REQUEST FOR ADDITIONAL INFORMATION
REGARDING LICENSE RENEWAL APPLICATION FOR VALLECITOS NUCLEAR CENTER
DOCKET NO: 07000754
LICENSE NO.: SNM-960

Chapter 1: General Information

1.1 The 1999 license application for SNM-960 describes the storage pool in Building 102. The Safety Evaluation Report for the renewal (Agencywide Documents Access and Management System (ADAMS) ML010330352, dated September 14, 2000) states that:

> The pool facility is […] designed for underwater cask transfer, visual irradiated fuel examination, and storage of irradiated materials.

However, the 2015 license renewal application states that the storage pool is outside the scope of the SNM-960 license (Section 1.1.1.1).

Provide the following information:

a. Explain whether the storage pool was used in the past to store material licensed under SNM-960.
b. Describe how the pool was released from use under SNM-960.
c. Describe the controls that are in place to ensure that material licensed under SNM-960 is not placed there in the future.
d. Describe how the pool is being currently used.

This information is necessary to determine compliance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 70.22 (a)(2) and 10 CFR 70.22(a)(7).

1.2 Explain how GE-Hitachi (GEH) tracks the former uses of special nuclear material (SNM), such as the storage pool, under SNM-960 for the purposes of future decommissioning activities. Identify whether a procedure or other document describes the process for tracking former uses, how the activity was released from the license, and any licensee commitments related to maintaining such information.

This information is necessary to determine compliance with the requirements of 10 CFR 70.22 (a)(2) and 10 CFR 70.22(a)(7).

1.3 Sealed Plutonium Sources

The document "License Condition for Leak Testing Sealed Plutonium Sources," dated April 1993, is appended to Chapter 1 of the license renewal application. Provide a statement of GEH's commitment, or identify a reference to the commitment in the license renewal application, as to when and how GEH would implement this attachment.

This information is necessary to determine compliance with the requirements of 10 CFR 70.22(a)(7).

1.4 Possession Limits

Section 1.2.3 of the license renewal application describes the type, quantity, and form of licensed material as:

- SNM in solid form for possession and storage in the Hillside Bunker facility, and
- SNM in process or storage for the purpose of laboratory analysis and engineering studies.

10 CFR 70.22(a)(4) requires the application to contain the name, amount, and specifications (including the chemical and physical form, and where applicable, isotopic content) of the SNM.

In addition, the quantities and isotopic content of specific isotopes is needed to determine critical mass quantities; effective kilograms of SNM; strategic significance; and formula quantities as defined in 10 CFR 70.4.

Also, past license applications provided information on isotopes and isotopic quantities. Other licensees also provide such information.

Provide possession limits that describe the name, amount, and specifications (including the chemical and physical form, and where applicable, isotopic content) of the SNM to be possessed and used under this license. If such information cannot be provided, explain the basis.

This information is necessary to determine compliance with the requirements of 10 CFR 70.22(a)(4).

Chapter 2: Organization and Administration

2.1 Figure 2.1 of the license renewal application illustrates the management organization at the Vallecitos Nuclear Center (VNC). Related to this organization chart, identify who the Manager of VNC reports to, and how he/she is appointed. Describe the management organization (lines of communication and authority) between the Manager of VNC up through the President and Chief Executive Officer of GEH.

This information is necessary to determine compliance with the requirements of 10 CFR 70.22 (a)(6).

2.2 Related to Figure 2.1 of the license renewal application:

a. Explain the line of authority between the manager of the Regulatory Compliance Function and the Manager, VNC (illustrated as a dotted line).

b. Clarify whether members of the Criticality Safety Function; Radiation Safety Function, Environmental Function; Industrial, Chemical and Fire Safety Function; and Site Security Function (assuming these positions are held by different individuals) report to the manager of the Regulatory Compliance Function or to another manager.
c. Clarify whether the Operations, Maintenance, & Engineering Managers report to the Area manager or to another manager.

