MAY 6, 1996

LICENSEE: Georgia Power Company, et al.

FACILITY: Vogtle Electric Generating Plant, Units 1 and 2

SUBJECT: SUMMARY OF APRIL 22, 1996, MEETING WITH GEORGIA POWER COMPANY ON A PROPOSAL FOR ALLOWED OUTAGE TIME FOR THE EMERGENCY DIESEL GENERATORS

Representatives of Georgia Power Company (GPC) met with members of the NRC staff at 1:00 p.m. on April 22, 1996, at NRC headquarters, Rockville, Maryland. The purpose of the meeting was to brief the NRC staff on a GPC proposal for a technical specification change that would provide for a 14-day allowed outage time for the Vogtle Electric Generating Plant (VEGP) emergency diesel generators (EDGs). Enclosure 1 is a list of attendees.

The licensee's briefing was organized and presented in accordance with the slides and charts enclosed as Enclosure 2.

After the licensee presented their conclusions, the staff identified three open items. The proposal needed to include information concerning: (1) the vulnerability of the Plant Wilson (PW) line to extreme weather conditions (at the PW and the VEGP ends); (2) the time required for PW to provide power to the VEGP Class 1E buses; and, (3) the reliability of the PW combustion turbines. A fourth open item was identified in a follow-on telephone conversation on April 25, 1996 (Wheeler for the NRC; Lewis, et. al. for the licensee). This item pointed out the need for the proposal to include, as ancillary information, the impact on the probabilistic risk assessment (PRA) core damage frequency of modeling the existing capability to cross connect EDGs from one unit to the Class 1E buses of the other unit (an existing capability not modeled in the current PRA due to the very low likelihood that such a lineup would become necessary to maintain safe plant operations).

The licensee informed the staff that they would endeavor to have their proposal completed and formally sent to the NRC in 2 weeks.

The meeting adjourned at approximately 4:10 p.m.

/s/
Louis L. Wheeler, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

090061

Docket Nos. 50-424 and 50-425

Enclosures: 1. List of Attendees
2. Briefing Slides

cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 6, 1996

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LIST OF ATTENDEES

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L. Wheeler	J. Bailey
D. Thatcher	K. Pope
M. Pratt	A. Streetman
A. Pal	J. Stringfellow
M. Wohl	S. Swanson
C. Harbuck	

ENCLOSURE 1

MEETING BETWEEN NRC AND GPC
EXTENDED DIESEL GENERATOR
ALLOWED OUTAGE TIME

APRIL 22, 1996 **1:00 PM**

AGENDA

I. INTRODUCTION

- PROPOSED EXTENDED ALLOWED OUTAGE TIME (AOT)
- OVERVIEW OF STANDBY AUXILIARY TRANSFORMER (SAT)/PLANT WILSON
- VIDEO OF SAT INSTALLATION

