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—FPL's A. D. Schmidt

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FPL, U.S. Agency Aware of Turkey Point Leaks

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to wait until all of the fuel can be unloaded and the pits drained — something that may not be possible for several years.

In the meantime, FPL actually plans to expand the storage capacity of the leaking pits — even though it may not be able to repair the leaks themselves.

ORDINARILY, the used fuel would be stored in the pits for only a few months before being trucked away to one of the nation's three commercial reprocessing facilities.

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Robert Pollard, Union of Concerned Scientists

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But the reprocessing plant at West Valley, N.Y., has been closed since 1972 for safety modifications and won't be reopened until at least 1979.

A second plant, near Morris, Ill., may never open at all. Its builders say the new $64-million plant simply does not work.

The country's third reprocessing plant, at Barnwell, S.C., is embroiled in a licensing dispute and isn't expected to open until 1977 or 1978.

As a result, FPL — like most of the nation's other nuclear power plant operators — is being forced to store its spent fuel at the plant where it is used.

BUT THE storage pits at Turkey point are nearing capacity, and the company is urgently seeking federal approval for a $4-million program to triple the amount of fuel the leaking pits will hold. Without adequate storage, the plant could be forced to close.

Even with the expansion, however, the fuel already stored there will have to remain in place, and the company is uncertain it will be able to fix the leaks until it can be removed.

Company officials say they aren't worried about the continued leakage.

"The leaks are undesirable, and we would like to get rid of them, but they are no safety hazard," says A.D. Schmidt, FPL's vice president for power resources.

"The pits are not going to collapse, and they are not going to fall apart."

But because the rate of leakage appears to be increasing, Nuclear Regulatory Commission officials are more concerned about the problem.

"LEAKS DO not heal themselves," says Norman C. Moseley, director of inspection and enforcement for the NRC's Southeast region.

"Turkey Point has not yet received permission to store additional fuel at its plant, and it is possible that we might require them to repair the leaks before they get that approval," he said.

"Repair efforts may be hampered by the storage of spent fuel, but the company could be required to unload the fuel to make any neccessary repairs.

"In that case, they would have to ship the spent fuel to some other place — perhaps to their new St. Lucie power plant, or to some other reactor where there is spare storage.

By themselves, the leaks do not yet pose any serious safety hazard.

BUT THEY DO exemplify a number of general problems in the nation's nuclear industry — including defects in plant construction, the failure to correct known defects, and a range of problems posed by the increasing storage of spent fuel at scattered locations around the country.

FPL, which has made a heavy commitment to construction of new nuclear power plants, is especially sensitive to the implications.

"Nuclear power is absolutely essential to the energy future of this country," said one company spokesman. "I certainly don't believe that this story is going to help the cause of nuclear power one bit."

There is agreement on that point from Robert D. Pollard, a former licensing project manager with the NRC, who resigned his post in January in protest over "unresolved safety problems" in nuclear plant construction.

"IN TERMS of the imminent threat to the public, the risk of these leaks is rather small," explained Pollard, who now works for the Union of Concerned Scientists, a group of Boston-based scientists critical of the nuclear industry.

"But the long-term risks are much greater," he added. "These leaks are not just a potential problem, they are happening right now.

"The company is caught in the equivalent of a Catch 22. They didn't fix the leaks when they had the chance, and now that the leaks are apparently getting worse, they have so much spent fuel on hand that they can't fix them.

"If it weren't such a serious matter, it would border on the absurd."

The leaks, however, are not the only problems that FPL has been having with the storage of spent fuel.

BECAUSE THE fuel is hot, the water in the pits must be circulated to prevent the buildup of heat — and the possibility that the big pools of water could eventually begin boiling.

Each pit has only a single pump to circulate the water. One of them has failed twice in the last year. The other has failed three times.

"That is a high failure rate," says Moseley.

Each time a pump has failed so far, the company either has been able to repair it, or bring in emergency equipment before the heat increased greatly — a process that takes hours.

