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SEP 23 2009



Docket Nos.: 52-025
52-026

ND-09-1540

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application
Response to Request for Additional Information Letter No. 039

Ladies and Gentlemen:

By letter dated March 28, 2008, Southern Nuclear Operating Company (SNC) submitted an application for combined licenses (COLs) for proposed Vogtle Electric Generating Plant (VEGP) Units 3 and 4 to the U.S. Nuclear Regulatory Commission (NRC) for two Westinghouse AP1000 reactor plants, in accordance with 10 CFR Part 52. During the NRC's detailed review of this application, the NRC identified a need for additional solid waste management system information required to complete their review of the COL application's Final Safety Analysis Report (FSAR) Section 11.4, "Solid Waste Management." By letter received August 24, 2009, the NRC provided SNC with Request for Additional Information (RAI) Letter No. 039 concerning this solid waste management information need. This RAI letter contains two RAI questions numbered 11.04-01 and 11.04-02. The enclosure to this letter provides the SNC response to these RAIs.

If you have any questions regarding this letter, please contact Mr. Wes Sparkman at (205) 992-5061.

D092
NRO

Mr. Charles R. Pierce states he is the AP1000 Licensing Manager of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

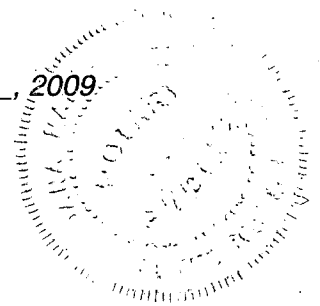
Charles R. Pierce

Charles R. Pierce

Sworn to and subscribed before me this 23rd day of September, 2009

Notary Public: Dana M. Williams

My commission expires: 12/29/2010



CRP/BJS/dmw

Enclosure: Response to NRC RAI Letter No. 039 on the VEGP Units 3 & 4 COL
Application Involving the Solid Waste Management System

cc: Southern Nuclear Operating Company

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Document Services RTYPE: AR01.1053
File AR.01.02.06

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Southern Nuclear Operating Company

ND-09-1540

Enclosure

Response to NRC RAI Letter No. 039

on the

VEGP Units 3 & 4 COL Application

Involving the

Solid Waste Management System

FSAR Section 11.4, Solid Waste Management System

eRAI Tracking No. 3463

NRC RAI Number 11.04-01:

In Standard COL 11.4-1, the applicant states that "no additional onsite radwaste storage is required beyond that described in the DCD." Please explain why this statement is included or remove it.

SNC Response:

The referenced statement is provided to address the portion of the COL information item in DCD Subsection 11.4.6 that states "In the event additional onsite storage facilities are a part of Combined License plans, this program will include a discussion of conformance to Generic Letter GL-81-038," and the statement in Regulatory Guide 1.206 (page C.1II. 1-137), "In the event that additional onsite storage facilities are a part of COL plans, include a discussion of conformance to GL-81-038. Supplemental guidance is provided in SECY-94-198." The statement is intended to confirm that additional onsite storage facilities are *not* a part of the COLA plans and is consistent with the discussion in DCD Subsection 11.4.2.1, which provides that "the AP1000 has sufficient radwaste storage capacity to accommodate the maximum generation rate" and that the "spent resin storage tanks . . . and one high integrity container . . . provide more than a year of spent resin storage at the expected rate [of generation]." Accordingly, the statement establishes that no discussion of additional onsite storage facilities is necessary. However, because plant-specific issues have been raised in the VEGP COLA proceeding concerning long-term storage arrangements for LLRW, a plant-specific contingency plan for expansion of on-site LLRW storage capacity is described in the response to RAI 11.4-2.

While the applicant does not currently have agreements for acceptance of Class B and C low-level waste at an offsite disposal facility, Congress enacted the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985 to ensure that disposal capacity would be available for all types of LLRW generated by Atomic Energy Act (AEA) licensees. Although no facility licensed for the disposal of all classes of LLRW is currently available to the applicant, plant-specific offsite long term storage options are in the process of being developed, as described below.

As indicated in NUREG-0800, Appendix 11.4-A, waste should not be placed in contingency storage if it can be disposed of at a licensed disposal site. Currently the Clive, Utah facility accepts Class A LLRW. Licensees may enter into agreements with licensed waste processors to take possession and/or title to material, process and transfer it to the Waste Control Specialists (WCS) Texas Site, or similar sites that might become available in the future where it would be stored until a disposal site is available. This option was demonstrated in June 2009 with utility waste storage at the WCS Texas Site.

The first unit is not scheduled to load fuel and begin operation for several years and will not be generating Class B and C waste until after initial operation. By that time, it is expected that a disposal facility will be available that would accept the Class B and C waste generated by this plant.

Shipping waste at the earliest practicable time minimizes the need for waste reprocessing caused by potential changes in a disposal facility's requirements, reduces occupational and non-occupational exposures from handling and maximizes the amount of onsite storage space available for use. The commercial option to store Class B and C waste at the WCS Texas Site is expected to be available if needed.

This response is PLANT-SPECIFIC for VEGP.

