**UNITED STATES OF AMERICA**
**NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Florida Power & Light Company | ) | Docket Nos. 52-040-COL |
| | ) | 52-041-COL |
| (Turkey Point Units 6 and 7) | ) | |
| | ) | ASLBP No. 10-903-02-COL |
| (Combined License) | ) | |

**CASE Reply to Florida Power & Light Company's Answer Opposing Citizens Allied for Safe Energy, Inc.'s Revised Petition to Intervene and Request for Hearing In Turkey Point Units 6 and 7 Combined Construction and Operating License Application**

September, 29, 2010

## BACKGROUND

On August 20, 2010 Citizens Allied for Safe Energy, Iinc (CASE) filed pro se a Revised Petition to Intervene and Request for Hearing In Turkey Point Units 6 and 7 Combined Construction and Operating License Application through the NRC's EIE system. On September 13, 2010 FPL filed an answer opposing that petition. This document is CASE's reply to that answer.

CASE is a Florida non-profit corporation formed to oppose the licensure and construction of two Westinghouse AP1000 Nuclear Reactors at Turkey Point, Florida and to advocate for the safe and sustainable use of renewable energy, distributed production of energy as well as energy conservation at the point of use and energy efficiency at the point of production. CASE has no paid staff and all contributors, advisors and consultants to all parts of this petition do so voluntarily without compensation. CASE has approximately 125 members and twenty-five of them completed declarations in support of its petition which were filed through the EIE system. Most members live within 50 miles of Turkey Point and many live much closer.

## EXPLANATORY NOTE

In this reply CASE will not address the matter of the timeliness of CASE's filing of its Revised (termed Amended by the NRC Staff) Petition or the admissibility of Contention 8. The Original CASE Petition was filed on August 17, 2010 with the Office of the Secretary because the EIE System was technically unavailable after 10:22 PM and was filled through

the EIE System on August 18, 2010 when it became available. The Revised petition was filed on August 20, 2010 correcting typographical errors and clerical omissions. These matters are explained and discussed in "Citizens for Safe Energy, Inc. response to Florida Power & Light Company's Motion to Strike Proposed Contention 8 in CASE's Revised Petition to Intervene in Turkey Point Units 6 and 7 Combined Construction and Operating License Application" which was filed for adjudication through the EIE System with proper notification and distribution to all parties on September 20, 2010.

## DISCUSSION

These proceedings are concerned with safety. CASE is not challenging the design of the AP1000 reactor. Rather, CASE is concerned with the impact the operation of the reactors in situ. The reactors may be elegent pieces of machinery but Turkey Point as a place to produce energy has outgrown the land and there are too many people living close by, too much rare and endangered flora and fauna, and not enough water. The safety and health of our citizens will be compromised by continued, cumulative exposure to aerosol in the air they breathe and on the food they eat, by challenges to their sources and quality of water including salt water intrusion, and, should a nuclear event occur, or even be rumored, their chances of survival or safe escape from harm's way.

Placing new intstallations in the path of potential natural disasters such as hurricanes and storm surges and on land which will be inundated within this century due to rising sea levels and on land that is already mostly below

sea level seems, at best, ill advised. The AP1000 reactors might be just fine but put them somewhere else or, better, find a way not to need them. Building monolithic sources of energy which must then be carried over power lines is nineteenth century technology. New models of distributed production of energy such as PACE, the Gainesville Model or leased units with energy produced at the point of usage is the present and should be the future. We understand the Commission also has an option of recommending alternative energy sources. We also understand that FPL is the major producer of solar energy in the nation; maybe a new business model is in order. Energy conservation of just 10% would obviate the need for new power plants in South Florida, ever.

FPL has not challenged CASE's standing in this matter but opposes all eight contentions.

CASE requests that all eight contentions be admitted to these procedings and that a hearing be held so the matters and concerns they raise can be discussed fully.

# CONTENTIONS

**CONTENTION 1 -- FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO PROVIDE FOR AN ADEQUATE PUBLIC SAFETY PLAN**

**CONTENTION 2 -- FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO PROVIDE FOR THE SAFE AND ORDERLY EVACUATION OF THE POPULATION DURING OR FOLLOWING A NUCLEAR EVENT (UNUSUAL NUCLEAR OCCURANCE)**

**CONTENTION 3 -- FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 BY RELEASING AEROSOL WITH 471.6 TONS OF PARTICULATES INTO THE ATMOSPHERE ANNUALLY**

**CONTENTION 4 - FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO ADEQUATLY CONSIDER AND PLAN FOR ACCIDENTS INVOLVING RADIOACTIVE MATERIALS**

**CONTENTION 5 – FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 ANALYSIS TO CONSIDER OR INCORPORATE ANY SCIENTIFICALLY VALID PROJECTION FOR SEA LEVEL RISEAND CLIMATE CHANGE THROUGH THE END OF THIS CENTURY AND BEYOND.**

**CONTENTION 6 - FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO CONSIDER THE ENVIRONMENTAL IMPACT OF EXTENDED STORAGE OF SO-CALLED “LOW-LEVEL” WASTE AT TURKEY POINT AS REGARD TO PUBLIC SAFETY**

**CONTENTION 7 - FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO CONSIDER TO INCLUDE A SO-CALLED “LOW-LEVEL” RADIOACTIVE WASTE EXTENDED STORAGE PLAN**

**CONTENTION 8 - A REQUEST THAT NRC DENY THE REQUEST FROM FPL TO BEGIN CONSTRUCTION OF THE NON-NUCLEAR PORTIONS OF THIS PROJECT (LIMITED WORK AUTHORIZATION, LWA).**

## CASE REPLY TO FPL COMMENTS

### CONTENTION 1 -- FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO PROVIDE FOR AN ADEQUATE PUBLIC SAFETY PLAN

**1. Evacuation plans are not adequate for timely evacuation of all the people who could be affected in an accidental radiation release.**

FPL states at 18: Such an allegation must be rejected as a challenge to the NRC regulations, which require only planning for the potential evacuation of individuals within the ten-mile Plume Exposure Pathway Emergency Planning Zone ("EPZ"). 10 C.F.R. §§ 50.47(b)(10) and (c)(2); Appendix E to 10 C.F.R. Part 50.9 By implying that evacuation planning is required beyond the Plume Exposure Pathway EPZ, Petitioner is improperly attempting to collaterally attack the Commission's regulations.

CASE reply:

FPL's Radiological Emergency Plan, filed as part of their COL defines a "general emergency" as:

> "General Emergency: Events are in process or have occurred that involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area."

To assure public safety in the event of a general emergency at the TPN site, people living nearby must be protected from exposure to radioisotopes released into the environment. Two mechanisms are proposed, evacuation, and "shelter

in place". This section addresses evacuation. For evacuation to protect people from exposure to atmospheric release of radiation, people must leave the area before being exposed.

The area of official concern is defined as an Emergency Planning Zone (EPZ) consisting of an area 10 miles in radius centered on the nuclear facility at Turkey Point. In the event of a general emergency, part or all of the EPZ may be evacuated.

Evacuating during a general emergency would protect people from exposure to radiation provided they could clear the area before radiation was released, or in 65 minutes or less in the event that they began their exodus the instant radiation begun to escape the affected reactor. So how long do FPL's consultants estimate it would take to clear the 10-mile EPZ?

A detailed evacuation plan of the 10-mile EPZ around Turkey Point has been prepared by consultants for FPL: Supplemental Information 1 - Turkey Point Units 6 & 7 Evacuation Time Estimate (Rev. 0, March 2009) Part 05 Sup01 ETE

FPL's evacuation plan takes into consideration the number of people who must be evacuated from the EPZ under different scenarios, their transportation options, typical road and traffic conditions throughout the county at different times of day, and a few conditions that might complicate evacuation. An enormous amount of work went into this plan, which estimates time for partial and complete evacuation of the EPZ.

