

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

BPA NO.

1. CONTRACT ID CODE

PAGE

1

OF PAGE

2

2. AMENDMENT/MODIFICATION NO.

0001

3. EFFECTIVE DATE

See Block 15c.

4. REQUISITION/PURCHASE REQ. NO.

NRC-42-07-036 T7 M1
0703607014

5. PROJECT NO. (If applicable)

6. ISSUED BY

CODE

3100

7. ADMINISTERED BY (If other than Item 6)

CODE

3100

U.S. Nuclear Regulatory Commission
Div. of Contracts
Attn: Jeffrey R. Mitchell, 301-492-3639
Mail Stop T-7-I-2
Washington, DC 20555U.S. Nuclear Regulatory Commission
Div. of Contracts
Mail Stop T-7-I-2
Washington, DC 20555

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

INFORMATION SYSTEMS LABORATORIES, INC
ISL
ATTN: DR. JAMES F. MEYER
11140 ROCKVILLE PIKE, SUITE 500
ROCKVILLE MD 20852

(X)

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MODIFICATION OF CONTRACT/ORDER NO.
NRC-42-07-036 0007

10B. DATED (SEE ITEM 13)

X

01-11-2008

CODE

FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

Deobligate Funds in the amount of (\$31,544.00)
825-15-171-111 Q4014 252A 31x020013. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS,
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Bilateral
Mutual Agreement of the Parties

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

.....REFER TO ATTACHED PAGE TWO FOR A DESCRIPTION OF MODIFICATION NO. ONE.....

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

Bruce R. Henson V.P.

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

Jeffrey R. Mitchell

Contracting Officer

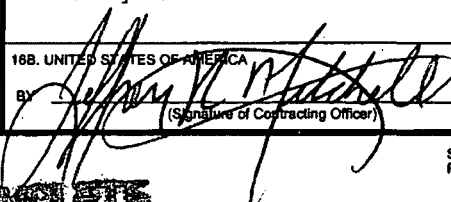
15B. CONTRACTOR/OFFEROR

(Signature of person authorized to sign)

15C. DATE SIGNED

4/12/2010

16B. UNITED STATES OF AMERICA

BY  (Signature of Contracting Officer)

16C. DATE SIGNED

4/7/2010

NSN 7540-01-152-8070
PREVIOUS EDITION NOT USABLESTANDARD FORM 30 (REV. 10-83)
Prescribed by GSA - FAR (48 CFR) 53.243

TEMPLATE - ADM001

SUNSHINE REVIEW COMPLETE

APR 14 2010

ADM001

The purpose of this modification is to (1) decrease the level of effort, thus resulting in an decrease to the contract ceiling by (\$36,913.00) from \$105,369.00 to \$68,456.00, (2) deobligate funding in the amount of (\$31,544.00) thereby reducing the total obligations from \$100,000.00 to \$68,456.00 and (3) extend the period of performance from July 10, 2010 to September 10, 2011. Accordingly, the subject task order is modified as follows:

Refer to the Task Order No. 07 "Statement of Work" is here by deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 1 entitled "Statement of Work Rev 1".

Task Order No. 07 shall be in effect from January 11, 2008 through September 10, 2011, with a cost ceiling of \$68,456.00. The amount of \$65,017.00 represents the estimated reimbursable costs, and the amount of \$3,439.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$68,456.00, of which \$65,017.00 represents the estimated reimbursable costs, and the amount of \$3,439.00 represents the fixed fee.

******ALL OTHER TERMS AND CONDITIONS OF THE SUBJECT TASK ORDER REMAIN UNCHANGED******

MODIFICATION NO. 1
TASK ORDER STATEMENT OF WORK
REVISION NO. 1

JCN/Contract No. Q-4014	Contractor ISL, Inc.	Task Order No. 7 (Mod 1)
Applicant Duke Power	Design/Site AP1000/Lee	Docket No. 5200018 & 19
Title/Description Review of Containment and Ventilation (SPCV) Systems (CIA) for Lee Station S-COL Applications		
TAC No. RX0061	B&R Number 825-15-171-111	SRP Section(s) Containment and Ventilation Sections (see Section 2)
NRC Technical Assistance Project Manager (TAPM) Min Lee (301) 415-0502 Min.Lee@nrc.gov		
NRC Technical Monitor (TM) Anne-Marie Grady (301) 415-7645 Anne-Marie.Grady@nrc.gov		