Associated VEGP COL Application Revisions:

COLA Part 2, FSAR Chapter 11, Subsection 11.4.2.4 will be revised to add a new Subsection with the LMA of VEGP COL 11.4-2 to read:

Add the following after DCD Subsection 11.4.2.4.2:

11.4.2.4.3 Alternatives for B and C Wastes

It is expected that Class B and C wastes will constitute approximately 5 percent by volume of the low level radioactive waste (LLRW) that will be generated by the plant with the balance being Class A waste. The volume of wet Class B and C waste is approximately 100 percent of the total Class B and C Waste. As of July 1, 2008, the LLRW disposal facility in Barnwell, South Carolina is no longer accepting Class B and C waste from sources in states that are outside of the Atlantic Compact. However, the disposal facility in Clive, Utah is still accepting Class A waste from out of state. Should there be no disposal facilities that will accept the Class B and C wastes after the plant begins operation, there are several options available for storage of such waste:

- As provided in referenced DCD Subsection 11.4.2., the Auxiliary Building is designed to have more than a year of spent resin storage capacity at the expected rate and the spent resin tanks may be mixed to limit the radioactivity concentrations thereby limiting the volume of Class B and C wet waste requiring storage.
- Vendor services are available to process Class A, B, and C waste and transfer for storage of that material until a disposal site is available. Currently, Waste Control Specialists (WCS) of Texas is available to store Class A, B, and C material pending the availability of a licensed disposal site.
- If additional storage capacity were eventually needed, the plant could construct or expand storage facilities onsite or gain access to a storage facility at another licensed nuclear plant.

eRAI Tracking No. 3464

NRC RAI Number 11.04-02:

In Section 11.4 of NUREG-1793, the staff states that if a need for onsite storage of low-level waste has been identified beyond that provided in AP1000 Standard Design because of unavailability of offsite storage, the applicant should submit the details of any proposed onsite storage facility to the NRC. Please provide any arrangements for offsite storage for low-level waste or submit plans for onsite storage.

SNC Response:

As described in the response to RAI 11.04-01, the need for onsite storage of low-level waste in addition to that described in the AP1000 DCD is not expected, however as part of contingency planning SNC is currently in plant-specific discussions with a vendor of LLRW treatment and storage services regarding the provision of such services for VEGP 3 and 4 LLRW which would include off-site storage of LLRW pending the availability of a licensed disposal facility for such material.

In addition, SNC is providing a plant-specific contingency plan for expansion of on-site LLRW storage capacity. The guidance in NUREG-0800, Appendix 11.4-A, "Design Guidance for Temporary Storage of Low-Level Radioactive Waste" is followed. SNC will operate the onsite storage facility consistent with the guidance in Regulatory Issue Summary (RIS) 2008-32, 'Interim Low Level Radioactive Waste Storage at Reactor Sites' and EPRI TR 1018644, 'Guidelines for Operating an Interim On Site Low Level Radioactive Waste Storage Facility-Revision 1,' Final Report, February 2009. The RIS consolidates relevant information and clarifies previous NRC regulatory positions on low-level radioactive waste storage. The NRC, as described in RIS 2008-32, finds the EPRI technical report guidelines to be consistent with NRC information contained in Generic Letter (GL) 81-38, "Storage of Low-Level Radioactive Wastes at Power Reactor Sites," GL 85-14, "Commercial Storage at Power Reactor Sites of Low-Level Radioactive Waste Not Generated by the Utility," Information Notice (IN) 89-13, "Alternate Waste Management Procedures in Case of Denial of Access to Low-Level Waste Disposal Sites," and SECY 94-198, "Review of Existing Guidance Concerning the Extended Storage of Low-Level Radioactive Waste" and other guidance such as NUREG-0800, which includes Appendix 11.4-A. The EPRI Guidelines Report was found to provide an 'acceptable method for recordkeeping, determining waste forms and waste containers and monitoring and inspecting the interim long-term storage of' Class A, B, and C LLRW.

The EPRI Guidelines Report includes a start-up evaluation of key design and program features of a storage facility that should be performed prior to storing low-level waste. The SNC key design considerations and program elements for an outside storage facility are based on the EPRI Guidelines Report and NRC guidance documents. By identifying the key elements of design, operation features, and the bases for those items, the FSAR revision includes sufficient detail for a potential onsite storage facility.

This response is PLANT-SPECIFIC for VEGP.

Associated VEGP COL Application Revisions:

COLA FSAR Subsection 11.4.6.3 Long Term On-Site Storage Facility will be revised from:

VEGP SUP 11.4-1 Storage space for six-month's volume of packaged waste is provided in the radwaste building. Radioactive waste generated by VEGP Units 3 and 4 will normally be shipped to a licensed disposal facility. However, should disposal facilities not be available, the planned VEGP Units 1 and 2 Low Level Radwaste Storage Facility will be available to provide storage for VEGP Units 3 and 4.

To read:

VEGP SUP 11.4-1 11.4.6.3 Long Term On-Site Storage Facility

Storage space for six-month's volume of packaged waste is provided in the radwaste building. Radioactive waste generated by VEGP Units 3 and 4 will normally be shipped to a licensed disposal or off-site storage facility. However, should disposal facilities or off-site storage facilities not be available, storage capacity will be expanded as described below to provide additional on-site storage for VEGP Units 3 and 4.

