NEXTera ENERGY
DUANE ARNOLD

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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Duane Arnold Energy Center
Docket 50-331
License No. DPR-49

Comments on NRC Safety Evaluation Report with Open Items Related to the License Renewal of Duane Arnold Energy Center

References:

1. Letter, Richard L. Anderson (FPL Energy Duane Arnold, LLC) to Document Control Desk (USNRC), "Duane Arnold Energy Center Application for Renewed Operating License (TSCR-109)," dated September 30, 2008, NG-08-0713 (ML082980623)
2. Letter, Richard L. Anderson (FPL Energy Duane Arnold, LLC) to Document Control Desk (USNRC), "License Renewal Application, Supplement 1: Changes Resulting from Issues Raised in the Review Status of the License Renewal Application for the Duane Arnold Energy Center," dated January 23, 2009, NG-09-0059 (ML090280418)
3. Letter, B. Holian (USNRC) to Christopher Costanzo (NextEra Energy Duane Arnold, LLC), "Safety Evaluation Report Related to the License Renewal of Duane Arnold Energy Center" dated May 7, 2010 (ML101130417)

By Reference 1, FPL Energy Duane Arnold, LLC submitted an application for a renewed Operating License (LRA) for the Duane Arnold Energy Center (DAEC). Reference 2 provided Supplement 1 to the application. By Reference 3, the NRC issued its Safety Evaluation Report with Open Items Related to the License Renewal of Duane Arnold Energy Center. This letter provides the NextEra Energy Duane Arnold comments on the Safety Evaluation Report.

This letter contains no new commitments or changes to existing commitments.

If you have any questions or require additional information, please contact Mr. Kenneth Putnam at (319) 851-7238.

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Enclosure: Comments Regarding DAEC License Renewal Safety Evaluation with Open Items

cc: M. Rasmusson (State of Iowa)

Comments Regarding DAEC License Renewal Safety Evaluation with Open Items

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
1	Appendix A	Commitment list is not the same as the final list in NG-10-0309.	Update commitment list to match final list in letter NG-10-0309 dated May 28, 2010 (ML101520195).
2	1.6 Pg 1-9	The second License Condition does not exclude commitments that are only implemented after entry into the period of extended operation.	Exclude Commitments 2,3,50 and 51 from the License Condition.
3	2.1.4.3.1 Pg 2-19	Discussion contains a typographical error.	Fire Protection. LRA Section 2.1.2.2.3, subsection 50.48 of Title 10 CFR, "Fire Protection" described scoping of systems and structures relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the fire protection criterion. LRA Section ~~2.2.2.2.3~~ **2.1.2.2.3** states:
4	2.1.4.7.1 Pg 2-26	The SE indicates that LRA Sections 2.1.3.4 and 2.1.3.5 are quoted. Suggest revising the section to directly quote the LRA.	LRA Section 2.1.3.4, "Scoping and Screening of Electrical Equipment," states: ~~All electrical systems were evaluated to determine if the system intended functions met the requirements of § 54.4(a)(1), § 54.4(a)(2) and § 54.4(a)(3). Those SSCs which supported intended functions were considered within the scope of license renewal. A component-level intended function is one that is required for the system or structure to perform its system-level intended functions.~~ **Electrical component level screening was performed for "in scope" components associated with electrical and mechanical systems. Most component level screening was performed and documented in the license renewal database on a commodity basis. Components identified as being within the scope of license renewal were evaluated per NEI 95-10 Appendix B**

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			criteria to determine if the component was considered "active." Components were either screened out as active or were included in a commodity group. Long-lived, passive components were divided into commodity groups identified on LRA Table 2.1-2. Aging management was performed on these commodity groups. This process allowed for the quick removal of large numbers of out-of-scope and active components. LRA Section 2.1.3.5, "Components Subject to Aging Management Review," states: **A component-level intended function is one that is required for the system or structure to perform its system-level intended functions.** **The components (or component commodity groups) that are subject to an aging management review are those in-scope components that perform a component-level intended function without moving parts or a change in configuration or properties and are not subject to replacement based on a qualified life or specified time period.** Components may have more than one intended function. If a component did not have at least one component-level intended function, the component was not subject to an AMR. Detailed scoping reports have been prepared which identify all structures and components subject to an AMR. These reports have been prepared for all systems, structures, or commodity groups (except electrical commodities) in-scope for license renewal. Electrical commodities subject to an aging management review were identified using guidance in NEI 95-10 and the EPRI 1013475, *EPRI License Renewal Electrical Handbook.*