This information is necessary to determine compliance with the requirements of 10 CFR 70.22 (a)(6).

2.3. Sections 2.2.1.6, 2.2.1.7, and 2.2.1.8 of the license renewal application describe the responsibilities of the Environmental Protection Function, Industrial Health and Safety, and the Site Security Function. Provide the qualifications of the persons assigned these responsibilities.

This information is necessary to determine compliance with the requirements of 10 CFR 70.22 (a)(6).

Chapter 4: Radiation Protection

4.1 Section 4.1 of the license renewal application states that the content and implementation of the radiation protection program is reviewed annually pursuant to 10 CFR 20.1101. Describe in detail how the review is conducted, who prepares the review, who reviews it, and what becomes of the recommendations and goals.

10 CFR 20.1101(c) states that the licensee shall periodically (annually) review the radiation protection program content and implementation.

4.2 Section 4.2 of the license renewal application describes an as low as reasonably achievable (ALARA) Committee and general membership of the committee and issues reviewed. Describe the make-up of the committee, i.e., who chairs the committee, whether senior management is a part of the committee, how often the committee meets, and are the minutes of the meetings reviewed and maintained.

10 CFR 20.1101(c) states that the licensee shall periodically (annually) review the radiation protection program content and implementation.

4.3 Section 2.2.1.5 states one of the radiation safety function responsibilities is to review the radiation exposures of employees and visitors. Section 2.3 describes the VNC training program for staff. Describe what training is provided for visitors and contractors.

10 CFR 19.12(b) states the extent of instruction must be commensurate with potential radiological health protection problems present in the workplace.

4.4 Section 2.3 states that training for each individual at VNC is commensurate with assigned duties. Describe the specific tiers of training for VNC staff, i.e.,

administrative and monitored employees (to include technicians and engineers). State if there are refresher requirements, whether exams are required, if there are requalification requirements for certain workers, if there is any review of the training program and instructors, and what function is responsible for the training program.

10 CFR 19.12(b) states the extent of instruction must be commensurate with potential radiological health protection problems present in the workplace.

4.5 Section 4.12.1 states that if there are no medical restrictions precluding respirator use, the individual is provided respiratory protection training and fitting by a qualified instructor. Describe the training provided, how it is documented, and any record retention requirements.

10 CFR 20.1703(c) states that the licensee shall implement and maintain a respiratory protection program that includes recordkeeping.

4.6 Section 9.6 states that compliance with 10 CFR Part 20, Subpart D for radiation dose to individual members of the public is demonstrated by assuring that the off-site annual dose to the maximum exposed individual does not exceed 100 mRem. Provide documentation that demonstrates compliance with dose limits for members of the public.

10 CFR 20.1302(b)(1) states that a licensee shall show compliance with the annual dose limit in 10 CFR 20.1301 by demonstrating the measurement or calculation that the total effective dose equivalent (TEDE) to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit.

4.7 Section 4.5.2 states that an access control program has been established to ensure that routine access points to contaminated areas are properly posted and operative. Describe the means of controlling access to an area; how it is allowed or limited; explain the bases, i.e., training, clearance, etc., and who approves access.

10 CFR 20.1101(b) states that a licensee shall use, to the extent practical, procedures and engineering controls to achieve occupational doses and doses to the public that are ALARA.

4.8 Section 4.5.2 states that an access control program has been established to ensure that routine access points to contaminated areas are properly posted and operative. Describe any processes and/or procedures used for personnel to exit potentially contaminated areas, to include equipment used to detect contamination and any established contamination limits.

10 CFR 20.1501(a)(2)(ii) states that each licensee shall make or cause to be made, surveys of areas, including subsurface, that are reasonable under the circumstances to evaluate the concentrations or quantities of residual radioactivity.

4.9 Section 4.7 states that dosimeters are issued to individuals likely to receive a dose in excess of 10 percent of the applicable exposure limits in 10 CFR 20.1201. Explain how VNC makes a determination on those who might receive greater than 0.5 Rem per year. Explain the basis for determining the dosimetry issue for an employee.