II. COMPARISON OF PHYSICAL CONFIGURATIONS VEGP TO PBAPS

III. NUMARC 8700 GUIDELINES COMPARISON

IV. CDF COMPARISON

V. SAFETY BENEFIT OF EXTENDED DG AOT

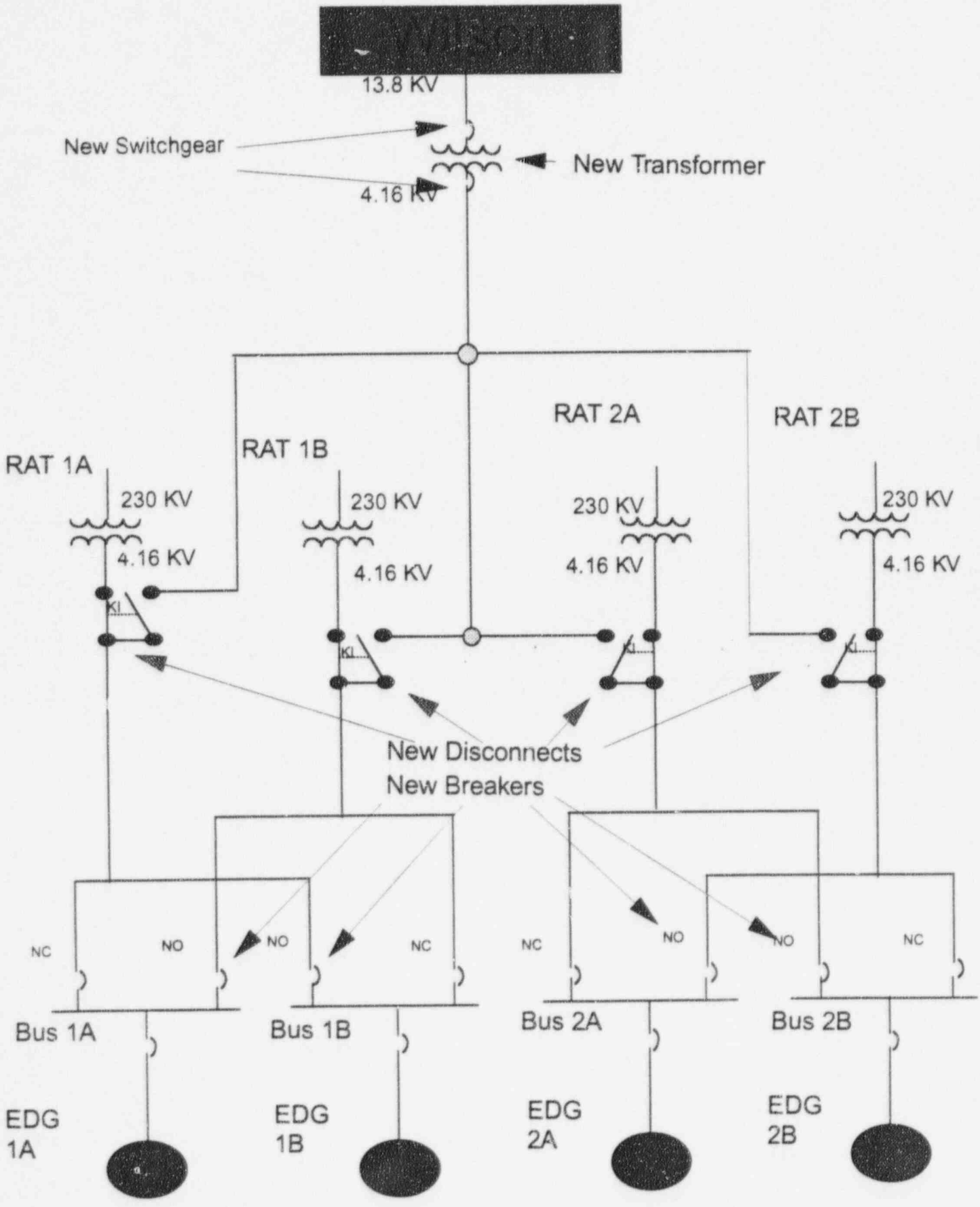
VI. SUMMARY

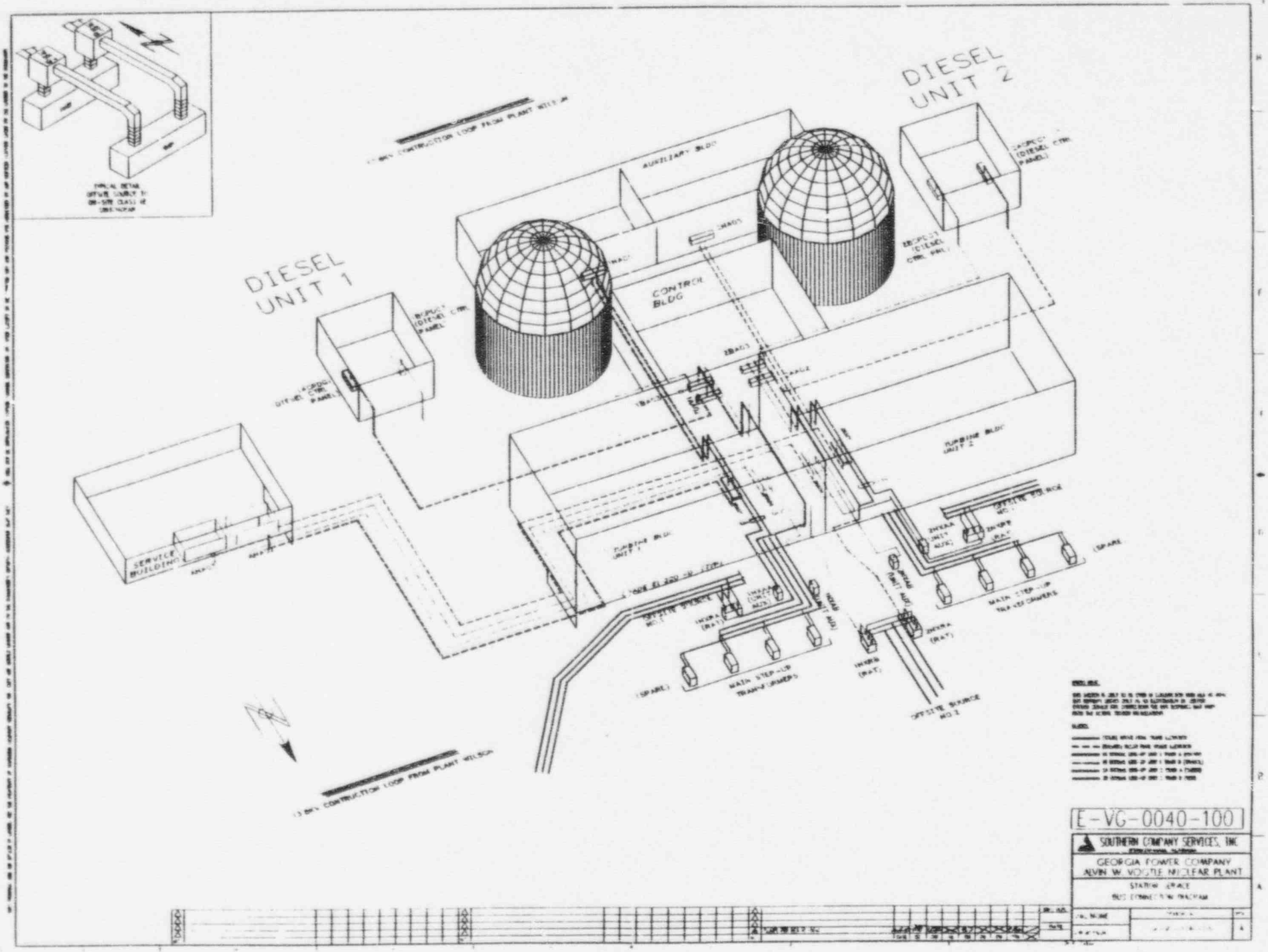
- OPEN ISSUES
- SCHEDULE

ENCLOSURE 2

CURRENT PROPOSED VEGP DG EXTENDED ALLOWED OUTAGE TIME

- UP TO AND NOT TO EXCEED 14 DAYS PROVIDED STANDBY AUXILIARY TRANSFORMER (SAT) IS AVAILABLE
- 3 DAYS IF SAT IS NOT AVAILABLE