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5	2.3.1 Pg 2-36	Discussion contains a typographical error in the last sentence.	The staff's findings on review of LRA Sections 2.3.1.1–2.3.1.2 are in SER Sections 2.3.1.1 – ~~2.3.1.3~~ **2.3.1.2**, respectively.
6	2.3.1.2.1 Pg 2-37	Discussion contains an administrative error in the third paragraph.	The intended functions of the reactor vessel ~~internals~~ **recirculation system** component types within the scope of license renewal include: …
7	2.3.1.2.2 Pg 2-38	The last sentence contains an administrative error.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant has adequately identified the reactor vessel ~~internals~~ **recirculation system** components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).
8	2.3.2.2.1 Pg 2-39	The last sentence of the second paragraph contains an administrative error.	In addition, the ~~RCIC~~ **HPCI** system performs functions that support fire protection, EQ, and SBO.
9	2.3.2.2.2 Pg 2-40	Section contains an administrative error in the last sentence.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant has adequately identified the ~~RCIC~~ **HPCI** system components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).
10	2.3.2.4.2 Pg 2-41	Section contains an administrative error in the last sentence.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant has adequately identified the ~~HPCI~~ **RCIC** system components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).
11	2.3.2.5.2 Pg 2-42	Section contains an administrative error in the last sentence.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant has adequately identified the ~~containment and suppression~~ **residual heat removal** system

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			components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).
12	2.3.3.3.1 Pg 2-48	The first sentence is a run-on sentence.	LRA Section 2.3.3.3 describes the chlorination and acid feed system, which provides the means to add chemicals to circulating water**.** **S**ulfuric acid, corrosion inhibitor, surfactant, and silt dispersant are added to the circulating water pit.
13	2.3.3.6.2 Pg 2-54	The fifth bullet on the page contains a typographical error.	● Fire damper housings are included in the component type "valve body" Table 2.3.3-11 and in the line item "valve, damper" in Table ~~3.3.211~~ **3.3.2-11**.
14	2.3.3.7.2 Pg 2-55	Discussion contains an administrative error in the last sentence.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant adequately identified the ~~diesel fuel oil~~ **control rod drive** system components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).
15	2.3.3.11.1 Pg 2-59	The last bullet in the section includes 10 CFR 50.63. The Fire Protection System no longer includes components relied upon to demonstrate compliance with 10 CFR 50.63.	● System components that are relied upon to demonstrate compliance with 10 CFR 50.48 ~~and 10 CFR 50.63~~.
16	2.3.3.16.2 Pg 2-74	The fourth paragraph of Section 2.3.3.16.2 contains administrative errors.	In RAI 2.3.3.16-01, dated ~~April~~ **August** 7, 2009, the staff noted license renewal drawing BECH-M129-LR (D-2 and D-8) shows strainers (1S-~~S5A~~ **85A** and B) within scope for 10 CFR 54.4(a)(2). Strainers are not included in the list of component types in LRA Table 2.3.3-16. The applicant was requested to provide additional information explaining why strainers are not included as a component type subject to an AMR in LRA Table 2.3.3-16.

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17	2.3.3.18.1 Pg 2-77	The fourth and fifth paragraphs of Section 2.3.3.18.1 contain administrative errors.	The pump **rooms that** house ~~structure heating, ventilation, and air conditioning system houses~~ the RHR service water pumps and the emergency service water pumps are provided with ventilation supply and exhaust systems. … The standby diesel generator room's heating, ventilation, and air conditioning system provides ventilation**.** ~~air supply fan and a suitable means of exhaust for standby diesel generator room.~~ Each standby diesel generator room is provided with a ventilation air supply fan and a suitable means of exhaust. The ventilation system is supplied with standby power during a loss of offsite power.
18	2.3.3.18.2 Pg 2-78	The second bullet in the section contains a typographical error.	● Fire damper housings are included in the component type "valve body" in the Table ~~2.3.3-1~~ **2.3.3-11** and in the line item "valve, damper" in Table 3.3.2-11.
19	2.3.3.23.2 Pg 2-87	The last bullet on the page contains a typographical error.	● **Wall** ~~All~~ sealants are evaluated in the civil/structural area as elastomers in Section 2.4 and 3.5 of the application.
20	2.3.3.24.2 Pg 2-89	Discussion contains an administrative error in the last sentence.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant adequately identified the ~~reactor building (RB) HVAC~~ **reactor water cleanup** system components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).
21	2.3.3.28.3 Pg 2-95	Discussion contains an administrative error in the last sentence.	On the basis of its review, the staff concludes that there is reasonable assurance that the applicant adequately identified the ~~sampling~~ **solid radwaste** system components within the scope of license renewal, as required by 10 CFR 54.4(a), and those subject to an AMR, as required by 10 CFR 54.21(a)(1).

