August 27, 2011

UNITED STATED OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)		
	)	Docket Nos.	52-029-COL
Progress Energy Florida, Inc.	)		52-030-COL
	)		
(Combined License Application for	)		
Levy County Nuclear Plant, Units 1 and 2)	)	ASLBP No.	09-879-04-COL

PROGRESS ENERGY FLORIDA, INC.'s MOTION FOR SUMMARY DISPOSITION OF CONTENTION 8A IN LIGHT OF REVISED EXTENDED LLRW PLAN

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.1205, Progress Energy Florida, Inc. ("Progress" or "PEF") moves this Atomic Safety and Licensing Board (the "Board") for summary disposition of Contention 8A ("C-8A") on the grounds that no genuine issue of material fact exists and Progress's legal position is correct with respect to that Contention. C-8A invokes the legal question of whether the means by which Progress intends to manage Class B and C low-level radioactive waste ("LLRW"), as set forth in Progress's Combined Construction Permit and Operating License Application ("COLA") for Progress's proposed Levy County Nuclear Plan ("Levy") is sufficient to satisfy the requirements set forth in 10 C.F.R. § 52.79(a)(3). Progress moves this Board to grant summary disposition of C-8A because Progress's revised plan for extended management of Class B and C LLRW ("Revised Extended LLRW Plan") provides information sufficient to enable the Commission to reach a final conclusion, before issuance of the proposed combined license, to resolve whether Progress's means for controlling and limiting radioactive effluents and radiation exposures (beyond the initial storage period specified in the AP 1000 Design Control Documents) will be within the limits set forth in 10 C.F.R. Part 20. Progress's Revised Extended LLRW Plan satisfies 10 C.F.R. § 52.79(a)(3) as a matter of law. No dispute on a material fact exists.

II. PROCEDURAL AND FACTUAL BACKGROUND

This proceeding involves Progress's July 28, 2008 COLA for the proposed Levy County Nuclear Plant. Nuclear Information and Resource Service, the Ecology Party of Florida, and the Green Party of Florida (collectively, "Joint Intervenors") filed a Petition to Intervene and Request for Hearing ("Joint Intervenors' Petition") in this proceeding on February 6, 2009 alleging several contentions. The Board's Order of July 8, 2009 admitted parts of three contentions, including the original Contention 8 as narrowed by the Board. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-10, 70 NRC 51 (2009) ("LBP-09-10").[1] Progress appealed the Board's decision to admit Contention 8. On January 7, 2010, the U.S. Nuclear Regulatory Commission ("NRC" or "Commission") found Contention 8 admissible, but added that issues regarding the disposal of greater than Class C waste are "outside the scope of this adjudicatory proceeding." Progress Energy Florida, Inc. (Combined License Application, Levy County Nuclear Power Plant, Units 1 and 2), CLI-10-02, 71 NRC___, (slip op. at 27) (Jan. 7, 2010) ("CLI-10-02") (footnote omitted). The Commission also clarified that Progress must address in its COLA "how it intends to handle an accumulation of LLRW" for a longer term then envisioned in the COLA. Id. at 25.

On December 4, 2009, Progress submitted responses to the NRC Staff's Request for Additional Information ("RAIs") Nos. 11.04-1 and 11.04.2 (ADAMS Accession No. ML093450353). Progress's RAI responses described Progress's LLRW plan for managing Class B and Class C waste, including Progress's plans in the event that more than a two-year accumulation of such waste would have to be stored at Levy. Progress's RAI responses also set forth revisions to the COLA based on that plan. On

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[1] Contention 8 as originally admitted read:

> Progress Energy Florida's (PEF's) application is inadequate because the Safety Analysis Report assumes that the class B, C, and greater than C low-level radioactive waste (LLRW) generated by proposed Units 1 and 2 will be promptly (e.g. within two years) shipped offsite and fails to address compliance with Part 20 and Part 50 Appendix I (ALARA) in the event that PEF will need to manage such LLW on the Levy site for a more extended period of time.

LBP-09-10, 70 NRC at 150.

April 21, 2010, the Board dismissed Contention 8. Licensing Board Order (Approving Settlement and Dismissal of Contention 8)[2] (Apr. 21, 2010)(unpublished).

On May 14, 2010, Joint Intervenors filed a motion to amend Contention 8 as follows:

> AMENDED CONTENTION 8: Progress Energy Florida's (PEF's) COL application is inadequate to satisfy 10 C.F.R. 52.79 because it assumes that class B and C radioactive waste [footnote omitted] generated by proposed Levy Units 1 and 2 will be promptly (e.g., within two years) shipped offsite, while currently there is an absence of access to a licensed disposal facility or capability to isolate the radioactive waste from the environment. The proposed amendment to the Levy County COL also fails to offer sufficient information to demonstrate the adequacy of PEF's plans for storing Class B and C radioactive waste on the Levy site if offsite disposal capacity is not available within two years. PEF's plan to postpone most of its decisions regarding how and where to store the waste (including "minimizing" the volume of the waste) until sometime after issuance of the license for Levy violated Section 52.79 and also the Atomic Energy Act's requirement that safety findings must be made before the license is issued.[3]

On August 9, 2010, the Board admitted Amended Contention 8, designating it "C-8A." Licensing Board Memorandum and Order (Ruling on Joint Intervenors' Motion to File and Admit New Contention 8A) at 1 (Aug. 9, 2010) (unpublished) ("Order Admitting C-8A").

On August 27, 2010 Progress sought summary disposition of C-8A on the grounds that: (1) C-8A required a legal, rather than a factual determination; (2) as required under 10 C.F.R § 52.79(a), Progress's COLA set forth the kinds and quantities of radioactive materials to be produced by Levy; (3) Progress's COLA contained information sufficient to satisfy the "means" requirement in 10 C.F.R § 52.79(a)(3); and (4) NRC regulatory guidance supported summary disposition.

On November 18, 2010 the Board denied Progress's motion for summary disposition of C-8A, concluding, as a matter of law, that Progress's LLRW plan did not satisfy 10 C.F.R. § 52.79(a) because it:

> [did] not provide a level of information sufficient to enable the Commission to reach a final conclusion, before the issuance of the proposed combined license, to resolve whether PEF's means for controlling and limiting radioactive effluents and radiation exposures (beyond the initial storage period specified in the AP1000 Design Control Documents) will be within the limits set forth in 10 C.F.R. Part 20.

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2 The Board's order dismissed Contention 8 and approved a settlement between the parties in which Progress agreed not to raise an argument as to the timeliness of any future contention challenging the adequacy of Progress' LLRW plan if filed within 30 days.

3 Motion by Joint Intervenors to Amend Contention 8 at 3 (May 14, 2010).

Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-10-20, 72 NRC ____ (slip op. at 1) (Nov. 18, 2010) ("LBP-10-20"). The Board found that Progress's LLRW plan for extended on-site storage was "primarily a procedural plan with little or no information by which the NRC can make the required Part 20 determination." Id. at 33. The Board stated that Progress may choose to revise and resubmit this part of its application. Id. at 41.

On November 29, 2010 Progress filed a motion for reconsideration of the Board's decision in LBP-10-20. Progress's motion was denied by the Board's December 22, 2010 Memorandum and Order on the grounds that Progress had not satisfied the standard for reconsideration. The Order also reiterated that the denial was interlocutory.[4]

On April 14, 2011, Progress submitted to the NRC Staff a "Voluntary Supplemental Response to NRC Request for Additional Information Letter No. 073 Related to Solid Waste Management System." (ADAM Accession No. ML11112A087) (Attachment A). This voluntary Supplemental Response provided additional and revised information describing Progress's Revised Extended LLRW Plan. The April 14, 2011 cover letter commits to make changes in a future revision of the COLA. Attachment D to this Motion provides an advance copy of the revised Levy FSAR Chapter 11, which includes considerable additional information on the Revised Extended LLRW Plan.[5]

The Revised Extended LLRW Plan commits to construct a long-term, on-site storage pad as a contingency plan for storage of Class B and C LLRW for as long as the operating life of the Levy plant, if necessary. Appendix D, § 11.4.6.3. The location, design and operating considerations for the contingent storage pad are described in the revised FSAR. Appendix D at §§ 11.4.6.3, 11.4.6.3.1 and 11.4.6.3.2. In

[4] On December 10, 2010, the NRC Staff filed an appeal of the denial of summary disposition of C-8A. NRC Staff Petition for Review of LBP-10-20 of Dec. 10, 2010. On December 20, 2010, Progress submitted to the Commission a brief in support of the NRC Staff's Petition for Review. That appeal is pending before the Commission. An interlocutory appeal does not stay proceedings before the Board unless the Commission orders otherwise. 10 C.F.R. § 2.341(e).

[5] Revised FSAR Chapter 11 will be submitted to the NRC Staff in October 2011 as part of the annual FSAR update, which includes documenting changes made in response to RAIs.

addition, design considerations set forth in three referenced technical reports would be applied to the on-site storage pad. Appendix D, §§ 11.4.6.3.1, 11.4.7 (references 202, 203, 204).

As stated in the revised FSAR, Class B LLRW will constitute approximately 5 percent by volume of the LLRW generated by Levy. Appendix D, at § 11.4.2.4.3. Alternatives to extend storage in the spent resin storage tanks in the Auxiliary Building at Levy are described in the revised FSAR (Attachment D at § 11.4.2.4.3) and are given greater context in the attached Affidavit of Anthony Pilo, Jr. (Attachment C). Mr. Pilo describes how Class B and C LLRW can be stored in the Auxiliary Building for at least two refueling outages (about 3 years) before additional on-site storage would be required, in the event Class B and C LLRW cannot be shipped off-site. Id. at ¶¶ 6 - 12. Mr. Pilo addresses the time-line and practicality of the Revised Extended LLRW Plan by providing his professional opinion that the storage pad can be constructed within six months and could be constructed before the third refueling outage even if work did not start until after completing the second outage. Id. at ¶ 13.

III. APPLICABLE LAW

A. This Motion Is Timely

In this Motion, Progress comes before the Board seeking summary disposition of C-8A in light of the Revised Extended LLRW Plan. This Motion is timely as it meets both the absolute deadline and the timeliness trigger established by the Board for summary disposition motions. The Board requires that all summary disposition motions on matters other than environmental contentions be filed within twenty days after the NRC Staff published the Advanced Final SER ("AFSER") in this proceeding. Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-22, 70 NRC 640, 653 (2010) ("ISO"). The AFSER has not yet been published; hence this Motion meets the Board's absolute deadline.[6] Additionally, the Board requires that "dispositive motion may be filed twenty (20) days after the occurrence or circumstance from which the motion arises . . . *provided that* the moving party

[6] On August 10, 2011, the NRC issued a version of the Chapter 11 of the Levy Final Safety Evaluation Report ("FSER") with no open items. This version of Levy FSER Chapter 11, along with other chapters issued or to be issued, will be reviewed by the Staff at an Advisory Committee on Reactor Safeguards ("ACRS") meeting expected later this year. NRC Staff 23rd Status Report (August 4, 2011).

commences sincere efforts to contact and consult all other parties within ten (10) days of the occurrence or circumstance." ISO at 652-53 (emphasis in original). The Board Order states that a motion for summary disposition is an example of a dispositive motion. Id. at 652. Counsel for Progress contacted and discussed the Motion with counsel for the NRC Staff and with Mary Olson for the Joint Intervenors within ten days of the NRC Staff's issuance of Chapter 11 of the AFSER.

B. Standard for Summary Disposition for Contention 8A

In this proceeding governed by Subpart L of 10 C.F.R. Part 2, the Board must apply the summary disposition standard set forth in 10 C.F.R. Part 2, Subpart G; specifically, 10 C.F.R. § 2.710(d)(2). 10 C.F.R. § 2.1205(c). The Board articulated the legal standard for summary disposition succinctly in LBP-10-20 at 6: "Thus, there are two criteria. First, the movant must show that there is no genuine issue as to any material fact. Second, the movant must establish that its legal position is correct." See 10 C.F.R. § 2.710(d)(2). In LBP-10-20, the Board found that Progress's motion satisfied the first criterion – that the resolution of C-8A raises no genuine issue as to any material fact. LBP-10-20 at 40. However, the majority of the Board found that the extended LLRW plan incorporated in the Levy COLA at that time did not provide "a level of information sufficient to enable the Commission to reach a final conclusion" pursuant to 10 C.F.R. § 52.79(a), and thus did not meet the second criterion. Id. at 41.

Progress's Motion demonstrates that the Revised Extended LLRW Plan satisfies 10 C.F.R. § 52.79(a)(3) as a matter of law. This Motion is supported by the following documents:

a. Progress's April 14, 2011 "Supplemental Response to NRC Request for Additional Information Letter No. 073 Related to SRP Section 11.4 for the Combined License Application, dated November 4, 2009" (Attachment A)

b. Statement of Material Facts on Which No Genuine Issue Exists (Attachment B)

c. Affidavit of Anthony Pilo, Jr. (Attachment C)

d. Advance Copy of the Revised Levy FSAR Chapter 11 (Attachment D)

IV. THE BOARD SHOULD GRANT SUMMARY DISPOSITION OF CONTENTION 8A

A. Progress's LLRW Management Plan Meets the Requirements Set Forth in 10 C.F.R. § 52.79(a)

This Board held, as a matter of law, that Progress's LLRW Plan "does not satisfy 10 C.F.R. § 52.79(a) because it does not provide a 'level of information sufficient to enable the Commission to reach a final conclusion' before the issuance of a COL, to resolve whether PEF's means for controlling and limiting radioactive effluents and radiation exposures during the extended period will be 'within the limits' set forth in 10 C.F.R. Part 20." See LBP-10-20 at 41 (emphasis in the original). The Board stated that Progress's "Extended" LLRW plan was inadequate because it was merely procedural. LBP-10-20 at 34. The Board stated the plan needed to include sufficient design and operational organization information also. Id. 10 C.F.R. § 52.79(a)(3) requires that Progress's FSAR meet two requirements: (1) the FSAR must describe the kinds and quantities of radioactive materials that Levy is expected to produce; and (2) it must describe the means by which radioactive effluents and radiation exposure will be controlled and limited to meet Part 20 requirements.

First, Progress's Revised Extended LLRW Plan satisfies the initial requirement as a matter of law. As found by the Board previously held; "we find that [Progress's LLRW plan] clearly provides sufficient information concerning 'the kinds and quantities of radioactive materials expected to be produced in the operation." LBP-10-20 at 21. This information in the Revised Extended LLRW Plan has not been changed from the original LLRW plan.

Second, Progress's Revised Extended LLRW Plan satisfies the requirement in 10 C.F.R. § 52.79(a) that the FSAR identify the means for controlling and limiting radioactive effluents and radiation exposures within the limits set forth in 10 C.F.R. Part 20. While continuing to provide information on the procedural elements, Progress's Revised Extended LLRW Plan also provides sufficient information on design (Attachment A, Encl. at 6-7; Attachment D, § 11.4.6.3.1) and operational organization (Attachment A, Encl. at 7-8; Attachment D, § 11.4.6.3.2).

Progress's LLRW plan continues to commit that the means for controlling effluents is primarily a procedural plan to maintain the solid waste in storage containers. Such means are adequate to provide reasonable assurance that the solid waste will not become a source of effluents. Progress Brief In Support of the NRC Staff Petition for Review of LBP-10-20 at 10-13 (December 20, 2010). However, in light of LBP-10-20, Progress has voluntarily submitted supplemental responses to NRC Staff RAI Nos. 11.04-1 and 11.04-2, related to Progress's solid waste management system, complementing Progress's original LLRW plan.[7] These Supplemental RAI Responses describe the means, including design and operational considerations, by which Progress will provide on-site storage in the event that such storage is needed for more than two years.

