



Calvert Cliffs Unit 3 Report on Selected Topics

Presentation to
U. S. Nuclear Regulatory Commission

April 17, 2009

Agenda

Topic

- Introductions and Overview
- Calvert Cliffs Unit 3 (CC3) Intake Structure Relocation
- CC3 Civil Structural Audit RAls, FSAR Chapter 3.7
- CC3 Geotechnical Audit, FSAR Chapters 2.5.4 and 2.5.5
- Summary

Presenter

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Overview

1. Letters, G. T. Gibson to NRC dated October 31, 2008 and January 14, 2009 – Intake Structure Relocation
 - Update on Intake Structure SER information
2. Letter, G. T. Gibson to NRC dated March 19, 2009 – RAIs 58, 63 and 65
 - RAI Response Schedule
3. NRC Geotechnical Audit February 23-26, 2009
 - Request for audit in July 2009 & RAIs in August

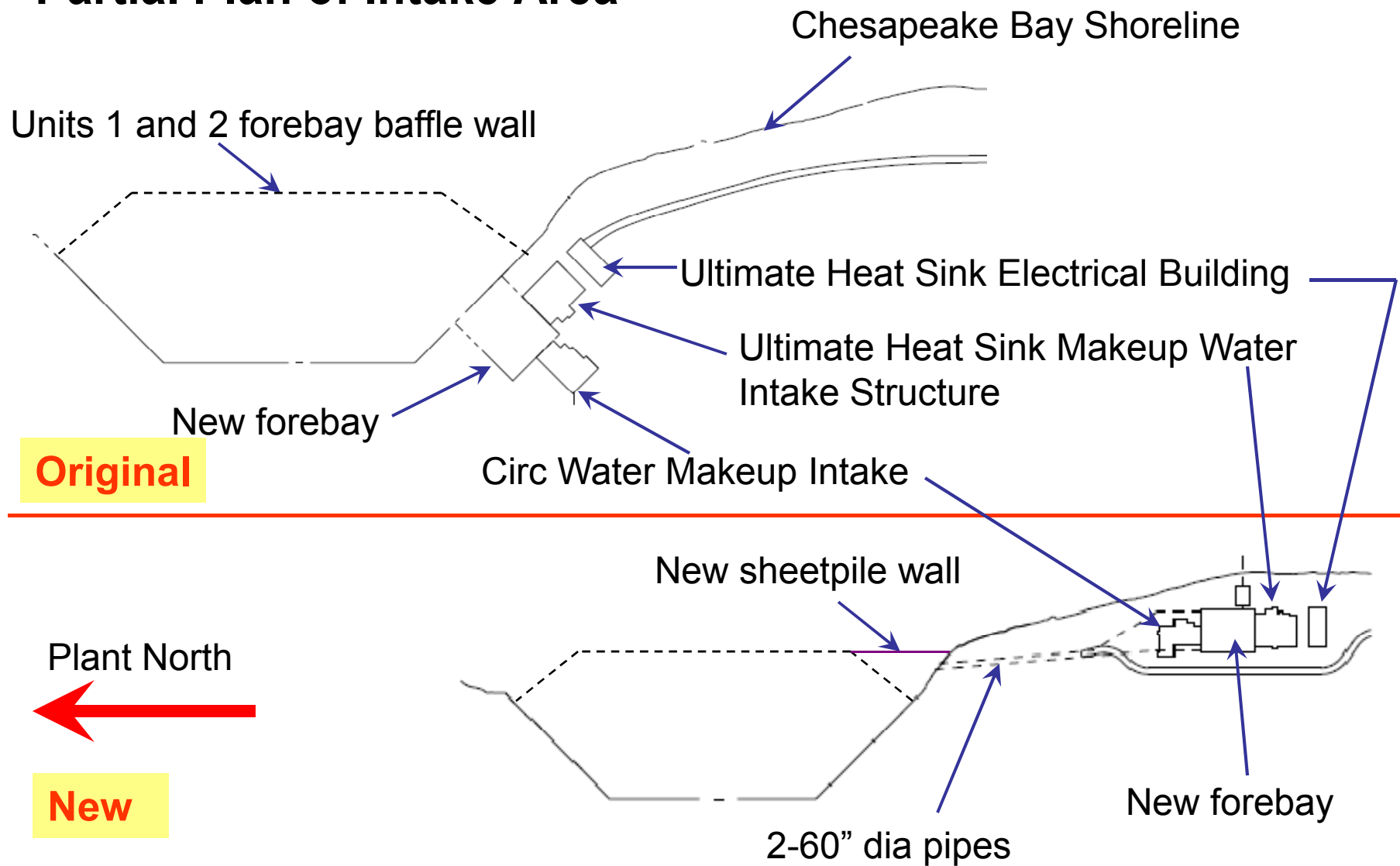