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
22	2.3.3.30.2 Pg 2-98	Discussion contains an administrative error.	Based on the results of the staff evaluation discussed in Section 2.3 and on a review of the LRA, UFSAR, and applicable license renewal drawings, the staff concludes that the applicant appropriately identified the ~~turbine building sampling~~ **standby liquid control** system mechanical components within the scope of license renewal, as required by 10 CFR 54.4(a), and that the applicant adequately identified the system components subject to an AMR, in accordance with the requirements stated in 10 CFR 54.21(a)(1).
23	2.3.3.31.1 Pg 2-99	Discussion contains an administrative error in the second paragraph.	The failure of nonsafety-related SSCs in the ~~service water~~ **turbine building sampling** system potentially could prevent the satisfactory accomplishment of a safety-related function.
24	2.3.3.32.2 Pg 2-100	The eighth paragraph in the section contains a typographical error.	In its response dated September 3, 2009, the applicant provided the location of the anchor and identified additional equivalent seismic anchors. The applicant also identified an additional component that should have been identified as in-scope for license renewal and subject to an AMR. Revisions to LRA Tables 2.3.3-17 and ~~3.2.2-17~~ **3.3.2-17** were provided to account for the additional components.
25	2.3.4.1.1 Pg 2-103	The fifth paragraph includes an incomplete list of component types. Listing the component types is not consistent with similar paragraphs in other sections.	LRA Table 2.3.4-1 identifies condensate and demineralized water system component types within the scope of license renewal and subject to an AMR~~:~~. ~~● bolting~~ ~~● piping and piping components~~
26	2.3.4.2.1 Pg 2-107	The information contained in this section is inconsistent with the information included in the LRA.	LRA Section 2.3.4.2 describes the ~~bypass steam system, which bypasses main steam directly to the condenser to control reactor pressure under certain normal operating conditions. Five separate bypass control valves are mounted in individual compartments of a common valve chest. Bypass steam flows from the main steam~~

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			~~lines through a 24-inch header upstream of the bypass valves and divides into two 18-inch headers, each connected to the valve chest at opposite ends. The bypass valve discharge connections are piped individually in 10-inch lines to the condensers. A pressure reducer assembly installed in each bypass valve discharge line reduces the pressure at which the bypassed steam enters the respective condenser.~~ **Condensate and Feedwater System, which includes the Feedwater Control System and the Extraction Steam, Heaters, Vents, and Drains System. The Condensate and Feedwater System provides a dependable supply of feedwater to the reactor, provides feedwater heating, and minimizes water-quality problems.** **Two motor-driven, vertical, centrifugal condensate pumps deliver water through the steam packing exhauster condenser, air ejector, condensate demineralizer, and low pressure feedwater heaters to the suction of the reactor feedwater pumps, with sufficient pressure to satisfy the net positive suction head requirements of the feed pumps. Two motor-driven centrifugal feedwater pumps deliver water through the high pressure heaters and the feedwater control valves to the reactor.** ~~The failure of nonsafety-related SSCs in the bypass steam system potentially could prevent the satisfactory accomplishment of a safety-related function.~~ LRA Table 2.3.4-2 identifies the component types within the scope of license renewal and subject to an AMR. ~~The intended function of the bypass steam system component type within the scope of license renewal is post-accident main steam isolation valve leakage hold-up and plate-out in support of the isolated condenser treatment method, alternate source term dose reduction, or both.~~

