dan Stetson Martha McNicholas	5:35 – 5:45
SONGS decommissioning update <ul style="list-style-type: none">The big pictureDismantlement update – 2021 work activities	Doug Bauder Vince Bilovsky	5:45 – 5:50 5:50 – 6:05
Strategic plan to relocate spent fuel offsite <ul style="list-style-type: none">Outcome of alternatives assessment and priorities	Elizabeth Helvey Tom Isaacs Joe Hezir	6:05 – 6:45
Strategic Plan implementation: priorities and advocacy	Doug Bauder Sup. Lisa Bartlett Sup. Jim Desmond	6:45 – 7:00
Break		7:00 – 7:05
General public comment		7:05 – 8:05
Facilitated public dialogue	Dan Stetson Martha McNicholas	8:05 – 8:25
SCE and CEP closing comments	Doug Bauder David Victor	8:25 – 8:30

Welcome and Opening Comments

David Victor and Doug Bauder



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Opening Comments

David Victor

- 1. Directions for submitting questions and sign-up for public comment on March 18 meeting webpage**
 - <https://www.songscommunity.com/community-engagement/meetings/community-engagement-panel-meeting-via-skype-20200831>
- 2. Public comment and facilitated dialogue**
 - Sign up for public comment at <https://on.sce.com/cep>
 - Questions submitted in advance via NUCCOMM addressed first
 - Dan Stetson and Martha McNicholas will facilitate

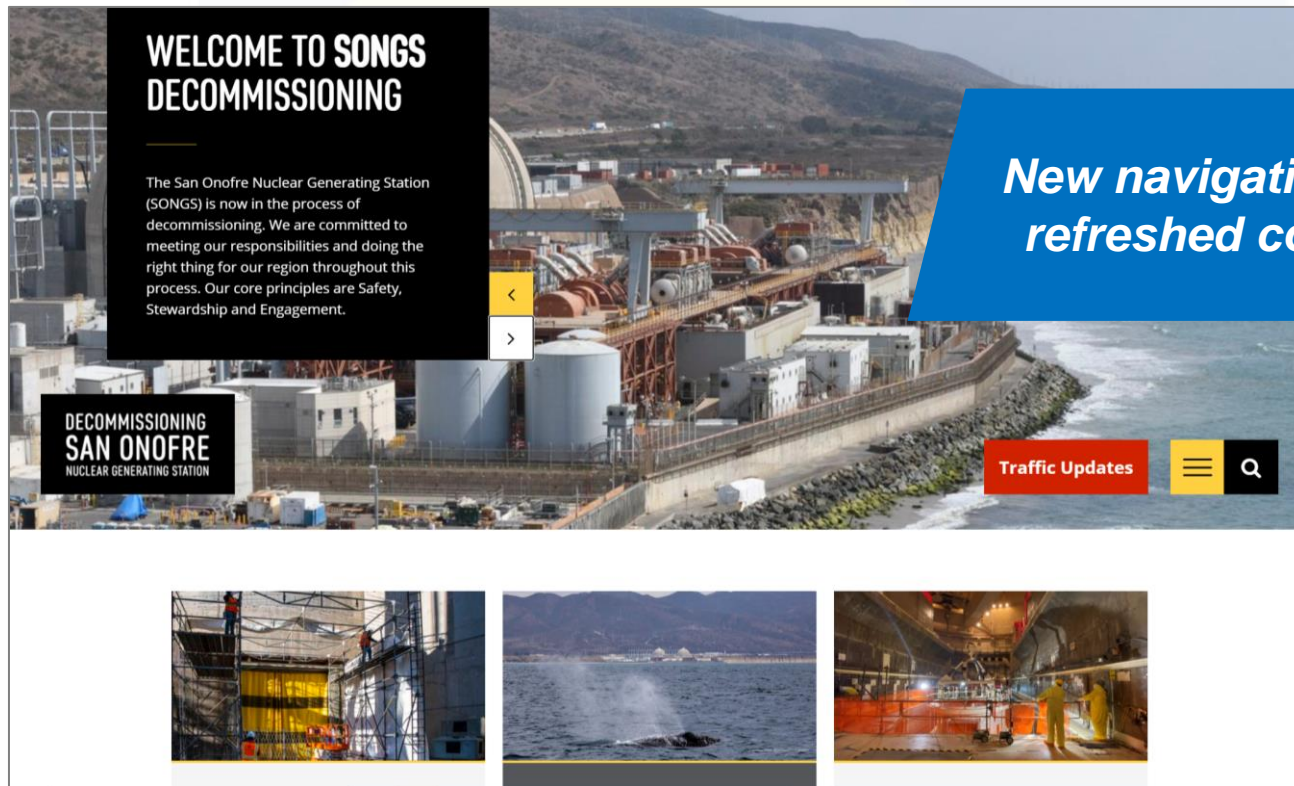


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Opening Comments

Doug Bauder

Decommissioning information on www.songscommunity.com



CEP General Community Updates



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Welcome new and interim members

New	Replacing	Organization
Michelle Anderson, Interim Director	Donna Boston	Orange County Sheriff's Department Emergency Management Division
Mark Riddlebarger, Manager	Rich Haydon	Emergency Manager, California State Parks, Orange Coast District
Chris Duncan, Council Member	Kathy Ward	City of San Clemente
Michael Villar, Council Member	Paul Wyatt	City of Dana Point
New member pending	Jim Leach	South Orange County Economic Coalition



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General Updates: NRC

NRC Panel Meeting – February 11, 2021

- Purpose: Discussion of NRC's Regulatory Framework for Dry Cask Storage and Transportation of Spent Nuclear Fuel and Related Research Activities
 - David Victor addressed community engagement
 - Video clip of NRC Chairman Hanson and CEP Chairman Victor discussing when utilities exceed regulatory requirements <https://vimeo.com/515605829>
 - Full video at <https://nrc.rev.vbrick.com/#/videos/bb5dcbb5-c18c-498b-8c17-1058295430e9>