First, in the event that an offsite facility is not available to accept Class B and C waste when Levy becomes operational, the RAI Supplemental Response 11.04-1 confirms, and revises the FSAR to state, that should there be no disposal facilities that will accept Class B and C LLRW after the Levy plant begins operation, there are two options available for storage of such waste: (1) the Auxiliary Building, which is designed to have more than one year of spent resin storage capacity at the expected rate, and the spent resin tanks may be mixed to limit the radioactivity concentrations thereby limiting the volume of Class B and C wet waste requiring storage; and (2) vendor services which are available to process Class A, B, and C waste and transfer radioactive material for storage until a disposal site is available.

Second, Supplemental RAI Response 11.04-1 also details how shipping waste at the earliest practicable time (1) minimizes the need for waste reprocessing caused by potential changes in a disposal facility's requirements; (2) reduces occupational and non-occupational exposures from handling; and (3) maximizes the amount of on-site storage space available for use.

Third, Progress's Supplemental RAI Response 11.04-2 states that additional on-site LLRW storage capability, if ever needed, will be provided by an outside storage pad located outside the Protected

[7] Levy Nuclear Power Plant, Units 1 and 2 Docket Nos. 52-029 and 52-030,Voluntary Supplemental Response to Request for Additional Information Letter No. 073 Related to Solid Waste Management System", April 14, 2011. (ADAM Accession No. ML11112A087) Attachment A.

Area in the Owner Controlled Area. This outside storage pad would be enclosed by an eight-foot high fence with locked gates, area lighting, and fire protection. This supplemental information in the Revised Extended LLRW Plan provides the commitment and design information thought to be lacking from Progress's original LLRW plan.[8]

The supplemental information provided in Progress's Revised Extended LLRW Plan is consistent with the similar plan provided in the AP 1000 reference COLA, Vogtle ("R-COLA"). Indeed, the Vogtle Licensing Board found that a LLRW storage plan like Progress's Revised Extended LLRW Plan provided an adequate description of the means for controlling effluents and exposures as required by 10 C.F.R. § 52.79(a)(3). Southern Nuclear Operating Co. (Vogtle Electric Generating Plant Units 3 and 4), 72 NRC __, LBP-10-08 (slip op. at 2, 13-14) (May 19, 2010). Consistent with the R-COLA and the Vogtle decision, this Board should find that Progress's Revised Extended LLRW Plan satisfies 10 C.F.R. § 52.79(a) because it provides a level of information sufficient to reach a final conclusion that Progress's COLA sets forth the means for controlling and limiting radioactive effluents and radiation exposures during the extended storage of Class B and C LLRW (if needed) within the limits set forth in 10 C.F.R. Part 20.

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[8] Attachment A, Encl. at 6-7; Attachment D at §§ 11.4.6.3., 11.4.6.3.1. Specific design considerations discussed in the revised FSAR include: the storage of LLRW will be in high integrity containers, including shielded containers for isotopes that will not decay over time; containers will be stored inside a shielded container for radiation shielding and weather protection; if necessary, the facility will be sized to accommodate storage of Class B and C LLRW over the operating life of the plant; specific design considerations would be applied from Electric Power Research Institute and NRC guidance documents, including location of the storage pad to meet the dose rate criteria of 40 C.F.R. Part 190 and 10 C.F.R. § 20.1302 for both the site boundary and unrestricted area; the storage pad will be an engineered feature designed to minimize settling and constructed of reinforced concrete or engineered gravel; the location of the storage pad will avoid natural or engineered surface drainage and be located at an elevation considering the site's design bases flood level; storage shields will be arranged to be accessible from the perimeter road or from a center aisle using a mobile crane; personnel passages will be provided between rows of storage shields for access to the containers for inspection; and adequate electrical power and lighting will be provided to allow power for tools, analytical equipment, sample pumps, radiation instruments, boroscope lights, etc. In addition, the bases for operating procedures and specific details to be included in operating procedures for the on-site storage facility are set forth in the revised FSAR. Attachment A, Encl. at 7-8; Attachment D at § 11.4.6.3.2.

B. Resolution of Contention 8A Requires a Legal, Rather Than a Factual, Determination.

As stated by the Board, C-8A presents an issue that is purely a legal one. LBP-10-20 at 29. C-8A alleges that Progress's LLRW management plan failed to satisfy 10 C.F.R. § 52.79(a) because it assumed that Class B and C waste generated by the Levy facility will be promptly, within two years, shipped offsite. C-8A goes on to contend that Progress's LLRW management plan failed to offer sufficient information to demonstrate the adequacy of Progress's plans for storing Class B and C waste if offsite disposal capacity in not available within two years. Id. at 5. As the Board has stated, Joint Intervenors challenge the adequacy of Progress's LLRW plan to satisfy 10 C.F.R. § 52.79(a). Order Admitting C-8A at 13. The issue to be resolved involves the proper interpretation of 10 C.F.R. § 52.79(a)(3) and its introductory clause. See Id. at 13-14. This question raises a legal, rather than factual, issue to resolve on summary disposition.

The Joint Intervenors purported to raise a factual question regarding the workability of Progress's original LLRW plan. "The Joint Intervenors have raised a factual dispute as to whether PEF's Extended LLRW Plan can be successfully implemented, given the limited amount of onsite storage capacity specified in PEF's Initial LLRW Plan." LBP-10-20 at 40. Joint Intervenors asserted that Progress's original LLRW Plan lacked a timeline for both (a) obtaining licensing approval, and (b) constructing expanded LLRW storage. Joint Intervenors' Response to Motion for Summary Disposition of C-8A at 7; Att. C, ¶ 6 (September 15, 2010). Regardless of whether or not a plan providing the means for compliance with the regulations requires a "timeline" for implementation, Progress's original LLRW Plan has been revised. See Attachment A. Because a COL based on Attachments A and D provides for contingent long-term storage of Class B and C LLRW on a storage pad, the remaining potential "timeline" issue is whether such a storage pad can be "successfully implemented."

As detailed in the attached Affidavit of Anthony Pilo, Jr., Progress's Revised Extended LLRW plan can be successfully implemented as required. Attachment C. The Class B and C LLRW is primarily generated from purification media discharges and these occur during planned outages. DCD § 11.4.2. The media discharges are first held in a catch tank in the Auxiliary Building, then processed into storage

containers. Therefore, the third outage involving media discharge will be the first outage where the storage pad could potentially be needed (the first discharge being stored in storage containers and the second in the catch tanks). The storage pad can be constructed within six months. Therefore, the storage pad can be constructed (including any related activities required) during the planning time for the third outage requiring media discharge, regardless whether that work starts after the start of operations or not until after the second outage (about three years from the start of operations).[9] Attachment C at ¶¶ 6 - 13.

The attached Statement of Material Facts on Which No Genuine Issue Exists explains that there are no genuine issues to be heard with respect to the Revised Extended LLRW Plan. Attachment B. There is no material dispute that Attachments A and D contain sufficient information describing the contingent storage pad construction and the timeline for successful implementation.

V. CONCLUSION

For the reason stated above, the Board should grant Progress's Motion for Summary Disposition of Contention 8A.

VI. CERTIFICATION

I certify that this Motion is not interposed for delay, prohibited discovery, or any other improper purpose, that I believe in good faith that there is no genuine issue as to any material fact relating to this Motion, and that the moving party is entitled to a decision as a matter of law, as required by 10 C.F.R. §§ 2.1205 and 2.710(d). Specifically, this Motion is filed well before the expected hearing date and is expected to lead to expediting the proceeding by resolving all remaining LLRW issues in the proceeding. See 10 C.F.R. § 2.710(d)(1); ISO, 70 NRC at 653 n. 30.

I certify that I have made a sincere effort to contact the other parties in this proceeding, to explain to them the factual and legal issues raised in this motion, and to resolve those issues. I certify that after this consultation: (1) the Joint Intervenors stated their position has not changed from that expressed in

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[9] Since the contingent storage pad will be described in the COLA (as updated by FSAR Revision 3), there is no additional licensing approval to address.

their “Note” in this proceeding filed December 24, 2010; (2) and NRC Staff supports summary disposition of Contention 8A and will not file a response.

Respectfully submitted,

_/signed electronically/_________________

John H. O’Neill, Jr.
Robert Haemer
PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N Street NW
Washington, DC 20037-1128
Tel. (202) 663-9086
Counsel for Progress Energy Florida, Inc.

Dated August 27, 2011

Attachment A
Progress letter to NRC dated April 14, 2011

Progress Energy

Serial: NPD-NRC-2011-035
April 14, 2011

10 CFR 52.79

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

LEVY NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 52-029 AND 52-030
VOLUNTARY SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 073 RELATED TO SOLID WASTE MANAGEMENT SYSTEM

Reference: 1) Letter from Donald Habib (NRC) to Garry Miller (PEF), dated November 4, 2009, "Request for Additional Information Letter No. 073 Related to SRP Section 11.4 for the Levy County Nuclear Plant, Units 1 and 2 Combined License Application"

2) Letter from John Elnitsky (PEF) to the Nuclear Regulatory Commission (NRC), dated December 4, 2009, "Response to Request For Additional Information Letter No. 073 Related to Solid Waste Management System"

Ladies and Gentlemen:

Progress Energy Florida, Inc. (PEF) hereby submits our voluntary supplemental response to the Nuclear Regulatory Commission's (NRC) request for additional information provided in the referenced letter.

The enclosure identifies changes that will be made in a future revision of the Levy Nuclear Plant Units 1 and 2 application.

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (727) 820-4481.

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

Executed on April 14, 2011.

Sincerely,

John Elnitsky
Vice President
New Generation Programs & Projects

Enclosure

cc : U.S. NRC Region II, Regional Administrator
Mr. Brian C. Anderson, U.S. NRC Project Manager

Progress Energy Florida, Inc.
P.O. Box 14042
St. Petersburg, FL 33733

bc: John Elnitsky, VP- New Generation Programs & Projects
Robert Kitchen, Manager-Nuclear Plant Licensing
Tillie Wilkins, NGPP-Licensing
Kenneth Allison (Shaw Power Group)
John O'Neill, Jr. (Pillsbury Winthrop Shaw Pittman, LLP)
A. K. Singh (Sargent & Lundy, LLC)
Cynthia Malecki (Sargent & Lundy, LLC)
Lorin Young (CH2M HILL)
John Archer (WorleyParsons)
NGPP Document Control Inbox (Records: Correspondence)
File: NGPP (Dana Rose)

**Levy Nuclear Plant Units 1 and 2
Supplemental Response to NRC Request for Additional Information Letter No. 073
Related to SRP Section 11.4 for the Combined License Application,
dated November 4, 2009**

NRC RAI #	Progress Energy RAI #	Progress Energy Response
11.04-1	L-0678 & L-0914	December 4, 2009 Serial: NPD-NRC-2009-241 & Supplemental response enclosed - see following pages
11.04-2	L-0679 & L-0915	December 4, 2009 Serial: NPD-NRC-2009-241 & Supplemental response enclosed - see following pages

NRC Letter No.: LNP-RAI-LTR-073

NRC Letter Date: November 4, 2009

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 11.04-1

Text of NRC RAI:

In Standard COL 11.4-1, the applicant states that "no additional onsite radwaste storage is required beyond that described in the DCD." Please explain why this statement is included or remove it.

PGN RAI ID #: L-0914

PGN Response to NRC RAI:

The referenced statement is provided to address the portion of the COL information item in DCD Subsection 11.4.6 that states "In the event additional onsite storage facilities are a part of Combined License plans, this program will include a discussion of conformance to Generic Letter GL-81-038," and the statement in Regulatory Guide 1.206 (page C.111. 1-137), "In the event that additional onsite storage facilities are a part of COL plans, include a discussion of conformance to GL-81-038. Supplemental guidance is provided in SECY-94-198." The statement is intended to confirm that additional onsite storage facilities are not a part of the COLA plans and is consistent with the discussion in DCD Subsection 11.4.2.1, which provides that "the AP1000 has sufficient radwaste storage capacity to accommodate the maximum generation rate" and that the "spent resin storage tanks... and one high integrity container ... provide more than a year of spent resin storage at the expected rate [of generation]." Accordingly, the statement establishes that no discussion of additional onsite storage facilities is necessary. However, because plant-specific issues have been raised in the LNP COLA proceeding concerning long-term storage arrangements for low level radioactive waste (LLRW), a plant-specific contingency plan for expansion of on-site LLRW storage capacity is described in the response to RAI 11.04-2.

While the applicant does not currently have agreements for acceptance of Class B and C low-level waste at an offsite disposal facility, Congress enacted the Low-Level Radioactive Waste Policy Amendments Act (LLRWPAA) of 1985 to ensure that disposal capacity would be available for all types of LLRW generated by Atomic Energy Act (AEA) licensees. Although no facility licensed for the disposal of all classes of LLRW is currently available to the applicant, plant-specific offsite long term storage options are in the process of being developed, as described below.

As indicated in NUREG-0800, Appendix 11.4-A, waste should not be placed in contingency storage if it can be disposed of at a licensed disposal site. Class A LLRW is disposed of off-site. Currently the Clive, Utah facility accepts Class A LLRW. Licensees may enter into agreements with licensed waste processors to take possession and/or title to material, process and transfer it to the Waste Control Specialists (WCS) Texas Site, or similar sites that might become available in the future where it would be stored until a disposal site is available.

The first unit is not scheduled to load fuel and begin operation until 2020 or later and will not be generating Class B and C waste until after initial operation. By that time, it is expected that a disposal facility will be available that would accept the Class B and C waste generated by this plant.

Shipping waste at the earliest practicable time minimizes the need for waste reprocessing caused by potential changes in a disposal facility's requirements, reduces occupational and non-occupational exposures from handling and maximizes the amount of onsite storage space available for use. The commercial option to store Class B and C waste at the WCS Texas Site is expected to be available if needed.

Associated LNP COL Application Revisions:

The following change will be made to the LNP FSAR in a future revision:

COLA Part 2, FSAR Chapter 11, Subsection 11.4.2.4.3 will be revised from:

11.4.2.4.3 Temporary Storage of Low-Level Radioactive Waste

In the event that off-site shipping is disrupted or facilities are not available to accept radwaste when LNP 1 and 2 become operational, as described in DCD Subsection 11.4.2.1 paragraph ten, temporary storage capability on-site is available for greater than two years at the expected rate of radwaste generation and greater than one year at the maximum rate of radwaste generation. During this period, the implementation of additional waste minimization strategies could extend the duration of temporary radwaste storage capability. Since there are no facilities currently licensed by the NRC for disposal of Greater Than Class C (GTCC) LLRW, storage of GTCC would be similar to the methodology used for storage of spent fuel.

If additional temporary radwaste storage is eventually required, then on-site facilities could be constructed utilizing the design guidance provided in NUREG- 0800, Standard Review Plan Chapter 11 Radioactive Waste Management Appendix 11.4-A, Design Guidance for Temporary Storage of Low-Level Radioactive Waste.

To Read with a LMA of LNP COL 11.4-2:

11.4.2.4.3 Alternatives for B and C Wastes

It is expected that Class B and C wastes will constitute approximately 5 percent by volume of the low level radioactive waste (LLRW) that will be generated by the plant with the balance being Class A waste. The volume of wet Class B and C waste is approximately 100 percent of the total Class B and C waste. As of July 1, 2008, the LLRW disposal facility in Barnwell, South Carolina is no longer accepting Class B and C waste from sources in states that are outside of the Atlantic Compact. Class A wastes are disposed of off-site. The disposal facility in Clive, Utah is still accepting Class A waste from out of state. Should there be no disposal facilities that will accept the Class B and C wastes after the plant begins operation, there are several options available for storage of such waste:

- As provided in referenced DCD Subsection 11.4.2., the Auxiliary Building is designed to have more than a year of spent resin storage capacity at the expected rate, and the spent resin tanks may be mixed to limit the radioactivity concentrations thereby limiting the volume of Class B and C wet waste requiring storage.
- Vendor services are available to process Class A, B, and C waste and transfer for storage of that material until a disposal site is available. Currently, Waste Control Specialists (WCS) of Texas is available to store Class A, B, and C material pending the availability of a licensed disposal site.