Evacuation Time Estimates (ETEs) vary according to the wind direction and the fraction of the EPZ for which evacuation would be recommended. In their "what if" analyses, the consultants generally assume good weather and low midday traffic. They do however provide estimates for all possible evacuation areas

under a variety of scenarios that range from sun to rain, and commuter traffic to weekends. They also provide ETE figures ranging from 50% to 100% of the EPZ population.
ETEs for Region R11 (p306) Fig H-11 are provided in ETE tables (pp 322-325):

| | |
|---|---|
| 90% evacuation | 6:15 – 9:50 h |
| 95% evacuation | 6:45 – 10:40 h |
| 100% evacuation | 7:20 – 11:40 h |

Assuming their estimates are correct, it would take between 6 and 11 hours to evacuate 95% of the people residing in the EPZ. The consultants observe that these calculations are complicated by other sources of traffic that would affect exit times from the EPZ:

1. Pass-through Demand – traffic normally passing through the EPZ on any given day, but not originating in the EPZ – does congest traffic somewhat but these figures are included in the estimated ETE. The consultants use 50% of peak daily flow as estimate of extra cars passing through EPZ.

2. Shadow Region (p312), consisting of the area from Everglades National park to SW 152 St (Coral Reef Drive). The concern is that some fraction of people outside the mandatory evacuation zone would chose to evacuate even if not told to do so. The consultants provide estimates of effect on traffic up to 60% evacuation. They do not give population figures, but estimate the number of vehicles at total number of vehicles at 68,340, slightly less than the 88,856 vehicles estimated in the EPZ. This number is not explained or justified. Frankly the low estimated population in the shadow region is implausible given the comparative land areas and population densities. The shadow area includes extensive recent

suburban development over a far larger land area than the EPZ itself. Thus, the consultants' estimated addition of a mere 35 minutes to EPZ evacuation time to the existing 6-12h evacuation estimate for the EPZ alone is not a believable figure. Nor did the consultants' report consider whether people in the Florida Keys would chose to evacuate. Their only evacuation route takes them right through the EPZ.

3. The Homestead-Miami Speedway (p309) NASCAR races attracts up to 100,000 people in 32,600 vehicles. Evacuation during a race would add up to 4:15 h to the ETE. This increase would likely occur on a weekend, when normal traffic is not at its heaviest.

4. Florida International University (FIU) commuter traffic – while the consultants considered routes and nodes up to Miami-Dade County's designated nuclear emergency evacuation site at Tamiami Park, they did not consider the traffic created by the 30,000 Florida International University students who commute to the Modesto A. Maidique campus adjacent to the park. In 2008, morning commuters frequently took 45 minutes to drive three miles from SW 88$^{th}$ St up to SW 40$^{th}$ St. By autumn of 2010, with increasing student enrollments, this time has increased to an hour. University admissions are projected to increase another 50%. It's not by chance that the county fair, held at Tamiami Park, coincides with FIU spring break when the university is not in session. If a general emergency were declared during the morning commute, it would take an undetermined number of hours to clear extra flow of northbound cars.

Other aspects of the emergency response are tested in live drills. However the ETEs proposed are based on computer simulations but have never been tested in a live drill to determine if the assumptions are valid and sufficient.

The upper bound of 11:40 hours to evacuate 95% of residents from the EPZ does not take into account the realistic population in the Shadow Region, nor the increasing northbound student traffic into the region of the evacuation shelter at Tamiami Park.

But even taking the ETE study at face value, we need to ask whether 6-12 hours is a realistic time to assure the safety of evacuees during a general emergency. Everything depends on whether radiation has already begun to leak from the containment vessel and how long it takes to initiate evacuation.

Following a seven-step chain of command detailed in the Florida Dept Emergency Management 2008 Statewide Emergency Shelter Plan, the public might eventually be notified of the decision to evacuate the EPZ. If each step in the chain is afforded 10 minutes, the public can expect to be notified 70 minutes after the initial discovery of a general emergency. These figures are conservative - FPL has 15 minutes to report an emergency to the State Watch Office.

A key question then is whether containment has already failed, or when it will fail. If it has already failed, then evacuation will begin too late to prevent exposure to radiation. If containment fails within the evacuation period of 6-12 hours, some fraction of the evacuating population would be exposed to radiation as they attempt to escape the moving invisible radiation cloud.

2. Evacuation screening and shelter provisions lack capacity for the number of people living in the evacuation zone. FPL's ETE plan estimates the 2009 population of the 10-mile EPZ at 187,374 residents plus an additional 19,055 transients for a total of 206,429 people. Of these 15,577 residents have no transportation of their own and would have to be transported from the area by government.

A detailed evacuation plan of the 10-mile EPZ around Turkey Point has been prepared by consultants for FPL: Supplemental Information 1 - Turkey Point Units 6 & 7 Evacuation Time Estimate (Rev. 0, March 2009) Part 05 Sup01 ETE

FPL's evacuation plan takes into consideration the number of people who must be evacuated from the EPZ under different scenarios, their transportation options, typical road and traffic conditions throughout the county at different times of day, and a few conditions that might complicate evacuation. An enormous amount of work went into this plan, which estimates time for partial and complete evacuation of the EPZ.

An assumption not addressed in the plan is the wind speed, except as it determines whether to evacuate out to 5 or 10 miles around the plant during a general emergency. However wind speed does determine how long a radiation cloud takes to cover a given distance. Over the past 53 years, the National Weather Service has measured the average wind speed to be 9.2 mph. http://lwf.ncdc.noaa.gov/oa/climate/online/ccd/avgwind.html
In other words, following a radiation release during a general emergency, radiation would reach the perimeter of the 10-mile EPZ in 65 minutes on average. All evacuation plans (State, County, FPL) direct evacuees to just two Emergency Reception Centers (ERCs) where they will be screened for radiation exposure and possibly washed and treated with potassium iodide. These are the Tamiami Park ERC adjacent to Florida International University in Miami Dade County, and the Key Largo Elementary School ERC in Monroe County.

According to the State of Florida Radiological Emergency Management Plan, the Tamiami Park ERC has a capacity of 5000 and the Key Largo ERC has a capacity of 1435 for a total ECR capacity of 6435. However according to the Florida Department of Emergency Management 2008 Statewide Emergency Shelter Plan, these two shelters have capacity for 1000 and 87 people

respectively for a total capacity of 1087. The discrepancy between the two State of Florida emergency documents is not explained in either document.

Additional shelters other than the two ERCs are not listed in FPL's COL, nor on the primary materials distributed to people residing within the EPZ, e.g., the FPL pamphlet entitled "Safety planning information for neighbors of FPL's Nuclear Power Plant", effective Dec. 2009. That pamphlet only directs people to the two ERCs. Additional shelters are designated in the State of Florida Radiological Emergency Management Plan for temporary sheltering of up to 60,769 evacuees, only 29% of the number of people FPL estimates to be in the 10-mile EPZ. The State plan leaves up to 145,660 planned evacuees (71%) with no shelters and no plan for their care.

4. Potassium iodide cannot be delivered in a timely manner to provide best protection from thyroid cancer.

The FPL answer to this assertion in the CASE Petition to intervene states at 23: " NRC regulations do not require that KI be distributed in the event of a radiological accident but only that the emergency plans for the licensee and offsite organizations develop a range of protective actions for the plume exposure pathway EPZ for emergency workers and the public, including "evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropraite." 10 C.F.R 50.47 (b) (10) .

CASE Reply:

Potassium iodide treatment blocks the uptake of radioactive isotopes of iodine by the thyroid gland. The World Health Organization considers potassium iodide prophylaxis to be critical in children and pregnant women who are most at

risk of thyroid cancer from exposure to radioiodines caused by a radiation release from a nuclear reactor. The World Health Organization Guidelines for Iodine Prophylaxis following Nuclear Accidents states:

> "The sensitivity of the child's thyroid to the carcinogenic effects of radiation represents a significant public health risk in the event of exposure to radioactive iodine. With effective planning and the use of stable iodine prophylaxis, in association with other preventive measures, this risk is to a large degree avoidable."

The WHO further notes that treatment of children with potassium iodine is credited with saving thousands of children in Poland from radioiodine exposure during and following the Chernobyl accident.

Potassium iodide is not pre-distributed in Miami-Dade County, Florida, but is stored at the Modesto Maididque Campus of Florida International University, 20 miles from the Turkey Point EPZ. In Safety Planning Information for Neighbors of FPL's Turkey Point Nuclear Power Plant, FPL explains:

> "If conditions warrant, the Florida Health Department will make potassium iodide available at the reception centers."

