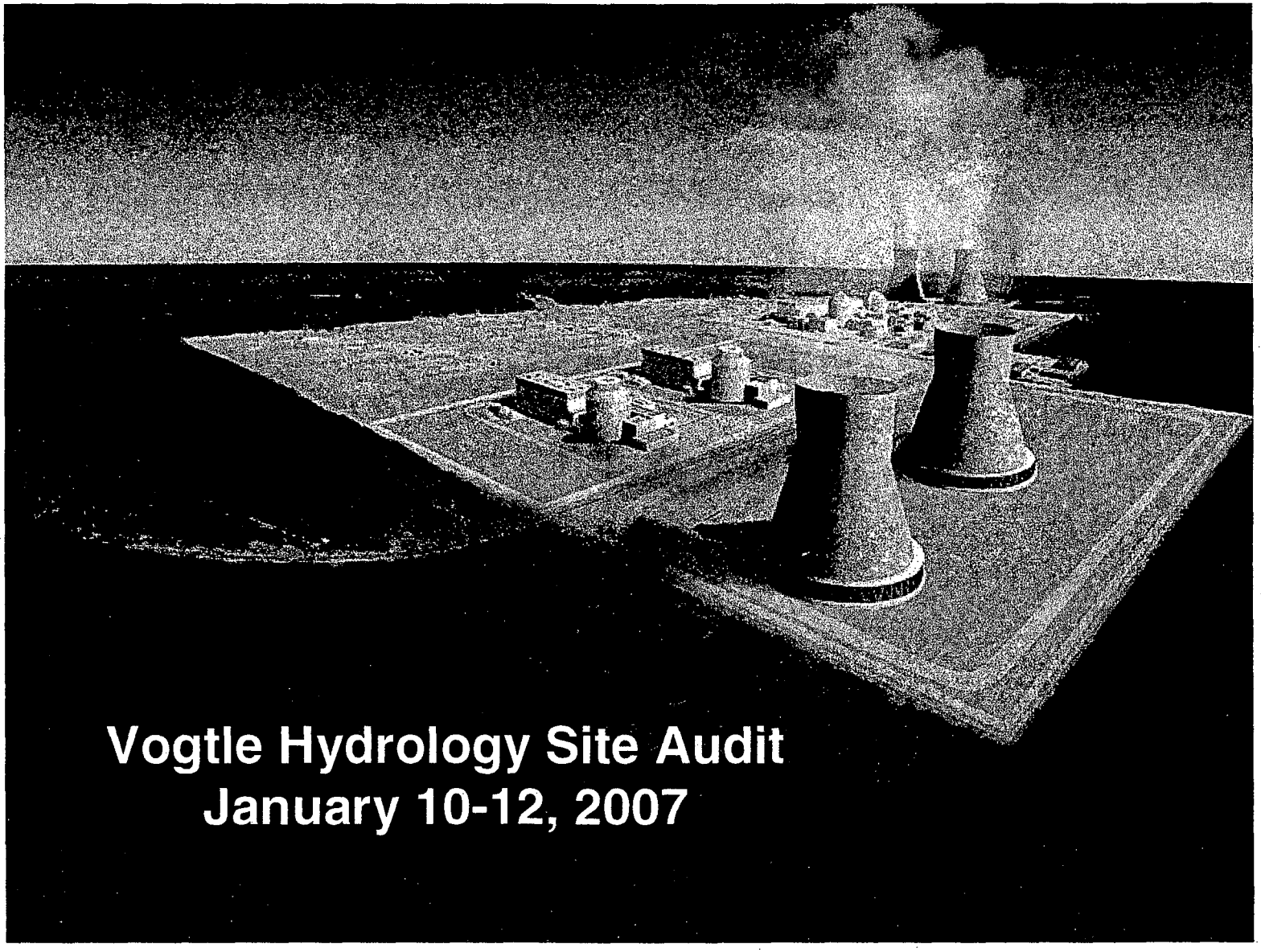

Vogtle Hydrology Site Audit
January 10-12, 2007

Vogtle Hydrology Site Audit: Jan 10-12, 2007

Wednesday January 10th

8:00 – 9:00 Site Intro

NRC Team	SNC Team
Christian Araguas - PM	Jim Davis – SNC ESP PM
Mark Notich – ER PM	Tom Moorer – SNC ER PM
Goutam Bagchi	Mary Beth Lloyd (SNC)
Hosung Ahn	Dale Fulton (SNC)
Ken See	Gary Gunter (TtNUS)
PNNL	Bob Prunty (Bechtel)
Lance Vail	Louise Headland (Bechtel)
Christopher Cook	Loran Matthews (Bechtel)
Rajiv Prasad	Mustafa Samad (Bechtel)
Charles Kincaid	Joe Mancuso (SNC)

