[7590-01P]

NUCLEAR REGULATORY COMMISSION

[Docket No. 50-073; NRC-2023-0051]

GE-Hitachi Nuclear Energy Americas, LLC; Nuclear Test Reactor

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental assessment and finding of no significant impact; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is considering renewal of Facility License No. R-33, held by the GE-Hitachi Nuclear Energy Americas, LLC (GE-Hitachi or the licensee), for the continued operation of the Nuclear Test Reactor (NTR or the reactor), located on the Vallecitos Nuclear Center (VNC) site in Sunol, Alameda County, CA. The NRC is issuing an environmental assessment (EA) and finding of no significant impact (FONSI) associated with the proposed action.

DATES: The EA and FONSI referenced in this document are available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2023-0051** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to https://www.regulations.gov and search for Docket ID **NRC-2023-0051**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individual listed in the "For Further Information Contact" section of this document.

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the reader, the ADAMS accession numbers are provided in a table in the "Availability of Documents" section of this document.

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FOR FURTHER INFORMATION CONTACT: Duane Hardesty, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-3724; email: Duane.Hardesty@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

The NRC is considering issuance of a renewed Facility Operating License No. R-33, held by GE-Hitachi, which would authorize continued operation of its NTR, located on the VNC site in Sunol, Alameda County, CA. The renewed license would authorize continued operation of the NTR for an additional 20 years from the date of issuance of the renewed license.

As required by section 51.21 of title 10 of the Code of Federal Regulations (10 CFR), "Criteria for and identification of licensing and regulatory actions requiring environmental assessments," the NRC staff prepared this EA documenting its environmental review. Based on the results of the environmental review as documented in the EA that follows, the NRC has determined not to prepare an environmental impact statement for the proposed renewed license and is issuing a FONSI in accordance with 10 CFR 51.32, "Finding of no significant impact."

II. Environmental Assessment

Facility Site and Environs

The NTR at the Vallecitos Nuclear Center is a heterogeneous, high-enriched-uranium, graphite-moderated and reflected light-water-cooled thermal reactor. It is licensed to operate at a power level of up to 100 kilowatts thermal (kWt) and has been in operation since 1957. The NTR is fueled by highly enriched uranium-aluminum alloy disks clad with aluminum.

The NTR lies within the VNC site on the north side of Vallecitos Valley in Sunol, Alameda County, CA. The site slopes upwards from 400 feet (122 meters (m)) above mean sea level (MSL) at its relatively flat southern end to 1,200 feet (366 m) above MSL along a northern ridge. The southern end of the property drains southwest through ditches to Vallecitos Creek, which then discharges to Arroyo de la Laguna near the north end of Sunol Valley. Vallecitos Valley is approximately 2 miles (3.2 kilometers (km)) long and 1 mile (1.6 km) wide and primarily consists of undeveloped grasslands. The towns of Pleasanton and Livermore lie approximately 4 miles (6.4 km) north and 5 miles (8 km) northeast of the VNC site, respectively. Fremont lies approximately 8 miles (12.9 km) southwest of the site.

The NTR is housed within Building 105 of the VNC site. Building 105 lies on a 135-acre (54.7-hectare (ha)) parcel in the southwest quadrant of the site. In addition to the NTR, the building contains offices, laboratories, and storage areas. This area of the site also includes several other buildings and high structures, including a 15-foot-tall (4.6-m) gas-fired boiler exhaust stack and several single and multistory buildings, including Buildings 102, 103, and 106. Additionally, the site contains three other reactor facilities: Vallecitos Boiling-Water Reactor (DPR-1), Empire State Atomic Development Agency Vallecitos Experimental Superheat Reactor (DR-10), and GE Test Reactor (TR-1). DPR-1 and DR-10 are permanently shutdown and in active decommissioning. TR-1 is permanently shutdown and currently in SAFSTOR (i.e., Safe Storage) under a possession-only license. Figures 1 and 2 in GE-Hitachi's Environmental Report (ER) (included in the list of documents associated with the license renewal application and can be found in Section III "Availability of Documents" at the end of this notice) provide a

map of the VNC site and an aerial photograph of the site's developed area, respectively. The descriptions of the NTR facility, the site, and the surrounding environs in this EA originate from GE-Hitachi's ER or GE-Hitachi's Safety Analysis Report (SAR) (included in the list of documents associated with the license renewal application and can be found in Section III "Availability of Documents" at the end of this notice) unless otherwise cited.