1.0 BACKGROUND

Combined Operating License (COL) Applications are submitted pursuant to Section 52 of Title 10 of the *Code of Federal Regulations* (10 CFR 52), "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants." The U.S. Nuclear Regulatory Commission (NRC) reviews COL Applications based on information furnished by electric utility companies pursuant to 10 CFR 52.79, "Contents of Applications Technical Information."

A Standard Review Plan (NUREG-0800) is prepared for the guidance of staff reviewers in the Office of New Reactors in performing safety reviews of applications to construct or operate nuclear power plants and the review of applications to approve standard designs and sites for nuclear power plants. The principal purpose of the SRP is to assure the quality and uniformity of staff safety reviews.

An Environmental Safety Review Plan (NUREG-1555) is prepared for the guidance of staff reviewers in performing environmental reviews of applications related to nuclear power plants. The ESRPs are companions to regulatory guides that address siting and environmental issues. As with NUREG-0800 the purpose of the ESRP is to assure the quality and uniformity of environmental reviews.

The staff publishes the results of these reviews in a Safety Evaluation Report (SER).

2.0 OBJECTIVE

The objective of this task order is to obtain technical expertise from the contractor to assist the staff in determining the adequacy of the COL application relating to the AP1000 SCOL.

If directed by the NRC, the initial task will be to perform an Acceptance Review of the Combined

License Application (COLA) to determine the completeness and technical sufficiency of the combined license application. This includes identifying major deficiencies in the application that might impact the review process or affect the planned resources and schedule. This review will be conducted in accordance with Office Instruction NRO-REG-100, "Acceptance Review Process for Design Certification and Combined License Applications", [ML071980027], sections 3.2.1, 3.2.3, and Attachment C. This acceptance review will be documented in the table, columns 1-6, 10 and 11, provided in attachment 2 to this Task Order Statement of Work (SOW).

The primary deliverable, or output, of this regulatory review shall be the Technical Evaluation Report (TER). The TER will serve as input to the NRC staff's SER which will document the NRC's technical, safety, and legal basis for approving the [COL] application. The TER must provide sufficient information to adequately explain the NRC staff's rationale for why there is *reasonable assurance* that public health and safety is protected. The TER, and ultimately the SER, should be written in a manner whereby a person with a technical (non-nuclear) background and unfamiliar with the applicant's request could understand the basis for the staff's conclusions. The TER shall be prepared using the NRC provided SER Template. A sample of the TER format is provided in Attachment 1 to this SOW.

The contractor will review the [COL] applications for the Containment and Ventilation Branch 1 (SPCV) under its purview. The contractor has primary review responsibilities for the following SRP sections:

- 6.2.4 Containment Isolation System
- 6.2.5 Combustible Gas Control in Containment
- 6.2.6 Containment Leakage Testing
- 14.3.11 Containment Systems and Severe Accidents – Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

In addition, the contractor will review applicable Containment and Ventilation Branch generic issues including NRC Bulletins and Generic Letters, TMI action Items, Task Action Plan, and New Generic Issues. For passive plants, the contractor will review the applicable Containment and Ventilation Branch Regulatory Treatment of Non-Safety systems (RTNSS).

