



United States Nuclear Regulatory Commission

Protecting People and the Environment

Presentation to the Commission

Summer Units 2 and 3 COL Application Review

Safety Evaluation Report Panel 3

October 12, 2011



Nuclear Regulatory Commission
Exhibit # - NRC000011-MA-CM01
Docket # - 05200027 | 05200028
Identified: 10/12/2011

Admitted: 10/12/2011
Rejected:

Withdrawn:
Stricken:

NRC000011

Emergency Planning

- Regulations
 - 10 CFR 52.79(a)(21) – EP in Part 50
 - 10 CFR 50.47 – FEMA offsite finding, NRC onsite finding, of reasonable assurance
 - 10 CFR 50.33(g) – State and local emergency plans and EPZ

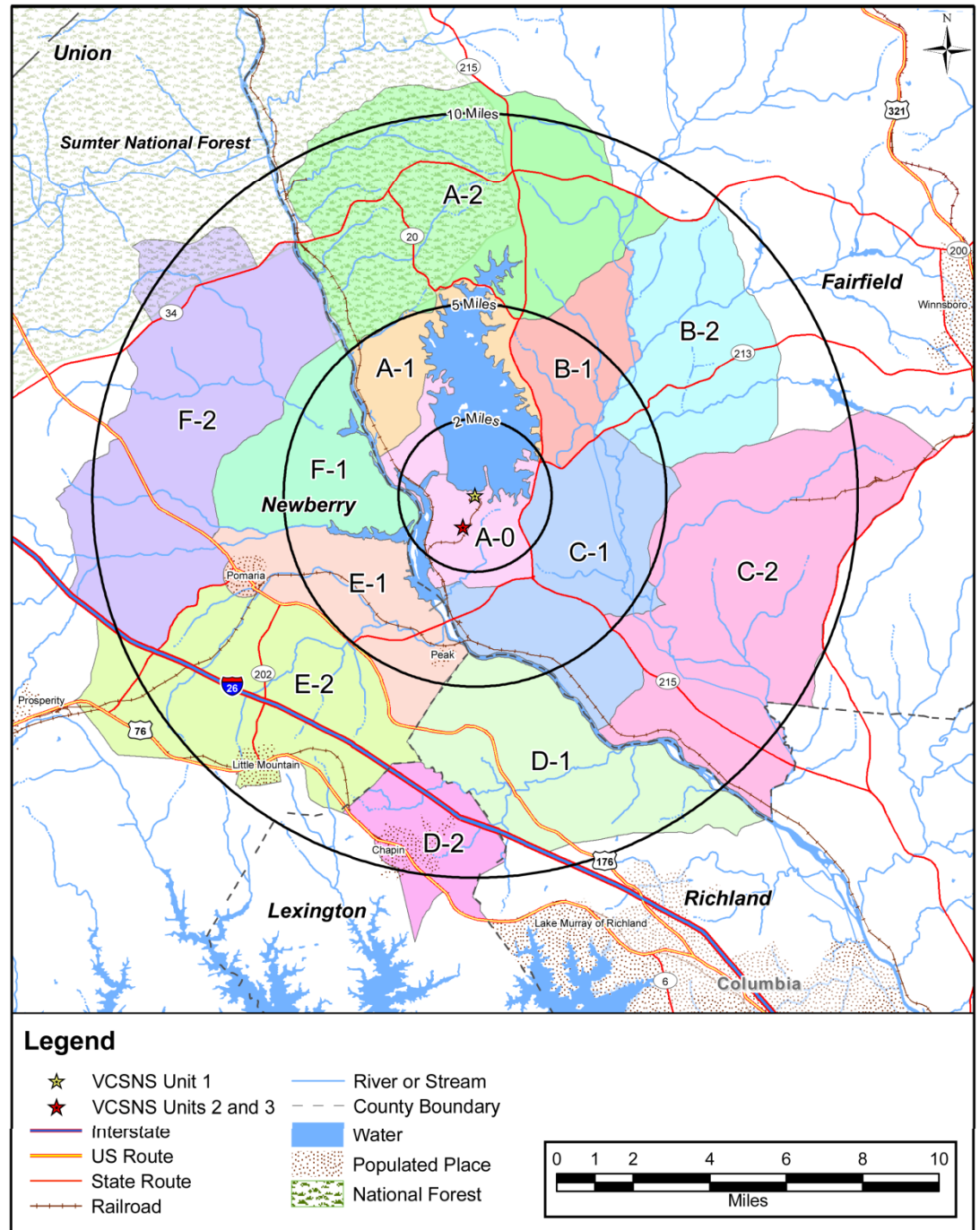
Emergency Planning

- Technical Support Center and Operational Support Center location
 - The applicant proposed a departure-VCS DEP 18.8-1 from the DCD
- The applicant proposed this departure from the AP1000 DCD to address new locations of the technical support center (TSC) and the operational support center (OSC) for each unit
- Staff's review found TSC and OSC location acceptable

