UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	Docket No. 50-335 OLA-88 SEP 28 P4:42
FLORIDA POWER AND LIGHT COMPANY	)	
	)	ASLBP No. 88-560-01-LA
(St. Lucie Plant, Unit No. 1)	)	

INTERVENOR'S RESPONSE TO LICENSEE'S MOTION FOR SUMMARY DISPOSITION OF INTERVENOR'S CONTENTION 7

I. LEGAL STANDARDS FOR SUMMARY DISPOSITION

Under both the Commission's and Federal Court Rules of Practice, "the burden of proof lies upon the movant for summary disposition, who must demonstrate the absence of any issue of material fact." Adickes v. Kress and Co., 398, U.S. 144, 157, Perry ALAB-443, supra, 6 NRC at 753. Again under both NRC and Federal Rules, "the record is to be reviewed in the light most favorable to the party opposing the motion." Dairyland Power Cooperative, 16 NRC 512, 519(1982) citing: Poller v. Columbia Broadcasting System Inc., 368 U.S. 464. 473(1962); Crest Auto Supplies Inc. v. Ero Manufacturing Co., 360 F. 2d, 896, 899 (7th Cir. 1966); United Mineworkers of America, Dist. 22 v. Ronoco, 314 F. 2d 186, 188 (10th Cir. 1963); Pennsylvania Power & Light Co. and Allegheny Electric Co-operative Inc. (Susquehanna Steam Electric Station, Units 1 and 2) LBP 81-8, 13 NRC 335, 337 (1981); Seabrook, LBP-74-36, supra, 6 NRC, supra, 7 AEC at 879.

"Because the proponent of a motion for summary disposition has the burden of demonstrating the absence of a genuine issue of material fact, it does not necessarily follow that a motion supported by affidavits will automatically prevail over an opposition not supported by affidavits. The Board must scrutinize the motion to determine whether the movant's

burden has been met." Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency (Shearson Harris Nuclear Plant, Units 1 and 2) LBP-84-7, ASLBP No. 82-468-01-OL, 19 NRC 432 (1984).

Finally, for a contention to remain litigable, the Intervenors must present to the Board a sufficient factual basis, "to require reasonable minds to inquire further." Pennsylvania Power and Light Company and Allegheny Electric Cooperative Inc., (Susquehanna Steam Electric Station Units 1 and 2) ALAB 613, 12 NRC 317, 340 (1980).

II. INTERVENOR'S CONTENTION 7

The purpose of this response is to address Intervenor's Contention 7 which states:

> CONTENTION 7: That the increase of the spent fuel capacity which includes fuel rods that are more highly enri..ed, will cause the requirements of ANSI-N16-1975 not to be met and will increase the probability that a criticality accident will occur in the spent fuel pool and will exceed 10 CFR Part 50, A 62 Criterion.

1. General Design Criterion 62 of Appendix A to 10 CFR Part 50 is violated by this rack design. The geometric configuration itself is not safe and does not allow the k_{eff} to remain below 1.0. Without the presence of the Boraflex, the storage mass would go critical.

2. Because, according to the Quad Cities study, the service life of ..lex cannot be determined at this point in time, the Boraflex cannot qualify as a strong, fixed neutron absorber, as stated in NRC Standard Review Plan, NUPEG-0800. Also we know that gaps will form in the Boraflex causing a redistribution of the neutron poison material in the spent fuel storage racks. "In the gap region, the absence of neutron absorber in one or more panels results in a net local increase in reactivity as well as an increase in the reactivity of the entire storage cell." (Quad Cities, pg. 9-0)

3. In Amendment No. 92, License No. DRR-67 which granted Licensee permission to utilize fuel of 4.5 w/o U-235, it says in 5.6.1.a. "The spent fuel storage racks are designed and shall be maintained with a k_{eff} equivalent to or less than 0.95 when flooded with unborated water, which includes a conservative allowance of 0.0065 delta(k) for uncertainities."

4. Licensee in Revision 1 of his Safety Analysis Report submitted 29 January 1988 in section 3.1.2 states, "The inadvertent misplacement of a fresh fuel assembly either into a Region 2 storage cell or outside and adjacent to a rack module has the potential for exceeding the limiting reactivity should there be a concurrent and independent accident condition resulting in the loss of all soluble poison."

