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SCE&G®
A SCANA COMPANY

March 30, 2010

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

Dear Sir/Madam:

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

Enclosed is the 2009 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 Specifications 6.9.1.4 and Regulatory Guide 1.16.

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

Very truly yours,

Thomas D. Gatlin

SBR/TDG/cm
Attachment

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PRSF (RC-10-0039)

IE25
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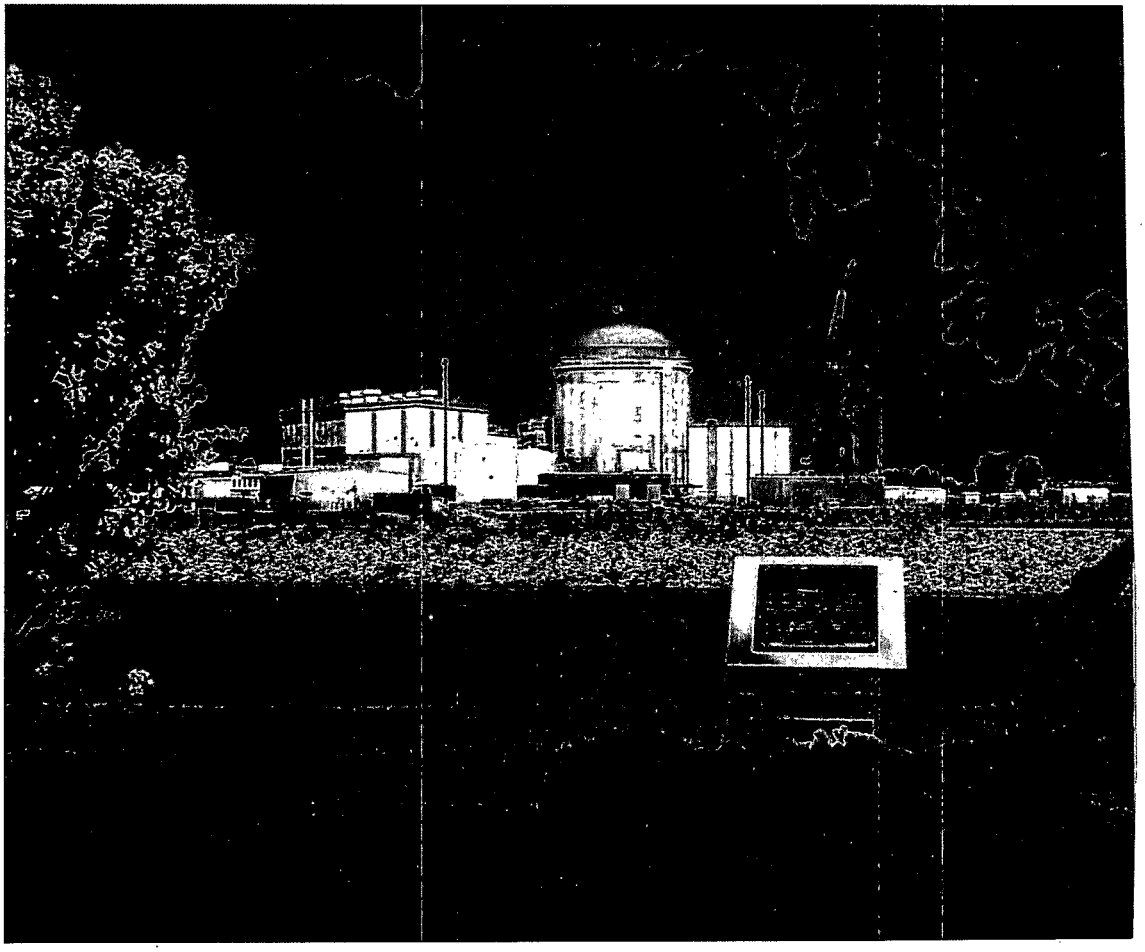
# VIRGIL C. SUMMER NUCLEAR STATION



# 2009 ANNUAL OPERATING REPORT

# PREFACE

The 2009 Annual Operating Report for the Virgil C. Summer Nuclear Station is hereby submitted in accordance with Technical Specifications 6.9.1.4 and Regulatory Guide 1.16 under Docket Number 50/395 and Facility Operating License NPF-12.