- IF AN EXTENDED OUTAGE IS IN PROGRESS AND THE SAT BECOMES UNAVAILABLE, DG MUST BE RESTORED WITHIN 3 DAYS BUT NOT TO EXCEED 14 DAYS
- PATTERNED AFTER PEACH BOTTOM IMPROVED TS


13.8 KV
New Switchgear
New Transformer
4.16 KV
RAT 1A
RAT 1B
RAT 2A
RAT 2B
230 KV
4.16 KV
New Disconnects
New Breakers
NC
NO
Bus 1A
Bus 1B
Bus 2A
Bus 2B
EDG 1A
EDG 1B
EDG 2A
EDG 2B
Unit 1
Unit 2

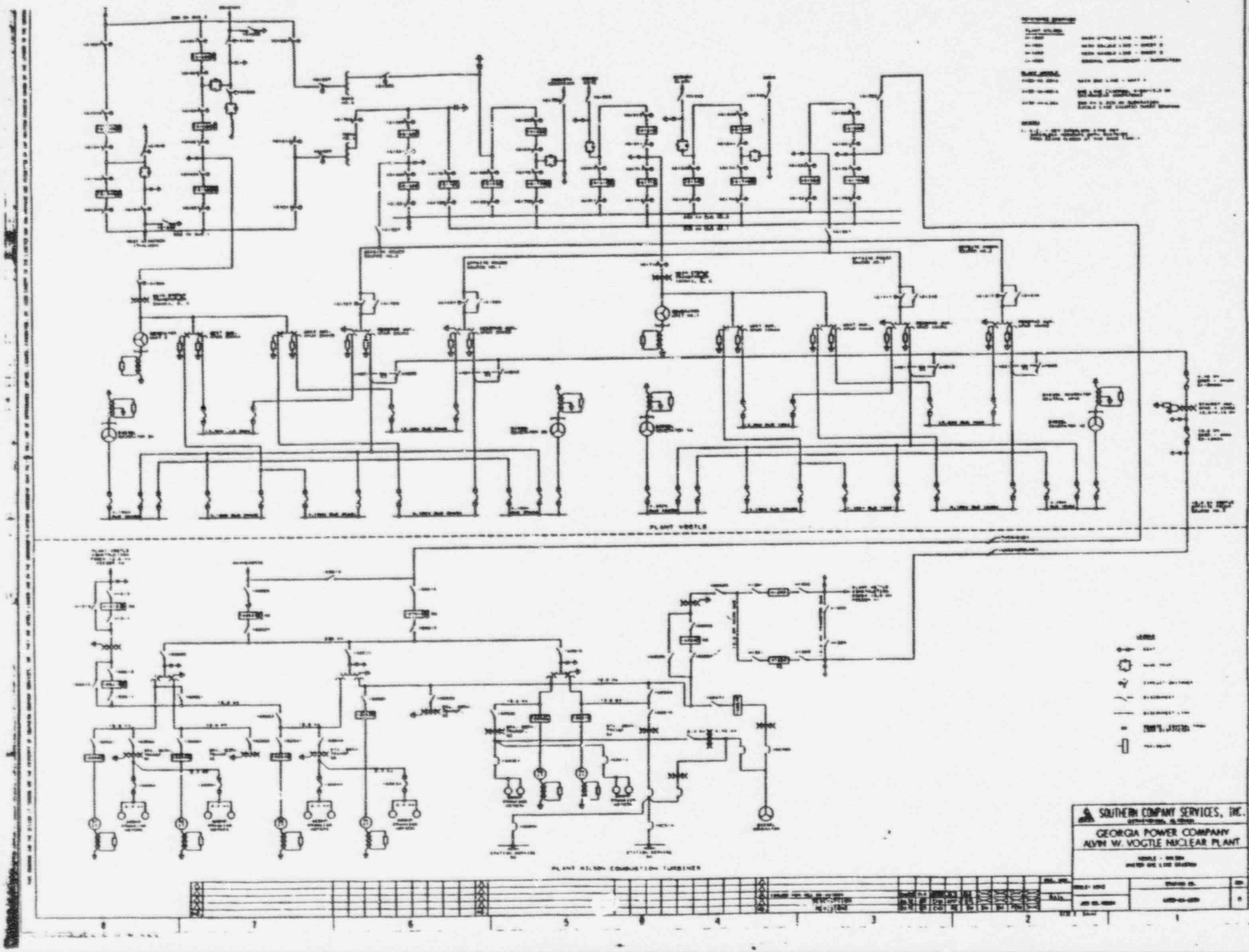


E-VG-0040-100

SOUTHERN COMPANY SERVICES, INC.