10 CFR 20.1502(a)(1) states that each licensee shall monitor exposures to radiation and radioactive material at a level sufficient to demonstrate compliance with occupational dose limits. As a minimum, adults likely to receive, in 1 year, from sources external to the body, a dose in excess of 10 percent of the limits in 10 CFR 20.1201(a).

4.10 Section 4.7 states that dosimeters are issued to individuals likely to receive a dose in excess of 10 percent of the applicable exposure limits in 10 CFR 20.1201. State the type of dosimetry used, the types of radiation monitored, the sensitivity of the dosimeter, and whether any secondary dosimetry is used and under what conditions.

10 CFR 20.1502 states that each licensee shall monitor exposures to radiation and radioactive materials at levels sufficient to demonstrate compliance with the occupational dose limits of this part.

4.11 Section 4.8.2 describes a whole body counting process for selected employees. It states that baseline and termination counts are performed when feasible and that investigations are performed if a whole body count indicates an intake in excess of 10 percent of the applicable Annual Limit on Intake. Explain what determines feasibility for performing baseline/termination whole body counts. Clarify whether or not whole body counting is typical and, if not, describe how investigations are carried out to determine any VNC internal exposure separate from any potential previous employment exposure.

10 CFR 20.1204(a)(2) states that for purposes of assessing dose used to determine compliance with occupational dose limits, the licensee shall, when required under 10 CFR 20.1502, take suitable and timely measurements of quantities of radionuclides in the body.

4.12 Section 4.7 describes the VNC external exposure program and states that radiation exposure action levels are specified in section 4.10. Section 4.10 states that work activity restrictions are imposed when an individual's exposure exceeds 80 percent of the applicable 10 CFR 20.1201 occupational dose annual limit. Explain the VNC process for personnel who exceed 80 percent of the annual dose limit, to include any investigation for justification of the dose received, any documentation generated and retained, and any management reviews/approvals.

10 CFR 20.1201(a)(1)(i) states the licensee shall control the occupational dose to individual adults to an annual limit of the TEDE being equal to 5 rems.

4.13 Section 2.2.1.5 states that one of the radiation safety function responsibilities is to evaluate the radiation exposures of employees and visitors. Describe any exposure limits or restrictions for visitors.

10 CFR 20.1502(a)(1) states that a licensee shall monitor occupational exposure to radiation from licensed and unlicensed radiation sources under the control of the licensee and shall supply and require use of individual monitoring devices by adults likely to receive, in 1 year from sources external to the body, a dose in excess of 10 percent of the limits in 10 CFR 20.1201(a).

Chapter 5: Nuclear Criticality Safety

5.1. License application Section 2.2.1.4 states that criticality safety staff with less than 1 year experience may be supervised by the Manager, Regulatory Compliance, instead of necessarily a "technically trained criticality safety member," and that the Manager, Regulatory Compliance, does not need experience specifically in NCS. Please describe how GE will maintain or allow prompt access to fully qualified NCS staff to ensure that timely NCS expertise is readily available for routine and emergency consultation/response.

10 CFR 70.22(a)(8) requires each application for a license under 10 CFR Part 70 to contain proposed procedures to protect health and minimize danger to life or property, including procedures to avoid accidental criticality. An essential part of such procedures is ensuring that personnel performing them are appropriately qualified. NUREG-1520, Section 5.4.3.2, states that the applicant should describe organizational positions, functional responsibilities, experience, and qualifications of personnel responsible for NCS. NUREG-1520, Section 11.4.3.3, states that supervisors should have at least the qualifications of personnel being supervised. NUREG-1520, Section 5.4.3.1.5, states that the applicant's management of the NCS program should be considered acceptable if the applicant describes the NCS Program's objectives and how the applicant will meet those objectives, including providing technical support to emergency response personnel in responding to and recovering from abnormal conditions and emergencies up to and including a criticality accident (item 2.d of Section 5.4.3.1.5).