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
			The intended functions for the Condensate and Feedwater System include maintaining integrity of the reactor coolant pressure boundary, supporting primary containment isolation, and providing a flow path for HPCI and RCIC systems to inject water into the RPV. **The system includes non-safety related SSCs whose failure could prevent satisfactory accomplishment of a safety related function.** **The system performs functions that support 10 CFR 50.63 and 10 CFR 50.48.**
27	2.3.4.3.1 Pg 2-108 and 2-109	The information contained in this section is inconsistent with the information included in the LRA.	LRA Section 2.3.4.3 describes the ~~condensate transfer and storage system, which consists of an atmospheric condensate storage tank for each unit, two condensate transfer pumps, and a common atmospheric refueling water storage tank for both units, and two refueling water pumps. The condensate storage tanks are the preferred source of water for HPCI and RCIC pump operation. The condensate transfer pumps take suction from the condensate storage tanks as water for various services in the plant. The refueling water storage tank stores water necessary for refueling operations. The refueling water pumps transfer water from the refueling water storage tanks during refueling activities. In addition, the ECCS keepfill tanks are included within the condensate transfer and storage system evaluation boundaries.~~ **Condenser and Condenser Air Removal System.** **The main condenser is a two pass, divided water box type of dual pressure, deaerating design. The hotwell contains baffling to provide two minutes of radioactive decay time for short-lived isotopes. Two full capacity steam jet air ejectors, with inter and after-condensers are provided to remove the air and non-condensables from the main condenser and direct it**

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			to the offgas system. **The main steam line drains and the main condenser provide a main steam isolation valve leakage path designed to mitigate the release of fission products following a LOCA.** ~~The failure of nonsafety-related SSCs in the condensate transfer and storage system potentially could prevent the satisfactory accomplishment of a safety-related function. The condensate transfer and storage system also performs functions that support fire protection, ATWS, and SBO.~~ LRA Table 2.3.4-3 identifies the component types within the scope of license renewal and subject to an AMR. ~~The intended functions of the condensate transfer and storage system component types within the scope of license renewal include:~~ ~~● pressure-retaining boundary for sufficient flow delivery at adequate pressure or fission product barrier for containment isolation and fission product retention~~ ~~● maintenance of nonsafety-related component structural and pressure boundary integrity against adverse physical interaction that could cause safety-related SSC failure~~ **The Condenser and Condenser Air Removal System provides for plate out as part of MSIV leakage treatment path, and includes non-safety related SSCs whose failure could prevent satisfactory accomplishment of a safety related function.** **The Condenser and Condenser Air Removal System contains components credited for 10 CFR 50.49.**
28	2.3.4.4.1 Pg 2-111	The information contained in this section is inconsistent with the information included in the LRA.	LRA Section 2.3.4.4 describes the **Main Steam Isolation and Automatic Depressurization System (ADS).** ~~condenser and air removal system, a triple-shell, single-pass, multi-pressure, tube~~

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			~~and shell type condenser comprised of three separate shells; the high-pressure (HP), intermediate-pressure (IP), and low-pressure (LP) shells, the combination of which makes up the main condenser. Each shell connects to the exhaust of one of the three-low pressure turbines by a rubber expansion joint secured between two steel frames, one welded to the turbine exhaust and the other to the condenser. Condensate and steam equalizer lines connect the HP and IP shells and the IP and LP shells. The steam exhausted to the condenser is condensed by water circulated through the condenser tubes by pumps that take their suction from the cooling tower basin. The main condenser condenses and deaerates exhaust steam from the main turbine. During startup a mechanical vacuum pump establishes a vacuum in the condenser after the turbine glands have been sealed with clean steam and discharges the air drawn from the condenser to atmosphere through the plant ventilation stack. With a vacuum established, SJAEs maintain vacuum conditions and the mechanical vacuum pump is secured. The four first-stage SJAEs remove noncondensible gases and some steam from the condenser continuously and discharge them to the intercondenser, which condenses the carry-over steam and returns it to the condenser. The gases then are removed from the intercondenser by the second-stage ejector and discharged to the off-gas recombiner system together with the second-stage ejector motive steam. The failure of nonsafety-related SSCs in the condenser and air removal system potentially could prevent the satisfactory accomplishment of a safety-related function.~~ **The Main Steam Isolation and Automatic Depressurization System includes the Nuclear Steam Supply Shutoff System, Main Steam Downstream of the Main Steam Isolation Valves, and Low-Low Set Safety and Relief Valves. The system transports steam from the reactor vessel through the primary containment to the main turbine.**

