

Southern California Edison Company
San Onofre Nuclear Generating Station

VOLUME I

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

March 15, 2021



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To our SONGS neighbors and community,

Southern California Edison Company (SCE) is pleased to share the Action, Strategic and Conceptual Transportation Plans for the off-site relocation of spent nuclear fuel from the San Onofre Nuclear Generating Station (SONGS). These plans reflect years of work and critical support from a team of nationally recognized leaders in nuclear waste policy, spent nuclear fuel transportation and nuclear engineering and science, as well as SONGS co-owners – San Diego Gas & Electric Company and the cities of Anaheim and Riverside.

The distribution of the plans is a significant milestone in a process that began following the 2017 settlement regarding the coastal development permit issued for SONGS' expanded spent fuel storage system. The Department of Energy was to begin transporting spent fuel from nuclear sites across the country to a repository in 1998. There are 123 canisters of spent nuclear fuel at SONGS and no available federal repository to which they can be relocated at this time.

These plans offer an analysis of the costs, opportunities and challenges of relocating spent nuclear fuel from a commercial utility and its customers. The evaluation found it unlikely that the SONGS co-owners and their customers would find a commercially reasonable path to move the spent nuclear fuel without federal government involvement. This is consistent with SCE's strong belief that its customers should not be exposed to additional costs or risks when it is the federal government's legal and contractual obligation to provide a solution.

The successful resolution of this challenge cannot come through the efforts of the SONGS co-owners alone. SCE and the counties of Orange and San Diego announced the formation of a stakeholder coalition, *Action for Spent Fuel Solutions Now*, to build momentum toward commercially reasonable off-site storage or disposal solutions and to urge the federal government to meet its legal obligations. While the coalition continues to grow, we are pleased that SONGS co-owners San Diego Gas & Electric and the City of Riverside are founding members.

While SCE recognizes that policy changes take time, as a steward for the environment and the communities it serves, SCE is pressing for federal action now.

Through these plans, SCE continues its pursuit of safe and commercially reasonable avenues for the off-site storage and/or disposal of the SONGS spent nuclear fuel. SCE respectfully looks forward to your support as it seeks to advance solutions to the spent fuel challenges facing the SONGS community and our nation.

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**Statement of the Experts Team
on the
Plan for the Relocation of SONGS Spent Nuclear Fuel
to an Offsite Storage Location
March 15, 2021**

We, the independent Experts Team, have provided advice and reviewed work products on spent fuel management at the San Onofre Nuclear Generating Station (SONGS) on behalf of Southern California Edison (SCE) for the last three years. We support the final products on spent fuel management of both the North Wind team and SCE. The studies provide a solid framework for the SONGS co-owners to move forward with the management and future removal of spent nuclear fuel (SNF) from the SONGS site. SCE has broken new ground for the U.S. nuclear industry by being one of the first sites to conduct such a detailed analysis of options for moving spent fuel off site. We applaud them for this effort.

Role of the Experts Team and Review Process

The Experts Team was formed in early 2018, consistent with provisions of the Settlement Agreement reached between SCE and Citizens' Oversight. The Experts Team included expertise in the areas of nuclear engineering, spent fuel siting and licensing, spent fuel transportation, and radiation detection and monitoring, among others. We assisted SCE in the creation of a Request for Information (RFI) to select a qualified and experienced company for the development of the Strategic Plan. When responses to the RFI were received, we provided independent input into the evaluation and ranking of the qualifications of the companies that responded to the RFI, leading to the selection of North Wind.

After North Wind had been selected, the Experts Team reviewed and provided comment on their proposed outline for the Strategic Plan and the alternatives to be assessed in the Strategic Plan. Assumptions and raw data inputs to the planning process were thoroughly vetted. We reviewed several drafts of the Strategic Plan as it was being developed and provided feedback to North Wind and SCE. The diverse and experienced backgrounds of the Experts Team members and North Wind assured wide ranging discussions of the issues affecting options for relocating the SONGS SNF offsite.

A similar process was conducted for the development of the Conceptual Transportation Plan. For this work product, key members of the Experts Team participated in weekly meetings, in conjunction with North Wind and SCE, to incorporate the Experts Team guidance early in the process for the development of the Conceptual Transportation Plan. As with the Strategic Plan, the full Experts Team reviewed and provided comments on several drafts of the Conceptual Transportation Plan.

SCE staff relied upon the "Key Findings" from the Strategic Plan and the Conceptual Transportation Plan to develop the Action Plan. The Experts Team provided review and comment as well.

The input provided by the Expert Team members on each of the three plans was fully considered and incorporated as appropriate.

Conclusion

The Experts Team has had a significant role in the development of the Action Plan, the Strategic Plan, and the Conceptual Transportation Plan. We concur that the alternatives evaluated in the Strategic Plan are those that make the most sense to evaluate in the current situation.

The Experts Team supports the “Key Findings” in both the Strategic Plan and the Conceptual Transportation Plan. The Action Plan prepared by the SCE staff appropriately incorporates these key findings. Finally, the recommendation in these documents to closely follow developments in offsite storage technology, legislative developments and changing business models for consolidated storage facilities is important as nuclear waste management options continue to evolve.

The result of this effort is that SCE will be well positioned to take advantage of any commercially reasonable opportunity to relocate spent fuel to an offsite storage facility. In addition, SCE will be in a better position to prepare spent fuel to be shipped off site. We have appreciated the opportunity to participate in this initiative.