Within Building 105, the NTR is housed within a thick-walled, reinforced concrete Reactor Cell that includes the reactor, reactor control mechanisms, coolant system, and a fuel loading tank. Penetrations into the Reactor Cell provide for passing water, electric power, and air into and out of the cell. The Reactor Cell confines airborne radioactivity and provides for controlled release through an exhaust stack. The stack is 45 feet (13.7 m) above grade level and 9 feet (2.7 m) above the highest point of Building 105. In addition to the Reactor Cell, the NTR includes the Control Room, North Room, South Cell, and Set-up Room. The Reactor Cell and these rooms collectively comprise the NTR and are included within the 10 CFR part 20, "Standards for Protection Against Radiation," Restricted Area wherein radiological controls are implemented for personnel safety.

The Control Room contains the control console, an operator work area, and space for equipment and experiment preparation. Personnel in the Control Room may experience dose rates of 0.6 millirem per hour (mrem/h) during typical reactor operation and up to 2 mrem/h when the aperture (an opening that will allow neutrons to pass through it surrounded by neutron absorbing materials) between the Reactor Cell and the South Cell is open during neutrography operations. The North Room provides access to the north neutron radiography position inside the shielded, concrete monument, as well as the access station for the cable held retractable irradiation facility. The South Cell is a concrete shielded room that provides access to the thermal column, horizontal facility, and the south neutron radiography position. It also contains apertures to the North Room for neutron radiography. The Set-up Room contains storage and space for experiment set-up prior to irradiation or testing.

GE-Hitachi typically operates the NTR for one shift, 5 days per week for a total annual average of approximately 700 full-power hours per year. During operation, the primary coolant core outlet temperature is typically 124 degrees Fahrenheit (°F) (51.1 degrees Celsius (°C)). This results in a delta of 20°F (-6.7°C) (across the primary to secondary cooling water heat exchanger. Secondary cooling water temperature is usually below 95°F (35°C) and rarely exceeds 100°F (37.7°C). Upon leaving the heat exchanger, secondary cooling water flows to the facility drain, which discharges to 50,000-gallon (189,270-liter) site retention basins. GE-Hitachi samples water in these basins to ensure it contains no radioactive material prior to release. During this process, the wastewater cools to ambient temperature. From the retention basins, GE-Hitachi releases the cooled wastewater through an onsite sprinkler irrigation system. To ensure that these releases do not create buildup of trace byproducts in soil runoff, GE-Hitachi periodically samples sediment in the discharge swale at the southeast end of the VNC property.

The NTR shares many facilities and equipment in Building 105 with other laboratory facilities housed within the building. These include potable water, fire protection, emergency supplies and support, heating, ventilation, and air conditioning, AC electrical distribution, and compressed air.

A detailed description of the NTR and its operations can be found in GE-Hitachi's SAR (included in the list of documents associated with the license renewal application and can be found in Section III "Availability of Documents" at the end of this notice) submitted as part of its renewal application.

Description of the Proposed Action

The proposed action would renew Facility Operating License No. R-33 for a period of 20 years from the date of issuance of the renewed license. The proposed action would authorize GE-Hitachi to operate the NTR at a nominal steady-state power of 100 kWt. The proposed action is in accordance with the licensee's application dated November 19, 2020, and supplements dated September 22, 2021; April 22, 2022 and

September 15, 2022; and January 27, 2023. The NRC issued the initial facility operating license on October 31, 1957. The NRC subsequently issued renewed facility operating licenses on December 28, 1984, and April 20, 2001. The current facility operating license was set to expire at midnight on April 20, 2021. In accordance with 10 CFR 2.109, “Effect of timely renewal application,” the existing license remains in effect until the NRC takes final action on the renewal application.

