

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	Docket Nos. 52-012 COL
	)	52-013 COL
NUCLEAR INNOVATION NORTH AMERICA LLC	)	
	)	
(South Texas Project Units 3 and 4)	)	November 12, 2015
	)	

**APPLICANTS' PRE-FILED TESTIMONY OF SCOTT M. HEAD FOR THE  
MANDATORY HEARING ON UNCONTESTED ISSUES  
FOR SOUTH TEXAS PROJECT UNITS 3 AND 4**

**WITNESS BACKGROUND**

**Q1. Please state your name.**

A1. Scott M. Head.

**Q2. By whom are you employed?**

A2. I am employed by the STP Nuclear Operating Company (STPNOC). I am on loan from STPNOC to Nuclear Innovation North America LLC (NINA).

**Q3. What is your position at NINA?**

A3. I am the Manager, Regulatory Affairs. I have served in that position since October, 2008. I am responsible for all activities related to the licensing of South Texas Project (STP) Units 3 and 4. I report to the Chief Executive Officer of NINA.

**Q4. Please describe your educational and professional background.**

A4. A copy of my statement of qualifications is provided with this testimony as Exhibit STP-003.

**Q5. What is the purpose of your testimony?**

A5. The purpose of my testimony is to support the findings the Commission must make as part of the hearing on uncontested issues for STP Units 3 and 4.

**DESCRIPTION OF THE COMBINED LICENSE APPLICATION (COLA)**

**A. Project Background**

**Q6. Please briefly describe the STP Units 3 and 4 project.**

A6. The STP Units 3 and 4 project involves the licensing, design, construction, and operation of two new nuclear power generating units at the existing STP site adjacent to the existing STP Units 1 and 2.

**Q7. What type of reactors will be utilized for STP Units 3 and 4?**

A7. STP Units 3 and 4 will each utilize the Advanced Boiling Water Reactor (ABWR) light water reactor design that has been certified by the Nuclear Regulatory Commission (NRC).

**Q8. Where are STP Units 3 and 4 located?**

A8. STP Units 3 and 4 are located on the existing STP site. The 12,220 acre site is located in a rural area of south central Matagorda County, Texas, west of the Colorado River, 8 miles north-northwest of the town of Matagorda; and approximately 80 miles southwest of Houston. The facility is co-located with STP Units 1 and 2, two existing pressurized water reactors.

**Q9. Please identify the licenses being sought in the COLA for STP Units 3 and 4.**

A9. NINA has submitted a COLA for the construction and operation of two nuclear powered generating units designated as STP Units 3 and 4. In addition, the COLA requests source, byproduct, and special nuclear material licenses under 10 CFR Parts 30, 40 and

70 as required for construction and operation. NINA is the lead applicant and will be the lead licensee responsible for design and construction of each unit until the date on which the Commission makes a finding that inspections, tests, analyses, and acceptance criteria (ITAAC) are met under 10 CFR § 52.103(g) or allows operation during an interim period under the combined license (COL) under 10 CFR § 52.103(c), at which point STPNOC will be the lead licensee responsible for operations.

**B. Applicants for STP Units 3 and 4**

**Q10. Please identify the applicants for STP Units 3 and 4 and their respective roles and responsibilities.**

A10. The applicants for STP Units 3 and 4 are:

- NINA, pursuant to Section 103 of the Atomic Energy Act of 1954, as amended (the Act or AEA), and 10 CFR Part 52, to construct, possess, and use STP Units 3 and 4.
- STPNOC, pursuant to Section 103 of the Act and 10 CFR Part 52, to possess, use, and operate STP Units 3 and 4, beginning on the date on which the Commission makes a finding that the ITAAC are met under 10 CFR § 52.103(g) or allows operation during an interim period under 10 CFR § 52.103(c).
- NINA 3 and CPS Energy, pursuant to Section 103 of the Act and 10 CFR Part 52, to possess STP Unit 3 and own a 92.375% and a 7.625% undivided interest, respectively.

- NINA 4 and CPS Energy, pursuant to Section 103 of the Act and 10 CFR Part 52, to possess STP Unit 4 and own a 92.375% and a 7.625% undivided interest, respectively.

**Q11. Were other companies involved in preparing the COLA or supporting NINA's response to the NRC's review of the COLA?**

A11. Yes. Several other companies assisted in development of the COLA, among them Toshiba, General Electric, Bechtel, Westinghouse, Sargent & Lundy, Shaw Stone and Webster, Fluor, Hurst Technologies, Tetra Tech, Exponent, DP Engineering, Etranco, Certrec, and MPR Associates.

**C. Early Site Permit and Limited Work Authorization**

**Q12. Is the site for STP Units 3 and 4 the subject of an early site permit (ESP)?**

A12. No.

**Q13. Have the applicants requested a limited work authorization for STP Units 3 and 4?**

A13. No. NINA requested an exemption from specific requirements of 10 CFR Part 50, Section 50.10 (Limited Work Authorization) to authorize installation of the crane foundation retaining walls for STP Units 3 and 4 adjacent to the future excavation. The NRC approved the exemption on November 5, 2010. However, NINA has not implemented the exemption.

**D. Reactor Type for STP Units 3 and 4**

**Q14. Has the ABWR been certified by the NRC?**

A14. Yes. On July 13, 1994, the NRC issued the final design approval (FDA), along with the “Final Safety Evaluation Report (FSER) related to certification of the Advanced Boiling Water Reactor Design” (NUREG-1503), U.S. NRC Docket No. 52-001. On May 12, 1997, the NRC issued the final design certification rule (DCR) for the ABWR design in the *Federal Register* (62 FR 25800), which is contained in Appendix A to 10 CFR Part 52.

**Q15. Does the COLA for STP Units 3 and 4 incorporate by reference the ABWR design certification and the ABWR Design Control Document (DCD)?**

A15. Yes. STP Units 3 and 4 will each utilize the NRC-certified ABWR design. The COLA presents descriptions and analyses of the station design, and incorporates by reference Appendix A to 10 CFR Part 52 as required by Section III.B of that Appendix.

**Q16. What effect does incorporating the ABWR DCD have on the COLA for STP Units 3 and 4?**

A16. Incorporating these previously reviewed and approved documents by reference essentially narrows the scope of issues that the Commission needs to consider before issuing the COLs for STP Units 3 and 4. An applicant, such as NINA, that requests a license to construct and operate a nuclear power reactor using the ABWR design need not demonstrate in its application the safety of the certified design. Instead, those issues were conclusively resolved in the ABWR design certification review and rulemaking. Accordingly, with limited exceptions, safety issues within the scope of the ABWR are not addressed as part of this testimony.

**Q17. Who was the design certification applicant for the ABWR?**

A17. On September 29, 1987, the General Electric Company applied for certification of the U.S. ABWR standard design with the NRC. The application was made in accordance with the procedures of 10 CFR Part 50, Appendix O and the Policy Statement on Nuclear Power Plant Standardization, dated September 15, 1987. The application was docketed on February 22, 1988 (Docket No. STN 50-605). On December 20, 1991, GE Nuclear Energy (GE) requested that its application be considered as an application for design approval and subsequent design certification pursuant to 10 CFR § 52.45. Accordingly, the NRC Staff assigned a new docket number for the ABWR (52-001), which became effective on March 13, 1992.

**Q18. Is GE supplying the ABWR design for STP Units 3 and 4?**

A18. No.

**Q19. Who is supplying the ABWR design for STP Units 3 and 4?**

A19. The design and construction of STP Units 3 and 4 will be completed by a consortium of Toshiba America Nuclear Energy (TANE) and Stone & Webster, a wholly owned subsidiary of Shaw Group Incorporated, acting in conjunction with subcontractors including Westinghouse and Sargent & Lundy. TANE is a subsidiary of Toshiba Corporation (Toshiba).

**Q20. Please discuss whether Toshiba is qualified to supply the U.S. ABWR certified design for STP Units 3 and 4.**

A20. Toshiba is qualified to serve as the alternate vendor for the U.S. ABWR. Toshiba has extensive nuclear experience in the Japanese fleet, having constructed 22 boiling water reactors (BWRs), 17 as prime contractor. The conceptual design, fundamental design, and common engineering for the first ABWRs were developed by a team composed of

GE, Toshiba, and Hitachi. This ABWR team completed the detailed implementation engineering for Kashiwazaki-Kariwa Units 6&7. Subsequent to that project, Toshiba also was the architect-engineer and prime contractor for the design, procurement, and construction for another ABWR, Hamaoka Unit 5. In parallel with the ABWR development in Japan in the 1990s, the design for the U.S. ABWR was reviewed and certified. Since Toshiba had considerable nuclear experience in Japan and had worked extensively on the original development of the ABWR, we believed Toshiba had the necessary ABWR expertise to perform as an alternate vendor for the ABWR. We nevertheless evaluated Toshiba to confirm that they had the capability of leading an Engineering, Procurement, and Construction (EPC) team and implementing an ABWR project in the U.S.

In early 2008, the EPC organization with oversight by MPR Associates assembled a team to perform what is called the Toshiba Technical Capability Assessment (TCAP). In parallel, STPNOC also assembled a group of senior employees and outside industry experts to independently oversee and evaluate the TCAP effort. Planning, implementation, and evaluation activities occurred between January and June of 2008, including a comprehensive assessment team visit at Toshiba's offices in Isogo, Japan in March. The assessment demonstrated Toshiba's capability to design, procure, and construct the certified U.S. ABWR. We were extremely impressed with Toshiba's first-hand experience, extensive documentation, and working knowledge of the ABWR technology. Toshiba, along with their NSSS EPC team U.S. partners, Westinghouse and Sargent & Lundy, demonstrated a strong capability to design, procure, and construct the certified U.S. ABWR.

Based on the detailed evaluations performed, we concluded that the Toshiba EPC team has the technical qualifications and capability to provide the certified ABWR design for STP Units 3 and 4. Most importantly, Toshiba (through its previous work on the ABWR) has the required design basis information available, including proprietary information used for design certification of the ABWR.

**Q21. In accordance with the ABWR DCR in Appendix A.IV.A.3 of 10 CFR Part 52, does the COLA for STP Units 3 and 4 include the sensitive unclassified non-safeguards information and the safeguards information referenced in the ABWR DCD?**

A21. Yes.