CC3 Intake Structure Relocation

Mike Yox, Director, Licensing, UNE
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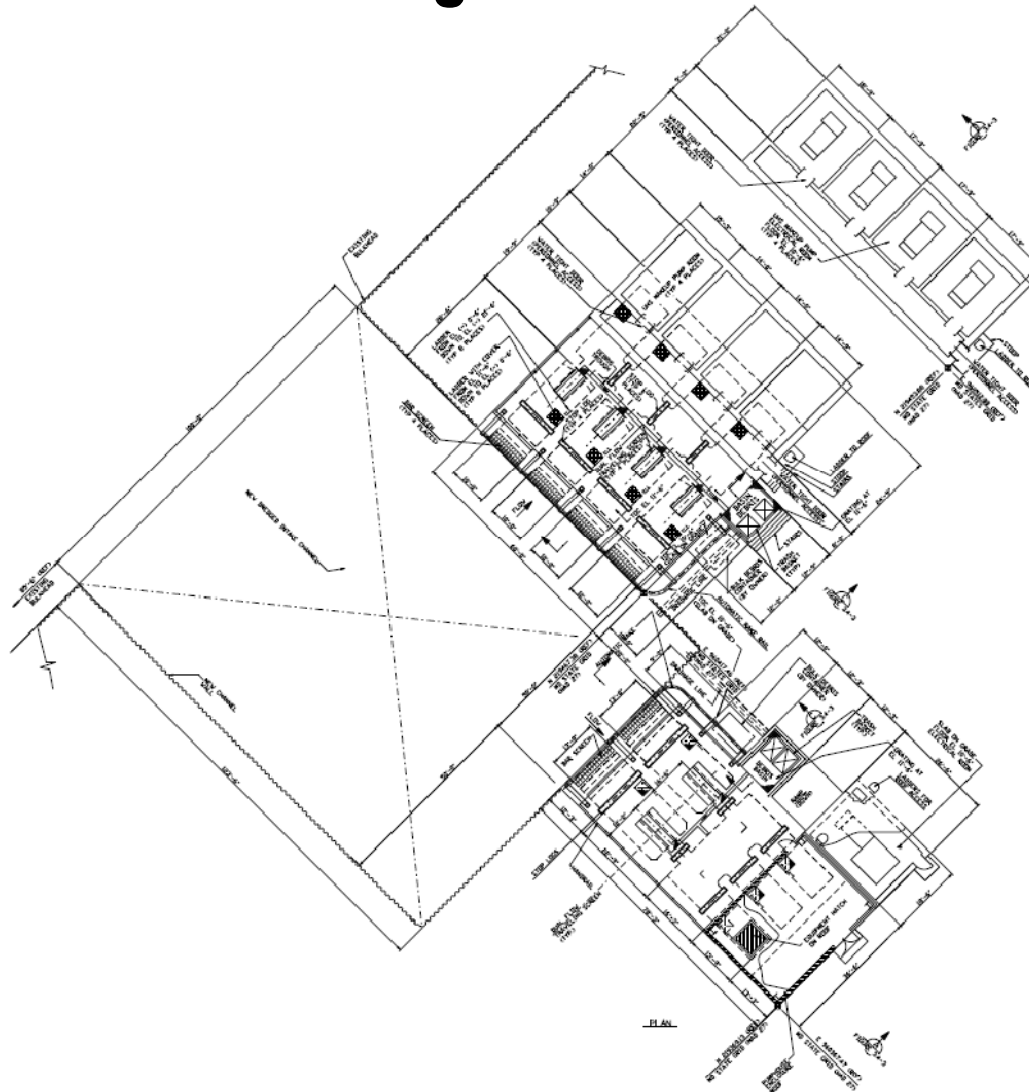
Scope and Description

- CCNPP3 draws makeup water from the Chesapeake Bay via
 - Non safety related intake (circulating water system)
 - Safety related intake (intended for plant emergency only)
- FSAR Rev 4 shows intake structure adjacent to existing Units 1 and 2 forebay
- Intake structures moved approximately 500 feet to the south
 - Challenges identified in constructing Unit 3 intake
 - Potential reduction in the environmental impacts to the adjacent cliff
- Similar configuration and same structure safety classification
- New orientation and location
- Two 60" diameter pipes will transport water to the forebay of relocated structures