5. The preceding admission by Licensee points out another inadequacy in the rack design. In the Standard Review Plan, Section 9.1.2, Part III. 2.b. it is stated that, "The design of the storage racks is such that a fuel assembly cannot be inserted anywhere other than in a design location." Clearly, this is not the case in the design of the St. Lucie I racks.

6. The high density, storage rack design that will be present in St. Lucie I will not meet the double contingency principle as required by ANSIN16.1-1975 for fuel pool analyses.

7. Licensee in his Safety Analysis Report has already described one scenario where the k_{eff} would be exceeded. See paragraph 4 above.

8. Criticality could result from from a single event, loss of pool water, due to either boiling, line break at the 1500 gpm recirculating pump discharge, rupture of the pool liner.

8. In any of these scenarios, fuel element overheating and cladding fire would result, dropping the UO_2 pellets to a critical array at the bottom of the pool away from the Boraflex rods.

9. Licensee's assertion that water, a neutron moderator, is necessary for criticality is false. Witness the death of Dr. Louis Slotin at Los Alamos in 1947. There was no water present when he suffered a fatal exposure to a radiation dose from a critical reaction. No atomic weapon has water present as a neutron moderator present when it achieves criticality. Witness the concern at Three Mile Island and at Chernobyl where the fuel dumped into a critical array at the bottom of the reactor.

10. Another single event that could lead to a k_{eff} greater than 0.95 would be the degradation of the Boraflex to such a degree that gaps formed in the Boraflex leading to an increased reactivity. This is particularly true for fresh fuel that will be loaded into Region I.

11. This is a possibility proposed by the Atomic Safety Licensing and Appeal Board in their decision of 28 July 1988, ALAB 898. "The testimony of witnesses for both the applicant and the staff cited the Boraflex degradation that had occurred in the spent fuel storage racks at the Quad Cities nuclear facility. That degradation brought about, among other things, gaps (i.e. holes) in the Boraflex sheets incorporated into those racks. Whether such gaps will be experienced at Turkey Point remains to be seen. Should gaps develop, however, they would have an effect upon the neutron absorption efficacy of the Boraflex sheets. The extent of that effect would hinge upon the size and location of the gaps. But, should the enrichment level be 4.5 weight percent, there will be much less room for confidence that any gaps at Turkey Point will not occasion violation of that

limit." (Attachment b, pgs. 8-9)

12. The Appeal Board even considered remanding this matter to the Board for a reassessment of its determination that no safety concern attends upon the reracking.

13. The Turkey Point racks referred to in this decision had a center-to-center spacing of 10.6 inches and the Boraflex in that region had a Boron-10 density of 0.020 gm/cm^2. The racks at St. Lucie I would have a center-to-center spacing of only 10.12 inches and Boron-10 density in the Boraflex of 0.020 gm/cm^2. Thus the conclusions drawn by the Appeal Board are relevant to the instant case.

14. In testimony, William Boyd, a senior engineer of the Westinghouse Nuclear Fuel Division, indicated that certain gap formation in the Boraflex in the presence of 4.5 w/o U-235 of initial enrichment would exceed the limiting reactivity of 0.98. See Figure 2 of Attachment A.

15. In conclusion, Intervenor contends that the Licensee has not met their burden of proof on this contention and that several issues of material fact remain on this contention. One, can Boraflex be considered a strong, fixed neutron absorber under the parameters of 10 CFR Part 50, A 62 Criterion. Two, is the double contingency principle of ANSI N16.1-1975 going to be satisfied with this rack design. Would not a loss of water accident cause a criticality accident to occur. Would not degradation of the Boraflex leading to gap formation cause a criticiality accident to occur.

Respectfully submitted,

Campbell Rich

Attachment

A

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
FLORIDA POWER & LIGHT COMPANY (Turkey Point Nuclear Generating Station, Units 3 & 4)	)	Docket Nos. 50-250, OLA-2 50-251, OLA-2 (Spent Fuel Pool Expansion)

Testimony of William A. Boyd
on Contention Number 6

Q1: Please state your name, occupation and business address.