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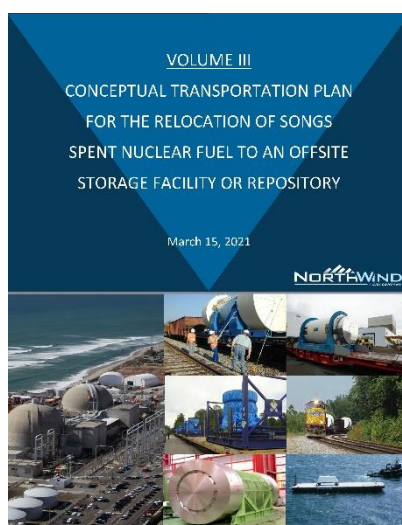
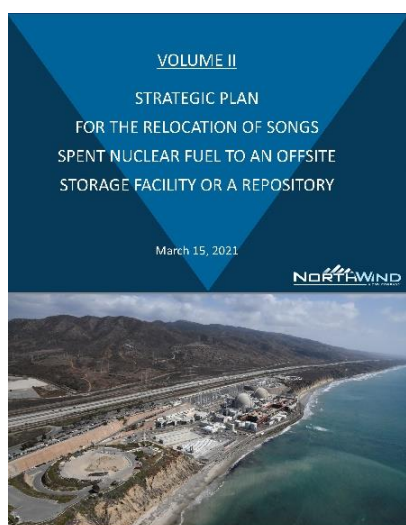
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1. Introduction

Through this Action Plan, the San Onofre Nuclear Generating Station (SONGS) co-owners¹ describe how they will act upon the insights, findings, recommendations and conclusions detailed in the *Strategic Plan for the Relocation of Spent Nuclear Fuel to an Offsite Storage Facility* (“Strategic Plan”) and the *Conceptual Transportation Plan for the Relocation of Spent Nuclear Fuel to an Offsite Storage Facility*

(“Conceptual Transportation Plan”), Volumes II and III of this compendium, respectively.² For convenience, this Action Plan provides cross references indicating where additional information and/or supporting discussion can be found in the Strategic and Conceptual Transportation Plans.

The overarching objective...is to...achieve the safe and commercially reasonable removal of all spent nuclear fuel (SNF) and greater-than-Class C (GTCC) low-level radioactive waste from SONGS as soon as possible.



The overarching objective for all three plans is to help the SONGS co-owners achieve the safe and commercially reasonable removal of all spent nuclear fuel (SNF) and greater-than-Class-C (GTCC) low-level radioactive waste from SONGS as soon as possible.³

¹ SONGS is co-owned by Southern California Edison Co. (SCE), San Diego Gas & Electric (SDG&E), and the City of Riverside. The City of Anaheim, a former SONGS owner, remains a co-participant in the decommissioning process and shares the co-owners' interest in finding an offsite solution for SONGS SNF. Where applicable, “SCE” may be used to designate responsibility for actions to be undertaken by SCE as the decommissioning agent for SONGS on behalf of the SONGS co-owners.

² SCE retained a consortium of consultants led by North Wind, Inc. (North Wind) to develop the Strategic and Conceptual Transportation Plans. North Wind developed these Plans with the guidance and oversight of SCE and an external Experts Team, which was comprised of six individuals with extensive, high-level experience in the field of nuclear waste management and regulation. Additional discussion regarding the role of the Experts Team is provided in Section 2.3 of the Strategic Plan (Vol. II) (*Approach to the Strategic Plan and the Role of the Experts Team*).

³ In this Action Plan, as in the Strategic and Conceptual Transportation Plans, references to SONGS SNF should generally be understood to include SONGS GTCC waste unless otherwise specified.

Complete removal of these materials is necessary to enable the full decommissioning and restoration of the SONGS site so that the land can be returned to its owner, the U.S. Navy.⁴

Recognizing that no offsite facility currently exists that could accept the SONGS SNF and GTCC waste, the Strategic Plan explores a range of alternative pathways for pursuing this overarching objective. Several factors were considered, most critically the ability to provide an offsite solution that (1) meets rigorous regulatory requirements for safety and protection of public health and the environment and (2) can be implemented in a commercially reasonable manner.⁵

A federal solution, or at least one which encompasses a significant degree of federal support, offers the surest and most achievable path to relocating the SONGS SNF.

The results of the analysis, from both the Strategic and Conceptual Transportation Plans, point to a clear distinction between pathways that rely on the federal government's longstanding contractual and statutory obligation to take title to commercial SNF and remove it from plant sites, versus pathways that do not presume a central federal role. Put simply, a federal solution, or at least one that encompasses a significant degree of federal support, offers the surest and most achievable path to relocating the SONGS SNF. All other alternatives create uncertain but potentially large risks and costs and thus are far less likely to meet the test of commercial reasonableness, which encompasses critical considerations of cost, cost recovery, title and liability. The steps outlined in this Plan thus reflect an emphasis on federal action as the key to resolving the core SNF management challenges facing SONGS.

⁴ Additional discussion of the SONGS co-owners' objectives with respect to the SONGS SNF and plant site may be found in the Strategic Plan (Vol. II), Section 2.2 (*Strategic Plan Objectives*) and in the Conceptual Transportation Plan (Vol. III), Section 8 (*Key Steps Toward Transportation Readiness*).

⁵ The criterion of commercial reasonableness is articulated in detail in the August 2017 *Settlement Agreement Regarding Coastal Development Permit for Storage of San Onofre Spent Nuclear Fuel* that prompted the development of these Plans; it is also a standard that any utility, given its fiduciary responsibility to customers and shareholders, would apply in making decisions that have potentially significant cost and liability implications. Additional discussion regarding the standard of commercial reasonableness is provided in Section 6.2 of the Strategic Plan (Vol. II) (*Cost Considerations and "Commercial Reasonableness"*).

