



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

2562 EXECUTIVE CENTER CIRCLE, EAST
MONTGOMERY BUILDING
TALLAHASSEE, FLORIDA 32301

REUBIN O'D. ASKEW
GOVERNOR

JOSEPH W. LANDERS, JR.
SECRETARY

May 5, 1976

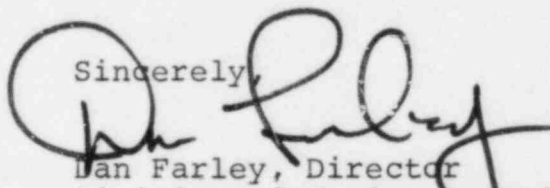
Mr. Harold D. Thornburg, Acting Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Thornburg:

Attached per your request is a copy of recent correspondence concerning the spent fuel pit leaks at Florida Power and Light's Turkey Point Facility. Additional information on efforts to correct the leaks has been recently received from Dr. Uhrig of Florida Power and Light. Dr. Uhrig has indicated that a decision will be made shortly, perhaps within a week, whether to replace the 1/6 inch stainless steel liner in the Unit No. 3 tank with an 1/4 inch liner or to seal the existing liner with epoxy. It is our understanding that the leaks will be corrected during the next refueling of Unit No. 3, after the storage capacity of the storage pit for Unit No. 4 is expanded.

As new information becomes available, we will forward it to you.

Sincerely,


Dan Farley, Director
Division of Environmental
Permitting

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Enclosures

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STATE OF FLORIDA

Department of Administration

Office of The Secretary

ROOM 530, CARLTON BLDG.

TALLAHASSEE

32304

Lt. Gov. J. H. "Jim" Williams
SECRETARY OF ADMINISTRATION

Reubin O'D. Askew
GOVERNOR

April 16, 1976

Mr. Marshall McDonald
President
Florida Power & Light Company
Post Office Box 013100
Miami, Florida 33101

Dear Marshall:

Your initiative in providing me with information on the spent fuel leakage problem at Florida Power & Light Company's Turkey Point Unit No. 3 is greatly appreciated.

It is my intention to provide copies of your letter, and its enclosed visit report of A. D. Schmidt, to those state agencies to whom it will be of interest.

The Power Plant Siting Act, as you know, has been fostering a dialogue between the electric utilities of the State and the governmental agencies of the State. This type of information, which you have willingly expended the time and effort to provide to state agencies, marks one additional step toward improved communications among all concerned.

Sincerely,

Lt. Governor J. H. "Jim" Williams
Secretary of Administration

JHW/Spr

M. Whittle



March 23, 1976

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Lt. Governor J. H. Williams
The Capitol
Tallahassee, Florida 32304

Department of Administration
Office of the Secretary

Dear Jim:

Last Thursday, we at Florida Power & Light had the opportunity to provide Chairman Mayo, Commissioner Bevis, Director Dodd and nine staff members of the Florida Public Service Commission a tour through our St. Lucie nuclear plant. Fuel loading at this plant has been completed, and we are presently conducting final pre-operational tests.

During that tour and throughout the day's activities, we received a number of questions regarding spent fuel storage at the St. Lucie facility, interest apparently precipitated by a Miami Herald article addressing the leaks at our Turkey Point plant. Judging from the PSC's interest in spent fuel storage, it occurred to me that an appropriate action on my part would be to appraise state officials of information made available to me last week.

In order to provide you with original information, I am enclosing the cover letter of an internal report on the leaks in the spent fuel storage pits at Turkey Point. This report was prepared by Mr. A. D. Schmidt, FPL's Vice President of Power Resources, at my request after the Herald article of March 14th. If you have any questions pertaining to this report, either Mr. Schmidt or I will be happy to answer them for you.

The leaks were reported to the Nuclear Regulatory Commission as required. The Commission did not consider them to be a health hazard for either the general public or for the plant personnel. In this regard, I think it is important to note that the Herald article failed to mention that 1) cooling water circulated in the spent fuel tanks is not highly radioactive and 2) the leaking water is not entering the environment.

In order to place this matter in perspective, I asked for some standards for comparing radiation and contamination both within the spent fuel storage pits and at the exterior spots where there formerly had been seepage of the boric acid water to the outside of the structure.

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DIRECTOR'S OFFICE
DIV. OF STATE PLANNING

HELPING BUILD FLORIDA

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Lt. Governor J. H. Williams
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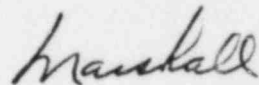
The maximum radiation level, taken from a reading about one inch from the surface of the structure and approximately twelve feet above ground level, is less than 5% of the dose that an individual would receive from an x-ray examination of a gastro intestinal tract. An individual would have to stand against the wall for an hour to receive up to this maximum amount of radiation. This could only be accomplished if he was standing on a ladder, in a fenced off area where there is no reason for employees to be. The maximum removable contamination would require contact for an hour, producing less than one half of the dose received from one chest x-ray.

It is estimated that there would be no detectable short-term or long-term radioactive effect on an individual if he drank a cup of the spent fuel pit cooling water. For that matter, there would be no detectable radioactive effect if an individual drank ten cups of spent fuel pit cooling water. These are the reasons why the leakage was not of significant concern to either the Nuclear Regulatory Commission or to Florida Power & Light Company.

Currently there is no leakage to the outside of the spent fuel storage pits. We have the option to replace the metal linings to these pits during a refueling of the plant when the plant is shut down. We are considering this action at the present time because of the emotionalism involved -- not because of any perceived health hazard. As you know, we are trying to hold down the cost to our customers wherever feasible.

If you have any specific questions about this situation, I would be happy to answer them, or to have our experts meet with you or any of your staff.