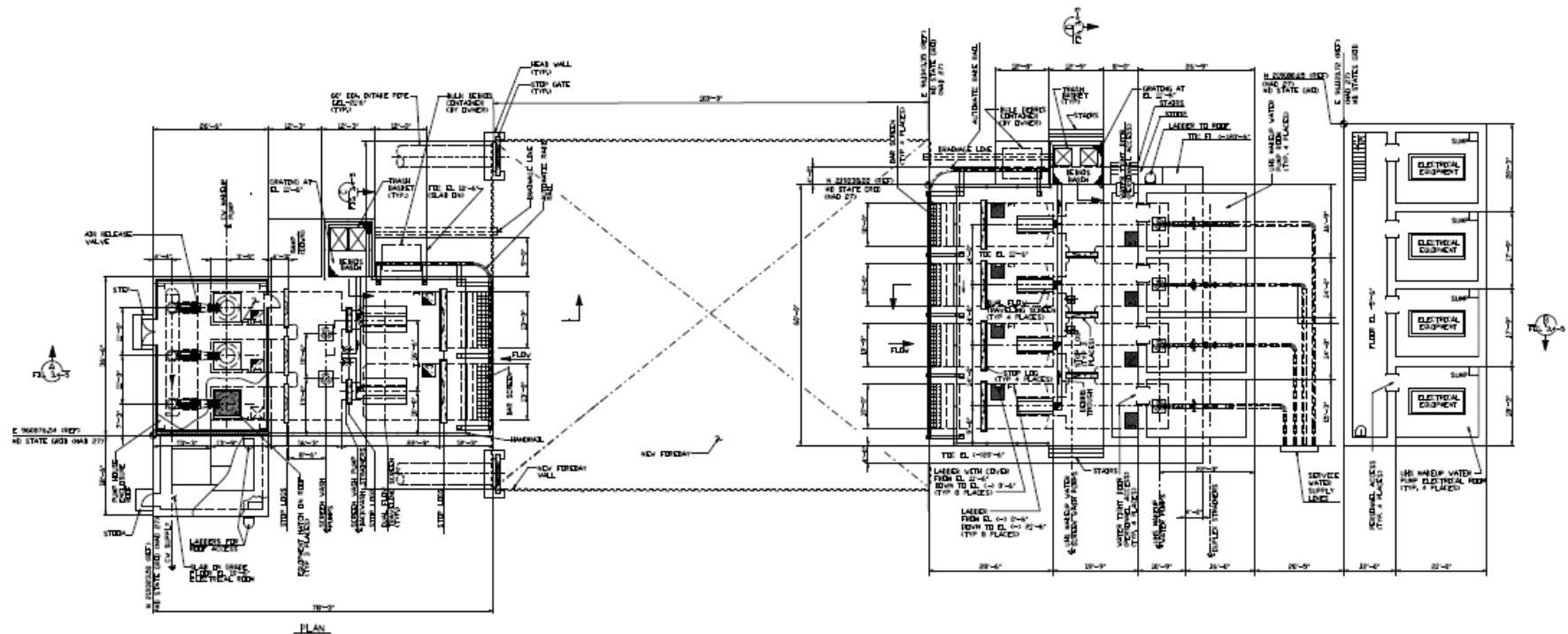
Partial Plan of Intake Area



Original General Arrangement: Plan



New General Arrangement: Plan



PRELIMINARY

Affected FSAR Sections

FSAR Section	Description	Change
1.1	Introduction	Figures
1.2	General Plant Description	Figures
2.1	Geography and Demography	Figures
2.2	Nearby Industrial, Transportation and Military Facilities	Figures
2.4	Hydrologic Engineering	Figures
2.5.2	Vibratory Ground Motion	Analyses*
2.5.4	Stability on Subsurface Materials and Foundations	Analyses*
2.5.5	Stability of Slopes	Slope Stability Analyses

*Addressed in Geotechnical and Civil / Structural RAI Presentations: Borings, Laboratory Testing (RCTS, Engineered Backfill), Soil Properties (Static and Dynamic), Seismic Analysis Including Soil Structure Interaction, Design of Critical Sections, Appendix 2.5A

Affected FSAR Sections

FSAR Section	Description	Change
3.7.1	Seismic Design Parameters	Figures
3.7.2	Seismic System Analysis	Analyses*
3.7.3	Seismic Subsystem Analysis	Figures
3.8.4	Other Seismic Category I Structures	Analyses*
3.8.5	Foundations	Analyses*
Appendix 3E4	UHS Makeup Water Intake Structure and UHS Electrical Building	Analyses*
9.2	Water Systems	Hydrology Analyses
9.5	Other Auxiliary Systems (FP)	Figures
10.4	Other Features of Steam and Power Conversion Systems (CWS)	Figures

*Addressed in Geotechnical and Civil / Structural RAI Presentations: Borings, Laboratory Testing (RCTS, Engineered Backfill), Soil Properties (Static and Dynamic), Seismic Analysis Including Soil Structure Interaction, Design of Critical Sections, Appendix 2.5A

Summary

Intake Structure Relocation

- Similar Structure / Different Orientation – No significant changes to plant design bases
- Environmental Sections submitted January 14, 2009
- FSAR Sections* to be completed and provided in Revision 5 or as a Supplement by June 30, 2009

* ISR Material w/exception of Specific Geotechnical and Civil/Structural RAI Issues identified in subsequent presentations.

CC3 Civil Structural Audit RAIs (Section 3.7)

Rob Poche, Licensing Project Manager, UNE
Navin Verma, Bechtel

Agenda

- FSAR Section 3.7.1, 3.7.2, 3.7.3 RAIs
- Seismic Reconciliation Process and Schedule
- Discussion of RAI Questions and Response Methodologies

Abbreviations

- RAI: Request for Additional Information
- NI: Nuclear Island (NI)
- EPGB: Emergency Power Generating Building
- ESWB: Essential Service Water Building
- UHS MWIS: Ultimate Heat Sink Makeup Water Intake Structure
- UHS EB: Ultimate Heat Sink Electrical Building
- NAB: Nuclear Auxiliary Building
- SSI: Structure Soil Interaction
- SSSI: Structure Soil Structure Interaction
- ISRS: In-structure Response Spectra
- CSDRS: Certified Seismic Design Response Spectra
- GMRS: Ground Motion Response Spectra
- FIRS: Foundation Input Response Spectra
- SSE: Safe Shutdown Earthquake
- ZPA: Zero Period Acceleration

FSAR Section 3.7.1, 3.7.2, 3.7.3 RAIs

- RAI Section 3.7 questions:
 - RAI 58: 10 Questions
 - RAI 63: 1 Question
 - RAI 65: 26 Questions
- Each RAI question has multiple parts
- Two additional anticipated questions from March 2009 NRC onsite technical audit
- 25 of the 37 Questions to be answered by July 15, 2009
- RAI questions with response submission dates beyond July 15, 2009 (communicated to NRC by UNE Letter on 3/19/2009)
 - RAI 58: Questions 1, 2, 3, 5, 6, 7, 10
 - RAI 65: Questions 4, 6, 12, 18, 24
- Outstanding questions fall into 4 major categories

Categories of RAI Questions

- Seismic Reconciliation of NI
 - RAI 58: Questions 1, 2, 10
 - Audit question 1 (Part 1)
- Seismic Reconciliation of EPGBs and ESWBs
 - RAI 58: Questions 3, 10
 - Audit question 1 (Part 2)
- Seismic Analysis / Reconciliation of UHS MWIS and UHS EB
 - RAI 58: Questions 5, 6
 - RAI 65: Questions 4, 6, 12
 - Audit question 2
- Miscellaneous
 - RAI 58: Question 7
 - RAI 65: Questions 18, 24

Seismic Reconciliation of NI Common Basemat Structures (Note: No Backfill)

RAI 58: Questions 1, 2, 10

Audit Question 1 (Part 1)

