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TO: D.L. ZIEMANN

FROM: FLORIDIA POWER & LIGHT CO.
MIAMI, FLORIDIA
R.E. UHRIG

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10-7-76

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DESCRIPTION
LTR. RE. THEIR 8-3-76 LTR.....
SUPPLEMENTARY INFORMATION SUPPORTING THE POSITION
TO SECTION J OF THE ENCLOSURE CONCERNING THE
DELECTION OF THE OPERATING LICENSE.....

(1 SIGNED CY. RECEIVED)
(4 PAGES)

PLANT NAME: ST. LUCIE # 1

ENCLOSURE

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ACKNOWLEDGED

SAFETY

FOR ACTION/INFORMATION

ENVIRO

SAB 10-15-76

ASSIGNED AD:		ASSIGNED AD:
BRANCH CHIEF:	ZIEMANN W/6	BRANCH CHIEF:
PROJECT MANAGER:		PROJECT MANAGER:
LIC. ASST.:	DIGGS	LIC. ASST.:

INTERNAL DISTRIBUTION

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<input checked="" type="checkbox"/> GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
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SKOVHOLT	SALTZMAN		J. COLLINS
	RUTBERG		KREGER

EXTERNAL DISTRIBUTION

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<input checked="" type="checkbox"/> ASLB:	CONSULTANTS		
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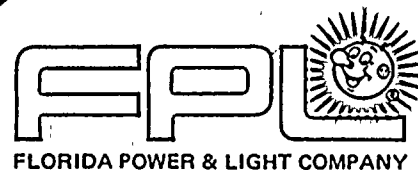
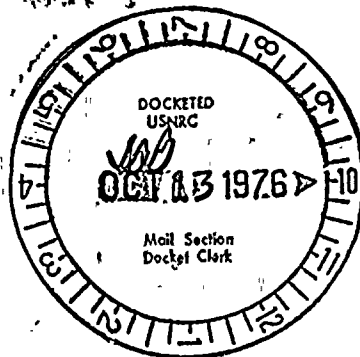
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October 7, 1976
L-76-352

Office of Nuclear Reactor Regulation
Attn: Dennis L. Ziemann, Chief
Operating Reactors Branch No. 2
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Ziemann:

Re: St. Lucie Unit No. 1
Docket No. 50-335
Operating License DPR-67
Condition of License J
Supplementary Information



Our letter of August 3, 1976 (L-76-281) presented Florida Power & Light Company's position that Section J of Enclosure 1 to the St. Lucie Unit No. 1 operating license has been satisfied and requested its deletion from the license. The information presented herein is in support of that position and is supplementary to our earlier transmittal.

The operating history of CEDM 44 and a description of inspections planned during the present outage were outlined in our letter of August 3, 1976. A review of this operating history and of the inspection results obtained since our earlier letter has led to the postulation of several possible mechanisms for the inconsistent performance of CEDM 44. These are discussed below:

- 1) The presence of foreign material, such as polyethylene or grit, in the lower gripper mechanism of CEDM 44 could cause it to bind, preventing proper operation. With polyethylene, low temperatures would increase the possibility of malfunctioning since the substance would tend to stiffen with cooling. Grit, however, would not exhibit this property and should consistently impair operation at all operating temperatures.

The presence of any material should be visually detectable. The lower gripper mechanism has been inspected internally using a boroscope and found to be clean and free of foreign material. Also,

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the operating history has been carefully reviewed. Exercising of the gripper at elevated temperatures tends to improve its performance at lower temperatures. This is not characteristic of grit as pointed out above. Neither would polyethelene exhibit this trait since, if present, it would continue to affect low temperature operation regardless of exercising. These inspections, however, revealed nothing.

Based on these considerations, it is not likely that grit, polyethelene, or any other type of foreign material is present.