**Q22. The ABWR DCR in Appendix A to 10 CFR Part 52 discusses an amendment to the ABWR design certification submitted by STPNOC to address the aircraft impact assessment (AIA) rule in 10 CFR § 50.150. Does the COLA for STP Units 3 and 4 also incorporate by reference the STPNOC amendment and the STPNOC DCD for the AIA as discussed in Appendix A to Part 52?**

A22. Yes.

**Q23. Is the COLA for STP Units 3 and 4 the Reference-COLA (R-COLA) for the ABWR?**

A23. Yes.

**Q24. Does the COLA for STP Units 3 and 4 identify information for use by Subsequent-COLAs (S-COLAs)?**

A24. Yes. NINA has employed a Design Centered Working Group philosophy on the project. Departures from the DCD are categorized as either standard (i.e., generically applicable to S-COLAs) or STP site-specific.



**Q25. Are there currently any S-COLAs for the ABWR?**

A25. No. Although there are no other current ABWR applicants, NINA anticipates that future ABWR applicants will utilize the COLA for STP Units 3 and 4 as the R-COLA for the ABWR.

**E. Exemptions and Departures**

**Q26. Does the COLA request any exemptions from applicable NRC regulations?**

A26. Yes. The applicants requested three exemptions from NRC regulations. The first exemption, as discussed in the answer to Question 13, was from the definition of Construction to allow the installation of a crane foundation wall during the excavation process prior to issuance of the COLs. NRC approved this request on November 5, 2012. The second exemption was from the requirements of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41 and 74.51. Sections 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 contain exemptions for nuclear reactors licensed under 10 CFR Part 50 but not for nuclear reactors licensed under 10 CFR Part 52. The exemption request asks NRC to treat STP Units 3 and 4 similarly to Part 50 plants under these regulations. The third exemption was from the financial qualification requirements in 10 CFR §§ 52.77, 50.33(f), and Part 50, Appendix C as applied to construction and operation. That exemption request is discussed in more detail in the answers to Questions 66 and 67 below.

**Q27. Does the COLA request any exemptions from the certified ABWR design?**

A27. Yes. The COLA for STP Units 3 and 4 requests 17 Tier 1 departures which are exemptions from the ABWR DCR. One of these was due to the STP site characteristics which were not bounded by the site parameters in the DCD, one to take the benefit of

changes in the regulations that deleted certain equipment provided to control hydrogen in certain design basis scenarios, one to account for operational experience regarding the reactor internal pump motor casing cladding, one for clarification of the term “as-built” to be consistent with current industry terminology, and 13 due to evolutions in the design that represent improvements in safety, such as a new and better Reactor Core Isolation Cooling (RCIC) pump. While each of these changes was necessary or beneficial, the overall net effect on the standardization of the design is minimal because the changes do not affect the overall functions to be performed by the structures, systems, and components (SSCs) of the ABWR.

**Q28. Does the COLA for STP Units 3 and 4 involve any other departures from the ABWR DCD?**

A28. Yes. The COLA for STP Units 3 and 4 includes a total of 275 departures, consisting of the following:

- 17 departures from Tier 1 requirements (which are also exemptions as noted in the answer to Question 27 above);
- one Tier 2\* departure to reference updated codes and standards;
- 126 Technical Specification changes to implement design changes taken in other areas, implement operational experience, implement regulatory changes, correct an error, and mostly editorial (109) in nature to correct references, typographical errors, and inconsistencies;
- one Tier 2 departure requiring NRC approval to correct an error in the containment analysis; and

- 130 Tier 2 departures to improve the safety and reliability of the design or to reflect more recent technology, such as a state of the art radioactive waste processing system.

Of the 275 departures, 246 are standard departures which will apply to S-COLAs and the remaining 29 are site-specific to the COLA for STP Units 3 and 4. The following table provides a summary of the departures.

**Departure Summary**

Type	Standard Departure (STD)	Site Specific Departure (STP)	TOTAL Number of Departures	Breakdown of Departures by Category						
				Improvement in Safety, Reliability, or Technology Evolution	Departure for Operational Experience	Departure for Regulation / Evolution / Consistency	Site or Dual Unit Departure	Error Correction	Admin Editorial Other	
Tier 1	15	2	17	13	1	1	1			1
Tier 2 star	1		1	1						
Tech Spec	126		126	7	2	7		1		109
Tier 2 needing NRC approval	1		1	1						
Tier 2 not needing NRC approval	103	27	130	70	3	8	5	13		31
Total	246	29	275	92	6	16	6	14		141

**F. Structure of the COLA for STP Units 3 and 4**

**Q29. Please describe the structure of the COLA for STP Units 3 and 4.**

A29. The structure of the COLA for STP Units 3 and 4 is based upon Regulatory Guide (RG) 1.206 and the Standard Review Plan (SRP) in NUREG-0800 and NUREG-1555. The COLA for STP Units 3 and 4 is organized as follows:

- Part 1: General and Financial Information
- Part 2: Final Safety Analysis Report
- Part 3: Environmental Report
- Part 4: Technical Specifications
- Part 5: Emergency Plan
- Part 6: Site Redress Plan
- Part 7: Departures Report
- Part 8: Security/Training Qualification/Safeguards Plan
- Part 9: Inspections, Tests, Analyses, Acceptance Criteria
- Part 10: Proprietary Information
- Part 11: Mitigative Strategies Report

Part 2 is comprised of Tier 1 and Tier 2 information. Tier 1 is the certified information.

Tier 2 contains the Final Safety Analysis Report (FSAR) with the chapters as required by the ABWR DCR (10 CFR Part 52, Appendix A, Section IV.A.2.a). Supplemental sections were added to the FSAR to address requirements in RG 1.206 that were not part of the design certification. The FSAR contains the following chapters:

- Chapter 1: Introduction
- Chapter 2: Site Characteristics
- Chapter 3: Design of Structures, Components, Equipment and Systems
- Chapter 4: Reactor
- Chapter 5: Reactor Coolant System and Connected Systems
- Chapter 6: Engineered Safety Features
- Chapter 7: Instrumentation and Control Systems
- Chapter 8: Electric Power
- Chapter 9: Auxiliary Systems
- Chapter 10: Steam and Power Conversion
- Chapter 11: Radioactive Waste Management
- Chapter 12: Radiation Protection

Chapter 13: Conduct of Operation  
Chapter 14: Initial Test Program  
Chapter 15: Accident and Analysis  
Chapter 16: Technical Specifications  
Chapter 17: Quality Assurance  
Chapter 18: Human Factors Engineering  
Chapter 19: Response to Severe Accident Policy Statement  
Chapter 20: Question and Response Guide  
Chapter 21: Large Scale Drawings

The STP Units 3 and 4 response to the NRC's Fukushima recommendations is contained in FSAR Appendix 1E. The Aircraft Impact Analysis is provided in FSAR Appendix 19S.

The FSAR for STP Units 3 and 4 incorporates the ABWR DCD by reference. The reference ABWR DCD is Revision 4 of the ABWR DCD submitted by GE in March 1997, as approved in 10 CFR Part 52, Appendix A, and as modified by the STP application to amend the ABWR DCR, "ABWR STP Aircraft Impact Assessment (AIA) Amendment Revision 3," dated September 23, 2010.

Part 11 of the COLA contains the Mitigative Strategies Report which describes the response of STP Units 3 and 4 in the unlikely event that a large area of the facility is lost due to fires or explosions, as required by 10 CFR § 50.54(hh)(2).

**Q30. Is this structure similar to the structure of the COLAs for Vogtle Units 3 and 4, Summer Units 2 and 3, and Fermi Unit 3?**

A30. Yes. The structure of the STP Units 3 and 4 COLA is generally similar to the structure of the applications for Vogtle Units 3 and 4, Summer Units 2 and 3, and Fermi Unit 3. In some cases the location of specific information is different in the different applications.

**Q31. Please discuss whether the form and content of the COLA for STP Units 3 and 4 conforms to NRC's standard review plans and other regulatory guidance.**

A31. As stated in the answer to Question 29, the form and content of the COLA for STP Units 3 and 4 conforms to the SRP, NUREG-1555, RG 1.206, and the ABWR DCR.

**Q32. In accordance with the ABWR DCR in Appendix A.IV of 10 CFR Part 52, does the COLA for STP Units 3 and 4 include information demonstrating compliance with the site parameters and interface requirements in the ABWR DCD, the COL License Information Items in the ABWR DCD, and the information required by 10 CFR § 52.47 that is not within the scope of the ABWR DCR?**

A32. Yes. The COLA for STP Units 3 and 4 includes information on compliance with site parameters, interface requirements, and COL License Information Items. FSAR Section 1.8S provides summary tables of the locations in the FSAR that demonstrate conformance to the site parameters and interface requirements. DCD Tier 2 Section 1.9 provides a table of the location of the COL License Information Items.

In addition, the DCD identified a number of systems as site-specific and beyond the scope of the ABWR DCR. For these systems the ABWR DCD included information termed “conceptual.” The COLA for STP Units 3 and 4 replaced the “conceptual” design in the DCD for the following systems:

- Ultimate Heat Sink
- Offsite Power and Transmission
- Makeup Water
- Potable and Sanitary Water
- Reactor Service Water
- Turbine Service Water
- Non-Radioactive Drains
- Power Cycle Heat Sink
- Communications
- Site Security
- Circulating Water System
- Heating, Ventilating, Air-Conditioning

The location of this information is summarized in Table 1.8S-3 in FSAR Section 1.8S.

**G. Compliance of the COLA for STP Units 3 and 4 with Applicable Requirements in Part 52**

**Q33. Does the COLA for STP Units 3 and 4 meet all applicable requirements in 10 CFR Part 52?**

A33. Yes, as I discuss in response to Question 34 below.

**Q34. Please discuss how the requirements in Part 52 are met in the COLA for STP Units 3 and 4?**

A34. Attachment 1 to my testimony shows where each of the applicable requirements in Part 52 is addressed in the COLA.

