DECLARATION OF DIANE D'ARRIGO
IN SUPPORT of CITIZENS ALLIED FOR SAFE ENERGY (CASE)
In the matter of Florida Power and Light (FPL)
Turkey Point Nuclear Power Units 6 and 7
Dockets 52-040 and 52-041

August 17, 2010

I, Ms. Diane D'Arrigo, hereby declare as follows:

1. I am the Radioactive Waste Project Director at Nuclear Information and Resource Service (NIRS) at 6930 Carroll Avenue, Suite 340, Takoma Park, Maryland 20912, and have been at NIRS for 24 years.

2. I am an expert on the policy aspects and general technical characteristics of so-called "low-level" radioactive waste. I hold a Bachelor of Science degree in chemistry with a course concentration in environmental studies and a postgraduate environmental law course. My work experience has been with industry research and development, academic research, laboratory analysis, public interest research, and environmental advocacy. I have closely followed the so-called "low-level" radioactive waste issue since the passage of the 1980 Low Level Radioactive Waste Policy Act and its 1985 Amendments, including efforts to site new waste repositories and to deregulate/declare "below regulatory concern"/release/clear the waste from radioactive regulatory control. I regularly make presentations and occasionally provide testimony to legislators and regulators on related topics. For over twenty five years I have been tracking and participating in policy-making and implementation of policies regarding the generation, disposal, management and deregulation of nuclear waste and materials, primarily from the operation of nuclear power plants and their fuel chain. My work has included research and public education on safety and environmental risks posed by wastes from the operation of nuclear power plants and the fuel chain and the regulations for disposal. I have spoken publicly and published articles on these topics.

3. I am familiar with the current situation in the United States with regard to "low-level" radioactive waste and with the legislative and regulatory history from the early 1980s up to the present. I am generally familiar with NRC policies and regulations with respect to "low-level" radioactive waste.

4. There is clear public concern about so-called “low-level” radioactive waste especially the highly concentrated, long-lasting, biologically active waste in Classes B, C and Greater-Than-C. The majority of the radioactivity in this waste comes from nuclear power reactors, such as the proposed Turkey Point Units 6 and 7.

5. As of July 1, 2008, the Barnwell, South Carolina disposal site has limiting its access to waste generated within the Atlantic Compact (SC, NJ, CT). The US Ecology-run commercial radioactive waste disposal site at Hanford/Richland Washington already limits access to generators in the Northwest and Rocky Mountain States only. A recently licensed, but legally contested site in Texas can take waste from Texas and Vermont only. For the rest of the country, then, including Florida, generators of Class B and C radioactive waste have no licensed disposal site to which to send their waste. In addition, there is no disposal site for Greater-than-C radioactive wastes which would be generated by the Turkey Point Units 6 and 7 reactors if they operate.

6. The nuclear utilities and the NRC are developing guidelines for extended long-term on-site storage of so-called “low level” radioactive waste at nuclear power reactors. This is not a responsible permanent solution for isolation of these long-lasting, highly concentrated radioactive wastes. As with high level radioactive waste, the outcome could likely be de-facto permanent onsite storage at the reactor site. Rather than assume off-site disposal will become available, FPL should show that the Turkey Point Units 6 and 7 site can meet licensing criteria for disposal of the radioactive waste it generates. A likely and completely realistic scenario is that the waste generated by Turkey Point Nuclear Units 6 and 7 reactors will not leave the site.

7. In its application, FPL has failed to address how its Class B, C and Greater-Than-C “low-level” radioactive waste will be disposed according to NRC regulations. Some of the wastes in the “low-level” category will remain radioactively hazardous well beyond the 60 year storage plan described for some of the waste. This could significantly affect the health, safety and security of the site. Serious consideration must be given to meeting the NRC criteria for nuclear waste disposal at 10 CFR 61 or Florida’s compatible Agreement State regulations.

8. Absent any known licensed disposal for Classes B, C and Greater-Than-C radioactive waste to which FPL has access, the applicant must analyze the impacts of

alternatives for its “low-level” radioactive waste disposal. The application is incomplete because there is no "realistic" alternative for nuclear waste isolation and disposal proposed. Although onsite storage is discussed, this is not final disposal of Class B, C or Greater-Than-C wastes, which will be generated by Turkey Point Nuclear Units 6 and 7 reactors.