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			The system supplies HPCI and RCIC turbines and provides overpressure protection for the reactor vessel. The system maintains the integrity of the reactor coolant pressure boundary. The ADS provides nuclear system depressurization for small breaks assuming failure of HPCI System, so that LPCI and CS systems can inject water into the reactor vessel. LRA Table 2.3.4-4 identifies the component types within the scope of license renewal and subject to an AMR. ~~The intended functions of the condenser and air removal system component types within the scope of license renewal include:~~ ~~● post-accident main steam isolation valve leakage hold-up and plate-out in support of the isolated condenser treatment method, alternate source term dose reduction, or both~~ ~~● maintenance of nonsafety-related component structural and pressure boundary integrity against adverse physical interaction that could cause safety-related SSC failure~~ **The Main Steam Isolation and Automatic Depressurization System has intended functions for 10CFR54.4(a)(1), including providing steam to the HPCI turbine and RCIC turbine; maintaining integrity of reactor coolant pressure boundary; limiting loss of coolant following a steam line rupture outside the primary containment. The system provides for automatic nuclear system depressurization for small breaks assuming failure of the HPCI System so that LPCI and CS can inject and provide inventory makeup; provides a steam flow path from the reactor coolant system through the safety/relief valves to the suppression pool; and prevents the over pressurization of the nuclear system.** **The Main Steam Isolation and Automatic Depressurization**

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
			System has intended functions for 10CFR54.4(a)(2), including providing for plate out as part of MSIV leakage treatment path. **The Main Steam Isolation and Automatic Depressurization System has intended functions for 10CFR54.4(a)(3), and contains components credited for 10 CFR 50.49, 10 CFR 50.63, 10 CFR 50.48 and 10 CFR 50.62.**
29	2.3.4.5.1 Pg 2-113	The information contained in this section is inconsistent with the information included in the LRA.	LRA Section 2.3.4.5 describes the **Turbine System.** ~~feedwater system, which supplies high-purity, preheated feedwater to the reactor vessel at the flow and pressure required to maintain the desired reactor vessel water level throughout the entire operating range from startup to full load to shutdown. The feedwater system provides sufficient margin to maintain adequate flow under transient conditions. The feedwater flow branches into two separate lines inside the reactor building. Primary containment isolation in each branch is by a motor-operated stop check valve for the outermost containment valve and a check valve just outside the containment wall. A check valve and motor-operated gate valve are just inside the containment. Feedwater piping from the outermost primary containment isolation valve up to but not including the valve just outside the containment is designed in accordance with ASME, Section III, Class 2.~~ ~~The feedwater system contains safety-related components relied upon to remain functional during and following DBEs. The failure of nonsafety-related SSCs in the feedwater system potentially could prevent the satisfactory accomplishment of a safety-related function. In addition, the feedwater system performs functions that support fire protection, ATWS, SBO, and EQ.~~ **The Turbine System includes the following systems: Main Turbine, Turbine Steam Seal System, Turbine Lube Oil System, Lube Oil Transfer, Purification, and Storage System, Hydrogen Seal Oil System, Main Generator Gas Control System, Electro-Hydraulic Control**

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			System, and Stator Cooling System. **The turbine is a General Electric 1800 rpm, tandem-compound, four flow, three casing, condensing, two stage reheat unit. The turbine consists of one high pressure shell plus two double flow low pressure shells. Turbine controls include an electro-hydraulic control system, control valves, main stop valves, combined intercept valves, initial pressure regulator and backup controller, steam bypass system, and emergency mechanical overspeed trip. There is a stop valve and a turbine control valve in each of the four main steam lines.** **The Turbine Steam Seal System provides steam to the turbine seals and collects and condenses sealing steam in the steam packing exhauster condenser. The condensate from the steam packing exhauster is returned to the main condenser. Non-condensable gases are exhausted to the offgas system. The Hydrogen Seal Oil System provides a constant flow of oil to the two seals located on either end of the generator rotor. The seals prevent hydrogen from escaping into the Turbine Building atmosphere and prevent air from entering the generator casing along the shaft.** **The Main Generator Gas Control System supplies hydrogen gas to the main generator which provides a low density gas which is circulated through the main generator and through hydrogen coolers to provide cooling to the field windings. The Stator Cooling System removes heat from the main generator stator and main field rectifiers while the generator is under load.** LRA Table 2.3.4-5 identifies the component types within the scope of license renewal and subject to an AMR.