2. A Framework for Action

In support of achieving the objectives for the SONGS site and implementing the Strategic and Conceptual Transportation Plans, the SONG co-owners will undertake near-term actions in four categories:



A. Pursuing relocation of SONGS spent nuclear fuel (SNF) to an offsite facility. Section 3 describes actions in support of alternatives that presume the federal government's assumption of responsibility for the SONGS SNF, including reestablishment of a federal program to dispose of SNF.



B. Catalyzing federal, state, and local support. Section 4 describes actions to encourage federal, state, and local support for the activities described in Section 3.



C. Preparing the SONGS site and SONGS SNF for offsite transportation. Section 5 describes actions at SONGS to ensure that the SNF is ready for offsite transport once a commercially reasonable offsite facility becomes available and to safely store the SNF on site in the meantime.



D. Corporate capacity building and governance. Section 6 describes corporate capacity building and governance measures in support of this Action Plan.

These actions reflect the fact, previously noted in the Introduction, that there is currently no licensed and operating facility prepared to accept SONGS SNF. Further, they reflect a recognition that the time required to develop any such offsite alternative remains uncertain.⁶ The efforts described in this initial iteration of the Action Plan are in general support of the Phase I activities described in the Conceptual Transportation Plan, prior to the identification of an offsite facility.⁷

The efforts described in this initial iteration of the Action Plan are assumed to occur in general support of the Phase I activities described in the Conceptual Transportation Plan, prior to the identification of an offsite facility.

Given the recognized uncertainties surrounding when an offsite storage or disposal facility might become available, the approach of the SONGS co-owners must remain flexible and provide optionality. This Action Plan will be revisited periodically to consider the efficacy of the SONGS co-owners' actions, and to adjust future efforts in response to the changing technological and socio-political developments that will shape our national nuclear waste management landscape.

All actions will be assessed and undertaken with a focus on the health and safety of the public, SONGS workers, and the protection of the environment, as well as the prudent and commercially reasonable stewardship of customer funds.

⁶ Additional discussion regarding the likely timeframes associated developing different options for the offsite relocation of SONGS SNF is provided in the Strategic Plan, Vol. II, Section 6.7 (*Timeframe to Achieve Objective*).

⁷ Additional discussion regarding near-term preparations necessary for the offsite transportation of SONGS SNF is provided in the Conceptual Transportation Plan, Vol. III, Chapter 5 (*Phase I: Near-term Actions To Prepare for Transporting SONGS SNF*).

3. Pursuing Relocation of SONGS SNF to an Offsite Facility



This section describes actions the SONGS co-owners will take to support the establishment of offsite disposal or storage facilities—*i.e.*, a permanent federal repository and/or one or more interim storage facilities—that would allow for the safe and commercially reasonable relocation of the SONGS SNF.⁸ The specific actions described in this section will be taken in concert with the advocacy efforts described in [Section 4](#).

The SONGS co-owners consider the development of a permanent federal disposal repository and revitalization of the national nuclear waste management program to be critically important, not only to implement the ultimate solution for the SONGS SNF, but also as a requisite complement to any interim storage alternative. Otherwise, the lack of an effective federal program to implement permanent disposal may call into question the interim nature of any alternative storage solution for SONGS SNF. Accordingly, the SONGS co-owners support efforts to reset the national nuclear waste management program in parallel with efforts to advance certain interim offsite storage alternatives, as considered in the Strategic Plan.

...it is the federal government's obligation to provide for the offsite disposition of SONGS SNF, including taking title to and assuming liability for the SONGS SNF...[C]ustomers should not be exposed to additional costs or risks associated with the federal government's failure to deliver a timely disposal solution."

Fundamental to this support, however, is the presumption that it is the federal government's obligation to provide for the offsite disposition of SONGS SNF, including taking title to and assuming liability for the SONGS SNF. The customers of the SONGS co-owners should not be exposed to additional costs or risks associated with the federal government's failure to deliver a timely disposal solution for SONGS SNF.⁹ This is a foundational tenet of the commitments the SONGS co-owners make through this Action Plan.

3.1 Resetting the federal nuclear waste management program and support for a permanent federal disposal repository¹⁰

The structural reforms needed to effectively reset the federal nuclear waste management program are substantial, dependent on factors beyond the direct control or influence of the SONGS co-owners, and

⁸ In addition to the specific actions described here, the SONGS co-owners will continue monitoring developments relevant to the range of alternatives studied in the Strategic Plan, as well as emerging technologies, alternatives, and approaches to SNF management deserving of increased attention in the future. The SONGS co-owners will engage and/or support such concepts as appropriate.

⁹ Additional discussion regarding the federal government's obligation to provide for the offsite disposition of SONGS SNF is provided in the Summary of the Strategic Plan, Vol. II, at p. iv ("Since the passage of the Nuclear Waste Policy Act of 1982 (NWPA), responsibility for implementing a disposal solution for SNF has rested with the federal government"), p. 28 ("The federal government has a responsibility to take title to commercial SNF and devise a solution for SNF disposal"), and in Sections 6.2 (*Cost Considerations and "Commercial Reasonableness"*), 6.3 (*Legal and Regulatory Requirements and Challenges*), and 6.4 (*Title and Possession (including related issues of risk, liability, and indemnification)*).