A1: My name is William A. Boyd. I am a Senior Engineer in Nuclear Design for the Nuclear Fuel Division of Westinghouse Electric Corporation. My business address is Westinghouse Electric Corporation, Monroeville Mall Office Building, P.O. Box 3912, Pittsburgh, PA, 15320.

Q2: Please describe your professional qualifications.

A2: A summary of my professional qualifications and experience is attached as Exhibit A, and is incorporated herein by reference.

Q3: What is the purpose of your testimony?

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A3: The purpose of my testimony is to address Contention 6. Contention 6 and the bases for that contention are as follows:

Contention 6

> The Licensee and Staff have not adequately considered or analyzed materials deterioration or failure in materials integrity resulting from increased generation and heat and radioactivity, as a result of increased capacity and long-term storage, in the spent fuel pool.

Bases for Contention

> The spent fuel facility at Turkey Point was originally designed to store a lesser amount of fuel for a short period of time. Some of the problems that have not been analyzed properly are:
>
> (a) deterioration of fuel cladding and decay heat and radiation levels during extended periods of pool storage.
>
> (b) loss of materials integrity of storage rack and pool liner as a result of exposure to higher levels of radiation over longer periods.
>
> (c) deterioration of concrete pool structure as a result of exposure to increased heat over extended periods of time.

In particular, the purpose of my testimony is to address the impact of postulated gaps in the Boraflex neutron absorbing material utilized in the Turkey Point spent fuel storage racks. The Testimony of William C. Hopkins on Contention

Number 6 and the Testimony of Eugene W. Thomas on Contention Number 6 discuss the materials integrity of the spent fuel pool liner and the spent fuel pool concrete structure. The testimony of Dr. Gerald R. Kilp and Russell Gouldy on Contention Number 6 discusses the materials integrity of the fuel assemblies and spent fuel storage racks in the spent fuel pool environment.

Q4: Have you previously prepared an affidavit in this proceeding?

A4: Yes. I prepared the Affidavit of William A. Boyd on Contention 10 (January 20, 1986), which was submitted in support of Licensee's Motion for Summary Disposition of Intervenors' Contentions (January 23, 1986). The purpose of that affidavit was tc describe the criticality analyses performed by me for the Turkey Point spent fuel pool expansion amendments, to demonstrate that the analyses conformed with applicable industry standards and employed methods accepted by the Nuclear Regulatory Commission (NRC), and to show that the results of the analyses satisfy applicable NRC criteria. As a result of these analyses, the K-effective of Region I was calculated to be 0.9403 and the K-effective of Region II was calculated to be 0.9304, accounting for all uncertainties and assuming the

absence of boron in the spent fuel pool water. These values satisfy various NRC guidelines and industry standards which state that the K-effective of the spent fuel pools should be less than or equal to 0.95. At pages 53-61 of its Memorandum and Order of March 25, 1987, the Licensing Board granted summary disposition of Contention 10 based upon my affidavit and those submitted by the NRC Staff.

Q5: What assumptions did the analyses described in your affidavit make with respect to the Boraflex in the spent fuel racks?

A5: The analyses included an assumption that the Boraflex panels in the spent fuel racks would remain intact and would not develop gaps.

Q6: How are Boraflex panels arranged in the Turkey Point spent fuel pool racks?

A6: There are two regions in the Turkey Point spent fuel pools. The Region I racks are designed to hold fuel assemblies with a maximum Uranium-235 enrichment of 4.5%, and the Region II racks are designed to hold fuel assemblies with a maximum reactivity equivalent to the reactivity of assemblies having an initial enrichment of 1.5%.

The Region I spent fuel storage racks at Turkey Point are each composed of a number of cells. The cells are essentially square vertical tubes. A cross-section of a storage cell, viewed from directly above the cell, is depicted in Figure 1. Each cell is composed of a stainless steel cell enclosure, Boraflex panels which run along the length of the cell outside the cell enclosure on each of the four sides of the cell, and thin steel wrappers which hold the Boraflex in place. Thus, the Boraflex panels provide neutron absorbing capability on all sides of the cell. The Region II racks have a somewhat similar structure, but spacing between individual cells is smaller and the density of the Boraflex panels is lower than in the Region I racks (Boron-10 area density of 0.02gm/cm^2 for Region I versus 0.012 gm/cm^2 for Region II).