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			~~The intended functions of the feedwater system component types within the scope of license renewal include:~~ ~~● pressure-retaining boundary for sufficient flow delivery at adequate pressure or fission product barrier for containment isolation and fission product retention~~ ~~● maintenance of nonsafety-related component structural and pressure boundary integrity against adverse physical interaction that could cause safety-related SSC failure~~ **The Turbine System provides main turbine first stage pressure sensing lines to Reactor Protection System (RPS) pressure switches. The Turbine System has intended functions for 10CFR54.4(a)(2), including controlling steam pressure during plant transients. The system contains component(s) that support Main Steam Isolation Valve (MSIV) leakage treatment path. The system includes non-safety related SSCs whose failure could prevent satisfactory accomplishment of a safety related function.**
30	3.0.3.1.1 Pg 3-11	The second bullet under "Operating Experience" miscalculates the percentage of leakage.	● There were no Type B failures during RFO 20. The airlock, including the equalizing valve, was tested and found to have a combined leakage of 3,855 standard cubic centimeter per minute (SCCM) which is equal to ~~19~~ **approximately 21** percent of the plant technical specification acceptance criteria of 0.05 La or 18,300 SCCM.
31	3.0.3.1.11 Pg 3-46	The first sentence in the second complete paragraph on page 3-46 is in error.	In a letter dated October ~~23~~ **13**, 2009, the applicant stated that a ~~new ASME XI Inservice Inspection, Subsections IWB, IWC, and IWD~~ **plant specific Small-Bore Piping Inspection** Program was developed for ASME Code, Class 1 small bore piping.
32	3.0.3.2.6 Pg 3-132	The last complete sentence on the page refers to the wrong commitment number.	The applicant further stated that Commitment No. ~~5~~ **15** was revised to require that purchase orders and sampling procedures for new fuel oil delivered to the diesel fire pump day fuel oil tank prohibit the

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			delivery and use of biodiesel fuel.
33	3.0.3.2.12 Pg 3-156	This section discusses the UFSAR Supplement for the Structures Monitoring Program.	Replace with discussion for Metal Fatigue of Reactor Coolant Pressure Boundary Program.
34	3.0.3.3.3 Pg 3-169	The second paragraph on page 3-169 refers to a teleconference call, rather than the docketed letter which provided the DAEC RAI response.	The staff noted that the applicant did not provide a technical justification for sampling only 10 percent of butt welds in each inspection interval during the period of extended operation. ~~The staff held a teleconference call on December 14, 2009, to discuss the issue with the applicant.~~ . **By letter dated February 22, 2010, the Staff issued RAI B.3.40-1 requesting a justification for the sampling criteria and explanation of why selecting ten percent each inspection interval is adequate.** ~~The staff requested that the applicant explain its technical basis and criteria for selecting 5 samples out of a population of 56 welds~~. **By letter NG-10-0091 dated March 9, 2010, the** ~~The~~ applicant clarified that the sample selection was based on its risk-informed inservice inspection (RI-ISI) program. ~~and that the selected welds are all from the "high risk" locations.~~ **The EPRI TR-112657 methodology applies the volumetric examination requirement to butt welds in piping between NPS 4" and NPS 2" instead of surface examination. The number of elements to be examined in Category B-J welds by this RI-ISI methodology is consistent with ASME Code Case N-560, and the selection of elements to be examined is consistent with ASME Code Case N-578 which emphasizes the selection of higher risk locations.** The staff confirmed that the applicant's RI-ISI program was reviewed and approved by the staff in a letter dated July 31, 2007. Since the sample selection criteria were based on its RI-ISI program previously approved by the staff, and the samples