**Q35. Please discuss whether the COLA for STP Units 3 and 4 addresses the NRC recommendations arising from the accident at the Fukushima Dai-ichi Nuclear Power Plant.**

A35. FSAR Appendix 1E documents NINA's response to the NRC recommendations regarding Fukushima.

**H. NRC Review of the COLA for STP Units 3 and 4**

**Q36. Did the NRC Staff document its safety and environmental reviews of the COLA for STP Units 3 and 4?**

A36. Yes. The NRC documented its safety review for STP Units 3 and 4 in the FSER and documented its environmental review for STP Units 3 and 4 in the FEIS (NUREG-1937).

**Q37. What were the conclusions of the NRC Staff?**

A37. In the FSER, the Staff concluded that:

with respect to the safety aspects of the COL application: 1) the applicable standards and requirements of the AEA and Commission regulations have been met; 2) required notifications to other agencies or bodies have been duly made; 3) there is reasonable assurance that the facilities will be constructed and will



operate in conformity with the licenses, the provisions of the AEA, and the Commission's regulations; 4) the applicant is technically and financially qualified to engage in the activities authorized; and 5) issuance of the licenses will not be inimical to the common defense and security or to the health and safety of the public.

In the FEIS, the Staff concluded that the accrued benefits of STP Units 3 and 4 would outweigh the costs of construction and operation of Units 3 and 4 and that the COLs should be issued.

**Q38. Has the Advisory Committee on Reactor Safeguards (ACRS) conducted a review of the COLA for STP Units 3 and 4?**

A38. Yes. The ACRS ABWR Subcommittee held 22 meetings with the applicant and Staff and reviewed the COLA and associated safety evaluation reports (SERs). During these meetings, the Subcommittee had the benefit of discussions with representatives of the NRC Staff, the applicant, supporting vendors, and the public. The Subcommittee also reviewed a number of referenced documents.

**Q39. What were the conclusions of the ACRS?**

A39. During the 621st meeting of the ACRS, February 5-7, 2015, the ACRS reviewed the NRC Staff's Advanced Safety Evaluation Report (ASER) for the COLA for STP Units 3 and 4. The ACRS wrote three letter reports relating to STP Units 3 and 4:

- "Interim Letter: Safety Evaluation Report with Open Items Related to the South Texas Project Combined License Application Referencing the Certified Advanced Boiling Water Reactor Design," dated August 9, 2010;
- "Long-Term Core Cooling for the South Texas Project Advanced Boiling Water Reactor Combined License Application," dated November 7, 2012. The letter responded to the Commission's Staff Requirements Memorandum dated May 8, 2008 on the subject of long-term core cooling; and
- "Report on the Safety Aspects of the Nuclear Innovation North America, LLC Combined License Application for South Texas Project Nuclear Station, Units 3 and 4," dated February 19, 2015.

In the third letter listed above, the ACRS stated:

- There is reasonable assurance that STP Units 3 and 4 can be built and operated without undue risk to the health and safety of the public. The COLA for STP Units 3 and 4 should be approved following its final revision.
- There is reasonable assurance that the ABWR design and the STP Units 3 and 4 site satisfy the requirements resulting from the Fukushima Near-Term Task Force recommendations.

**Q40. Have you reviewed SECY-15-0123, *The Staff's Statement in Support of the Uncontested Hearing for Issuance of Combined Licenses for the South Texas Project, Units 3 and 4* (Sept. 30, 2015), that was submitted by the NRC Staff to support the mandatory hearing for STP Units 3 and 4?**

A40. Yes.

**Q41. Do you agree with the Staff's conclusions in SECY-15-0123 regarding the Staff safety review, ACRS Report, exemptions and departures, and the safety matters the Staff considers to be "Nonroutine Unique Facility Features or Novel Issues"?**

A41. Yes.

**Q42. Does SECY-15-0123 address all of the safety and environmental findings that must be made to issue the COLs for STP Units 3 and 4?**

A42. Yes.

**Q43. What are the Staff's conclusions in SECY-15-0123 regarding those findings?**

A43. The Staff concluded that there is sufficient information in the record to support the required findings. I discuss each of the findings in more detail in subsequent sections of my testimony.

**Q44. Do you agree with the conclusions reached in SECY-15-0123?**

A44. Yes.

**I. Litigation on the COLA**

**Q45. Were any petitions to intervene submitted on the COLA for STP Units 3 and 4?**

A45. Yes.

**Q46. Were any contentions admitted for litigation?**

A46. Yes. There were 8 contentions admitted for litigation.

**Q47. Has the Atomic Safety and Licensing Board (ASLB) issued decisions on those contentions?**

A47. Yes. Five of the contentions were contentions of omission and involved the impacts of an accident on co-located units; the environmental impacts associated with the increase in radionuclide concentration in the main cooling reservoir (MCR); the environmental impacts associated with the increase in tritium in the MCR; the environmental impacts of seepage from the MCR into the adjacent shallow groundwater; and the environmental impacts of possible withdrawal of additional groundwater in excess of that authorized by the current permits. The ASLB dispositioned those contentions as moot after the applicants revised the COLA to include the information requested by the contentions. The ASLB decision on those contentions is contained in LBP-10-14, 72 NRC 101 (2010).

Three of the contentions (related to replacement power costs for the analysis of severe accident mitigation alternatives, need for power, and foreign control) were subject to evidentiary hearings. The ASLB decisions were in NINA's favor. The ASLB decisions on those contentions are contained in LBP-11-38, 74 NRC 817 (2011); LBP-12-05, 75 NRC 227 (2012); and LBP-14-03, 79 NRC 267 (2014), petition for review denied CLI-15-07, 81 NRC \_\_\_ (April 14, 2015).

## SAFETY FINDINGS

**Q48. Please describe the regulatory requirements applicable to the safety review of the COLA for STP Units 3 and 4.**

A48. The regulatory requirements applicable to the safety review of the COLA are contained in Subpart C of 10 CFR Part 52. Specifically:

- Section 52.73 allows a COLA to reference a design certification. It also states that, if an entity other than the one originally sponsoring and obtaining a design certification supplies the design for the applicant, the entity must be qualified to supply the design.
- Section 52.75 includes requirements regarding who may file a COLA and corresponding filing requirements, including references to the requirements in 10 CFR § 50.38.
- Section 52.77 incorporates the general information requirements in 10 CFR § 50.33.
- Section 52.79(a) includes requirements for the content of the FSAR, including references to the requirements in various sections of 10 CFR Parts 20, 50, 55, 73, and 100. Additionally, Section 52.79(d) includes requirements applicable to COLAs that reference a design certification.
- Section 52.80 includes requirements for additional technical information that must be provided in the COLA, including requirements for ITAAC.
- Appendix A to Part 52 contains the ABWR DCR, which includes requirements for COLAs that reference the ABWR DCR.

The COLA for STP Units 3 and 4 references the ABWR design certification. As provided in 10 CFR § 52.79(d), a COLA that references a design certification need not contain information or analyses submitted to the NRC in connection with the design certification, which includes information that addresses most of the information identified in 10 CFR § 52.79(a). However, a COLA that references a design certification must include other information, including demonstrations that:

- the site characteristics fall within the site parameters specified in the design certification;
- the interface requirements established for the design under 10 CFR § 52.47 have been met; and
- all requirements and restrictions set forth in the referenced DCR will be satisfied by the date of issuance of the COL (or are specified as license conditions).

**Q49. Please summarize the NRC Staff's safety review of the COLA for STP Units 3 and 4.**

A49. The NRC Staff's review is aptly summarized on pages 8-11 of SECY-15-0123. In addition, I would note that the Staff issued and we responded to over 2,000 questions in requests for additional information (RAIs), which indicates the depth of the Staff's review of the COLA for STP Units 3 and 4.

**Q50. What safety findings must the Commission make under 10 CFR Part 52 in order to issue COLs for STP Units 3 and 4?**

A50. Under 10 CFR § 52.97(a)(1), the Commission may issue a COL if it finds that:

- The applicable standards and requirements of the Act and the Commission's regulations have been met;

- Any required notifications to other agencies or bodies have been duly made;
- There is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Act, and the Commission's regulations;
- The applicant is technically and financially qualified to engage in the activities authorized;
- Issuance of the license will not be inimical to the common defense and security or to the health and safety of the public; and
- The findings required by subpart A of part 51 of this chapter have been made.

**Q51. What issues relevant to these findings have already been resolved in the ABWR DCD?**

A51. The ABWR design certification resolves those issues related to the adequacy of the standard design. As provided in Appendix A.VI.A to Part 52, the Commission has determined that the structures, systems, components, and design features of the ABWR comply with the provisions of the Act and the applicable regulations at the time of design certification; and, therefore, provide adequate protection to the health and safety of the public.

**Q52. Does the COLA for STP Units 3 and 4 adequately address the remaining issues that the NRC must resolve in this proceeding?**

A52. Yes. In particular:

- In accordance with 10 CFR § 52.73, Toshiba is qualified to supply the certified ABWR design without participation of the original certified ABWR design

sponsor, as discussed in our due diligence evaluation of Toshiba (see ADAMS Accession No. ML082350160 for the non-proprietary version).

- In accordance with 10 CFR § 52.75, NINA and the other applicants are qualified to file the COLA and are not subject to foreign ownership, control, or domination per 10 CFR § 50.38, as discussed in the ASLB's decision in LBP-14-03 (April 10, 2014), review denied by the Commission in CLI-15-07 (April 14, 2015).
- In accordance with 10 CFR § 52.77, the COLA satisfies the applicable requirements in 10 CFR § 50.33, including a demonstration that the applicants are technically and financially qualified to engage in the licensed activities.
- The FSAR for STP Units 3 and 4 demonstrates compliance with all of the technical requirements in 10 CFR § 52.79(a), largely through incorporation of the ABWR DCD by reference.
- In accordance with 10 CFR § 52.79(d), the site characteristics fall within the site parameters specified in the design certification (or an exemption is warranted), as demonstrated in the FSAR Tables 1.8S-1 and 2.0-2; interface requirements established for the design certification have been met, as referenced in FSAR Table 1.8S-2; and the COLA addresses all of the COL License Information Items in the ABWR DCD, as shown in FSAR Sections 1.8S.3 and 1.9; and the COLA replaces all of the conceptual design information in the ABWR DCD, as referenced in FSAR Table 1.8S-3.
- In accordance with 10 CFR § 52.80, Part 9 of the COLA includes the ITAAC for STP Units 3 and 4; Part 3 of the COLA provides the Environmental Report for

STP Units 3 and 4; and Part 11 of the COLA provides a description and plans for implementation of 10 CFR § 50.54(hh)(2).