According to both the NRC and the World Health Organization, to achieve protection from atmospheric release of radioactive iodine (I-131), potassium iodide should be ingested <u>prior</u> to encountering the radiation cloud. Quoting the NRC:

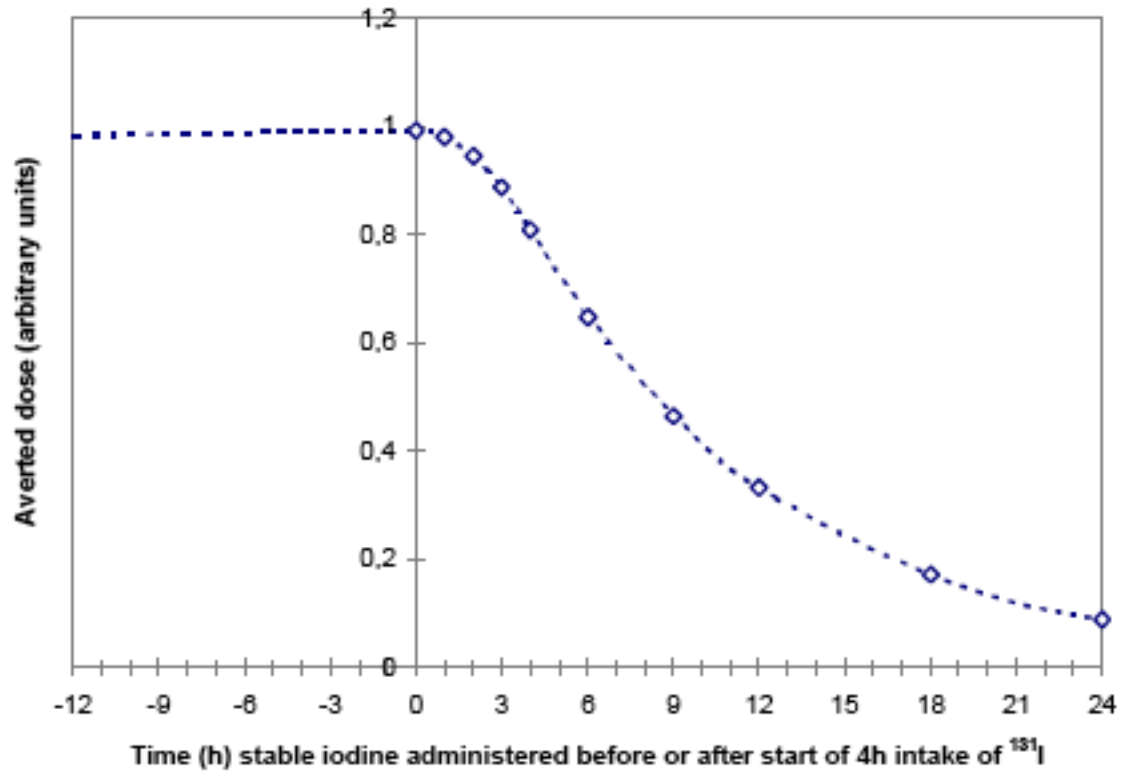
> "If radioactive iodine is taken into the body after consumption of potassium iodide, it will be rapidly excreted from the body."

Quoting the World Health Organization Guidelines for Iodine Prophylaxis following Nuclear Accidents:

> "To obtain full effectiveness of stable iodine for thyroidal blocking requires that it be administered shortly before exposure or as soon after as possible."

The World Health Organization Guidelines for Iodine Prophylaxis following Nuclear Accidents provides the following graph:

Fig. 1. Averted dose as a function of time stable iodine is administered relative to a 4-h intake of $^{131}$I for different dietary iodine intakes




The graph shows that the protective benefits of potassium iodide administration

drops off with time after exposure. For instance, potassium iodide taken before exposure, or even one hour after exposure, affords full protection against radioiodine inhalation. However, by 9 hours, the protection is only 50%. We must recognize that the evacuation time does not include the unknown wait time until screening and potassium iodide administration of evacuees at the ERCs. Thus, under the evacuation estimates provided by FPL, if potassium iodide administration were necessary because people were exposed to radioiodines before or during evacuation, potassium iodide would be administered too late to provide adequate protection to the 32,000 children in the EPZ.

The county has no effective plan to transport potassium iodide from the FIU campus to residents who shelter in-place in their houses or businesses prior to their exposure from a moving radiation cloud.

In-Place Sheltering – The State and County emergency plans call for "In-Place Sheltering" as an alternative to evacuation in a general emergency if radiation has already begun to escape and emergency directors believe that evacuation would increase exposure risks. The *Miami-Dade County, Florida Department of Emergency Management & Homeland Security – Radiological Emergency Preparedness Program – Planning Guidelines for Special Facilities* states:

> *"In-place sheltering protects individuals from becoming contaminated with radioactive material emanating from a release at the Plant. Individuals will be instructed to seek shelter inside buildings or homes, close all doors, windows or other external openings in the structure, and remain inside until otherwise instructed by the authorities. In most instances, air conditioning shut-off would not be necessary. EAS messages and press releases will contain specific guidance on appropriate protective measures. In-place sheltering would typically be done for areas that are not directly downwind from the Plant. In a quickly evolving accident, in-place sheltering may be considered a primary protective action strategy where the populace would be in greater danger*

*from attempting an evacuation than from the exposures to radiation that may be received from a release."*

The Miami-Dade County Public School system has well-planned shelter in place scheme worked out as well.

However, potassium iodine has not been pre-distributed to houses and schools. Thus people, and especially children, who shelter in-place must be absolutely protected from radiation exposure.

According to the EPA *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents,* the effectiveness of shelter in-place varies by building type.

*Wooden house – 10% reduction in exposure*
*Masonry house – 40% reduction in exposure*
*Large office or industrial building – 90% reduction in exposure*

Most houses in Miami-Dade County are constructed of masonry. Thus with a 40% reduction in radiation exposure, an hour sheltering at home is equivalent to 36 minutes outdoors, and 10 hours indoors is equivalent to 6 hours outdoors. In-place sheltering might provide effective exposure reduction in a hospital or school cafeteria, but not in people's houses.

The decision at the state level not to pre-distribute potassium iodine to residents and schools (as is done elsewhere in the United States) obviates much of the potential benefit of in-place sheltering. Further the lengthy time to distribute potassium iodide at the ERCs greatly increases risk of thyroid cancer to children and the unborn. Thus, the placement and the improbability, and even the impossibltiy ot timely distribution, of KI is a fatal flaw in the emergency plans for Turkey Point, present and future.

This analysis was prepared by Dr. Philip Stoddard, professor of biology at Florida International University. He is a leading researcher in biological science.

For these reasons, CASE requests that Contention 1 be admitted and that at a hearing on this subject held.

---

**Documents Cited for Contention 1:**


FLORIDA POWER & LIGHT, COMPANY

*Turkey Point Units 6 & 7 COL Application part 5*

*Turkey Point Plant Radiological Emergency Plan For Turkey Point Units 6 & 7*

*Supplemental Information 1 - Turkey Point Units 6 & 7 Evacuation Time Estimate (Rev. 0, March 2009) Part 05 Sup01 ETE*

*Safety Planning Information for Neighbors of FPL's Turkey Point Nuclear Power Plant, Revised Dec. 2009*

FRANCE, INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE

Tchernobyl : le nuage radioactif – concentration du césium 137 dans l'air au desus du sol (activité voluminique exprimée en $Bq/m^3$)

MIAMI-DADE COUNTY

*Miami-Dade County, Florida, Comprehensive Emergency Management Plan*

*Miami-Dade County, Florida Department of Emergency Management & Homeland Security – Radiological Emergency Preparedness Program – Planning Guidelines for Special Facilities Miami-Dade County Public Schools*

*Emergency Operations Plan Version 1.2, 08/20/07*

*Miami-Dade Office of Emergency Management - Nuclear Power Plant Emergency Preparedness Planning*

MONROE COUNTY

*Monroe Co. Radiological Emergency Preparedness Plan*

STATE OF FLORIDA

*Florida Dept Emergency Management 2008 Statewide Emergency Shelter Plan*

*State of Florida Radiological Emergency Management Plan & Annex A*

US Coast Guard

*Letter from Kenneth C Jones, Commander, Seventh Coast Guard District*

US Environmental Protection Agency

*EPA 400-r-92-001 Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*

US Nuclear Regulatory Commission

*§ 50.47 Emergency plans*

*Use of Potassium Iodide*

WORLD HEALTH ORGANIZATION

*WHO/SDE/PHE/99.6 - Guidelines for Iodine Prophylaxis following Nuclear Accidents, Update 1999 World Health Organization, Geneva*