Decommissioning **San Onofre**

Nuclear Generating Station

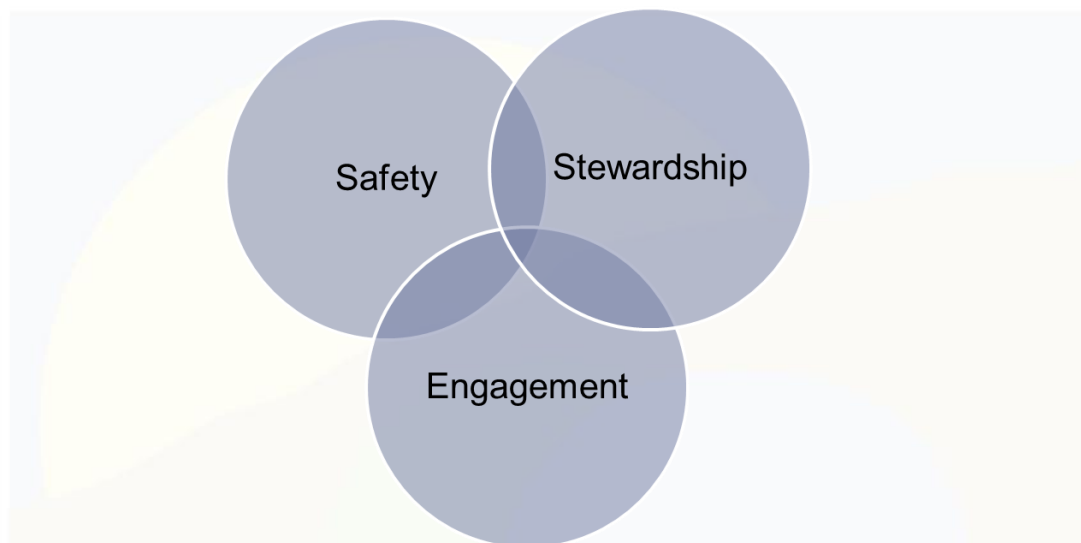
SONGS The Big Picture

Doug Bauder
Chief Nuclear Officer and
VP Decommissioning



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Decommissioning Principles



Safe and prompt **deconstruction**

Defense-in-depth for **on-site storage** of spent nuclear fuel

Take action in an effort to **relocate spent fuel** off site

Big Picture

- Dismantlement in progress
 - One year into an eight-year process
 - Recent work set the stage for expanded dismantlement and off-site shipments
- Completed Strategic Plan to relocate SONGS spent fuel to an offsite facility



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Summary of Strategic Plan

Priorities for action:

1. Restarting federal spent fuel management program
2. Pursuing federally-supported consolidated interim storage
... in tandem with...
3. Restarting permanent geologic repository
4. Pursuing legislative priorities through advocacy
5. Undertaking near-term efforts to ensure SONGS and its spent fuel will be ready when an offsite facility is available



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Quarterly Decommissioning Update

- Latest tri-fold mailed in February
- Available online:

https://s3.amazonaws.com/cms.ipressroom.com/339/files/20210/G21-008+SONGS+Trifold+Brochure+January+2021_012221.pdf



SAN ONOFRE
DECOMMISSIONING UPDATE | **JANUARY 2021**

2020: A YEAR OF SIGNIFICANT ACCOMPLISHMENTS FOR SONGS' DISMANTLEMENT

Nearly a year ago we announced the commencement of decontamination and dismantlement work at the San Onofre nuclear plant. No one could have imagined how our lives, and our work, would soon be affected by COVID-19. And still so today. At SONGS, we continue to follow a pandemic protocol to keep our workforce healthy and practicing good safety behaviors.

While COVID did change how we conduct our work on site, we made progress.

The Unit 1 reactor pressure vessel, which had been stored onsite for more than 20 years, was shipped at the end of May to the EnergySolutions facility in Clive, Utah.

In August, we moved the last of our spent nuclear fuel from wet storage in pools to dry storage in robust stainless steel canisters.

We successfully performed other key work in and around the containment domes, including de-tensioning and removing cable tendons.

And at least one piece of SONGS will live on at another nuclear plant. In December, the nearly 200-ton Unit 3 generator rotor was lifted out of its place on the turbine building deck and prepared for shipment to Detroit Edison's Fermi 2 plant in Michigan.

This year, I look forward to telling you about further progress in the decommissioning of SONGS. We will continue to abide by our decommissioning core principles of safety, stewardship, and engagement.

I wish you a safe and happy 2021.

Doug Bauder
*Vice President and Chief Nuclear Officer
San Onofre Nuclear Generating Station
Southern California Edison*