3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
1. REQUIREMENT: Become familiar with SRP Sections 6.2.4, 6.2.5, 6.2.6, and 14.3.11. STANDARD: Written confirmation that familiarization is complete.	* 10 days after authorization of work	Documentation that assigned personnel have reviewed references.
2. REQUIREMENT: Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations and task order management. STANDARD: Attendance by individuals designated by NRC.	* 10 days after authorization of work	N/A

Tasks/Standards	Scheduled Completion	Delliverables
3. REQUIREMENT: Acceptance review. Support staff's acceptance review to determine the completeness and technical sufficiency of a combined license application. This includes identifying major deficiencies in the application that might impact the review process or affect the planned resources and schedule. STANDARD: Written documentation that review is complete.	* 15 days after receipt of application	Acceptance review results documented in Attachment 2
4. Task 4 is no longer required due to the standardization of this application.	N/A	N/A
5. Task 5 is no longer required due to the standardization of this application.	N/A	N/A
6. REQUIREMENT Prepare a TER providing the input to the final SER describing the resolution to any open items. STANDARD: Complete TER that follows the NRC provided template without deviation.	*45 days after receipt of authorization to proceed	SER input with no open items
7. REQUIREMENT: Prepare final supplement with no open items. STANDARD: Supplement reviewed and approved by NRC staff.	10 days following ACRS review of supplement	Final supplement.
8a. REQUIREMENT: <i>(If applicable)</i> Prepare for and travel to the applicant's office and participate in an NRC review team to: a) Audit the <u>TBD</u> as described in the S-COL for Lee b) Evaluate and discuss the applicant's responses to the unresolved issues identified in Task 4 to determine if the outstanding issues are adequately resolved. c) Prepare a trip report (as an input to NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions. STANDARD: Complete evaluation as defined in Task. Submit Trip Report within 2 weeks of site review.	*2 weeks after the trip	Trip Report

Tasks/Standards	Scheduled Completion	Deliverables
8b. REQUIREMENT: As needed and requested by the staff, provide technical support to the staff during related ACRS meetings and hearing proceedings. STANDARD: Ensure presentation materials are reviewed and approved by NRC staff.	TBD	Prepare presentation materials. Attend meetings, if requested.
9 Project management	As stipulated in the contract and this task order.	Manage technical review and provide project deliverables.

Note: Modification #1 is a reduction in scope. Tasks 4 and 5 are no longer required as part of the streamlined review of this SCOLA. The period of performance is extended to Sept 2011, reflecting the current review schedule.

* These Work Schedules are subject to change by the NRC Contracting Officer (CO) and Project Manager (NRC PM) to support the needs of the NRC Licensing Program Plan.

4.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

As specified in the basic task ordering agreement, the contractor shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this task order. Specific qualifications for this effort include:

- Mechanical engineers or fluid systems engineer(s) or analysts with extensive experience in reviewing containment isolation design, combustible gas control design and containment leakage testing programs.

The contractor shall provide a project manager (PM) to oversee the effort and ensure the timely submittal of quality deliverables so that all information is accurate and complete as defined in the base contract.

The NRC will rely on representations made by the contractor concerning the qualifications of the personnel assigned to this task order, including assurance that all information contained in the technical and cost proposals, including resumes, is accurate and truthful. The resume for each professional proposed to work under this task order (principal investigators, technical staff, employees, consultants, specialists or subcontractors) shall describe the individual's experience in applying his or her area of engineering specialization to work in the proposed area. The use of particular personnel on this task order is subject to the NRC technical monitor's (TM's) approval and the resume for each shall be provided. This includes any proposed changes to key personnel during the life of the task order.

5.0 REPORTING REQUIREMENTS

Task Order Progress Report

The contractor shall provide a bi-weekly progress report summarizing accomplishments,

expenditures, contractor staff hours expended, percent completed for each task under this task order, and any problems encountered by the contractor. The report shall be sent via e-mail to the NRC TM, TAPM and CO.

Please refer to Section F of the basic contract award document for contract reporting requirements.

Technical reporting requirements

Unless otherwise specified above, the contractor shall provide all deliverables as draft products. The NRC TM will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the contractor. The contractor shall revise the draft deliverable based on the comments provided by the TM, and then deliver the final version of the deliverable. When mutually agreed upon between the contractor and the TM, the contractor may submit preliminary or partial drafts to help gauge the contractor's understanding of the particular work requirement.

The contractor shall provide the following deliverables in hard copy and electronic formats. The electronic format shall be provided in WordPerfect 10.0 or other word processing software approved by the TM. For each deliverable, the contractor shall provide one hard copy and electronic copy to both the PM and the TM. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: JCN No.: Q-4014; TAC No. RX0061; Task Order No.: NRC-42-07-036-TO07; the licensee: Duke Power; and, the site: Lee.