9:00 – 11:30 Issues 1-9

1. (2.4.1.2) Provide the reservoir operation rules (or regulation schedules) for Hartwell Lake, Russell and Thurmond reservoirs during the wet and dry seasons, and discuss the potential impact of the Proposed Water Management Changes of these reservoirs to the site especially during the dry season (2.4.1.2.4). Also needed are discussions related to local intense precipitation and site area drainage.
   Technical Experts: Tom Moorer (SNC), Mustafa Samad (Bechtel)

2. (2.4.3.3) Describe briefly the procedures and the parameters to compute wave run-up and wind set-up estimates on the Table 2.4.3-4.
   Technical Expert: Mustafa Samad (Bechtel)

3. (2.4.4.2) The dam breach model from HEC-RAS was based upon cross-sections obtained from the Corps of Engineers. These cross sections were compared to ones developed from USGS topographic maps. Please present these comparisons.
   Technical Expert: Mustafa Samad (Bechtel)

4. (2.4.4.2) Present the calculations used to estimate the dam breach parameters discussed on page 2.4.4-4 and outlined in the USBR reference.
   Technical Expert: Mustafa Samad (Bechtel)

5. (2.4.4.3) Describe briefly the procedures and parameters used to compute wave height and run-up.
   Technical Expert: Mustafa Samad (Bechtel)

6. (2.4.7.3) Present the rates of cooling water, make-up water, and fire protection water needed for both existing and new plants.
   Technical Expert: Mustafa Samad (Bechtel)

7. (2.4.8.1) Provide the amount of make-up water to the heat sink-service water system (SWS) pumped from site ground wells and the type of aquifer(s) to be used. Discuss that the on-site aquifer system has enough capacity to provide the maximum make-up water requirement.
Technical Expert: Louise Headland (Bechtel)

8. (2.4.10) Define and describe the hydrologic parameters, such as intensity of short term rainfall for roof drainage, probable maximum winter precipitation that combines with the snow accumulation for roof loading of all safety-related structures.
Technical Expert: Mustafa Samad (Bechtel)

9. (2.4.11) Describe briefly how the parameters of different distribution functions are estimated in Table 2.4.11-4, either the method of moment or the maximum likelihood.
Technical Expert: Mustafa Samad (Bechtel)

11:30 – 12:30 Lunch

12:30 – 5:00 Site Tour

A. Tour Purposes:

The objective of hydrologic engineering site visit are: (1) to acquaint the reviewers with general site and regional hydrologic characteristics and topography; (2) to confirm the applicant's general appraisal of the site/plant hydrologic interfaces; and (3) to review and discuss specific hydrologic engineering problem areas with the applicant, his engineers, and hit consultants.

B. Tour Objectives (Areas To See)

1. Existing and new plant sites to understand the on-site plant hydrologic interfaces.

2. Travel to the approximate location of proposed intake and examine the locations on the bluff heading back to the site associated with various elevations.

3. Travel around the site to examine the natural drainage features leading away from the ESP site that are shown in Figure 2.4.1-3 of the SSAR.

4. Mallard/Mathes Ponds.

5. Typical on-site monitoring facilities and instrumentations for collecting on-site hydrologic and hydrogeologic data including water levels, groundwater levels, water quality, and sedimentation.