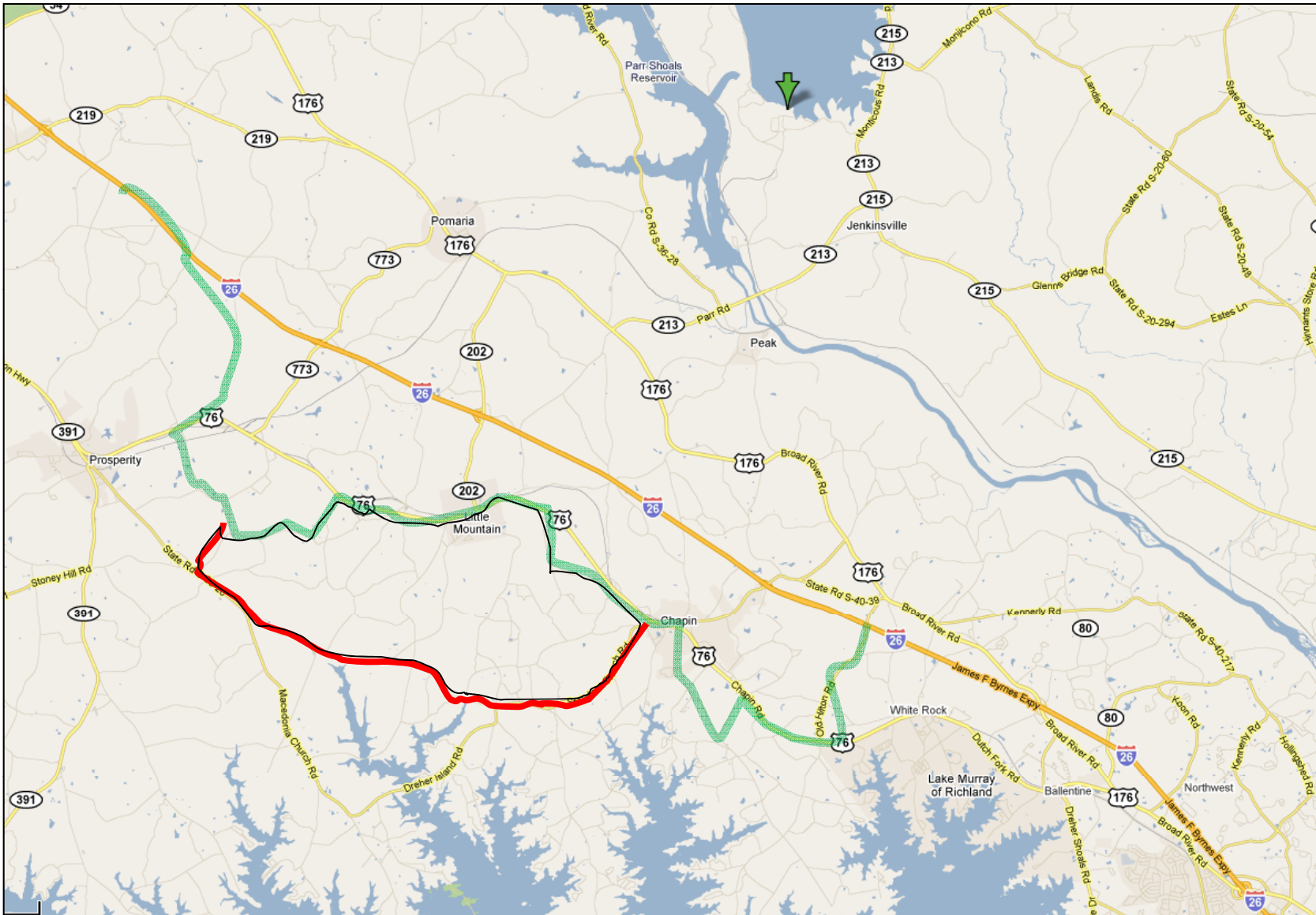
Emergency Planning

- Summer EPZ
 - Applicant has proposed an EPZ for Units 2/3 that is the same for Unit 1
 - Reviewed and approved by the State of South Carolina and 4 Risk Counties
 - FEMA inquired as to whether the EPZ needed to be expanded based on the new Units 2/3 location about 1 mile from Unit 1

Summer EPZ



Summer EPZ



Emergency Planning Zone

- About 10 miles in radius
- Actual shape dependent on characteristics of a particular site
- Consistent with established program

Emergency Planning

- Conclusion
 - FEMA has concluded that reasonable assurance exists for the offsite plans
 - The VCSNS COL application includes the proposed ITAAC that are necessary and sufficient to provide reasonable assurance
 - The NRC staff's review confirmed that the applicant addressed the required information relating to EP

Chapter 6 – Use of HABIT Computer Code

- The staff found toxic gas threats adequately evaluated for Summer
- ACRS agreed with staff conclusions
- ACRS also included a recommendation to limit the use of the HABIT Computer Code
 - HABIT is one of the tools the staff used to evaluate toxic gas threats
 - HABIT is endorsed by Regulatory Guide 1.78
 - Summer evaluated threats using a different code – ALOHA
 - The ACRS is correct regarding limitations of HABIT and NRO has asked the Office of Nuclear Regulatory Research for assistance in improving HABIT
 - Continued use of HABIT is appropriate if noted limitations are understood and recognized
 - Staff confirmatory analysis recognized HABIT limitations and appropriately took them into account

Raw Water System

- RWS design is out of scope of the AP1000 certified design.
- Summer provided a site specific RWS design which is non safety-related and does not provide any safety-significant functions.
- RWS supplies the following:
 - Circulating Water System (CWS) cooling towers
 - Service Water System (SWS) cooling towers
 - Dilution water for radwaste discharge (alternate)
 - Fire protection
 - Demineralized water treatment
 - Other users