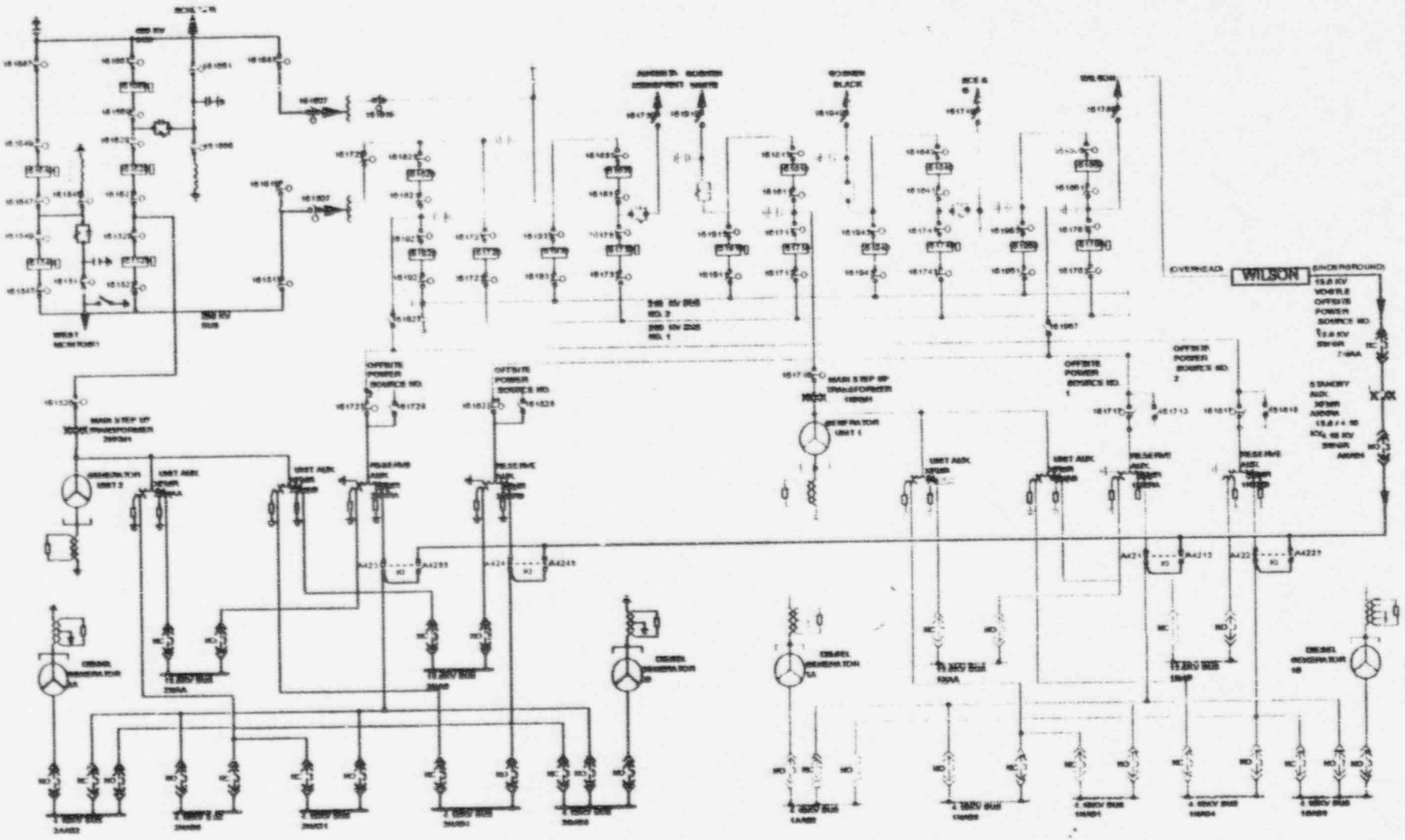
GEORGIA POWER COMPANY
ALVIN W. VOGTLE NUCLEAR PLANT