Need for the Proposed Action

The proposed action is needed to allow the continued operation of the NTR to provide irradiation services for (1) neutron radiography (neutrography) of radioactive and nonradioactive objects, (2) small sample irradiation and activation, (3) sensitive reactivity characterizations of reactor fuel cladding material, (4) training, and (5) calibrations and other testing utilizing a neutron flux for the U.S. Department of Defense (DOD), U.S. national laboratories, and U.S. private industry. A significant use of the facility is the performance of neutron radiography on energetic devices used for DOD applications and the space industry. The NTR is currently one of two facilities in the United States that provides this service.

Environmental Impacts of the Proposed Action

The environmental impacts of the proposed action are described in this EA. As discussed further, the proposed action will not have a significant environmental impact. In addition, the proposed action will not require any physical changes to the facility, and the impacts are similar to those occurring during past operations. Separate from this EA, the NRC staff is performing a safety evaluation, which will be available with the renewed license, if issued.

Radiological Impacts

Environmental Effects of Reactor Operations

Gaseous radioactive effluents resulting from the routine operation of the NTR are released to the environment from the reactor building from an exhaust stack on the roof after passing through a prefilter and a bank of HEPA filters. The NTR stack discharge

length is 45 ft (14 m). Argon (Ar)-41 is by far the most significant radionuclide released as a gaseous effluent during normal reactor operations. The maximum release of Ar-41 would occur from continuous operation at full power. GE-Hitachi provided airborne radiological effluent releases for calendar year 2018 as an example of the releases tracked at the NTR indicating that the total noble gases releases from the stack was 190 curies (Ci), the majority of which is Ar-41. NRC staff confirmed the releases of 190 Ci in GE-Hitachi's annual report and determined that it is reasonable to assume most of the releases are due to Ar-41 given that it would be conservative to assume this for dose calculations. The licensee's methodology for determining stack release rate action levels and limits ensures that doses to members of the public due to airborne releases are at or below the 10 CFR 20.1101(d) limit of 10 mrem per year. This meets the 100 mrem per year (mrem/yr) (1 millisieverts per year (mSv/yr) dose equivalent to the maximally exposed individual in 10 CFR 20.1301, "Dose limits for individual members of the public."

The only liquid radiation source for the NTR is the primary coolant, but no radioactive liquid effluents are discharged from the facility. The primary coolant is regularly sampled to monitor fuel leakage into the primary coolant, which is vented into a holdup tank prior to reactor startup. The amount of water vented into the holdup tank is small enough that it evaporates, and the tank does not fill. Dose rate measurements of the reactor holdup tank show that no-long lived radionuclides accumulate in the tank. The total amount of liquid waste generated is from the primary coolant sampling, which is approximately one liter per sample. This sample waste is disposed of with the other laboratory waste.

Solid radioactive waste generated from reactor operations at the NTR are primarily contaminated paper and plastic, filters, and resins. Shipments of solid radioactive low-level waste consist of one to three cubic feet (less than one cubic meter) of contaminated material per year with activity in the order of millicuries. Once

transferred, the low level waste broker ships and disposes of the waste in accordance with applicable regulations for radioactive materials.

No spent (irradiated) fuel will be permanently stored within the NTR during the license renewal term. If it is necessary to remove a fuel assembly, it is transferred to the fuel loading tank and special arrangements are made to use a shielded transfer cask and storage facilities elsewhere on the site. The U.S. Department of Energy (DOE) provides fuel for use at the NTR. GE-Hitachi has entered into a contract with DOE whereby the DOE retains title to the fuel and is obligated to take all NTR spent nuclear fuel from the site for final disposition. GEH does not anticipate any changes in spent fuel handling during the proposed license renewal term.

As described in chapter 11, “Radiation Protection Program/Waste Management,” of the NTR SAR and verified through NRC staff review of the licensee’s annual reports for the 5 years of operation from 2016 through 2020, personnel exposures are well within the limits set by 10 CFR 20.1201, “Occupational dose limits for adults,” and are as low as reasonably achievable in accordance with 10 CFR 20.1101(b). The licensee tracks exposures of personnel monitored with dosimeters, and the annual reports for the 5 years show that the personnel exposures (total effective dose equivalent) were usually less than one percent of the occupational limit of 5,000 mrem (50 mSv) per year. The greatest individual exposure (annual) over the last 5 years was 876 mrem (8.76 mSv). No changes in reactor operation that would lead to an increase in occupational dose are expected or proposed as a result of the proposed action.