A more complete description of conformance with the applicable requirements is provided in Attachment 1 to this testimony.

**Q53. What is the Staff's conclusion in the FSEER regarding STP Units 3 and 4?**

A53. The FSEER concludes that:

1) the applicable standards and requirements of the AEA and Commission regulations have been met; 2) required notifications to other agencies or bodies have been duly made; 3) there is reasonable assurance that the facilities will be constructed and will operate in conformity with the licenses, the provisions of the AEA, and the Commission's regulations; 4) the applicant is technically and financially qualified to engage in the activities authorized; and 5) issuance of the licenses will not be inimical to the common defense and security or to the health and safety of the public.

Additionally, as discussed in the next section of my testimony, the environmental findings required by Part 51 have been met.

**Q54. Are the findings in 10 CFR § 52.97(a) met for STP Units 3 and 4?**

A54. Yes. Based upon the Staff's conclusions discussed in my previous answer, and as summarized on pages 30-34 of SECY-15-0123, each of the requirements in Section 52.97(a)(1) has been met. I address each of these findings in more detail below.

**A. 10 CFR § 52.97(a)(1)(i) ("The applicable standards and requirements of the Act and the Commission's regulations have been met")**

**Q55. Please discuss whether the applicable standards and requirements of the Act and the Commission's regulations have been met by the COLA for STP Units 3 and 4.**

A55. The STP Units 3 and 4 COLA was based on NRC regulations and applicable portions of the SRP, ISGs, Regulatory Guides, bulletins, generic letters, and other NUREGs. The NRC Staff reviewed the COLA and evaluated it against the applicable regulations in 10



CFR Parts 20, 26, 30, 31, 32, 40, 50, 51, 52, 55, 70, 73, 74, 100 and 140, The NRC Staff considered applicable portions of the SRP, ISGs, Regulatory Guides, bulletins, generic letters, and other NUREGS. Based on the COLA and the NRC Staff's review, documented in the FSER and the FEIS, NINA concludes that, for the purpose of issuing the COLs for STP Units 3 and 4, the applicable standards and requirements of the Act and the Commission's regulations have been met.

**Q56. Did the NRC Staff reach a conclusion on whether the applicable standards and requirements of the Act and the Commission's regulations have been met by the COLA for STP Units 3 and 4?**

A56. Yes. As discussed on page 30 of SECY-15-0123, the Staff has concluded the applicable standards and requirements of the Act and the Commission's regulations have been met.

**Q57. Do you agree with the NRC Staff's conclusion?**

A57. Yes.

**B. 10 CFR § 52.97(a)(1)(ii) ("Any required notifications to other agencies or bodies have been duly made")**

**Q58. Has the NRC Staff made the required notifications to other agencies or bodies with respect to the COLA for STP Units 3 and 4?**

A58. Yes. As discussed on pages 30-31 of SECY-15-0123, the NRC notified several federal and state agencies of the COLA, published notice of the COLA in local newspapers, and published notice of the COLA in the Federal Register.

C. **10 CFR § 52.97(a)(1)(iii) (“There is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Act, and the Commission’s regulations”)**

**Q59. Please discuss whether there is reasonable assurance that STP Units 3 and 4 will be constructed and will operate in conformity with the licenses, the provisions of the Act, and the Commission’s regulations.**

A59. The COLA for STP Units 3 and 4 incorporates the ABWR design certification. As provided in Section VI of the ABWR DCR in Appendix A to 10 CFR Part 52, the Commission has concluded that the structures, systems, and components of the ABWR comply with the provisions of the Act and the applicable NRC regulations, and provide adequate protection of the health and safety of the public. Additionally, the COLA describes and analyzes the site-specific aspects of siting, design, construction, and operation of STP Units 3 and 4. The COLA includes general and financial information, the technical specifications, the emergency plan, the quality assurance plan, and the physical security plan. These materials demonstrate that there is reasonable assurance that STP Units 3 and 4 can be built and operated in compliance with the COLs, the Act, and the NRC’s regulations.

**Q60. What actions did the NRC Staff take to satisfy itself that STP Units 3 and 4 could be constructed and operated safely?**

A60. In addition to reviewing the COLA material provided by NINA, the NRC Staff issued RAIs. The RAIs sought additional information or clarifications in order to develop sufficient information for the NRC Staff to make a reasonable assurance finding. The NRC Staff also conducted audits and inspections of NINA’s records and documentation and performed confirmatory calculations in order to confirm conclusions made by NINA.

**Q61. Did the NRC Staff reach a “reasonable assurance” conclusion with respect to the COLs for STP Units 3 and 4?**

A61. Yes. As discussed on page 31 of SECY-15-0123, the Staff has concluded that there is reasonable assurance that the facility will be constructed and will operate in conformance with the license, the provisions of the Act, and the Commission’s regulations.

**Q62. Do you agree with the NRC Staff’s conclusion?**

A62. Yes.

**D. 10 CFR § 52.97(a)(1)(iv) (“The applicant is technically and financially qualified to engage in the activities authorized”)**

**Q63. Please discuss whether the applicants are technically qualified to engage in the activities to be authorized by the COLs for STP Units 3 and 4.**

A63. Prior to the project slowdown following the Fukushima accident, NINA had developed an extensive organization that was managing the project, including developing budgets, preparing schedules, overseeing design and procurement activities and performing appropriate oversight of its vendors. This organization will be reestablished as we move toward construction. In addition, NINA is owned by NRG Energy and Toshiba. The two companies have vast experience developing and managing projects of this type, which NINA can call upon as necessary. Thus, NINA is technically qualified to manage and oversee design, procurement, and construction of STP Units 3 and 4.

NINA also has an EPC contract with Toshiba. Toshiba has extensive nuclear experience in the Japanese fleet, having constructed 22 BWRs, 17 as prime contractor. Toshiba is well qualified to design and construct STP Units 3 and 4.

With respect to its technical qualifications for operating Units 3 and 4, STPNOC and its predecessor Houston Lighting & Power have over 26 years of commercial operations experience with STP Units 1 and 2. STPNOC has a proven record of safe operation of Units 1 and 2, and will utilize a similar approach for operation of Units 3 and 4. Accordingly, STPNOC is technically qualified to operate STP Units 3 and 4.

**Q64. Did the NRC Staff conclude that the applicants are technically qualified to engage in the activities authorized by the COLs?**

A64. Yes. As discussed on page 32 of SECY-15-0123, the Staff has concluded that STPNOC is technically qualified to operate STP Units 3 and 4 based upon its demonstrated ability to operate STP Units 1 and 2, and that NINA is technically qualified to manage design, procurement, and construction activities based upon its demonstrated ability to choose and manage the oversight of the EPC contractors.

**Q65. Do you agree with the NRC Staff's conclusion?**

A65. Yes.

**Q66. Please discuss whether the applicants are financially qualified to engage in the activities authorized by the COLs.**

A66. STP Units 3 and 4 will be operating in a deregulated electric market. NINA has not secured financing for construction of STP Units 3 and 4, and does not have power purchase agreements for operation of the units. As a result, the NRC Staff concluded that the COLA for STP Units 3 and 4 did not meet the requirements in Part 50 for financial qualifications. However, in SECY-13-0124, the NRC Staff proposed that the Commission engage in rulemaking to amend those requirements to resolve the impediment to licensing which currently exists for some merchant plant applicants.

In response to SECY-13-0124, the Commission issued a Staff Requirements Memorandum (SRM) dated April 24, 2014, stating that rulemaking should be initiated to allow an applicant to demonstrate financial qualifications using a revised standard of review similar to that contained in 10 CFR Part 70. This would enable an applicant to demonstrate financial qualifications by:

the inclusion of a license condition to assure applicant financial qualifications reflecting the revised standards for review, and require the applicant to submit a plan for how it will proceed to finance the construction and operation of the facility to ensure that the applicant has both a well-articulated understanding of the size of the project it is undertaking and the financial capacity to obtain the necessary financing when the applicant is ready to start construction.

Pending completion of the rulemaking, the SRM stated that the Staff should consider use of exemptions that anticipate the outcome of the rulemaking.

In accordance with the SRM, NINA submitted an amended exemption request on May 18, 2015, based upon its construction cost estimate together with a financial capacity plan, demonstrating that NINA, its parents, and contractors have the capability and plans to obtain funding for construction and operation of STP Units 3 and 4. The exemption request also proposed license conditions, based upon the draft license conditions in the Staff's Draft Regulatory Basis for the rulemaking issued to the public in April 2015 (Accession No. ML15111A270). Based upon the information in the exemption request, the applicants meet the standards set forth in the SRM and the Staff's Draft Regulatory Basis. Accordingly, the applicants are financially qualified, and the Commission should approve the exemption.

**Q67. Did the NRC Staff conclude that the applicants are financially qualified to engage in the activities authorized by the COLs?**

A67. Yes. As discussed on pages 14-16 and 32-33 of SECY-15-0123, the Staff has concluded that the applicants are financially qualified to construct and operate STP Units 3 and 4. Although the applicants have not yet secured sources of funding for construction and operation of Units 3 and 4, they have demonstrated their capacity to obtain funding. Therefore, the Staff concluded that the applicants appear to be financially qualified in accordance with the standard in the Draft Regulatory Basis for the financial qualifications rulemaking, and that the requirements for an exemption from the NRC's financial qualification regulations have been satisfied.

**Q68. Do you agree with the NRC Staff's conclusion?**

A68. Yes.