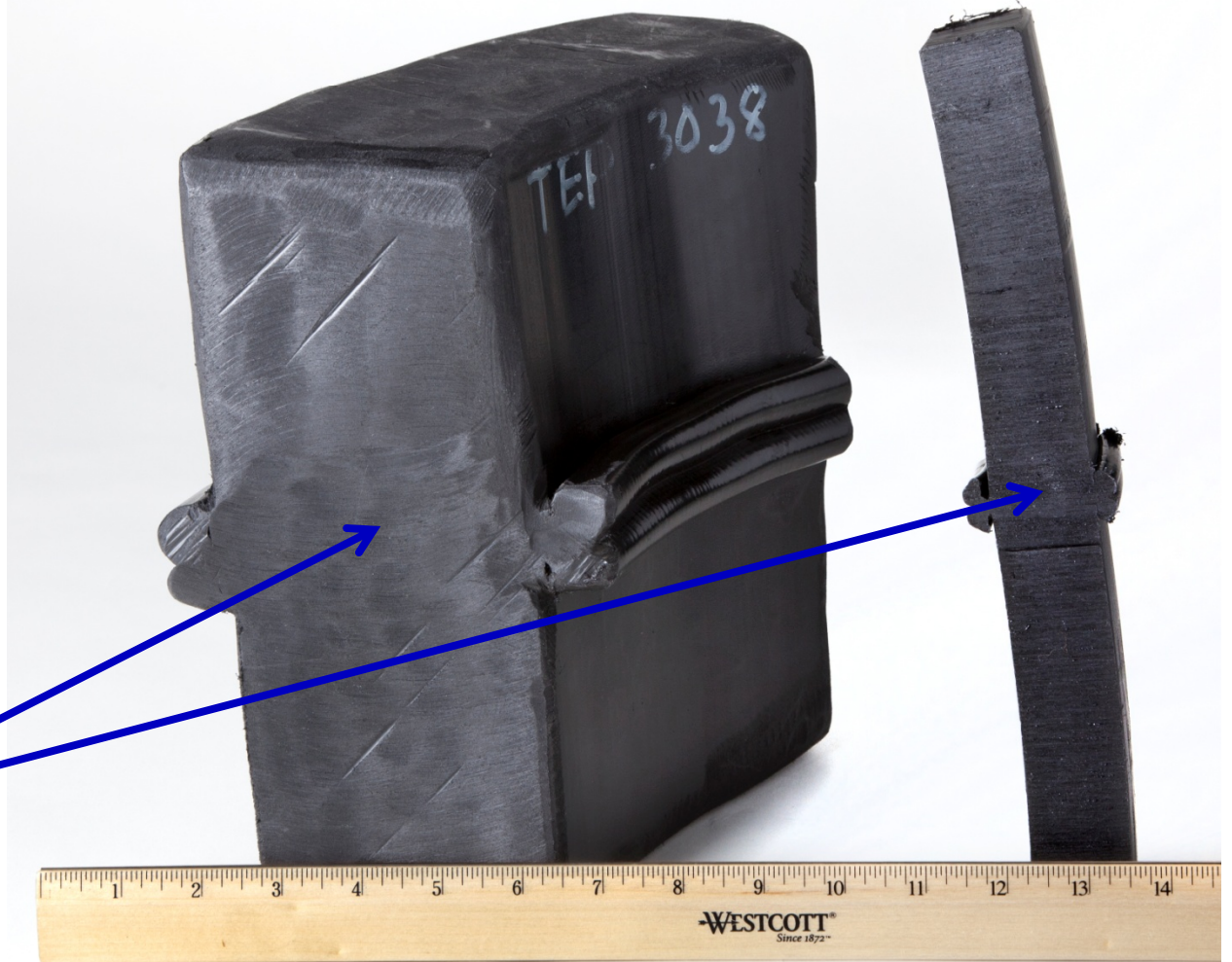
Raw Water System

- High-Density Polyethylene (HDPE) piping utilized for underground RWS
 - Designed and constructed in accordance with nationally recognized Codes and standards (such as ASME/ANSI B31.1, “Power Piping,” and the America Water Works Association (AWWA))
 - Buried piping made of material not susceptible to corrosion