¹⁰ Additional discussion regarding restarting the national nuclear waste management program is provided in the Strategic Plan, Vol. II, Section 8.5 (*Restarting the National Nuclear Waste Management Program*).

likely to require significant efforts over an extended period. The SONGS co-owners can support these reforms, but their successful implementation will ultimately require a broad base of technical and focused socio-political support beyond the capabilities of the SONGS co-owners alone. Recognizing this, the SONGS co-owners will:

A1. Actively encourage several key structural reforms in support of successfully resetting the federal nuclear waste management program. Any reset of the federal nuclear waste management program should include:

- Establishing a path to one or more permanent geologic disposal repositories.¹¹
- Authorizing federal interim storage (discussed further in [Section 3.2.1](#) below) by developing a federal consolidated interim storage facility (CISF) and/or by allowing the U.S. Department of Energy (DOE) to contract for private storage services.
- Establishing a new single-purpose organization, ideally as an independent entity outside DOE, with mission responsibility for the safe management and final disposition of SNF in the United States. To preserve the personnel and capabilities needed to successfully address the nation's long-term (multi-decade) SNF management challenges, such an organization should be stable, properly staffed, securely funded, and insulated from short-term political changes.
- Establishing a new mechanism for consultation/collaboration between the national nuclear waste management program and state, local, and tribal authorities. Non-federal entities that have an interest, either in the location of SNF storage and disposal facilities and/or in the transportation of SNF from current reactor sites to storage or disposal facilities, are important partners in advancing the national program.
- Improving access to the approximately \$41 billion¹² currently in the Nuclear Waste Fund to finance needed investments. Specific priorities include:
 - A new or modified mechanism to assure permanent and stable access to already collected ratepayer funds is needed to execute a large, multi-year capital investment program for an integrated national nuclear waste management system.



Yucca Mountain, Nevada

¹¹ The SONGS co-owners support prompt efforts by the federal government to initiate a deliberate and considered process for identifying and constructing a geologic repository for permanent SNF disposal. The SONGS co-owners take no position with respect to the suitability of the Yucca Mountain site or with respect to any decision that might be taken regarding whether to continue the licensing process for Yucca Mountain and/or pursue another repository site.

¹² See Strategic Plan, at p. 34 (noting the Nuclear Waste Fund had accrued approximately \$42.1 billion (including interest) by the end of 2020).

- Resumption of funding for a permanent geologic repository program and in support of an immediate decision (with any required changes to the Nuclear Waste Policy Act (NWPA)) on whether to restart the licensing process for Yucca Mountain and/or begin work to identify and develop one or more alternative repository sites for the final disposal of all commercial SNF.¹³
- Clarifying criteria for the reimbursement of costs from the Nuclear Waste Fund and/or Judgment Fund in order to encourage consolidated spent fuel storage. Such clarification should include allowing reimbursement for all aspects of transportation (including indemnification as would be provided were DOE to contract for SNF shipments) and storage costs at alternate site(s), as well as addressing issues regarding SNF title transfer from the current owners to other parties, including the federal government, new public-private partnership(s), and/or wholly private entities.
- Providing federal support for preparedness capabilities among state, tribal and local entities in connection with private SNF shipments, including support for safety and emergency response training.

A2. Seek support for a new framework to prioritize federal acceptance of spent fuel from shutdown sites. The SONGS co-owners support a more efficient removal sequence for federal acceptance of SNF that better reflects the benefits and costs of clearing SNF from shutdown reactor sites. Relevant considerations should go beyond the current “oldest fuel first” approach to include a range of site-specific and systemic factors, such as status as an operating or shutdown reactor site, compatibility with decommissioning activities, risk reduction for SNF storage at reactor sites, beneficial re-use of decommissioned sites, total system cost effectiveness, shortened schedules for complete site closure, and facilitation and ease of transportation requirements. An improved framework for allocating SNF acceptance rights should provide incentives and enabling mechanisms for interested parties to negotiate amongst themselves for a more rational and efficient order of SNF removal (*e.g.*, an SNF priority list marketplace or trading platform).

3.2 Consolidated interim storage opportunities and potential federal support of same

In parallel with support for a reset of the federal nuclear waste management program, the SONGS co-owners will support the establishment of one or more CISFs that would allow for the safe and commercially reasonable relocation of the SONGS SNF. CISF opportunities are relatively mature (at least in comparison to other potential alternatives) and there has already been considerable work by the federal government and the private sector to plan for and develop consolidated storage concepts. Various federal legislative proposals have already been

The SONGS co-owners will support the establishment of one or more CISFs that would allow for the safe and commercially reasonable relocation of the SONGS SNF.

¹³ See fn. 11, *supra*.

advanced that would support CISF opportunities, including by clarifying and expanding existing NWPA authority.¹⁴

Again, the federal government's assumption of responsibility for the SONGS SNF, which would avoid any additional financial burden to customers of the SONGS co-owners, is critical to satisfying the criterion of commercial reasonableness for any path forward.

3.2.1 Federal CISF

A federal CISF, or a federal contract for the use of a private CISF, would generally be consistent with historic national policy and the NWPA in terms of placing ultimate responsibility for SNF management and final disposition on the federal government. In support of federal CISF opportunities, the SONGS co-owners will:

A3. Advocate for modifications to the NWPA that would enable development of a federal CISF option that could accommodate all SONGS SNF. While the NWPA (as amended) contains two sets of provisions authorizing federal support for a CISF, neither set of provisions is workable in its current form to deliver an offsite storage alternative for SONGS SNF.¹⁵ The federal program should have greater flexibility and broad authority to pursue multiple business models for SNF storage, including federal contracting for private storage, implementation of a federal CISF, and the formation of public-private partnerships. The SONGS co-owners support the modification of one or both of the NWPA's existing interim storage provisions to accommodate the SONGS SNF and/or changes to provide entirely new authority under a different framework.¹⁶

3.2.2 Private CISF

Currently, two private CISF initiatives - one in Texas and one in New Mexico – appear to be on a trajectory to receive licenses from the Nuclear Regulatory Commission (NRC) in 2021.¹⁷ The Strategic Plan suggests SONGS SNF could be completely removed within a timeframe of approximately two

¹⁴ Additional discussion regarding recent legislative proposals may be found in the Strategic Plan, Vol. II, Section 5.6 (*Recent Legislative Proposals*).