**E. 10 CFR § 52.97(a)(1)(v) ("Issuance of the license will not be inimical to the common defense and security or to the health and safety of the public")**

**Q69. Please discuss whether the issuance of the COLs will be inimical to the common defense and security or to the health and safety of the public.**

A69. NINA provided information, analysis, and conclusions regarding site-specific conditions, including geography and demography of the site; nearby industrial, transportation, and military facilities; site meteorology; site hydrology; and site geology, seismology, and geotechnical engineering to ensure that issuance of the license will not be inimical to public health and safety. In addition to a review of that information, NINA also evaluated the design of structures, components, equipment and systems to ensure safe operation, performance, and shutdown when subject to extreme weather, floods, seismic events, missiles (including aircraft impact), chemical and radiological releases, and loss

of offsite power to the extent not already resolved by the incorporation of the ABWR design.

NINA has confirmed that radiological releases and human doses during both normal operation and design basis accident scenarios will remain within regulatory limits, which support the conclusion that issuance of the COLs will not be inimical to public health and safety. Additionally, the physical security to be implemented at the site is adequate to protect the facility, which support the conclusions that issuance of the COLs will not be inimical to the common defense and security.

NINA also has determined that operational programs are sufficient to assure compliance with regulations. NINA has agreed to license conditions to ensure that operational programs will be properly implemented and thus that issuance of the COLs will not be inimical to the common defense and security or to public health and safety. This includes the operational programs identified in the SRM, dated February 22, 2006, for SECY-05-0197, as well as additional operational programs, including a cyber security program. Additionally, emergency planning information supports the conclusion that issuance of the COLs will not be inimical to public health and safety.

**Q70. Did the NRC Staff make an overall inimicality finding?**

A70. Yes. As discussed on pages 33-34 of SECY-15-0123, the Staff has concluded that the issuance of the COLs for STP Units 3 and 4 will not be inimical to the common defense and security or to public health and safety.

**Q71. Do you agree with the NRC Staff's conclusion?**

A71. Yes.

F. **10 CFR § 52.97(a)(1)(vi) (“The findings required by subpart A of part 51 of this chapter have been made”)**

Q72. **Please discuss whether the NRC Staff’s review has been adequate to support the findings set forth in 10 CFR § 51.107(a).**

A72. As discussed in the sections below, the NRC Staff’s environmental review has been adequate to support the findings set forth in 10 CFR § 51.107(a).

G. **10 CFR § 52.97(a)(2) (Completed Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC))**

Q73. **Does the COLA request the NRC to find that one or more of the ITAAC in the ABWR DCD have been satisfied?**

A73. No.

H. **Non-Routine Issues Identified by the Staff in SECY-15-0123**

Q74. **Do you agree with the discussion of the non-routine issues identified by the Staff in SECY-15-0123.**

A74. Yes.

### **ENVIRONMENTAL FINDINGS**

Q75. **Please describe the regulatory requirements applicable to the Environmental Report (ER) for STP Units 3 and 4.**

A75. The regulatory requirements for an ER for a COLA are contained in 10 CFR § 51.50(c), which in turn references §§ 51.45, 51.51, and 51.52. In summary, those regulations require an ER to include a description of: the proposed action and its purposes; the



environment affected and the impact of the proposed action on the environment; alternatives to the proposed action; the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; any irreversible and irretrievable commitments of resources; and the benefits and costs of the proposed action and its alternatives. Additionally, an ER must discuss the status of permits, licenses, and approvals from other agencies connected with the proposed action.

**Q76. Please describe the content of the ER for STP Units 3 and 4.**

A76. The ER contains the following 10 Chapters:

- Introduction, including a discussion of the status of reviews, consultations, and approvals of other agencies
- Environmental Description
- Plant Description
- Environmental Impact of Construction
- Operation Impacts
- Environmental Measurements and Monitoring Programs
- Environmental Impacts of Postulated Accidents Involving Radioactive Materials
- Need for Power
- Alternatives to the Proposed Action
- Environmental Consequences of the Proposed Action, including a discussion of the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, any irreversible and irretrievable commitments of resources, and the benefits and costs of the proposed action and its alternatives.

**Q77. Please discuss whether the ER for STP Units 3 and 4 satisfies the requirements of 10 CFR Part 51.**

A77. The ER for STP Units 3 and 4 meets all of the requirements of 10 CFR Part 51, including those in 10 CFR §§ 51.45, 51.50(c), 51.51 and 51.52.

**Q78. What conclusions does the ER for STP Units 3 and 4 make regarding unavoidable adverse environmental impacts?**

A78. Unavoidable impacts are addressed in ER Sections 4.6 and 5.10 and summarized in ER Section 10.1. Based on the analysis contained in the ER, all of the unavoidable impacts were determined to be SMALL, except for some socioeconomic impacts (MODERATE to LARGE impacts), offsite land use impacts attributed to operations workforce population growth (SMALL to MODERATE impacts), and groundwater availability during operation (SMALL to MODERATE impacts).

**Q79. What conclusions does the ER for STP Units 3 and 4 make regarding need for power?**

A79. Chapter 8 of the ER concludes that there will be a substantial need for power not only from STP Units 3 and 4, but from other new generating plants as well.

**Q80. What conclusions does the ER for STP Units 3 and 4 make regarding alternatives to the project?**

A80. Chapter 9 of the ER evaluates the following types of alternatives:

- No-Action Alternative
- Energy Alternatives
- Alternative Sites
- Alternative Plant and Transmission Systems

The ER makes the following conclusions:

- In light of the benefits of the proposed project, the No-Action alternative is not preferable to the construction and operation of Units 3 and 4.
- A coal-fired or gas-fired plant would provide a reasonable alternative to STP Units 3 and 4. However, based on the environmental impacts, neither would provide a reduction in overall environmental impacts relative to STP Units 3 and 4. Furthermore, each of these types of plants would entail a significantly greater impact on the air quality.
- No alternative site is environmentally preferable to the proposed STP site; accordingly, no alternative site is obviously superior to the STP site.
- No environmentally preferable alternatives were identified to the proposed plant systems design.

**Q81. What conclusions does the ER for STP Units 3 and 4 make regarding irreversible and irretrievable commitments of resources?**

A81. The ER makes the following conclusions regarding irreversible and irretrievable commitments of resources:

- The land committed to the disposal of radioactive and non-radioactive wastes generated as a result of construction and operation of STP Units 3 and 4 will be governed by applicable regulations and permits and could not be used for other purposes.
- Water extracted from the aquifer as well as water pumped from the Colorado River for use by STP Units 3 and 4 will be unavailable as resources but should not affect the overall availability of water resources in the area.

- With respect to terrestrial habitats, the decommissioning of STP Units 3 and 4 could eventually result in complete restoration of the area to preconstruction conditions. There will be a SMALL impact to aquatic resources, however, when STP Units 3 and 4 are decommissioned, those aquatic resources will return to preoperational levels. Because of the abundance of these resources in the vicinity of the site, the irreversible loss of aquatic resources associated with construction and operation of STP Units 3 and 4 will have no impact on overall populations.
- There will be a SMALL or insignificant commitment of material resources commensurate with other large industrial projects.

**Q82. What conclusions does the ER for STP Units 3 and 4 make regarding the relationship between short-term uses and long-term productivity of the human environment?**

A82. Except for the consumption of nonrenewable resources during the construction and operation of STP Units 3 and 4 and the land committed for waste burial, impacts are short term. The principal short-term benefit resulting from the installation and operation of STP Units 3 and 4 is production of electrical energy and associated enhancement in regional economic productivity. The regional productivity resulting from the additional electrical energy produced by the plant is expected to result in a correspondingly large increase in regional long-term productivity. In addition, most long-term impacts resulting from land-use preemption by plant structures can be eliminated by removing these structures or by converting them to other productive uses. In conclusion, the negative aspects of plant construction and operation as they affect the human

environment are outweighed by the positive long-term enhancement of regional productivity through the generation of electrical energy.

**Q83. What is the overall conclusion in the ER for STP Units 3 and 4 regarding the benefits and costs of the proposed project?**

A83. The costs and benefits of the project are summarized in ER Table 10.4-2. The primary benefits are generation of electricity, emissions reductions relative to fossil-fueled plants, tax payments, and socioeconomic benefits. The primary costs are the economic costs of construction and operation, land use, water use, and use of materials. Based upon this table, NINA concludes that the benefits of the project outweigh the costs.

**Q84. What environmental findings must the Commission make under 10 CFR Part 51 in order to issue COLs for STP Units 3 and 4?**

A84. Under 10 CFR § 51.107(a), the Commission must do the following:

- Determine whether the requirements of Sections 102(2) (A), (C), and (E) of the National Environmental Policy Act (NEPA) and the regulations in Part 51 have been met;
- Independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken;
- Determine, after weighing the environmental, economic, technical, and other benefits against environmental and other cost, and considering reasonable alternatives, whether the COLs should be issued, denied, or appropriately conditioned to protect environmental values; and

- Determine whether the NEPA review conducted by the NRC Staff has been adequate.

**Q85. Are the findings in 10 CFR § 51.107(a) met for STP Units 3 and 4?**

A85. Yes, as discussed in more detail below.

**A. 10 CFR § 51.107(a)(1) (“Determine whether the requirements of Sections 102(2) (A), (C), and (E) of NEPA and the regulations in this subpart have been met”)**

**Q86. Please describe the NRC Staff’s environmental review process for the COLA and whether it utilized a systematic, interdisciplinary approach.**

A86. The Staff prepared the FEIS for STP Units 3 and 4 based on its independent assessment of the information in the ER and other information provided by the applicants. The Staff also developed some of the information in the FEIS independently, such as through visiting the site and consultation with other agencies. The Staff’s technical analysis used a systematic, interdisciplinary approach to integrate information from many fields, including use of individuals experienced in the fields of hydrology, aquatic ecology, air quality, terrestrial ecology, socioeconomics, historic and cultural resources, radiological impacts, and accidents, as listed in Appendix A to the FEIS.

**Q87. Please discuss whether the FEIS for STP Units 3 and 4 discusses the environmental impacts of the project, any adverse environmental effects that cannot be avoided, alternatives, the relationship between local short term uses of man’s environments and the maintenance of long-term productivity, and any irreversible and irretrievable commitments of resources.**

A87. As required by NEPA, the FEIS for STP Units 3 and 4 addressed (1) the environmental impact of the proposed action (Chapters 4 through 7 of the FEIS); (2) unavoidable

adverse environmental effects (Section 10.2 of the FEIS): (3) alternative to the proposed action (Chapter 9 of the FEIS); (4) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity (Section 10.3 of the FEIS); and (5) irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented (Section 10.4 of the FEIS).