The radiation monitoring systems associated with reactor operations at the NTR are provided and maintained as a means of ensuring compliance with radiation limits established under 10 CFR part 20. The monitoring systems consist of remote area monitors, continuous air monitor, portable radiation survey instruments, hand and foot counter, fixed air filters, and stack monitor system, as described in section 11.1.4, “Radiation Monitoring and Surveying,” of the SAR. The stack monitor system measures

particulate and noble gases, respectively, that are exhausted through the NTR exhaust stack.

The licensee has an environmental radiation program that measures radiation exposure in and around the VNC facility. The environmental radiation monitoring program surveys groundwater, stream sediments, vegetation, storm water, direct gamma radiation, gaseous effluents (which includes 4 air monitoring stations and 20 gamma radiation monitoring locations).

The licensee also obtains water samples to ensure no releases into water pathways. The water samples are analyzed for gross alpha, beta, and tritium. Soil and vegetation samples are analyzed for gross beta and undergo gamma spectroscopy. These samples and dosimetry are analyzed and documented in the annual effluent and environmental reports. Review of the annual reports over the last 5 years of operation (2016 through 2021) shows no discernible radiological effect of NTR operations on the environment.

Based on the review of monitoring data for the period 2016 through 2021, the NRC staff concludes that operation of the NTR does not have any significant radiological impact on the surrounding environment. No changes in reactor operation that would affect offsite radiation levels are expected or proposed as a result of the proposed action. Therefore, the NRC staff finds that the proposed action would not have a significant radiological impact.

Environmental Effects of Accidents

Accident scenarios are discussed in chapter 13, “Accident Analysis,” of the NTR SAR. The accidents analyzed in chapter 13 range from anticipated events to a postulated fission product release with radiological consequences that exceed those of any accident considered to be credible. The licensee considers a single-mode nonviolent failure of 50 mg of uranium-235 powder in a singly encapsulated container followed by release of fission products as the maximum hypothetical accident for the NTR. This accident would involve the release of material to the reactor cell area and

into the environment with no credit taken for filtration of the release by the NTR stack filter system. The licensee uses this scenario to calculate the maximum concentration of fission products that might be present in the reactor cell. The licensee calculated doses to facility personnel during a 5 minute evacuation duration, and also calculated the dose to a member of the public outside the facility during the 2 hours it would take the released radioactive material to pass. The licensee estimated an occupational dose of 500 mrem (5 mSv), and a dose of 100 mrem (1 mSv) to the maximally-exposed member of the public.

Separate from this EA, the NRC staff is reviewing GE-Hitachi's accident analyses of the potential radiological consequences that may result from the proposed license renewal. The results of the NRC staff's safety review will be documented in a safety evaluation report that will be made publicly available. If the NRC staff concludes that the radiological consequences are within 10 CFR part 20 dose limits, then GE-Hitachi's accident analyses and the proposed action would not have a significant impact with respect to radiological consequences.

Conclusion – Radiological Impacts

In the application for license renewal, the licensee has not proposed any physical changes to the reactor facility design, or adverse changes to facility operating conditions, that would significantly affect facility operation; therefore, there would be no changes in the types or quantities of routine effluents that may be released off site. The licensee has systems in place for controlling the release of radiological effluents and implements a radiation protection program to monitor personnel exposures and releases of radioactive effluents. Accordingly, there would be no increase in routine occupational or public radiation exposure as a result of the proposed action. Based on the information previously discussed, the NRC staff finds that the proposed action will not significantly increase the probability and consequences of accidents.

The license renewal would not significantly change reactor operations. As previously discussed, information in the application and data reported to the NRC by the

licensee for the last 5 years of reactor operation were evaluated to determine the radiological impact. The NRC staff found that releases of radioactive material and personnel exposures were all well within applicable regulatory limits. Based on this evaluation, the NRC staff finds that the continued operation of the reactor would have no significant radiological impacts.