Decommissioning San Onofre

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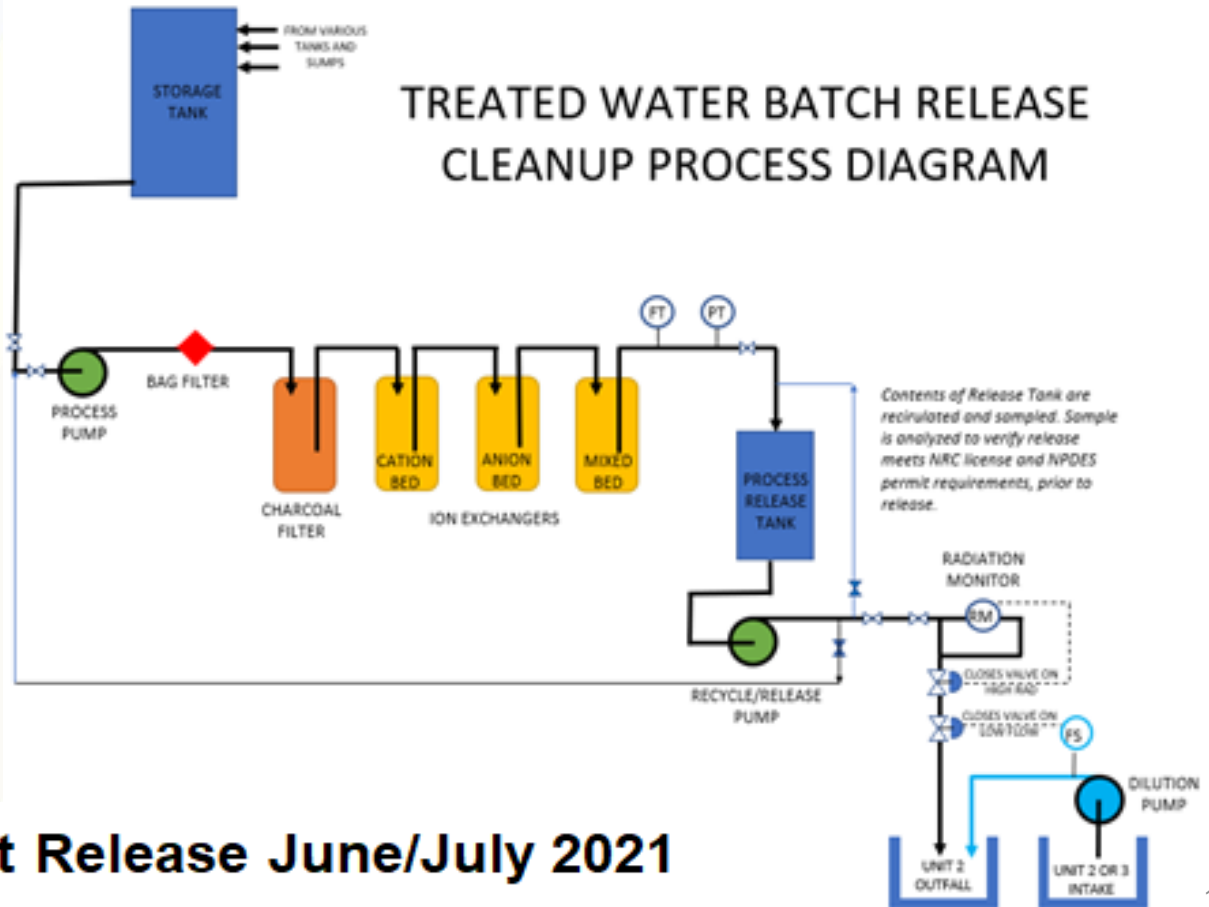
SONGS Decommissioning Update

Vince Bilovsky
Director, Decommissioning Project



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Water Treatment Process



Next Release June/July 2021



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Refueling Machine Removal



Near-Term Demolition of Administration Buildings



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Reactor Vessel Internal Equipment Installation

**Equipment will
be used for
reactor vessel
internals (RVI)
segmentation**



Safety Injection Tank Lid Removal



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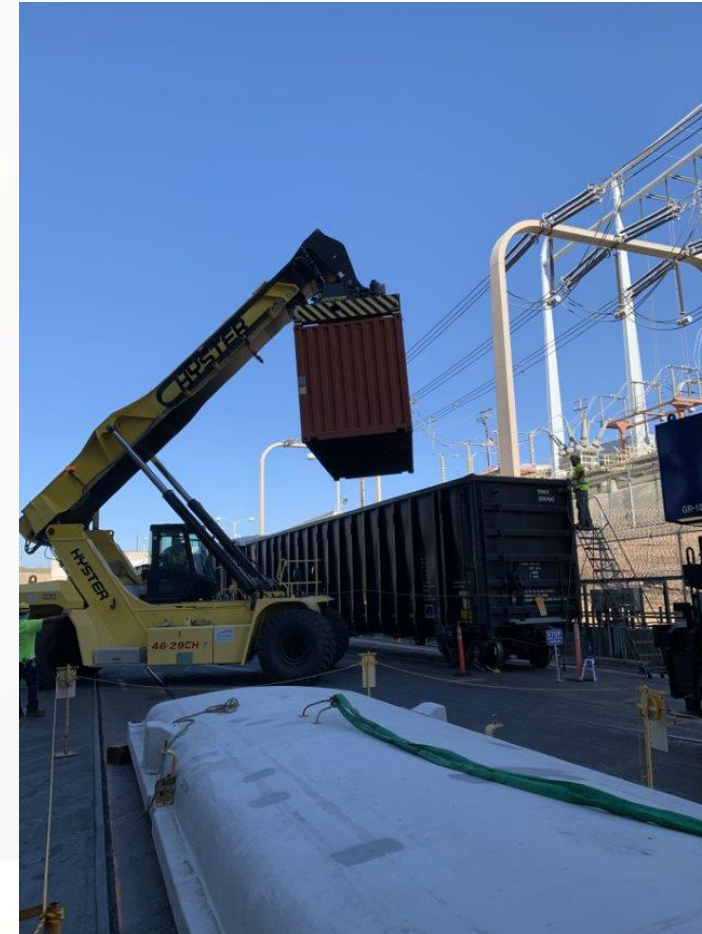


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Waste Loading



Primary Reactor Coolant System Cutting with Diamond Wire Saw

Diamond wire

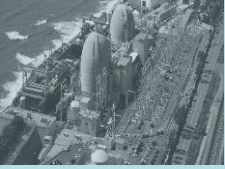




STRATEGIC PLAN FOR THE RELOCATION OF SONGS SPENT NUCLEAR FUEL TO AN OFFSITE STORAGE FACILITY OR REPOSITORY

SONGS Community Engagement Panel

March 18, 2021



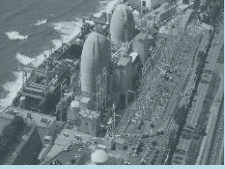
Today's Messages

1) Context for Strategic Plan: *Recap from November 2020 CEP Meeting*

2) New Developments: Federal, State and International

3) Strategic Takeaways from the Strategic Plan:

- ✓ Focus on off-site consolidated storage (with multiple variations) as principal pathway, to align with SONGS Decommissioning Plan
- ✓ Need for a consent-based repository program for final disposal
- ✓ Re-establishment of federal government responsibility and action is key
- ✓ Coalition effort is needed to translate the plan into action