9. Some so-called “low-level” radioactive waste can give high doses of radiation if one is exposed unshielded. According to the Government Accounting Office (GAO/RCED-98-40R Questions on Ward Valley, 5-22-98 pp. 49-52) some so-called ‘low-level’ radioactive waste can give a lethal dose at one meter, unshielded, in approximately 20 minutes. In addition, so-called ‘low-level’ radioactive wastes

> “contain every radionuclide found in ‘high-level’ radioactive waste…low-level radioactive wastes constitute a very broad category containing many different types and concentrations of radionuclides, including the same radionuclides that may be found in high-level radioactive wastes.”

These include plutonium-239 (hazardous life 250 to 500 thousand years), iodine-129 (hazardous life 170 to 340 million years), strontium 90 (hazardous life 280-560 years) and cesium-137 (hazardous life 300 to 600 years).

It is imperative that the safety and security issues of permanent on-site storage/de-facto disposal of radioactive waste be addressed in FPL’s COL application.

10. The assumption appears to be that there will be a site that accepts the full range of waste generated at Turkey Point Nuclear Units 6 and 7. The Process Control Program, while explaining temporary storage, does not explain how the application will comply with the need for permanent disposal of long-lasting radioactive in the absence of licensed disposal facilities for Classes B, C and Greater-Than-C waste. Even waste sent offsite to vendors, could be returned for storage in the absence of permanent disposal. The unsubstantiated assumption is made that the vendor will render all waste suitable for some offsite disposal site.

Operational Status of so-called "low-level" radioactive waste (LLRW) disposal sites in the United States

11. Currently, there are only two operating commercial facilities that dispose of Classes A, B, and C LLRW: US Ecology at Hanford, near Richland, Washington; and EnergySolutions in
Barnwell, South Carolina. EnergySolutions in Clive, Utah, is licensed to dispose of Class A waste and cannot take Class B or C. The Richland and Barnwell facilities can take LLRW only from the Northwest, Rocky Mountain, and Atlantic compacts. Waste Control Specialists (WCS) has a license to store a limited amount of waste (see below) but can dispose of waste only from the Texas-Vermont Compact when its license is approved and it overcomes other outstanding hurdles (see below). [There is nowhere to dispose of Greater-Than-C "low-level" radioactive waste.]

Limitations on the Disposal Capacity of Waste Control Specialists (WCS)

12. WCS holds a license (License R04100) which would permit it to dispose of LLRW generated inside the Texas-Vermont LLRW Disposal Compact. The facility is not authorized to accept LLRW from outside the two states that comprise the Compact. The Texas-Vermont Compact Commission is currently considering whether to adopt rules that could allow the importation of additional LLRW from outside the Compact. Proposed Rule for 31 TAC §§ 675.21-675.23, published at 35 Tex. Reg. 1028 on February 12, 2010.

13. WCS is not currently disposing of commercial LLRW, because License R04100 has several conditions which remain unfulfilled. According to the regulator, the Texas Commission on Environmental Quality (TCEQ), "[c]onstruction may not begin until several preconstruction license conditions are completed and approved by the executive

director. Once construction is approved and completed, additional conditions of the license must be met prior to commencement of disposal."[1]

14. Several pending lawsuits create uncertainty about when and under what terms the WCS facility may open for disposal of LLRW. See Sierra Club v. Texas Commission on Environmental Quality, No. D-1-GN-09-000660 (250th Dist. Ct., Travis County, Texas. March 2, 2009); Sierra Club v. Texas Commission on Environmental Quality, No. D-1-GN-09-000894 (98th Dist. Ct., Travis County, Texas. March 19, 2009); Sierra Club v. Texas Commission on Environmental Quality, No. D-1-GN-09-003492 (200th Dist. Ct., Travis County, Texas. October 7, 2009); Sierra Club v. Texas Commission on Environmental Quality, No. D-1-GN-09-004020 (261st Dist. Ct., Travis County, Texas. November 24, 2009). An Andrews County election for the issuance of a bond to build the WCS facility is also under legal challenge. Pryor vs. Dolgener, County Judge of Andrews County, No. 08-09-00284 CV, Texas 8th Court of Appeals from the 109th Judicial District of Andrews County Texas, Cause No. 17,988 has been appealed to the Texas Supreme Court.