Activity	Schedule
Define Calvert Cliffs design SSE as broad band spectrum (ZPA = 0.15g) to envelope GMRS per NRC requirements	April 2009
Develop dynamic soil properties compatible to Calvert Cliffs design SSE	May 2009
Develop spectrally matched time histories	May 2009
Compare Calvert Cliffs design SSE with FIRS under NI against CSDRS	August 2009
Perform confirmatory SASSI analysis	August 2009
Perform NI and NAB interaction analysis	August 2009

Summary: All issues will be closed to support completion of NRC Phase 2 activities (December 2009)

Seismic Reconciliation of EPGBs and ESWBs

RAI 58: Questions 3, 10

Audit Question 1 (part 2)

Activity	Schedule
Receive SSSI motion from NI seismic reconciliation	August 2009
Develop structural backfill (static and dynamic) properties	September 2009
Develop SSI soil profile	December 2009
Develop FIRS	December 2009
Compare FIRS against CSDRS and design SSE*	January 2010
Perform confirmatory SASSI analysis**	March 2010

* Potential SER Open Item 1

** Potential SER Open Item 2

Seismic Analysis of UHS MWIS and EB

RAI 58: Question 5, 6

RAI 65: Question 4, 6, 12

Audit Question 2

Activity	Schedule
Develop (static and dynamic soil properties including structural backfill)	September 2009
Develop SSI soil profile	December 2009
Develop FIRS	December 2009
Compare FIRS against design SSE	December 2009
Perform SASSI Analysis**	April 2010
Reconcile analysis results with existing analysis***	May 2010

** Potential SER Open Item 2

*** Potential SER Open Item 3

Methodologies and Approach

RAI 58 Q 03.07.01-1

- Category: NI
- Justify assumption of rigid basemat in SSI analysis including lower bound soil properties (where shear wave velocity is less than 1000fps) (August 2009)
 - Perform supplementary analyses including modeling of basemat stiffness
 - Compare responses against design certification results to show CCNPP3 is bounded
- Identify impacts on the SSI analysis results and on the design of the foundation mat and supported superstructure (August 2009)
 - Perform confirmatory analyses using site-specific strain-compatible soil properties
 - Compare responses against design certification results to show CCNPP3 is bounded

Methodologies and Approach

RAI 58 Q 03.07.01-2

- Category: NI
- Provide figure in the FSAR to depict SSI model including the model of subgrade (June 2009)
 - Figure will be included in the FSAR
- Consideration of embedment effects and justification, if not considered (August 2009)
 - Embedment not considered; justification based on supplementary analyses considering embedment will be provided
- Description of properties of backfill and modeling of backfill in SSI analysis (June 2009)
 - Since embedment is not considered and NI is founded on cemented sand, no backfill is used underneath
- Treatment of groundwater effects in SSI analysis (June 2009)
 - P-wave velocity of submerged layers will be adjusted as needed to account for groundwater effects

Methodologies and Approach

RAI 58 Q 03.07.01-2 (continued)

- Identify computer codes to perform SSI analysis of NI; provide description of codes, extent of application and basis for validation (June 2009)
 - SASSI and RESPEC is used in the analysis
- Provide similar information on computer codes used in the generation of FIRS for each Category I structure (June 2009)
 - Proprietary computer codes were used in the generation of FIRS; information on the codes used for soil randomization and site response analysis will be provided
- Provide similar information on computer codes used in seismic analysis in Section 3.7.1, 3.7.2, and 3.7.3 (June 2009)
 - Information on the computer codes used in the seismic analysis of site-specific UHS MWIS and EB will be provided
 - No computer codes have been used in Section 3.7.3

Methodologies and Approach

RAI 58 Q 03.07.01-3

- Category: EPGB and ESWB
- Provide methodology to calculate FIRS at grade elevation computed from the GMRS which were determined at an elevation 41 ft below grade (July 2009)
 - FIRS will be calculated consistent with the NRC requirements in RG1.208, 10CFR100.23, 10CFR50 Appendix S
- Describe computer codes, soil column model, and the basis for the shear wave velocity of the structural backfill that supports both the EPGB and ESWB and the impact of this backfill on the development of the FIRS (December 2009)
 - Computer codes are proprietary. However, the description of each code used in randomization and site response analysis would be provided.
 - Seismic reconciliation will be based on using backfill properties established by laboratory testing including RCTS. Soil column model under each building will be provided.

Methodologies to be Applied to Potential SER Open Items RAI 58 Q 03.07.01-3 (continued)

- Provide in the FSAR the spectra at the foundation level of each structure meeting Appendix S requirements ([January 2010](#))
 - Design spectra at foundation level meeting Appendix S requirements will be provided for EPGBs and ESWBs
- Provide in the FSAR a comparison of the FIRS at the foundation level of each structure meeting the requirements of Appendix S to the CSDRS provided in the U.S. EPR FSAR ([January 2010](#))
 - Comparison of design spectra with modified CSDRS and FIRS with CSDRS will be provided
- Provide the basis for not performing confirmatory analysis for the EPGB and ESWB similar to that for NI ([June 2009](#))
 - Site parameters were shown to be enveloped by generic design parameters. Therefore, confirmatory analysis was not performed.
 - As requested, confirmatory SSI analysis using SASSI will however be performed for EPGB and ESWB for Calvert Cliffs design SSE

Methodologies to be Applied to Potential SER Open Items

RAI 58 Q 03.07.01-5

- Category: UHS EB
- Provide and include in the FSAR the horizontal and vertical spectra depicting design spectra envelope ([July 2009](#))
 - The horizontal and vertical design spectra is defined as EUR soft spectrum with ZPA of 0.15g enriched in low frequency region. The spectra will be included in the FSAR.
- Provide in the FSAR a reconciliation of the design response spectrum with the horizontal foundation input response spectra (FIRS) for this structure which meets the minimum requirements of 10 CFR Part 50, Appendix S ([January 2010](#))
 - Reconciliation will be included.
- Include a description of how the FIRS are developed including the soil model, soil properties, backfill properties, computer programs and analysis assumptions ([January 2010](#))
 - FIRS will be developed using the requirements of RG1.208, 10CFR100.23 and 10CFR50 Appendix S; remainder information will be included.