Non-Radiological Impacts

The proposed action does not involve any change in the operation of the reactor or change in the emissions or heat load dissipated to the environment. No new construction or other land disturbing activities are proposed. The proposed action would not result in any land use changes or increase in noise or air emissions, and would not have a significant impact on air quality, noise, visual resources, or ecological resources.

Monitoring results of surface and ground water among other media are reported according to NTR and other site licensing requirements. Treated sanitary and industrial wastewater was disposed of onsite by an irrigation system. No surface runoff of sanitary or industrial waste occurred. Groundwater was monitored for gross alpha, gross beta, Strontium (Sr)-90 and tritium. Review of the last 5 years of analytical results of collected groundwater samples (2016 through 2021), shows that the GE-Hitachi is in compliance with all license requirements issued by the NRC, and NTR operation has no discernible effect on groundwater quality.

GE-Hitachi uses three drainage systems at the VNC site: industrial, sanitary, and storm. The industrial (non-cooling contact water) and sanitary wastewater discharge nonradioactive effluent into any of the four 50,000-gallon (189,270-liter) retention basins located in the southwest corner of the site, which store the water for nonpotable purposes (e.g., landscape watering). There have been no discharges to surface waters from these retention basins since July 2003. The industrial wastewater has been discharged directly through onsite irrigation while the sanitary wastewater is first processed (for example through chlorination) and then sprayed onto VNC property by an irrigation system in a designated area. The storm water at the facility drains

through a series of essentially natural ditches that merge before exiting the southwest corner of the site and emptying into Vallecitos Creek.

Groundwater level at the VNC site varies greatly, ranging from a few feet below ground surface (near Retention Basins 2 and 3) to 30 to 40 feet (9.1 – 12.2 m) below ground surface (northwest of the road leading to the water tank). Groundwater at the site generally flows toward the southwest at an estimated velocity of about 0.01 ft/day (.003 m/day) (in clays) to 8 ft/day (2.4 m/day) (in gravels) depending on the clay content.

GE-Hitachi conducts effluent monitoring and environmental surveillance programs to ensure compliance with effluent release limits as described in in 10 CFR part 20, appendix B, “Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage,” and to monitor any potential impacts on the environments around the VNC facilities. The effluent monitoring program includes measuring gross alpha and gross beta particle activity in water discharged through the site sanitary and industrial wastewater systems, as well as measuring tritium levels in sanitary wastewater. The environmental surveillance program monitors gross alpha and gross beta in sediments from neighboring streams, groundwater, and vegetation at locations near or beyond the site perimeter and monitoring Cobalt (Co)-60 and Cesuim (Cs)-137 in stream sediment.

Recent records from the facility’s effluent monitoring program show that in monthly testing of industrial effluent, gross alpha varied from nondetectable to 4.96 picoCuries per liter (pCi/L), and gross beta from 0.79 pCi/L to 6.14 pCi/L. In 2021, tritium was detected from 24 pCi/L to 633 pCi/L in the industrial effluent. Compared to industrial effluents, monthly testing of sanitary effluents generally showed lower levels of radioactivity. In 2021, the highest concentrations of gross alpha measured in sanitary effluent was 3.71 pCi/L, gross beta was 5.39 pCi/L, and tritium was 485 pCi/L. As part of the environmental surveillance program, the facility tests stream sediment at locations near or beyond the site perimeter. In 2021 testing of stream sediment, gross alpha was

detected at 4.73 Ci/L, gross beta at 1.6 pCi/L, and both Co-60 and Cs-137 were not detected.

GE-Hitachi monitors groundwater at the VNC site quarterly by collecting from eight wells located on or near the VNC site. The samples are analyzed for gross alpha, gross beta, tritium, and Sr-90. In 2021, the highest levels of gross alpha and gross beta detected were 6.51 pCi/L and 4 pCi/L, respectively. In 2021, the highest level of tritium detected in the groundwater was 857 pCi/L.