Thursday January 11th

8:00 – 11:30 Issues 10-23

11:30 0 12:30 Lunch

12:30 – 5:00 Issues 10-23 (continued)

10. (2.4.12) (P. 2.4.12-7, last para.): Discuss the reasons why OW-1001 well failed. How far the replacement well (OW-1001A) located from the failed one?
Technical Expert: Louise Headland (Bechtel)

11. (2.4.12) (P. 2.4.12-8, Water Table Aquifer) Figure 2.4.12-4 indicates that the recovery of groundwater levels after dewatering activities were completed in a year or so. Discuss the main source(s) of the recovery water, either recharge or nearby groundwater body or both. What are the main driving factors that govern on-site groundwater levels in the Water Table aquifer? Also, discuss the reason why the temporal variability of groundwater levels were reduced substantially during the year 2005 (Figure 2.4.12-6) compared to those before 2005 (Figures 2.4.12-4&5).
Technical Expert: Louise Headland (Bechtel)

12. (2.4.12 & 2.4.13) The report describes that the outflow from Mallards Pond is at least 250 gpm (2.4.13-2, 3rd para.). Also Figure 2.4.12-4 & 5 show that groundwater heads in the water table aquifer vary significantly from year to year or even from month to month. These facts indicate that the water table aquifer is somewhat transmissible and interactive with surface water bodies, and that the groundwater travel times may be much faster than the applicant's estimates which are based on a steady-state mode. This issue needs to be clarified.
Technical Expert: Louise Headland (Bechtel)

13. (2.4.12) Discuss the process used to develop the site hydrogeologic conceptual model. Discuss of the various conceptual models considered in developing the final conceptual model, and how your model contrasts with the conceptual models of the VEGP, UFSAR, and USGS studies (Clarke and West 1997, 1998; Cherry 1996). Describe the datasets and rationale used to establish the final conceptual model. This discussion of the conceptual model should cover the continuity or discontinuity of the hydrologic units, their connectivity to the Savannah River and other surface water features.
Technical Expert: Louise Headland (Bechtel)

14. (2.4.12) Discuss data supporting the statement that the Utley Limestone member is not continuous beneath the ESP site and especially between the Powerblock and Mallard Pond.
Technical Expert: Louise Headland (Bechtel)

15. (2.4.12) Discuss the Utley Limestone underlying the Vogtle Site including its composition and the presence or absence of Karst characteristics.
Technical Expert: Louise Headland (Bechtel)

16. (2.4.12) Discuss the process used to conservatively bound the hydraulic properties (gradient, hydraulic conductivity, etc) currently, during ~~construction,~~ and during operation.

Technical Expert: Louise Headland (Bechtel)

17. (2.4.13) Please provide outflow measurements from the Mallards Pond if any, as well as dam heights, widths and crest elevations of spillways of both Mallard and Mathes ponds as these data are important to determine the water budgets at the ponds. Discuss the way of making regulatory releases at both existing and new sites. Are they through the ponds or to the river directly?

Technical Expert: Tom Moorer(SNC)

18. (2.4.13) For [redacted] Don't Need to ask for existing new plants, describe briefly the facilities to prevent accidental releases from radwaste tanks and piping systems to the surface and the ground water bodies. What are the failure modes of the radwaste tanks and pipes and scenarios under which accidental liquid radwaste can be the released, including points and likely locations of release?

Technical Expert: Louise Headland (Bechtel)

19. (2.4.13) Discuss the process used to establish that the conceptual model for the transport pathways and travel times presented in the SSAR represents the most conservative (pessimistic) pathway from various other feasible alternative pathways.

Technical Expert: Louise Headland (Bechtel)

20. (2.4.13) Discuss the basis for the 0.12/0.25 ratio used to adjust the failed fuel rate.

Technical Expert: Bob Prunty (Bechtel)

21. (2.4.13) Discuss the process used to evaluate the potential and impact of chelation and complexation agents (e.g. organic acids) to mix with radiological liquid effluents either within the facility or along the transport pathway in the environment outside the facility.

Technical Expert: Tom Moorer (SNC)

22. (2.4.13) Discuss the mapping of the top of Blue Bluff marland estimated water table elevation

Technical Expert: Louise Headland (Bechtel)