**CONTENTION 2 -- FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO PROVIDE FOR THE SAFE AND ORDERLY EVACUATION OF THE POPULATION DURING OR FOLLOWING A NUCLEAR EVENT (UNUSUAL NUCLEAR OCCURANCE)**

FPL's answer to Contention 2 takes us to the point where theory, corporate self-interest and the profit motive collide with reality. We will address each point FPL raises in opposing this contention.

a**) FPL: "CASE (does not) provide any support for its claim that the evacuation times are 'too long'.** "

CASE reply: On average, there is a 9 MPH breeze in Florida. So, on average, it would take about an hour for a radioactive plume to traverse the 10 mile wide Plume Exposure Pathway (EPZ) and about five and one-half hours to cross the 50 mile wide Ingestion Exposure Pathway (EPZ). The FPL COL states that it will take fro 6 to 11.4 hours to evacuate 100% of the population plus up to six hours for some of the the population to prepare to evacuate. The State of Florida estimates it will take about 17 hours to evacuate the area, just about in line with the total evacuation time postulated in the COL.

So, when we evaluate this information and it shows that it is not possible to evacuate the population in time to take them out of harm's way, does that not indicate that the estimated evacuation time is "too long". There is no way to move this population fast enough to escape from a release of radioactive aerosol from Turkey Point. Anyone within 10 miles will most certainly be exposed within an hour, with in 50 miles within 5 ½ hours. They are trapped.

So, the reality on the ground tells us the theory, in this case, proves the point: - placing, or having, a nuclear reactor at Turkey Point ignores and endangers the health and safety of the surrounding population assuring certain exposure should an accident occur. This is contrary to the following requlatory requirements:

**§ 50.47 Emergency plans.**

(a)(1)(i) Except as provided in paragraph (d) of this section, no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

(ii) No initial combined license under part 52 of this chapter will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

(c)(1) Failure to meet the applicable standards set forth in paragraph (b) of this section may result in the Commission declining to issue an operating license;

And paragraph (b) is very detailed in its specificity:

(b) The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:

(b) The onsite and, except as provided in paragraph (d) of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:

(1) Primary responsibilities for emergency response by the nuclear

(10) A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to

evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed. (Emphasis added)

Because the FPL COL evacuation plan does not meet the requirements of 50.47 sited above. The evacuation plan has been shown to be unable to assure the timely evacuation of the population to safety, but, rather, guarantees that they will subjected to radiological exposure should an accident occur.

b) **FPL: "Case...argues that sheltering in place is not an acceptable alternative (despite NRC regulations requiring it), as appropriate."**

Sheltering in place. A quaint idea. Was this strategy conceptualized by the decendents of the authors of the cold-war instruction to school children to hide under their desks in the event of a nuclear bomb attack? Only people with no skin in the game could sit hundreds, if not thousands, of miles away from the wetlands and hammocks of sultry South Florida and prescribe such a procedure in the face of a radioactive event. We would point to the last two words of the FPL quotation: as approprate. If ever sheltering in place is not appropriate, it is in this situation.

c) **FPL: "CASE fails to point to any requirement for incorporating potential population increases when evaluating the ability to conduct a timely evacutation"**

CASE reply: This FPL answer at this point certainly challenges the

credibility of the entire NRC nuclear energy planning process. The FPL answer continues "…NUREG-0654 (does not require projecting) evacuation time estimates for future populations. … An ETE estimate based upon the snapshot of the population at the time the ETE study is prepared (sic); there is is no requirement that it incorporate a forecast of the population as of alater date…" Really? Can one imagine building a bridge with such planning and foresight? The COL predicts a 2080 population of 267, 281, an increase of 79,907, 42.6% greater than the 2009 population estimate or an increase of about 6% per year.

So, this means that the current estimates of evacuation time for the current population will obtain over time even as the population almost doubles over the possible life of Turkey Point reactors 6 & 7. How reassuring. At some point common sense and inferred and commonly understood planning measures must enter into such a complicated and extensive planning process. Providing for future population growth would seem to be one such instance. Elsewhere in the regulations and COL there are forward looking analyses; why not here?

### d) **FPL: "CASE…appears to challenge the ability to carry out evacuation as planned"**

CASE reply: Exactly. We would refer the reader to CASE's full argument on this point on pages 15 to 27 of the Revised Petition and especially to the five points made by Professors Zeigler and Johnson, to wit:

1. To plan for only a 10 mile evacuation is to significantly under plan for a nuclear power station accident.

2. To locate all public shelters and reception centers immediately beyond the 10-mile EPZ is to invite under-utilization and chaos.

3. To depend on buses to evacuate populations without cars (school children, the elderly, and prison and hospital populations) is to ignore role conflicts within the emergency personnel designated as drivers and vital to successful evacuation.

4. To package information for radiological accident emergency planning as similar to an emergency response to other disasters (i.e. hurricanes) is to ignore that there are major differences in how people respond to these very different events.

5. To expect to "manage" the evacuation response is not realistic.

Please look at the full quote on pages 24 and 25 of the Revised Petition to appreciate the insightful analysis by these two highly qualifed and distinguished researchers. Links to credentials:
Dr. Donald Zeigler http://www.odu.edu/al/pols-geog/faculty/dzeigler.htm
Dr. James Johnson, Jr http://www.cpc.unc.edu/people/cv/jjohnson.pdf

In perfunctorily dismissing the credentials of Professors Ziegler and Johsnson, FPL did not even consider the merit or relevance of their findings in these matters. CASE submits that the findings referenced above are imminently relevant , insightful and worthy of being held as a litmus test for application to the safe and effetive evacuation of hundreds of neighbors to Turkey Point. In so doing, it will be found that the plan is wanting and non-concurrent with NRC regulation 50.47 sited above.

For the reasons sited above the Board should admit Contention 2 and grant CASE's request for a hearing.

**CONTENTION 3 -- FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 BY RELEASING AEROSOL WITH 471.6 TONS OF PARTICULATES INTO THE ATMOSPHERE ANNUALLY**

FPL finds that Contention 3 is in admissible because CASE fails to

1) demonstrate that the issue is within the scope of this proceeding
2) provide facts or expert opinion to support the contention
3) demonstrate the existence of a genuine disp;ute with the Applicant on a material issue of law or fact
4) point to a provision…that calls for an evaluation of the potential impacts for an evaluation of the potential impacts from cooling tower "particulate matter" releases that would result from the licensing of Turkey Point 6 & 7.
5) consider the quality of reclaimed water provided by MDWASD

CASE reply:

1) The issue is within the scope of this proceeding. At 27 in the Revised Petition, CASE sites the Title 1, Chapter 1 of the Atomic Energy Act which requires that the processing a utilization of nuclear material must be done to protect the health and safety of the public. This is the preamble to the Act which sets the standards and tone for the entire document. The preambles to the Constitution of the United States and the Declaration of Independence are precious and deemed relevant to all life in our nation; is it not so with the preamble to the Atomic Energy Act. Can it be ignored? Is public health and safety not the master template for the rest of the Act?

2) Through out CASE's discussion in Contention 3, CASE uses figures (facts) provided by FPL in the COL. FPL does not challenge the figures CASE uses regarding the amount of aerosol particulate. As to expert opinion regarding the impact of that particulate, CASE will discuss that in the next paragraph.

3) Is there a genuine dispute here? Only if you live in South Florida can you comprehend the depth and nature of the dispute. Perception is reality, for the perceiver. Current studies are showing unexplained clusters of cancer all over this area (www.wflx.com/global/story.asp?s=12080429). A study of Florida Department of Health cancer statistics shows a 35.8% greater incidence of thyroid cancer if you live in South Florida as compared to the rest of the State. (Exhibit 1, Figure 4).

Researcher Joseph Mangano, Executive Director of the Radiation and Public Health Project reports the following in a published article (Exhibit 3) "Perhaps most telling is that the rate of thyroid cancer in France rose a staggering 433% and 186% (1) for males and females, far more than U.S. increases. This may be the smoking gun; doctors know of no other clear-cut cause of thyroid cancer, other than radiation exposure. Prior studies showed high rates in Japanese atomic bomb survivors, persons downwind of bomb tests in Nevada and the south Pacific, and Chernobyl-area residents."