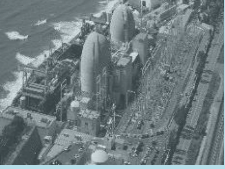


A Requirement and an Opportunity

A **requirement** of the settlement agreement

And an **opportunity** to –

- ✓ Find a commercially reasonable pathway to relocate SNF offsite
- ✓ Influence restart of a national spent nuclear fuel (SNF) program to meet national commitments
- ✓ Provide new and unique insights on SNF disposition from a utility and a customer perspective – informed by local stakeholder input
- ✓ Enable SONGS SNF co-owners to take action as circumstances warrant



Three Documents

- ✓ Volume I: **Action Plan**
- ✓ Volume II: **Strategic Plan** for the Relocation of SONGS Spent Nuclear Fuel to an Offsite Storage Facility or Repository
- ✓ Volume III: **Conceptual Transportation Plan**

Developed By

- ✓ **North Wind**, a leading nuclear waste management company, led a team of subject matter experts
- ✓ An “**Experts Team**” of six nationally recognized experts provided independent review and advice
- ✓ An **internal SCE team** reviewed the North Wind analysis, and with input from the Experts Team, formulated a Spent Fuel Action Plan



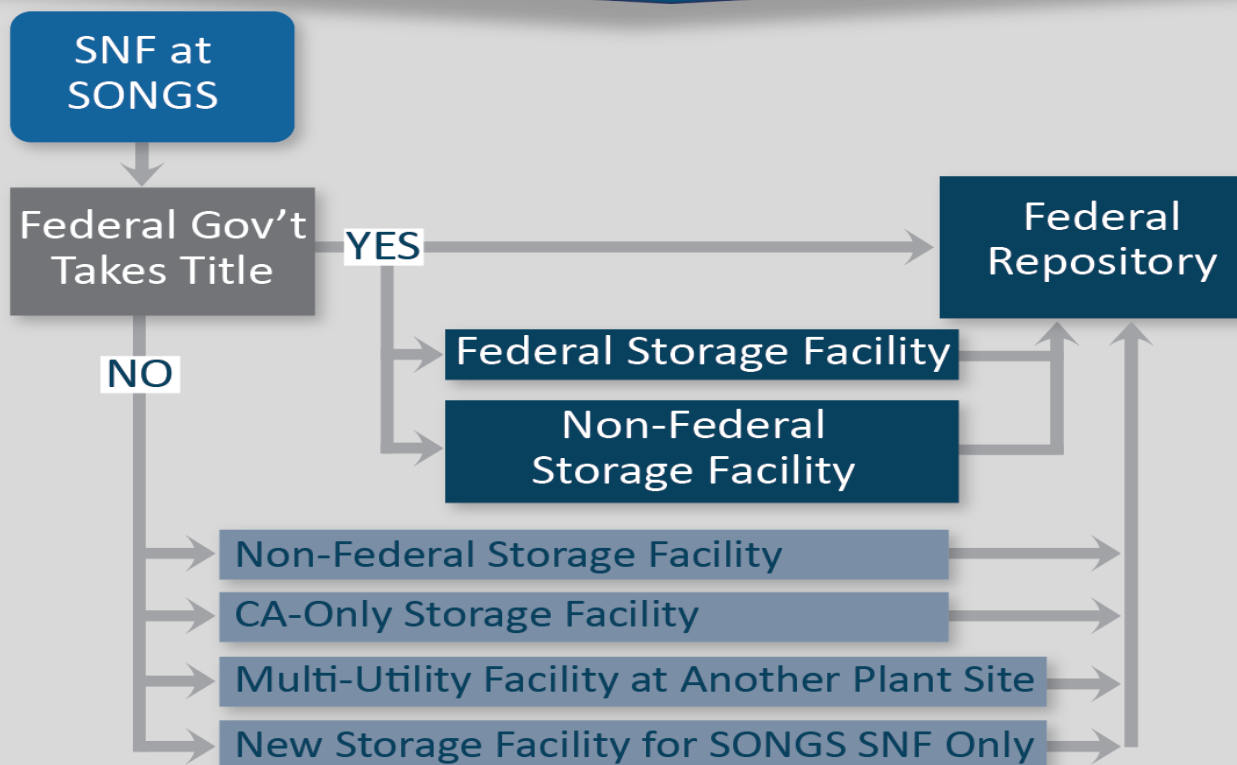
Goal: Safe, commercially reasonable relocation of SONGS SNF to another facility, restoration of the site, and return of the land to the Navy

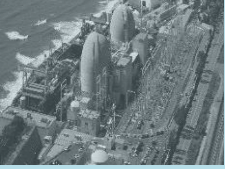
- ✓ Seek timely off-site disposition of SNF
- ✓ Compare alternatives with DOE's contractual obligations
- ✓ Prevent incremental costs to customers due to continued inaction given that nuclear utility customers have pre-paid for SNF disposal
- ✓ Avoid unrecoverable costs to SCE customers
- ✓ Protect SCE customers from residual liability risk once SNF leaves SONGS



NWT Cast a Wide Net for Alternatives

Some Alternative Pathways May Contain Multiple Variations





Comprehensive and Uniform Assessment of Representative Alternative Pathways

- ✓ Technical, Safety, and Regulatory Feasibility
- ✓ Commercial Reasonableness
- ✓ Timeliness of Offsite Disposition
- ✓ Implementation Feasibility



- ✓ **Biden Administration Commitment to Consent-based Siting from Secretary Granholm**
- ✓ **Congressional Enactment of New Authorization and Funding**
 - ***Energy Act of 2020***: 5-year program authorization for research, development, demonstration and commercial application of a variety of options for storage, disposal and transportation
 - *Incorporates earlier bills by Rep. Levin (D-CA); and by Reps. Lamb (D-PA) and Newhouse (R-WA)*
- ✓ **Consolidated Appropriations Act for FY 2021**
 - ***\$20M for interim storage*** House report directs DOE “...to move forward under existing authority to identify a site for a federal interim storage facility...” using a “...consent- based approach...”
 - ***\$18M for SNF preparation planning*** to “continue site preparation activities at stranded sites, to evaluate the re-initiation of regional transport... “ and also “... to include planning for the removal of spent nuclear fuel from sites located near cities and Indian reservations”