In summary, effluent discharges from the VNC site comply with the facility's industrial and sanitary wastewater discharge limits as described in licenses issued by the NRC and the California Department of Health. No direct surface runoff of processed sanitary or industrial wastewater occurred in 2021. The impacts of the continued operation of the NTR on surface water and groundwater are minimal. Hazardous chemicals may be used in experiments at the NTR, but no releases of potentially hazardous chemicals to the environment occur during normal facility operation. Therefore, the NRC staff concludes that the proposed action would have no significant non-radiological impacts.

Other Applicable Environmental Laws

In addition to the National Environmental Policy Act, which requires Federal agencies to consider the environmental impacts of proposed actions, the NRC has responsibilities that are derived from other environmental laws, which include the Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), Fish and Wildlife Coordination Act (FWCA), National Historic Preservation Act (NHPA), and Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The following presents a brief discussion of impacts associated with resources protected by these laws and related requirements.

Endangered Species Act

The ESA was enacted to prevent further decline of endangered and threatened species and to restore those species and their critical habitat. Section 7 of the ESA

requires Federal agencies to consult with the U.S. Fish and Wildlife Service (FWS) or National Marine Fisheries Service regarding actions that may affect listed species or designated critical habitats. The NRC staff conducted a search of federally listed species and critical habitats that have the potential to occur in the vicinity of the NTR using the FWS's Environmental Conservation Online System Information for Planning and Conservation system.

The FWS-generated report from this system identifies nine federally listed species that occur or potentially occur within the vicinity of the VNC site: San Joaquin kit fox (Vulpes macrotis mutica), California least tern (Sterna antillarum browni), Alameda whipsnake (Masticophis lateralis euryxanthus), California red-legged frog (Rana draytonii), California tiger salamander (Ambrystoma californiense), delta smelt (Hypomesus transpacificus), bay checkerspot butterfly (Euphydryas editha bayensis), San Bruno elfin butterfly (Callophrys mossii bayensis), and vernal pool fairy shrimp (Branchinecta lynchi). No critical habitats occur in the area.

The VNC site lacks suitable aquatic features for the California red-legged frog, California tiger salamander, delta smelt, and vernal pool fairy shrimp. While the remaining species may be present in the broader area, the VNC site itself is small and developed and does not provide suitable habitat. Additionally, operation of the NTR has no direct nexus to the natural environment that could affect these species. Accordingly, the NRC staff concludes that the proposed license renewal of NTR would have no effect on federally listed species or critical habitats. Federal agencies are not required to consult with the FWS if they determine that an action will not affect listed species or critical habitats. Thus, the ESA does not require consultation for the proposed NTR license renewal, and the NRC staff considers its obligations under ESA section 7 to be fulfilled for the proposed action.

Coastal Zone Management Act

The CZMA, in part, encourages States to preserve, protect, develop, and, where possible, restore coastal resources. Individual States are responsible for developing a

federally approved Coastal Management Plan and implementing a coastal management program in accordance with such a plan. Section 307(c)(3)(A) of the CZMA requires that applicants for Federal permits whose proposed activities could reasonably affect coastal zones certify to the licensing agency (here, the NRC) that the proposed activity would be consistent with the state's coastal management program. Alameda County is not within California's approved coastal zone, and, therefore, a consistency determination is not required for the proposed action.

Fish and Wildlife Coordination Act

The FWCA requires Federal agencies that license water resource development projects to consult with the FWS (or National Marine Fisheries Service, when applicable) and the State wildlife resource agencies regarding the potential impacts of the project on fish and wildlife resources.

The proposed action does not involve any water resource development projects, including any of the modifications relating to impounding a body of water, damming, diverting a stream or river, deepening a channel, irrigation, or altering a body of water for navigation or drainage. Therefore, no coordination with other agencies pursuant to the FWCA is required for the proposed action.

