

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
) Docket Nos. 50-338/339-OLA-2
VIRGINIA ELECTRIC)
AND POWER COMPANY)

(North Anna Power Station,
Units 1 and 2)

Affidavit of Marvin L. Smith

On December 21, 1982, there appeared before me Marvin L. Smith, who, first being sworn by me, stated and affied as follows:

1. I am Marvin L. Smith. I live at 5707 Hillview Drive, Mechanicsville, Virginia. I am employed by Virginia Electric and Power Company as Supervisor, Nuclear Engineering. I am responsible for coordinating the activities that the Company is carrying out to provide interim storage for spent nuclear fuel from the reactors at the Company's Surry and North Anna Power Stations. I am familiar with the Company's nuclear fuel management plans, including its estimates of future spent fuel inventories, and with its plans for shipping spent fuel from Surry for storage at North Anna.

2. Based on current fuel management plans, unless Vepco can secure additional storage space for spent fuel from its Surry Power Station, Surry will lose full core discharge capability during the refueling outage of Surry Unit 2 that is scheduled to begin in November 1984. If the Surry Units continue to operate

as planned, Vepco will lose in 1987 the ability to store even the one-third of the fuel cores that would have to be replaced if Surry Units 1 and 2 are to continue to operate.

3. NRC does not require Vepco to maintain full core discharge capability. It is prudent to do so, however, because if a unit cannot be operated without maintenance or repairs that require removal of all the fuel from the reactor, and if there is no place to store the fuel temporarily, the unit must be shut down. Vepco estimates that with both Surry Units off-line, it would incur additional energy costs of \$350 million per year in 1982 dollars. Vepco has had to make unscheduled full core discharges on three occasions in the past.

4. Vepco has concluded that the most desirable option available to it for preventing the loss of full core discharge capability at the Surry Power Station in the fall of 1984 and the subsequent loss of refueling capability is to ship spent fuel presently at Surry to North Anna for storage there. Accordingly, Vepco has filed a license amendment application with NRC that would authorize it to store up to 500 Surry spent fuel assemblies in the North Anna Units 1 and 2 spent fuel pool.

5. Storage of Surry spent fuel assemblies at North Anna would, of course, hasten the day when the North Anna pool would be filled. Thus, Vepco has also applied to NRC for a license amendment authorizing the installation of neutron-absorbing racks at North Anna Units 1 and 2. If both of these applications are approved, the dates for loss of full core discharge capability would be extended to 1990 or beyond for the Surry and North Anna

Power Stations. Between now and 1990, Vepco will have an opportunity to evaluate options for providing additional storage beyond such dates and to implement one or more options.

6. In order to preserve full core discharge capability at Surry, Vepco must move at least 7 and possibly as many as 15 spent fuel assemblies prior to the beginning of the refueling of Surry Unit 2 projected for November 1984.

7. Several constraints affect the timing of shipments from Surry to North Anna:

(a) Vepco plans to avoid shipping spent fuel from Surry to North Anna while any nuclear unit at either Station is in a refueling outage. There is only one crane in each fuel pool, and so shipment or receipt of spent fuel during a refueling outage could disrupt and prolong the movement of fuel back and forth between the reactor being refueled and its spent fuel pool. In addition, a refueling outage, which occurs roughly every 18 months at each unit, is a time when certain types of maintenance must be performed. Every effort is made to perform all maintenance during a refueling outage that would otherwise require a special shutdown of the unit. Thus refueling outages are times of intensive maintenance and repair work, and any work that does not have to be done during an outage is not done. Shipment and receipt of spent fuel does not have to be done during a refueling outage.

(b) Refuelings during 1984 are presently scheduled as follows:

North Anna Unit 1: January 6 - February 17, 1984

Surry Unit 1: June 10 - July 22, 1984

North Anna Unit 2: October 19 - November 30, 1984

Surry Unit 2: November 15 - December 30, 1984

(c) Vepco wishes to avoid shipping spent fuel during December through March due to the high probability that severe weather will disrupt the shipping campaign.

8. Based on the foregoing constraints Vepco has two "windows" during which it can ship spent fuel in 1984. The first is in April and May and the second in August and September 1984. Vepco plans to ship 36 spent fuel assemblies from Surry to North Anna during a four-week period within each of those "windows."

9. North Anna Unit 1 has been off-line for repairs since May 1982. During efforts to restart the Unit in December 1982, the generator was damaged, and it is now estimated that the Unit will remain off-line until April 1983. The Company is reviewing the refueling outage schedule set out in paragraph 7(b) in light of the longer-than-expected outage of North Anna Unit 1, and I expect that the dates shown in paragraph 7(b) will be changed as a result. But I do not believe that these changes will make a material difference in the time when the Company will need to begin storing Surry fuel at North Anna.

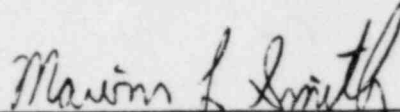
10. Thus, in order to carry out its program for storing Surry fuel at North Anna, Vepco must receive a license amendment approving its proposal prior to April 1984. In any event, it is essential that Vepco ship from 7 to 15 assemblies no later than during the August and September 1984 "window," if it is to maintain full core discharge capability at Surry, and so it must have a favorable decision, if one is appropriate, by the end of July 1984.

11. The installation of neutron-absorbing racks in the North Anna Units 1 and 2 pool should not be done when a refueling outage is going on at North Anna. In addition, it should not be done when spent fuel from Surry is being received at North Anna. Vepco estimates that installing these racks will take from one to two months.

12. It is economically desirable to install the neutron-absorbing racks prior to the storage of any Surry spent fuel at North Anna and before the 1984 North Anna Unit 2 refueling outage is carried out. This would avoid the double handling of about 100 assemblies. Thus, the best time to install the new racks would be during February and March 1984. Obviously, meeting this schedule is not essential to the Company in the same way that it is essential to receive approval before August 1984 of the proposal to store Surry fuel at North Anna. But it is certainly desirable.

13. Vepco has reviewed the status of applications filed by utilities with NRC for license amendments authorizing the installation of high density or neutron-absorbing racks. As of March 1982, 58 such applications had been filed by 41 different utilities. Hearings were held on nine of those proceedings. The time from filing to issuance of a license amendment in contested proceedings ranged from one to two years, though one proceeding lasted 38 months. In addition, there has been one contested proceeding involving an application for permission to store spent fuel from one station at another. The time between filing of the

application in that proceeding and issuance of the initial decision was 26 months.

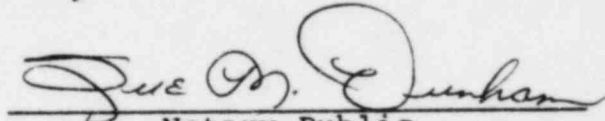


Marvin L. Smith

Commonwealth of Virginia)
) To wit:
City of Richmond)

Subscribed and sworn to before me in my jurisdiction aforesaid this 21st day of December 1982.

My commission expires: *May 13, 1984*



Notary Public