¹⁵ Additional discussion regarding provisions for interim storage of SNF in the NWPA may be found in the Strategic Plan, Vol. II, at p. 29 ("The development of federal consolidated interim storage capability is constrained by current law").

¹⁶ Additional discussion regarding a potential federal CISF alternative, may be found in see the Strategic Plan, Vol. II, Sections 7.4 (*Interim Storage in a Federal Consolidated Interim Storage Facility (CISF)*) and 7.5 (*Federal Use of a Non-Federal CISF*).

¹⁷ Interim Storage Partners (ISP), a joint venture between Orano USA and Waste Control Specialists, is pursuing licensing of a CISF in Andrews County Texas. Holtec International (Holtec) and the Eddy-Lea Energy Alliance are pursuing the licensing of a CISF in southeastern New Mexico. Additional discussion regarding the private CISFs may be found in the Strategic Plan, Vol. II, Summary at p. xiv (referencing license approvals sought in 2021), and Sections 7.5 (*Federal Use of a Non-Federal CISF*) and 7.6 (*Non-Federal Consolidated Interim Storage Facility*).

decades once private facilities that can accept all the SNF are fully licensed and operational.¹⁸ This timeframe is roughly compatible with the current SONGS plan for decommissioning. Other private proposals or modifications to existing proposals may be forthcoming.

Notably however, even after an NRC license is secured, significant challenges may remain and frustrate efforts to move forward with the implementation and eventual operation of these private facilities. Further, the commercial reasonableness of contracting for private storage of the SONGS SNF is unknown at this time and neither the Texas nor the New Mexico facility by itself, as currently proposed to be licensed, could accept *all* the SONGS SNF.¹⁹

Actions of the SONGS co-owners with respect to private CISF opportunities will be probing and tentative, including:

A4. Engage in discussions with private CISF developers (e.g., Holtec International and Interim Storage Partners) concerning potential terms for use of their storage services. The SONGS co-owners will monitor progress on these facilities and engage with private CISF vendors commensurate with the status of their respective projects. This could include seeking clarification on key issues including title and possession of the SONGS SNF, performance guarantees, liability, indemnification, technical matters, cost issues, and safety considerations, in addition to financial parameters. Discussions should also include whether the CISFs will be licensed to receive the proprietary canisters of other vendors and/or whether storage vendors would support license amendments to allow use of their canister systems by competitors.



Depiction of private CISF.
Source: Interim Storage Partners

¹⁸ See Strategic Plan, Vol. II, at pp. 98 (noting two decades for SONGS SNF removal once private CISF is constructed) and 106 (*id.*).

¹⁹ SONGS has two independent spent fuel storage installations (ISFSIs): the first, permitted in 2001, uses horizontal TN Americas LLC (TN) canisters (TN is a subsidiary of Orano USA, one of the partners in ISP); the second ISFSI, permitted in 2015, uses the Holtec vertical canister system. North Wind, in its analysis of the private CISFs alternative, concluded that the ISP and Holtec facilities that are currently moving through the licensing process must either be licensed to accept their competitor's canisters, or both these private facilities would have to be operational to accept all the SNF from the SONGS site. See Strategic Plan, Vol. II, Summary at p. xv (noting neither facility alone could accept all SONGS SNF), at p. 98 (noting an estimated two-decade timeframe to clear all SONGS SNF once the private facilities are available), at p. 93 (noting remaining questions regarding either proposed facility's ability to accept all the SONGS SNF), and at p. 106 (*id.*).

A5. Engage in discussions with the federal government regarding the role of private CISF vendors in SNF management. These discussions would proceed in parallel with any discussions with the private vendors and would include issues such as liability protection under the Price Anderson Act, federal support for SNF transportation by private entities, and continued reimbursements from the Judgment Fund.



Depiction of private CISF.
Source: Holtec

4. Catalyzing Federal, State, and Local Support for a Federal Permanent Disposal Program and Solutions to Move SNF Off Site in the Interim



The successful offsite relocation and permanent disposal of the SONGS SNF described in Section 3 will not come through the efforts of the SONGS co-owners alone. Given the combination of factors that has led to the current national-level impasse regarding SNF management and given the barriers that stand in the way of even interim relocation alternatives, success requires aligning a broad coalition of interests, including but not limited to the nuclear industry, the scientific and environmental communities, as well as local elected officials, community and tribal leaders, and state and federal legislators.

Where possible, the SONGS co-owners will build momentum; strengthen relationships with local communities, public officials, and stakeholders; and seek collaboration with state and national allies to promote the re-establishment of an effective federal nuclear waste management program and the offsite relocation of the SONGS SNF as described in Section 3.²⁰

Success requires aligning a broad coalition of interests, including but not limited to the nuclear industry, the scientific and environmental communities, as well as local representatives, community and tribal leaders, and state and federal legislators.