5.2. Clarify when a criticality safety analysis (CSA) is required. Section 5.1.4 of the license renewal application states that a CSA is required "for areas of facilities containing quantities of SNM greater than that required for a critical mass." Section 5.1.1 states that this is "typically 350 grams U235." Clarify the meaning of "critical mass" and how it will be determined prior to performing a CSA.

10 CFR 70.22(a)(8) requires each application for a license under 10 CFR Part 70 to contain proposed procedures to protect health and minimize danger to life or property, including procedures to avoid accidental criticality. An essential part of such procedures is ensuring nuclear processes are evaluated for NCS whenever a critical mass of fissionable material is present or available under normal and credible abnormal conditions. In NCS terminology, a critical mass is the quantity of material needed for criticality, and the minimum critical mass is the smallest

quantity of such material needed under specified conditions. Determining the critical mass is process-specific and normally requires a detailed evaluation. However, here it is being determined prior to having performed the evaluation CSA.

5.3. Describe the various types of audits and assessments to be performed pursuant to Section 5.1.5 of the license renewal application, and the frequency on when they will be performed.

NUREG-1520, Section 5.4.3.2, states that applicants should commit to performing walkthroughs of all operating SNM process areas which will be reviewed on some specified frequency. In addition, applicants should commit to conduct NCS audits at least once every 2 years. Section 5.1.5 does not describe the nature of the audits and assessment or specify a frequency on which they are to be performed.

5.4. Clarify that the criticality accident alarm system (CAAS) will meet the requirements of 10 CFR 70.24 (License Application, Section 5.1.6). In particular, clarify use of the term "quantities of SNM greater than that required for a critical mass," and whether the licensee commits to the requirements of ANSI/ANS-8.3-1997 (R2003), and whether exceptions to ANSI/ANS-8.3 stated in Regulatory Guide (RG) 3.71 will be adhered to.

NUREG-1520, Section 5.4.3.1, states that applicants should commit to ANSI/ANS-8.3-1997 as modified by RG-3.71. In taking exception to ANSI/ANS-8.3-1997, the NRC determined that some provisions are not consistent with 10 CFR 70.24. Clarification to the licensee's commitment to follow "appropriate requirements such as…ANSI/ANS-8.3 (2003)" is needed to ensure consistency with 10 CFR 70.24.

5.5. Describe the CAAS, in sufficient detail to demonstrate that it is appropriate for the facility in terms of the type of radiation detected, intervening shielding, and magnitude of the minimum accident of concern (License Application, Section 5.1.6).

NUREG-1520, Section 5.4.3.1, states that applicants should describe the CAAS, and should commit to have a CAAS that is appropriate for the facility for the type of radiation detected, intervening shielding, and the magnitude of the minimum accident of concern. Ensuring the installed CAAS is adequate given the presence of spent nuclear fuel and probable shielding is needed to ensure the requirements of 10 CFR 70.24 are met.

5.6. State whether the CAAS is designed to remain operational during credible events, including seismic events, fires, explosions, corrosive atmospheres, etc. (License Application, Section 5.1.6).

NUREG-1520, Section 5.4.3.1, states that the applicant should commit to having a CAAS that is designed to remain operational during credible events such as a seismic shock equivalent to the site-specific, design basis earthquake or

equivalent value specified by the Uniform Building Code, and to other events such as those listed above.

5.7. State whether the CAAS will be clearly audible in all areas required to be evacuated, or if there will be alternative notification methods provided. Commit to train personnel to recognize the CAAS signal and evacuate promptly to a safe area (License Application, Section 5.1.6).

NUREG-1520, Section 5.4.3.1, states that the applicant should commit to having a CAAS that is clearly audible in all areas that must be evacuated, or must provide alternate means of notifying personnel that evacuation is necessary. Section 5.4.3.2 states that applicants should commit to train all personnel to recognize the alarm signal and evacuate promptly to a safe area.

5.8. Provide the time frame for which the compensatory measures described in Section 5.1.6 may be employed while CAAS coverage is lost.