STATION GRADE

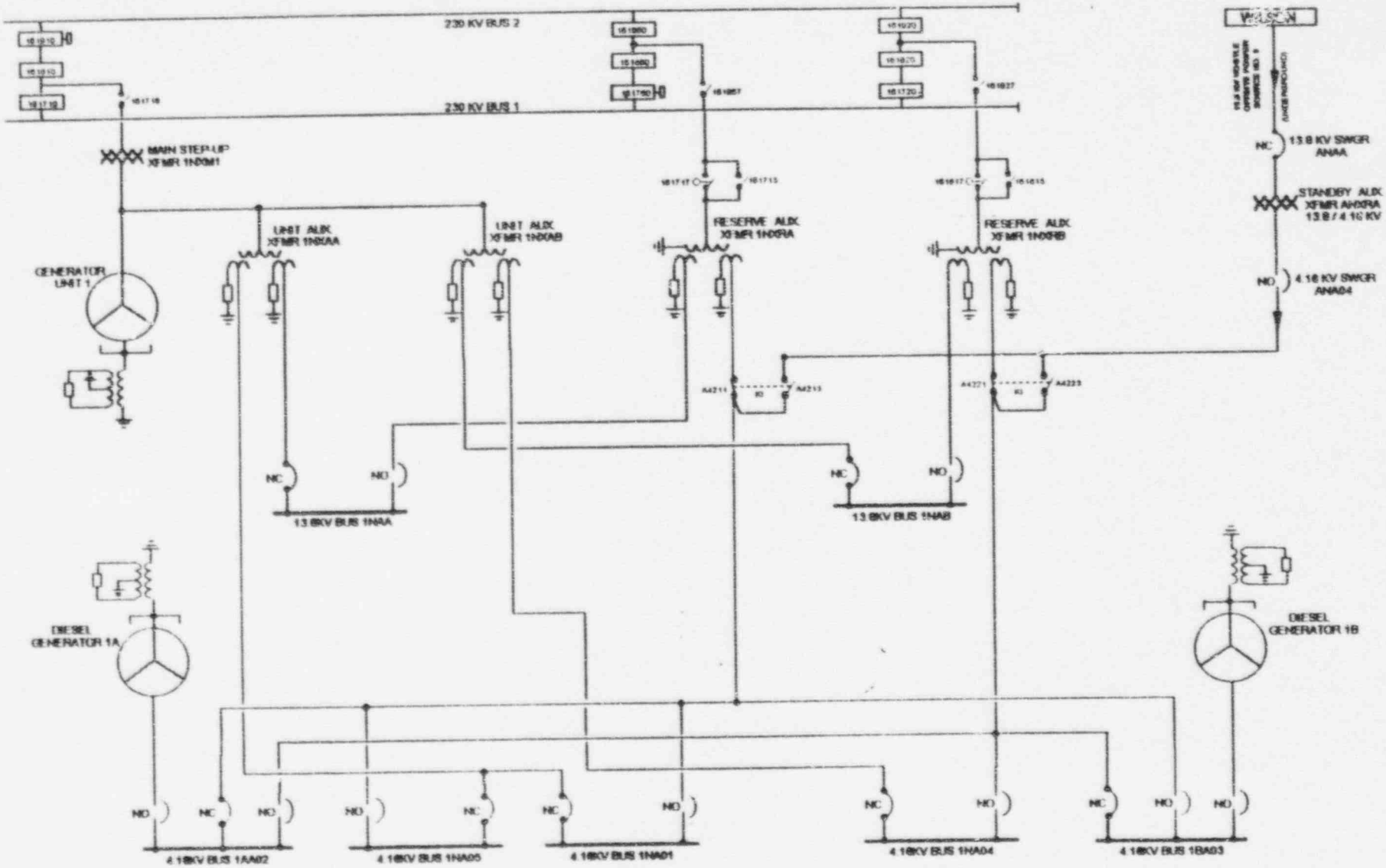


SOUTHERN COMPANY SERVICES, INC.