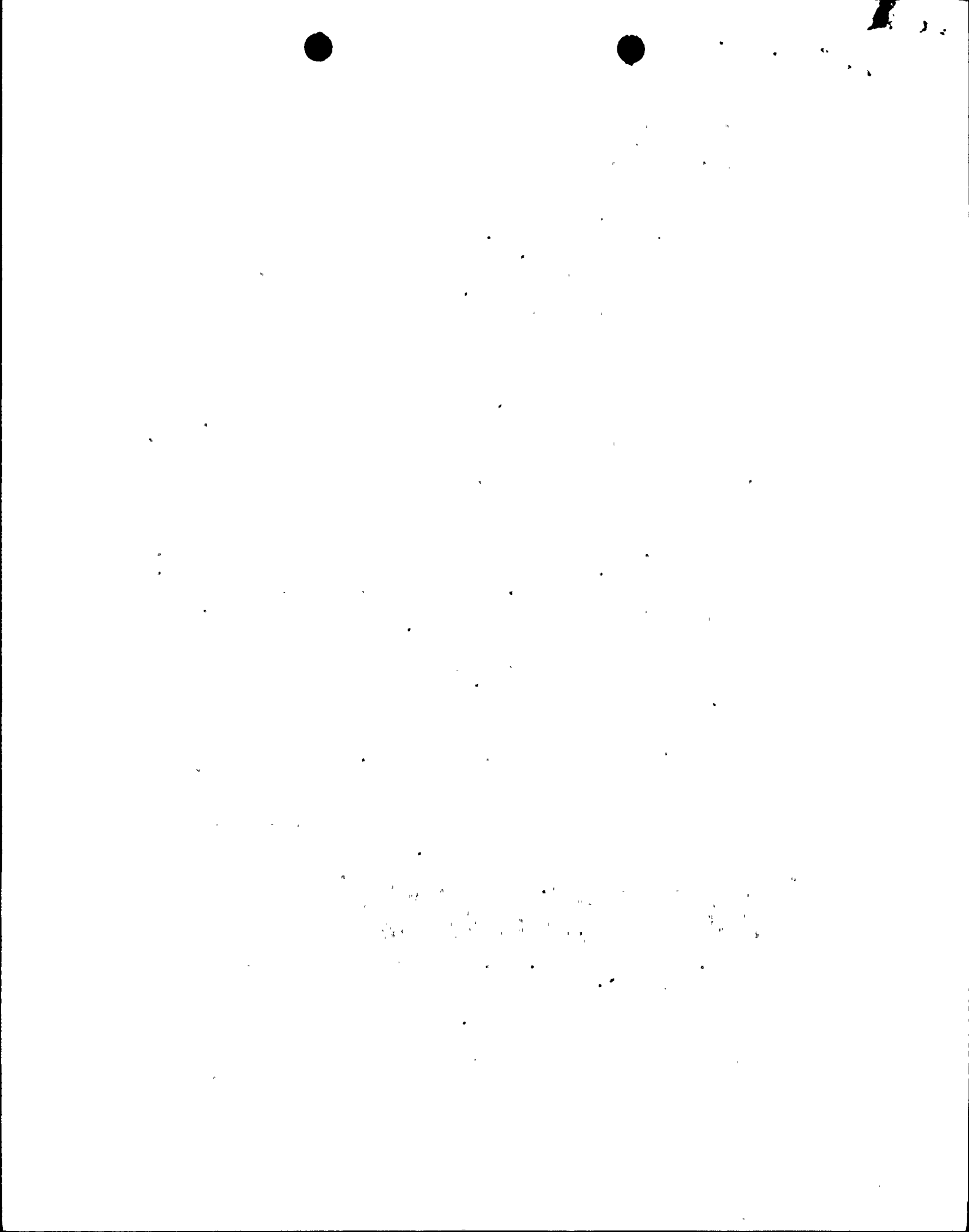
- 2) Warping or surface deformities on the drive shaft might cause malfunctioning at a particular CEA withdrawal height.