If additional storage capacity were eventually needed, the plant could construct or expand storage facilities onsite or gain access to a storage facility at another licensed nuclear plant.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-073

NRC Letter Date: November 4, 2009

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 11.04-2

Text of NRC RAI:

In Section 11.4 of NUREG-1793, the staff states that if a need for onsite storage of low-level waste has been identified beyond that provided in AP1000 Standard Design because of unavailability of offsite storage, the applicant should submit the details of any proposed onsite storage facility to the NRC. Please provide any arrangements for offsite storage for low-level waste or submit plans for onsite storage.

PGN RAI ID #: L-0915

PGN Response to NRC RAI:

As described in the response to RAI 11.04-01, the need for onsite storage of low-level waste in addition to that described in the AP1000 DCD is not expected. As part of contingency planning Progress Energy (PGN) has an active contract with a vendor of LLRW treatment and storage services. The contract is applicable for PGN and not site-specific and as such the intent would be to include LNP at time of need for offsite storage of LLRW pending the availability of a licensed disposal facility for such material.

In addition, LNP is providing a plant-specific contingency plan for expansion of on-site LLRW storage capacity. The plan follows the guidance in NUREG-0800, Appendix 11.4-A, "Design Guidance for Temporary Storage of Low-Level Radioactive Waste." LNP will operate the onsite storage facility consistent with the guidance in Regulatory Issue Summary (RIS) 2008-32, "Interim Low Level Radioactive Waste Storage at Reactor Sites" and EPRI TR 1018644, "Guidelines for Operating an Interim On Site Low Level Radioactive Waste Storage Facility-Revision 1," Final Report, February 2009 (EPRI Guidelines Report). The RIS consolidates relevant information and clarifies previous NRC regulatory positions on low-level radioactive waste storage. The NRC, as described in RIS 2008-32, finds the EPRI Guidelines Report to be consistent with NRC information contained in Generic Letter (GL) 81-38, "Storage of Low-Level Radioactive Wastes at Power Reactor Sites," GL 85-14, "Commercial Storage at Power Reactor Sites of Low-Level Radioactive Waste Not Generated by the Utility," Information Notice (IN) 89-13, "Alternate Waste Management Procedures in Case of Denial of Access to Low-Level Waste Disposal Sites," and SECY 94-198, "Review of Existing Guidance Concerning the Extended Storage of Low-Level Radioactive Waste" and other guidance such as NUREG-0800, which includes Appendix 11.4-A. The EPRI Guidelines Report was found to provide an "acceptable method for recordkeeping, determining waste forms and waste containers and monitoring and inspecting the interim long-term storage of" Class A, B, and C LLRW.

The EPRI Guidelines Report includes a start-up evaluation of key design and program features of a storage facility that should be performed prior to storing low-level waste. The LNP key design considerations and program elements for an outside storage facility are based on the EPRI Guidelines Report and NRC guidance documents. By identifying the key elements of design, operation features, and the bases for those items, the FSAR revision below includes sufficient detail for a potential onsite storage facility.

Associated LNP COL Application Revisions:

The following changes will be made to the LNP FSAR in a future revision:

1. Add the following Subsection 11.4.6.3, Long Term On-Site Storage Facility with a LMA of LNP SUP 11.4-1 to read:

LNP SUP 11.4-1 11.4.6.3 Long Term On-Site Storage Facility

Storage space for six-months' volume of packaged waste is provided in the radwaste building. Radioactive waste generated by LNP will normally be shipped to a licensed disposal or off-site storage facility. However, should disposal facilities or off-site storage facilities not be available, storage capacity will be expanded as described below to provide additional on-site storage for LNP.

Additional on-site low-level radioactive waste (LLRW) storage capabilities are available if Class B and C waste cannot be disposed at a licensed disposal facility. An outside storage pad will be utilized to provide this capability. The LNP LLRW storage facility would be located outside the Protected Area (PA) in the Owner Controlled Area (OCA). The storage facility would be enclosed by an eight-foot high fence with locked gates and would be provided with area lighting. The storage of LLRW would be in high integrity containers (HICs) or other suitable containers that will not decay over time, which would be stored within shielded containers. The design of the storage facility will comply with the guidance of documents as identified in this section which is consistent with NUREG-0800, Appendix 11.4A. The design storage capacity is based on the expected generation in Table 11.4-1, industry experience indicates approximately 100% of the Class B and C waste is expected to be in the form of wet waste, and volume minimization/reduction programs. The site waste management plan will include radioactive wet waste reduction initiatives for Class B and C waste.

The storage facility will be sited such that it could be sized to accommodate storage of Class B and C waste over the operating life of the plant and designed to accommodate future expansion as needed. Capacity would be added in phases based on the expected availability of off-site treatment and storage, and disposal facilities.

11.4.6.3.1 Outside Storage Pad Design Considerations

The following design considerations would be applied to the on-site LLRW storage facility: (References 202, 203, and 204):

- The location of the storage pad would meet the dose rate criteria of 40 CFR 190 and 10 CFR 20.1302 for both the site boundary and unrestricted area. The onsite storage will be located such that any additional dose contributes less than 1 mrem per year to the 40 CFR Part 190 limits. Onsite dose limits will be controlled per 10 CFR 20, including the ALARA principle of 10 CFR 20.1101.
- The outside storage pad would be an engineered feature designed to minimize settling and would be constructed of reinforced concrete or engineered gravel.

- The storage pad location would avoid natural or engineered surface drainage and be located at an elevation considering the site's design bases flood level.
- The storage pad would have a fence or other suitable security measures consistent with its location on the site.
- The waste containers (typically high integrity containers) would be stored inside of a shielded container, typically consisting of reinforced concrete containers that provide radiation shielding and weather protection.
- The configuration of the storage shields would be arranged to be accessible from the perimeter road or from a center aisle using a mobile crane (if used).
- Personnel passages would be provided between rows of storage shields for access to the container for inspection.
- Adequate electrical power and lighting would be provided at the storage facility to allow power for tools, analytical equipment, sample pumps, radiation instruments, boroscope lights, etc.
- Fire protection, fire hydrants or fire extinguishers for vehicle fires should be provided.

11.4.6.3.2 Outside Storage Pad Operating Considerations

The following operating considerations for on-site storage pad operations are based on NRC and industry guidance (References 202, 203 and 204) and would be included in operating procedures:

- Identification of the arrangement of storage shields, waste handling, storage methods, safety analysis limitations, accident conditions, and off site dose calculations.
- The use of hold-down devices to secure the waste container during severe environmental events, such as strong wind, would be provided for, unless the waste container and storage shields can be demonstrated to remain in place without restraints during such events.
- The waste container selected for use would be compatible with the waste form stored to ensure waste container integrity.
- Shielding requirements would be determined before the waste container is loaded into a storage shield to eliminate the radiation exposure associated with subsequent addition of supplemental shielding.
- If additional shield walls around the perimeter of the storage pad are required, the shield walls would be easily installed and capable of being moved.

- Periodic inspection and testing requirements for outside storage pad operation would include the following:
    - Dose rate and contamination surveys in accordance with health physics procedures.
    - Sampling of storage shields for water and storage shields containing dewatered resin for explosive gas build-up.
    - Visual inspection of selected waste containers in storage to detect unexpected changes / container integrity. (Remote inspection methods and the use of high integrity containers will allow reduced scope for ALARA practices.)
    - Defoliation and general condition of the onsite storage pad.
- Total radioactive material inventory limits would be established to demonstrate compliance with the design limits for the storage area, dose limits for members of the public and safety features or measures provided by the storage module.
- The contents of records for inventory controls, monitoring and inspection and other relevant data would be maintained and retrievable.
- Operational safety features for handling waste containers and storage shields would include the training required for personnel operating cranes, forklifts, tie downs and heavy equipment during any waste container/storage shield transfer activity.
- Criteria for the end of storage period that would include waste container inspection and additional reprocessing as required prior to shipment offsite.

2. COLA FSAR Subsection 11.4.7 REFERENCES will be revised by adding the following references:

202. Technical Report 1018644 "Guidelines for Operating an Interim On Site Low Level Radioactive Waste Storage Facility," Revision 1, EPRI, Palo Alto, CA, February 2009.

203. Regulatory Issue Summary 2008-32 "Interim Low Level Radioactive Waste Storage at Reactor Sites," December 2008.

204. Generic Letter (GL) 81-38, "Storage of Low-Level Radioactive Wastes at Power Reactor Sites," November 1981.

3. Delete the two paragraphs shown below for COLA Part 2, FSAR Chapter 11, Subsection 11.4.6 at the end of STD COL 11.4-1:

   All packaged and stored radwaste will be shipped to offsite disposal/storage facilities and temporary storage of radwaste is only provided until routine offsite shipping can be performed. Accordingly, there is no expected need for permanent on-site storage facilities at LNP 1 & 2.

   If additional storage capacity for Class B and C waste is required, further temporary storage would be developed in accordance with NUREG-0800, Standard Review Plan 11.4, Appendix 11.4-A. To the extent that additional storage could be needed sometime in the future, the existing regulatory framework would allow Progress Energy to conduct written safety analyses under 10 CFR 50.59. If the additional storage does not satisfy 10 CFR 50.59, a license amendment would be required.

Attachments/Enclosures:

None.

Attachment B
Statement of Material Facts Not in Dispute

Statement of Material Facts on Which No Genuine Issue Exists

Progress submits, in support of its Motion for Summary Disposition of Contention 8A, this Statement of Material Facts as to which Progress contends there is no genuine dispute to be heard.

1. On July 28, 2008, Progress submitted a Combined Construction Permit and Operating License Application ("COLA") for two AP1000 units at the proposed Levy County Nuclear Plant ("Levy").

2. On February 6, 2009, Joint Intervenors filed their Petition to Intervene and Request for Hearing ("Petition"), which included Contention 8 alleging:

> A substantial omission in Progress Energy Florida's (PEF) COL application to build and operate Levy County Nuclear Station Units 1 & 2 is the failure to address the absence of access to a licensed disposal facilities or capability to isolate the radioactive waste from the environment. PEF's FSAR does not address an alternative plan or the safety, radiological and health, security or economic consequences that will result from lack of permanent disposal for the radioactive wastes generated.

Petition at 93-94.

3. In its Order of July 8, 2009, the Board narrowed and admitted Contention 8 as follows:

> Progress Energy Florida's (PEF's) application is inadequate because the Safety Analysis Report assumes that the class B, C, and greater than C low-level radioactive waste (LLW) generated by proposed Levy Units 1 and 2 will be promptly (e.g., within two years) shipped offsite and fails to address compliance with Part 20 and Part 50 Appendix I (ALARA) in the event that PEF will need to manage such LLW on the Levy site for a more extended period of time

LBP-09-10, 70 NRC 51, 123.

4. On January 7, 2010, the Nuclear Regulatory Commission ("NRC" or "Commission") affirmed in part and reversed in part LBP-09-10, finding that "the GTCC waste issue is outside the scope of this adjudicatory proceeding" on a safety analysis for long-term management of Class B and C low-level radioactive waste ("LLRW"). CLI-10-02, slip op. at 27.

5. On April 14, 2010, following consultations, Progress and the Joint Intervenors filed a Joint Motion for Approval of Settlement and Dismissal of Contention 8.

6. On April 21, 2010, the Board dismissed Contention 8.

7. On May 14, 2010 Joint Intervenors filed a Motion to Amend Contention 8 to state the following:

> Progress Energy Florida's (PEF's) COL application is inadequate to satisfy 10 C.F.R. 52.79 because it assumes that class B and C radioactive waste [footnote omitted] generated by proposed Levy Units 1 and 2 will be promptly (e.g., within two years) shipped offsite, while currently there is an absence of access to a licensed disposal facility or capability to isolate the radioactive waste from the environment. The proposed amendment to the Levy County COL also fails to offer sufficient information to demonstrate the adequacy of PEF's plans for storing Class B and C radioactive waste on the Levy site if offsite disposal capacity is not available within two years. PEF's plan to postpone most of its decisions regarding how and where to store the waste (including "minimizing" the volume of the waste) until sometime after issuance of the license for Levy violates Section 52.79 and also the Atomic Energy Act's requirement that safety findings must be made before the license is issued.

Motion to Amend Contention 8 at 3.

8. By Memorandum and Order dated August 9, 2010, the Board admitted Amended Contention 8, designating it "C-8A".

9. On August 27, 2010, Progress moved for Summary Disposition on Contention 8A. Attachment B to that Motion set forth Progress's responses to NRC RAI Nos. 11.04-1 and 11.04-2, dated December 4, 2009 (ADAMS Accession No. ML093450353), describing its plan for storage of LLRW and associated amendments to the FSAR in the COLA. These RAI responses provide Progress's primarily procedural plan, if ever needed, for controlling exposures from storage of more than a two year accumulation of LLRW.

10. On November 18, 2010 the Board denied Progress's motion for summary disposition of C-8A, concluding, as a matter of law, that Progress's LLRW plan did not satisfy 10 C.F.R. § 52.79(a) because it:

> did not provide a level of information sufficient to enable the Commission to reach a final conclusion, before the issuance of the proposed combined license, to resolve whether PEF's means for controlling and limiting radioactive effluents and radiation exposures (beyond the initial storage period specified in the AP1000 Design Control Documents) will be within the limits set forth in 10 C.F.R. Part 20.

Progress Energy Florida, Inc., (Levy County Nuclear Power Plant, Units 1 and 2), LBP-10-20, 72 NRC ____ (slip op. at 1) (Nov. 18, 2010) ("LBP-10-20"). The Board stated that Progress may choose to revise this part of its application. Id. at 41.

11. On April 14, 2011, Progress submitted supplemental responses to NRC RAI Nos. 11.04-1 and 11.04-2 further describing its plan for storage of LLRW and associated amendments to the FSAR in its COLA. (Attachment A). These RAI responses supplement Progress's plan, if ever needed, for controlling exposures from storage of more than a two year accumulation of LLRW with additional information on the design and operational organization.

12. The revisions to the FSAR identified in response to RAI No. 11.04-1 add language to FSAR Chapter 11, Subsection 11.4.2.4.3 to identify two alternatives in the event there is no disposal capacity available to Progress for Class B and C LLRW generated at Levy. In pertinent part, it states:

> Should there be no disposal facilities that will accept the Class B and C wastes after the plant begins operation, there are several options available for storage of such waste:
>
> • As provided in referenced DCD Subsection 11.4.2., the Auxiliary Building is designed to have more than a year of spent resin storage capacity at the expected rate, and the spent resin tanks may be mixed to limit the radioactivity concentrations thereby limiting the volume of Class B and C wet waste requiring storage.
>
> • Vendor services are available to process Class A, B, and C waste and transfer for storage of that material until a disposal site is available. Currently, Waste Control Specialists (WCS) of Texas is available to store Class A, B, and C material pending the availability of a licensed disposal site.

Attachment A, Encl. at 3.

13. Progress has provided a contingency plan for storage of Class B and C LLRW on the Levy site for greater than two years if there are no disposal facilities available and neither waste minimization nor off-site storage is adequate. The revisions to the FSAR identified in response to RAI No. 11.04-2 add information to FSAR Chapter 11, Subsection 11.4.6.3 to provide sufficient information on design and operational organization. Specifically, FSAR Chapter 11, Subsection 11.4.6.3.1 identifies nine "design considerations that would be applied to the on-site LLRW storage facility." Attachment A, Encl. at 6-7. Also, FSAR Chapter 11, Subsection 11.4.6.3.2 identifies thirteen operating considerations that would be included in operating procedures. Attachment A, Encl. at 7-8. These operating considerations supplement for LLRW storage the operational organization information in FSAR Chapter 13.

14. The estimated volumes and radioactivity content of the primary spent resin and filter cartridge wastes described in DCD Table 11.4-2 account for almost all of the potential to generate Class B and C LLRW at Levy. Attachment C at ¶8. The Class B and C LLRW are primarily generated from purification media discharges and these occur during planned outages. DCD § 11.4.2.1.