Additional on-site low-level radioactive waste (LLRW) storage capabilities are available if Class B and C waste cannot be disposed at a licensed disposal facility. An outside storage pad will be utilized to provide this capability. The VEGP Units 3 and 4 LLRW storage facility would be located outside the Protected Area (PA) in the Owner Controlled Area (OCA). The storage facility would be enclosed by an eight-foot high fence with locked gates and would be provided with area lighting. The storage of LLRW would be in high integrity containers (HICs) or other suitable containers that will not decay over time, which would be stored within shielded containers. The design of the storage facility will comply with the guidance of documents as identified in this section which is consistent with NUREG-0800, Appendix 11.4A. The design storage capacity is based on the expected generation in Table 11.4-1, industry experience that indicates approximately 100% of the Class B and C waste is expected to be in the form of wet waste, and volume minimization/reduction programs. The site waste management plan will include radioactive wet waste reduction initiatives for waste Class B and C.

The storage facility will be sited such that it could be sized to accommodate storage of Class B and C waste over the operating life of the plant and designed to accommodate future expansion as needed. Capacity would be added in phases based on the expected availability of off-site treatment and storage, and disposal facilities.

11.4.6.3.1 Outside Storage Pad Design Considerations

The following design considerations would be applied to the on-site LLRW storage facility: (References 202, 203, and 204):

- The location of the storage pad would meet the dose rate criteria of 40 CFR 190 and 10 CFR 20.1302 for both the site boundary and unrestricted area. The onsite storage will be located such that any additional dose contributes less than 1 mrem per year to the 40 CFR Part 190 limits. Onsite dose limits will be

controlled per 10 CFR 20, including the ALARA principle of 10 CFR 20.1101.

- The outside storage pad would be an engineered feature designed to minimize settling and would be constructed of reinforced concrete or engineered gravel.
- The storage pad location would avoid natural or engineered surface drainage and be located at an elevation with regard to the site's design bases flood level.
- The storage pad would have a fence or other suitable security measures consistent with its location on the site.
- The waste containers (typically high integrity containers) would be stored inside of a shielded container, typically consisting of reinforced concrete containers that provide radiation shielding and weather protection.
- The configuration of the storage shields would be arranged to be accessible from the perimeter road or from a center aisle using a mobile crane (if used).
- Personnel passages would be provided between rows of storage shields for access to the container for inspection.
- Adequate electrical power and lighting would be provided at the storage facility to allow power for tools, analytical equipment, sample pumps, radiation instruments, boroscope lights, etc.
- Fire protection, fire hydrants or fire extinguishers, for vehicle fires should be provided.

11.4.6.3.2 Outside Storage Pad Operating Considerations

The following operating considerations for on-site storage pad operations are based on NRC and Industry guidance (References 202, 203 and 204) and would be included in operating procedures:

- Identification of the arrangement of storage shields, waste handling, storage methods, safety analysis limitations, accident conditions, and off site dose calculations.
- The use of hold-down devices to secure the waste container during severe environmental events, such as strong wind would be provided for, unless the waste container and storage shields can be demonstrated to remain in place without restraints during such events.
- The waste container selected for use is compatible with the waste form stored to ensure waste container integrity.
- Shielding requirements would be determined before the waste container is loaded into a storage shield to eliminate the radiation exposure associated with

adding additional shielding.

- If additional shield walls around the perimeter of the storage pad are required, the shield walls would be easily installed and capable of being moved.
- Periodic inspection and testing requirements for outside storage pad operation would include the following:
 - Dose rate and contamination surveys in accordance with health physics procedures.
 - Sampling of storage shields for water and storage shields containing dewatered resin for explosive gas build-up.
 - Visual inspection of selected waste containers in storage to detect unexpected changes / container integrity. (Remote inspection methods and the use of high integrity containers will allow reduced scope for ALARA practices.)
 - Defoliation and general condition of the onsite storage pad.
- Total radioactive material inventory limits would be established to demonstrate compliance with the design limits for the storage area, dose limits for members of the public and safety features or measures provided by the storage module.
- The contents of records for inventory controls, monitoring and inspection and other relevant data are maintained and retrievable.
- Operational safety features for handling waste containers and storage shields would include the training required for personnel operating cranes, forklifts, tie downs and heavy equipment during any waste container/storage shield transfer activity.
- Criteria for the end of storage period that would include waste container inspection and additional reprocessing required prior to shipment offsite.

COLA FSAR Subsection 11.4.7 REFERENCES will be revised by adding the following references:

- 202. Technical Report 1018644 "Guidelines for Operating an Interim On Site Low Level Radioactive Waste Storage Facility," Revision 1, EPRI, Palo Alto, CA, February 2009.
- 203. Regulatory Issue Summary 2008-32 "Interim Low Level Radioactive Waste Storage at Reactor Sites," December 2008
- 204. Generic Letter (GL) 81-38, "Storage of Low-Level Radioactive Wastes at Power Reactor Sites," November 1981.