But the reliability of the pumps will become increasingly important as FPL increases the amount of fuel it holds in the pits. More fuel will mean more heat.

"THAT WILL decrease the amount of time the company will have to deploy its emergency equipment," says Moseley. "If they triple the amount of fuel stored there, it will give them roughly one-third of the time they now have." As a precaution, FPL plans to install permanent back-up pumps on the fuel pits — a decision the company made shortly after a mishap with one of its temporary emergency pumps resulted in the spill of more than 7,000 gallons of radioactive water.

The sequence of events began on April 12, 1975. The pump on one of the spent fuel pits failed — for what was to be the first of three failures in the next five weeks. An emergency pump was moved in and hooked up, but it was left temporarily unattended and during that time, pulled a hose coupling on the pump loose.

BEFORE THE incident was noticed, the pump has spewed 7,400 gallons of radioactive water out on the floor of the building. The company recovered about 60 per cent of it. The rest of it — nearly 3000 gallons — ran out a doorway and soaked into the ground outside. "That is a potentially very serious accident," says Dr. Henry Kendall, a nuclear physicist at the Massachusetts Institute of Technology and member of the UCS.

"Without the pumps for any extended period of time, or without adequate cooling water, the spent fuel would begin to overheat," Kendall explains.

"In time, the fuel rods would rupture and at that point, if the fuel pits still leaked, anything that came out the cracks would probably glow in the dark."

AFTER THE April spill, FPL took a number of precautions to assure that such an accident would not be repeated. In the four subsequent failures of its fuel pit pumps, in fact, there were no reported spills of radiation.

There was, however, a spill of radioactive waste at the plant in October that was the result, not of an equipment failure, but of human error.

Some of the water now collected from the leaking pits is treated to remove radioactive particles. The radioactive material is stored in a tank, which must be periodically cleaned.

In October, plant maintenance men cleaned out the tank and stored its radioactive mixture of sludge and water in a number of 55-gallon drums.

ON OCT. 21, after the sludge had settled in the drums, the workmen were told to pump the liquid into another holding area through one of the drains in the floor of the plant.

Twenty of the drums were emptied before the men discovered that they had been emptied into the wrong drain. Instead of going into a holding area, the liquid simply had run into a storm drain and soaked into the ground outside.

"The inadvertent use of the wrong floor drain resulted in an unplanned release of about 880 gallons of radioactive liquid to the underground outside the plant's radiation-controlled boundary," Schmidt told federal authorities in his report on the mishap.

The NRC's assessment of the incident was more succinct.

"It was a goof," says Moseley.

FPL said that the release of radiation, cobalt primarily, probably posed no threat to the health and safety of the public.

Pool-Like Area Inside Turkey Point Plant Contains Nuclear Fuel

. . . spent material goes into separate pits which are covered with water

THE AMOUNT of radioactive cobalt released, however, was approximately 15 times the amount released from the plant in all of the first six months of 1975.

To prevent a repeat of the mishap, FPL decided to label the drains in the floor of the plant, and it ordered workers to "request guidance from knowledgeable personnel whenever any uncertainty arises over the handling of radioactive material."

Schmidt says the employes responsible for the accident were "disciplined," but not fired.

And he says that in spite of the growing list of problems associated with the storage of spent fuel at Turkey Point, there is no cause for public concern.

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"THERE IS really no considerable hazard in what we have there," he says. "I don't like leaking fuel pits, and I would like to get rid of the fuel, but those things don't represent a real hazard."

Kendall says the outlook is less positive.

"Some of these things could be very serious," he says. "There are problems with a number of systems that are interrelated.

"It is a failure of the regulatory process that the leaks were actually detected and not repaired, and because it is now apparent that the integrity of the concrete is important, it also represents either a failure in the design or in the construction of the plant.

"And all of those problems appear to be complicated by the fact that the spent fuel can't be shipped to the facilities that were intended to receive it."