- A. N/A
- B. N/A
- C. At the completion of Task 8a, submit a trip report, as an input to NRC audit report, that contains a summary of documents audited, the audit results of the design reports and design calculations, a summary of meeting discussions conducted with, the applicant list of outstanding issues, significance of these issues, and the basis for the conclusion. Incorporate the findings in the report developed under Task 4.
- D. At the completion of Task 6, submit a TER (see Attachment 1) that contains a safety evaluation report with open items resolved.
- E. At the completion of Task 7, submit a TER that contains a safety evaluation report, following the presentation to ACRS.

6.0 MEETINGS AND TRAVEL

The following travel assumptions should be considered in planning the work effort. It is likely that a smaller group than the entire review team will be necessary to accomplish some activities; the actual travel contingent will be determined by the NRC TM after discussion with the contractor PM. Travel in excess of the total number of person-trips must be approved by the NRC TAPM; travel within the work scope limits will be approved by the NRC TM.

- One, 3-person, 2-day working meeting to kickoff project and contractor orientation (Task 2)

- (If required) one, 2-person, 3-day trip to the applicant's facility (Task 8a)
- One, 2-person, 2-day working meeting at NRC headquarters to review deliverables (task 8b)
- Two, 2-person, 2-day meetings, if needed, for hearing or ACRS meeting. (Task 8b)

At the discretion of the NRC TM, quarterly progress meetings may be conducted at the contractor's office or via telephone or video conference.

7.0 NRC FURNISHED MATERIAL

The following NRC furnished materials will be provided to the contractor together with SOW:

- a) CD-ROM containing S-COL Sections and the relevant Appendices from the S-COL application.
- b) CD-ROM containing the Final Safety Evaluation Report of the DCD.

8.0 PERIOD OF PERFORMANCE

The period of performance is from January 11, 2008 through September 10, 2011.

9.0 OTHER APPLICABLE INFORMATION

License Fee Recovery

- All work under this task order is fee-recoverable under 10 CFR Part 170 and shall be charged to the appropriate TAC number(s).

Assumptions and Understandings:

- The level of effort for Task 1 is based on the volume of materials to be reviewed; this task is for familiarity and not for evaluation.
- The difference in level of effort between R-COL and S-COL review is based on the assumption that the same team would perform both review types. Thus, a separate kickoff meeting (Task 2) and separate training (Task 1) would not be necessary for the S-COL.
- The level of effort for Tasks 3 and 4 is based on the assumption that the contractor is familiar with the review procedures of the SRP Sections.
- The level of effort for Task 5 is based on the assumption that there will be 50 RAIs and it will take, on the average, 2.5 hours to review and address each response.
- The level of effort for Task 6 is based on the need to resolve 20 open items and it will take, on the average, 4 hours to review and resolve each open item, and prepare an SER.
- The level of effort for Task 7 is based on the time required to prepare a final SER, addressing any open items occurring as a result of the ACRS meeting.

- The level of effort for the visit to the applicant's site, if necessary, is based on one, two-person, three-day trip (including travel time) plus four days to prepare for the trip and to write the trip reports.
- The level of effort in Task 8b is based on requiring three, two-day trips to NRC headquarters.
- It is assumed that the contractor has access to the NRC furnished material available on the Internet.
- It is understood that the scope of the review consists of conference calls with the NRC staff, and with the NRC staff and the applicant, to discuss open items in an attempt to obtain additional information or reach resolution.