The psyche of our residents contains an underlying concern in their daily existence and angst about what is in the air and water that could be affecting their health. So to dismiss the potential impact of 943* tons annually in particulate matter which the six towers of Turkey Point 6 & 7

---

1 Remonnet L et al. Cancer incidence and mortality in France over the period 1978-2000. Bulletin Epidemiologique Sante Publique 2003;51(Part 1):3-30.

would belch out annually as not being a genuine dispute is, at best, insensitive and, at worst , irresponsible. And, a case in point, the author of Contention 4 spent the first thirty years of her life seven miles from Turkey Point, and the next seven years of her life about nine miles away. She now has thyroid cancer. And to disregard the impact the presence of this residue on the fruits and vegetables we grow for local and national consumption is also a disputable matter.

Dr. Phillip Stoddard, biologist, in a report on recent biomedical literature on health risks of power transmission lines (exhibit 4) states that over a dozen studies have shown a doubling in the incidence of leukemia in children living near power lines and in children chronically exposed to weak magnetic fields of 0.3 or 0.4 μT. Data from two recent studies on incidence of leukemia in people living near power lines are shown below (Draper et al., 2005; Lowenthal et al., 2007). Hazard ratio is the measured incidence relative to the background population incidence. In the study by Lowenthal et al. (2007) hazard ratios were even higher for people exposed as children during years 0-5. The sub-population from Tasmania (triangles) is more sedentary and thus may have had longer exposure times.

Dr. Stoddard also found in the literature an indication of an increase of Alzheimer's Disease and Senile Dementia related to distance from power lines. The biomedical literature has many reports of magnetic fields intensifying mental disorders. These effects, even if significant in one study, have proven elusive in follow-up studies. One particularly worrisome paper shows a strong relation between residence near power lines and the doubling of Alzheimer's Disease (AD) cases and other forms of senile dementia (Huss et al., 2009.

What is the connection here? No monolithic source of power, no need for power lines. No Power lines no magnetic fields which could cause these diseases. Distributed production of energy would solve this potential problem.

In South Florida, perhaps more so than in the rest of the nation, we eat the food we grow locally. And even alleged contamination of our agricultural products would have on impact on our ability to sell it here or elsewhere. So what is in the soil and water winds up in, as well as on, the food. We cannot escape it, any more than we can escape a radioactive plume from Turkey Point in time to avoid it. Trapped again.

So, to return to FPL's question: Is there a dispute here. If you live here, and five million people do, and especially if you live close to Turkey Point, as over 187,000 people do, yes, you do have a dispute with the idea of adding two more nuclear plants when so much new information is being made available about the incidence of illness in South Florida. Many people have asked those questions and either moved or decided not to come here.

4) Contention 3 posits an act of Omission on the part of FPL specifically in this regard. To conveniently not address this subject is to also deny the obligation described above in 1), to wit: with an abundance of caution, we are required to ask: how will this affect human health and safety? Are we free to locate a machine where its operation will harm us? We have spent almost a hundred years trying to correct such a situation with the automobile.

---

* FPL has provided various estimates of what this figure will be. The public notice posted by FPL in the Miami Herald on Apriil 23, 2010 (at 31 in the CASE Revised Petition) gave the figure as 943 tons of Particulate Matter from salt water and 55 tons using reclaimed water. At 38 in the FPL Answer to CASE the figure given is 75 kg/hour which amounts to 657 metric tons dissolved solids per year.

5) The FPL response discusses at length how it will improve the quality of the reclaimed water to be provided by the Miami Dade Water and Sewer Department (MDWASD). In reality, MDWASD will never supply any reclaimed water to Turkey Point. *There is not currently and there will not, for the foresable future be, a plant built for this purpose.* Miami-Dade County does not now, and for the forseable future will not have, the financial resources to build a water recyclying plant which, as of this writing, is estimated to have a price tag in excess of a billion dollars and which has no final design. So, to be realistic, Turkey Point 6 & 7 will be using sea water with all of the negative health and safety attributes described in CASE's Revised Petition. This includes 943 tons of particulate matter in aerosol annually from the six towers.

For these reasons, CASE requests that Contention 3 be admitted by the Board and that it be considered and discussed in a hearing.

---

* FPL has provided various estimates of what this figure will be. The public notice posted by FPL in the Miami Herald on Apriil 23, 2010 (at 31 in the CASE Revised Petition) gave the figure as 943 tons of Particulate Matter from salt water and 55 tons using reclaimed water. At 38 in the FPL Answer to CASE the figure given is 75 kg/hour which amounts to 657 metric tons per year.

**CONTENTION 4 - FAILURE AND OMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO ADEQUATLY CONSIDER AND PLAN FOR ACCIDENTS INVOLVING RADIOACTIVE MATERIALS**

FPL opposes Contention 4 stating: (Case alleges) because the MACCS2 code does not model surface water exposure pathways involving swimming, fishing, boating, and other shoreline activities it must follow that the Applicant omitted these exposure pathways and the resulting dosages from its analyses. CASE is wrong. CASE's assertion that the Application omits analysis of shoreline activities and seafood ingestion is simply incorrect.

The analyses conservatively assume that consumption of contaminated aquatic food would occur, even though in the event of a severe accident the public in the 50-mile Ingestion Exposure Pathway EPZ would be advised to avoid consumption of potentially contaminated food. ER at 7.2-5. Interdiction can reduce doses by as much as a factor of 10. See ER at 7.2.3.2 (citing GEIS at 5.3.3.3.2). Footnote at 46

CASE reply:

Biscayne National Park (Homestead Bayfront Park) shares a border with the Turkey Point nuclear facility property, and Bayfront Park and Marina in Biscayne National Park is less than 2 miles from the reactors at TP. There are approximately 500,000 visitors to the park each year. (1) This means that there will be an average of 1,400 people in the park on any given day, with the potential for many of them to be less than 2 miles from a major radiological event. Of course, this average number of visitors per day is not a realistic picture

of the number of people who could be exposed at short range distance. During non-holiday weekdays, the number would be less, and during holidays, weekends (especially during the peak tourist season), the number of people could be far greater than 1,400. The dosage to these individuals has not been adequately estimated.

FPL states that the appropriate post-accident surface water/seafood path dosage data for Turkey Point was obtained from the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-1437 Vol. 1). However, the data that is referred to came from the existing reactors at Calvert Cliffs, not the existing reactors at Turkey Point. The Calvert Cliffs plant differs from the proposed Turkey Point reactors in the following significant ways:

1. Calvert Cliffs is located on Chesapeake Bay, which has a temperature range of 34 to 84 degrees F. (3) The Turkey Point is located on Biscayne Bay, which has a temperature range of 57 to 91 degrees F. Most of the year, the water temperature is in the warmer end of that range. (4) The greater water temperature increases the water solubility of various components in the post-accident radioactive discharge, thus changing the surface water and seafood pathway dosages.

2. The Calvert Cliffs plant has only 2 reactors, not 4. The proposed Turkey Point addition will bring the number of reactors to 4, but the Calvert Cliffs data is for 2 reactors. The FPL dose calculations must take into consideration the multiple reactors as is required by CFR title10 section 100.11.

3. The Calvert Cliffs reactors are not Toshiba Westinghouse AP1000 reactors. Instead of calculating the dosage for an AP1000 reactor, FPL states that using pre-existing post-accident radiation dose analysis data from currently existing reactors is acceptable. The validity of this method is based partially on the unsubstantiated claim that post-accident release from an AP1000 reactor would be less than the currently licensed reactors. Arnold Gundersen's analysis of the containment design indicates that the AP1000 release would actually be greater:

By design, the AP1000 containment has an even higher vulnerability to unfiltered, unmonitored leakage than the current generation containment system designs, and it lacks the defense in depth of existing structures. While the AP1000 is called an advanced passive system, in fact the containment design and structures immediately outside the containment are designed to create a chimney-like effect and draw out any radiation that leaks through the containment into the environment. Such a system will also facilitate the more efficient release of unfiltered, unmonitored radiation from any cracks or holes that might develop in the containment.