The drive shaft portion of the CEDM 44 CEA extension shaft was inspected and compared to other CEDM drive shafts. No anomalies could be identified. Likewise, operating temperature appears to be a factor in the observed operation. There is no reason, however, for this cause to be temperature related. Therefore, we conclude that warping or surface defects on the drive shaft are not responsible for its low temperature intermittent operation.

- 3) Electrical malfunctioning in the lower gripper coil could cause the lifting synchronization to be affected.

After the upper internal package was removed from the reactor during the present outage, electrical current was supplied to CEDM 44 and its operation was carefully observed. No mechanical or synchronization problems were seen. It was concluded that electrical malfunctioning is not a probable cause.

- 4) At temperatures less than 300°F, the thermal properties of the drive shaft and lower gripper sleeve may, at times, cause a misalignment of the mechanical latches and the drive shaft notches. Upon attempted engagement of the gripper mechanism in this case, the latch may not seat properly into the notch on the shaft. When this occurs, the CEA is not properly latched and, hence, is allowed to inadvertently drop. Higher temperatures and the consequent physical expansion of the



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mechanism parts may increase the tolerance of the mechanism and, thus, allow normal operation. Based on the operating history, on test results, and on visual observations, this is thought to be the most probable cause of the inconsistent operation of CEDM 44.

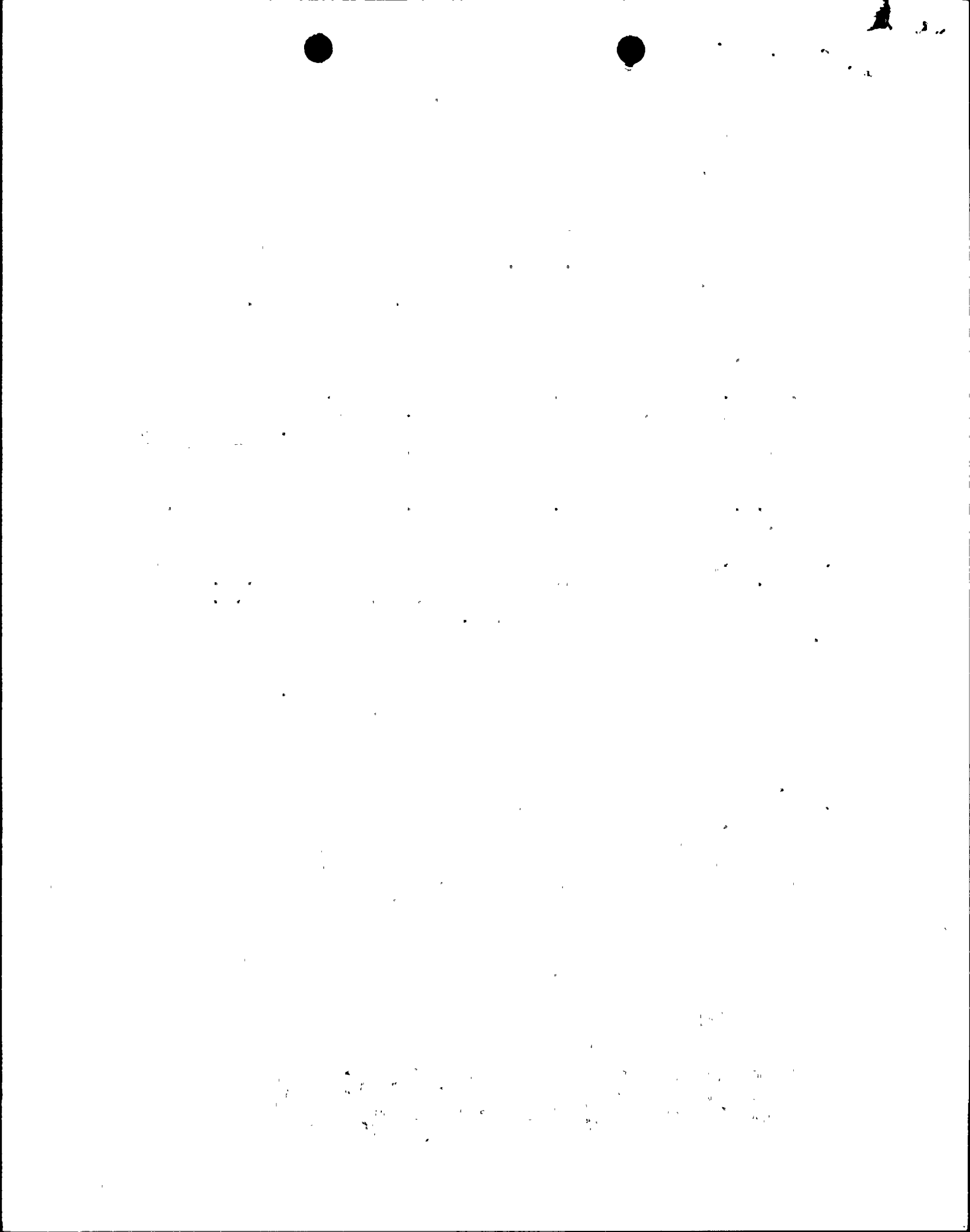
As we pointed out in our earlier letter, the cold rod drop time testing has been successfully completed. Also, FPL has no intention of reinstating Technical Specification 3.10.3 which would permit low temperature criticality. Therefore, CEDM 44 serves only a shutdown function, making its difficulty to drive the rod at low temperatures independent of safe operation.