New: International and Domestic

✓ **International SNF Programs Continue Forward Progress**

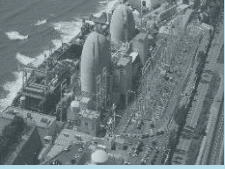
- Canada down-selected to 2 sites on path toward 2023 designation
- Construction continues on Finland geologic repository
- Japanese villages expressed interest in hosting SNF facility
- Structure of siting organization and siting process

✓ **Waste Isolation Pilot Plant (WIPP) in New Mexico**

- Federal facility in Carlsbad for transuranic waste¹ had intense opposition
- Economy changed and window of opportunity opened
- Win-win-win was fashioned and WIPP now exists

Success requires commitment to a solution, creating the right conditions, and acting decisively as opportunity arises

¹Material contaminated with transuranic elements—artificially made, radioactive elements, such as neptunium, plutonium, americium, and others—that have atomic numbers higher than uranium in the periodic table of elements. In the U.S., TRU is produced by using plutonium to fabricate nuclear weapons



Strategic Takeaways

- ✓ Three-volume document including Strategic Plan released March 15
- ✓ Comprehensive assessment of the current national context and issues
- ✓ Identification and assessment of a broad range of alternative pathways (and variations within the pathways) and reflection of stakeholder inputs
- ✓ Stakeholder briefings are ongoing

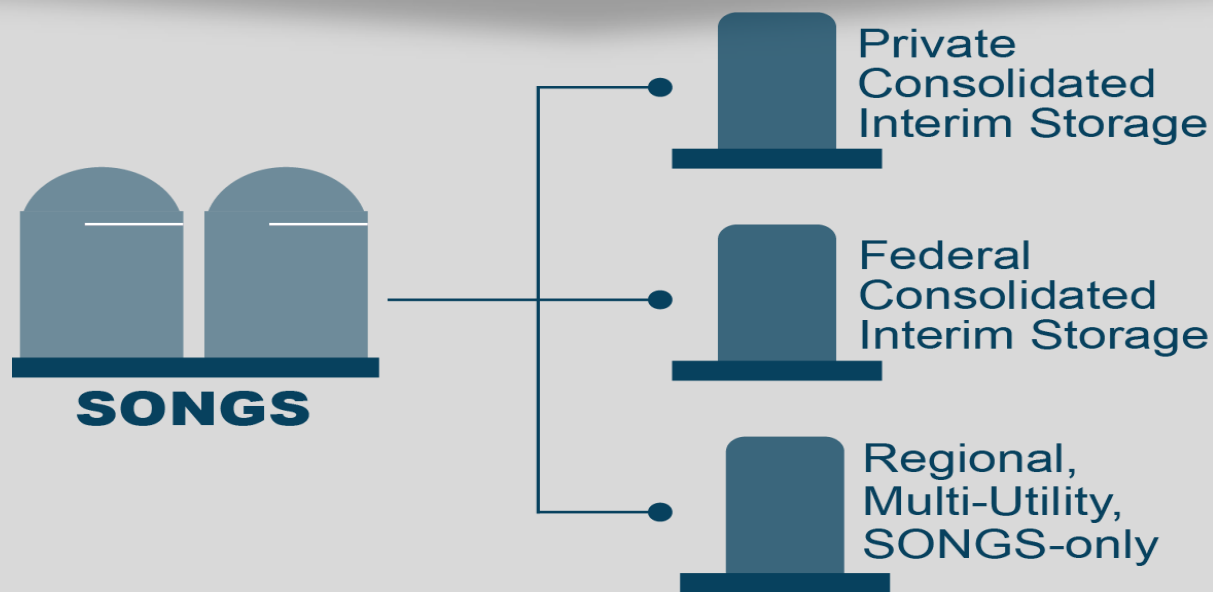
Key takeaways are summarized in following slides:



Offsite Consolidated Interim Storage

Transfer to an Offsite Consolidated Interim Storage Facility is likely to clear the site decades earlier than a permanent repository

Closer alignment with the current SONGS Decommissioning Plan and schedule



The opportunities, challenges and uncertainties for each major offsite consolidated storage variation were separately assessed

Active Efforts Underway; offers potential solution, but with unresolved issues of cost and liability protection

- TX and NM proposed facilities could obtain NRC licenses in 2021
- State government opposition has emerged, and litigation has begun



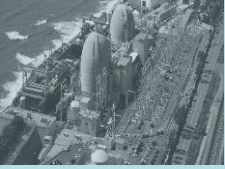
Source: <https://interimstoragepartners.com/>



Rendering of the proposed HI-STORE Consolidated Interim Storage Facility in New Mexico. Source: Holtec International

- Proposed NRC licensing conditions pose uncertainties for cost and liability provisions in storage contracts
- Extent of taxpayer reimbursement of storage contract costs, particularly shipping, is uncertain

Federal government role would help resolve cost and liability uncertainties



Federal government meets its contractual responsibilities; Commercially reasonable for SONGS SNF co-owners and customers

- ✓ Enables transfer of title and liability to the federal government
- ✓ 10+ years to site an interim storage facility if consent is part of the process
- ✓ 10+ years to take SONGS SNF once it is opened, aligning with SONGS Decommissioning Plan and on-site shipment preparations
- ✓ No additional costs to current customers, and allows phase-out of taxpayer expense to reimburse for on-site storage at utilities
- ✓ Congress appropriated \$20M in FY2021 for DOE to initiate a federal interim storage program