**Q88. Did the NRC Staff consult with other agencies in preparing the FEIS for STP Units 3 and 4?**

A88. The U.S. Army Corps of Engineers (USACE) participated as a cooperating agency in preparing the FEIS for STP Units 3 and 4. This collaboration was defined under a Memorandum of Agreement between the NRC and the USACE. The Staff also consulted with and received comments from other State and federal agencies, such as the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the Texas Commission on Environmental Quality and the Electric Reliability Council of Texas. This correspondence is described in Appendix F to the FEIS.

**Q89. Please discuss whether the requirements of Sections 102(2) (A), (C), and (E) of NEPA and the regulations in Subpart A of 10 CFR Part 51 have been met with respect to the COLA for STP Units 3 and 4.**

A89. Based upon my answers to the previous three questions, I conclude that the requirements of Sections 102(2) (A), (C), and (E) of NEPA and the regulations in Part 51 have been met with respect to the COLA for STP Units 3 and 4.

**B. 10 CFR § 51.107(a)(2) (“Independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken”)**

**Q90. Please discuss whether the NRC Staff has independently considered the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken with respect to STP Units 3 and 4.**

A90. In FEIS Section 10.6, the NRC Staff provides its summary for the cost-benefit balancing for STP Units 3 and 4. The Staff concluded that the accrued benefits would outweigh the costs of construction and operation of Units 3 and 4.

**Q91. Do you agree with the conclusions of the NRC Staff on this factor?**

A91. Yes. NINA concludes that the benefits of the project outweigh the costs.

**C. 10 CFR § 51.107(a)(3) (“Determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the combined license should be issued, denied, or appropriately conditioned to protect environmental values”)**

**Q92. Please discuss whether the NRC Staff has weighed the environmental, economic, technical, and other benefits against environmental and other costs with respect to STP Units 3 and 4.**

A92. Based on the assessments summarized in the FEIS Section 10.6.3, the NRC Staff concluded that the accrued benefits would outweigh the costs of construction and operation of Units 3 and 4.

**Q93. Please discuss whether the NRC Staff has considered reasonable alternatives with respect to STP Units 3 and 4.**



A93. The alternatives considered in the FEIS Chapter 9 included the no-action alternative, energy alternatives, alternative sites, and system design alternatives. The FEIS demonstrates that the NRC Staff adequately considered alternatives to the proposed action, consistent with the requirements of NEPA.

**Q94. Please discuss whether the NRC Staff has determined whether the COLs should be issued, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives.**

A94. As discussed in FEIS 10.7, the NRC Staff's recommendation to the Commission related to the environmental aspects of the proposed action is that the COLs should be issued. The Staff's recommendation is based on (1) the ER submitted by STPNOC, (2) consultation with Federal, State, Tribal and local agencies, (3) the NRC's own independent review, (4) the Staff's consideration of public comments, and (5) the assessments summarized in the FEIS.

**Q95. Do you agree with the conclusions of the NRC Staff on this factor?**

A95. Yes.

**D. 10 CFR § 51.107(a)(4) ("Determine, in an uncontested proceeding, whether the NEPA review conducted by the NRC staff has been adequate")**

**Q96. Please discuss whether the NRC Staff's NEPA review has been adequate with respect to STP Units 3 and 4.**

A96. The Staff's NEPA review was adequate. The Staff conducted an independent evaluation of the application that consumed approximately three years and issued more than 250 questions in environmental RAIs. The NRC Staff developed independent, reliable information and conducted a systematic, interdisciplinary review of the potential impacts

of the proposed action on the environment and reasonable alternatives to the proposed action. The NRC Staff considered the purpose of and need for the proposed action, the environment that could be affected by the action and the consequences of the proposed action, including mitigation that could reduce impacts. The FEIS considered whether there is a need for the additional generating capacity to be supplied by STP Units 3 and 4. The FEIS compared the alternatives to the proposed action. The NRC Staff considered the adverse environmental effects that could not be avoided should the proposed action be implemented, the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity, and irreversible or irretrievable commitments of resources that would be involved in the proposed project.

**Q97. Please discuss whether the NRC Staff’s environmental review for STP Units 3 and 4 followed NRC regulations and guidance, as well as the approach used for prior COLs.**

A97. As discussed on page 1-3 of the FEIS for STP Units 3 and 4, the NRC Staff used the detailed procedures in its Environmental Standard Review Plan (NUREG-1555), as well as other guidance, for conducting its environmental review. NUREG-1555 implements the relevant regulations in Part 51 for environmental impact statements. The Staff has also used NUREG-1555 for preparing the environmental impact statements for the other COLs issued to date, and the format and level of detail of the FEIS for STP Units 3 and 4 is similar to the format and level of detail of those previous environmental impact statements.

**Q98. Did the NRC Staff’s review satisfy NEPA?**

A98. Yes. As I have discussed in my previous answers, the Staff's review satisfied Sections 102(2)(A), (C), and (E) of NEPA. Additionally, by implementing the detailed procedures in NUREG-1555 and the regulations in Part 51, the NRC Staff's review ensured compliance with NEPA. The FEIS is more than a thousand pages long, and takes the requisite "hard look" at STP Units 3 and 4.

**Q99. Was the public permitted to participate in the environmental review process for STP Units 3 and 4?**

A99. Yes. At the start of the environmental review, the NRC Staff issued a notice of intent to prepare an FEIS and invited the public to provide any information relevant to the environmental review, including holding a public scoping meeting on February 5, 2008. The NRC also provided opportunities for governmental and general public participation during the public meeting on the draft environmental impact statement (DEIS) and sought, received, and responded to the comments on the DEIS from the public. Those responses are documented in Appendix E of the FEIS. The NRC's ASLB also resolved seven environmental contentions that were admitted for litigation in the public hearing process conducted under the Act.

**Q100. What are your overall conclusions regarding the NRC Staff's environmental review for STP Units 3 and 4?**

A100. The NRC Staff conducted a thorough and complete environmental review for the COLs for STP Units 3 and 4. That review has been sufficient to meet the requirements of NEPA.

## CONCLUSIONS

**Q101. What are your overall safety conclusions regarding issuance of the COLs?**

A101. The COLA contains sufficient information to demonstrate compliance with the applicable standards and requirements in the Act and the Commission's regulations. There is reasonable assurance that STP Units 3 and 4 will be constructed and will operate in conformity with the licenses, the provisions of the Act, and the Commission's regulations. Based on the record, NINA is technically and financially qualified to construct STP Units 3 and 4. In addition, STPNOC is qualified to operate STP Units 3 and 4. Issuance of licenses for the construction and operation of STP Units 3 and 4 will not be inimical to the common defense and security or the health and safety of the public. Furthermore, the review of the COLA by the NRC Staff has been adequate to support these conclusions.

**Q102. What are your overall environmental conclusions regarding issuance of the COLs?**

A102. The environmental review conducted by the NRC Staff pursuant to 10 CFR Part 51 has been adequate; the requirements of Sections 102(2) (A), (C), and (E) of NEPA have been satisfied; an independent weighing and balancing of the environmental, technical, and other costs and benefits of STP Units 3 and 4 support issuance of the licenses; and the requested licenses should be issued.

**Q103. Does the COLA for STP Units 3 and 4, and the NRC Staff's review of the COLA, satisfy the requirements for issuance of the COLs?**

A103. Yes.

**Q104. Are true, accurate and correct copies of each of the exhibits referenced in your testimony attached?**

A104. Yes.

**Q105. Does this conclude your testimony?**

A105. Yes.

**Attachment 1**

**STP Units 3 and 4 Compliance with Regulations**

<b>Regulation</b>	<b>Topic</b>	<b>COLA Location</b>
52.73(a)	An application for a combined license under this subpart may, but need not, reference a standard design certification, standard design approval, or manufacturing license issued under subparts B, E, or F of this part, respectively, or an early site permit issued under subpart A of this part. In the absence of a demonstration that an entity other than the one originally sponsoring and obtaining a design certification is qualified to supply a design, the Commission will entertain an application for a combined license that references a standard design certification issued under subpart B of this part only if the entity that sponsored and obtained the certification supplies the design for the applicant's use.	The COLA incorporates by reference the ABWR design certification.  See A.20 of this testimony; see also FSAR - Ch 1.4 for a discussion of the qualifications of Toshiba.
52.73(b)	The Commission will require, before granting a combined license that references a standard design certification, that information normally contained in certain procurement specifications and construction and installation specifications be completed and available for audit if the information is necessary for the Commission to make its safety determinations, including the determination that the application is consistent with the certification information.	Not Applicable - procurement info was not necessary for a safety determination
52.77	The application must contain all of the information required by 10 CFR 50.33.	Part 1
52.79(a)	The application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a whole.	FSAR
52.79(a)(1)	(i) The boundaries of the site; (ii) The proposed general location of each facility on the site; (iii) The seismic, meteorological, hydrologic, and geologic characteristics of the proposed site with appropriate consideration of the most severe of the natural phenomena that have been historically	FSAR - Ch 2 & 15

Regulation	Topic	COLA Location
	<p>reported for the site and surrounding area and with sufficient margin for the limited accuracy, quantity, and time in which the historical data have been accumulated;</p> <p>(iv) The location and description of any nearby industrial, military, or transportation facilities and routes;</p> <p>(v) The existing and projected future population profile of the area surrounding the site;</p> <p>(vi) A description and safety assessment of the site on which the facility is to be located. The assessment must contain an analysis and evaluation of the major structures, systems, and components of the facility that bear significantly on the acceptability of the site under the radiological consequence evaluation factors identified in paragraphs (a)(1)(vi)(A) and (a)(1)(vi)(B) of this section. In performing this assessment, an applicant shall assume a fission product release from the core into the containment assuming that the facility is operated at the ultimate power level contemplated. The applicant shall perform an evaluation and analysis of the postulated fission product release, using the expected demonstrable containment leak rate and any fission product cleanup systems intended to mitigate the consequences of the accidents, together with applicable site characteristics, including site meteorology, to evaluate the offsite radiological consequences. Site characteristics must comply with part 100 of this chapter. The evaluation must determine that:</p> <p>(A) An individual located at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 25 rem total effective dose equivalent (TEDE).</p> <p>(B) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage) would not receive a radiation dose in excess of 25 rem TEDE.</p>	
52.79(a)(2)	A description and analysis of the structures, systems, and components of the facility with emphasis upon	FSAR - Ch 3-12, 15

