



August 3, 2011

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
30-DAY SPECIAL REPORT (RT 2800)
GROUNDWATER PROTECTION INITIATIVE (GPI) – VOLUNTARY
SPECIAL REPORT FOR ON-SITE LIQUID EFFLUENT LINE LEAK

This voluntary special report is submitted in accordance with NEI 07-07, "Industry Ground Water Protection Initiative – Final Guidance Document."

On July 7, 2011, during a routine quarterly inspection, plant personnel identified a leak in the liquid effluent discharge line from VCSNS Unit 1 to the Fairfield Pumped Storage Facility. Attachment I describes the event and provides the reporting information specified in NEI 07-07.

Should you have any questions, please call Bruce Thompson at (803) 931-5042.

Very truly yours,

Thomas D. Gatlin

JMW/TDG/gr
Attachment

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**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12**

ATTACHMENT I

**30-DAY REPORT PER NEI 07-07,
INDUSTRY GROUND WATER PROTECTION INITIATIVE –
FINAL GUIDANCE DOCUMENT**

DESCRIPTION OF EVENT

On July 7, 2011, during a routine quarterly inspection, plant personnel identified a leak from one of four encapsulation chambers that house the liquid effluent discharge line from VCSNS to the Fairfield Pump Storage Facility. The effluent line is a three-inch pipe enclosed inside a six-inch guard pipe with leak detection sensors that give indication of system health. Effluents are discharged via this system after meeting NRC limits for (permitted) release and after passing through two liquid radiation monitors. Discharge is automatically terminated, if abnormal radiation levels are detected. Upon discharge, waste water is diluted by the Fairfield Pump Storage generation process.

The leaking encapsulation chamber resulted from a leak in the effluent line that was caught by the guard pipe and funneled to the encapsulation chamber. The chamber eventually filled and overflowed onto the concrete pad over which the chambers are mounted. The leakage pooled on the pad and spilled over the edge onto the hillside on the back side of the dam.

- i. This voluntary special report is submitted in accordance with NEI 07-07, "Industry Ground Water Protection Initiative – Final Guidance Document."
- ii. Liquid samples from the immediate area contained a level of tritium in excess of the NEI 07-07 voluntary reporting threshold of 20,000 picocuries/liter. A liquid sample was collected on July 7, 2011, on the pad below the encapsulation chamber and identified a tritium level of 23,000 picocuries/liter. The leak was conservatively estimated to be 820 gallons. Soil samples collected at the contamination site contained the radionuclides and average activities listed below.

Radionuclide	Positive Indications Total Samples	Mean Activity (pCi/kg)	Activity Range (pCi/kg)
Mn-54	12 of 46	8.88E+01	3.75E+01 – 2.10E+02
Co-58	9 of 46	3.30E+01	9.60E+00 – 7.57E+01
Co-60	32 of 46	4.24E+02	1.76E+01 – 2.52E+03
Nb-95	2 of 46	4.86E+01	4.66E+01 – 5.05E+01
Zr-95	1 of 46	5.35E+01	5.35E+01
Ag-110m	4 of 46	4.48E+01	1.65E+01 – 8.25E+01
Sb-125	12 of 46	1.72E+02	2.30E+01 – 4.99E+02
Te-125m	4 of 46	3.68E+03	2.04E+03 – 5.73E+03
Cs-134	6 of 46	7.32E+01	4.46E+01 – 9.05E+01
Cs-137	39 of 46	8.79E+01	7.50E+00 – 2.83E+02

- iii. Immediate actions taken by plant personnel include:
- Terminated all releases from the leaking effluence discharge pathway
 - Surveyed affected areas and obtained liquid samples
 - Identified and isolated the source of the leak
 - Notified the South Carolina Department of Health and Environmental Control (SCDHEC) and the Nuclear Regulatory Commission (NRC)
- iv. It has been determined that there was no adverse affect on the health and safety of the public as a result of this on-site leak. The projected whole-body dose (without area remediation) of an individual continuously present in the area of highest contamination is 3 millirem per year.
- v. The corrective actions taken as part of the VCSNS remediation plan for this event include the removal and disposal (as radioactive waste) of approximately 450 cubic feet of soil with the highest activity. The soil was excavated to a depth of sixteen inches in the affected area and samples taken indicate no activity above the NRC Screening Values for radionuclides identified in NUREG 1757. The area was backfilled with fresh soil, compacted and seeded.