GEORGIA POWER COMPANY
ALVIN W. VOGTLE NUCLEAR PLANT

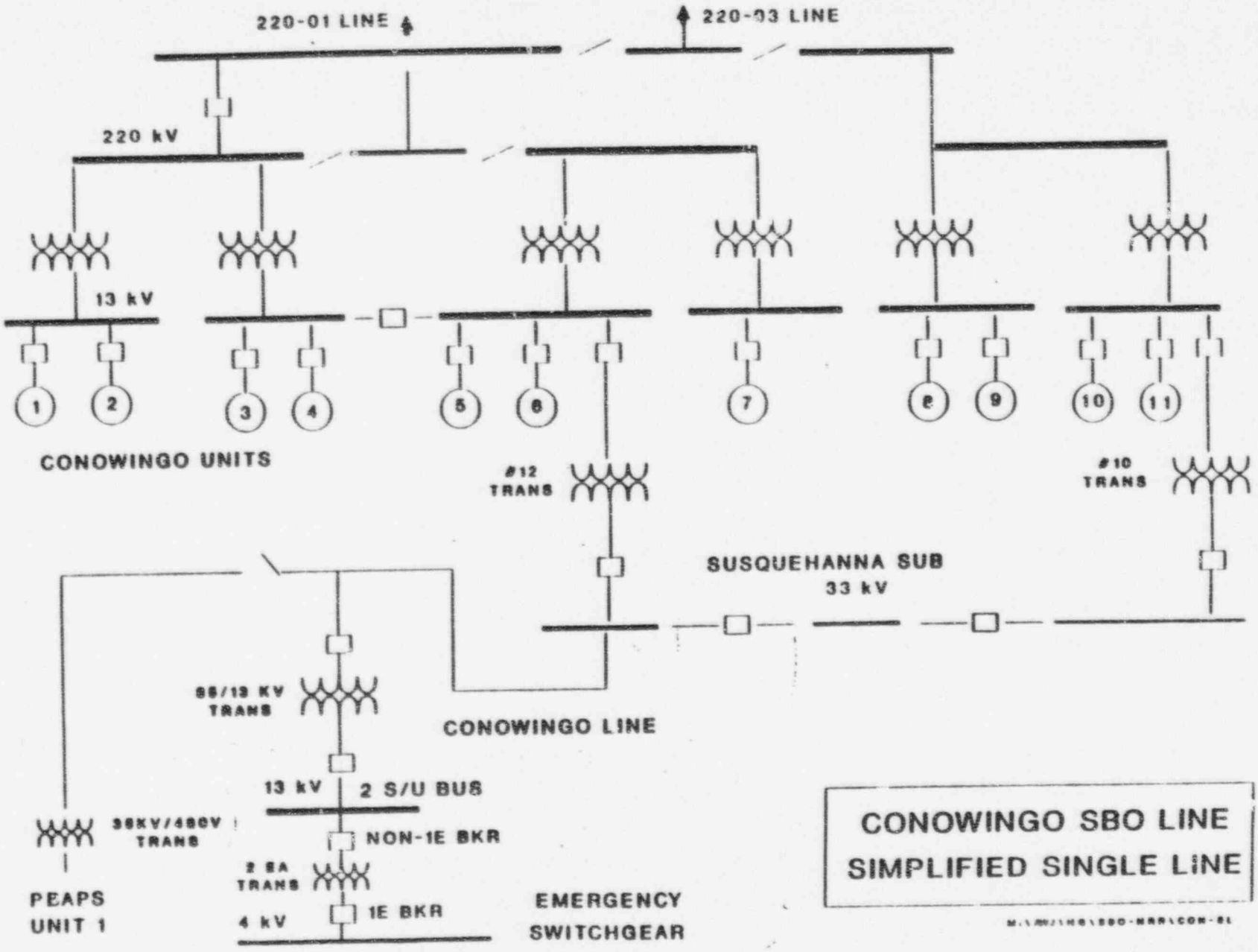


ELECTRICAL DISTRIBUTION - ONE LINE DIAGRAM

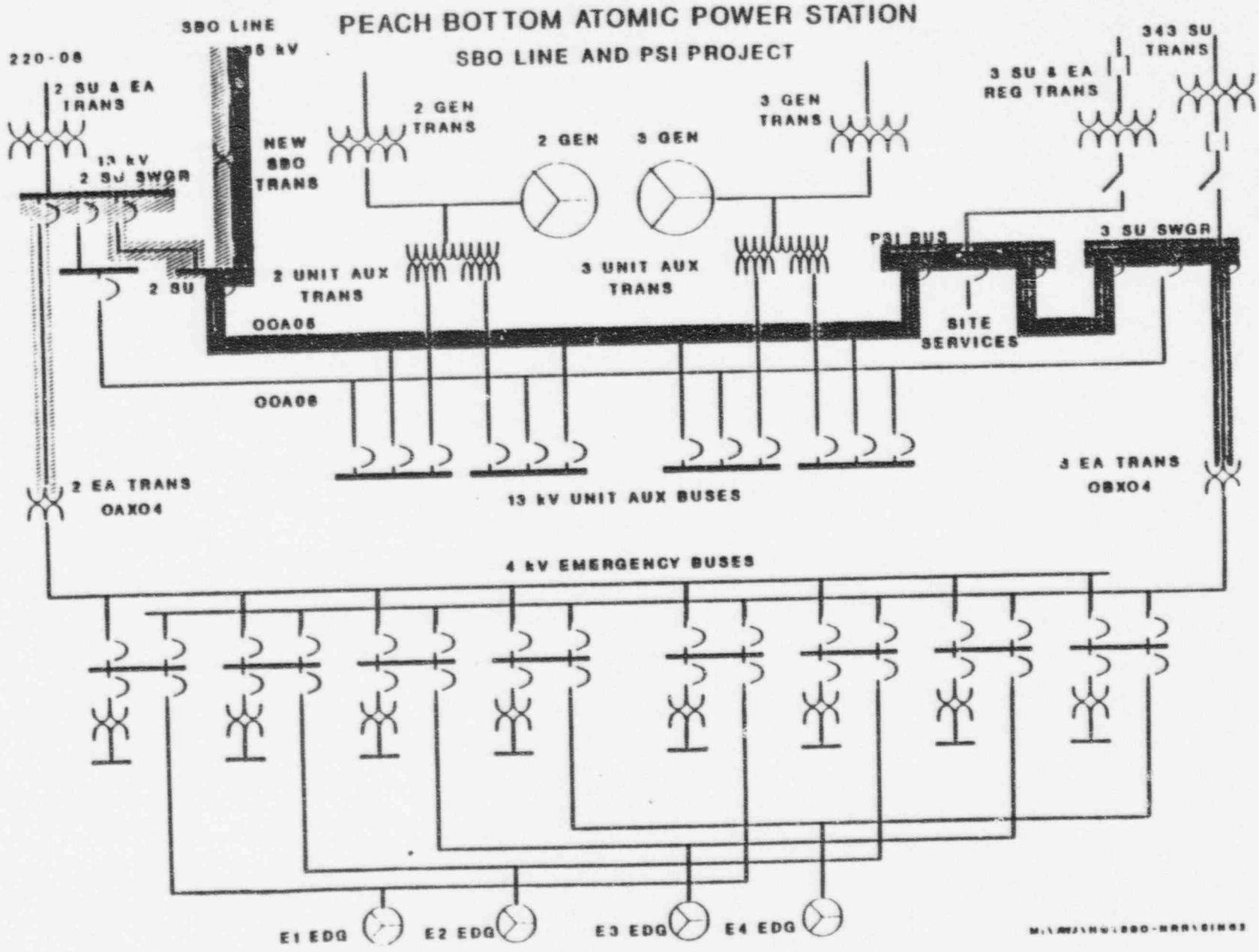


ON - SITE AC

( ) -FA-01101-004
( )-TP-01102-002
( )-TP-01201-005
( )-HO-01501-001



CONOWINGO SBO LINE
SIMPLIFIED SINGLE LINE


PEACH BOTTOM ATOMIC POWER STATION
SBO LINE AND PSI PROJECT
SBO LINE
220-08
2 SU & EA TRANS
NEW SBO TRANS
2 GEN TRANS
2 GEN
3 GEN
3 GEN TRANS
343 SU TRANS
3 SU & EA REG TRANS
2 SU SWGR
2 SU
2 UNIT AUX TRANS
3 UNIT AUX TRANS
PSI BUS
3 SU SWGR
SITE SERVICES
OOA08
OOA08
2 EA TRANS OAX04
13 kV UNIT AUX BUSES
3 EA TRANS OBX04
4 kV EMERGENCY BUSES
E1 EDG
E2 EDG
E3 EDG
E4 EDG

NUMARC 8700 Criteria for AAC Power Sources and miscellaneous info	Vogtle Electric Generating Plant	Peach Bottom (Docketed Interpretation)
SBO Duration and Coping Method	4 hours coping - (AC Independent)	8 hours / AAC power source
Type of AAC Source	Wilson Combustion Turbine Facility - 6 CTs @ 60 MVA, 2 CTs with enhanced blackstart capability	Conowingo Hydro Facility - Black start capable - (11 units - 7 @ 36 MW and 4 @ 65 MW)
AAC Line Capacity and Operation	12.5 MVA at 13.8 kV, energized continuously but unloaded	15 MVA at 34.5 kV, energized continuously and minimally loaded
AAC Interconnecting Line Design	Direct buried cable and concrete duct run - 1 mile	Submerged cable - 9 miles
AAC Source Connection Design	Wilson substation - manually operated disconnects switches and remotely operated circuit breaker	Conowingo substation circuit breaker
AAC Load Connection Design	Wilson/SAT line terminates in the VEGP low voltage switchyard - disconnect switches.	Conowingo line terminates into small new switchyard then to existing SU switchgear.
Common Cause Failure Vulnerability -	Cable bus is shared. Wilson - completely independent facility.	Distribution system route is shared. Conowingo - completely independent facility.
Nuclear Facility AAC Annunciation Provided	VEGP Control Room	Peach Bottom Control Room