NUREG-1520, Section 5.4.3.1, states that applicants should commit to rendering operations safe, by shutdown and quarantine if necessary, wherever CAAS coverage has been lost and not restored within a specified number of hours.

5.9. Describe the emergency management provisions for responding to and recovering from a criticality accident, including whether you commit to ANSI/ANS-8.23-2007 (License Application, Section 5.1.6).

NUREG-1520, Section 5.4.3.1, states that applicants should commit to the requirements of ANSI/ANS-8.23-1997. (Note that Section 5.4.3.2 states that applicants who do not commit to the most recent endorsed version of a standard should provide justification; RG-3.71 currently endorses the 2007 version of ANSI/ANS-8.23.) ANSI/ANS-8.23-1997 is listed as a reference to Chapter 5 of the license renewal application, but there is not a specific commitment thereto.

5.10. Provide Reference 5-12, “GEH Criticality Safety Analysis (CSA), Safe Mass Limits for Uranium Systems,” for review. This reference is the basis for the safe mass limits in Table 5.1 of the license renewal application.

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. The values in Table 5.1 are stated as being sufficient to ensure subcriticality.

5.11. Provide the technical basis for the “equivalence factor” for calculating the ^{235}U equivalent fissile mass in Section 5.2.3 of the license renewal application.

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. The equivalence factor is stated as being sufficient to ensure subcriticality.

5.12. Clarify when individual fissile material units may be considered neutronically isolated. Section 5.2.4.5 of the license renewal application provides standard industry criteria for isolation distances with and without water moderation between units. This appears to be contradicted by Section 5.2.3, which states that areas may be considered neutronically isolated when they meet spacing requirements, which may be specified in CSAs greater or less than the isolation distances in Section 5.2.4.5.

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. This may be based on spacing (interaction) control, but interaction distances less than the standard industry criteria are not always sufficient to ensure neutron isolation.

5.13. Clarify the statement in Section 5.2.4.1 of the license renewal application that "structure and/or neutron absorbers that are not removable constitute a form of geometry control."

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. This may be based on control of parameters such as geometry and neutron absorbers. In NCS terminology, while geometry and neutron absorbers may both be controlled for a given process, they constitute different controlled parameters. If used together as a single control system, describe how double contingency will be met.

5.14. Clarify the intent of the statement in Section 5.2.4.3 of the license renewal application that "When moderation is used in conjunction with other control methods, the area is posted as a 'moderation control area.'" State whether there are any areas in which moderation control is relied on by itself, and whether that would be posted as a 'moderation control area.'

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. This may be based on moderation control either by itself or in conjunction with other controls.

5.15. Clarify the meaning of the phrase "with an established dimensional relationship to the fissionable material" in Section 5.2.4.4 of the license renewal application. Also, clarify whether the requirements listed for "fixed neutron absorbers sued as part of a geometry control" will be applied for fixed neutron absorbers that are not part of a geometry control, and how double contingency will be met when neutron absorbers are considered part of a geometry control.

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. This may be based on geometry control. Commitments with regard to geometry control must be clear, and NUREG-1520, Section 5.4.3.2, states that the applicant's use of a single control to maintain the value of two or more parameters constitutes only one component necessary to meet the double contingency principle.

5.16. State whether there is a minimum reflection condition assumed to account for incidental or transient reflectors in Section 5.2.4.7 of the license renewal application.

10 CFR 70.61(d) requires that all nuclear processes be rendered subcritical under normal and credible abnormal conditions. This may be based on reflection control, in which case the amount of reflector assumed must be adequate to bound any incidental or transient reflectors present.

5.17. Clarify that all analytical methods referred to in Section 5.2.5.2 of the license renewal application will be validated and used within their limitations and validated area of applicability. While experimental data, hand calculations, and deterministic and stochastic computer codes are mentioned, only computer codes in the last sentence of this section (i.e., those other than "GEMER" and "GEKENO") are explicitly stated as being validated.