B1. Help form a local coalition to advocate for the offsite

relocation of SONGS SNF. A locally based coalition of stakeholders is needed to champion issues related to the relocation of the SONGS SNF and sustain fact-based political pressure on Congress to act.²¹

- Members of this coalition may include local governments, current and former elected officials, businesses, business organizations, chambers of commerce, community and civic organizations, law enforcement, emergency management professionals, environmental organizations, education/science organizations, organized labor, local citizens, and/or local tribal officials.
- The SONGS co-owners will play a shared leadership role and contribute resources to help form and maintain this coalition, which will work with local partners to advocate for the provisions and reforms that are needed, in legislation and through changes in agency policy, to advance the offsite relocation of SONGS SNF.
- The SONGS co-owners will foster collaboration between the local coalition and regional and national stakeholder(s), professional associations, and other stakeholder groups that support

²⁰ Additional discussion regarding stakeholder engagement in support of the offsite relocation of the SONGS SNF may be found in the Strategic Plan, Vol. II, Chapter 4 (*SONGS Stakeholder Relationships and Perspectives*) and Section 8.4 (*Stakeholder Trust and Engagement*).

²¹ Notably, such a coalition could draw support from the work of the SONGS Community Engagement Panel (CEP) which already serves to foster communication, public involvement and education on SONGS decommissioning activities, but focuses on matters of interest to area communities rather than on changes in national or state policies. Additional information regarding the CEP may be found at SCE's SONGS Community webpage, located at <https://www.songscommunity.com/community-engagement/>.

the offsite relocation of SONGS SNF and efforts to revitalize the national nuclear waste management program.

B2. Develop and implement a plan for stakeholder engagement and action. This plan will describe actions to improve upon and maintain a strong relationship of trust and transparency with stakeholders. This plan will also inform how the SONGS co-owners may engage stakeholders and local communities, as well as actions such stakeholders may undertake in support of the shared goal of relocating the SONGS SNF off site. Such actions may be further informed by the work of the coalition referenced in Action B1.

B3. Designate a lead SCE point of contact for information regarding efforts and progress made to relocate the SONGS SNF off site. The SONGS co-owners will identify a single point of contact at SCE who will be responsible for transparent, consistent and timely communication in support of community collaboration and stakeholder engagement.

B4. Continue stakeholder engagement efforts to promote transparency and to solicit support to relocate the SONGS SNF off site, including:

- Exploring options to improve the efficacy of the Community Engagement Panel (CEP) where possible, including by building its capacity for sharing information, providing updates, and soliciting community input.
- Continue coordinating with Marine Corps Base Camp Pendleton, Navy and Department of Defense officials regarding SONGS decommissioning activities and activities identified in the Strategic, Conceptual Transportation, and Action Plans. This includes exploring specific opportunities to leverage the Navy's experience in nuclear matters and unique relationship to SONGS (as the owner of the underlying property) in support of the shared goal of relocating SONGS SNF offsite.
- Maintaining lines of communication regarding the Strategic, Conceptual Transportation, and Action Plans, as well as other nuclear industry trends and developments, with the California congressional delegation, state regulatory stakeholders and agencies, local governments and tribal officials, other utility owners of SNF, and public interest groups.

5. Preparing SONGS and SONGS SNF for Transportation Off Site



The SONGS co-owners will take several near-term, on-site actions to prepare for the eventual offsite transport of the SONGS SNF.

5.1 Continue to safely and securely store SONGS SNF as long as it remains on site

The SONGS co-owners will continue to maintain a safety-conscious work environment that prioritizes sound nuclear management practices, security, and environmental protection, in balance with the efficient decommissioning of the SONGS site. The SONGS co-owners will also continue to prioritize a strong safety culture, foster a self-critical SONGS organization that strives for continuous improvement, and maintain a robust corrective action program. The SONGS co-owners will implement programs for the safe storage and monitoring of the SONGS SNF²² until an offsite facility is available:

The SONGS co-owners will implement programs for the safe storage and monitoring of the SONGS SNF until an offsite facility is available.



SONGS site with the Holtec ISFSI in the foreground.

Source: Southern California Edison Co.
(<https://www.songscommunity.com/>)

²² Additional discussion regarding the safe storage and monitoring of SNF at SONGS may be found in the Strategic Plan, Vol. II, Chapter 3 (*Spent Nuclear Fuel Management at SONGS*).

- C1. Continue to implement robust, on-site programs for the safe storage and monitoring of SONGS SNF.** Such measures include: real-time radiation monitoring of the Holtec and TN independent spent fuel storage installations (ISFSIs) at SONGS and data sharing with surrounding communities per the requirements of the SONGS lease with the California State Lands Commission (CSLC); compliance with the NRC's aging management protocols; and implementation of the Inspection and Maintenance Program (IMP) for the Holtec ISFSI. IMP implementation includes the deployment and routine inspection of a test canister (which does not contain spent fuel) as a leading indicator of potential stress corrosion, as well as continued support for the *in-situ* metallic overlay process and/or other emergent technologies that could be applied in the unlikely event any canisters need repair.
- C2. Continue support for the further development of best management practices and technological advances in spent fuel storage and management.** Appropriate planning to manage canister aging and to analyze and prepare for the potential need for canister repairs will be important if progress toward an offsite solution continues to be slow. As appropriate, such activities may include:
- Monitoring domestic and international developments in nuclear waste management, assessing their potential relevance for SONGS SNF, and identifying opportunities for SONGS engagement.
 - Sharing available and appropriate data regarding the management of SONGS SNF with government, industry groups, national laboratories, and vendors to contribute to the discussion of aging management issues.
 - Participating in relevant demonstration projects related to long-term canister integrity and *in situ* inspection and repair techniques. These activities may broaden support for and expand the adoption of the metallic overlay canister repair technique designated for use at SONGS, while also increasing the knowledge base in support of that technique.
- C3. Continue monitoring and evaluating the effects of climate change and sea-level rise at the SONGS site.** The SONGS co-owners will continue to monitor and evaluate the impacts of coastal erosion and sea-level rise in accordance with the requirements of the California Coastal Commission's (CCC's) 2019 Coastal Development Permit for the decommissioning of the SONGS site (CDP) and the SONGS lease with the CSLC.²³