In addition, FPL has reviewed the available operating and inspection data and has concluded that an unsafe core configuration cannot result from failure of the gripper latch to seat in the drive shaft notch. On the contrary, when the magnetic field in the gripper coil collapses following the lifting sequence, the CEA always returns to its inserted position unless held by the latch. This is supported by the operating history which shows that the rod has never, at any temperature, been observed to stick or to fail to re-enter the core upon its release. Furthermore, the rod has performed normally in all cases for temperatures above 350°F, and considerable improvement has been recently observed in its ability to withdraw at lower temperatures.

As a shutdown rod, CEDM 44 is never moved or operated during criticality or during approach to criticality. After the rod is successfully withdrawn, it remains stationary in the completely withdrawn position. The gripper has never been observed to disengage other than during rod movement. Even so, the unlikely event of rod drop from the fully withdrawn position has been analyzed in Section 15.2.3 of the St. Lucie Unit 1 FSAR and accepted by the staff in their SER dated March 1, 1976.

Combustion Engineering, the CEDM vendor, has likewise reviewed the test data and operating history. They have advised FPL that there is no safety consideration that should require replacement of CEDM 44. Also, its replacement will not increase plant reliability.

It is C-E's estimate that the cost of the replacement effort would be approximately \$200,000 which includes about 500 man-hours of labor. Also, at the reactor head, the dose rate is



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approximately 0.5 rem/hour, so the resulting total exposure would approach 250 man-rem. C-E and FPL agree that, since no substantial additional protection of the public health and safety, and no increase in plant reliability will result from this repair, the financial costs and radiological exposure are unjustified.

In conclusion, FPL does not plan to replace CEDM 44 during the present outage. Based on our assessment that no unsafe condition exists, that no increase in plant reliability or additional protection of the public health and safety will result from replacement, and that the rod performance is continually improving, we believe that the intent of License Condition J has been met. Therefore, in view of the foregoing, and the information presented in our letter of August 3, 1976, FPL requests that Section J be deleted from Enclosure 1 to the St. Lucie Unit 1 Operating License.

Since deletion of Section J will make the replacement of CEDM 44 unnecessary, it is requested that your review of this proposal be completed by October 11, 1976. Your timely review will be appreciated because, should replacement become necessary, a decision made after October 11 will lengthen our present outage.

Yours very truly,


Robert E. Uhrig
Vice President

REU/NLR/hlc

cc: Norman C. Moseley, Region II
Jack R. Newman, Esq.

