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March 26, 2015

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

Dear Sir/Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION UNIT 1  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12  
ANNUAL OPERATING REPORT

Enclosed is the 2014 Annual Operating Report for the South Carolina Electric & Gas Company Virgil C. Summer Nuclear Station Unit No. 1. This report is being submitted in accordance with Technical Specification 6.9.1.4.

If there are any questions, please call at your convenience.

Very truly yours,

Thomas D. Gatlin

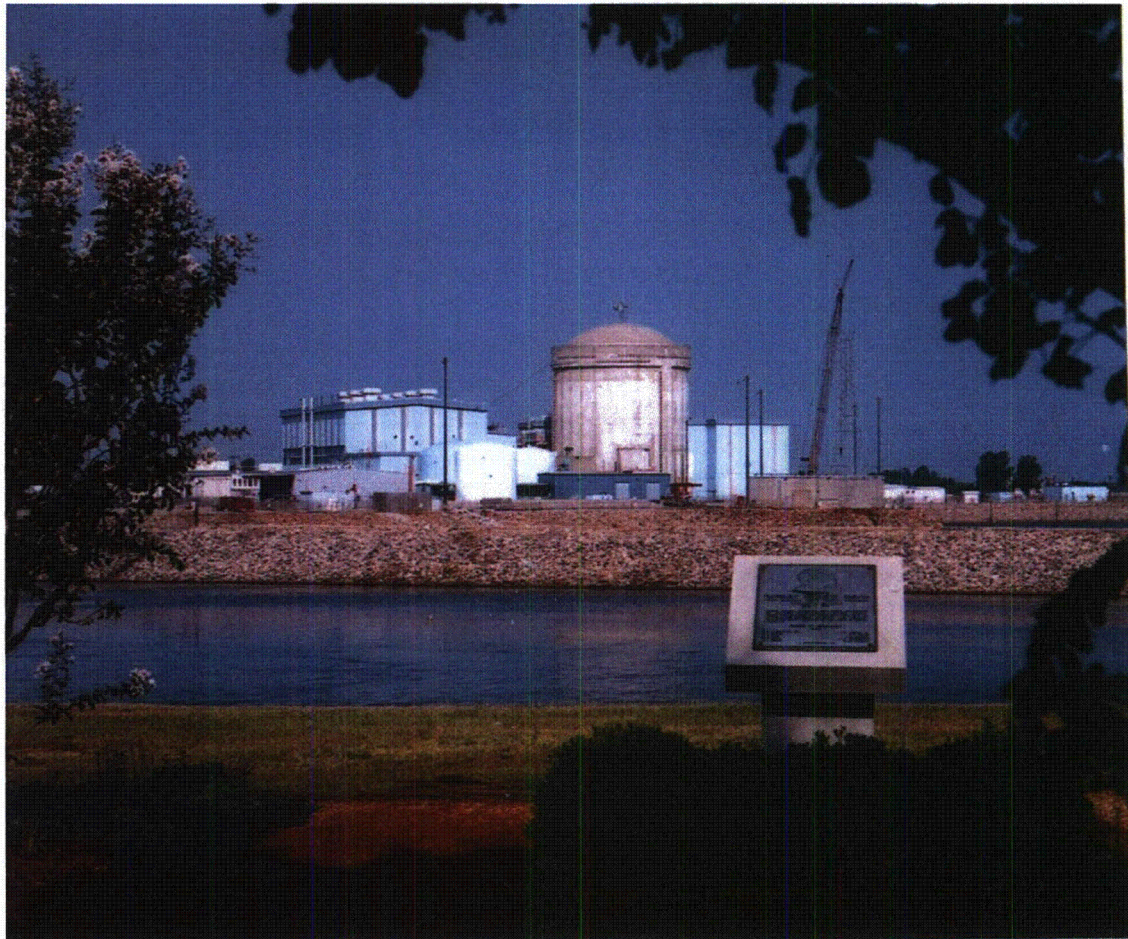
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# VIRGIL C. SUMMER NUCLEAR STATION UNIT 1



## 2014 ANNUAL OPERATING REPORT

PREFACE

The 2014 Annual Operating Report for the Virgil C. Summer Nuclear Station Unit 1 is hereby submitted in accordance with Technical Specification 6.9.1.4 under Docket Number 50/395 and Facility Operating License NPF-12.

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## **1.0 INTRODUCTION**

The Virgil C. Summer Nuclear Station (VCSNS) utilizes a pressurized water reactor rated at 2900 MWT. The maximum dependable capacity is 966 MWe.

The station is located approximately 26 miles northwest of Columbia, South Carolina.