Finally, a leakage path exists that is not bounded by any existing analysis and will be more severe than those previously identified by Westinghouse in its AP1000 application and various revisions.(2) (Please see the attached report, Exhibit 2)

For these reasons CASE requests that Contention 4 be admitted and that a hearing be held.

**CONTENTION 5 – FAILURE AND OMMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 ANALYSIS TO CONSIDER OR INCORPORATE ANY SCIENTIFICALLY VALID PROJECTION FOR SEA LEVEL RISEAND CLIMATE CHANGE THROUGH THE END OF THIS CENTURY AND BEYOND.**

CASE Reply: In the interest of safety, CASE questions the thoroughness of FPL planning for Turkey Point 6 & 7 in relation to sea level rise. FPL states at 54 that their applicaton “took the long-term trend in sea level rise in the Miami area, 0.78 foot per century, and conservatively rounded the value up to a full foot per century. In their answer FPL continues to explain how they arrived at the final

plant elevevation level of 24.8 feet. However, nowhere in its answer does FPL mention or reference a current study on climate change, such as the Miami-Dade County study chaired by Dr. Harold Wanless, or explain how the gradual change in the water level surrounding Turkey Point will be addressed. Even in the absence or omission of a specific NRC regulation requiring such a analysis, in an abundance of caution and demonstrating concern and caree for the health and safety of all involved, as required by the AEA of 1954 (Title 1, Chapter 1 at 18 in the CASE petition) for any one operating or living near the plant, should have been done. Prudent planning for a facility being designed to operate forty years or longer should include such inquiry. Both Miami Dade County and, as stated in the CASE petition, The Army Corp of Engineers, require that current information regarding sea level change be recognized; none of the studies these two governmental publications reference are mentioned by FPL in their answer to CASE.

Thus, despite local and federal requirements, and admonitions, to do so, FPL did not employ any, current scientific information in its planning for Turkey Point. FPL did allow for a raised platform for the proposed new reactors. What FPL does not consider is the affect of a gradually rising sea level as well as the ultimate result of climate change when the platform for Turkey Point 6 & 7will be surrounded by water. All support equipment and approach roads will be unsafe and, eventually, impassable, putting the rest of the Turkey Point installation in danger from increasing levels of water especially since much of Turkey Point is already below sea level. Hurricanes and storm surges will be increasingly more destructive at Turkey Point as sea levels rise. This speaks to the comment at 51 as to the meaning of “viability” in the context of this discussion. To refresh, or to enhance, ones information, Websters tells us “viability” capable of working, functioning, or developing adequately; capable of existence and development as an independent unit. Turkey Point Reactors 6 & 7, suspended alone on a 25 foot high platform surrounded by water far above its underwater support infrastructure and unapproachable by land will hardly be “viable”.

There is a challenge to Dr. Harold Wanless as an expert at 48 ("…statement of an alleged expert, Dr. Harold Wanless). Dr. Wanless is a professor and Chairman of the Department of Geological Sciences at the at 48University Of Miami, Coral Gables, Florida, He is a Registered Florida Professional Geologist #985. He was the leading researcher on the Miami - Dade County Climate Change Study commissioned and adopted by the County Commission and submitted with the CASE Petition to Intervene through the EIE System Document Number ML102300765. Also, Dr. Wanless' Curriculum Vitae is at EIE document ML102300762.

For these reasons CASE requests that Contenion 5 be admitted and that a hearing be held.

**JOINT REPL Y TO CONTENTION 6 & 7 ANSWER:**

**CONTENTION 6 - FAILURE AND OMMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO CONSIDER THE ENVIRONMENTAL IMPACT OF EXTENDED STORAGE OF SO-CALLED "LOW-LEVEL" WASTE AT TURKEY POINT AS REGARD TO PUBLIC SAFETY**

**CONTENTION 7 - FAILURE AND OMMISSION OF THE FPL COL FOR THE PROPOSED TURKEY POINT NUCLEAR REACTORS 6&7 TO CONSIDER TO INCLUDE A SO-CALLED "LOW-LEVEL" RADIOACTIVE WASTE EXTENDED STORAGE PLAN**

CASE reply to FPL

Contentions 6 and 7 regarding so-called “low-level” waste

Contentions 6 and 7 are contentions of omission challenging the lack of planning for very long term storage and management of potentially all of the Class B and C “low-level” radioactive waste generated by Levy County Nuclear Plant Units 1 and 2. Contention 6 is focused on the environmental impacts and Contention 7 on the safety issues. The NRC licensing regulations require that the Commission make findings on safety – specifically that 10CFR20 and ALARA will be met – prior to granting a license. CASE is concerned that the current FPL plan for Turkey Point units 6 and 7 which treats radioactive waste as if it will be shipped off-site within one or two years of production is not realistic and will not, therefore be an adequate basis for the NRC safety finding. Similarly, CASE contends that the environmental impacts of an extended accumulation of this waste have also not been assessed.

CASE argues below that the Applicant is attempting to “fix” the deficiencies in its COL with its answer to the Petition to Intervene from CASE; this is not appropriate.

CASE agrees with the NRC Staff that Contentions 6 and 7 should be admitted (Staff states “in part” Answer at pages 49 and 59) and heard in this licensing process. Case affirms that all parts of these contentions are worthy of hearing.

In CLI-09-03, the Commission confirmed that contentions such as 6 and 7, which challenge the safety and environmental impacts of onsite storage of an accumulation of so-called "low level" radioactive waste, are appropriate for consideration in licensing hearings. Tennessee Valley Authority (Bellefonte Nuclear Power Plants, Units 3 and 4), CLI-09-03, slip op. at 11 (February 6, 2009).

The matter of whether there is any place to send so-called "low-level" radioactive waste (LLRW) is well documented by numerous entities including the Government Accounting Office[1] and the NRC[2] itself. It is also common knowledge. It is now 2010, 30 years since the passage of the 1980 Low Level Radioactive Waste Policy Act (Public Law 96-573) encouraging development of new "low-level" radioactive waste disposal facilities in the US. Not one new full service "low-level" radioactive waste disposal facility has opened in the US. Technical, economic and public policy concerns and problems have prevented both new waste disposal sites and other "creative" disposal "solutions" such as

---

1 **GAO**: "If disposal conditions do not change, however, most states will not have a place to dispose of their class B and C wastes after 2008." GAO-04-604 June 2004 **LOW-LEVEL RADIOACTIVE WASTE Disposal Availability Adequate in the Short Term, but Oversight Needed to Identify Any Future Shortfalls**.

2 **NRC:** NRC REGULATORY ISSUE SUMMARY 2008-12 CONSIDERATIONS FOR EXTENDED INTERIM STORAGE OF LOW-LEVEL RADIOACTIVE WASTE BY FUEL CYCLE AND MATERIALS LICENSEES, May 9, 2008, page 2 : "After June 30, 2008, it is likely those LLRW generators and licensees in 36 States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Territories will lose access to the full-service LLRW (Classes A, B, and C LLRW as defined in section 61.55 of 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste") disposal facility in Barnwell, South Carolina. Consequently, many LLRW generators will likely need to store a portion of their LLRW for ***an indefinite period***." (emphasis added)

regulating or redefining the waste as not radioactive so it can be sent to unlicensed facilities.

Neither the NRC nor the nuclear utilities can assume that new full service (including Class B and C) disposal or generic deregulation of radioactive waste will be available during the operating years of the proposed Turkey Point units 6 and 7.

Documents for the AP 1000 (especially Section 11) reveal the clear assumption that offsite disposal will be regularly available, or that offsite processing will be available with eventual offsite disposal. Access to processing is not guaranteed. In fact the DCD[3] states at Revision 17 at 11.4.2.1 (p. 11.4-4): "The AP 1000 has no provisions for permanent storage of radwaste. Radwaste is stored ready for shipment."

FPL in its Answer (page 71 – 72) is now attempting to augment its COL submission by proffering a "plan" that is currently being litigated elsewhere (see Levy County Dockets 029 and 030, Progress Energy Motion for Summary Disposition 08-27-2010).