²³ Special Condition 3 of the 2019 CCC CDP requires, in relevant part, that SCE submit an application to amend its CDP at or near the completion of decommissioning activities describing, among other things, coastal erosion, sea-level rise, and the remaining onshore structures at SONGS that may be exposed due to coastal processes or that would otherwise have coastal impacts if they were to remain. Further, the 2019 CSLC Lease No. PRC 6795.1 for the SONGS site also requires, in relevant part, regular reporting on sea-level rise and shoreline changes, as well as an annual summary of information related to the site's vulnerability to sea-level rise.

5.2 Prepare for future SNF shipments

The SONGS co-owners will plan for future SNF shipments consistent with the goal of expeditiously relocating SNF off site as soon as a receiving facility becomes available on commercially reasonable terms.²⁴

The SONGS co-owners will plan for future SNF shipments consistent with the goal of expeditiously relocating SNF off site as soon as a receiving facility becomes available on commercially reasonable terms.

C4. Prepare and maintain the documentation required to ship SONGS SNF. Such efforts include:

- Collecting and maintaining all supporting information required to demonstrate compliance with the certificates of compliance (CoCs) for SONGS spent fuel storage canisters. CoCs specify technical requirements and operating conditions that rely on detailed descriptions of the type(s) of wastes the canisters store.
- Reviewing and documenting the compliance status of each SNF and GTCC waste canister and its contents against the current revision of the applicable transportation CoC. This includes identifying issues that potentially require amendments to transportation licenses and specific revisions to package drawings.
- Developing canister documentation packages based on applicable regulations and the assumed maximum expectations of any interim receiving facility, as well as any permanent repository.

C5. Seek appropriate and timely opportunities to validate and improve site readiness to support an SNF transportation campaign. For example, under appropriate circumstances, demonstrating the capability to successfully move SNF or GTCC canisters to an offsite facility through dry runs and/or tabletop exercises can serve to identify operational improvements and train on-site personnel before a transportation campaign takes place. Such exercises can also provide valuable insights and bolster confidence that barriers to removing all the SNF and GTCC at the site have been, or can be, safely overcome. An effort of this type could potentially be undertaken on a pilot or demonstration basis, in partnership with a private entity, other utilities, and/or the federal government.

C6. Determine on-site infrastructure and space needs for loading SONGS SNF in preparation for transport. This determination will be made sufficiently early to make needed changes in “as-left” conditions at the site after current decommissioning activities are complete (in or around 2028). For both the Holtec and TN ISFSIs, this determination will specifically encompass:

- Transferring the SNF canisters from the ISFSIs into transportation packages.
- Loading SNF transportation packages onto rail cars for offsite transport.

²⁴ Additional discussion regarding preparations for the safe, offsite transport of the SONGS SNF may be found in the Conceptual Transportation Plan, Vol. III, Chapters 4 (*Site Considerations and Readiness to Ship*), 5 (*Phase I: Near-Term Actions To Prepare For Transporting SONGS SNF*), 6 (*Phase II: Actions After a Destination Is Known*), and 7 (*Phase III: Actions Within a Five-Year Timeframe For Transporting SONGS SNF*).

- Additional permitting and/or license amendments that may be required.
- Determining whether all or part of the rail sidings and spurs that will be constructed for the decommissioning of SONGS Units 2 and 3 should be left in place to be utilized for future SNF transportation.



An MP197 Package and Locomotive

Source: Orano USA website (<https://www.orano.group/usa/en/our-portfolio-expertise/used-fuel-management/nuclear-transport-and-logistics>)

- Evaluating tradeoffs between (1) extending the existing, abandoned on-site rail spur to allow for SNF rail cars to be placed adjacent to the ISFSIs for direct loading versus (2) extending the reinforced roadway from the ISFSI area to the planned decommissioning sidings and spurs instead. This evaluation will account for the need for a self-propelled modular transporter, if a roadway extension is used; for the number of cranes and fixtures required to rotate, load and move transportation packages from the ISFSI area to rail cars; and for the ability of loaded groupings of railcars (or “consists”) to negotiate the uphill grade away from the ISFSI area in the space available.
- How options for loading rail cars and assembling consists will affect the required security for these activities.

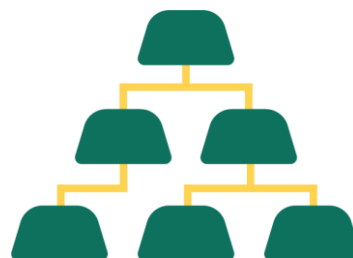
6. Corporate Capacity Building and Governance Actions



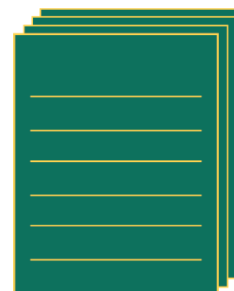
As needed and at its discretion, SCE – the decommissioning agent for SONGS - will enhance its capacity to support the offsite relocation of the SONGS SNF by taking the following steps:

D1. Aggregate select subject matter experts into an SNF relocation planning and management group (RPMG) to support the offsite relocation of the SONGS SNF. The RPMG will have the capabilities needed to carry out site readiness activities, manage efforts to relocate the SONGS SNF offsite, and coordinate ongoing stakeholder engagement activities in support of efforts to restart the national nuclear waste management program, as collectively described herein.