NUREG-1520, Section 5.4.3.2, states that methods used to develop NCS limits should be validated to ensure they are used within their acceptable ranges.

5.18. Describe the sign convention on the calculational bias as used in Section 5.2.5.3 of the license renewal application. This section states that the bias will be applied over its negative range and assigned a value of zero over its positive range.

NUREG-1520, Section 5.4.3.2, states that the applicant should commit to ANSI/ANS-8.24-2007 as endorsed by RG-3.71. RG-3.71 takes exception to Section 6.1.2 of the standard in that positive bias should not be used because it may take credit for errors that may not be present in actual facility calculations. The definition of bias does not clearly state whether positive values represents overprediction or underprediction of benchmark k-effective (k_{eff}).

5.19. Provide a summary description of the criticality code validation report, including: (1) a summary of the validated area of applicability, and (2) the validation benchmark sets. Provide the validation report used to prepare the criticality analysis for the Hillside Storage Facility.

NUREG-1520, Section 5.4.3.2, states that the applicant should include a summary description of a documented, reviewed, and approved validation report for each methodology that will be used to perform an NCS analysis, which should include, among others, those elements listed above; the reviewer may examine the validation report to ensure the methodology is sufficiently rigorous and being applied in a manner consistent with its assumptions. Validation of calculational methods is an important part of ensuring an adequate margin of subcriticality for safety as required in 10 CFR 70.61(d).

5.20. Describe the facility management measures that will be used for instrumentation used to ensure that parameters are controlled within specified NCS limits.

NUREG-1520, Section 5.4.3.2, states that when the values of various parameters are measured, instrumentation subject to facility management measures is used.

5.21. In Section 5.1.5, commit to retaining records of NCS deficiencies and corrective actions taken.

NUREG-1520, Section 5.4.3.2, states that the applicant commits to use the NCS program to promptly detect NCS deficiencies and refer them to those responsible for the facility's corrective actions.

5.22. Clarify your intent in referencing several of the ANSI/ANS-8 Series standards in Section 5.3 of the license renewal application. These are listed as references but there is no specific commitment to several of them. In particular, commit to follow all the requirements ("shall" statements) of the following standards or justify not following them (note a partial commitment to ANSI/ANS-8.1, -8.3, and -8.19), including not following the most recent version endorsed in RG-3.71:

a. ANSI/ANS-8.1-1998 (R2007)
b. ANSI/ANS-8.3-1997 (R2003)
c. ANSI/ANS-8.7-1998 (R2007)
d. ANSI/ANS-8.10-1983 (R2005)
e. ANSI/ANS-8.17-2004 (R2009)
f. ANSI/ANS-8.19-2005
g. ANSI/ANS-8.20-1991 (R2005)
h. ANSI/ANS-8.21-1995 (R2001)
i. ANSI/ANS-8.22-1997 (R2006)
j. ANSI/ANS-8.23-2007
k. ANSI/ANS-8.24-2007
l. ANSI/ANS-8.26-2007

NUREG-1520, Section 5.4.3.2, states that if the applicant intends to conduct activities to which an NRC-endorsed standard applies, the applicant should commit to follow the requirements of the standard, subject to any exceptions taken by the NRC, and should justify use of other than the most current version of the standard endorsed by the NRC.

Chapter 8: Radiological Contingency and Emergency Plan

8.1 Chapter 8.0 of the license renewal application references an October 18, 2013, review (ADAMS ML13291A420, non-public) of the April 21, 1989, evaluation demonstrating that a Radiological Contingency and Emergency Plan is not required for the VNC. The amounts and locations of SNM stored at the facility have changed since the initial evaluation. The review focuses on criticality events and does not state why the analyses finding that a fire is not a credible scenario for requiring a contingency plan is still valid.