***Requires new start from scratch with significant implementation
uncertainties over siting and licensing***



Other Offsite Interim Storage Pathways

- ✓ ***Multi-utility SNF storage at an existing ISFSI*** could achieve economies of scale and ease of licensing but does not result in transfer of title and liability to federal government
 - ***Palo Verde owners are opposed, and no other willing party has stepped forward***
- ✓ ***Relocating the current SONGS ISFSI to a new location***, will be lengthy, costly and presents cost risk to SONGS Decommissioning Trust Funds
 - ***U.S. Navy indicates that long-term on-site storage of SONGS SNF anywhere on Camp Pendleton is inconsistent with its national security mission of training Marines***
- ✓ ***CA SNF owners share common interests, an opportunity to unite broad base of CA stakeholders to catalyze federal action.*** CA customers pre-paid \$2B (with accrued interest) for nuclear waste disposal; CA will by 2025 become the largest holder of SNF from shutdown nuclear plants; three SNF storage facilities are on coastline





Permanent Repository Needed

- ✓ Permanent geologic repository disposal of SNF is essential
- ✓ Consolidated interim storage program relies on making progress on a repository to assure a host community the site is temporary
- ✓ Proposed Yucca Mountain repository deconstructed; successive Administrations/Congresses unwilling to impose repository upon Nevada
- ✓ Secretary of Energy Granholm has affirmed the Biden Administration's consent-based approach to siting a permanent repository
- ✓ Step-wise process spanning decades is needed – as experienced in other countries
- ✓ Early re-start is merited to supplement but not supplant pursuit of off-site consolidated storage for SONGS SNF



Deep Borehole Disposal could emerge as a disposal alternative, but has no current regulatory framework and requires further technical development

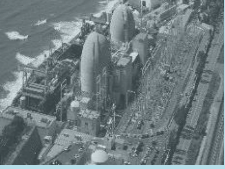
Other ***Over the Horizon alternatives*** merit ongoing monitoring



U.S. companies have the expertise and extensive experience to safely ship SONGS SNF

- ✓ Sixty plus year history of safe SNF shipments even though accidents have occurred
- ✓ Any large-scale shipments of SNF can be expected to draw significant public concern
- ✓ SONGS SNF will be shipped with layers of protection—canisters and transport casks
- ✓ Training resources are available to help local emergency responders prepare
- ✓ Costs to transport SONGS SNF could be substantial (>\$100 million). Costs would accrue to utility customers unless the federal government meets its obligation to take the SNF at the utility gate
- ✓ SONGS on-site preparations could take 5 years. A private entity shipper could take 5-10 years. Federal government could take 8-15 years once a site is found





Schedule, Cost and Public Acceptance Uncertainties Necessitate Large Portfolio

- ✓ Congressional legislation and appropriations, federal administrative action, NRC regulatory approvals, or state and local government involvement is required for all pathways.
- ✓ Governmental review processes are subject to delay and political change.
- ✓ Schedule uncertainties and delay can significantly impact engineering cost estimates.
- ✓ State and local government actions, outside the NRC licensing process, can cause delays or prevent implementation.

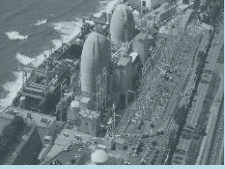
Action plan can set priorities for early action, while maintaining optionality and flexibility of the portfolio over time



Federal Government Holds Policy, Legal and Financial Responsibilities

- ✓ As early as the 1950s, there was a general understanding that the federal government would ensure high-level waste would not be the responsibility of the utilities
- ✓ The federal government currently holds \$41B in fees (with accrued interest) from nuclear electricity consumers
- ✓ The federal government has authority, the Price Anderson Act, that provides a framework for liability protection for nuclear operations including transportation of SNF

***Resumption of Federal Government Leadership is Essential
First Step for moving forward on both SNF storage and
disposal options***



Coalition effort needed to create momentum for Federal action

- ✓ SONGS SNF co-owners cannot successfully go-it-alone
- ✓ A broad coalition is needed to advocate for federal government action to establish the framework for off site consolidated interim storage solution
- ✓ The interests of SONGS stakeholders can best be heard through a united effort focused on a common objective of moving the SONGS SNF off-site as soon as practicable
- ✓ A coalition effort could provide the catalyst for movement on a new national program
- ✓ California SNF holders share common interests that could further expand a coalition effort



Recap: Path Forward

Federal action is essential, but prospects and timing are uncertain; optionality and flexibility is needed to take advantage of emerging opportunities