Normal emergency shutdown loads	6.4 MVA (maximum) (1 train - LOSP/SI)	9 MW (SBO loads for units 2 & 3)
AAC Operations and Staffing	"On-Call" VEGP staff - Travel from VEGP to Wilson ≈ 1 mile	Staffed continuously but NOT under Peach Bottom Management
Blackstart availability	< 4 hours	< 1 hour
Power Quality / Stability	Wilson/SAT line has been NRC approved as a qualified offsite circuit. (GDC 17) Any 1 CT can maintain stable voltage and frequency	Conowingo line has not been approved as a qualified offsite AC circuit. Requires 2 units to maintain transient stability during shutdown. 1 @ 36 MW and 1 @ 65 MW

NUMARC 8700 Criteria for AAC Power Sources and miscellaneous info	Vogtle Electric Generating Plant	Peach Bottom (Docketed Interpretation)
NUMARC-8700 AAC Performance Measures (1) Facility Generating Source Reliability/Availability data (2) AAC source alignment functional testing (3) Timed blackstart of AAC with complete alignment and loading of safe shutdown equipment or equivalent load characteristics	Vogtle / Wilson CT Facility (1) > 95% available (2) Performed regularly (3) Blackstart functional test on 1 of enhanced blackstart CTs - (Not timed.)	Peach Bottom / Conowingo Dam (1) 95% target Availability (2) Approximately every two years (3) Timed blackstart with alignment performed during pre-operational testing
System/Grid Recovery Priority, Protocol, Communications	Priority from multiple choices 1) System Inter-tie 2) Harlee Branch 3) Wallace Dam 4) Wilson CT Facility - Restoration alignments are pre-analyzed, and switching requirements are proceduralized.	Communication between Conowingo and Peach Bottom - only through System dispatcher
Equipment QA and maintenance	Standard utility maintenance practices. Qualified GDC 17 source, Maintenance rule (10 CFR 50.65) applies.	Standard utility maintenance practices
Weather Protection	Wilson is protected from adverse weather Severe Weather - Minimal protection Extremely severe weather - No protection	Hydro facility - some weather advantage Severe Weather - Minimal protection Extremely severe weather - No protection

