

SAFETY EVALUATION REPORT
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
MATERIALS LICENSE NO. SNM-2510
AMENDMENT NO. 4

1.0 SUMMARY

This safety evaluation report (SER) documents the review and evaluation of a license amendment request to Special Nuclear Material (SNM) License No. 2510 for the Rancho Seco Independent Spent Fuel Storage Installation (ISFSI). By letter dated January 17, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17026A433), as supplemented on August 10, 2017 (ADAMS Accession No. ML17236A170), Sacramento Municipal Utility District (SMUD or the licensee) submitted a license amendment request to the U.S. Nuclear Regulatory Commission (NRC) in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 72.56 to allow the continued storage of byproduct nuclear material in the form of a check source which is used to check the functionality of radiation detection instruments. Currently, the source is licensed under 10 CFR Part 30 which is incorporated under the Rancho Seco Nuclear Generating Station (RSNGS) 10 CFR Part 50 license. Prior to terminating the 10 CFR Part 50 license, SMUD requested the NRC amend the 10 CFR Part 72 ISFSI license to incorporate the 10 CFR Part 30 source.

The NRC staff (staff) docketed the application, and in accordance with 10 CFR 72.46(b)(1), a Notice of Proposed Action and a Notice of Opportunity for Hearing was published in the *Federal Register* on May 5, 2017 (82 FR 21270). No requests for a hearing or leave to intervene were submitted. Staff has reviewed the license amendment request including the justifications for the requested changes. As discussed in further detail below, based on the statements and representations in the application, as well as staff's independent review, finds that the requested amendment to Materials License No. SNM-2510 for the Rancho Seco ISFSI may be granted pursuant to 10 CFR 72.46(d) and other applicable requirements in 10 CFR Part 72.

2.0 REVIEW CRITERIA

The evaluation of the proposed changes is based on ensuring SMUD continues to meet the applicable requirements of 10 CFR Part 72 for independent storage of spent fuel and of 10 CFR Part 20 for radiation protection. Staff used the guidance in NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities" during its evaluation. The evaluation focused only on changes to SNM-2510 requested in the application. Staff did not reassess previously approved areas of the license, technical specifications, and the Final Safety Analysis Report (FSAR) not affected by the proposed changes or those areas of the FSAR modified by SMUD as allowed by 10 CFR 72.48. The technical objectives for the following review disciplines are described below for each of the proposed changes.

3.0 LICENSE CONDITIONS

SMUD requested the addition of license conditions 6.C, 7.C and 8.C to Rancho Seco's Part 72 license to specify 200 micro-curies of Strontium-90 as byproduct material in a sealed source device (SSD) that is currently licensed under the RSNGS 10 CFR Part 50 license. Also, SMUD requested license condition 9 be revised to include the current use of the byproduct SSD at the Rancho Seco ISFSI. In response to a request for additional information, SMUD supplied the model number for the SSD to be used at the Rancho Seco ISFSI, FSAR text, and the Rancho Seco procedures used to perform the leakage testing and material accountability for the SSD (ADAMS Accession No. ML17236A170).

SMUD proposed to revise its 10 CFR Part 72 FSAR to describe the manner in which the SSD would be stored, handled and controlled. In the proposed FSAR text, the licensee identified that the SSD would be stored in a locked safe located inside the Fuel Transfer Equipment Storage Building. SMUD also stated that the Fuel Transfer Equipment Storage Building is locked and that access is controlled in accordance with site procedures as well as monitored by site security. SMUD stated that, in accordance with site procedures, the SSD would be used, transported, and stored in such a way as to minimize personnel exposure, and that the SSD would be handled only by American National Standards Institute qualified radiation protection technicians. Staff finds that the storage of the device in a locked building inside the ISFSI controlled area, and with controls ensuring the device is handled only by qualified technicians is acceptable.

SMUD also proposed to revise the radiation protection description in the 10 CFR Part 72 FSAR. SMUD clarified that the radiation protection program for ISFSI operations is the same program that was implemented during RSNGS plant operations, decommissioning, and dry fuel storage transfer operations. SMUD also stated that using the Strontium-90 source as a check source to verify instrument response did not present any new challenges to the radiation protection program, and asserted that the existing program is adequate to safely control all radiological aspects of passive dry fuel storage. Additionally, SMUD stated that the Rancho Seco As Low As Reasonably Achievable program is implemented in accordance with the requirements of 10 CFR Part 20 and additional NRC regulatory guidance (e.g., Regulatory Guides) using plant administrative procedures. Because the radiation protection program remains unchanged from that previously approved by the staff for the RSNGS license, and includes the same measures to meet regulatory dose limits, staff finds the radiation protection program acceptable.