Methodologies and Approach

RAI 58 Q 03.07.01-6

- Category: UHS MWIS
- Provide in the FSAR how the design response spectrum and assumed soil properties used in the analysis of the UHS MWIS will be reconciled with the FIRS that meets the requirements of Appendix S and the final soil properties determined from the site final geotechnical studies ([August 2009](#))
 - The horizontal and vertical design spectra is defined as EUR soft spectrum with ZPA of 0.15g enriched in low frequency region. The FIRS are expected to be enveloped by the design spectra. This will be confirmed when FIRS have been developed after completion of Geotechnical investigations.
- Include in the FSAR a comparison of the FIRS with the design response spectra used in the analysis ([December 2009](#))
 - Comparison of FIRS with design response spectra will be included.
- Include a description of how the FIRS are developed including the soil model, soil properties, computer programs, and analysis assumptions ([December 2009](#))
 - FIRS will be developed using the requirements of RG1.208, 10CFR100.23 and 10CFR50 Appendix S; remainder information will be included.

Methodologies and Approach

RAI 58 Q 03.07.01-7

- Category: Others (Buried Utilities)
- Provide in the FSAR a discussion of the site-specific spectra that were considered ([December 2009](#))
 - Site-specific SSE is EUR soft spectrum with ZPA of 0.15g enriched in low frequency region. The FIRS will be developed at intermediate locations of site-specific buried utilities. The FIRS at one end of the buried utilities corresponds to FIRS at NI and at the other end corresponds to FIRS at UHS MWIS/EB
- Provide justification for the use of the EUR soft soil spectrum including possible displacement and velocity differences that may exist with the use of this spectrum as opposed to using a site specific spectrum ([December 2009](#))
 - The design spectrum will completely envelope FIRS
- Provide a comparison of the EUR soft soil spectrum with appropriate site-specific spectra that are applicable to buried utilities ([December 2009](#))
 - The comparison will be included in the FSAR

Methodologies to be Applied to Potential SER Open Items

RAI 58 Q 03.07.01-10

- Category: NI, EPGB and ESWB
- State explicitly or by reference design ground motion time histories for these structures [\(August 2009\)](#)
 - Reference will be provided to U.S. EPR design ground motion time histories
- What are the site specific design ground motions and their bases that apply to these structures? Provide this information in Section 3.7.1.1.2 of the FSAR [\(January 2010\)](#)
 - Site-specific design ground motions consistent with site design SSE will be included in the FSAR

Methodologies to be Applied to Potential SER Open Items

RAI 65 Q 03.07.02-4

- Category: UHS EB
- Provide results of SSI analysis that meet the acceptance criteria 4.A.vii of SRP 3.7.1 and acceptance criteria 4 of SRP 3.7.2 using subgrade model of final soil and backfill properties or justify alternative (May 2010)
 - SASSI analysis to account for soil structure interaction effects will be performed. SASSI analysis will utilize strain compatible soil properties and time histories consistent with design spectra.
- Include SSSI effects from UHS MWIS (May 2010)
 - SASSI analysis model will include UHS MWIS and UHS EB to account for SSSI effects
- Reconcile with the results of assumed seismic response and ISRS (May 2010)
 - Due to very conservative equivalent static analysis, the ISRS are not expected to change. However, ISRS will be reconciled with results of the analysis.

Methodologies to be Applied to Potential SER Open Items

RAI 65 Q 03.07.02-6

- Category: UHS MWIS
- Describe how the SSI analysis performed meets the acceptance criteria 4.A.vii of SRP 3.7.1 or justify alternative ([January 2010](#))
 - Confirmatory SSI analysis using SASSI, incorporating dynamic soil impedances will be performed. Results will be reconciled with the original analysis.
- Provide a figure depicting the soil-structure model used for the seismic analysis ([December 2009](#))
 - Figure of updated SSI model will be provided
- Provide the basis for the assumed soil properties and profile used to calculate the frequency independent impedance functions ([July 2009](#))
 - The soil properties used were based on correlation of soil properties in the NI area. The conservative coefficient of variation of 1 was used to address potential variation in the final soil properties.
 - However, confirmatory SASSI analysis will use the strain compatible soil properties including backfill effects developed after completion of Geotechnical investigation.

Methodologies to be Applied to Potential SER Open Items

RAI 65 Q 03.07.02-6 (continued)

- Provide the method and formulas used to calculate the values of the soil springs under the foundation as well as the lateral soil springs that represent the embedment effects ([July 2009](#))
 - The soil springs in the analysis were based on equations in ASCE 4-98 with correction for embedment effects. An analysis with and without embedment effects was performed. The seismic responses were based on the envelope of the two sets of results.
- State whether the soil properties used in the analysis are strain dependent or simply the low strain values. If these are low strain values, justify their use and quantify the impact of not using strain dependent properties on the results of the analysis. If the soil properties are strain dependent, describe how the final soil properties are determined in the analysis ([July 2009](#))
 - The best estimate (BE) properties used in the analysis were at low strain. The BE properties were varied by 100% to obtain lower bound (LB) and upper bound (UB) properties. The observed degradation in the soil shear modulus is insignificant.
 - However, confirmatory SASSI analysis will use soil properties compatible with strains at design spectra.