15. It would be at least four and a half years after Levy starts operating before long-term storage of Class B and C LLRW would be needed. Attachment C at ¶12.

16. The on-site storage pad can be constructed within six months, if ever needed. Attachment C at ¶13.

Attachment C
Affidavit of Anthony Pilo, Jr.

August 18, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)		
	)	Docket Nos.	52-029-COL
Progress Energy Florida, Inc.	)		52-030-COL
	)		
(Combined License Application for	)		
Levy County Nuclear Plant, Units 1 and 2)	)	ASLBP No.	09-879-04-COL

AFFIDAVIT OF ANTHONY PILO, JR. IN SUPPORT OF PROGRESS'S MOTION FOR SUMMARY DISPOSITION OF JOINT INTERVENORS' CONTENTION 8A

ANTHONY PILO, JR. states as follows under penalties of perjury:

1. I am the Emergency Preparedness Supervisor with Progress Energy Carolinas, Inc. for the H. B. Robinson Steam Electric Plant Unit 2.

2. My professional and educational experience is summarized in the curriculum vitae attached as Exhibit 1 to this affidavit. I hold a Bachelors of Science Degree in Health Physics from Francis Marion University and a Master's of Science Degree in Health Physics from Georgia Institute of Technology. I am certified by the American Board of Health Physics as a Certified Health Physicist.

3. Prior to my current assignment, I served in the new plant licensing organization for Progress Energy, Inc. (Progress). In my capacity as the licensing lead for the Levy and Harris New Plant Projects, I was responsible for emergency planning, including contingency planning for low level radioactive waste (LLRW) extended storage. I am knowledgeable of radiological controls as applied in an industrial setting, including proper planning of LLRW storage. I have reviewed the analysis submitted by Progress and provided advice and input on its preparation. Specifically, I am knowledgeable of and provided advice and input on the revised plan for long-term LLRW storage for Levy.

4. I am familiar with Joint Intervenors Contention 8A, which was raised by the Joint Intervenors in the NRC licensing proceeding for the Levy new plant licensing. As admitted into the proceeding by the Atomic Safety and Licensing Board, Joint Intervenors Contention 8A asserts that Progress' Application is deficient in a number of ways, including an assertion that the Progress Plan for providing additional on-site storage of Class B and C LLRW can not be implemented if required.

5. My declaration addresses claims raised by the Joint Intervenors in Contention 8A concerning the timeline for providing additional Class B and C LLRW storage on-site beyond two years, if needed.

6. Progress's LLRW plan can be successfully implemented as required. Almost all of the Class B and C LLRW is generated during planned outages. There is adequate information from plant chemistry monitoring to anticipate the amount of Class B and C LLRW that will be generated during an outage and will need to be stored.

7. The Class B and C LLRW is primarily generated from purification media discharges and these occur during planned outages. DCD § 11.4.2. The media discharges are first held in a catch tank in the Auxiliary Building, then processed into storage containers. While the DCD provides the average annual generation rate for LLRW, the Class B and C LLRW will likely be generated almost entirely in batches at an outage (expected to be at eighteen month intervals).

8. The estimated volumes and radioactivity content of the primary spent resin and filter cartridge wastes described in DCD Table 11.4-2 account for almost all of the potential to generate Class B and C LLRW at Levy. The Class B and C LLRW are primarily generated from purification media discharges and these occur during planned outages. DCD § 11.4.2.1.

9. When Levy starts operation, the first media discharge will be to spent resin storage tanks in the rail car bay of the Auxiliary Building. DCD § 11.4.2. Depending on operating performance, the first media discharge will be months, if not years, after the plant starts operating.

10. In planning for subsequent media discharges, Progress would determine whether there is adequate capacity in the spent resin storage tanks. DCD § 11.4.2.3.1 The installed capacity may be

be supplemented by additional temporary mobile systems, if needed. DCD § 11.4.1.3. In planning for a media discharge, Progress will identify whether there is adequate capacity in the storage tanks or temporary mobile systems.

11. When sufficient resin has accumulated, the resin is processed (primarily by dewatering) and placed into appropriate storage/shipping containers. DCD § 11.4.2.3.1. There is adequate space in the Auxiliary Building to store the expected generation of LLRW for one year. DCD § 11.4.2.1 Because higher content and lower radioactive content resins are mixed as they are accumulated, not every storage/shipping container of resin will be Class B or C LLRW. Those containers that can be shipped for disposal or off-site storage will be shipped.

12. In planning for each media discharge, Progress will evaluate the capacity in the tanks, temporary mobile systems, and storage containers to determine whether the Levy contingent plan for long-term storage of Class B and C LLRW is needed. Because the AP1000 DCD provides for enough storage for at least two media discharges to be stored in tanks and shipping containers in the Auxiliary Building, it will be the third outage involving media discharge before the storage pad could potentially be needed (about four and a half years). Therefore, Progress will have years after Levy starts operating to complete all activities to construct a storage pad as called for in its contingent plan -- at least two refueling outages (about three years).

13. The storage pad can be constructed within six months. Therefore, the storage pad can be constructed prior to the third outage requiring media discharge, even if work is not started until after completing the second outage (about 36 months from the start of operations).

Anthony Pilo Jr., being duly sworn, states that all the matter and facts set forth herein are true and correct to the best of my knowledge.

Anthony Pilo, Jr.

Subscribed and sworn to before me, a Notary Public, in and for the county of Lee in the state of South Carolina, this 18th day of August, 2011.

Notary Public in and for the State of South Carolina

My Commission Expires: 10-1-2014

1909 Osprey Drive
Florence, SC 29501
843.307.7099
pilo3@earthlink.net

Anthony Pilo, Jr.

Experience

4/11 - Present | H.B. Robinson Nuclear Plant | Hartsville, SC

Supervisor – Emergency Preparedness

Responsibilities in this role are governance and implementation for the overall Station Emergency Preparedness Plan and Program.

- Maintain EP Program in all aspects including: training of onsite and offsite personnel, Emergency Response Organization staffing, equipment and facilities.
- Revise Station Emergency Plan as needed in accordance with 10 CFR 50.54(q).
- Chair Robinson Offsite Emergency Preparedness Task Force.

1/09 – 4/11 | Progress Energy Corporate | Raleigh, NC

New Generation Programs and Projects (NGPP)

Primary responsibilities in this role are license approval for both Harris Units 2 and 3 and Levy Units 1 and 2. Focus has been on Emergency Preparedness, Radiation Protection and generic licensing aspects of a Combined Operating License Application (COLA). Multiple assignments have provided the opportunity to be involved in a wide variety of other issues.

- Completed annual revisions for Part 5, Emergency Plan, of the Harris and Levy COLA
- Worked with Levy primary risk counties to develop FEMA approved Emergency Plans for Levy Units 1 and 2
- Responded to NRC RAIs related to:
  - Harris and Levy Emergency Plan
  - Harris and Levy Evacuation Time Estimate Study
  - Levy communications
  - Long-term storage of low level radioactive waste
- Responded to FEMA RAIs related to the Levy and Harris Nuclear Plant
- Represented Progress Energy on the following NEI Task Forces. The primary purpose of the Task Forces are to work with regulating bodies and influence regulatory outcome:
  - New Plant – Emergency Preparedness
  - New Plant – Radiation Protection
  - Emergency Preparedness – New Rule Making
  - New Plant – Licensing Lead Task Force
  - Small Modular Reactors

4/07 – 12/08 | Progress Energy Corporate | Raleigh, NC

Fleet Coordinator – Emergency Preparedness (EP)

Primary responsibilities in this role were influencing the development of future rulemaking in Emergency Preparedness and fleet standardization of NGG EP Programs.

- Influenced current and proposed rulemaking through participation with NEI as the Co-chair for EP Frequently Asked Questions Task Force.
- Chaired the NGG EP Working Group (3-years). Group completed siren upgrade project, common RASCAL procedure and developed common Emergency Response Organization Fundamentals Training Course.
- Completed contract for a standardized emergency notification system within the Progress Energy Fleet. In addition, incorporated Business Continuity services into the project so non-

nuclear departments will use the same notification system. Benefits include overall Company cost reduction.

- Participated October through December 2007 as a member of the Brunswick Improvement Acceleration Team as subject matter expert for Chemistry and Radiation Protection Sub-units in development of action plans to reach top-quartile performance for Site 2010 Recovery Plan.
- Developed and conducted first Pandemic Tabletop for the Progress Energy nuclear fleet.
- INPO team member for developing fundamentals and training for EP *"Excellence"*.

5/02 - 4/07 Shearon Harris Nuclear Plant New Hill, NC

Supervisor – Emergency Preparedness

Responsibilities in this role were governance and implementation for the overall Station Emergency Preparedness Plan and Program.

- Maintained EP Program in all aspects including: training of onsite and offsite personnel, Emergency Response Organization staffing, equipment and facilities.
- Chaired EP Training Program Committee (TPC)
- Revised Station Emergency Plan as needed in accordance with 10 CFR 50.54(q).
- Chaired Harris Offsite Emergency Preparedness Task Force.
- Developed and implemented standardized plan for Progress Energy Customer Service Centers to handle calls for nuclear emergencies. This was implemented for the Nuclear Fleet improving customer service, efficiency and accuracy in the unlikely event of a nuclear emergency.

12/00 - 5/02 Shearon Harris Nuclear Plant New Hill, NC

Superintendent – Nuclear Assessment Section (NAS)

Responsibilities in this role were governance and implementation for the Harris Plant assessment and evaluation program for quality assurance commitments or performance-based improvements in the areas of Licensing and Regulatory Compliance, Training, Engineering, Radiation Protection, Operations, Chemistry, Maintenance, Emergency Preparedness, Self-Evaluation, and other disciplines.

- PNSC Member - Alternate
- Participated in Quality Assurance Program Manual revisions
- Obtained Lead Assessor qualification.
- In depth knowledge of QA Codes and Standards and NRC regulations required

5/98 - 12/00 Shearon Harris Nuclear Plant New Hill, NC

Superintendent – Radiation Control

Responsibilities in this role were governance and implementation for the Harris Plant Radiation Protection Program as the Station Radiation Protection Manager.

- Oversight for over 30 professional, supervisory and technical staff
- Managed multi-million dollar budget
- Chaired Radiation Protection TPC
- PNSC Member
- Responsible for all Technical Specification, FSAR and procedures related to Radiation Protection
- Responsible for the Station Process Control Program (PCP)

12/93 - 5/98 H. B. Robinson Nuclear Plant Hartsville, SC

Supervisor – Radiation Control

Responsibilities in this role included oversight of radiation control technicians in all Health Physics disciplines.

- Led initiatives in source term reduction, which was recognized with an Award of Excellence for the site's Company record low dose year of 13 Rem.

12/92 - 12/93 H. B. Robinson Nuclear Plant Hartsville, SC

Senior Technical Specialist – Radiation Control

- Lead 10CFR20 revision project providing oversight to dedicated team of 5. No Nuclear Regulatory Findings or Violations were identified during the post-implementation inspection.
- Special assignment as the Environmental and Radiation Control representative, to include Chemistry on Station Improved Technical Specifications Project.
- Certified as INPO Accredited Instructor

7/90 - 12/92 H.B. Robinson Nuclear Plant Hartsville, SC

Radiation Control Specialist - ALARA

- Provided Technical Support for the Station dose reduction program (ALARA).
- Re-engineered Station ALARA Program planning and job coverage to eliminate hand-offs between organizations.

7/85 - 7/90 H.B. Robinson Nuclear Plant Hartsville, SC

Radiation Control Technician

- Lead technician for dry fuel storage campaign and containment coordinator for outages.
- Lead Technician in Dosimetry, Job Coverage and Radiation Protection Instrumentation.

Education & Certifications

5/85 Francis Marion University Florence, SC

- Bachelor of Science in Health Physics

12/92 Georgia Institute of Technology Atlanta, GA

- Master of Science in Health Physics

12/91 National Registry of Radiation Protection Technologist

- Registered Radiation Protection Technologist

11/94 American Board of Health Physics

- Certified Health Physicist

Attachment D
Advance Copy Levy FSAR Chapter 11
Radioactive Waste Management

Levy Nuclear Plant Units 1 and 2
COL Application
Part 2, Final Safety Analysis Report

CHAPTER 11

RADIOACTIVE WASTE MANAGEMENT

TABLE OF CONTENTS

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CHAPTER 11

RADIOACTIVE WASTE MANAGEMENT

11.1 SOURCE TERMS

This section of the referenced DCD is incorporated by reference with no departures or supplements.

11.2 LIQUID WASTE MANAGEMENT SYSTEMS

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

11.2.1.2.4 Controlled Release of Radioactivity

Add the following to the end of DCD Subsection 11.2.1.2.4:

LNP SUP 11.2-1 The exterior radwaste discharge piping is enclosed within a guard pipe and monitored for leakage. The radwaste discharge piping connects to the cooling tower blowdown piping. The double wall radwaste discharge piping terminates at this connection. Dilution of the radwaste with cooling tower blowdown occurs at this connection. Beyond this point of connection, the cooling tower blowdown piping is single-walled, buried and constructed of High Density Polyethylene. Downstream of the radwaste discharge connection will be one vent valve on each blowdown line. The vents shall be capped and locked closed to prevent inadvertent operation and are capable of manual operation as required for pump startup. The radwaste discharge line will be isolated during pump startup. As required during pump startup, personnel will be present at the vent valves to allow air to escape and then to close the valve when the line fills with water. Any spillage shall be contained and properly managed in accordance with Radiation Protection and ALARA Program requirements. Leak detection of the cooling tower and radwaste mixture will be accomplished by ground water monitoring and periodic walk down of the vent valves in accordance with NEI 08-08A. This reduces the potential for undetected leakage from this discharge to the environment to support compliance with 10 CFR 20.1406. The cooling tower blowdown with the diluted radwaste is discharged to the Crystal River Energy Complex discharge canal.

11.2.1.2.5.2 Use of Mobile and Temporary Equipment

Add the following information at the end of DCD Subsection 11.2.1.2.5.2:

STD COL 11.2-1 When mobile or temporary equipment is selected to process liquid effluents, the equipment design and testing meets the applicable requirements of Regulatory Guide 1.143. When confirmed through sampling that the radioactive waste contents do not exceed the A_2 quantities for radionuclides specified in Appendix A to 10 CFR Part 71, the liquid effluent may be processed with mobile or temporary equipment in the Radwaste Building. When the A_2 quantities are exceeded, liquid effluent is processed in the Seismic Category I auxiliary building.

Mobile and temporary equipment are designed in accordance with the applicable mobile and temporary radwaste treatment systems guidance provided in

Regulatory Guide 1.143, including the codes and standards listed in Table 1 of the Regulatory Guide.

Mobile and temporary equipment has the following features:

- Level indication and alarms (high-level) on tanks.
- Screwed connections are permitted only for instrument connections beyond the first isolation valve.
- Remote operated valves are used where operations personnel would be required to frequently manipulate a valve.
- Local control panels are located away from the equipment, in low dose areas.
- Instrumentation readings are accessible from the local control panels (i.e., temperature, flow, pressure, liquid level, etc.).
- Wetted parts are 300 series stainless steel, except flexible hose and gaskets.
- Flexible hose is used only for mobile equipment within the designated "black box" locations between mobile components and at the interface with the permanent plant piping.
- The contents of tanks are capable of being mixed, either through recirculation or with a mixer.
- Grab sample points are located in tanks and upstream and downstream of the process equipment.

Inspection and testing of mobile or temporary equipment is in accordance with the codes and standards listed in Table 1 of Regulatory Guide 1.143 with the following additions:

- After placement in the station, the mobile or temporary equipment is hydrostatically, or pneumatically, tested prior to tie-in to permanent plant piping.
- A functional test, using demineralized water, is performed. Remote operated valves are stroked (open-closed-open or closed-open-closed) under full flow conditions. The proper function of the instrumentation, including alarms, is verified. The operating procedures are verified correct during the functional test.
- Tank overflows are routed to floor drains.
- Floor drains are confirmed to be functional prior to placing mobile or temporary equipment into operation.