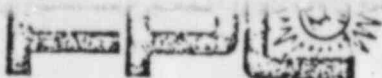
Sincerely yours,



Marshall McDonald
President

MMcD:mp

Enclosure



FLORIDA POWER & LIGHT COMPANY

INTER-OFFICE CORRESPONDENCE

TO Mr. Marshall McDonald

FROM A. D. Schmidt

SUBJECT: VISIT TO TURKEY POINT TO
INSPECT THE SPENT FUEL PITS

LOCATION Miami, Florida
DATE March 17, 1976

COPIES TO Messrs.
E. A. Adomat
H. L. Allen
J. R. Bensen

I visited the Turkey Point Plant on Monday afternoon, March 15, 1976, to update myself on actual conditions of the spent fuel pits. I was accompanied on the tour by Mr. J. R. Bensen, Manager of Power Resources - Nuclear and Mr. H. E. Yaeger, Manager of the Turkey Point Plant.

The two nuclear units at Turkey Point, Units 3 and 4, each have spent fuel storage pits adjacent to the reactor containment structures. New and spent fuel is transferred underwater through a transfer tube between the containment structures and the spent fuel pits.

The spent fuel storage pits are constructed with massive concrete walls varying from 4 to 5½ feet in thickness and lined with stainless steel. Between the stainless steel liner and concrete are leak chase channels imbedded in the concrete. The purpose of these channels is to monitor for leakage through the liner. These channels also provide a system to collect and reprocess any leakage that occurs. The size of the spent fuel storage pits is approximately 25 feet wide by 40 feet long and 40 feet deep, or about the size of the average home swimming pool but 4 or 5 times deeper.

New or unirradiated fuel is not radioactive and can be handled with the bare hands; however, as the fuel is irradiated, fission products are generated that are highly radioactive and as the result, spent fuel is highly radioactive. The thick concrete walls and the depth of water in the spent fuel pits are provided to take advantage of their excellent radiation shielding properties. Consequently, it is possible to work safely in the spent fuel storage pit room and adjacent areas. Spent fuel continues to generate heat after it is removed from the reactor due to the decay of fission products. This heat is known as decay heat and the rate of the heat generation decreases rapidly beginning when the reactor is removed from service. After several months, the rate of decay heat generation is relatively low. However, the decay heat does increase the temperature of the



March 17, 1976

spent fuel pool water and a cooling system is provided to remove the decay heat. Pool water is circulated through a heat exchanger to remove the heat and control the temperature of the water in the pool.

At Turkey Point access to all areas of the plant are controlled by fences, gates or other physical barriers. In order to enter those areas of the plant where there is the potential of exposure to radiation, it is necessary to log in through a guarded control point where personnel radiation monitoring devices are issued to each individual.

I first visited the external wall area of Unit 3 spent fuel storage pit where leakage was first detected. All areas were completely dry indicating no current leakage through the concrete structure; however, there was evidence that spent fuel storage pool water had leaked at sometime in the past. I was able to safely stand immediately adjacent to the walls in the areas of the previous leaks.

I next visited the spent fuel storage pool area, walking around the ledge at the top of the pool with the water some 2 to 3 feet below the ledge. I observed the spent fuel elements stored in the spent fuel racks some 25 feet below the surface. The pool water was crystal clear with a greenish tinge resulting from the underwater lighting system. I then observed the discharge from the spent fuel pool leak chase channel emptying in a 50 gallon plastic drum which was equipped with a float switch that operated a small pump to return the spent fuel water through a filter and back into the spent fuel pool. The leakage stream was about the size of your small finger and had been measured to be flowing at about 1½ gallons per minute.

I then visited the spent fuel pool cooling water pump and heat exchanger room. The cooling pump was not operating as it was not required to keep the pool water cool. I was told that with the two regions of spent fuel in the pool, one of which was discharged last November, it was only necessary to operate the cooling pump about one day per month as there was very little decay heat being generated.

I then visited the areas where leakage had been experienced with Unit 4 spent fuel storage pit. I again observed stains on the walls similar to those observed on Unit 3 and here again the walls were dry as no leakage was currently being experienced. I was told there had recently been leakage in one area and observed a metal trough and a plastic hose installed to collect the leakage and drain the spent fuel pool

water to the waste hold up tank. All radioactive waste water from the plant is collected in the waste hold up tank and re-processed to reduce the activity to levels suitable for discharge in accordance with federal regulation.

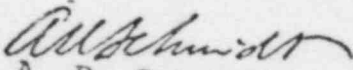
The fuel transfer pit section of the Unit 4 spent fuel storage pit was blocked off and drained on February 5, 1976. Leakage from the spent fuel pit decreased after this operation and there is currently no leakage from this spent fuel pit. It is believed that the leak is in the transfer pit area and we are currently searching for the leak in this section of the pit. It is anticipated that upon reflooding the transfer canal, the Unit 4 spent fuel pit will be leak tight.

Upon the completion of my tour to the potentially radioactive contaminated area, which took approximately 2 hours, my dosimeter indicated zero radiation exposure as I cleared through the radiation control check point.

In the case of Unit No. 3, the current leak rate is approximately $1\frac{1}{2}$ gallons per minute and the system for collecting and disposing of liner leakage is operating in accordance with the design of the pool.

Unit No. 4 spent fuel storage pool is currently not leaking. It has experienced leakage in the past and was being safely managed, but in a slightly different manner than Unit No. 3.

The spent fuel storage leakage problem at Turkey Point does not present a safety hazard to employees any different than any other conditions encountered in the radiation controlled area of any nuclear power plant. The spent fuel pool water leakage is being recovered and is not being released to the environment and does not present a threat to the health and safety of the public.


A. D. Schmidt

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