Provide justification that the 1989 evaluation demonstrating that fire or explosion are not credible scenarios for requiring an emergency plan is still valid, or provide an evaluation showing that, in the event of a fire or explosion in a location where SNM is stored, such as the residual SNM in evaporation sludge material and the residual SNM in radioactive wastes stored in secured locations, as identified in inspection report IR07000754/201500 (ADAMS ML1521A909), the maximum dose to a member of the public offsite due to the release of radioactive material would not exceed 1 rem effective dose equivalent or an intake of 2 milligrams of soluble uranium.

This information is required to verify compliance with 10 CFR 70.22(i)(1) and (i)(2).

Chapter 10: Decommissioning Financial Assurance

10.1 10 CFR 70.25(e)(1)(ii) requires licensees to identify and justify "the key assumptions contained in the [Decommissioning Cost Estimate] DCE." NUREG-1757, Volume 3, Section 4.1 and Appendix A, Section A.3 call for the submission of information sufficient to allow the NRC to determine if the cost estimates for decommissioning are reasonable and were developed in accordance with NRC regulations and guidance. Additional detail is needed to determine the reasonableness of GEH's assumption with respect to spent fuel as described in Assumption #18 from Section 5.0, Key Decommissioning and Cost Estimate Assumptions, of the decommissioning financial plan (DFP).

Assumption #18 from Section 5.0 of the DFP states:

> The US Department of Energy (DOE) has contractual responsibility to dispose of [all irradiated spent fuel and hardware in storage] and the cost of such disposal is separately covered under Standard Contracts entered into under the Nuclear Waste Policy Act. If, at the time of desired decommissioning continued storage is required, GEH, as necessary, will make appropriate arrangements to remove the fuel to an authorized recipient.

As part of its August 1, 2014, submission of supplemental information, GEH provided a letter from DOE dated January 30, 2013, which states:

> As noted in your letter, the disposal of the spent nuclear fuel and high-level radioactive waste stored at VNC is covered by the above Contract. The Nuclear Waste Policy Act, as amended (Act), constrains the Department's ability to take possession of commercial spent nuclear fuel and high-level radioactive waste until a facility constructed under the Act is available for the management of these materials. As no such facility exists, the Department is unable to take possession of these materials pursuant to the provisions of the Contract at this time.

In this letter, DOE acknowledges its responsibility to dispose of spent nuclear fuel and high-level radioactive waste. However, it is not clear whether DOE would take financial responsibility for continued storage of the waste if a facility constructed under the Nuclear Waste Policy Act was not available at the time of decommissioning.

Provide additional information identifying the entity that has financial responsibility for continued storage of spent fuel should a facility not be available at the time of decommissioning. Additionally, if GEH maintains financial responsibility for the extended waste storage costs, then provide an explanation of how the DCE accounts for these costs.

This information is needed to support the cost estimate associated with spent fuel disposal (10 CFR 70.25(e)(1)(ii); NUREG-1757, Volume 3, Rev. 1, Section 4.1 and Appendix A, Section A.3)

10.2 10 CFR 70.25(e)(1)(i)(C) requires that the DCE reflect the "volume of onsite subsurface material containing residual radioactivity that will require remediation." 10 CFR 20.1501(a) requires licensees to perform surveys of the licensed facility, including the subsurface, to evaluate: "(i) the magnitude and extent of radiation levels; and (ii) concentrations or quantities of residual radioactivity; and (iii) the potential radiological hazards of the radiation levels and residual radioactivity detected." RG 4.22 explains the requirement in 10 CFR 20.1501(a), stating that licensees should:

> periodically conduct surveys that are reasonable under the circumstances in accordance with 10 CFR 20.1501(a) to identify the horizontal and vertical extent of significant residual radioactivity throughout the site taking into consideration the temporal distribution of radioactive contaminants. . . . The survey design should consider areas likely to contain residual radioactivity, such as, but not limited to . . . [s]ubsurface media, especially around building footers, subsurface pipes and conduits, pipe tunnels linking building that process radioactive materials, and below-grade tank.

