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SCE&G®
A SCANA COMPANY

May 27, 2010
NND-10-0191

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

ATTN: Document Control Desk

Subject: Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 Combined License Application (COLA) - Docket Numbers 52-027 and 52-028 Supplemental Response to NRC Request for Additional Information (RAI) Letter No.041 Related to Groundwater

References:
1. Letter from Manny Comar (NRC) to Alfred M. Paglia (SCE&G), Request for Additional Information Letter No. 041 Related to SRP Section 2.4.12 for the Virgil C. Summer Nuclear Station Units 2 and 3 Combined License Application, dated March 1, 2009

2. Letter from Ronald B. Clary (SCE&G) to Document Control Desk (NRC), Response to NRC Request for Additional Information (RAI) Letter No. 041 dated May 1, 2009

The enclosure to this letter provides the South Carolina Electric & Gas Company (SCE&G) supplemental response to RAI 02.04.12-6 that was included in Reference 2. The enclosure also identifies any associated changes that will be incorporated in a future revision of the VCSNS Units 2 and 3 COLA.

Should you have any questions, please contact Mr. Alfred M. Paglia by telephone at (803) 345-4191, or by email at apaglia@scana.com.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 27th day of May, 2010.

Sincerely,

Ronald B. Clary
Vice President
New Nuclear Deployment

AMM/RBC/jf

D083
NRO

Enclosure

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NRC RAI Letter No. 041 Dated March 1, 2009

SRP Section: 2.4.12 – Groundwater

Questions from Hydrologic Engineering Branch (RHEB)

NRC RAI Number: 02.04.12-6

10 CFR52.79(d)(2) requires that the FSAR demonstrate that the interface requirements established under 10CFR52.47 (site parameters) have been met and to show compliance with 10CFR 100.20(c), which requires consideration of the physical characteristics of the site. The staff requests that the applicant describe the impact of the post-construction / operational setting on water table elevations (site grading including infilling on east below cooling towers, removal of saprolite/shallow bedrock zone, hydraulic properties and use of common fill and structural fill, changes in surface recharge) and subsurface pathways. This would include descriptions of changes in site grading, land cover, recharge rates, and fill material properties.

VCSNS RESPONSE:

The original response to this RAI was provided to the NRC by SCE&G Letter NND-09-0109, dated May 1, 2009 (ML091270890). During an April 7, 2010 telephone conference, the NRC requested additional discussion regarding V.C. Summer's post-construction plans to control surface water effects on groundwater.

As stated in SCE&G Letter NND-09-0109, the grading of the site and construction of Units 2 and 3 will replace the existing forest cover with buildings, parking lots, grass, gravel, etc. Overall, the post-construction land surface is less pervious and could generally result in more storm water runoff and less recharge to the aquifer. This reduced recharge could result in lower groundwater hydraulic gradients, but routing storm water runoff to the storm water basins constructed as shown in VCSNS FSAR Figure 2.5.4-245 may increase recharge locally. For reviewing purposes, VCSNS FSAR Figure 2.5.4-245 has been provided as an attachment to this response.

Units 2 & 3 are designed with a storm water collection system that collects water runoff from structures and yard areas and routes it through a closed piping system, constructed of reinforced concrete and high density polyethylene, to storm water basins located onsite. Water inlets to the closed piping system are located in parking lots, grass covered medians, yard areas, and around both power block facilities, with one or more located between Units 2 & 3 at designed low points in the final plant area grading. Buildings are constructed with a system of gutters and spouts to collect and convey water runoff from roofs to the closed piping system. The closed piping system carries the water around the units (generally to the east or west), and then to one of the storm water basins located north or south of Units 2 & 3 (see VCSNS FSAR Figure 2.5.4-245). The storm water basins are located at a lower elevation than the power block areas to

allow gravity flow to the basins. In order to prevent water backing up from the storm basins into the plant area, the maximum surface water elevation in the basins is lower than the final plant grade elevation (400').

Based on observation well data, the maximum expected groundwater level in the immediate plant area is 380' (VCSNS FSAR Subsection 2.4.12.5). VCSNS Units 2 and 3 are located on a groundwater high, with groundwater flowing radially away from the facility. Due to the small spatial extent and symmetric nature of fill placement around the power block area, the fill is not expected to significantly impact the existing groundwater pathways. VCSNS FSAR Figures 2.5.4-220 through 2.5.4-223 provide cross-sections of the proposed fill material and placement around and beneath Units 2 and 3. To prevent storm water on the ground from reaching buildings, grading around buildings is designed to direct the flow of water away from the buildings. The ridge topography of the site will cause any water that may accumulate under plant structures to drain away from the plant area.

With the combination of ground cover materials, storm water collection system, and the site ridge topography, any increase in groundwater level due to surface water infiltration from a heavy precipitation event is expected to be temporary, localized (i.e., around storm water basins), and remain well below the DCD maximum groundwater design elevation for hydrostatic loading of 398'.

This response is PLANT SPECIFIC.

ASSOCIATED VCSNS COLA REVISIONS:

In a future revision to the VCSNS COLA, the following paragraphs will be added to the end of FSAR Subsection 2.4.12.5 to provide additional design details for the storm water collection system and the impact to groundwater levels on site.