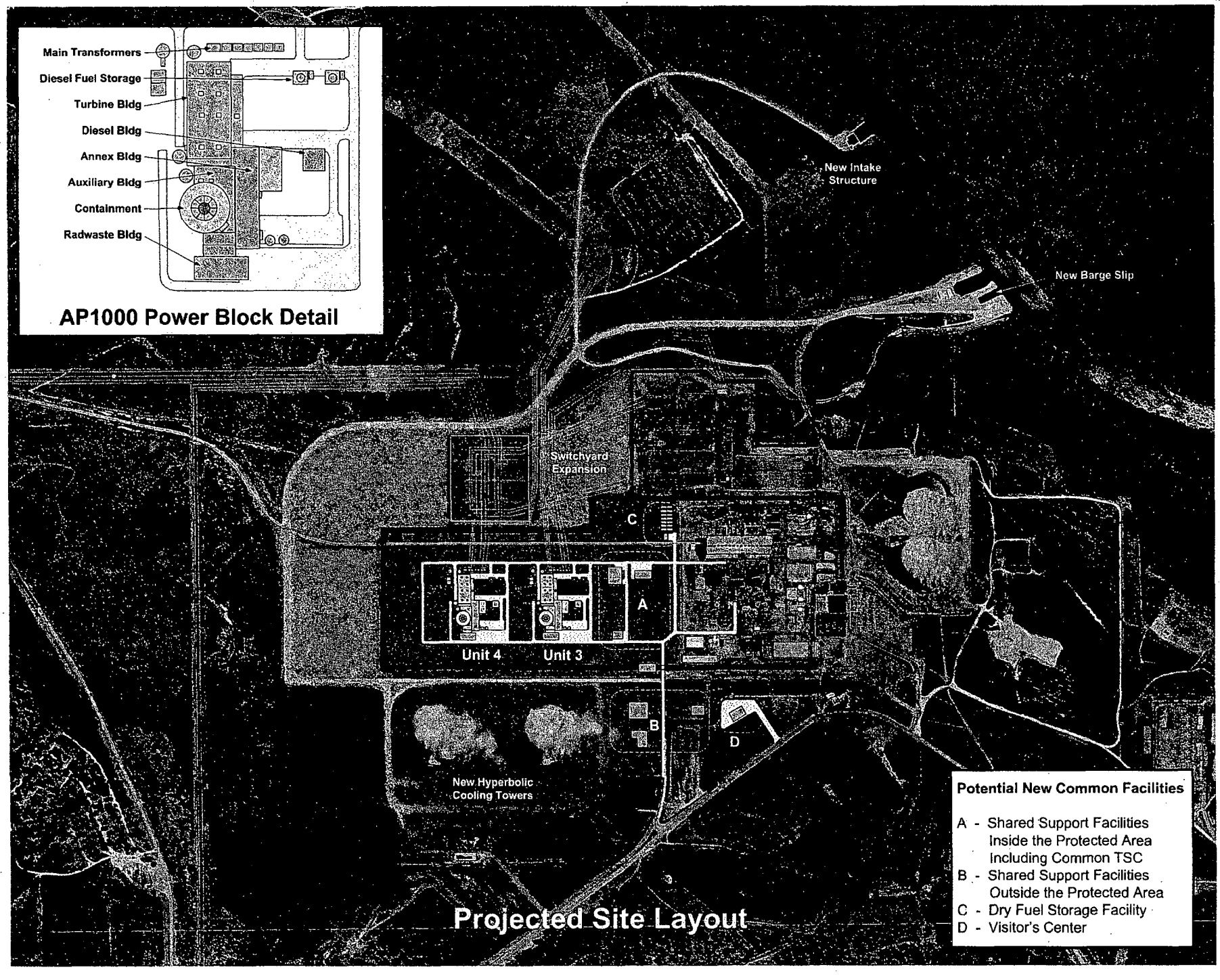
23. (2.4.13) (a) Discuss any measurements of the Mallard Pond outflow during the Tritium Study; (b) Discuss the PROCESS used to estimate the outflow to Mallard Pond (0.7 gpm); and (c) Discuss the approximate retention time of Mallard Pond for a range of meteorological conditions.