Methodologies to be Applied to Potential SER Open Items RAI 65 Q 03.07.02-6 (continued)

- For large values of Poisson's ratio, the dynamic stiffness and damping are frequency dependent. Provide justification for assuming that the impedance functions of the supporting foundation are frequency independent ([August 2009](#))
 - The frequency independent impedances were used due to soil layer with uniform properties under a certain depth below foundation.
 - SASSI analysis will utilize frequency dependent impedances.
- Confirm that the control motion is applied at the base of the soil structure analysis model ([August 2009](#))
 - Control motion is applied at the base of the analysis model. Similar approach will be adopted in SASSI analysis.
- Provide a reconciliation of the final soil properties and the foundation input response spectra (FIRS) that are based on these properties with the seismic analysis results described in the FSAR ([January 2010](#))
 - Reconciliation of soil properties and FIRS will be provided.

Methodologies to be Applied to Potential SER Open Items

RAI 65 Q 03.07.02-12

- Category: UHS MWIS and EB
- Provide results of a structure-to-structure interaction analysis between UHS MWIS and EB (May 2010)
 - The results of SSSI between UHS MWIS and EB will be provided once seismic reconciliation of these structures is complete using SASSI analysis

Methodologies and Approach

RAI 65 Q 03.07.02-18

- Category: Others
- Clarify the seismic classification of fire protection tank and building ([June 2009](#))
 - As identified in the RAI question, these SSCs are Seismic Category II-SSE.
 - The information will be clarified in Section 3.7.2.8.
- Reconcile the U.S. EPR seismic analysis for NAB with the site-specific soil properties and foundation input response spectra (FIRS) ([August 2009](#))
 - NAB is included in NI SSI model
 - Response of NAB is compared against design certification
- Demonstrate in the FSAR that the displacement of this structure relative to the nuclear island common basemat structure is enveloped by the results of the U.S. EPR analysis ([August 2009](#))
 - Compare ZPAs for the NI and NAB for CCNPP3 with those from design certification and show that design certification results are enveloping (therefore, CCNPP3 displacements are bounded.)

Methodologies and Approach

RAI 65 Q 03.07.02-24

- Category: Others
- Per COLA item 3.7-1, address that the seismic response of the nuclear island common basemat structures, seismic Category II structures, the Nuclear Auxiliary Building and the Radioactive Waste Processing Building is within the parameters of Section 3.7 of U.S. EPR FSAR. [\(August 2009\)](#)
 - NI, Vent Stack (SC II) and NAB reconciliation is addressed through site-specific confirmatory SSI analysis for NI
 - RWPB is not designed; however, the ground motions for CCNPP3 are bounded by design certification ground motions and, therefore, interactions associated with the RWPB are bounded by DC
- Provide a summary for each structure, either directly or by reference, which describes how the COL item is met [\(August 2009\)](#)
 - Summary will be provided

Methodologies to be Applied to Potential SER Open Items

Anticipated Audit Question 1

- Category: NI, EPGBs and ESWBs, UHS MWIS and EB
- Provide a definition of site SSE and explain how it meets regulation requirements (June 2009)
 - Calvert Cliffs SSE will be defined in free field at grade as broad band EUR soft spectra ($ZPA = 0.15g$) enriched in low frequency region to meet 10CFR100.23 and 10CFR50 Appendix S requirements
- Consistent with the site SSE, provide FIRS determined in the free field at the foundation level of each structure (August 2009 for NI, January 2010 for EPGB, ESWB and December 2009 UHS MWIS & EB)
 - FIRS will be defined at the foundation level of each Category I structure
- Provide horizontal component of SSE at foundation level in the free field meeting the requirements of Appendix S (August 2009 for NI, January 2010 for EPGB, ESWB and December 2009 UHS MWIS & EB)
 - Horizontal component of SSE will be provided

Methodologies to be Applied to Potential SER Open Items

Anticipated Audit Question 1 (continued)

- Provide the results of reconciliation analysis of each structure using the SSE input motion defined at the foundation level of each structure, meeting requirements of Appendix S, with the analysis providing design basis loads and ISRS or justify why such analysis is not required
 - Confirmatory SASSI analysis will be performed for NI using FIRS consistent with site SSE; due to large margin between CSDRS and site SSE, the results from the generic design are expected to envelop the site specific confirmatory analysis. [\(August 2009\)](#)
 - Confirmatory SASSI analysis will be performed for EPGBs and ESWBs using FIRS consistent with site SSE and SSSI effects from NI; due to large margin between CSDRS and site SSE, the results from the generic design (including ISRS) are expected to envelop confirmatory results. [\(March 2010\)](#)
 - SASSI analysis will be performed for UHS MWIS and EB using the design SSE; the results from the current conservative SSI analysis are not anticipated to change. [\(May 2010\)](#)

Methodologies and Approach Audit Question 2

- Category: UHS MWIS
- Justify the selection of location of ISRS for UHS MWIS
 - The ISRS reported in FSAR were selected to match the location of safety-related pumps.
 - Additional ISRS will be generated when the location of other safety-related equipment is determined.