> Furthermore, even if, more than fifteen years from now, there was a problem with FPL's plan to ship its LLRW off site, this still does not raise a safety issue because, if necessary, the NRC has a clear and predictable process in place for

3 Westinghouse AP1000 Design Control Document Rev. 17 - Tier 2 Chapter 11 – Radioactive Waste Management – Section 11.4 Solid Waste Management ML083230204 2008-09-22

> expanding onsite storage capacity at Turkey Point Units 6 & 7 consistent with the licensing basis and protection of public health and safety. If FPL found that it needed to store its LLRW onsite for more than two years for any reason, it could follow the process for expansion of LLRW storage. An expanded storage facility could be designed and built 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. FPL could utilize the existing regulatory framework as described in NRC Regulatory Issue Summary 2008-32, Interim Low-Level Radioactive Waste Storage at Reactor Sites to conduct written safety analyses under 10 C.F.R. § 50.59. These written safety analyses allow a licensee to "make changes in the facility as described in the final safety analysis report," such as expanding the capacity of the LLRW storage facility already described in the FSAR, without a license amendment if certain conditions are satisfied. 10 C.F.R. § 50.59(c)(1). If the conditions set forth in the 10 C.F.R. § 50.59 are not satisfied, FPL could add onsite storage capacity through the NRC's license amendment process. At no point in this process would the public health and safety, including the health and safety of Turkey Point workers, be jeopardized in any way. Thus, Contention 7 has not raised a material issue required for an admissible contention.

This approach to seeking a license to generate wastes for which there is not currently a disposal pathway is very interesting. CASE agrees with the interveners in the Levy County case that this approach does not allow the NRC staff to make a safety finding prior to licensing, as required by 10CFR52.79.

1 Westinghouse AP1000 Design Control Document Rev. 17 - Tier 2 Chapter 11 – Radioactive Waste Management – Section 11.4 Solid Waste Management ML083230204 2008-09-22

FPL assumes that all dose limits in 10 CFR 20 and 50 will be met for public releases and worker exposures, but there is no indication that those dose calculations were done including the full inventory of Class B, C (and likely Greater-than-C radioactive waste) that we contend could be present onsite. The applicant's underlying assumption appears to be that all but about a year's worth

or one refueling cycle's worth of waste will have been removed from the site. It is not clear that the calculations account for accumulated Class B, C (and likely GTCC) for all the years the reactors operate. This is an omission.

In addition, CASE finds that without a detailed plan being offered, it is not credible that NRC staff will make a safety finding on whether the accumulation of this waste will pose either a safety, or an environmental hazard.

10CFR2.309(f)(vii) states:

> …that one or more of the acceptance criteria in the combined license have not been, or will not be met, and that the specific operational consequences of nonconformance would be contrary to providing reasonable assurance of adequate protection of the public health and safety.

Health and safety of workers, CASE members and the general public are not assured when there is no specificity to the types of actions that FPL may take to reduce the volume of waste stored on site, or the manner in which the waste may be stored if it exceeds the very short term holding area.

On page 73 – 74 of the FPL answer discusses the Southern Nuclear Operating Co. (Vogtle Electric Generating Plant, Units 3 and 4) LBP-10-08, 71 NRC __ (slip op. at 13).

CASE contests the conclusion drawn in this case and notes that a ruling in an Atomic Safety and Licensing Board proceeding is not binding upon this Board.

CASE contests the conclusion because part of 10CFR52.79 states that the COL must include:

> [10CFR52.79](3) The kinds and quantities of radioactive materials expected to be produced in the operation and the means for controlling and limiting radioactive effluents and radiation exposures within the limits set forth in part 20 of this chapter;

This text comes as a subset of the introductory paragraph to 10CFR52.79 that explicitly states:

> The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to *reach a **final conclusion on all safety matters** that must be resolved by the Commission before issuance of a combined license:* … (emphasis added)

Granting a license to produce so-called LLRW for 40 years (or 60 years) without a clear plan for what will be done with the unavoidable by products is not the basis for either a safety finding, nor a NEPA finding of "no significant impact."

It is patently untrue however that the COL application does not address disposal – the DCD repeatedly states that waste will be shipped off-site promptly for disposal. If a disposal site is not open to waste from Florida, it has bearing on waste generated in Florida. When the applicant asserts, with no basis, that it will ship its waste off-site, the current possible off-site options are material to this matter.

The Declaration of Diane D'Arrigo provides basis for unfolding the identified problem: waste will be generated; there is no basis for confidence in the assumption that waste will be shipped off; therefore in considering the storage of

the waste, a number of issues should be addressed. CASE, and Ms D'Arrigo do not intend to represent Ms D'Arrigo as an expert on such matters as synergistic health effects, sea level rise or storm surge. Ms D' Arrigo does assert that these issues are part of the problem definition – and need to be considered in the NRC staff's safety and environmental findings that take into account the very real possibility that Turkey Point could be a storage site for a 40 year accumulation of operational waste.

In this regard, it is important to note that the NRC guidance documents {} offer prospective licensees options for processing and "minimizing" so-called LLRW. Petitioners are asserting that lacking a detailed plan – which may affirm these concerns, or alternately may explicitly lay them to rest, it is impossible to "reasonably foresee" the worker and public health, safety and environmental impacts.

In addition to any processing, possible incineration or burial, severe weather hazards, Petitioners would like to clarify here that while Greater than Class C (GTCC) may not be a subject for the COL, and we understand that the Commission itself has so ruled in CLI-10-02 in the Progress Energy Levy County Units 1 and 2 COL, it is nonetheless the responsibility of NRC staff to factor this waste, if it is sitting on the reactor site, in any determination of whether the

applicant is going meet requirements of Part 20 and requirements of ALARA. It is this fact of the regulator's responsibility that causes the Petitioner to bring this class of waste up in this discussion.

CASE finds that a complete plan for storing the wastes that will be generated by operating Turkey Point Units 6 and 7 is needed in order to provide the basis for any licensing decision by NRC staff – findings with respect to safety, with respect to security (beyond the scope of our contention, but important nonetheless) and the environmental impacts of so-called LLRW are a significant portion of the impact that will result if the new (copy cat) Turkey Point reactors go into operation.

**CONTENTION 8 - A REQUEST THAT NRC DENY THE REQUEST FROM FPL TO BEGIN CONSTRUCTION OF THE NON-NUCLEAR PORTIONS OF THIS PROJECT (LIMITED WORK AUTHORIZATION, LWA).**

In its reply to CASE regarding Contention 8, , FPL states: …the Revised Petition is challenging an LWA application filed in June 2009 at the time the Application was submitted.42 However, by letter dated November 10, 2009, FPL "withdr[ew] the request for the LWA in order to provide the best opportunity to maintain our current project schedule." Letter from FPL to Commission (November 10, 2009) at 1, ADAMS Accession No. ML093170513. Thus, Contention 8 does not give rise to a dispute between CASE and FPL on a material issue of fact or law relating to the Application, and it must be rejected.

CASE Reply: In the referenced letter FPL makes the following statement:

"Conforming changes to the COL Application reflecting the removal of the LWA are not being proposed at this time, but will be included in an update of the final safety analysis report (FSAR), environmental report, and other COL Parts."

Since FPL holds out the possibility that there might be action on these matters at a future time, CASE requests that Contention 8 be admitted and held in abeyance and that Contention 8 be part of any hearing at the Panel's pleasure.

## CASE REPLY TO FPL RE: SELECTION OF HEARING PROCEDURES

FPL wrote at 76-77: "Commission rules require the Atomic Safety and Licensing Board designated to rule on a petition to intervene to "determine and identify the specific procedures to be used for the proceeding" pursuant to 10 C.F.R. §§ 2.310 (a)-(h). 10 C.F.R. § 2.310. The regulations are explicit that "proceedings for the . . . grant . . . of licenses subject to [10 C.F.R. Part 52] may be conducted under the procedures of subpart L." 10 C.F.R. § 2.310(a). The regulations permit the presiding officer to use the procedures in 10 C.F.R. Part 2, Subpart G ("Subpart G") in certain circumstances. 10 C.F.R. § 2.310(d). It is the proponent of the contentions, however, who has the burden of demonstrating "by reference to the contention and bases provided and the specific procedures in subpart G of this part, that resolution of the contention necessitates resolution of material issues of fact which may be best determined through the use of the identified procedures." 10 C.F.R. § 2.309(g). CASE did not address the selection of hearing procedures in its Revised Petition and, therefore, did not satisfy its burden to demonstrate why Subpart G application (Part 6 of the Application) described the scope of the LWA activities requested to be authorized

procedures should be used in this proceeding. Accordingly, any hearing arising from the Revised Petition should be governed by the procedures of Subpart L"

CASE Reply:

As quoted above, NRC regulations permit the presiding officer … to determine the nature and time of any hearing which they deem necessary. CASE, in the title of its petition requested a hearing. Whether or not a hearing is held and whether it will under Subpart G or Subpart L is the province of the NRC Panel. As a litigant, it seemed presumptuous to dictate to the Panel what they might require to facilitate their investigation of the important matters being discussed in this process. CASE is fully prepared to make its active members, advisors and or expert witnesses available if the Panel so requests; we defer to the Panel's judgment on this matter.