Limitations on Storage Capacity of WCS

15. WCS also holds a license for the processing and storage of LLRW (License R04971).
The License was due to expire in 2004, but it is still in effect because of WCS' timely application for renewal. WCS' renewal application currently is under review by the TCEQ.

16. Even if License R04971 for storage is renewed with the present terms, there are limitations on the quantity of LLRW that can be stored by WCS and the duration for which it can be stored.

---

[1] From TCEQ website: Waste Control Specialists LLC License Application for Low-Level Radioactive Waste Disposal, Current Status of this Application
http://www.tceq.state.tx.us/permitting/radmat/licensing/wcs_license_app.html#wcs_status

17. For instance, paragraph 23.B of the License requires that within 365 days of arrival at WCS, all LLRW must be placed in interim storage or transferred to an authorized recipient. Waste that is there longer has been determined to be in violation of the storage license by TCEQ, the Texas regulator.

18. Paragraphs 7A and 7C of the License also limit LLRW storage at WCS to 2,255,000 curies. Given that WCS is the only offsite facility available for storage of Class B and C waste, that radioactivity limit could be exceeded in just a few years by Class B and C waste that is being generated by facilities without access to disposal. I believe that the storage capacity at WCS could be exceeded well before Turkey Point Units 6& 7 begin operation.

19. The operators of Turkey Point Units 6 & 7 will not be the only nuclear utilities needing storage for Class B and C LLRW. While the Clive, Utah, site can accept Class A LLRW from across the country (outside of the NW and Rocky Mountain Compacts), only the generators in the Northwest, Rocky Mountain and Atlantic Compacts (which have access to the Richland, WA and Barnwell, SC facilities for LLRW disposal) currently have a disposal path for Class B and C waste. If one assumes that a license will be granted to WCS for commercial waste disposal and that WCS will eventually meet all the other conditions and overcome all legal challenges – which is by no means assured – then Texas and Vermont Class B and C waste will also have a disposal path. All of the nuclear power reactor operators in the states without access to Class B and C disposal will be in an increasingly problematic situation. Hence the viability of the applicant's proposal to store waste at WCS must be analyzed in the context of all Class B and C generators in all states outside of the ones with a disposal path. Let us call these 'no-disposal-path' states for convenience in the rest of this declaration.

20. I looked at the amounts of Class B and C LLRW sent for disposal from nuclear generators in the 'no-disposal-path' states. I used past data as posted on the Department of Energy (DOE) Manifest Information Management System (MIMS) website (http://mims.apps.em.doe.gov/), which allows computation of data for specific sites,

volumes and radioactivity as well as specific compacts and states. All sites except Barnwell have been closed to the 'no-disposal-path' states in recent years. On July 1, 2008, the Barnwell site was closed to these states as well. The total amount of Class B and C waste disposed of at Barnwell by these states over a nine-year period ending on June 30, 2008 was about 4.6 million curies, or about 515,000 curies per year. About 95 percent of this radioactivity came from utilities (spreadsheets attached as Attachment B). At this rate, even if there were no non-utility generators or new reactors, the storage capacity of the WCS site would run out in less than 5 years. If at least some of the recently submitted license applications are approved and result in new operating reactors, the storage capacity would run out sooner, in the absence of a disposal site for the 'no-disposal-path' states.

21. Based on the facts and available data, I conclude that the assumption that offsite storage space will be available for the new reactors for the license period or anything close to it at WCS is unwarranted.

Limitations on the Storage Capacity of Studsvik

22. Studsvik holds Material License R-86011-E17 for the processing of LLRW. The Studsvik License contains provisions that rule out the use of that site for long-term storage. Specifically, Paragraph 17 of the License limits the duration of the storage period to 365 days.