1. Re-establish federal leadership

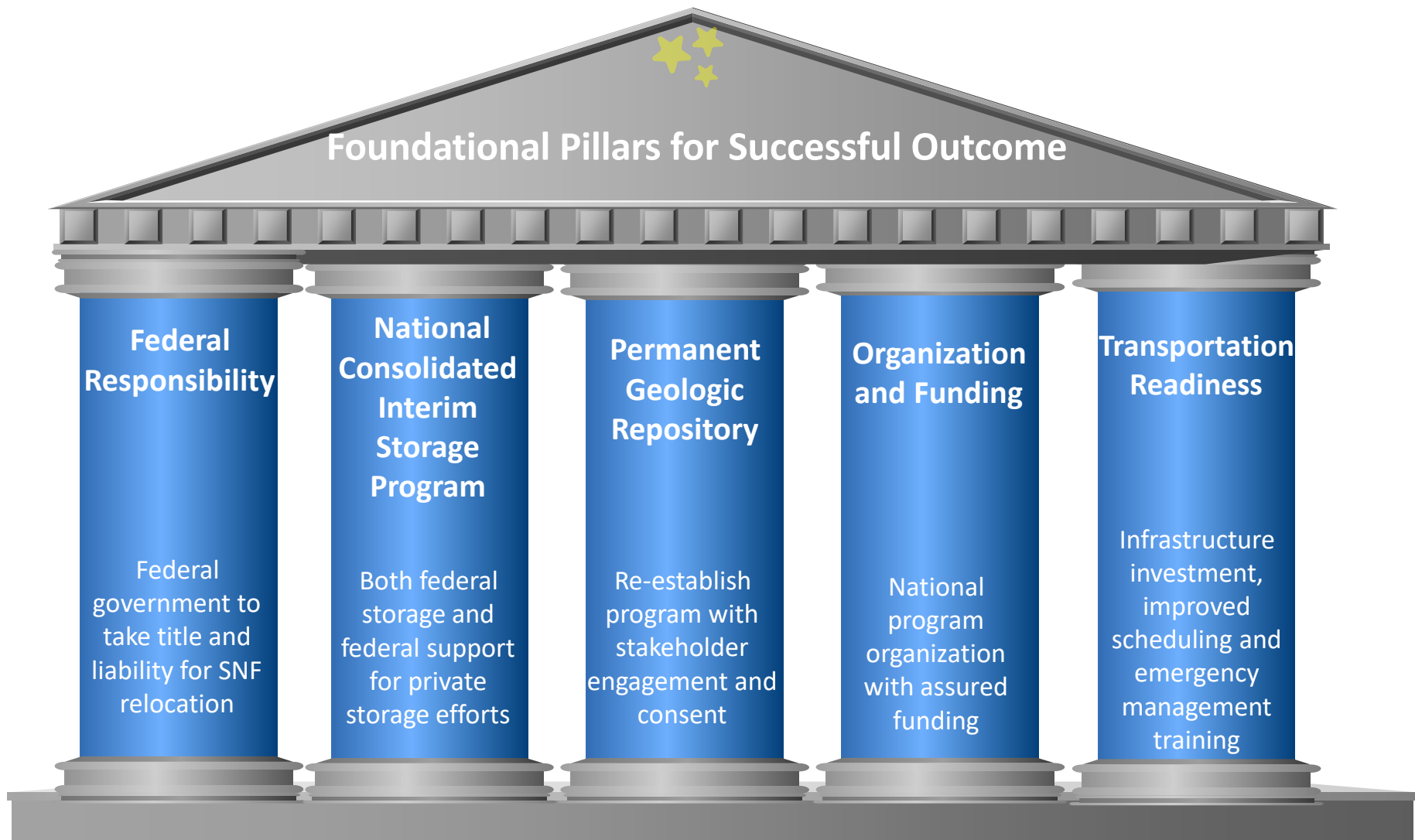
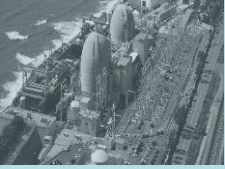
- Re-start the national program and secure funding
- Build alliances with other stakeholders to forge consensus and amplify advocacy
- Leverage approaches advanced by members of the CA Congressional delegation

2. Maintain optionality and flexibility

- Monitor and act on potential off-site CISO alternatives as situation warrants

3. Continue to implement the current Decommissioning Plan safely and effectively

- Safely store SNF on site via inspection and maintenance and other programs
- Pursue readiness actions to be prepared once a destination becomes available





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Strategic Plan Implementation: Co-Owner Priorities

Doug Bauder
Chief Nuclear Officer
and VP Decommissioning



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A Unique Perspective

Interest in restoring the land / **environmental stewardship**

Need to return the site to the **Navy**

Considered **customers and local communities**

Explored **transportation** issues

Reviewed measures for continued **safe on-site storage**



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Summary of Our Plan

Priorities for action:

1. Restarting federal spent fuel management program
2. Pursuing federally-supported consolidated interim storage
... in tandem with...
3. Restarting permanent geologic repository
4. Pursuing legislative priorities through advocacy
5. Undertaking near-term efforts to ensure SONGS and its spent fuel will be ready when an offsite facility is available



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Foundational Issues and Building Blocks for Success

Building Blocks

Readiness of SONGS
and spent fuel for pickup

Advocacy to pass
legislation and secure
appropriations

Federally-supported
consolidated interim
storage

+

Permanent geologic
repository

Foundational Issues

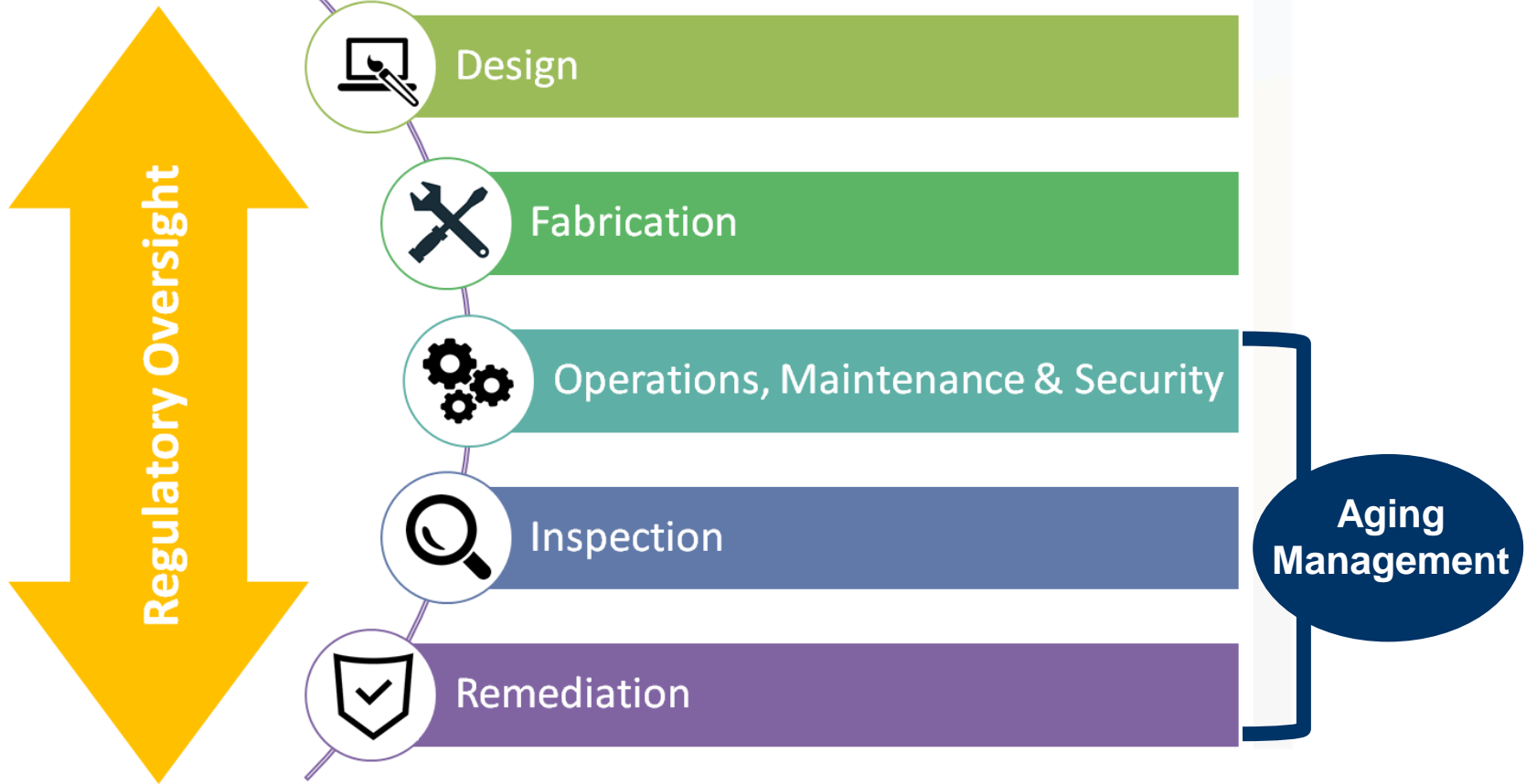
Federal government
takes title and liability
for SNF removal