11.2.3.5 Estimated Doses

Replace the information in DCD Subsection 11.2.3.5 with the following paragraphs and subsections.

LNP COL 11.2-2 Dose and dose rate to man was calculated using the LADTAP II computer code. This code is based on the methodology presented in Regulatory Guide 1.109.

LNP COL 11.5-3 Factors common to both estimated individual dose rates and estimated population dose are addressed here. Unique data are discussed in the respective sections.

Activity pathways considered are commercial fishing, sport fishing, and recreational activities.

11.2.3.5.1 Estimated Individual Dose Rates

Dose rates to individuals are calculated for fish and invertebrate consumption, and recreational activities.

Fish and invertebrate consumption assumes they are caught at the plant discharge. LADTAP II default consumption values are used in lieu of site-specific consumption data. The estimated maximum dose rates to a single organ are 0.009 mrem/yr from fish and 0.062 mrem/yr from invertebrates to an adult GI-LLI. The maximum total body dose rates are calculated to be 0.0027 mrem/yr from fish and 0.0013 mrem/yr from invertebrates to an adult.

Shoreline, swimming, and boating recreation results in a maximum dose rate to a single organ of 0.0025 mrem/yr to a teenager's skin. The maximum total body dose rate is calculated to be 0.0022 mrem/yr to a teenager.

The maximum dose rate to any organ considering all pathways was calculated to be 0.071 mrem/yr to an adult's GI-LLI. The maximum total body dose rate is calculated to be 0.0052 mrem/yr to a teenager.

Tables 11.2-201 and 11.2-202 contain LADTAP II input data for dose rate calculations. Table 11.2-203 provides individual doses by pathway and organ.

In order to demonstrate compliance with the requirements of 40 CFR 190 (per 10 CFR 20.1301(e)), the liquid and gaseous effluent doses presented in Tables 11.2-203 and 11.3-206 were adjusted to reflect the whole body dose equivalent. The total effective dose equivalent (TEDE) for the whole body was determined using the adult dose values given in the tables and the applicable organ dose weighting factor. The liquid effluent doses per unit were added to the gaseous effluent doses per unit and the resulting maximum doses to whole body, thyroid,

and organ multiplied by two (2) to account for the operation of the Levy Units 1 and 2 at the site.

In addition to the exposures from Levy, the liquid doses from Crystal River Unit 3 contribute to the total public dose due to the common location of the liquid effluent releases from Levy and Crystal River via the Crystal River discharge canal. Crystal River Unit 3 doses, based on actual plant effluent radioactive releases for the calendar years 2003 to 2006, are: 0.00008 mrem/yr (whole body), 0.002 mrem/yr (thyroid) and 0.002 mrem/yr (maximum organ). Direct radiation exposure from containment and other plant buildings is negligible based on information documented in AP1000 DCD, Tier 2, Chapter 12, Section 12.4.2.1.

The sum of the annual doses due to the releases of liquid and gaseous radioactive materials from all sources at the Levy site are presented in Table 11.2-205 and are below the 40 CFR Part 190 limits for whole body dose equivalent, thyroid, and maximum organ.

11.2.3.5.2 Estimated Population Dose

The estimated population dose within 81 km (50 miles) is calculated as 1.13 person-rem total body and 1.21 person-rem thyroid. Table 11.2-204 provides population doses by pathway and organ.

11.2.3.5.3 Liquid Radwaste Cost Benefit Analysis Methodology

STD COL 11.2-2

The application of the methodology of Regulatory Guide 1.110 was used to satisfy the cost benefit analysis requirements of 10 CFR Part 50. Appendix I, Section II.D. The parameters used in calculating the Total Annual Cost (TAC) are fixed and are given for each radwaste treatment system augment listed in Regulatory Guide 1.110, including the Annual Operating Cost (AOC) (Table A-2), Annual Maintenance Cost (AMC) (Table A-3), Direct Cost of Equipment and Materials (DCEM) (Table A-1), and Direct Labor Cost (DLC) (Table A-1). The following variable parameters were used:

- Capital Recovery Factor (CRF) – This factor is taken from Table A-6 of Regulatory Guide 1.110 and reflects the cost of money for capital expenditures. A cost-of-money value of 7% per year is assumed in this analysis, consistent with the "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission" (NUREG/BR-0058). A CRF of 0.0806 was obtained from Table A-6.

- Indirect Cost Factor (ICF) – This factor takes into account whether the radwaste system is unitized or shared (in the case of a multi-unit site) and is taken from Table A-5 of Regulatory Guide 1.110. It is assumed that the radwaste system for this analysis is a unitized system at a 2-unit site, which equals an ICF of 1.625.

- Labor Cost Correction Factor (LCCF) – This factor takes into account the differences in relative labor costs between geographical regions and is taken from Table A-4 of Regulatory Guide 1.110. A LCCF of 1.0 (the lowest value) is assumed in this analysis.

Appendix I to 10 CFR Part 50 prescribes a $1,000 per person-rem criterion for determining the cost benefit of actions to reduce radiation exposure.

The analysis used a conservative assumption that the respective radwaste treatment system augment is a "perfect" system that reduces the effluent and dose by 100 percent. The liquid radwaste treatment system augments annual costs were determined and the lowest annual cost considered a threshold value. The lowest-cost option for liquid radwaste treatment system augments is a 20 gpm Cartridge Filter at $11,140 per year, which yields a threshold value of 11.14 person-rem total body or thyroid dose from liquid effluents.

For AP1000 sites with population dose estimates less than 11.14 person-rem total body or thyroid dose from liquid effluents. no further cost-benefit analysis is needed to demonstrate compliance with 10 CFR 50, Appendix I Section II.D.

11.2.3.5.4 Liquid Radwaste Cost Benefit Analysis

LNP COL 11.2-2

The LNP population doses are given in Section 11.2.3.5.2. As discussed above, the lowest cost liquid radwaste system augment is $11,140. Assuming 100% efficiency of this augment, the minimum possible cost per person-rem is determined by dividing the cost of the augment by the population dose. This is $9,858 per person-rem total body ($11,140/1.13 person-rem) and $9,207 per person-rem thyroid. These costs per person-rem reduction exceed the $1,000 per person-rem criteria prescribed in Appendix I to 10 CFR Part 50 and are therefore not cost beneficial.

11.2.3.6 Quality Assurance

Add the following to the end of DCD Subsection 11.2.3.6:

STD SUP 11.2-1

Since the impact of radwaste systems on safety is limited, the extent of control required by Appendix B to 10 CFR Part 50 is similarly limited. Thus, a supplemental quality assurance program applicable to design, construction, installation and testing provisions of the liquid radwaste system is established by procedures that complies with the guidance presented in Regulatory Guide 1.143.

11.2.5 COMBINED LICENSE INFORMATION

11.2.5.1 Liquid Radwaste Processing by Mobile Equipment

STD COL 11.2-1 This COL Item is addressed in Subsection 11.2.1.2.5.2.

11.2.5.2 Cost Benefit Analysis of Population Doses

STD COL 11.2-2 This COL item is addressed in Subsection 11.2.3.5.3.

LNP COL 11.2-2 This COL item is addressed in Subsections 11.2.3.5, 11.2.3.5.1, 11.2.3.5.2 and 11.2.3.5.4.

11.2.6 REFERENCES

201. NEI 08-08A, Generic FSAR Template Guidance for Life Cycle Minimization of Contamination, Revision 0, October 2009 (ML093220445).

LNP COL 11.2-2

Table 11.2-201
Dilution Factors

Input Parameter	Value
Dilution Factor for all Pathways	21[(a)]

a) The dilution factor of 21 is conservatively based on the following:

1. LNP Cooling Tower Blowdown Rate
   56,520 gpm (gallons per minute)
   81.4 Mgd (million gallons per day)
2. Crystal River Plant Discharge Canal Actual Flow Rates
   1568.2 Mgd Average 2/1/03-2/28/07
   44.4 Mgd Average 11/1/05-2/28/07
   39.2 Mgd Average 11/1/05-2/28/07
   1651.8 Mgd Total Average Existing Canal Flow Rate
3. Dilution Factor in Crystal River Discharge Canal
   = (Flow rate in canal (#2) + LNP Blowdown (#1)) / LNP Blowdown (#1)
   = (1651.8 Mgd + 81.4 Mgd) / 81.4 Mgd = 21

LNP COL 11.2-2

Table 11.2-202
LADTAP II Input for Dose Rates[a]

Input Parameter	Value
Saltwater Site	Selected
Source Term	DCD Table 11.2-7
Reconcentration Model	None
Shore Width Factor	1.0
Dilution Factors	Table 11.2-201
50-mi. Population	1,440,207
Transit time – Aquatic Food and Recreational Uses (h)[b]	0
Sport Fish Harvest (kg/yr)[b]	210,246
Commercial Fish Harvest (kg/yr)	734,960
Sport Invertebrate Harvest (kg/yr)	142,438
Commercial Invertebrate Harvest (kg/yr)	1,424,384
Shoreline Usage (person-hrs/yr)[b]	32,541,940
Swimming Exposure (person-hrs/yr)	32,541,940
Boating Exposure (person-hrs/yr)	32,071,440

a) For input parameters not specified, default LADTAP II values are used.
b) h – hour
kg/yr – kilograms per year
hrs/yr – hours per year

LNP COL 11.2-2

LNP COL 11.5-3

Table 11.2-203
Individual Dose Rates [(a)]

Dose (mrem/yr)

Adult Pathway	**Skin**	**Bone**	**Liver**	**Total Body**	**Thyroid**	**Kidney**	**Lung**	**GI-LLI**
Fish		1.51E-03	3.57E-03	2.71E-03	5.66E-03	1.90E-03	1.28E-03	8.96E-03
Inverterbrate		1.83E-03	2.26E-03	1.33E-03	5.82E-03	2.94E-03	4.09E-04	6.20E-02
Shoreline	4.53E-04	3.87E-04	3.87E-04	3.87E-04	3.87E-04	3.87E-04	3.87E-04	3.87E-04
Swimming		1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06	1.89E-06
Boating		7.87E-06	7.87E-06	7.87E-06	7.87E-06	7.87E-06	7.87E-06	7.87E-06
Total	4.53E-04	3.74E-03	6.23E-03	4.44E-03	1.19E-02	5.23E-03	2.09E-03	7.14E-02
Teenager Pathway	**Skin**	**Bone**	**Liver**	**Total Body**	**Thyroid**	**Kidney**	**Lung**	**GI-LLI**
Fish		1.58E-03	3.41E-03	1.83E-03	5.14E-03	1.68E-03	1.12E-03	6.42E-03
Inverterbrate		1.89E-03	2.21E-03	1.20E-03	5.40E-03	2.97E-03	3.87E-04	4.95E-02
Shoreline	2.53E-03	2.16E-03	2.16E-03	2.16E-03	2.16E-03	2.16E-03	2.16E-03	2.16E-03
Swimming		1.05E-05	1.05E-05	1.05E-05	1.05E-05	1.05E-05	1.05E-05	1.05E-05
Boating		5.27E-06	5.27E-06	5.27E-06	5.27E-06	5.27E-06	5.27E-06	5.27E-06
Total	2.53E-03	5.65E-03	7.80E-03	5.20E-03	1.27E-02	6.83E-03	3.68E-03	5.81E-02
Child Pathway	**Skin**	**Bone**	**Liver**	**Total Body**	**Thyroid**	**Kidney**	**Lung**	**GI-LLI**
Fish		1.96E-03	2.93E-03	1.18E-03	5.19E-03	1.40E-03	9.16E-04	2.66E-03
Inverterbrate		2.41E-03	1.89E-03	1.22E-03	5.79E-03	2.64E-03	3.33E-04	2.14E-02
Shoreline	5.28E-04	4.51E-04	4.51E-04	4.51E-04	4.51E-04	4.51E-04	4.51E-04	4.51E-04
Swimming		2.20E-06	2.20E-06	2.20E-06	2.20E-06	2.20E-06	2.20E-06	2.20E-06
Boating		1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06
Total	5.28E-04	4.82E-03	5.27E-03	2.85E-03	1.14E-02	4.49E-03	1.70E-03	2.45E-02

a) 10 CFR 50 Appendix I: Total Body Dose Limit = 3 mrem/yr and Dose to Any Organ = 10 mrem/yr

LNP COL 11.2-2
LNP COL 11.5-3

Table 11.2-204
Population Doses from Liquid Effluents

Dose (person rem/yr)

Pathway	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
Sport Fish		1.85E-02	3.99E-02	2.72E-02	4.12E-02	2.06E-02	1.40E-02	8.28E-02
Commercial Fish		8.24E-04	1.78E-03	1.22E-03	1.53E-03	9.22E-04	6.27E-04	3.63E-03
Sport Invertebrate		6.29E-02	7.10E-02	4.22E-02	1.12E-01	9.43E-02	1.29E-02	1.70E+00
Commercial Invertebrate		1.86E-03	2.10E-03	1.25E-03	2.64E-03	2.80E-03	3.84E-04	5.05E-02
Shoreline	1.23E+00			1.05E+00	1.05E+00			
Swimming				5.12E-03	5.12E-03			
Boating				2.52E-03	2.52E-03			
Total	1.23E+00	8.41E-02	1.15E-01	1.13E+00	1.21E+00	1.19E-01	2.79E-02	1.84E+00

LNP COL 11.2-2

LNP COL 11.5-3

Table 11.2-205
Comparison of Maximum Exposed Individual Doses from the LNP Site with the 40 CFR 190 Criteria (mrem/yr)

Type of Dose	Design Objective (40 CFR 190)	Crystal River Unit 3 Liquid Dose based on Operating Data	LNP Calculated Liquid Dose (two units)	LNP Calculated Gaseous Dose (two units)	Total Site Dose
Whole Body Dose Equivalent	25	0.00008	0.021	5.5	5.52
Dose to Thyroid	75	0.002	0.025	12.8	12.87
Dose to another organ	25	0.002	0.14	19.4	19.54

11.3 GASEOUS WASTE MANAGEMENT SYSTEM

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

11.3.3 RADIOACTIVE RELEASES

STD SUP 11.3-2 Add the following new paragraph at the end of DCD Subsection 11.3.3:

There are no gaseous effluent site interface parameters outside of the Westinghouse scope.

11.3.3.4 Estimated Doses

Add the following information at the end of DCD Subsection 11.3.3.4.

LNP COL 11.3-1
LNP COL 11.5-3 The LNP site-specific values are bounded by the DCD identified acceptable releases. With the annual airborne releases listed in DCD Table 11.3-3, the site-specific air doses at ground level at the exclusion area boundary are 1.7 mrad for gamma radiation and 9.4 mrad for beta radiation. These doses are based on the annual average atmospheric dispersion factor from FSAR Section 2.3. As shown in Table 11.3-209, these doses are below the 10 CFR Part 50, Appendix I design objectives of 10 mrad per year for gamma radiation or 20 mrad per year for beta radiation.

Dose and dose rate to man was calculated using the GASPAR II computer code. This code is based on the methodology presented in the Regulatory Guide 1.109. Factors common to both estimated individual dose rates and estimated population dose are addressed in this subsection. Unique data are discussed in the respective subsections.

Activity pathways considered are plume, ground deposition, inhalation, and ingestion of vegetables, meat, and milk (both cow and goat).

Based on site meteorological conditions, the highest rate of plume exposure and ground deposition occurs at the exclusion area boundary (EAB) 1.34 km (0.83 mi.) WSW of the plant.

Agricultural products are estimated from U. S. Department of Agriculture (USDA) National Agricultural Statistics Service.

Population distribution within 81 km (50-mi.) radius is presented in FSAR Tables 2.1.3-202 and 2.1.3-204. Table 11.3-201 contains GASPAR II input data for dose rate calculations. Information regarding the locations for the nearest man, milk animal, garden, and the EAB is located in Section 2.3.