## **2.0 OPERATIONAL DATA**

For the reporting period of January 1 through December 31, 2014, the station operated at a capacity factor of 81.7% (using maximum dependable capacity) and a unit availability of 80.8%. The reactor was critical for a total of 8519 hours, the generator remained on line 7234.3 hours and the total gross electrical energy generated for 2014 was 7,188,860 MWH.

## **3.0 OPERATING SUMMARY**

The Virgil C. Summer Nuclear Station (VCSNS) Unit No.1 operated at 100% power from January 1<sup>st</sup> through January 17<sup>th</sup>. On January 17<sup>th</sup> power was reduced to 90% to support main turbine control valve testing. Power was restored to 100% on January 18<sup>th</sup>.

VCSNS operated at 100% power from January 18<sup>th</sup> to March 31<sup>st</sup>. On March 31<sup>st</sup> power was reduced to approximately 85% to support main steam safety valve testing. The main generator breaker was opened on April 5<sup>th</sup> to begin Refueling Outage Twenty-One (RF-21). The outage duration was originally planned through May 30<sup>th</sup>, however reactor vessel head repair resulted in a planned 1.5 day extension. The unit remained shut down for the refueling outage until May 30<sup>th</sup> when the reactor was returned to criticality and synchronized to the grid on May 31<sup>st</sup>. Reactor power was restored to 100% on June 3<sup>rd</sup>.

VCSNS operated at 100% power from June 3<sup>rd</sup> to July 13<sup>th</sup>. On July 13<sup>th</sup> the plant was shut down to repair the Reactor Vessel Head Vent Valve. The repairs were completed and the main generator breaker was closed on July 21<sup>st</sup>. During plant startup and escalation in power, a Steam Generator Lo-Lo Level Reactor Scram occurred at 47% reactor power due to the failure of the Condensate Polisher Bypass Valve. Repairs were made and the reactor was taken critical on July 23<sup>rd</sup> and the main generator breaker was closed on July 27<sup>th</sup>. Reactor power was restored to 100% on July 29<sup>th</sup>.

VCSNS operated at 100% power from July 29<sup>th</sup> to October 10<sup>th</sup>. On October 10<sup>th</sup> power was reduced to approximately 90% to support main turbine control valve testing. Power was restored to 100% on October 11<sup>th</sup>.

VCSNS operated at 100% power from October 11<sup>th</sup> to November 23<sup>rd</sup>. On November 23<sup>rd</sup> power was reduced to approximately 99.6% due to the extraction steam to the deaerator relief valve that lifted unexpectedly. The valve was gagged and reactor power was restored to 100% on November 24<sup>th</sup>.

VCSNS operated at 100% power from November 24<sup>th</sup> to December 27<sup>th</sup>. On December 27<sup>th</sup> power was reduced to approximately 95.6% due to the failure of the digital level controller for the #2 high pressure feedwater heater level control valve. The valve was repaired and reactor power was restored to 100% on December 28<sup>th</sup>. The plant operated at 100% power for the remainder of 2014.

### **Refueling Outage 21 Summary**

The main generator breaker was opened at 0001 hours on April 5<sup>th</sup> for Refueling Outage 21. The outage duration was originally planned through May 30<sup>th</sup>, however reactor vessel head repair resulted in a 1.5 day outage extension.

Major work included:

- NFPA 805 115 kV 1DA/1DB/1 DX cable route
- NFPA 805 Disconnect Switch
- NFPA 805 Circuit Protection
- NFPA 805 Emergency Communication Upgrade
- Reactor Building Safety Upgrades
- Power Range Meter Replacement
- Moduflash
- Hazard Mitigation for Independent Spent Fuel Storage Installation (Hydrogen Tie-In)
- Generator Exciter Rectifier
- Reactor Vessel Head Penetration repair

Refueling Outage 21 duration was 56.5 days. Outage business plan duration was 55 days. Personnel exposure in 2014 due to the outage was approximately 132.6 Rem, based on electronic dosimeters.

### **Power Reduction >20% Exceeding 4 Hours**

On July 13<sup>th</sup> the plant was shut down to repair the Reactor Vessel Head Vent Valve. The repairs were completed and the main generator breaker was closed on July 21<sup>st</sup>. During plant startup and escalation in power, a Steam Generator Lo-Lo Level Reactor Scram occurred at 47% reactor power due to the failure of the Condensate Polisher Bypass Valve. Repairs were made

and the reactor was taken critical on July 23<sup>rd</sup> and the main generator breaker was closed on July 27<sup>th</sup>. Reactor power was restored to 100% on July 29<sup>th</sup>.

This outage did not result in any single release of radioactivity or single radiation exposure that accounted for more than 10% of the allowable annual values. The total outage duration was 306.4 hours.

#### **4.0 FAILED FUEL**

VCSNS did not have any indications of failed fuel in 2014.