## CASE CONCLUDING STATEMENT

Being new to this process, it does seem rather cavailer of an applicant to say, and to be able to say, the regulations do not require something so we do not have to do it, such as planning for an aspect of the project for which conditions will change over its useful life, If an evacuation plan was good in 2009, they would say, it will still be good in 2030. There should be room for common sense and the public good. It does appear that there is an imbalance of power in this field.

There are alternatives to nuclear energy. Despite sun, wind and ocean currents, Florida ranks twenty-third in a recent energy efficiency study. 1 Turkey Point 6 & 7 will produce 2200 MW, sufficient for more that 745,000 homes at a cost CASE estimates at $35 Billion, about $8,000 per home, to be paid for

either by FPL customers or the Federal government because Wall Street. will not finance them and FPL, on their own, cannot afford them. 2 A Navigant Consulting Study, prepared for the Florida Public Service Commission, found that "between 1.8 and 16 GW of Renewable Energy capacity could be installed in Florida by 2020, depending on the scenario used," representing up to 24% of Florida's retail electricity. 3 The Navigant Report focused on the following renewable technologies: solar (photovoltaics, concentrating solar power, solar water heating); wind (onshore, offshore); biomass (solid, landfill gas, anaerobic digester gas); and ocean (wave energy, ocean current, thermal energy conversion, and tidal energy). 4. So, there are alternative sources of energy and NRC regulations do provide for the Panel and the Commission to recommend them instead of or in addition to nuclear energy.

The AP1000 reactor may turn out to be a fine plant. But, as CASE has attempted to show, there is no more room in Miami-Dade County for the two proposed reactors. Not enough water, too many people, not enough land, no safe or timely way to evacuate, too close to breathing people and growing food, no place to store low level waste, right between two national parks, in a flood, hurricane and storm surge zone, below sea level and threatened by rising sea levels, above the water supply for the entire Florida Keys, next to the breeding and hatching grounds for most of the sea life in the South Atlantic and the Florida Keys, a threat to commercial and recreational fishing (the major industry in the Keys), a threat to commercial agriculture (Miami-Dade's second largest industry), too far from the points of use, too expensive, too difficult and too dangerous to transmit over power lines. Put the new reactors somewhere else or, better yet, advocate alternative energy, distributed production of energy, efficiency at the point of production and conservation at the point of use. Edison produced power at a single point in1882; in 2010 we should not still be building monolithic centralized sources of power.

Having come from Missouri 41 years ago, this writer has come to love, respect and cherish this rare and precious spit of pastoral land. As Marjory Stoneman Douglas said in The Everglades: River Of Grass, "There are no other Everglades in the world." And in this writer's first 31 years, in the land of Harry Truman and Mark Twain, one learned to live responsibly and cut to the heart of matters. And, in South Florida today, this means recognizing that runaway cancer rates and water on the verge of crisis due to salt water intrusion indicates that we have just about abandoned our responsibilty to Marjory and Others for our dominion over the earth.

For these reasons CASE requests that all Contenions be admitted and that a hearing on them be held.

---

1 Amory Lovins et. al., "Forget Nuclear," Solutions Journal, Spring 2008

2 Uwe R. Fristche, Comparing Greenhouse-Gas Emissions and Abatement Costs of Nuclear and Alternative Energy Options from a Life-Cycle Perspective (Berlin: Öko-Institut, Nov. 1997). 3 "Green energy mostly untapped in Florida," Miami Herald, November 28, 2009, 5B

4 Navigant Consulting, "Florida Renewable Energy Potential Assessment," December 30, 2008. http://www.psc.state.fl.us/utilities/electricgas/RenewableEnergy/FL_Final_Report_2008_12_29.pdf

Respectfully submitted this 29th day of September, 2010.

_____/signed (electronically)

by/_____

Barry J. White

Citizens Allied for Safe Energy, Inc.

10001 SW 129 Terrace

Miami, FL 33176

(305) 251-1960

Email: bwtamia@bellsouth.net

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

| | |
|---|---|
| In the Matter of | ) |
| | ) Docket No. 52-040 and 52-041 |
| Florida Power & Light Company | ) |
| | ) |
| Combined License Application for | ) |
| Turkey Point Units 6 & 7 | ) |

CERTIFICATE OF SERVICE

I hereby certify that the foregoing CASE Reply to Florida Power & Light Company's Answer Opposing Citizens Allied for Safe Energy, Inc.'s Revised Petition to Intervene and Request for Hearing In Turkey Point Units 6 and 7 Combined Construction and Operating License Application was served upon the following persons by Electronic Information Exchange and/or electronic mail:

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

U.S. Nuclear Regulatory Commission
Atomic Safety and Licensing Board Panel
Mail Stop: T-3 F23
Washington, DC 20555-01
E. Roy Hawkens

U.S. Nuclear Regulatory Commission
Office of General Counsel
Mail Stop: O-15 D21
Washington, DC 20555-0001
Marian Zobler, Esq.
Sara Kirkwood, Esq.
Patrick Moulding, Esq.
Sara Price, Esq.
Joseph Gillman, Paralegal
E-mail: marian.zobler@nrc.gov;
sara.kirkwood@nrc.gov;
sap1@nrc.gov;
patrick.moulding@nrc.gov;
jsg1@nrc.gov

Administrative Judge, Chair
E-mail: erh@nrc.gov
Dr. Michael F. Kennedy
Administrative Judge
E-mail: michael.kennedy@nrc.gov
Dr. William C. Burnett
Administrative Judge
E-mail: wxb2@nrc.gov
Josh Kirstein, Law Clerk, ASLBP
E-mail: josh.kirstein@nrc.gov

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

Counsel for the Applicant
Pillsbury, Winthrop, Shaw, Pittman, LLP
2300 N Street, NW
Washington, DC 20037-1122
Alison M. Crane, Esq.
John H. O'Neill, Esq.
Matias F. Travieso-Diaz, Esq.
E-mail: alison.crane@pillsburylaw.com; john.oneill@pillsburylaw.com; matias.travieso-diaz@pillsburylaw.com

Florida Power & Light Company
700 Universe Blvd.
Juno Beach, FL 33408
Mitchell S. Ross, Vice President and General Counsel – Nuclear
E-mail: mitch.ross@fpl.com
Florida Power & Light Company
801 Pennsylvania Ave. NW, Suite 200
Washington, DC 20004
Steven C. Hamrick, Esq.
Antonio Fernandez, Esq.
E-mail: steven.hamrick@fpl.com; antonio.fernandez@fpl.com

Counsel for Mark Oncavage, Dan Kipnis, Southern Alliance for Clean Energy, and National Parks Conservation Association
Turner Environmental Law Clinic
Emory University School of Law
1301 Clifton Road, SE
Atlanta, GA 30322
Lawrence D. Sanders, Esq.
Mindy Goldstein, Esq.
E-mail: lsande3@emory.edu; magolds@emory.edu

Everglades Law Center
3305 College Avenue
Ft. Lauderdale, FL 33314
Richard Grosso, Esq.
Jason Totoiu, Esq.
E-mail: richard@evergladeslaw.org;
jason@evergladeslaw.org

Counsel for the Village of Pinecrest
Nabors, Gablin & Nickerson, P.A.
1500 Mahan Drive, Suite 200
Tallahassee, FL 32308
William C. Garner, Esq.
Gregory T. Stewart, Esq.
E-mail: bgarner@ngnlaw.com;
gstewart@ngnlaw.com

Turner Environmental Law Clinic
Emory University School of Law
1301 Clifton Road
Atlanta, GA 30322
E-mail: lsande3@emory.edu