Attachments:

1. Outline, format, and sample content for the TER (draft SER) Input. Sample Generic Safety Evaluation Report for ABWR COL, chapter 6
2. Acceptance Criteria Checklist. From NRO Office Instruction, NRO-REG-100, "Acceptance Review Process for Design Certification and Combined License Applications", [ML071980027], Attachment C, Table 1

GENERIC SAFETY EVALUATION REPORT CHAPTER 6

ENGINEERED SAFETY FEATURES

This chapter of the application discusses the design and functional requirements of engineered safety features (ESF) of the plant that are features provided to mitigate the consequences of serious accidents. The features can be divided into three general groups: (1) containment systems (2) emergency core cooling systems (ECCSs) and (3) control room habitability systems. The containment systems include the primary containment, heat removal and isolation systems, combustible gas control, secondary containment, and standby gas treatment system (SGTS). The emergency core cooling systems include high pressure core flooders (HPCF), automatic depressurization system (ADS), low pressure flooders (LPFL) mode of the residual heat removal (RHR) system, and reactor core isolation cooling (RCIC) system. The habitability systems include missile protection, radiation shielding, radiation monitoring, air filtration and ventilation systems, lighting, personnel and administrative support, and fire protection.

Engineered safety features materials

6.1.1 Metallic Materials (RELATED TO RG 1.206 SECTION 6.1.1, "METALLIC MATERIALS")

6.1.1.1 Introduction/Overview/General

Section 6.1.1, "Metallic Materials" of the FSAR, addresses the materials used in ESF components as well as compatibility of materials and fluids for ESF systems. The fluids used in ESF systems, when interacting with the reactor coolant pressure boundary (RCPB) components, should have a low probability of causing abnormal leakage, of rapidly propagating failure, and of gross rupture. In addition, the application may also address the compatibility of fluids and materials for the auxiliary systems such as station service water and ESF ventilation that directly support the ESF systems.

6.1.1.2 Summary of Application

The applicant incorporated by reference Section 6.1.1, "Metallic Materials," of the certified ABWR DCD and the FSER referenced in Appendix A to 10 CFR Part 52, Appendix A. The review Criteria can be found in SRP section 6.1.1, "Engineered Safety Features Materials". No departures from the certified design were identified. The COL applicant has referenced a certified design and does not need to include additional information.

6.1.1.3 Regulatory Basis

N/A

6.1.1.4 Technical Evaluation

As documented in NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor," the NRC staff reviewed and approved Section 6.1.1 of the generic DCD for the ABWR design. The applicant took no exceptions to Section 6.1.1 of the generic DCD for the ABWR design and there is no outstanding information item related to this section.

6.1.1.5 Post Combined License Activities

TBD – NRC staff to provide further guidance

6.1.1.6 Conclusion

The staff finds that this area is addressed within the generic DCD and the related NRC FSER provided in NUREG-1503. The applicant has provided sufficient information to support issuance of a license.

6.1.2 Organic Materials (RELATED TO RG 1.206 SECTION 6.1.2, "ORGANIC MATERIALS")

6.1.2.1 Introduction/Overview/General

Section 6.1.2, "Organic Materials" of the FSAR, addresses the protective coating systems and organic materials used inside the containment. Evaluations are performed to ensure that the protective coatings will not fail under design-basis-accident (DBA) conditions and the materials will not generate significant amount of solid debris that would impair the performance of the ESF systems. Performance of the protective coatings and organic materials should be examined in consideration of radiation and chemical effects in the containment.

6.1.2.2 Summary of Application

The applicant incorporated by reference Section 6.1.2 of the certified ABWR DCD referenced in 10 CFR Part 52, Appendix A. No departures from the certified design were identified. The applicant provided information to address COL information items 6.1 from the generic DCD.

- COL information item 6.1 addresses the protection coatings and organic materials.

6.1.2.3 Regulatory Basis

The acceptance criteria from NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 6.1.2, "Protective Coating Systems (Paints) - Organic Materials," are incorporated by reference to the generic DCD for the ABWR design and NUREG-1503. COL information item 6.1 is satisfied based on meeting the requirements of Appendix B to 10 CFR Part 50 and guidelines of regulatory guide (RG) 1.54, "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants," and the requirements of ANSI N101.2.