D2. Retain the independent strategic advisor for spent fuel management. The SONGS co-owners will continue to retain the position of Independent Strategic Advisor for Spent Fuel Management,²⁵ or similarly qualified individual, to advise the SONGS co-owners regarding the implementation of this Action Plan. The independent advisor will provide guidance regarding various issues, including but not limited to, readiness for offsite SNF transportation, external stakeholder engagement, legislative initiatives, issues related to title and liability for the SNF, and efforts to encourage the development of commercially reasonable options for offsite SNF storage or disposal. The independent advisor will provide recommendations and guidance to the RPMG and serve as a resource to the SONGS co-owners.



D3. Implement a “knowledge management” program to bolster the institutional memory of the RPMG and support any eventual transfer of knowledge needed to facilitate the offsite relocation of the SONGS SNF. This program will leverage existing knowledge management practices and collect relevant “primer” documents, which are expected to include, but not be limited to: an “as-left” site plan; site schematics and engineering drawings showing rail siding locations and the weight rating of surfaces; the Strategic, Conceptual Transportation, and Action Plans (with any modifications that might be added from time to time); copies of detailed SNF records and operational history; complete copies of all applicable American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM) standards; NRC-issued nuclear regulations (NUREGS) pertaining to SNF transportation; and other regulatory guidance documents relating to both SONGS ISFSIs. Given the potential for decades-long delays in the offsite relocation of the SONGS SNF and attendant losses of in-house knowledge and capacity, such documents would support any future engagement of a competent contractor to address the loading and offsite relocation of the SONGS SNF.



²⁵ The current Independent Strategic Advisor for Spent Fuel Management is Tom Isaacs, who also serves as Chair of the Experts Team. Details regarding the role of the Experts Team are provided in the Strategic Plan, Vol. II, Section 2.3 (*Approach to the Strategic Plan and the Role of the Experts Team*).

7. Conclusion

Success in relocating the SONGS SNF off site is most likely to be achieved by pursuing a multifaceted strategy that includes:

- Focusing near-term efforts to support options under which the federal government fulfills its legal and contractual obligations to take responsibility for SONGS SNF, including assuming title and liability, and covering the costs of transportation and offsite storage;
- Increasing awareness of the importance and challenges of nuclear waste management issues at the national level and supporting a broad-based coalition of stakeholders and legislative leaders in their efforts to overhaul and restart the national nuclear waste management program, including advancing a permanent disposal solution for all SNF; and
- Making reasonable preparations to assure that SONGS SNF can be moved to an offsite facility as expeditiously as possible when one becomes available on commercially reasonable terms.

By the actions described in this Action Plan, the SONGS co-owners will continue to pursue safe and commercially reasonable avenues for the offsite storage and/or disposal of SONGS SNF, while also setting an example that other nuclear utilities may support and follow.



SONGS site viewed from the North

Source: Southern California Edison Co. (<https://www.songscommunity.com/about-decommissioning/decommissioning-san-onofre-nuclear-generating-station/decommissioning-overview>)

Action Table

No.	Action
3.	Pursuing Relocation of SONGS SNF to an Offsite Facility
<i>3.1</i>	<i>Resetting the federal nuclear waste management program and support for a permanent federal disposal repository</i>
A1.	Actively encourage several key structural reforms in support of successfully resetting the federal nuclear waste management program.
A2.	Seek support for a new framework to prioritize federal acceptance of spent fuel from shutdown sites.
<i>3.2</i>	<i>CISF opportunities and potential federal support of same</i>
A3.	Advocate for modifications to the NWPA that would enable development of a federal CISF option that could accommodate all SONGS SNF.
A4.	Engage in discussions with private CISF developers (e.g., Holtec International and Interim Storage Partners) concerning potential terms for use of their storage services.
A5.	Engage in discussions with the federal government regarding the role of private CISF vendors in SNF management.
4.	Catalyzing Federal, State, and Local Support for a Federal Permanent Disposal Program and Solutions to Move SNF Off Site in the Interim
B1.	Help form a local coalition to advocate for the offsite relocation of SONGS SNF.
B2.	Develop and implement a plan for stakeholder engagement and action.
B3.	Designate a lead SCE point of contact for information regarding efforts and progress made to relocate the SONGS SNF off site.
B4.	Continue stakeholder engagement efforts to promote transparency and to solicit support to relocate the SONGS SNF off site.
5.	Preparing SONGS and SONGS SNF for Transportation Off Site
<i>5.1</i>	<i>Continue to safely and securely store SONGS SNF as long as it remains on site</i>
C1.	Continue to implement robust, on-site programs for the safe storage and monitoring of SONGS SNF.
C2.	Continue support for the further development of best management practices and technological advances in spent fuel storage and management.
C3.	Continue monitoring and evaluating the effects of climate change and sea-level rise at the SONGS site.
<i>5.2</i>	<i>Preparations for future SNF shipments</i>
C4.	Prepare and maintain the documentation required to ship SONGS SNF.
C5.	Seek appropriate and timely opportunities to validate and improve site readiness to support an SNF transportation campaign.
C6.	Determine on-site infrastructure and space needs for loading SONGS SNF in preparation for transport.
6.	Corporate Capacity Building and Governance Actions
D1.	Aggregate select subject matter experts into an SNF relocation planning and management group (RPMG) to support the offsite relocation of the SONGS SNF.
D2.	Retain the independent strategic advisor for spent fuel management.
D3.	Implement a “knowledge management” program to bolster the institutional memory of the RPMG and support any eventual transfer of knowledge needed to facilitate the offsite relocation of the SONGS SNF.