Paragraph 24 requires that Studsvik "establish in every contractual obligation relating to radioactive materials the ability to return the radioactive materials, processed or unprocessed, to the prior licensed or exempt processor." *Thus even if Studsvik takes title to the LLRW, it has the right to send it back to the generator and, in any event, may not keep it for more than a year. In view of these limitations, Studsvik is not a plausible option for storage of accumulating Class B and C wastes for existing or new nuclear power reactors.*

Delays and Limitations on LLRW Disposal Capacity

23. FP&L claims that it has the capacity to store Turkey Point Units 6 & 7's LLRW onsite for about 2 years. But 2 years is not nearly a sufficient period of time to accommodate the potential delay in the availability of offsite LLRW disposal capacity. Currently, there is no LLRW disposal facility that can accept Class B and C radioactive waste from Turkey Point. WCS disposal is not an option that FP&L can rely on because WCS is not accepting LLRW from any state at this time and because under its current disposal license it cannot accept LLRW from outside the Texas-Vermont Compact.

24. Even if WCS begins disposing of LLRW and even if it receives permission to accept LLRW from outside the Texas-Vermont Compact, it cannot be relied on for disposal of LLRW beyond the immediate future due to its limited storage and disposal capacity.

25. The licensed disposal capacity of the WCS commercial facility is 2.31 million cubic feet.

The Compact States (Texas and Vermont) have estimated their combined need for LLRW disposal under the Compact at 6 million cubic feet: 5 million for Texas and 1 million for Vermont. Adopted Rules, 34 Tex. Reg. 6341 (September 11, 2009); Vermont Health and Safety Code Chapter 403, Sec. 3.04 (11).[2] The total needed storage capacity of 6,000,000 cubic feet, as estimated by the Compact States, exceeds currently licensed capacity under the Compact.

Therefore, the WCS facility does not have the capacity to dispose of LLRW generated at Turkey Point or at any reactor outside the Texas-Vermont Compact. While WCS could in

[2] The Vermont Code states: "The shipments of low-level radioactive waste from all nonhost party states shall not exceed 20 percent of the volume estimated to be disposed of by the host state during the 50-years period." The Proposed Volume Rule states: "Vermont indicated that its needs would probably meet or exceed 1,000,000 cubic feet of capacity based on observed experiences during decommissioning of the Maine Yankee generating facility. There are similar decommissioning requirements in Vermont that indicate the volume could be similar to that generated in the Maine decommissioning process." 34 Tex. Reg. 4279.

theory apply for a license modification to allow for more waste disposal, basing a disposal strategy on such an assumption for an-out-of-compact state would be speculative at best, since WCS does not even have an *operating* site for disposal for a much smaller amount of commercial LLRW within the Texas-Vermont Compact.

26. Because of the longevity of much of the radioactivity of LLRW and the history of problems at closed LLRW disposal sites, new facilities have been and will continue to be extremely difficult, time-consuming, and expensive. Since the 1980 passage of the Low Level Radioactive Waste Policy Act passed, there have been many siting efforts that have yielded no new full service facilities. According to a 1999 GAO Report: "[s]tates acting alone or within Compacts of two or more, have collectively spent $600 million over the last 18 years attempting to find and develop about 10 sites for disposing of commercially generated low-level radioactive wastes." Yet, states' efforts to license new facilities "have come to a standstill." [3] My own experience has been that localities and states have prevented approximately 40 proposed "low-level" radioactive waste disposal sites in at least 18 states since the siting effort began with the 1980 Low Level Radioactive Waste Policy Act [Public Law 96-573]. In Texas alone several have been stopped. Although nuclear waste generators may be hopeful that a disposal site will open for them, and remain open, it is by no means a certainty.

Onsite Storage and Processing

27. Referring to guidance documents (such as NUREG-0800 and other NRC and industry guidance) does not substitute for specific plans for onsite storage and management at the Turkey Point site. FP&L fails to provide a realistic plan for its "low-level" radioactive waste. FP&L in its licensing documents and the AP 1000 DCD indicates that Turkey Point 6 & 7 can temporarily store "low-level" radioactive waste for about 2 years if offsite disposal is unavailable but fails to specify what happens after that, for how long and which storage and minimization options included in the various guidance documents it will in fact pursue.