As to the "reasonable under the circumstances" standard, the preamble to the Decommissioning Planning Rule (DPR) (76 Fed. Reg. 35512, June 17, 2011), states that "the NRC recognizes that an area within the footprint of a building, during licensed operations, may not be a suitable area for subsurface residual radioactivity surveys if the process of sampling would have an adverse impact on facility operations. The decision to perform subsurface residual radioactivity sampling in a particular area should be balanced against the potential to jeopardize the safe operation of the facility."

Assumption #22 in Section 5 of the DFP states:

> With respect to subsurface material containing residual radioactivity, there are no known areas of confirmed soil or

> groundwater contamination associated with licensed activities covered by this DFP. Restoration of contaminated areas on facility grounds and site stabilization are assumed to not be required. Nonetheless, as a conservative measure, this DFP includes the removal and disposal of soil and concrete that is below the Butler building that is currently over the Hillside Material Storage Facility.

As part of its August 1, 2014, submission of supplemental information, GEH provided additional information regarding Assumption #22:

> Although there are no current radiological sampling results indicating subsurface contamination, as a conservative measure, three areas with potential subsurface material that may require future remediation are included in the DFP. These areas are beneath buildings currently used for licensed activities and are not accessible.

GEH also included estimates of contaminated subsurface material from each of the three areas for which disposal costs are included in the DFP. The description provided for each of the three areas states that "[s]oil samples will be taken to confirm the presence or absence of radioactive contamination," indicating that the basis provided for each of the three estimates does not include subsurface sampling.

Because the estimated volumes of subsurface materials in need of remediation are not based on actual sampling data, the NRC and its contractor staffs are unable to evaluate the reasonableness of the estimated remediation costs. Further, although the licensee states that these areas are beneath buildings currently used for licensed activities and are not accessible, it is not clear that there is "the potential to jeopardize the safe operation of the facility," the standard for deciding when to perform subsurface sampling as described in the preamble to the DPR.

A similar issue was raised in the NRC Inspection Report 070-00754/13-001, describing an inspection conducted on March 19-21, 2013, at VNC. The report concludes that: (1) the licensee may have insufficiently estimated the volume of soil requiring remediation in a previous version of the DFP because the estimate of future decommissioning costs was not based on actual sampling data, and (2) the licensee insufficiently demonstrated that it did not have to conduct subsurface soil sampling to comply with 10 CFR 20.1501(a) requirements prior to concluding that no subsurface contamination existed below the Radioactive Materials Laboratory. The report states that these issues will be evaluated during the NRC's review of the licensee's revised renewal license application and associated DFPs.

To ensure that adequate funding is available during decommissioning to cover remediation of subsurface material containing residual radioactivity, provide a justification why subsurface sampling may jeopardize the safe operation of the facility.

Additionally, to eliminate inconsistencies between the information provided in the DFP and the August 1, 2014, supplemental information, revise Assumption #22 to reflect that the DFP includes the remediation of subsurface material in three areas, rather than only one, at the VNC.

This information is needed to determine compliance with 10 CFR 70.25(e)(1)(i)(C); 10 CFR 20.1501(a); Regulatory Guide 4.22; and NUREG-1757, Volume 3, Appendix A, Section A.3.4.

Chapter 14: Seismic Evaluation

14.1 With regards to seismic safety, please provide the following information:

a. A description of the codes, standards, and design information used for the Radioactive Materials Laboratory (Buildings 102 and 102A); the Metallurgy, Chemistry and Ceramics Laboratory (Building 103); and (4) the Waste Evaporation Plant.

b. A description of the proposed procedures to place facility in a controlled condition after a seismic event. Include the description of the actions to contain a material release from Buildings 102 and 103.

c. Provide a description of the impacts (factor of safety) of assumption 8 in Structural Integrity Associates Calculation package No. 1201291.301. Specifically, describe the impacts of the use of ASCE 7-10 and 2010 California Building Code.

10 CFR Part 70.22 (a)(7-8) requires, in part, a description of the equipment and facilities, and proposed procedures that will be used by the applicant to protect health and minimize danger to life or property.