6.1.2.4 Technical Evaluation

As documented in NUREG-1503, the NRC staff reviewed and approved Section 6.1.2 of the generic DCD for the ABWR design. The applicant took no exceptions to Section 6.1.2 of the generic DCD for the ABWR. The NRC staff's review of this application is limited to the COL information item 6.1. Specific information that shall be provided by the applicant to address COL information item 6.1 includes

- (1) Indicating the total amount of protective coatings and organic materials used inside the containment that do not meet the requirements of ANSI N101.2 and RG 1.54,
- (2) Evaluating the generation rate as a function of time of combustible gases that can be formed from organic materials under DBA conditions, and
- (3) Providing the technical basis and assumptions used for this evaluation described in DCD Subsection 6.1.2.1 and 6.1.2.2.

The NRC staff reviewed the applicant's proposal using the review procedures described in Section 6.1.2 of NUREG-0800, ...

6.1.2.5 Post Combined License Activities

TBD – NRC staff to provide further guidance

6.1.2.6 Conclusion

The staff finds that this area is addressed within the generic DCD and the related NRC FSER provided in NUREG-1503. The staff has compared the application to the relevant NRC regulations, acceptance criteria defined in NUREG-0800, Section 6.1.2, and other NRC regulatory guides and concludes that the applicant is in compliance with the NRC regulations. COL information item 6.1 is adequately addressed by the applicant and can be considered closed. The applicant has provided sufficient information to support issuance of a license.

Containment systems

6.2.1 Containment functional design (RELATED TO RG 1.206 SECTION 6.2.1, "CONTAINMENT FUNCTIONAL DESIGN")

6.2.1.1 Introduction/Overview/General

Section 6.2.1, "Containment Functional Design" of the FSAR, addresses the functional capability of the ABWR containment. The containment encloses the reactor system and is the final barrier against the release of significant amounts of radioactive fission products in the event of an accident. The containment structure must be capable of withstanding, without loss of function, the pressure and temperature conditions resulting from postulated steam line, feedwater line break, or loss-of-coolant accident (LOCA). The containment structure must also maintain functional integrity in the long term following a postulated accident. The containment design basis includes the effects of stored energy in the reactor coolant system, decay energy, and energy from other sources such as the secondary system, and metal-water reactions including the recombination of hydrogen and oxygen. The evaluation of a containment functional design includes calculation of the various effects associated with the postulated rupture in the primary or secondary coolant system piping.

The review under this section is coordinated closely with the review described in SRP Section 6.2.2. Containment design features as related to debris formation have an important relationship to the ECCS's ability to provide containment cooling. A primary source of debris in containment is the thermal insulation, which if is dislodged and enters the wetwell, it can cause plugging of the ECCS suction strainers, which can impede ECCS performance and containment cooling.

6.2.1.2 Summary of Application

The applicant incorporated by reference Section 6.2.1 of the certified ABWR DCD referenced in 10 CFR Part 52, Appendix A. Two departures from the certified design were identified (from Departure Status Report – 8/2/07).

- STD DEP 6.2-2, "Containment Analysis"
- STD DEP 6C-1, "Containment Debris Protection for ECCS Strainers"

The applicant provided information to address COL information items 6.4 and 6.5 from the generic DCD.

- COL information item 6.4 addresses methods to maintain suppression pool cleanliness, and
- COL Information item 6.5 addresses the structural shielding regarding wetwell-to-drywell vacuum breaker protection.

6.2.1.3 Regulatory Basis

The acceptance criteria from NUREG-0800, Section 6.2.1 are incorporated by reference to the generic DCD for the ABWR design and NUREG-1503. COL information items 6.4 is satisfied based on following the guidance of RG 1.82, Rev. 3, "Water Sources for Long Term Recirculation Cooling Following a Loss of Coolant Accident," and NRC Bulletin No. 93-02, "Debris Plugging of Emergency Core Cooling Suction Strainers." COL information item 6.5 is satisfied based on meeting the requirements of _____.