Raw Water System

HDPE Piping
Sample Material

Fusion
Joints



Raw Water System

HDPE Piping
Installation

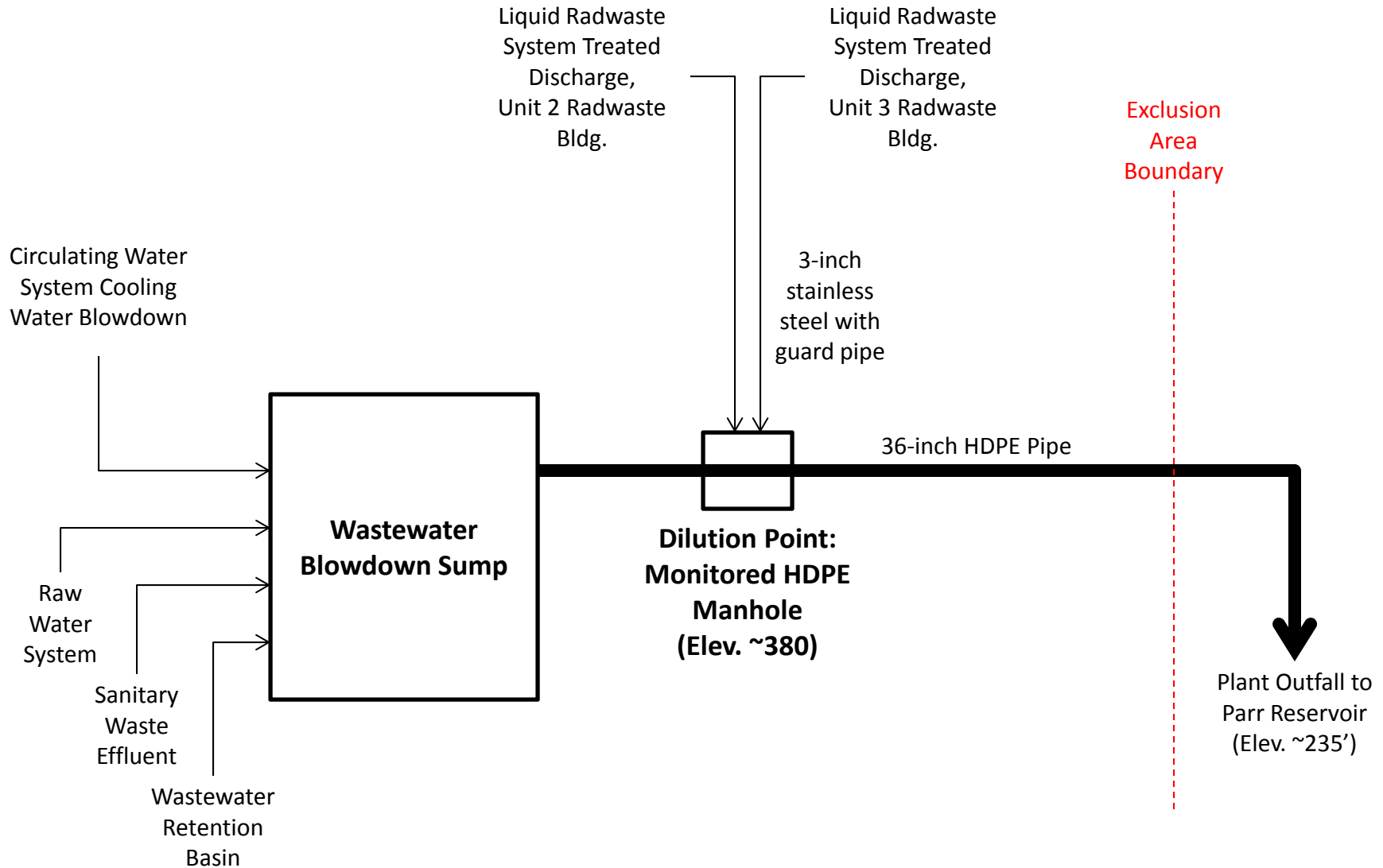
Fusion
Equipment



Raw Water System

- Staff reviewed the COL's FSAR and request for additional information with respect to the following:
 - General Design Criteria (GDC) 2, “Design Bases for Protection Against Natural Phenomena,” and GDC 4, “Environmental and Dynamic Effects Design Bases” to ensure:
 - Failure of the RWS/components will not adversely affect SSCs important to safety.
- Staff concludes that the raw water system meets all applicable requirements.