Q7: Have you made any analyses of the impact on K-effective of postulated gaps in the Boraflex plates?

A7: Yes. After the reports of gaps in the Boraflex in the storage racks at Quad Cites in Spring 1987, Florida Power & Light Company (FPL) requested that Westinghouse perform a sensitivity analysis to determine the impact of postulating the existence of various types of gaps in the Boraflex panels.

This analysis was performed for the Region I storage racks, because (1) the K-effective (K_{eff}) is higher for Region I than for Region II, and (2) the Region I spent fuel racks utilize a greater thickness of Boraflex (Boron-10 area density of 0.020 gm/cm^2) than the Region II racks (Boron-10 area density of 0.012 gm/cm^2). Thus, any gaps in the Boraflex in Region I racks would have more of an effect on K_{eff} levels than similar gaps in the Region II racks and would be more likely to cause spent fuel pool K_{eff} levels to exceed the 0.95 limit.

Q8: What assumptions concerning the maximum enrichment of fuel in the Turkey Point spent fuel pool were made in your analysis?

A8: Two sets of calculations of K_{eff} were performed. One set of calculations assumed that the stored fuel has a maximum fuel enrichment of 4.5% of Uranium 235, which is the maximum level of fuel enrichment authorized to be stored at Turkey Point. The second set of calculations assumed a maximum fuel enrichment of 4.1% of Uranium 235, which is the maximum fuel enrichment planned to be used at Turkey Point prior to the next surveillance and

testing of the Boraflex. The enrichment of the fuel currently used at Turkey Point ranges from 3.4% to 3.6%.

Q9: What assumptions were made concerning the condition of the Boraflex neutron absorbing material?

A9: Two cases were analyzed. First, gaps were postulated to exist in ever Boraflex panel and to be aligned at the mid-point of the fuel assemblies. Second, gaps were postulated to exist in half of the Boraflex panels and to be aligned at the mid-point of the fuel assemblies. In both cases, the gap size in the analysis was varied from 0 to 10 inches.

Q10: What method did you use to calculate the resulting K_{eff}?

A10: The method used to calculate K_{eff} was the same as that described on pages 10 to 17 of my affidavit. This method was accepted by the Board in its March 25, 1987 Memorandum and Order, which granted summary disposition of Contention 10.

Q11: What were the results of your calculations?

A11: If a 4.5% fuel enrichment level is assumed, the calculations demonstrate that the Turkey Point design basis K_{eff} limit of 0.95 is not exceeded in the Region I racks even if aligned gaps up to 2" in length are postulated to exist in all of the

Boraflex panels. If gaps are postulated to exist in only one-half of the panels, aligned gaps of up to 3.5" may exist without exceeding the 0.95 K_{eff} limit. These results are depicted on Figure 2.

If a fuel enrichment level of 4.[illegible]% is assumed, the calculations demonstrate that aligned gaps of up to 3.5" may exist in all panels without exceeding the 0.95 K_{eff} limit, and aligned gaps of up to 7" may exist in one-half of the panels without exceeding the 0.95 K_{eff} limit. These results are depicted on Figure 3.

Q12: Are the assumptions used in your calculations ones which can reasonably be expected to exist in the Turkey Point spent fuel pools?

A12: No. The assumptions upon which these calculations were based are very conservative and unrealistic given the experience at Quad Cites. For example:

- Less than a third of the Boraflex panels examined at Quad Cities had cracks. Assuming gaps in more of the Boraflex plates results in an increase in K_{eff}.
- For those Boraflex panels at Quad Cities which had gaps, the average cumulative gap size (sum of the length of all gaps on a single Boraflex

panel) was 1.5 inches. Assuming gap sizes greater than 1.5 inches results in an increase in K_{eff}.

- o The gaps were located at different elevations along the Boraflex at Quad Cities and were not aligned at the center of the fuel assembly. Assuming alignment of the gaps results in an increase in K_{eff}. Gaps which are out of alignment by more than approximately 5" (along the 139" length of the Boraflex panels) would have a much smaller effect on K_{eff} levels.

Finally, the method utilized to calculate the K_{eff} levels under these conditions contained a number of other conservatisms. These were described in my affidavit and noted by the Board on page 56 of its March 25, 1987 Memorandum and Order.