6.2.1.4 Technical Evaluation

As documented in NUREG-1503, the NRC staff reviewed and approved Section 6.2.1 of the generic DCD for the ABWR design. The applicant took no exceptions to Section 6.2.1 of the generic DCD for the ABWR. The NRC staff's review of this application is limited to the COL information items 6.4 and 6.5. Specific information that shall be provided by the applicant to address COL information item 6.4 includes acceptable methods to maintain suppression pool cleanliness in support of preventing ECCS suction strainer plugging in accordance with DCD Subsection 6.2.1.7 and Appendix 6C, "Containment debris protection for ECCS strainers." Specific information that shall be provided by the applicant to address COL information item 6.5 includes appropriate design features providing complete structural shielding of vacuum breaker valves from pool swell loads. The structural shielding features will be designed for pool swell loads determined based on the methodology approved for Mark II/III designs. For the design of structural shielding features, pool swell loads to the maximum practical extent will be defined.

The NRC staff reviewed the applicant's proposal using the review procedures described in Section 6.2.1 and 6.2.2 of NUREG-0800, ...

Departures

The following departures were identified by the applicant and addressed in the application.

- STD DEP 6.2-2, "Containment Analysis"
- STD DEP 6C-1, "Containment Debris Protection for ECCS Strainers"

The NRC staff reviewed the applicant's departures from the certified ABWR design using the review procedures described in Section 6.2.1 of NUREG-0800 ...

6.2.1.5 Post Combined License Activities

TBD – NRC staff to provide further guidance

6.2.1.6 Conclusion

The staff finds that this area is addressed within the generic DCD and the related NRC FSER provided in NUREG-1503. The staff has compared the application to the relevant NRC regulations, acceptance criteria defined in NUREG-0800, Section 6.2.1, and other NRC regulatory guides and concludes that the applicant is in compliance with the NRC regulations. COL information item 6.4 and 6.5 are adequately addressed by the applicant and can be considered closed. The identified departures are adequately addressed by the applicant and can be considered closed. The applicant has provided sufficient information to support issuance of a license.

6.2.2 Containment Heat removal system (RELATED TO RG 1.206 SECTION 6.2.2, "CONTAINMENT HEAT REMOVAL SYSTEMS")

6.2.2.1 Introduction/Overview/General

Section 6.2.2, "Containment Heat Removal System (CHRS)" of the FSAR, addresses the types of systems provided to remove heat from the containment. The CHRS is an integral part of the RHR System and is designed to prevent excessive containment temperatures and pressures, thus maintaining containment integrity following a LOCA. The operating modes of CHRS include low-pressure flooders (LPFL) mode, suppression pool cooling mode, and the wetwell and drywell spray cooling mode. To minimize the potential for single failure, redundant CHRS loops and associated equipment are located in separate protected areas of the reactor building.

6.2.2.2 Summary of Application

The applicant incorporated by reference Section 6.2.2, "Containment Heat Removal System," of the certified ABWR DCD and the FSER referenced in 10 CFR Part 52, Appendix A. The review criteria may be found in SRP section 6.2.2. No departures from the certified design were identified. The COL applicant has referenced a certified design and does not need to include additional information.

6.2.2.3 Regulatory Basis

N/A

6.2.2.4 Technical Evaluation

As documented in NUREG-1503, the NRC staff reviewed and approved Section 6.2.2 of the generic DCD for the ABWR design. The applicant took no exceptions to Section

Table 1: Safety Analysis Report Acceptance Review Results for [Applicant Name] [Design Center Name] [Application Type]

SER Section: _____ Technical Branch: _____ (Primary/Secondary) Technical Reviewer: _____

Branch Chief: _____ SRP Section: _____ Date: _____

Does the section address the applicable regulations: Yes/No

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? Yes/No, Identify specific review area/topic in table below.

Identify technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews. For No, identify specific review area/topic in table below.										
1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.

*Review Area/Topic: Item identified in RG 1.206 or the regulations for a COLA referencing a DC, including COL information items and departures from the design certification.

**Technical Sufficiency: The application is compared against the SRP acceptance criteria. Note: New safety features, alternate regulatory compliance approaches, and/or deviations from DCs, should not be treated as deficiencies and factored into the basis for rejecting the application, unless staff determines that there is insufficient technical information associated with the respective item. These items are factored into confirmation of planning assumptions.

***Significant deficiencies are those review area/topic which impact the staff's ability to begin the detailed technical review or complete its review within a predictable timeframe.

****DSRA will provide risk significance information at time of review, if available.