11.3.3.4.1 Estimated Individual Doses

Dose rates to individuals are calculated for airborne decay and deposition, inhalation, and ingestion of milk (goat), meat and vegetables. Dose from plume and ground deposition are calculated as affecting all age groups equally. Table 11.3-206 summarizes the maximum exposed individual annual organ dose by pathway and age group.

Plume exposure approximately 1.34 km (0.83 mi.) WSW of the LNP produced a maximum dose rate to a single organ of 6.32 mrem/yr to skin. The maximum total body dose rate was calculated to be 0.99 mrem/yr.

Ground deposition approximately 1.34 km (0.83 mi.) WSW of the LNP produced a maximum dose rate to a single organ of 0.13 mrem/yr to skin. The maximum total body dose rate was calculated to be 0.11 mrem/yr.

Inhalation dose at the nearest residence, 2.7 km (1.7 mi.) WSW of the LNP, results in a maximum dose rate to a single organ of 0.75 mrem/yr to a child's thyroid. The maximum total body dose rate is calculated to be 0.061 mrem/yr to a teenager.

Vegetable consumption assumes that the dose is received from the gardens, approximately 2.7 km (1.7 mi.) WSW of the plant. GASPAR II default vegetable consumption values are used in lieu of site-specific vegetable consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is 8.16 mrem/yr to a child's bone. The maximum total body dose rate is calculated to be 1.80 mrem/yr to a child.

Meat consumption assumes that the dose is received from an animal, approximately 4.5 km (2.8 mi.) SSW of the LNP. GASPAR II default meat consumption values are used in lieu of site-specific meat consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is 0.087 mrem/yr to a child's bone. The maximum total body dose rate is calculated to be 0.019 mrem/yr to a child.

Goat milk consumption assumes that the dose is received from an animal, approximately 3.9 km (2.4 mi.) NNW of LNP. GASPAR II default goat milk consumption values are used in lieu of site-specific goat milk consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is 1.17 mrem/yr to an infant's thyroid. The maximum total body dose rate is calculated to be 0.17 mrem/yr to an infant.

The maximum dose rate to any organ considering every pathway is calculated to be 9.71 mrem/yr to a child's bone. The maximum total body dose rate is calculated to be 3.06 mrem/yr to a child, which includes the pathway doses (milk, meat, vegetable, and inhalation) plus the plume and ground deposition doses (Table 11.3-206). These doses are below the 10 CFR 50, Appendix I design

objectives of 5 mrem/yr to total body, and 15 mrem/yr to any organ including skin, (Table 11.3-209).

Table 11.3-207 contains total air dose at each special location.

11.3.3.4.2 Estimated Population Dose

Table 11.3-208 presents a listing of the estimated annual population doses by pathway and organ. The estimated population dose within 81 km (50 mi.) is calculated as 5.74 person-rem total body and 8.33 person-rem thyroid.

11.3.3.4.3 Gaseous Radwaste Cost Benefit Analysis Methodology

STD COL 11.3-1

The guidance for performing cost-benefit analysis for the gaseous radwaste system is similar to that used and described for the liquid radwaste system in Section 11.2. The gaseous radwaste treatment system augments annual costs were determined and the lowest annual cost considered a threshold value. The lowest-cost option for gaseous radwaste treatment system augments is the Steam Generator Flash Tank Vent to Main Condenser at $6,320 per year, which yields a threshold value of 6.32 person-rem total body or thyroid from gaseous effluents.

For AP1000 sites with population dose estimates less than 6.32 person-rem total body or thyroid dose from gaseous effluents, no further cost-benefit analysis is needed to demonstrate compliance with 10 CFR 50, Appendix I, Section II.D.

11.3.3.4.4 Gaseous Radwaste Cost Benefit Analysis

LNP COL 11.3-1

The LNP population doses are given in Section 11.3.3.4.2. The augments provided in Regulatory Guide 1.110 were reviewed and were found not to be cost beneficial in reducing the population dose of 5.74 person-rem total body. The lowest cost gaseous radwaste system augment is $6,320, which would be $6,320/5.02 person-rem or $1,259 per person-rem. This cost per person-rem reduction exceeds the $1,000 per person-rem criteria provided in Regulatory Guide 1.110 and is therefore not cost beneficial.

As shown in Section 11.3.3.4.2 and the table below, the LNP thyroid dose from gaseous effluents is 8.33 person-rem, which exceeds the 6.32 person-rem threshold value. Further analysis is provided below using the methodology of Regulatory Guide 1.110.

Source	Total Body (person-rem)	Thyroid (person-rem)	% of Total Thyroid Dose
Noble Gases	1.02E+00	1.02E+00	12%
Iodine	5.08E-03	2.63E+00	32%
Particulates	1.33E-01	9.83E-02	1%
C-14	3.48E+00	3.48E+00	42%
H-3	1.09E+00	1.09E+00	13%
Total	5.74E+00	8.33E+00	100%

Based on the estimated 8.33 person-rem/year thyroid dose, those augments with a "Total Annual Cost" less than $8,330 are considered below:

Main Condenser Vacuum Pump Charcoal/HEPA Filtration System

The TAC for this augment is $7,690. Thus, to be cost beneficial at $1000 per person-rem, this augment must remove at least 7.69 person-rem (thyroid); that is decrease the thyroid dose from 8.33 to 0.64 person-rem. However, no iodine is released through the condenser air removal system as shown in DCD Table 11.3-3, sheet 2 of 3. This augment does not affect the iodine discharged by the plant which accounts for 2.63 person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost beneficial.

1000 cfm Charcoal/HEPA Filtration System

The TAC for this augment is $7,580. Thus, to be cost beneficial at $1000 per person-rem, this augment must remove at least 7.58 person-rem (thyroid); that is decrease the thyroid dose from 8.33 to 0.75 person-rem. Conservatively assuming that this rather small capacity augment could be placed in the ventilation system at some point that would eliminate all iodine and particulate releases, it would not be effective in reducing the noble gas releases, the carbon-14 release, or the airborne tritium release. The noble gases, carbon-14, and tritium discharged by the plant account for 5.59 person rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

600 ft^3 Gas Decay Tank

The TAC for this augment is $7,460. Thus, to be cost beneficial at $1000 per person-rem, this augment must remove at least 7.46 person-rem (thyroid); that is decrease the thyroid dose from 8.33 to 0.87 person-rem. No iodine is released through the waste gas system as shown in DCD Table 11.3-3. This augment does not affect the iodine discharged by the plant which accounts for 2.63

person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

Steam Generator Flash Tank Vent to Main Condenser

The TAC for this augment is $6,320. Thus, to be cost beneficial at $1000 per person-rem, this augment must remove at least 6.32 person-rem (thyroid); that is decrease the thyroid dose from 8.33 to 2.01 person-rem. Addition of this augment presumes that the design already includes a steam generator flash tank with the augment evaluated being installation of vent piping and instrumentation from the tank to the main condenser. The AP1000 design does not include a steam generator flash tank. Therefore, the TAC of $6,320 for this augment is underestimated. As shown in DCD Figure 10.4.8-1, the AP1000 design includes steam generator blowdown heat exchangers that provide cooling of the blowdown fluid and prevent flashing prior to the blowdown flow entering the main condenser. Therefore, this augment would not provide any additional dose reduction, and this augment is not cost-beneficial.

Conclusion

Based on the above evaluation, none of the radwaste augments are cost-beneficial in reducing the annual thyroid dose from gaseous effluents for LNP.

11.3.3.6 Quality Assurance

Add the following to the end of DCD Subsection 11.3.3.6:

STD SUP 11.3-1

Since the impact of radwaste systems on safety is limited, the extent of control required by Appendix B to 10 CFR Part 50 is similarly limited. Thus, a supplemental quality assurance program applicable to design, construction, installation, and testing provisions of the gaseous radwaste system is established by procedures that complies with the guidance presented in Regulatory Guide 1.143.

11.3.5 COMBINED LICENSE INFORMATION

11.3.5.1 Cost Benefit Analysis of Population Doses

STD COL 11.3-1

This COL Item is addressed in Subsection 11.3.3.4.3.

LNP COL 11.3-1

This COL Item is addressed in Subsections 11.3.3.4, 11.3.3.4.1, 11.3.3.4.2 and 11.3.3.4.4.

11.3.6 REFERENCES

201. Deleted.

Table 11.3-201
GASPAR II Input for Dose Rates

	Input Parameter	Value
LNP COL 11.3-1	Number of Source Terms	1
LNP COL 11.5-3	Distance from site to NE Corner of the United States (mi.)	1680
	Source Term	DCD Table 11.3-3
	Population Data	Table 11.3-202
	Fraction of the year leafy vegetables are grown	0.92
	Fraction of the year milk cows are on pasture	0.92[(a)]
	Fraction of max individual's vegetable intake from own garden	1.0
	Humidity over growing season (g/m^3)	8.0
	Average temperature, T, over growing season	0[(b)]
	Fraction of the year goats are on pasture	1.0
	Fraction of goat feed intake from pasture while on pasture	1.0
	Fraction of the year beef cattle are on pasture	0.92
	Fraction of beef-cattle feed intake from pasture while on pasture	1.0
	Total Production Rate for the 50-mile area	
	-Vegetables (kg/yr)	Table 11.3-203
	-Milk (l/yr)	Table 11.3-204
	-Meat (kg/yr)	Table 11.3-205
	Meteorological data	Sector average X/Q
	Special Location Data	FSAR Section 2.3.5

a) There are no milk cows identified within 5 mi. of LNP.
b) With humidity specified in units of g/m^3 temperature is not needed. GASPAR default value = 0.

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-202 (Sheet 1 of 2)
Population Data

Population Data	**Distance (mi.)**									
Direction	1	2	3	4	5	10	20	30	40	50
N	0	7	51	97	26	17	918	8,049	11,760	16,050
NNE	0	6	20	20	10	384	3,850	11,390	29,590	212,100
NE	1	1	8	14	7	1,304	3,444	5,847	18,120	9,438
ENE	1	0	0	0	6	1,786	13,000	53,640	97,210	11,570
E	1	2	2	0	15	3,845	9,920	57,860	109,200	28,950
ESE	2	11	17	65	132	4,005	9,725	8,503	50,200	122,000
SE	2	11	45	468	431	2,315	35,570	41,260	21,690	38,330
SSE	2	11	37	69	406	3,628	25,890	17,100	40,270	29,610
S	2	11	19	22	62	2,126	15,520	6,006	48,660	144,800
SSW	2	7	73	610	45	145	288	0	0	0
SW	2	12	79	731	869	309	0	0	0	0
WSW	2	15	38	206	353	1,074	0	0	0	0
W	1	7	3	9	32	10	0	740	0	0

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-202 (Sheet 2 of 2)
Population Data

Population Data	Distance (mi.)									
Direction	1	2	3	4	5	10	20	30	40	50
WNW	0	2	6	4	1	8	2	1,584	684	344
NW	0	2	6	7	7	3	88	1,058	1,746	7,540
NNW	0	2	32	26	51	9	659	1,323	17,730	13,140

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-203 (Sheet 1 of 2)
Vegetable Production

Vegetable Production (kg/yr)	Distance (mi.)									
Direction	1	2	3	4	5	10	20	30	40	50
S	0	0	0	0	74,800	38,600	139,000	791,000	2,090,000	13,000,000
SSW	0	0	0	290,000	7,300	38,500	41,700	3,470	0	0
SW	0	0	245,000	339,000	189,000	32,900	405	0	0	0
WSW	0	150,000	245,000	339,000	431,000	1,970,000	4,100	0	0	0
W	0	0	0	0	0	3,000,000	731,000	309,000	0	0
WNW	0	0	0	0	0	3,590,000	7,480,000	17,000,000	5,380,000	2,880
NW	0	150,000	245,000	339,000	433,000	3,580,000	14,200,000	23,700,000	13,400,000	90,000
NNW	0	0	245,000	339,000	433,000	3,580,000	14,200,000	23,700,000	36,600,000	47,300,000
N	0	0	245,000	339,000	433,000	3,580,000	14,200,000	23,700,000	37,600,000	52,800,000
NNE	0	0	0	0	433,000	3,580,000	14,100,000	21,400,000	30,400,000	41,200,000
NE	0	0	0	0	433,000	2,140,000	9,380,000	8,580,000	18,300,000	31,800,000
ENE	0	0	0	0	0	1,380,000	4,760,000	7,910,000	11,100,000	14,200,000

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-203 (Sheet 2 of 2)
Vegetable Production

Vegetable Production (kg/yr)	Distance (mi.)									
Direction	1	2	3	4	5	10	20	30	40	50
E	0	0	0	0	433,000	1,220,000	4,760,000	7,910,000	11,100,000	15,100,000
ESE	0	0	0	0	0	325,000	1,620,000	4,450,000	5,740,000	21,700,000
SE	0	0	0	323,000	55,300	38,600	153,000	255,000	3,520,000	6,540,000
SSE	0	0	0	0	0	38,600	153,000	598,000	2,910,000	10,700,000

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-204 (Sheet 1 of 2)
Milk Production

Milk Production (l/yr)	**Distance (mi.)**									
Direction	1	2	3	4	5	10	20	30	40	50
S	0	0	0	0	0	6,840	24,600	1,170,000	3,560,000	4,530,000
SSW	0	0	0	0	0	6,830	7,400	615	0	0
SW	0	0	0	0	0	5,830	7	0	0	0
WSW	0	0	0	0	0	1,490	1	0	0	0
W	0	0	0	0	0	823	201	85	0	0
WNW	0	0	0	0	0	983	2,050	4,650	3,270	557
NW	0	0	0	0	0	0	3,910	6,490	11,800	17,400
NNW	0	0	67	93	119	983	3,910	6,490	8,090,000	33,900,000
N	0	0	0	0	0	983	3,910	47,400	10,300,000	21,300,000
NNE	0	0	0	0	0	985	3,920	60,000	1,730,000	2,450,000
NE	0	0	0	0	0	1,090	4,250	7,570	660,000	1,650,000

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-204 (Sheet 2 of 2)
Milk Production

Milk Production (l/yr)					**Distance (mi.)**					
Direction	1	2	3	4	5	10	20	30	40	50
ENE	0	0	0	0	0	1,140	4,580	7,620	10,700	13,700
E	0	0	0	0	0	1,210	4,580	7,620	10,700	14,700
ESE	0	0	0	0	0	5,730	20,000	13,300	7,660	24,900
SE	0	0	0	0	0	6,840	27,200	45,200	368,000	1,400,000
SSE	0	0	0	0	0	6,840	27,200	696,000	4,910,000	6,480,000

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-205 (Sheet 1 of 2)
Meat Production

Meat Production (kg/yr)	**Distance (mi.)**									
Direction	1	2	3	4	5	10	20	30	40	50
S	0	0	0	0	0	104,000	374,000	761,000	1,380,000	3,310,000
SSW	0	0	20,800	26,000	12,700	104,000	113,000	9,360	0	0
SW	0	0	0	0	0	88,700	1,090	0	0	0
WSW	0	0	0	0	0	181,000	349	0	0	0
W	0	0	0	0	0	255,000	62,100	26,300	0	0
WNW	0	0	0	0	0	304,000	636,000	1,440,000	518,000	19,200
NW	0	0	20,800	28,800	36,800	304,000	1,210,000	2,010,000	1,410,000	601,000
NNW	0	0	20,800	28,800	36,800	304,000	1,210,000	2,010,000	3,020,000	3,780,000
N	0	0	0	28,800	36,800	304,000	1,210,000	2,020,000	3,470,000	4,780,000
NNE	0	0	0	0	0	303,000	1,200,000	1,930,000	3,280,000	4,400,000
NE	0	0	0	0	0	239,000	990,000	1,330,000	2,370,000	3,530,000
ENE	0	0	0	0	36,800	205,000	780,000	1,300,000	1,810,000	2,330,000