SMUD provided the SSD leak test procedure stating that leakage testing would be performed as directed by the Rancho Seco Quality Manual on a semi-annual basis to verify that there has been no significant loss of integrity of encapsulation during either shipment or use. SMUD indicated that the source leakage acceptance criterion is less than 0.005 micro-curies of removable contamination during the leak test. In addition, SMUD provided the accountability inventory procedure used to maintain control over the number, type and location of radioactive sources maintained at the site. SMUD stated that both the sealed source leakage testing and the accountability inventory are performed by American National Standards Institute qualified radiation protection technicians.

To ensure that the leak testing currently performed under the RSNGS Part 50 license continues under the 10 CFR Part 72 license, staff added license conditions requiring SMUD to perform the periodic leak tests currently performed under the RSNGS license, as well as contamination surveys, of the SSD. The conditions require that the tests specified by these conditions must be capable of detecting 0.005 micro-curies of radioactive material. In addition, staff added a

license condition requiring SMUD to inventory the SSDs used by SMUD every 6 months, or at other intervals approved by the NRC. With the addition of the conditions, staff finds that the leak testing and physical inventory processes proposed by SMUD are acceptable to ensure compliance with the NRC's regulatory requirements including those in 10 CFR 20.1201. Staff informed SMUD of these additional license conditions on October 6, 2017 (ADAMS Accession No. ML17284A021).

Using the SSD model number, staff located the non-public SSD registration certificate and safety evaluation. The safety evaluation documented that the SSD design (i.e., 200 micro-curie Strontium-90 source, which decays by emitting beta particles, enclosed in a stainless steel body) had been previously evaluated and that the SSD had been previously tested in accordance with American National Standards Institute procedures. The staff considered the safety evaluation findings that demonstrated the SSD design was adequate to protect health and minimize danger to life and property. Because a previous evaluation of the SSD determined that the SSD design was adequate to protect health and minimize danger to life and property, and the metal building materials which the applicant identified would enclose the SSD (e.g., metal safe and the Fuel Transfer Equipment Storage Building), staff has reasonable assurance that the proposed storage of the SSD source will meet the regulatory requirements of 10 CFR 72.104, and 72.106 as well as the applicable provisions of 10 CFR Part 20.

Consequently, staff concluded that this material can be safely stored, handled and controlled in accordance with the regulations in 10 CFR Part 20 and 10 CFR Part 72.

4.0 ENVIRONMENTAL REVIEW

SMUD stated that the amendment request met the categorical exclusion criteria in 10 CFR 51.22(c)(11). Per 10 CFR 51.22(c)(11), a categorical exclusion for an amendment which is administrative, organizational, or procedural in nature - or which results in a change in process operations or equipment - is allowed provided the amendment: (i) would not produce a significant change in either the type or amount of effluents released to the environment, (ii) would not produce a significant increase in occupational radiation exposure, (iii) would not have significant construction impacts, and (iv) would not produce a significant increase in the potential for or consequences from radiological accidents.

Staff determined that the request is an administrative change because the amendment will only change the regulations under which SMUD possesses and stores the SSD, not the manner in which SMUD possesses and stores the SSD. In addition, staff made the following determinations: (i) the amendment would not produce a significant change in either the type or amount of effluents released to the environment not only because the radioactive byproduct material employed in the SSD is very small, but also because the radioactive material used in the SSD is associated with the spent fuel assemblies currently in storage at Rancho Seco, (ii) the amendment would not produce a significant increase in occupational radiation exposure because both the SSD design and the tests imposed by staff limit the potential of occupational radiation exposure, (iii) the amendment would not have significant construction impacts because the SSD would be stored in existing structures, and (iv) the amendment would not produce a significant increase in either the potential for or consequences from radiological accidents because, as evidenced by issuance of the registration certificate, the SSD has been tested and shown to retain the radioactive material under accident conditions. Consequently, staff finds the amendment request meets the categorical exclusion criteria in 10 CFR 51.22(c)(11). Therefore,

in accordance with 10 CFR 51.22(b), neither an environmental assessment nor an environmental impact statement is required for this proposed action.

5.0 CONCLUSION

Based on its review of SMUD's license amendment request, as revised and supplemented, staff has determined there is reasonable assurance that: (i) the activities authorized by the amended license will be conducted without endangering the health and safety of the public, and (ii) these activities will be conducted in compliance with the applicable regulations. Staff further determined that the issuance of the amendment will not be inimical to the common defense and security. Therefore, the amendment should be approved.

Issued with Materials License No. SNM-2510.

Dated: November 24, 2017