Summary

Civil Structural FSAR Section 3.7

- Phase 1 RAIs were comprehensive and consistent with other applicant RAIs
- Most RAI items will be completed to support NRC Phase 2 activities
 - NI common basemat structures – All items
 - EPGBs and ESWBs – All items except FIRS comparison and confirmatory SASSI analysis
 - UHS MWIS and EB – All items except confirmatory SASSI analysis and subsequent reconciliation
- These three RAI items are expected to be categorized as SER Open Items and will be resolved, pending further analyses, in Phase 4
- Methodologies to be used to resolve the SER Open Items are not unique, and satisfactory results are expected
- Calculations will be made available for review by NRC as completed

CC3 Geotechnical Audit FSAR Chapters 2.5.4 and 2.5.5

**Mike Yox, Director, Licensing, UNE
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Agenda

- Status of Current FSAR Sections 2.5.4 & 2.5.5
- Work in Progress
- Path Forward

Geotechnical Issues (FSAR 2.5.4 & 2.5.5)

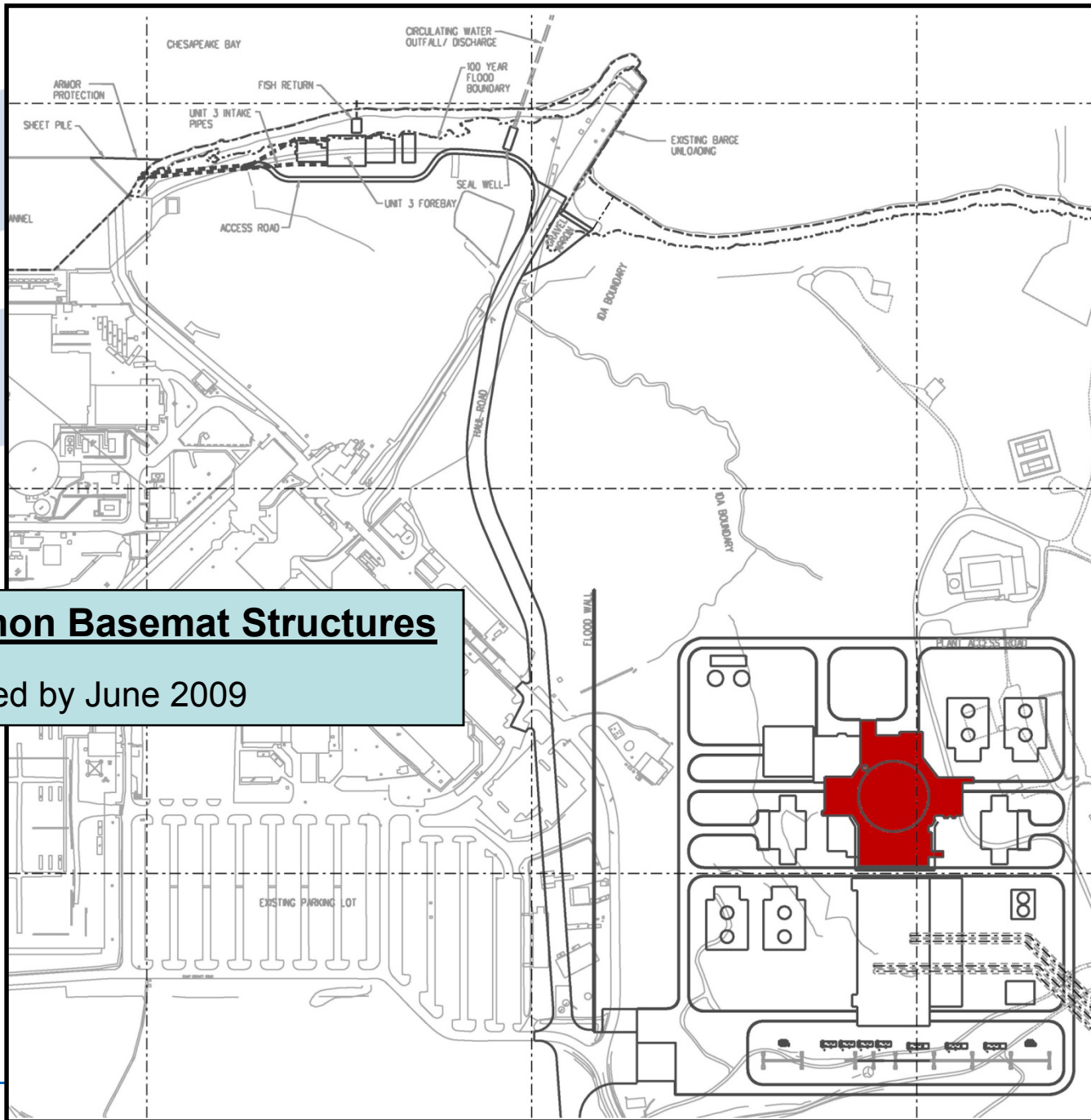
Item	Status
Dynamic Property Tests RCTS results provided in FSAR Rev 1 markup (letter Dec.14, 2007)	✓
Excavation, Backfill, Earthworks Provided in FSAR Rev 1 markup (letter Dec.14, 2007)	✓ except backfill
Foundation Rebound, Settlement, Differential Settlement, Bearing Capacity, and Lateral Earth Pressure Provided FSAR Rev 1 markup (letter Dec.14, 2007)	✓ more to follow on backfill

Geotechnical Issues (FSAR 2.5.4 & 2.5.5)

Item	Status
Detailed Dewatering Plan Dewatering plan provided in response letter (letter June 20, 2008)	✓
Foundation Dimensions Provided in FSAR Rev 3 markup (letter Aug. 19, 2008)	✓
Lateral Earth Pressure Analysis Provided in FSAR Rev 3 markup (letter Aug. 18, 2008)	✓
Complete Borings and Associated Work Draft laboratory test results and boring logs for the 2008 investigation provided in response letter (letter Oct. 10, 2008)	✓ more to follow