Wastewater Discharge



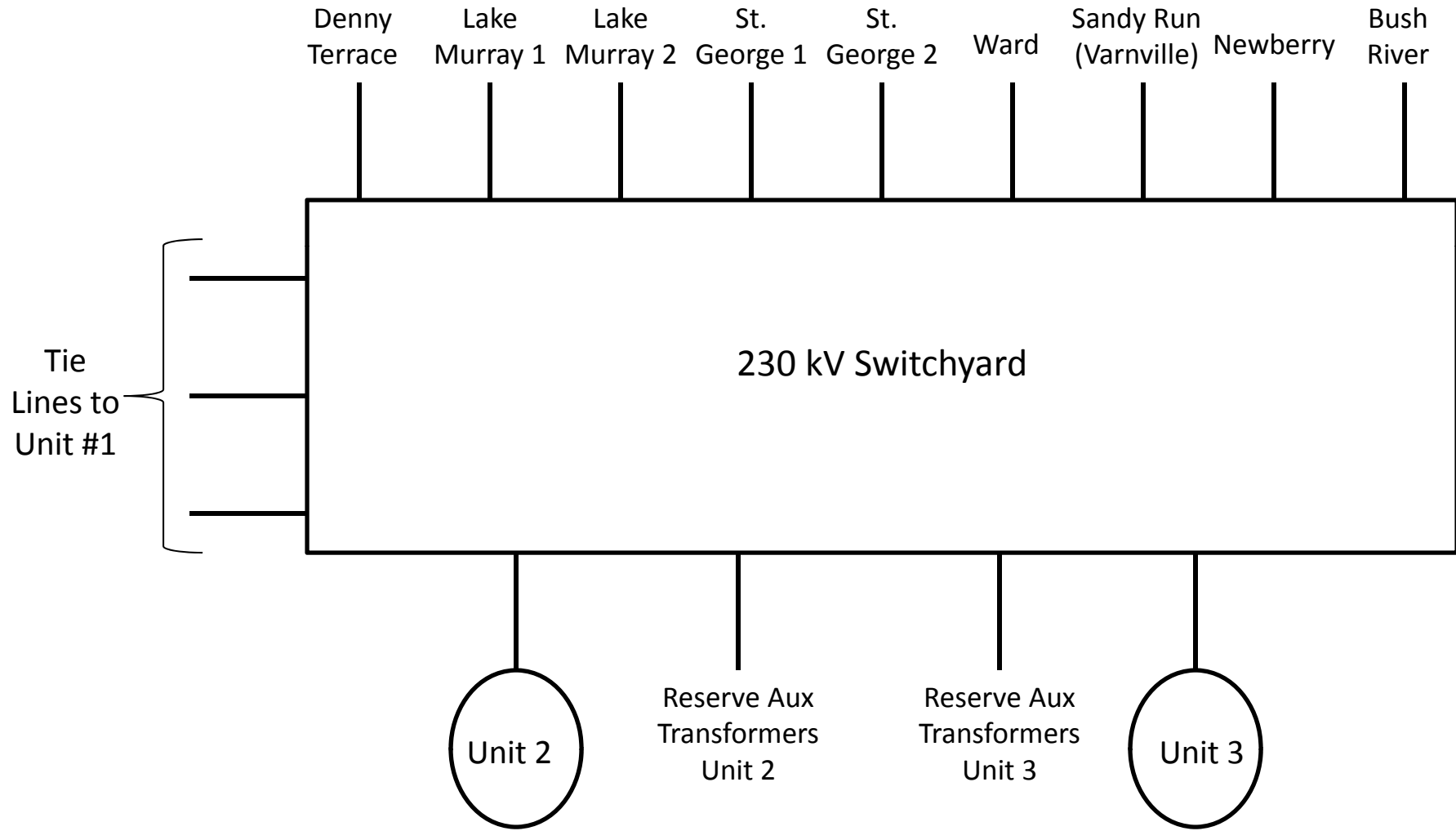
Wastewater System (ACRS)

- SCE&G briefed ACRS on the design of Summer's wastewater discharge line
- ACRS included observations relating to wastewater discharge in follow-up letter concluding VCSNS Units 2 and 3 can be safely constructed and operated
- SCE&G will implement a groundwater monitoring program
 - Summer groundwater monitoring program to follow NRC-accepted template, per NEI 08-08A, that addresses operational elements of RG 4.21
 - RG 4.21 provides guidance on how to meet Section 20.1406

Wastewater Discharge

- Discharge piping design includes features to minimize the potential for leaks and contamination of the environment:
 - No valves, vacuum breakers, or other fittings
 - Liquid radwaste system discharge piping is stainless steel pipe, enclosed within guard pipe, and monitored for leakage to comply with Section 20.1406
 - Liquid radwaste system discharge diluted in the waste water system blowdown line to meet Part 20 release limits
 - Waste water system blowdown line is HDPE pipe with fused joints to minimize leakage
- Staff concludes that the discharge piping design features and implementation of the groundwater monitoring program meet the requirements of Section 20.1406

Chapter 8 – Offsite Power



Chapter 8 – Offsite Power

- The staff's review of the applicant's grid stability analysis results confirmed that it met the DCD interface requirement by maintaining adequate reactor coolant pump voltage for 3 seconds after a turbine trip.