---

[3] GAO/RCED 99-238, ***Low-Level Radioactive Wastes: States Are Not Developing Disposal Facilities***, page 26.

28. The applicant must provide greater detail about the amount of waste, its condition, the processes it will undergo, how it will be stored and where, considering the likelihood that extended onsite waste management will be necessary. Will storage be in buildings, and if so what will the structures be? If outside, exposed to the elements, how will safety and security be assured? Where will the storage area or building(s) be located? Will they be within the "protected" area? What treatment options will be carried out onsite and where? Simply referring to generic guidance documents does not substitute for responsible planning for virtually inevitable waste management needs at this specific site. There are important basic plans for management and longer term storage of radioactive waste and the accompanying details that need to be provided, considered and evaluated before the radioactive waste is generated.

29. FP&L cannot show that it meets any of the standards without supplying details regarding how the waste will be managed and stored. FP&L has not shown that it will meet the provisions of applicable regulations including 10 CFR 20, 10 CFR 30, 10 CFR 50, 10 CFR 10 CFR 61, 10 CFR 71, 40 CFR 190 and 49 CFR 171-180 with regard to the radioactive waste Turkey Point 6 & 7 will produce. Site-specific weather, climatic, social and other conditions will affect the safety and acceptability of the options FP&L chooses. These must be identified and evaluated before the waste is permitted to be generated. This site has already had challenges to the integrity of its LLRW storage and these could be massively exacerbated with more frequent and stronger storms, hurricanes, rising water, and other environmental, security and safety related problems.

30. We need to know how much waste will be processed and stored, what processing will be done, the kind of containers that would be used and how they are certified for storage and transport. Without specifying which of the NUREG-0800 and other guidance options FP&L intends to use for processing, management and storage compliance cannot be evaluated or assured by the public or the NRC.

31. FP&L fails to specify, if waste minimization is to be employed, which processes they expect to implement. Granting a COL for reactor operation does not automatically guarantee that all treatment and long-term storage options are acceptable and will comply with the regulations. We are concerned that some processing such as incineration and accumulated large amounts of radioactive waste could affect safety, environment and exposure rates.

32. If the COL is approved and the reactors operate, a given amount of source term in radioactive waste will be generated, as well as hazardous waste. Synergistic health and physical chemical impacts have not been considered or evaluated.

33. How FP&L chooses to distribute that source term generated by Turkey Point 6 & 7 in terms of waste form, routine releases to air and water, liquid, gaseous and solid radioactive waste affects the ability to meet the regulations. Long-lasting radioactive and hazardous and mixed waste will be generated. FP&L has not met necessary requirements for managing or allowing evaluation of management of that waste.

34. The special location of the site on water deserves deeper evaluation from the perspective of exorbitant water use, to potential contamination by routine releases and unintended possible radioactive and heat releases from reactor and waste processing, treatment and/or storage operations. The fact that there is another reactor in the same watershed should be factored in.

35. The risk of ever-stronger hurricanes in this location and consequences of dispersal of the large amounts of radioactivity that would accumulate as all the Class B, C and Greater than C waste is stored onsite has not been adequately addressed.

36. There is no justification provided for producing long-lasting, intensely radioactive wastes for which no disposal exists. There is no realistic plan for isolation of the wastes or permanent disposal of the wastes. Considering the long history of failed so-

called “low-level” radioactive waste disposal sites in the country, assumptions that new ones will be available are not justified.

Conclusion

37. There is no offsite **disposal** available for FP&L at present and none is on the horizon. The above analysis shows that FP&L does not have a reasonably assured path for long-term offsite storage or disposal. This leaves long-term onsite storage as the only remaining option. FP&L is relying on undependable access to non-existent offsite storage and disposal.

38. Storage of Class B and C (and Greater-Than-C) waste generated over decades at a reactor site is without precedent. In view of the unprecedented nature of such storage, it is essential that FP&L provide the design of the storage facility and any plans for onsite processing including incineration or pyroprocessing as part of the COLA and demonstrate the safety and long-term integrity as part of the COLA process.

I declare that the foregoing facts are true and correct to the best of my knowledge and that the statements of opinion are based on my best professional judgment.

_____/s/_____ August 17, 2010

Diane D’Arrigo Date