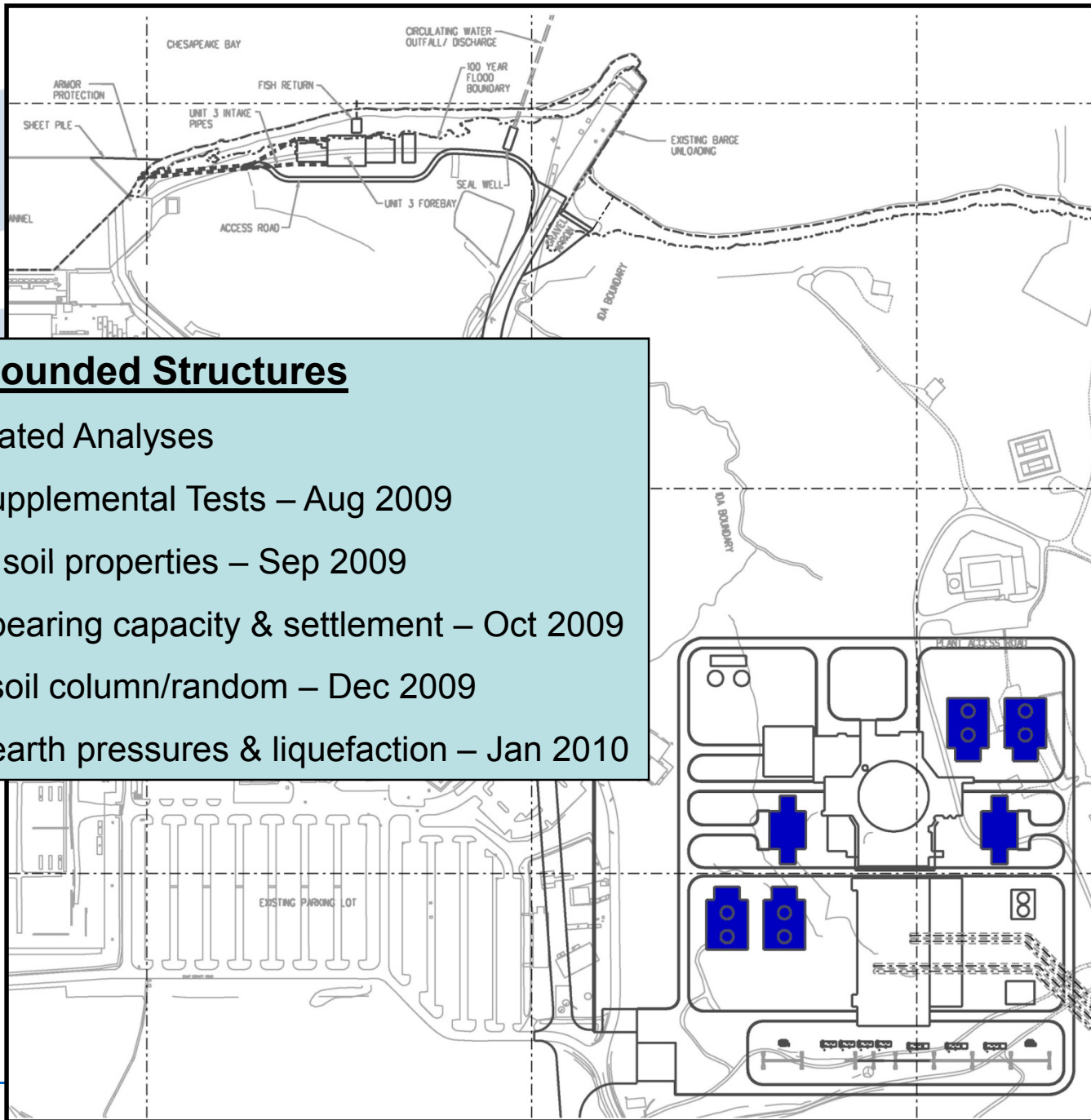
Geotechnical Issues (FSAR 2.5.4 & 2.5.5)

Item	Status
1) Additional borings, testing & analysis (FSAR 2.5.4.2.1.6, 2.5.4.2.1.8, 2.5.4.10.2 & 2.5.4.12)	Completed (Except intake RCTS tests which are in progress)
2) Structural backfill properties (FSAR 2.5.4.2.1.8, 2.5.4.7.3.3 & 2.5.4.10.3)	In progress
3) Foundation pressure for Category I structures (FSAR 2.5.4.10.1)	In progress
4) Foundation settlement for Category I structures (2.5.4.10.2 & 2.5.4.10.4)	In progress
5) Slope stability in intake area (FSAR 2.5.5.2 & 2.5.5.2.2)	In progress



NI Common Basemat Structures

- Completed by June 2009



Backfill Founded Structures

Backfill Related Analyses

- RCTC Supplemental Tests – Aug 2009
- Dynamic soil properties – Sep 2009
- Refined bearing capacity & settlement – Oct 2009
- Refined soil column/random – Dec 2009
- Refined earth pressures & liquefaction – Jan 2010

Path Forward

- Work with NRC Staff on Backfill Analyses and Foundation Pressure and Settlement Issues through the December Phase 2 period
- UNE requests an NRC Geo-Technical audit in July 2009
 - Analyses completed for Nuclear Island
 - Analyses methodologies for Intake Structure available for review
 - RAIs can be issued post-audit in July/August
- Potential SER Open Item on Backfill – Information to close the items will be provided in 2nd Quarter 2010 (Phase 4)

Wrap-Up

- UNE appreciates the opportunity to provide this status and schedule information to the NRC Staff
- UNE hopes this information will be helpful as the NRC completes the schedules for the CC3 COLA and S-COLAs
- UNE respectfully requests that NRC conduct a Geotechnical Audit in early July
- UNE looks forward to working with the NRC Staff to resolve potential SER Open Items, and is working to accelerate schedules to minimize the number of potential SER Open Items.