National program
organization with
autonomy and reliable
funding



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Importance of Defense-in-Depth





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Engagement is a Guiding Principle

Input Received	SCE Actions
Real-time radiation data	ISFSI Radiation Monitoring System
Dry cask storage robustness	Frequent communication regarding defense-in-depth efforts
Batch releases of wastewater	48-hour advance public notice
Beyond design-basis events	“Outlier Events” CEP meeting
Relocate spent fuel offsite	Action Plan



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Help Wanted!

SCE and the co-owners
cannot “go it alone”



Decommissioning San Onofre

Nuclear Generating Station

Advocating for Solutions

Supervisor Lisa Bartlett
Supervisor Jim Desmond

“Action for Spent Fuel Solutions Now” Coalition

- Mission is making off-site relocation of spent fuel a priority
- Initial funding will be provided by:
 - Orange and San Diego Counties
 - SCE, City of Riverside and San Diego Gas & Electric
- First all to action ~spring/summer for appropriations/funding

Supporting members

- Local governments
- Elected officials
- Utilities
- Environmental groups
- Labor leaders
- Native American leaders
- Business groups

www.SpentFuelSolutionsNow.com

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BREAK

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Public Comment

Submit written comments to nuccomm@songs.sce.com



3:00



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CLOSING COMMENTS

DAVID VICTOR AND DOUG BAUDER



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KEY TAKEAWAYS

DAVID VICTOR



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2021 CEP Meetings

Focus Topics	Dates
CEP Member Consultation Meeting	January 28
1Q CEP Meeting Strategic Plan to Relocate SONGS Spent Fuel Offsite	March 18
2Q CEP Meeting Dismantlement Overview by Decommissioning General Contractor	June 17
3Q CEP Meeting NUHOMS Test Canister Research Project	August 26
4Q CEP Meeting Environmental Stewardship	October 28

Subject to Change

Thank you
Stay safe and healthy



Decommissioning San Onofre Nuclear Generating Station

Acronyms

AMP	Aging Management Program
C&D	Cold & Dark
CAP	Corrective Action Program
CCC	California Coastal Commission
CDP	Coastal Development Permit
CEC	Cavity Enclosure Container
CEP	Community Engagement Panel
CEQA	California Environmental Quality Act
CIS	Consolidated Interim Storage
CISCC	Chloride-Induced Stress Corrosion Cracking
CPUC	California Public Utilities Commission
CSLC	California State Lands Commission
D&D	Decontamination & Dismantlement
DA	Decommissioning Agreement; Decommissioning Agent
DCE	Decommissioning Cost Estimate
DDT	Decommissioning & Dismantlement Team
DGC	Decommissioning General Contractor
DID	Defense-in-Depth
DOD	Department of Defense
DOE	Department of Energy
DON	Department of Navy
DSAR	Defueled Safety Analysis Report (replaces FSAR)
DSC	Dry Storage Canister
D-SEIS	Draft Supplemental Environmental Impact Statement
D-SER	Draft Safety Evaluation Report
DTF	Decommissioning Trust Fund
EIR	Environmental Impact Report
EP	Emergency Plan
EPRI	Electric Power Research Institute
FIER	Final Environmental Impact Report
FTO	Fuel Transfer Operations
GEIS	Generic Environmental Impact Statement
HI-PORT	Holtec International – (Engineered Low Profile) Transporter
HI-TRAC	Holtec International – Transfer Cask

IFMP	Irradiated Fuel Management Plan
ISFSI	Independent Spent Fuel Storage Installation
LAR	License Amendment Request
LOED	Large Organism Exclusion Device
MAPS	Managing Aging Programs in Storage
MARSSIM	Multi-Agency Radiation Survey Site & Investigation Manual
MOU	Memorandum of Understanding
NAHC	Native American Heritage Commission
NDCTP	Nuclear Decommissioning Cost Triennial Proceeding
NDE	Non Destructive Examination
NDTF	Nuclear Decommissioning Trust Fund
NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act
NGS	Nuclear Generating Station
NOP	Notice of Preparation
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
OC	Orange County
PDEP	Permanently Defueled Emergency Plan
PDTs	Permanently Defueled Technical Specifications
PSDAR	Post-Shutdown Decommissioning Activities Report
Q&A	Questions & Answers
REIR	Request for Environmental Impact Review
SCE	Southern California Edison
SD	San Diego
SDG&E	San Diego Gas & Electric
SDS	SONGS Decommissioning Solutions
SFP	Spent Fuel Pool
SFPI	Spent Fuel Pool Island
SLC	State Lands Commission (CA)
SLR	Sea Level Rise
SONGS	San Onofre Nuclear Generating Station
TBA	To Be Announced
VCT	Vertical Canister Transporter
ZCAP	Zion Community Advisor Panel