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-205 (Sheet 2 of 2)
Meat Production

Meat Production (kg/yr)	**Distance (mi.)**									
Direction	1	2	3	4	5	10	20	30	40	50
E	0	0	0	0	36,800	197,000	780,000	1,300,000	1,810,000	2,340,000
ESE	0	0	0	28,800	35,100	125,000	530,000	2,560,000	5,310,000	4,210,000
SE	0	0	0	0	15,400	104,000	413,000	687,000	3,850,000	6,260,000
SSE	0	0	20,800	20,500	13,800	104,000	413,000	824,000	1,980,000	3,550,000

LNP COL 11.5-3

Table 11.3-206 (Sheet 1 of 2)
Individual Dose Rates[(a)]

		Dose (mrem/yr)								
Pathway		Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin	Location
Plume		9.85E-01	9.85E-01	9.85E-01	9.85E-01	9.85E-01	9.85E-01	1.08	6.32	EAB(b)
Ground		1.14E-01	1.14E-01	1.14E-01	1.14E-01	1.14E-01	1.14E-01	1.14E-01	1.33E-01	EAB
Cow Milk	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	No Milk Cow in 5 mi
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Goat Milk	ADULT	2.53E-02	2.36E-02	7.70E-02	2.60E-02	2.48E-02	1.55E-01	2.37E-02	2.34E-02	Nearest Goat Milk(c)
	TEEN	4.04E-02	3.88E-02	1.41E-01	4.30E-02	4.10E-02	2.46E-01	3.90E-02	3.85E-02	
	CHILD	8.67E-02	8.50E-02	3.47E-01	9.24E-02	8.89E-02	4.97E-01	8.55E-02	8.48E-02	
	INFANT	1.70E-01	1.67E-01	6.73E-01	1.82E-01	1.74E-01	1.17E+00	1.68E-01	1.67E-01	
Vegetables	ADULT	5.30E-01	5.32E-01	2.08E+00	5.30E-01	5.26E-01	1.43E+00	5.19E-01	5.18E-01	Nearest Garden(d)
	TEEN	8.04E-01	8.06E-01	3.40E+00	8.10E-01	8.03E-01	1.98E+00	7.93E-01	7.91E-01	
	CHILD	1.80E+00	1.80E+00	8.16E+00	1.82E+00	1.80E+00	4.05E+00	1.79E+00	1.78E+00	
Inhalation	ADULT	5.98E-02	6.05E-02	8.63E-03	6.11E-02	6.20E-02	5.21E-01	7.64E-02	5.82E-02	Nearest Residence(e)
	TEEN	6.05E-02	6.10E-02	1.04E-02	6.26E-02	6.39E-02	6.49E-01	8.61E-02	5.87E-02	
	CHILD	5.36E-02	5.29E-02	1.27E-02	5.57E-02	5.68E-02	7.53E-01	7.46E-02	5.18E-02	
	INFANT	3.09E-02	3.02E-02	6.37E-03	3.32E-02	3.30E-02	6.73E-01	4.57E-02	2.98E-02	
Meat	ADULT	1.28E-02	1.36E-02	5.64E-02	1.28E-02	1.28E-02	1.80E-02	1.27E-02	1.27E-02	Nearest Meat Cow(f)
	TEEN	1.04E-02	1.09E-02	4.76E-02	1.05E-02	1.04E-02	1.42E-02	1.04E-02	1.04E-02	
	CHILD	1.89E-02	1.91E-02	8.74E-02	1.90E-02	1.89E-02	2.46E-02	1.89E-02	1.89E-02	
Total w/o plume	ADULT	7.42E-01	7.44E-01	2.34E+00	7.44E-01	7.40E-01	2.24E+00	7.46E-01	7.45E-01	
	TEEN	1.03E+00	1.03E+00	3.71E+00	1.04E+00	1.03E+00	3.00E+00	1.04E+00	1.03E+00	
	CHILD	2.07E+00	2.07E+00	8.72E+00	2.10E+00	2.08E+00	5.44E+00	2.08E+00	2.07E+00	
	INFANT	3.15E-01	3.11E-01	7.93E-01	3.29E-01	3.21E-01	1.96E+00	3.28E-01	3.30E-01	
	Max	2.07E+00	2.07E+00	8.72E+00	2.10E+00	2.08E+00	5.44E+00	2.08E+00	2.07E+00	
Total with plume	ADULT	1.73E+00	1.73E+00	3.32E+00	1.73E+00	1.72E+00	3.22E+00	1.83E+00	7.07E+00	

LNP COL 11.5-3

Table 11.3-206 (Sheet 2 of 2)
Individual Dose Rates[a]

		Dose (mrem/yr)								
Pathway		Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin	Location
	TEEN	2.01E+00	2.02E+00	4.70E+00	2.03E+00	2.02E+00	3.99E+00	2.12E+00	7.35E+00	
	CHILD	3.06E+00	3.06E+00	9.71E+00	3.09E+00	3.06E+00	6.42E+00	3.16E+00	8.39E+00	
	INFANT	1.30E+00	1.30E+00	1.78E+00	1.31E+00	1.31E+00	2.94E+00	1.41E+00	6.65E+00	
	Max	3.06E+00	3.06E+00	9.71E+00	3.09E+00	3.07E+00	6.43E+00	3.16E+00	8.39E+00	

a) 10 CFR 50 Appendix I: Total Body Dose Limit = 5 mrem/yr, Skin Dose = 15 mrem/yr and Dose to Any Organ = 15 mrem/yr
b) EAB 0.83 mi WSW
c) Nearest Goat Milk 2.4 mi NNW
d)Nearest Garden 1.7 mi WSW
e)Nearest Residence 1.7 mi WSW
f) Nearest Meat Cow 2.8 mi SSW

LNP COL 11.5-3

Table 11.3-207
Dose in Millirads at Special Locations

Special Location	Beta Air Dose	Gamma Air Dose
EAB[(a)]	9.35	1.67
Nearest Residence/Garden	3.62	0.67
Nearest Goat Milk	0.43	0.075
Nearest Meat Animal	0.35	0.062

a) 10 CFR 50 Appendix I Design Objective: Gamma Air Dose = 10 mrad and Beta Air Dose = 20 mrad.

LNP COL 11.3-1
LNP COL 11.5-3

Table 11.3-208
Population Doses from Gaseous Effluents

	Dose (person-rem/year)							
Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Plume	1.02E+00	1.02E+00	1.02E+00	1.02E+00	1.02E+00	1.02E+00	1.22E+00	1.24E+01
Ground	9.87E-02	9.87E-02	9.87E-02	9.87E-02	9.87E-02	9.87E-02	9.87E-02	1.16E-01
Inhalation	3.69E-01	3.71E-01	6.01E-02	3.75E-01	3.76E-01	2.58E+00	4.95E-01	3.60E-01
Vegetable Ingestion	3.10E+00	3.09E+00	1.28E+01	3.10E+00	3.08E+00	3.11E+00	3.07E+00	3.07E+00
Cow Milk Ingestion	2.77E-01	2.75E-01	1.16E+00	2.78E-01	2.77E-01	5.41E-01	2.75E-01	2.75E-01
Meat Ingestion	8.78E-01	8.91E-01	3.95E+00	8.78E-01	8.77E-01	9.79E-01	8.75E-01	8.75E-01
Total	5.74E+00	5.75E+00	1.91E+01	5.75E+00	5.73E+00	8.33E+00	6.04E+00	1.71E+01

LNP COL 11.5-3

Table 11.3-209
Maximum Individual Doses
Compared to 10 CFR 50 Appendix I

Type of Dose	Appendix I Criteria Design Objective	Levy Unit 1 and 2 Calculated Dose	Levy Unit 1 and 2 Highest Offsite Dose Location
Gaseous Effluents (Noble Gases)			
Gamma Air	10 mrad	1.7 mrad	EAB
Beta Air	20 mrad	9.4 mrad	EAB
Total Body	5 mrem	0.99 mrem	EAB
Skin	15 mrem	6.32 mrem	EAB
Radioiodines and Particulates			
Dose to any Organ from all pathways	15 mrem	9.71 mrem (Child - bone)	

11.4 SOLID WASTE MANAGEMENT

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

Add the following after DCD Subsection 11.4.2.4.2:

11.4.2.4.3 Alternatives for B and C Wastes

LNP COL 11.4-1

It is expected that Class B and C wastes will constitute approximately 5 percent by volume of the low level radioactive waste (LLRW) that will be generated by the plant with the balance being Class A waste. The volume of wet Class B and C waste is approximately 100 percent of the total Class B and C waste. As of July 1, 2008, the LLRW disposal facility in Barnwell, South Carolina is no longer accepting Class B and C waste from sources in states that are outside of the Atlantic Compact. Class A wastes are disposed of off-site. The disposal facility in Clive, Utah is still accepting Class A waste from out of state. Should there be no disposal facilities that will accept the Class B and C wastes after the plant begins operation, there are several options available for storage of such waste:

- As provided in referenced DCD Subsection 11.4.2., the Auxiliary Building is designed to have more than a year of spent resin storage capacity at the expected rate, and the spent resin tanks may be mixed to limit the radioactivity concentrations thereby limiting the volume of Class B and C wet waste requiring storage.
- Vendor services are available to process Class A, B, and C waste and transfer for storage of that material until a disposal site is available. Currently, Waste Control Specialists (WCS) of Texas is available to store Class A, B, and C material pending the availability of a licensed disposal site.
- If additional storage capacity were eventually needed, the plant could construct or expand storage facilities onsite or gain access to a storage facility at another licensed nuclear plant.

11.4.5 QUALITY ASSURANCE

Add the following to the end of DCD Subsection 11.4.5:

STD SUP 11.4-1

Since the impact of radwaste systems on safety is limited, the extent of control required by Appendix B to 10 CFR Part 50 is similarly limited. Thus, a supplemental quality assurance program applicable to design, construction, installation and testing provisions of the solid radwaste system is established by

procedures that complies with the guidance presented in Regulatory Guide 1.143.

11.4.6 COMBINED LICENSE INFORMATION FOR SOLID WASTE MANAGEMENT SYSTEM PROCESS CONTROL PROGRAM

Add the following information to the end of DCD Subsection 11.4.6.

This COL Item is addressed below.

STD COL 11.4-1

A Process Control Program (PCP) is developed and implemented in accordance with the recommendations and guidance of NEI 07-10A (Reference 201). The PCP describes the administrative and operational controls used for the solidification of liquid or wet solid waste and the dewatering of wet solid waste. Its purpose is to provide the necessary controls such that the final disposal waste product meets applicable federal regulations (10 CFR Parts 20, 50, 61, 71, and 49 CFR Part 173), state regulations, and disposal site waste form requirements for burial at a low level waste (LLW) disposal site that is licensed in accordance with 10 CFR Part 61.

Waste processing (solidification or dewatering) equipment and services may be provided by the plant or by third-party vendors. Each process used meets the applicable requirements of the PCP.

No additional onsite radwaste storage is required beyond that described in the DCD.

Table 13.4-201 provides milestones for PCP implementation.

LNP COL 11.4-1

All packaged and stored radwaste will be shipped to offsite disposal/storage facilities and temporary storage of radwaste is only provided until routine offsite shipping can be performed. Accordingly, there is no expected need for permanent on-site storage facilities at LNP 1 & 2.

If additional storage capacity for Class B and C waste is required, further temporary storage would be developed in accordance with NUREG-0800, Standard Review Plan 11.4, Appendix 11.4-A. To the extent that additional storage could be needed sometime in the future, the existing regulatory framework would allow Progress Energy to conduct written safety analyses under 10 CFR 50.59. If the additional storage does not satisfy 10 CFR 50.59, a license amendment would be required.

11.4.6.1 Procedures

STD SUP 11.4-1 Operating procedures specify the processes to be followed to ship waste that complies with the waste acceptance criteria (WAC) of the disposal site, 10 CFR 61.55 and 61.56, and the requirements of third party waste processors.

Each waste stream process is controlled by procedures that specify the process for packaging, shipment, material properties, destination (for disposal or further processing), testing to verify compliance, the process to address non-conforming materials, and required documentation.

Where materials are to be disposed of as non-radioactive waste (as described in DCD Subsection 11.4.2.3.3), final measurements of each package are performed to verify there has not been an accumulation of licensed material resulting from a buildup of multiple, non-detectable quantities. These measurements are obtained using sensitive scintillation detectors, or instruments of equal sensitivity, in a low-background area.

Procedures document maintenance activities, spill abatement, upset condition recovery, and training.

Procedures document the periodic review and revision, as necessary, of the PCP based on changes to the disposal site, WAC regulations, and third party PCPs.

11.4.6.2 Third Party Vendors

Third party equipment suppliers and/or waste processors are required to supply approved PCPs. Third party vendor PCPs describe compliance with Regulatory Guide 1.143, Generic Letter 80-09, and Generic Letter 81-39. Third party vendor PCPs are referenced appropriately in the plant PCP before commencement of waste processing.

11.4.6.3 Long Term On-Site Storage Facility

LNP SUP 11.4-1 Storage space for six-months' volume of packaged waste is provided in the radwaste building. Radioactive waste generated by LNP will normally be shipped to a licensed disposal or off-site storage facility. However, should disposal facilities or off-site storage facilities not be available, storage capacity will be expanded as described below to provide additional on-site storage for LNP.

Additional on-site low-level radioactive waste (LLRW) storage capabilities are available if Class B and C waste cannot be disposed at a licensed disposal facility. An outside storage pad will be utilized to provide this capability. The LNP LLRW storage facility would be located outside the Protected Area (PA) in the Owner Controlled Area (OCA). The storage facility would be enclosed by an eight-foot high fence with locked gates and would be provided with area lighting. The storage of LLRW would be in high integrity containers (HICs) or other suitable containers that will not decay over time, which would be stored within shielded containers. The design of the storage facility will comply with the

guidance of documents as identified in this section which is consistent with NUREG-0800, Appendix 11.4A. The design storage capacity is based on the expected generation in Table 11.4-1, industry experience indicates approximately 100% of the Class B and C waste is expected to be in the form of wet waste, and volume minimization/reduction programs. The site waste management plan will include radioactive wet waste reduction initiatives for Class B and C waste.

The storage facility will be sited such that it could be sized to accommodate storage of Class B and C waste over the operating life of the plant and designed to accommodate future expansion as needed. Capacity would be added in phases based on the expected availability of off-site treatment and storage, and disposal facilities.

11.4.6.3.1 Outside Storage Pad Design Considerations

The following design considerations would be applied to the on-site LLRW storage facility: (References 202, 203, and 204):

- The location of the storage pad would meet the dose rate criteria of 40 CFR 190 and 10 CFR 20.1302 for both the site boundary and unrestricted area. The onsite storage will be located such that any additional dose contributes less than 1 mrem per year to the 40 CFR Part 190 limits. Onsite dose limits will be controlled per 10 CFR 20, including the ALARA principle of 10 CFR 20.1101.
- The outside storage pad would be an engineered feature designed to minimize settling and would be constructed of reinforced concrete or engineered gravel.
- The storage pad location would avoid natural or engineered surface drainage and be located at an elevation considering the site's design bases flood level.
- The storage pad would have a fence or other suitable security measures consistent with its location on the site.
- The waste containers (typically high integrity containers) would be stored inside of a shielded container, typically consisting of reinforced concrete containers that provide radiation shielding and weather protection.
- The configuration of the storage shields would be arranged to be accessible from the perimeter road or from a center aisle using a mobile crane (if used).
- Personnel passages would be provided between rows of storage shields for access to the container for inspection.

- Adequate electrical power and lighting would be provided at the storage facility to allow power for tools, analytical equipment, sample pumps, radiation instruments, boroscope lights, etc.

- Fire protection, fire hydrants or fire extinguishers for vehicle fires should be provided.