# TABLE OF CONTENTS

# ANNUAL OPERATING REPORT

## 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, 2009, the station operated at a capacity factor of 81.2% (using maximum dependable capacity) and a unit availability of 82.6%. The reactor was critical for a total of 7451.6 hours, the generator remained on line 7239.6 hours and the total gross electrical energy generated for 2009 was 7,148,589 MWH.

## 3.0 OPERATING SUMMARY

The Virgil C. Summer Nuclear Station (VCSNS) Unit No.1 operated at 100% power from January 1st through January 9th. On January 9th, power was reduced to 93% for turbine valve testing. Reactor power was restored to 100% on January 9th.

VCSNS operated at 100% power from January 9th to May 15th. On May 15th power was reduced to approximately 89% to perform turbine valve testing. Reactor power was restored to 100% on May 16th.

VCSNS operated at 100% power from May 16th to October 2nd. On October 2nd, the plant automatically shutdown due to a Stator Ground relay actuation. One phase of the main generator breaker was found damaged. Following the repair of the main generator breaker, the plant entered Mode 1 on October 13th. Reactor power was maintained at 55% in order to maintain Recycle Holdup Tank inventory. The plant was taken offline for Refueling Outage Eighteen (RF 18) on October 17th. The plant remained shutdown for the refueling outage until December 9th at 1304 hours when the reactor was returned to criticality and synchronized to the grid at

1851 hours on December 10th. Reactor power was increased to 94.7% on December 13th at 2200 hours, then reduced to 80% on December 14th at 0600 hours due to the main turbine control valve #4 not functioning properly. The reactor was manually tripped on December 16th at 1415 hours due to the failure of the steam dump system, during the power reduction to take the main turbine offline to repair the main turbine control valve #4. The reactor was returned to criticality on December 17th and synchronized to the grid on December 17th at 2002 hours. Reactor power was restored to 100% on December 18th. The plant operated at 100% power for the remainder of 2009.

**Refueling Outage 18 Summary**

The main generator breaker was opened at 0018 hours on October 17th for Refueling Outage 18.

Major work included:

- Diesel Generator "B" governor replacement
- Replacement of the main transformer
- Modified the reactor vessel to redirect the core bypass flow from a down flow to an up flow configuration
- Performed internal inspections of the primary and secondary sides of the Steam Generators
- Replaced and upgraded feedwater control valve positioners
- Replaced and upgraded the Digital Rod Position Indication Control Room display
- Installed additional primary system piping vents in accordance with GL-08-01
- Refurbished the internals of Moisture Separator Reheaters

Refueling Outage 18 duration was 54.8 days. Outage planned duration was 45 days. Personnel exposure in 2009 due to the outage was approximately 59.4 Rem, based on electronic dosimeters.

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

On October 2nd, the plant automatically shutdown due to a Stator Ground relay actuation. One phase of the main generator breaker was found damaged. Following the repair of the main generator breaker, the plant entered Mode 1 on October 13th. Reactor power was maintained at 55% in order to maintain Recycle Holdup Tank inventory. The unit was taken off line for RF 18 on October 17th at 0018 hours. 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 duration of the down power was approximately 263.9 hours.

On December 16th, the reactor was manually tripped due to a failure of the steam dump system during the power reduction to take the main turbine off line to repair main turbine control valve #4. The reactor returned to criticality on December 17th at 1555 hours and the main generator was synchronized to the grid on December 17th at 2002 hours. Reactor power was restored to 100% on December 18th at 2050 hours. 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 duration of the down power was approximately 29.8 hours.

## 4.0 EXPOSURES

Attachment I lists the number of station, utility, and other personnel (including contract personnel) receiving exposures greater than 100 mrem/year and their associated man-rem exposure according to work and job function. The exposures reported are estimated doses based on electronic dosimeters.

## 5.0 FAILED FUEL

VCSNS did not have any indications of failed fuel in 2009.