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			selected are from ~~high~~**higher**-risk locations the staff found this to be acceptable.
35	3.2.2.2.9 Pg 3-223	This section does not reflect the revision to this section made by letter NG-09-0764 dated October 13, 2009.	LRA Section 3.2.2.2.9 addresses loss of material due to general, pitting, crevice, and microbiologically-influenced corrosion which could occur for steel (with or without coating or wrapping)**,** **uncoated cast iron and stainless** piping, piping components, and piping elements buried in soil. The applicant stated that ~~carbon steel (with or without coating or wrapping) piping, piping components, and piping elements for the standby gas treatment system (SGTS) buried in soil are being managed by the Buried Piping and Tanks Inspection Program.~~ **loss of material for steel, cast iron and stainless components with an external environment of soil is being managed by the Buried Piping and Tanks Inspection Program. The Buried Piping and Tanks Inspection Program will manage the aging effect of loss of material such that the intended function of the components will not be affected.**
36	3.3.2.2.10 Pg 3-290	The last paragraph on the page refers to Water Treatment Program rather than Water Chemistry Program.	… The staff further noted that the systems for which the applicant assigned generic note E are expected to contain treated water, but are not expected to contain water meeting the scope of the Water ~~Treatment~~ **Chemistry**-program. … The use of the water chemistry program for these components appears to be in conflict with the scope of the Water ~~Treatment~~ **Chemistry**-AMP. Given this apparent contradiction, it was not clear whether the applicant is using the Water ~~Treatment~~ **Chemistry**-program only for high purity water and the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program only for water which does not meet the criteria for use of the Water Chemistry Program.
37	3.4.2.1 Pg 3-319	The list of programs is incomplete.	Add the following to the list of programs: ● **ASME Code Class 1 Small-Bore Piping Inspection Program**

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
38	3.5.2.1 Pg 3-352	The list of programs is incomplete.	Add the following to the list of programs: • **Boral Surveillance Program**
39	3.5.2.3.3 Pg 3-385	Letter NG-10-0009 revised LRA Table 2.4-5 and Table 3.5.2-5 to delete the line item for "Rigid steel duct embedded in concrete duct bank" in each table.	Suggest deleting Section 3.5.2.3.3.
40	3.5.2.3.5 Pg 3-387	The second paragraph contains a typographical error.	… In the Notes for Tables 3.5.2-1 through 3.5.2-11, under Plant-Specific Notes, on page 3.5-127, a new note ~~616~~ **515** is added to read as follows: 515. Gypsum is used as a 1 hour fire rated partition between the control room, computer room and control panel area. The partition is inspected by fire protection personnel.
41	4.2.7.2 Pg 4-17	The SE misstates GALL item IV.B1-17 requirements.	GALL Report Table **item** IV.B1-17 requires that 5 percent of the top guide locations that are exposed to a neutron fluence exceeding the IASCC threshold limit of 5×10^{20} (E greater than 1 MeV) ~~shall be inspected~~ prior to the period of extended operation **shall be inspected** using an enhanced visual testing (EVT-1) technique **within six years after entering the period of extended operation**. An additional 5 percent of the top guide locations with an exposure to a neutron fluence value greater than IASCC threshold limit shall be inspected within **twelve** ~~6~~ years after entering into the period of extended operation.
42	4.2.7.2 Pg 4-17 and 4-18	Suggest clarification regarding Commitments 37 and 47. The SE states that the March 9, 2010 letter revised Commitment No. 37 to state that the inspection of core plate hold-	In its response dated October 23, 2009, the applicant stated that a plant-specific TLAA evaluation for the core plate hold-down bolts for the period of extended operation is currently not available, therefore, the applicant added a new License Renewal Commitment No. 47 indicating that 2 years prior to the period of extended operation, the applicant will submit its TLAA evaluation for the core plate hold-down bolts. Subsequent to this response,

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
		down bolts shall be performed per the inspection guidelines specified in BWRVIP-25 report. That is not entirely correct, as the revised commitment also includes a provision regarding deviation disposition.	the applicant **withdrew** ~~deleted~~ Commitment 47 **and** ~~to incorporate the changes into~~ revised Commitment No. 37 by letter dated March 9, 2010. Commitment 37 ~~was originally submitted to the staff on October 23, 2009. This commitment~~ **had** addressed only the inspection aspects of the core plate hold-down bolts. The revised Commitment 37 that was sent on March 9, 2010, addresses both TLAA evaluation for the core plate hold-down bolts and the inspection aspects (discussed in the next paragraph) of the core plate hold-down bolts. … Based on the applicant's revised commitment, the staff finds the approach acceptable in accordance with 10 CFR 54.21(c)(1)(iii), instead of the applicant's original disposition of 10 CFR 54.21(c)(1)(i). Regarding the future inspections of the core plate hold-down bolts, in a letter dated October 23, 2009, the applicant's original Commitment No. 37 stated that a sample of the core plate hold-down bolts will be inspected using visual testing (VT-3) techniques, as inspections with EVT-1 are difficult and have limited value. The applicant stated that it will continue to use VT-3 until an expanded technical basis for not inspecting them is approved by the staff. The staff reviewed the response and indicated to the applicant that it needed to continue to perform the scheduled inspections using EVT-1 technique in order to be consistent with the BWRVIP-25 report, and that VT-3 is not adequate substitute technique**.** By letter dated March 9, 2010, the applicant provided a revision to Commitment No. 37, which stated that the inspection of core plate hold-down bolts shall be performed per the inspection guidelines specified in BWRVIP-25 report**, or a deviation disposition will be developed/submitted in accordance with BWRVIP-94.**
43	4.2.7.3 Pg 4-18	The section contains an administrative error.	The applicant provided a UFSAR supplement summary description of its TLAA evaluation of the RVIs in LRA Section 18.3.1.7, Appendix A. On the basis of its review of the UFSAR supplement,