National Historic Preservation Act

The NHPA requires Federal agencies to consider the effects of their undertakings on historic properties. As stated in the NHPA, historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places. By electronic mail dated November 21, 2022, the State Historic Preservation Officer (SHPO) for the State of California, indicated that the proposed renewal of the NTR license does not require construction, ground disturbing activities, or changes to the reactor facility design. The SHPO also indicated that no historic properties existed in the area of potential effects (which includes the VNC site); and, there were no objections to the proposed license renewal. Based on this information, the NRC staff finds that the proposed license

renewal and the continued operation of the NTR would have no adverse effect on historic properties

Executive Order 12898 – Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 16, 1994 (59 FR 7629), directs Federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

The environmental justice impact analysis evaluates the potential for disproportionately high and adverse human health and environmental effects on minority and low-income populations that could result from the relicensing and the continued operation of the reactor. Such effects may include human health, biological, cultural, economic, or social impacts. Minority and low-income populations are subsets of the general public residing around the reactor, and all are exposed to the same health and environmental effects generated from activities at the reactor.

Minority Populations in the Vicinity of the NTR—According to the U.S. Census Bureau's 2010 Census data, approximately 56 percent of the population (approximately 372,000 individuals) residing within a 10-mi (16-km) radius of the NTR identified themselves as minorities. The largest minority population were Asian or Pacific Islander (approximately 121,000 individuals or 33 percent) followed by Hispanic or Latino of any race (approximately 57,000 individuals or 16 percent). According to the 2010 Census, 66 percent of the Alameda County population identified themselves as minorities with persons of Asian or Pacific Islander (31 percent), Hispanic or Latino of any race (23 percent), and Black or African American (14 percent) comprising the largest minority populations. According to the 2020 Census, 71 percent of the Alameda County population identified themselves as minorities with persons of Asian or Pacific Islander (35 percent), Hispanic or Latino of any race (22 percent), and Black or African American (11 percent) comprising the largest minority populations.

Low-income Populations in the Vicinity of the NTR—According to the U.S. Census Bureau's 2017–2021 American Community Survey 5-Year Estimates, approximately 19,300 persons and 3,340 families (approximately 5 and 3 percent, respectively) residing within a 10-mile (16-km) radius of the NTR were identified as living below the Federal poverty threshold. The 2021 Federal poverty threshold was $27,949 for a family of four. According to the U.S. Census Bureau's 2021 American Community Survey Census 1-Year Estimates, the median household income for the State of California was $84,907 while approximately 9 percent of families and 12.3 percent the State population were found to be living below the Federal poverty threshold. Alameda County had a higher median household income average ($109,729) and a lower percentage of families (6.1 percent) and persons (9.3 percent) living below the poverty level.

Impact Analysis—Potential impacts to minority and low-income populations would mostly consist of radiological effects. However, radiation doses from continued operations associated with the proposed license renewal are expected to continue at current levels, and would be below regulatory limits. No significant visual or noise impacts are expected to result from the proposed action. Based on this information and the analysis of human health and environmental impacts in this EA, the NRC staff finds that the proposed license renewal would not have disproportionately high and adverse human health and environmental effects on minority and low-income populations residing in the vicinity of the NTR.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to license renewal, the NRC considered denying the proposed action (i.e., the "no-action" alternative). If the NRC denied the request for license renewal, reactor operations would cease and decommissioning would commence sooner than if the NRC issued a renewed license. Therefore, the environmental effects of decommissioning would occur sooner under the no-action alternative than if a renewed license were issued. Decommissioning would be conducted in accordance

with an NRC-approved decommissioning plan, which would require a separate environmental review under 10 CFR 51.21. Cessation of reactor operations would reduce or eliminate radioactive effluents. However, as previously discussed in this EA, radioactive effluents from reactor operations constitute a small fraction of the applicable regulatory limits. Therefore, the environmental impacts of license renewal and the denial of the request for license renewal would be similar. In addition, denying the request for license renewal would eliminate the benefits of teaching, research, and services provided by the NTR.

Alternative Use of Resources

The proposed license renewal does not involve the use of any different resources or significant quantities of resources beyond those associated with current facility operations and previously considered in the issuance of Facility License No. R-33 for the reactor on December 28, 1984, and the renewal of Facility License No. R-33 on December 28, 1984, and April 20, 2001.

Agencies and Persons Consulted

In satisfaction of its obligations under the NHPA, the NRC consulted with the California SHPO, as previously described. On February 21, 2023, the NRC notified the California State official, Mr. Anthony Chu, Chief, Division of Radiation Safety and Environmental Management, California Department of Public Health of the proposed action. By email dated March 8, 2023, Mr. Chu indicated that the State of California Department of Public had no comments.