<u>The grading of the site and construction of Units 2 and 3 will replace the existing forest cover with buildings, parking lots, grass, gravel, etc. Overall, the post-construction land surface is less pervious and could generally result in more storm water runoff and less recharge to the aquifer. This reduced recharge could result in lower groundwater hydraulic gradients, but routing storm water runoff to the storm water basins constructed as shown in Figure 2.5.4-245 may increase recharge locally.</u>

<u>Units 2 & 3 are designed with a storm water collection system that collects water runoff from structures and yard areas and routes it through a closed piping system, constructed of reinforced concrete and high density polyethylene, to storm water basins located onsite. Water inlets to the closed piping system are located in parking lots, grass covered medians, yard areas, and around both power block facilities, with one or more located between Units 2 & 3 at designed low points in the final plant area grading. Buildings are constructed with a system of gutters and spouts to collect and convey</u>

water runoff from roofs to the closed piping system. The closed piping system carries the water around the units (generally to the east or west), and then to one of the storm water basins located north or south of Units 2 & 3 (Figure 2.5.4-245). The storm water basins are located at a lower elevation than the power block areas to allow gravity flow to the basins. In order to prevent water backing up from the storm basins into the plant area, the maximum surface water elevation in the basins is lower than the final plant grade elevation (400').

Based on observation well data, the maximum expected groundwater level in the immediate plant area is 380'. VCSNS Units 2 and 3 are located on a groundwater high, with groundwater flowing radially away from the facility. Due to the small spatial extent and symmetric nature of fill placement around the power block area, the fill is not expected to significantly impact the existing groundwater pathways. FSAR Figures 2.5.4-220 through 2.5.4-223 provide cross-sections of the proposed fill material and placement around and beneath Units 2 and 3. To prevent storm water on the ground from reaching buildings, grading around buildings is designed to direct the flow of water away from the buildings. The ridge topography of the site will cause any water that may accumulate under plant structures to drain away from the plant area.

With the combination of ground cover materials and the storm water collection system, any increase in groundwater level due to surface water infiltration from a heavy precipitation event is expected to be temporary, localized (i.e., around storm water basins), and remain well below the DCD maximum groundwater design elevation for hydrostatic loading of 398'.

ASSOCIATED ATTACHMENTS:

VCSNS FSAR Figure 2.5.4-245 – Site Grade Plan, Revision 2

Attachment

VCSNS FSAR Figure 2.5.4-245

Site Grade Plan

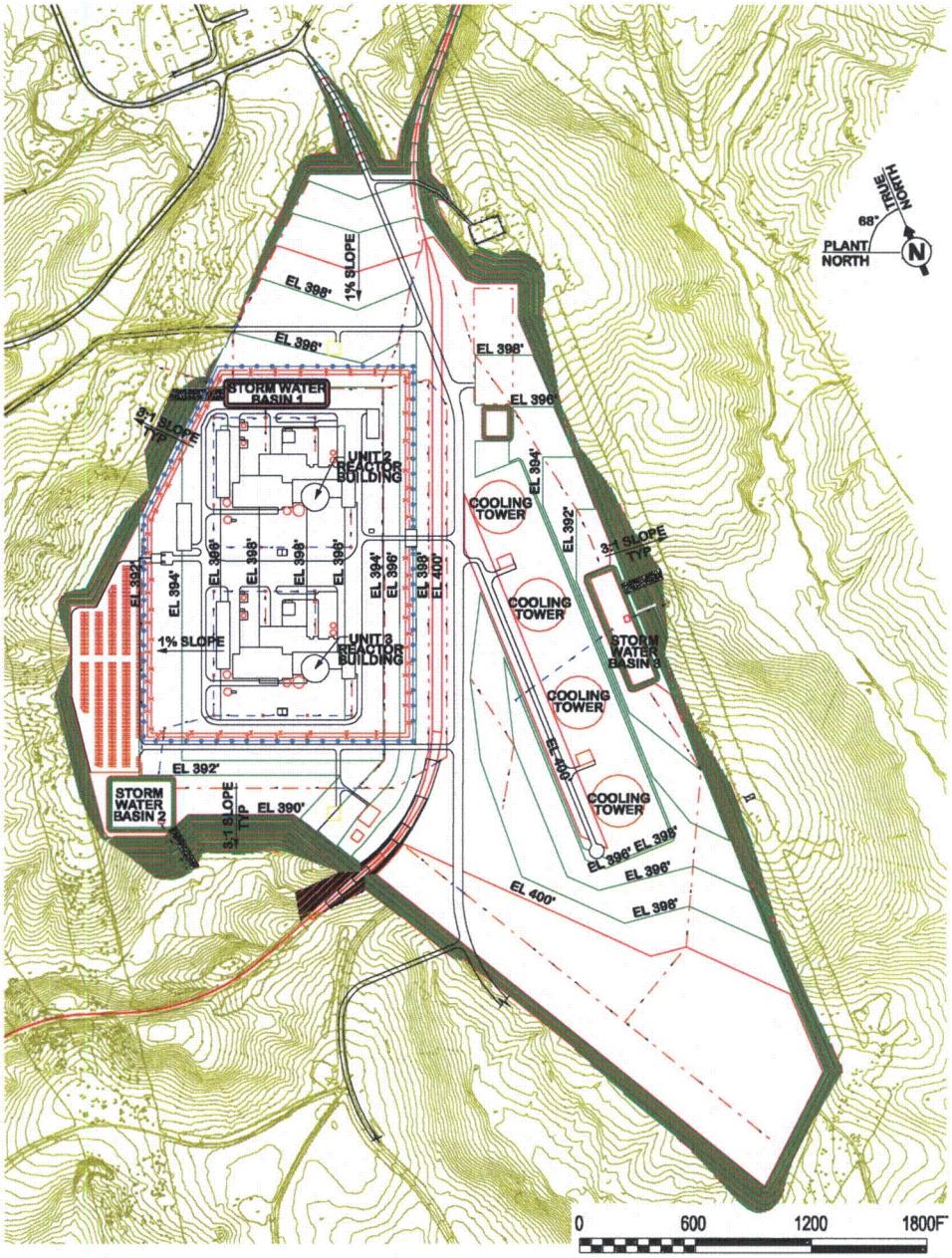

Figure 2.5.4-245. Site Grade Plan