11.4.6.3.2 Outside Storage Pad Operating Considerations

The following operating considerations for on-site storage pad operations are based on NRC and industry guidance (References 202, 203 and 204) and would be included in operating procedures:

- Identification of the arrangement of storage shields, waste handling, storage methods, safety analysis limitations, accident conditions, and off site dose calculations.

- The use of hold-down devices to secure the waste container during severe environmental events, such as strong wind, would be provided for, unless the waste container and storage shields can be demonstrated to remain in place without restraints during such events.

- The waste container selected for use would be compatible with the waste form stored to ensure waste container integrity.

- Shielding requirements would be determined before the waste container is loaded into a storage shield to eliminate the radiation exposure associated with subsequent addition of supplemental shielding.

- If additional shield walls around the perimeter of the storage pad are required, the shield walls would be easily installed and capable of being moved.

- Periodic inspection and testing requirements for outside storage pad operation would include the following:

  - Dose rate and contamination surveys in accordance with health physics procedures.

  - Sampling of storage shields for water and storage shields containing dewatered resin for explosive gas build-up.

  - Visual inspection of selected waste containers in storage to detect unexpected changes / container integrity. (Remote inspection methods and the use of high integrity containers will allow reduced scope for ALARA practices.)

  - Defoliation and general condition of the onsite storage pad.

- Total radioactive material inventory limits would be established to demonstrate compliance with the design limits for the storage area, dose limits for members of the public and safety features or measures provided by the storage module.
- The contents of records for inventory controls, monitoring and inspection and other relevant data would be maintained and retrievable.
- Operational safety features for handling waste containers and storage shields would include the training required for personnel operating cranes, forklifts, tie downs and heavy equipment during any waste container/storage shield transfer activity.
- Criteria for the end of storage period that would include waste container inspection and additional reprocessing as required prior to shipment offsite.

11.4.7 REFERENCES

201. NEI 07-10A, "Generic FSAR Template Guidance for Process Control Program (PCP)," Revision 0, March 2009 (ML091460627).

202. Technical Report 1018644 "Guidelines for Operating an Interim On Site Low Level Radioactive Waste Storage Facility," Revision 1, EPRI, Palo Alto, CA, February 2009.

203. Regulatory Issue Summary 2008-32 "Interim Low Level Radioactive Waste Storage at Reactor Sites," December 2008.

204. Generic Letter (GL) 81-38, "Storage of Low-Level Radioactive Wastes at Power Reactor Sites," November 1981.

11.5 RADIATION MONITORING

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

11.5.1.2 Power Generation Design Basis

Revise the fourth bullet in DCD Subsection 11.5.1.2 as follows:

STD COL 11.5-2

- Data collection and data storage to support compliance reporting for the applicable NRC requirements and guidelines, such as General Design Criterion 64 and Regulatory Guide 1.21 and Regulatory Guide 4.15, Revision 1.

11.5.2.4 Inservice Inspection, Calibration, and Maintenance

Add the following information at the end of DCD Subsection 11.5.2.4:

STD COL 11.5-2

Daily checks of effluent monitoring system operability are made by observing channel behavior. Detector response is routinely observed with a remotely-positioned check source in accordance with plant procedures. Instrument background count rate is also observed to determine proper functioning of the monitors. Any detector whose response cannot be verified by observation during normal operation or by using the remotely-positioned check source can have its response checked with a portable check source. A record is maintained showing the background radiation level and the detector response.

Calibration of the continuous radiation monitors is done with commercial radionuclide standards that have been standardized using a measurement system traceable to the National Institute of Standards and Technology.

11.5.3 EFFLUENT MONITORING AND SAMPLING

Add the following information at the end of DCD Subsection 11.5.3.

LNP COL 11.5-2

Progress Energy is extending the existing Progress Energy Nuclear Generation Group fleet program for quality assurance of radiological effluent and environmental monitoring that is based on Regulatory Guide 4.15, Revision 1, to apply to Levy Nuclear Plant, Units 1 and 2. Regulatory Guide 4.15, Revision 1, is a proven methodology for quality assurance of radiological effluent and environmental monitoring programs that is acceptable to the NRC staff as a method for demonstrating compliance with applicable requirements of 10 CFR Parts 20, 50, 52, 61, and 72. Use of Revision 2 of Regulatory Guide 4.15 would

necessitate conducting two separate programs involving the use of common staff, facilities, and equipment, which will create an undue burden and may lead to an increased possibility for human error. Therefore, Progress Energy commits to use Regulatory Guide 4.15, Revision 1, methodology for Levy Nuclear Plant, Units 1 and 2 for optimal consistency, efficiency, and practicality.

11.5.4 PROCESS AND AIRBORNE MONITORING AND SAMPLING

STD COL 11.5-2 Add the following information at the end of the first paragraph in DCD Subsection 11.5.4.

The sampling program for liquid and gaseous effluents will conform to Regulatory Guide 4.15, Revision 1 (See Appendix 1AA).

Add the following information at the end of DCD Subsection 11.5.4.

11.5.4.1 Effluent Sampling

STD COL 11.5-2 Effluent sampling of potential radioactive liquid and gaseous effluent paths is conducted on a periodic basis to verify effluent processing meets the discharge limits to offsite areas. The effluent sampling program provides the information for the effluent measuring and reporting required by 10 CFR 50.36a and 10 CFR Part 20 and implemented through the Offsite Dose Calculation Manual (ODCM) and plant procedures. The frequency of the periodic sampling and analyses described herein are nominal and may be increased as permitted by procedure. Tables 11.5-201 and 11.5-202 summarize the sample and analysis schedules and sensitivities, respectively. The information contained in Tables 11.5-201 and 11.5-202 are derived from Regulatory Guide 1.21.

Laboratory isotopic analyses are performed on continuous and batch effluent releases in accordance with the ODCM. Results of these analyses are compiled and appropriate portions are utilized to produce the Radioactive Effluent Release Report.

11.5.4.2 Representative Sampling

Representative samples are obtained from well-mixed streams or volumes of effluent liquid through the use of proper sampling equipment, proper location of sampling points, and the development and use of sampling procedures. The recommendations of ANSI N 42.18 (Reference 203) are considered for the selection of instrumentation specific to the continuous monitoring of radioactivity in liquid effluents.

Sampling of effluent liquids is consistent with guidance in Regulatory Guide 1.21. When practical, effluent releases are batch-controlled, and prior to sampling, large volumes of liquid waste are mixed, in as short a time span as practicable,

so that solid particulates are uniformly distributed in the liquid volume. Sampling and analysis is performed, and release conditions set, before release. Sample points are located to minimize flow disturbance due to fittings and other characteristics of equipment and components. Sample lines are flushed consistent with plant procedures to remove sediment deposits.

Representative sampling of process effluents is attained through sample and monitor locations and methods and criteria detailed in plant procedures.

Composite sampling is employed to analyze for hard to measure radionuclides and to monitor effluent streams that normally are not expected to contain significant amounts of radioactive contamination. Composite liquid samples are collected in proportion to the volume of each batch of effluent release. The composite is thoroughly mixed prior to analysis. Collection periods for composites are as short as practicable and periodic checks are performed to identify changes in composite samples. When grab samples are collected instead of composite samples, the time of the sample, location, and frequency are considered to provide a representative sample of the radioactive materials.

The pressure head of the fluid, if available, is used for taking samples. If sufficient pressure head is not available to take samples, then sample pumps are used to draw the sample from the process fluid to the detector panels and back to the process.

Testing and obtaining representative samples using the radiation monitors described in DCD Subsection 11.5 will be performed in accordance with ANSI N13.1 (Reference 201).

For obtaining representative samples in unfiltered ducts, isokinetic probes are tested and used in accordance with ANSI N13.1 (Reference 201).

Analytical Procedures

Typically, samples of process and effluent gases and liquids are analyzed in the station laboratory or by an outside laboratory via the following techniques:

- Gross alpha/beta counting
- Gamma spectrometry
- Liquid scintillation counting

"Available" instrumentation and counting techniques change as other instruments and techniques become available. For this reason, the frequency of sampling and the analysis of samples are generalized in this subsection.

Gross alpha/beta analysis may be performed directly on unprocessed samples (e.g., air filters) or on processed samples (e.g., evaporated liquid samples). Sample volume, counting geometry, and counting time are chosen to match

measurement capability with sample activity. Correction factors for sample-detector geometry, self-absorption and counter resolving time are applied to provide the required accuracy.

Liquid effluent samples are prepared for alpha/beta counting by evaporation onto steel planchets. Gamma analysis may be done on any type of sample (gas, solid or liquid) in a gamma spectrometer.

Tritiated water vapor samples are collected by condensation or adsorption, and the resultant liquid is analyzed by liquid scintillation counting techniques.

Radiochemical separations are used for the routine analysis of Sr-89 and Sr-90.

Liquid samples are collected in polyethylene bottles to minimize absorption of nuclides onto container walls.

11.5.6.5 Quality Assurance

Add the following information at the end of DCD Subsection 11.5.6.5.

STD COL 11.5-2 The sampling program and the associated monitors conform to Regulatory Guide 4.15, Revision 1 (See Appendix 1AA).

11.5.8 COMBINED LICENSE INFORMATION

STD COL 11.5-1 An Offsite Dose Calculation Manual (ODCM) is developed and implemented in accordance with the recommendations and guidance of NEI 07-09A (Reference 202). The ODCM contains the methodology and parameters used for calculating doses resulting from liquid and gaseous effluents. The ODCM addresses operational setpoints, including planned discharge rates, for radiation monitors and monitoring programs (process and effluent monitoring and environmental monitoring) for the control and assessment of the release of radioactive material to the environment. The ODCM provides the limitations on operation of the radwaste systems, including functional capability of monitoring instruments, concentrations of effluents, sampling, analysis, 10 CFR Part 50, Appendix I dose and dose commitments, and reporting. The ODCM will be finalized prior to fuel load with site-specific information.

Table 13.4-201 provides milestones for ODCM implementation.

STD COL 11.5-2 This COL Item is addressed in Subsections 11.5.1.2, 11.5.2.4, 11.5.4, 11.5.4.1, 11.5.4.2, and 11.5.6.5.

LNP COL 11.5-2

This COL Item is addressed in Subsection 11.5.3.

LNP COL 11.5-3 This COL Item is addressed in Subsections 11.2.3.5 and 11.3.3.4 for liquid and gaseous effluents, respectively.

Add the following subsection after DCD Subsection 11.5.8.

11.5.9 REFERENCES

201. ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities."

202. NEI 07-09A, "Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Program Description," Revision 0, March 2009 (ML091050234).

203. ANSI N42.18-2004, "Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents."

STD COL 11.5-2

Table 11.5-201 (Sheet 1 of 2)
Minimum Sampling Frequency

Stream	Sampled Medium	Frequency
Gaseous	Continuous Release	A sample is taken within one month of initial criticality, and at least weekly thereafter to determine the identity and quantity for principal nuclides being released. A similar analysis of samples is performed following each refueling, process change, or other occurrence that could alter the mixture of radionuclides.
		When continuous monitoring shows an unexplained variance from an established norm.
		Monthly for tritium.
	Batch Release	Prior to release to determine the identity and quantity of the principal radionuclides (including tritium).
	Filters (particulates)	Weekly.
		Quarterly for Sr-89 and Sr-90.
		Monthly for gross alpha.

STD COL 11.5-2

Table 11.5-201 (Sheet 2 of 2)
Minimum Sampling Frequency

Stream	Sampled Medium	Frequency
Liquid	Continuous Releases	Weekly for principal gamma-emitting radionuclides.
		Monthly, a composite sample for tritium and gross alpha.
		Monthly, a representative sample for dissolved and entrained fission and activation gases.
		Quarterly, a composite sample for Sr-89, Sr-90, and Fe-55.
	Batch Releases	Prior to release for principal gamma-emitting radionuclides.
		Monthly, a composite sample for tritium and gross alpha.
		Monthly, a representative sample from at least one representative batch for dissolved and entrained fission and activation gases.
		Quarterly, a composite sample for Sr-89, Sr-90 and Fe-55.

STD COL 11.5-2

Table 11.5-202
Minimum Sensitivities

Stream	Nuclide	Sensitivity
Gaseous	Fission & Activation Gases	1.0E-04 µCi/cc
	Tritium	1.0E-06 µCi/cc
	Iodines & Particulates	Sufficient to permit measurement of a small fraction of the activity that would result in annual exposures of 15 mrem to thyroid for iodines, and 15 mrem to any organ for particulates, to an individual in an unrestricted area.
	Gross Radioactivity	Sufficient to permit measurement of a small fraction of the activity that would result in annual air dose of 1) 10 mrad due to gamma, and 2) 20 mrad of beta at any location near ground level at or beyond the site boundary.
Liquid	Gross Radioactivity	1.0E-07 µCi/ml
	Gamma-emitters	5.0E-07 µCi/ml
	Dissolved & Entrained Gases	1.0E-05 µCi/ml
	Gross Alpha	1.0E-07 µCi/ml
	Tritium	1.0E-05 µCi/ml
	Sr-89 & Sr-90	5.0E-08 µCi/ml
	Fe-55	1.0E-06 µCi/ml

August 27, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

In the Matter of	)		
	)	Docket Nos.	52-029-COL
Progress Energy Florida, Inc.	)		52-030-COL
	)		
(Combined License Application for	)		
(Levy County Nuclear Plant, Units 1 and 2)	)		
	)	ASLB No.	09-879-04-COL

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Progress Energy Florida, Inc.'s Motion for Summary Disposition of Contention 8A in Light of Revised Extended LLRW Plan dated August 27, 2011, was provided to the Electronic Information Exchange for service upon the following individuals:

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Mail Stop: O-16C1
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
Mail Stop O-16C1
Washington, DC 20555-0001
Hearing Docket
E-mail: hearingdocket@nrc.gov

Nuclear Information Resource Service
6390 Carroll Avenue, #340
Takoma Park, MD 20912
Michael Mariotte, Executive Director
E-mail: nirsnet@nirs.org

Nuclear Information & Resource Service
P.O. Box 7586
Asheville, NC 28802
Mary Olson,
NIRS Southeast Regional Coordinator
E-mail: nirs@main.nc.us

Alachua County Green Party, Green Party of Florida
P.O. Box 190
Alachua, FL
Michael Canney, Co-Chair
E-mail: alachuagreen@windstream.net

Ecology Party of Florida
641 SW 6th Avenue
Ft. Lauderdale, FL 33315
Cara Campbell, Chair
Gary Hecker
E-mail: levynuke@ecologyparty.org

Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Mail Stop T-3F23
Washington, DC 20555-0001

Alex S. Karlin, Chair
Administrative Judge
E-mail: ask2@nrc.gov

Anthony J. Baratta
Administrative Judge
E-mail: ajb5@nrc.gov

William M. Murphy
Administrative Judge
E-mail: William.murphy@nrc.gov, wmm1@nrc.gov

Ann Hove, Law Clerk
E-mail: ann.hove@nrc.gov

Joshua A. Kirstein, Law Clerk
josh.kirstein@nrc.gov

Eckert Seamans Cherin & Mellott, LLC
600 Grant Street, 44th Floor
Pittsburg, PA 15219
Counsel for Westinghouse Electric Co., LLC
Barton Z. Cowan, Esq.
E-mail: teribart61@aol.com

Office of the General Counsel
U.S. Nuclear Regulatory Commission
Mail Stop O-15D21
Washington, DC 20555-0001
Marian Zobler, Esq.
Sara Kirkwood, Esq.
Jody Martin, Esq.
Michael Spencer, Esq.
Kevin C. Roach, Esq.
Laura Goldin, Esq.
Joseph Gilman, Paralegal
E-mail:
mlz@nrc.gov
sara.kirkwood@nrc.gov
jcm5@nrc.gov
michael.spencer@nrc.gov
jsg1@nrc.gov
Kevin.Roach@nrc.gov
Laura.goldin@nrc.gov
OGC Mail Center : OGCMailCenter@nrc.gov

/Signed electronically by Robert B. Haemer/
Robert B. Haemer