Finding of No Significant Impact

The NRC is considering renewal of Facility License No. R-33, held by GE-Hitachi, which would authorize the continued operation of the NTR for an additional 20 years from the date of issuance of the renewed license.

On the basis of the EA included in Section II of this notice and incorporated by reference in this finding, the NRC staff finds that the proposed action will not have a significant impact on the quality of the human environment, and will not significantly

affect the environment surrounding the NTR. This is because the proposed action will result in no significant radiological impacts from continued operations as the types or quantities of effluents that may be released off site would not change. No changes in land use would occur or increases in noise or air emissions. Continued operations under the proposed action would have no significant impacts on air quality, noise, visual resources, surface water or groundwater resources, terrestrial or aquatic resources, or on any other environmental resource conditions. Additionally, the proposed action would have no effect on federally listed species or designated critical habitats, would not affect historic properties, and would not result in environmental justice impacts. Therefore, the NRC staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC staff has determined that there is no need to prepare an environmental impact statement for the proposed action.

The NRC staff considered information provided in the licensee's application, as supplemented, and the review of related environmental documents. Section III in this notice lists the environmental documents related to the proposed action and includes information on the availability of these documents.

This FONSI and other related environmental documents are accessible online in the ADAMS Public Documents collection at https://www.nrc.gov/reading-rm/adams.html. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC's PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737, or by email to PDR.Resource@nrc.gov.

III. Availability of Documents

The documents in the following table are available to interested in ADAMS, as indicated.

Document Description	ADAMS Accession No.
LICENSE RENEWAL REQUEST	
GE-Hitachi Nuclear Energy, application cover letter, "Nuclear Test Reactor License Renewal (R-33)," (Redacted), dated November 19, 2020.	ML21053A071

GE-Hitachi Nuclear Energy, "General Electric Nuclear Test Reactor Safety Analysis Report," NEDO 32740P, Rev 3, chapters 1 through 8, dated November 19, 2020.	ML20325A205
GE-Hitachi Nuclear Energy, "General Electric Nuclear Test Reactor Safety Analysis Report," NEDO 32740P, Rev 3, chapters 9 through 16, dated November 19, 2020.	ML20325A206
GE-Hitachi Nuclear Energy, "Vallecitos Nuclear Center Environmental Report 2020," dated July 2020.	ML20325A195
Supplemental Information Supporting GE Nuclear Test Reactor License Renewal Audit Questions and Responses, dated September 22, 2021.	ML21265A246 (package)
GE-Hitachi Nuclear Energy Americas, LLC, "Response to Request for Additional Information for GE Nuclear Test Reactor License Renewal Application," dated April 22, 2022.	ML22112A237
GE-Hitachi Nuclear Energy, "Response to Request for Public Docketing of Information Relating to GE Nuclear Test Reactor License Renewal," dated September 15, 2022.	ML22258A117 (package)
GE-Hitachi Nuclear Energy Americas, LLC, "Supplemental Information Supporting GE Nuclear Test Reactor License Renewal Audit," dated January 27, 2023.	ML23027A210
GE-Hitachi Nuclear Energy, "GEH Annual Nuclear Test Reactor (NTR) Operating Report for the Year."	2020 – ML21088A323 2019 – ML20234A326 2018 – ML19081A042 2017 – ML18108A251 2016 – ML17095A289
Other Referenced Document	
Email from the State of California, State Historic Preservation Officer, dated November 21, 2022.	ML22325A353
Email from the State of California, Division of Radiation Safety and Environmental Management California Department of Public Health, dated March 8, 2023.	ML23067A408

Dated: March 17, 2023.

For the Nuclear Regulatory Commission.

Joshua M. Borromeo,
Chief,
Non-Power Production and Utilization Facility Licensing Branch,
Division of Advanced Reactors and Non-Power Production and Utilization Facilities,
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[FR Doc. 2023-05876 Filed: 3/21/2023 8:45 am; Publication Date: 3/22/2023]