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
			the staff **concludes that the** summary description of the applicant's actions to address the RVIs is adequate.
44	4.2.7.4 Pg 4-18	The conclusion does not reflect the revised Commitment 37.	On the basis of its review, the staff concludes that the applicant has demonstrated, pursuant to 10 CFR 54.21(c)(1)(iii), that the aging effect due to IASCC in the RVI components would be managed during the end of the period of extended operation. With respect to stress relaxation in core plate hold-down bolts, the applicant with manage the aging effect ~~by submitting its analysis on the core plate hold-down bolts to the staff for review and approval 2 years prior to the period of extended operation In accordance with the provisions of 10 CFR 54.21(c)(1)(iii).~~ **by completing one of the following actions prior to entering the period of extended operation:** **• Install core plate wedges to eliminate the function of core plate hold down bolts.** **• Perform analysis of the core plate rim hold down bolts that demonstrates adequacy to perform their intended function including loss of pre-load in the period of extended operation including the effects of projected neutron fluence. Inspection of core plate hold down bolts will be performed in accordance with BWRVIP-25, or a deviation disposition will be developed/submitted in accordance with BWRVIP-94.** The staff also concludes that the UFSAR supplement contains an appropriate summary description of the TLAA evaluation, as required by 10 CFR 54.21(d) and, therefore, is acceptable.
45	4.3.1.2 Pg 4-20	The second sentence in the last paragraph on the page contains an administrative error regarding feedwater nozzle CUF locations.	In its response to RAI 4.3.1-1, Part 2, dated October 13, 2009, the applicant stated that certain CUF values in the 1998 reassessment were less than the CUF values in the original design report from CB&I. The applicant further stated that these locations are the shroud support point 21 and certain feedwater nozzle locations (safe end points 1-6 and ~~6-10~~ **10-16** and thermal sleeve points 7 and 8). …

#	Section/ Page	Comment	Suggested Resolution (Changes shown in bold and strikethrough.)
46	4.3.4.2 Pg 4-33	The second complete paragraph on the page contains an administrative error, referring to the BWRVIP Radiolysis model rather than the BWRVIA Radiolysis model.	In its response to RAI 4.3.4-2, Part 3, dated October 13, 2009, the applicant provided a table which outlines the applicant's dissolved oxygen measurement locations. … The applicant stated that the upper RPV area, RPV beltline, and RPV bottom head region dissolved oxygen levels were calculated using the ~~BWRVIP~~ **BWRVIA** Radiolysis model, which is a software tool that was developed by EPRI to predict electrochemical corrosion potential and H2/O2 molar ratio values for various reactor coolant components. …
47	4.3.4.2 Pg 4-35	The last sentence in the third complete paragraph contains an administrative error.	The applicant committed (Commitment No. 51) to utilize the $\mathbf{F_{en}}$ **data for nickel alloy from the** methodology described in NUREG/CR-6909 for its ~~nickel alloy~~ recirculation inlet nozzle safe end, feedwater nozzle safe end, and core spray nozzle safe end ~~are nickel alloy components~~ for future revisions or updates to the environmental fatigue calculations.
48	4.6.4 Pg 4-43	Title of Section contains an administrative error.	4.6.4 Fatigue Analysis of ~~Suppression Chamber External Piping and Penetrations~~ **Containment Vessel**