Regulation	Topic	COLA Location
	<p>performance requirements, the bases, with technical justification therefor, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished. It is expected that reactors will reflect through their design, construction, and operation an extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products. The descriptions shall be sufficient to permit understanding of the system designs and their relationship to safety evaluations. Items such as the reactor core, reactor coolant system, instrumentation and control systems, electrical systems, containment system, other engineered safety features, auxiliary and emergency systems, power conversion systems, radioactive waste handling systems, and fuel handling systems shall be discussed insofar as they are pertinent. The following power reactor design characteristics and proposed operation will be taken into consideration by the Commission:</p> <ul style="list-style-type: none"> <li>(i) Intended use of the reactor including the proposed maximum power level and the nature and inventory of contained radioactive materials;</li> <li>(ii) The extent to which generally accepted engineering standards are applied to the design of the reactor;</li> <li>(iii) The extent to which the reactor incorporates unique, unusual or enhanced safety features having a significant bearing on the probability or consequences of accidental release of radioactive materials;</li> <li>(iv) The safety features that are to be engineered into the facility and those barriers that must be breached as a result of an accident before a release of radioactive material to the environment can occur. Special attention must be directed to plant design features intended to mitigate the radiological consequences of accidents. In performing this assessment, an applicant shall assume a fission product release from the core into the containment assuming that the facility is operated at the ultimate power level contemplated.</li> </ul>	
52.79(a)(3)	The kinds and quantities of radioactive materials expected to be produced in the operation and the	FSAR - Ch 11 & 12



Regulation	Topic	COLA Location
	means for controlling and limiting radioactive effluents and radiation exposures within the limits set forth in part 20 of this chapter.	
52.79(a)(4)	The design of the facility including: (i) The principal design criteria for the facility. Appendix A to part 50 of this chapter, "General Design Criteria for Nuclear Power Plants," establishes minimum requirements for the principal design criteria for water-cooled nuclear power plants similar in design and location to plants for which construction permits have previously been issued by the Commission and provides guidance to applicants in establishing principal design criteria for other types of nuclear power units; (ii) The design bases and the relation of the design bases to the principal design criteria; (iii) Information relative to materials of construction, arrangement, and dimensions, sufficient to provide reasonable assurance that the design will conform to the design bases with adequate margin for safety.	FSAR in general
52.79(a)(5)	An analysis and evaluation of the design and performance of structures, systems, and components with the objective of assessing the risk to public health and safety resulting from operation of the facility and including determination of the margins of safety during normal operations and transient conditions anticipated during the life of the facility, and the adequacy of structures, systems, and components provided for the prevention of accidents and the mitigation of the consequences of accidents. Analysis and evaluation of ECCS cooling performance and the need for high-point vents following postulated loss-of-coolant accidents shall be performed in accordance with the requirements of §§ 50.46 and 50.46a of this chapter.	FSAR- Ch 3 - 15 & 19
52.79(a)(6)	A description and analysis of the fire protection design features for the reactor necessary to comply with 10 CFR part 50, appendix A, GDC 3, and § 50.48 of this chapter.	FSAR- Ch 9.5.1
52.79(a)(7)	A description of protection provided against pressurized thermal shock events, including projected values of the reference temperature for reactor vessel beltline materials as defined in §§	FSAR- Ch 5.3 (50.61(b) is not applicable)

<b>Regulation</b>	<b>Topic</b>	<b>COLA Location</b>
	50.60 and 50.61(b)(1) and (b)(2) of this chapter.	
52.79(a)(8)	An analysis and description of the equipment and systems for combustible gas control as required by § 50.44 of this chapter.	FSAR- Ch 6
52.79(a)(9)	The coping analyses, and any design features necessary to address station blackout, as described in § 50.63 of this chapter.	FSAR- 1C
52.79(a)(10)	A description of the program, and its implementation, required by § 50.49(a) of this chapter for the environmental qualification of electric equipment important to safety and the list of electric equipment important to safety that is required by 10 CFR 50.49(d).	FSAR- Ch 3.11
52.79(a)(11)	A description of the program(s), and their implementation, necessary to ensure that the systems and components meet the requirements of the ASME Boiler and Pressure Vessel Code and the ASME Code for Operation and Maintenance of Nuclear Power Plants in accordance with 50.55a of this chapter.	FSAR- Ch 3, 5, 6
52.79(a)(12)	A description of the primary containment leakage rate testing program, and its implementation, necessary to ensure that the containment meets the requirements of appendix J to 10 CFR part 50.	FSAR- Ch 6.2
52.79(a)(13)	A description of the reactor vessel material surveillance program required by appendix H to 10 CFR part 50 and its implementation.	FSAR- Ch 5
52.79(a)(14)	A description of the operator training program, and its implementation, necessary to meet the requirements of 10 CFR part 55.	FSAR- Ch 13.2
52.79(a)(15)	A description of the program, and its implementation, for monitoring the effectiveness of maintenance necessary to meet the requirements of § 50.65 of this chapter.	FSAR- Ch 17.46S
52.79(a)(16)	(i) The information with respect to the design of equipment to maintain control over radioactive materials in gaseous and liquid effluents produced during normal reactor operations, as described in § 50.34a(d) of this chapter; (ii) A description of the process and effluent monitoring and sampling program required by appendix I to 10 CFR part 50 and its implementation.	FSAR- Ch 11
52.79(a)(17)	The information with respect to compliance with	FSAR- Ch 1A

Regulation	Topic	COLA Location
	technically relevant positions of the Three Mile Island requirements in § 50.34(f) of this chapter, with the exception of § 50.34(f)(1)(xii), (f)(2)(ix), (f)(2)(xxv), and (f)(3)(v).	
52.79(a)(18)	If the applicant seeks to use risk informed treatment of SSCs in accordance with § 50.69 of this chapter, the information required by § 50.69(b)(2) of this chapter.	Not Applicable
52.79(a)(19)	Information necessary to demonstrate that the plant complies with the earthquake engineering criteria in 10 CFR part 50, appendix S.	FSAR- Ch 3.7, 3.8, & 3.9
52.79(a)(20)	Proposed technical resolutions of those Unresolved Safety Issues and medium- and high-priority generic safety issues which are identified in the version of NUREG-0933 current on the date up to 6 months before the docket date of the application and which are technically relevant to the design.	FSAR- Ch 1.9S & 19B
52.79(a)(21)	Emergency plans complying with the requirements of § 50.47 of this chapter, and 10 CFR part 50, appendix E.	FSAR - Ch 13.3 and Part 5
52.79(a)(22)	(i) All emergency plan certifications that have been obtained from the State and local governmental agencies with emergency planning responsibilities must state that: (A) The proposed emergency plans are practicable; (B) These agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (C) These agencies are committed to executing their responsibilities under the plans in the event of an emergency; (ii) If certifications cannot be obtained after sustained, good faith efforts by the applicant, then the application must contain information, including a utility plan, sufficient to show that the proposed plans provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the site.	Part 5
52.79(a)(23)	Reserved	Not Applicable
52.79(a)(24)	If the application is for a nuclear power reactor design which differs significantly from light-water reactor designs that were licensed before 1997 or use simplified, inherent, passive, or other innovative	Not Applicable

Regulation	Topic	COLA Location
	means to accomplish their safety functions, the application must describe how the design meets the requirements in § 50.43(e) of this chapter.	
52.79(a)(25)	A description of the quality assurance program, applied to the design, and to be applied to the fabrication, construction, and testing, of the structures, systems, and components of the facility. Appendix B to 10 CFR part 50 sets forth the requirements for quality assurance programs for nuclear power plants. The description of the quality assurance program for a nuclear power plant must include a discussion of how the applicable requirements of appendix B to 10 CFR part 50 have been and will be satisfied, including a discussion of how the quality assurance program will be implemented.	FSAR- Ch 17
52.79(a)(26)	The applicant's organizational structure, allocations or responsibilities and authorities, and personnel qualifications requirements for operation.	FSAR- Ch 13.1
52.79(a)(27)	Managerial and administrative controls to be used to assure safe operation. Appendix B to 10 CFR part 50 sets forth the requirements for these controls for nuclear power plants. The information on the controls to be used for a nuclear power plant shall include a discussion of how the applicable requirements of appendix B to 10 CFR part 50 will be satisfied.	FSAR- Ch 13.1, 13.5 & 17
52.79(a)(28)	Plans for preoperational testing and initial operations.	FSAR- Ch 14
52.79(a)(29)	(i) Plans for conduct of normal operations, including maintenance, surveillance, and periodic testing of structures, systems, and components; (ii) Plans for coping with emergencies, other than the plans required by § 52.79(a)(21).	FSAR- Ch 13
52.79(a)(30)	Proposed technical specifications prepared in accordance with the requirements of §§ 50.36 and 50.36a of this chapter.	Part 4
52.79(a)(31)	For nuclear power plants to be operated on multi-unit sites, an evaluation of the potential hazards to the structures, systems, and components important to safety of operating units resulting from construction activities, as well as a description of the managerial and administrative controls to be used to provide assurance that the limiting conditions for operation	FSAR- Ch 1.10S