# ATTACHMENT I

# TO

# 2009 ANNUAL REPORT

South Carolina Electric & Gas Company V. C. Summer Nuclear Station

Personnel and Man-Rem by Work and Duty Function
Regulatory Guide 1.16 Annual Report for 2009

| | Number of Personnel Over 100 mRem | | | Total Man-Rem | | |
|---|---|---|---|---|---|---|
| Work and Job Function | Station Workers | Utility Workers | Contract Workers | Station Workers | Utility Workers | Contract Workers |
| **Inservice Maintenance** | | | | | | |
| Engineering Personnel | 0 | 0 | 0 | 0.010 | 0.000 | 0.134 |
| Health Physics Personnel | 1 | 0 | 10 | 0.239 | 0.000 | 2.296 |
| Maintenance Personnel | 1 | 0 | 36 | 0.358 | 0.000 | 9.363 |
| Operations Personnel | 1 | 0 | 2 | 0.400 | 0.000 | 0.476 |
| Supervisory Personnel | 0 | 0 | 0 | 0.001 | 0.000 | 0.071 |
| | | | | | | |
| **Reactor Operations & Surveillance** | | | | | | |
| Engineering Personnel | 0 | 0 | 0 | 0.006 | 0.000 | 0.000 |
| Health Physics Personnel | 1 | 0 | 1 | 1.091 | 0.000 | 1.370 |
| Maintenance Personnel | 3 | 0 | 1 | 2.072 | 0.000 | 0.835 |
| Operations Personnel | 0 | 0 | 0 | 0.785 | 0.000 | 0.023 |
| Supervisory Personnel | 0 | 0 | 0 | 0.048 | 0.000 | 0.000 |
| | | | | | | |
| **Refueling** | | | | | | |
| Engineering Personnel | 0 | 0 | 2 | 0.025 | 0.000 | 0.413 |
| Health Physics Personnel | 0 | 0 | 2 | 0.223 | 0.000 | 0.335 |
| Maintenance Personnel | 0 | 0 | 29 | 0.470 | 0.000 | 8.421 |
| Operations Personnel | 0 | 0 | 0 | 0.119 | 0.000 | 0.006 |
| Supervisory Personnel | 0 | 0 | 0 | 0.021 | 0.000 | 0.000 |
| | | | | | | |
| **Routine Maintenance** | | | | | | |
| Engineering Personnel | 0 | 0 | 0 | 0.118 | 0.000 | 0.142 |
| Health Physics Personnel | 0 | 0 | 0 | 0.263 | 0.000 | 0.140 |
| Maintenance Personnel | 9 | 0 | 53 | 4.410 | 0.000 | 16.579 |
| Operations Personnel | 0 | 0 | 0 | 0.418 | 0.000 | 0.082 |
| Supervisory Personnel | 0 | 0 | 0 | 0.027 | 0.000 | 0.002 |
| | | | | | | |
| **Special Maintenance** | | | | | | |
| Engineering Personnel | 0 | 0 | 1 | 0.000 | 0.000 | 0.253 |
| Health Physics Personnel | 1 | 0 | 2 | 0.293 | 0.000 | 0.962 |
| Maintenance Personnel | 7 | 0 | 16 | 2.253 | 0.000 | 6.622 |
| Operations Personnel | 0 | 0 | 1 | 0.365 | 0.000 | 0.156 |
| Supervisory Personnel | 0 | 0 | 0 | 0.000 | 0.000 | 0.000 |
| | | | | | | |
| **Waste Processing** | | | | | | |
| Engineering Personnel | 0 | 0 | 0 | 0.004 | 0.000 | 0.000 |
| Health Physics Personnel | 0 | 0 | 0 | 0.311 | 0.000 | 0.022 |
| Maintenance Personnel | 0 | 0 | 0 | 0.032 | 0.000 | 0.007 |
| Operations Personnel | 0 | 0 | 0 | 0.004 | 0.000 | 0.000 |
| Supervisory Personnel | 0 | 0 | 0 | 0.020 | 0.000 | 0.000 |
| | | | | | | |
| **Total** | | | | | | |
| Engineering Personnel | 0 | 0 | 3 | 0.163 | 0.000 | 0.942 |
| Health Physics Personnel | 3 | 0 | 15 | 2.420 | 0.000 | 5.125 |
| Maintenance Personnel | 20 | 0 | 135 | 9.595 | 0.000 | 41.827 |
| Operations Personnel | 1 | 0 | 3 | 2.091 | 0.000 | 0.743 |
| Supervisory Personnel | 0 | 0 | 0 | 0.117 | 0.000 | 0.073 |
| | | | | | | |
| **Grand Total** | **24** | **0** | **156** | **14.386** | **0.000** | **48.710** |

Total for 2009 with Multiple Badging calculated data – 63.478 Man-Rem