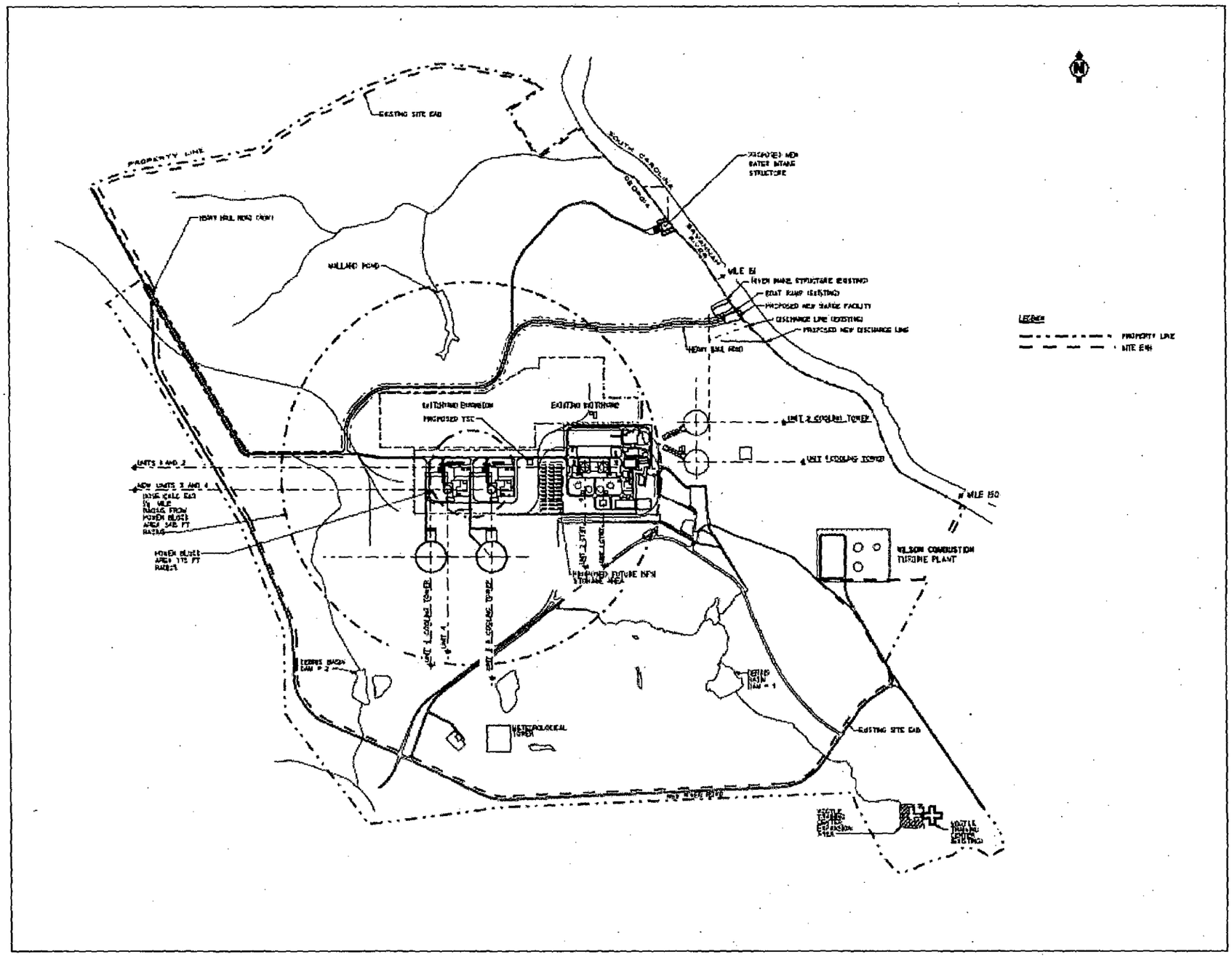
Technical Experts: Tom Moorer (SNC), Loran Matthews (Bechtel)

Friday January 12th

8:00 – 12:00

NRC/PNNL Staffs visit the USACE Savannah District


Main Transformers
Diesel Fuel Storage
Turbine Bldg
Diesel Bldg
Annex Bldg
Auxiliary Bldg
Containment
Radwaste Bldg
AP1000 Power Block Detail
New Intake Structure
New Barge Slip
Switchyard Expansion
C
A
Unit 4
Unit 3
B
D
New Hyperbolic Cooling Towers
Potential New Common Facilities
A - Shared Support Facilities Inside the Protected Area Including Common TSC
B - Shared Support Facilities Outside the Protected Area
C - Dry Fuel Storage Facility
D - Visitor's Center
Projected Site Layout


PROPERTY LINE
EXISTING SITE EAB
SOUTH CAROLINA
GEORGIA
SAVANNAH RIVER
MILLARD ROAD
HEAVY HAUL ROAD
MILE 61
MILE 150
WILSON COMBUSTION TURBINE PLANT
METEOROLOGICAL TOWER
LEGEND
PROPERTY LINE
SITE EAB