Regulation	Topic	COLA Location
	are not exceeded as a result of construction activities at the multi-unit sites.	
52.79(a)(32)	The technical qualifications of the applicant to engage in the proposed activities in accordance with the regulations in this chapter.	FSAR- Ch 1.4 & 13.1
52.79(a)(33)	A description of the training program required by § 50.120 of this chapter and its implementation.	FSAR- Ch 13.2
52.79(a)(34)	A description and plans for implementation of an operator requalification program. The operator requalification program must as a minimum, meet the requirements for those programs contained in § 55.59 of this chapter.	FSAR- Ch 13.2
52.79(a)(35)	(i) A physical security plan, describing how the applicant will meet the requirements of 10 CFR part 73 (and 10 CFR part 11, if applicable, including the identification and description of jobs as required by § 11.11(a) of this chapter, at the proposed facility). The plan must list tests, inspections, audits, and other means to be used to demonstrate compliance with the requirements of 10 CFR parts 11 and 73, if applicable; (ii) A description of the implementation of the physical security plan.	FSAR- Ch 13.6 & Part 8
52.79(a)(36)	(i) A safeguards contingency plan in accordance with the criteria set forth in appendix C to 10 CFR part 73. The safeguards contingency plan shall include plans for dealing with threats, thefts, and radiological sabotage, as defined in part 73 of this chapter, relating to the special nuclear material and nuclear facilities licensed under this chapter and in the applicant's possession and control. Each application for this type of license shall include the information contained in the applicant's safeguards contingency plan. (Implementing procedures required for this plan need not be submitted for approval.) (ii) A training and qualification plan in accordance with the criteria set forth in appendix B to 10 CFR part 73. (iii) A cyber security plan in accordance with the criteria set forth in § 73.54 of this chapter; (iv) A description of the implementation of the safeguards contingency plan, training and qualification plan, and cyber security plan; and	FSAR- Ch 13.6 & Part 8

Regulation	Topic	COLA Location
	(v) Each applicant who prepares a physical security plan, a safeguards contingency plan, a training and qualification plan, or a cyber security plan, shall protect the plans and other related Safeguards Information against unauthorized disclosure in accordance with the requirements of § 73.21 of this chapter.	
52.79(a)(37)	The information necessary to demonstrate how operating experience insights have been incorporated into the plant design.	FSAR- Ch 1.9S
52.79(a)(38)	For light-water reactor designs, a description and analysis of design features for the prevention and mitigation of severe accidents, e.g., challenges to containment integrity caused by core-concrete interaction, steam explosion, high-pressure core melt ejection, hydrogen combustion, and containment bypass.	FSAR- Ch 19
52.79(a)(39)	A description of the radiation protection program required by § 20.1101 of this chapter and its implementation.	FSAR- Ch 12
52.79(a)(40)	A description of the fire protection program required by § 50.48 of this chapter and its implementation.	FSAR- Ch 9.5.1
52.79(a)(41)	For applications for light-water-cooled nuclear power plant combined licenses, an evaluation of the facility against the Standard Review Plan (SRP) revision in effect 6 months before the docket date of the application. The evaluation required by this section shall include an identification and description of all differences in design features, analytical techniques, and procedural measures proposed for a facility and those corresponding features, techniques, and measures given in the SRP acceptance criteria. Where a difference exists, the evaluation shall discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations, or portions thereof, that underlie the corresponding SRP acceptance criteria. The SRP is not a substitute for the regulations, and compliance is not a requirement.	FSAR- Ch 1.8 & 1.9S
52.79(a)(42)	Information demonstrating how the applicant will comply with requirements for reduction of risk from anticipated transients without scram (ATWS) events in § 50.62 of this chapter.	FSAR- Ch 7

<b>Regulation</b>	<b>Topic</b>	<b>COLA Location</b>
52.79(a)(43)	Information demonstrating how the applicant will comply with requirements for criticality accidents in § 50.68 of this chapter.	FSAR- Ch 12.3
52.79(a)(44)	A description of the fitness-for-duty program required by 10 CFR part 26 and its implementation.	FSAR- Ch 13.7
52.79(a)(45)	The information required by § 20.1406 of this chapter.	FSAR- Ch 12.3.9
52.79(a)(46)	A description of the plant-specific probabilistic risk assessment (PRA) and its results	FSAR- Ch 19
52.79(a)(47)	For applications for combined licenses which are subject to 10 CFR 50.150(a), the information required by 10 CFR 50.150(b).	See ABWR DCR Section III.A.3
52.79(b)	If the combined license application references an early site permit . . .	Not Applicable
52.79(c)	If the combined license application references a standard design approval . . .	Not Applicable
52.79(d)(1)	The final safety analysis report need not contain information or analyses submitted to the Commission in connection with the design certification, provided, however, that the final safety analysis report must either include or incorporate by reference the standard design certification final safety analysis report and must contain, in addition to the information and analyses otherwise required, information sufficient to demonstrate that the site characteristics fall within the site parameters specified in the design certification. In addition, the plant-specific PRA information must use the PRA information for the design certification and must be updated to account for site-specific design information and any design changes or departures.	FSAR- Ch 1, 2 & 19
52.79(d)(2)	The final safety analysis report must demonstrate that the interface requirements established for the design under § 52.47 have been met.	FSAR- Ch 1.8S
52.79(d)(3)	The final safety analysis report must demonstrate that all requirements and restrictions set forth in the referenced design certification rule, other than those imposed under § 50.36b, must be satisfied by the date of issuance of the combined license. Any requirements and restrictions set forth in the referenced design certification rule that could not be satisfied by the time of issuance of the combined license, must be set forth as terms or conditions of the combined license.	FSAR in general

<b>Regulation</b>	<b>Topic</b>	<b>COLA Location</b>
52.79(e)	If the combined license application references the use of one or more manufactured nuclear power reactors licensed under subpart F of this part . . .	Not Applicable
52.80(a)	The proposed inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations.	Part 9
52.80(b)	An environmental report, either in accordance with 10 CFR 51.50(c) if a limited work authorization under 10 CFR 50.10 is not requested in conjunction with the combined license application, or in accordance with §§ 51.49 and 51.50(c) of this chapter if a limited work authorization is requested in conjunction with the combined license application.	Part 3
52.80(c)	If the applicant wishes to request that a limited work authorization . . .	Not Applicable
52.80(d)	A description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter.	Part 11
Part 52 App. A.I	Introduction	No additional requirements to address in COLA.
Part 52 App. A.II	Definitions	No additional requirements to address in COLA.
Part 52 App. A.III	Scope and Content	No additional requirements to address in COLA.
Part 52 App.	1. Incorporate by reference, as part of its application, this appendix.	FSAR Ch. 1.1



Regulation	Topic	COLA Location
A.IV.A.1		
Part 52 App. A.IV.A.2	<p>2. Include, as part of its application:</p> <p>a. A plant-specific DCD containing the same type of information and using the same organization and numbering as the generic DCD for the U.S. ABWR design, as modified and supplemented by the applicant's exemptions and departures;</p> <p>b. The reports on departures from and updates to the plant-specific DCD required by paragraph X.B of this appendix;</p> <p>c. Plant-specific technical specifications, consisting of the generic and site-specific technical specifications, that are required by 10 CFR 50.36 and 50.36a;</p> <p>d. Information demonstrating compliance with the site parameters and interface requirements;</p> <p>e. Information that addresses the COL action items; and</p> <p>f. Information required by 10 CFR 52.47 that is not within the scope of this appendix.</p>	<p>2.a Part 2</p> <p>2.b Part 7</p> <p>2.c Part 4</p> <p>2.d FSAR 1.8S</p> <p>2.e Each section of the FSAR discusses the applicable COL action items</p> <p>2.f FSAR in general</p>
Part 52 App. A.IV.A.3	<p>3. Include, in the plant-specific DCD, the sensitive unclassified non-safeguards information (including proprietary information) and safeguards information referenced in the GE DCD and the STPNOC DCD, as applicable.</p>	<p>Part 8 and Part 10</p>
Part 52 App. A.IV.A.4	<p>4.a. Include, as part of its application, a demonstration that an entity other than GE Nuclear Energy is qualified to supply the U.S. ABWR-certified design unless GE Nuclear Energy supplies the design for the applicant's use.</p> <p>b. For an applicant referencing the STPNOC-certified design option, include, as part of its application, a demonstration that an entity other than the STPNOC and Toshiba America Nuclear Energy (TANE) acting together is qualified to supply the STPNOC-certified design option, unless the STPNOC and TANE acting together supply the design option for the applicant's use.</p>	<p>4.a See A.20 of this testimony; see also FSAR - Ch 1.4 for a discussion of the qualifications of Toshiba.</p> <p>4.b Not Applicable</p>
Part 52 App. A.V	<p>Applicable Regulations</p>	<p>No additional requirements to address in COLA.</p>
Part 52	<p>Issue Resolution</p>	<p>No additional</p>

<b>Regulation</b>	<b>Topic</b>	<b>COLA Location</b>
App. A.VI		requirements to address in COLA.
Part 52 App. A.VII	Duration of this Appendix	No additional requirements to address in COLA.
Part 52 App. A.VIII	Processes for Changes and Departures	Part 7
Part 52 App. A.IX	ITAAC	The ITAAC are in Part 9. The specific requirements of App. D § IX will be satisfied during fabrication and construction activities.
Part 52 App. A.X.A	Records	Part 2 contains the plant-specific DCD. Part 7 contains a summary of the evaluation of departures.
Part 52 App. A.X.A	Reporting	The departures report is in Part 7. Updates to the FSAR and departures report have been filed annually by the Applicants.

CERTIFICATE OF WITNESS

I certify that this testimony was prepared by me or under my direction; that the testimony is true and correct to the best of my information, knowledge and belief; and that I adopt this testimony as my sworn testimony in this proceeding.

Executed in Accord with 10 CFR § 2.304(d)

/s/ Scott M. Head

Scott M. Head

DECLARATION OF WITNESS

I declare under penalty of perjury that the foregoing is true and correct.

Executed on November 12, 2015.

Executed in Accord with 10 CFR § 2.304(d)

/s/ Scott M. Head

Scott M. Head

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

_____ )	
In the Matter of )	Docket Nos. 52-012 COL
)	52-013 COL
NUCLEAR INNOVATION NORTH AMERICA LLC )	
)	
(South Texas Project Units 3 and 4) )	November 12, 2015
_____ )	

**CERTIFICATE OF SERVICE**

I hereby certify that on this date a copy of the “Applicants’ Pre-Filed Testimony of Scott M. Head for the Mandatory Hearing on Uncontested Issues for South Texas Project Units 3 and 4” was submitted through the NRC’s E-filing system.

*Signed (electronically) by Steven P. Frantz*

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