Wilson/SAT Line

- ***Power Source General Criteria***

  1. Wilson Combustion Turbine Generating Facility
  2. Peaking Power - 6 Units @ 60 MVA
  3. Distance from VEGP = 1 mile

- ***Connectability***

  1. Underground route from Wilson to VEGP
  2. Not normally connected to on or off-site electrical distribution
  3. Bypasses the VEGP switchyard offsite bus breaker-and a half distribution scheme
  4. Connection by disconnect switches to any train of either Unit for shutdown purposes

- ***Minimal Potential for Common Cause Failure***

  1. Plant Wilson is a completely self sufficient generating facility
  2. Interconnection design -
     Protective relaying provided to isolate faults
     Ground potential difference minimized
     Components sized for potential fault currents

- ***Availability After onset of Station Blackout***

  1. Blackstart capable and aligned for safe shutdown purposes < 4 hrs
  2. Envelopes the VEGP Station Blackout AC Independent coping analysis

- ***Capacity***

  1. Fully capable of supplying power for one complete safety train of normal shutdown systems and equipment
  2. Capable of dual unit shutdown with manual actions

- ***Operation and reliability***

  1. Wilson/SAT Line continuously energized
  2. Availability > 95%

PBAPS

CONDITIONS	CDF (/rx-yr)	% OF BASE CASE
BASE CASE	5.77E-06	100
1 DG OUT 30d WITHOUT CONOWINGO	7.46E-06	129
1 DG OUT 30d WITH CONOWINGO	5.45E-06	94.5

RELATIVE WORTH OF CONOWINGO = 129 - 94.5 /129 = 27%

VEGP

CONDITIONS	CDF (/rx-yr)	% OF BASE CASE
BASE CASE	4.45E-05	100
1 DG OUT 30d WITHOUT PLANT WILSON	5.80E-05	130
1 DG OUT 30d WITH PLANT WILSON	3.36E-05	75.5

RELATIVE WORTH OF PLANT WILSON = 130 - 75.5 /130 = 42%

VEGP DIESEL GENERATOR AOT INFORMATION

CONDITION	CDF NO PW RECOVERY	CDF WITH PW RECOVERY	% CDF REDUCTION
HISTORICAL MAINTENANCE	4.45 E-05	2.875 E-05	35 %[1]
3 DAY DG AOT	4.685 E-05	2.956 E-05	37 %[2]
7 DAY DG AOT		3.063 E-05	34 %[2]
14 DAY DG AOT		3.251 E-05	30 %[2]
21 DAY DG AOT		3.440 E-05	26 %[2]

(1) BASED ON 4.45 E-05

(2) BASED ON 4.685 E-05

CDF - CORE DAMAGE FREQUENCY

PW - PLANT WILSON

AOT - ALLOWED OUTAGE TIME

POTENTIAL SAFETY BENEFIT OF EXTENDED DG AOT

- NUREG 1449 LISTED A LOSP WITH AN EDG OUT OF SERVICE DURING SHUTDOWN AS THE NUMBER ONE EXAMPLE OF AN EVENT WITH A CONDITIONAL CORE MELT PROBABILITY ABOVE 1 E-04
  - POTENTIAL FOR HIGHER PROBABILITY OF AN INITIATING EVENT DURING SHUTDOWN
  - CORE COOLING DEFENSE IN DEPTH IS REDUCED DURING SHUTDOWN
  - HUMAN FACTORS - NON ROUTINE PLANT CONFIGURATIONS
  - ELECTRICAL DEFENSE IN DEPTH IS REDUCED DURING SHUTDOWN
- AT VEGP DG MAINTENANCE HAS TO BE PERFORMED DURING SHUTDOWN BECAUSE OF RESTRICTIVE TS AOT (3 DAYS)
- AN EXTENDED AOT THAT WOULD ALLOW ON LINE DG MAINTENANCE COULD PROVIDE NET SAFETY BENEFIT BY REDUCING THE RISK OF THE ABOVE FACTORS

SUMMARY

VEGP Conclusions :

- Overall safety benefit balancing shutdown and operating risk, with proposed EDG AOTs
- The Wilson/SAT source compares favorably with Peach Bottom/Conowingo source on a technical basis
- Believe that VEGP is within the "four corners of the envelope" of the Peach Bottom/Conowingo source
- ITS should be approved by NRC with the proposed EDG AOTs

Open Issues:

- To be identified by the NRC

Schedule:

- Can we establish one ?