Q13: Do you have any conclusions with respect to the impact of postulated gaps in the Boraflex in the Turkey Point spent fuel storage racks?

A13: Yes. Based on my calculations, the Turkey Point spent fuel pools would remain within the 0.95 K_{eff} limit even with a conservative estimate of postulated gaps in the Boraflex panels.

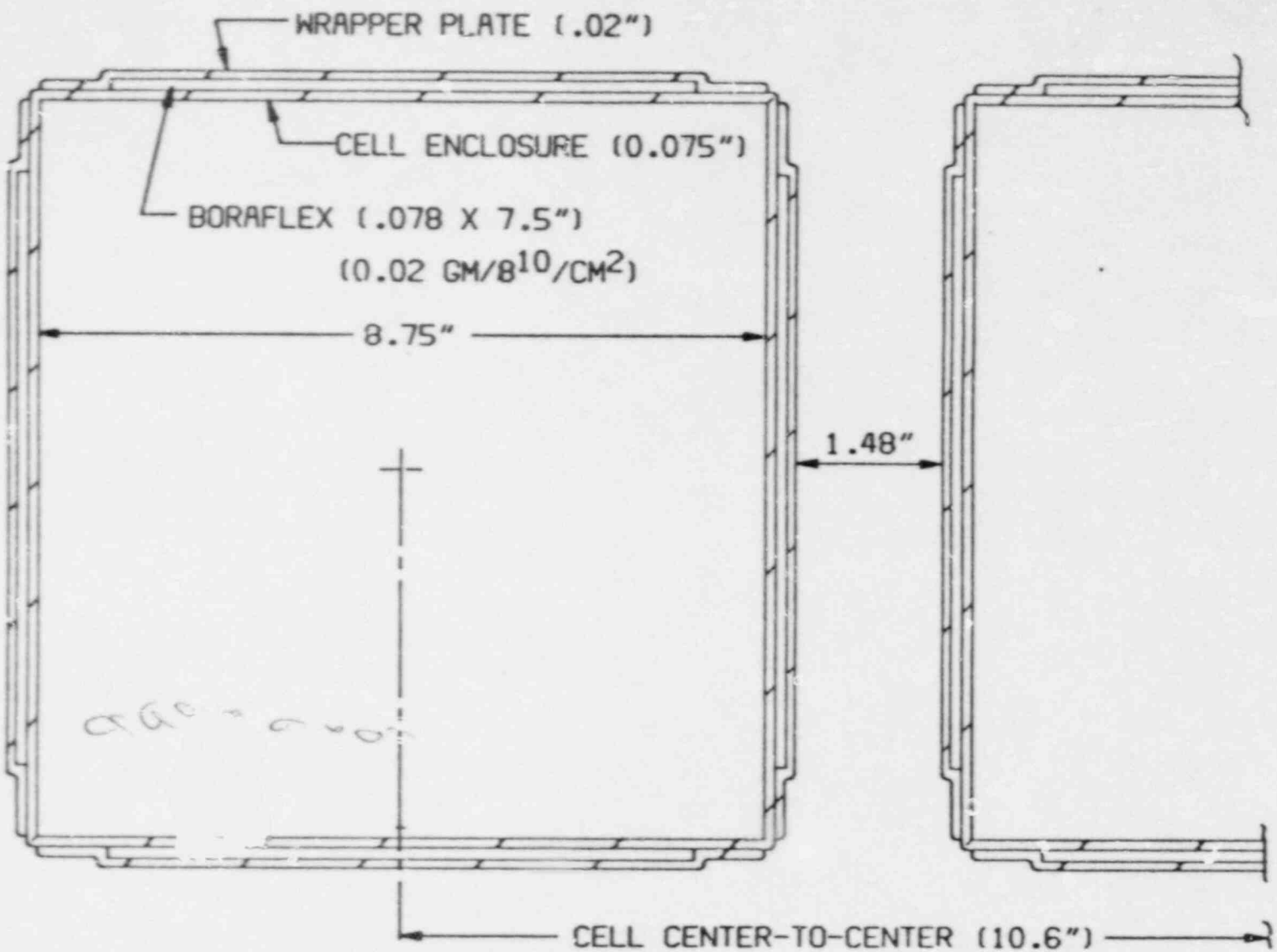

FIGURE 1
NOMINAL DIMENSIONS FOR THE REGION 1
STORAGE CELLS

Figure 2
BORAFLEX Gap Sensitivity Study
4.5 w/o U-235

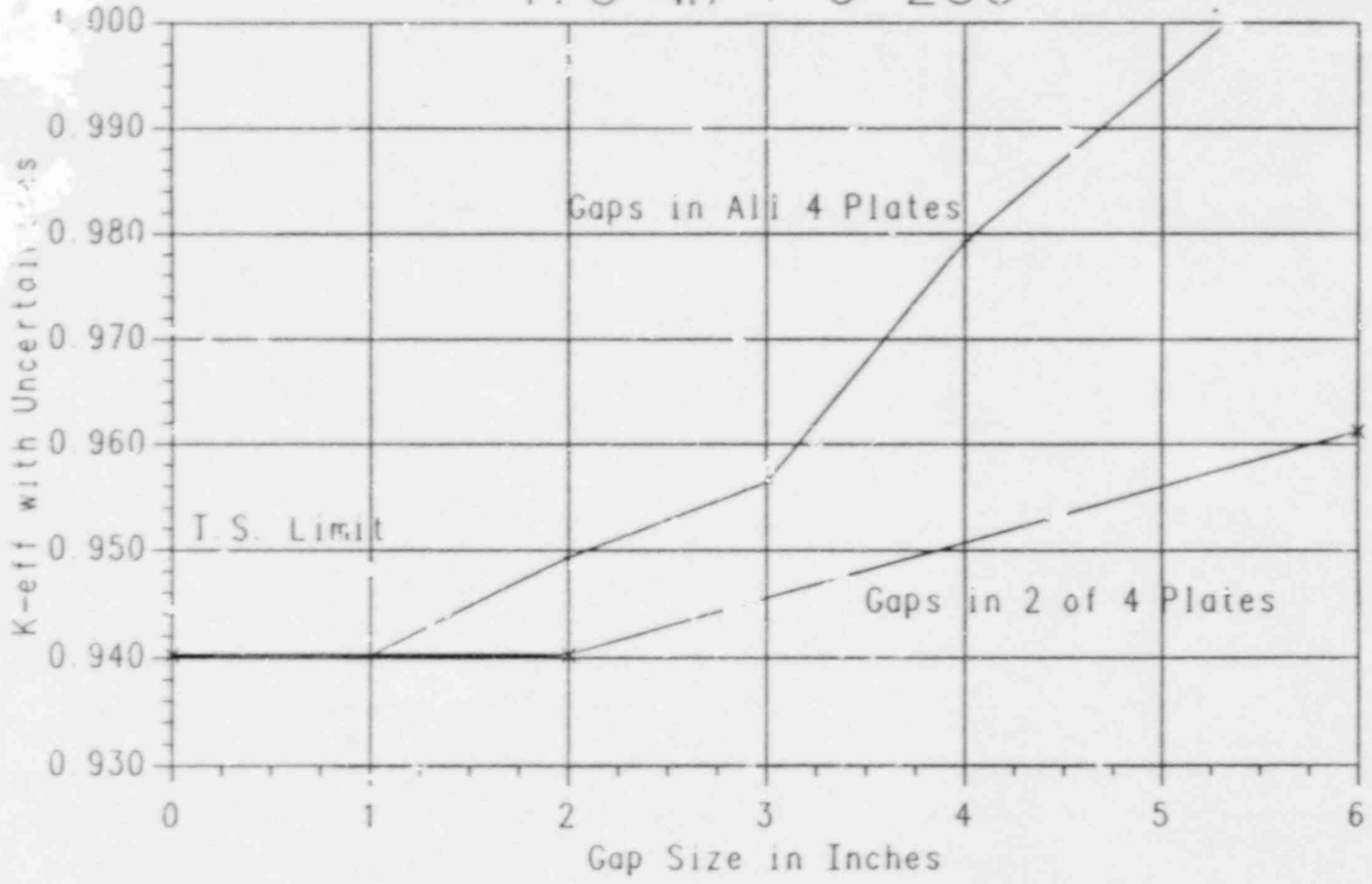

Figure 3
BORAFLEX Gap Sensitivity Study
4.1 w/o U-235

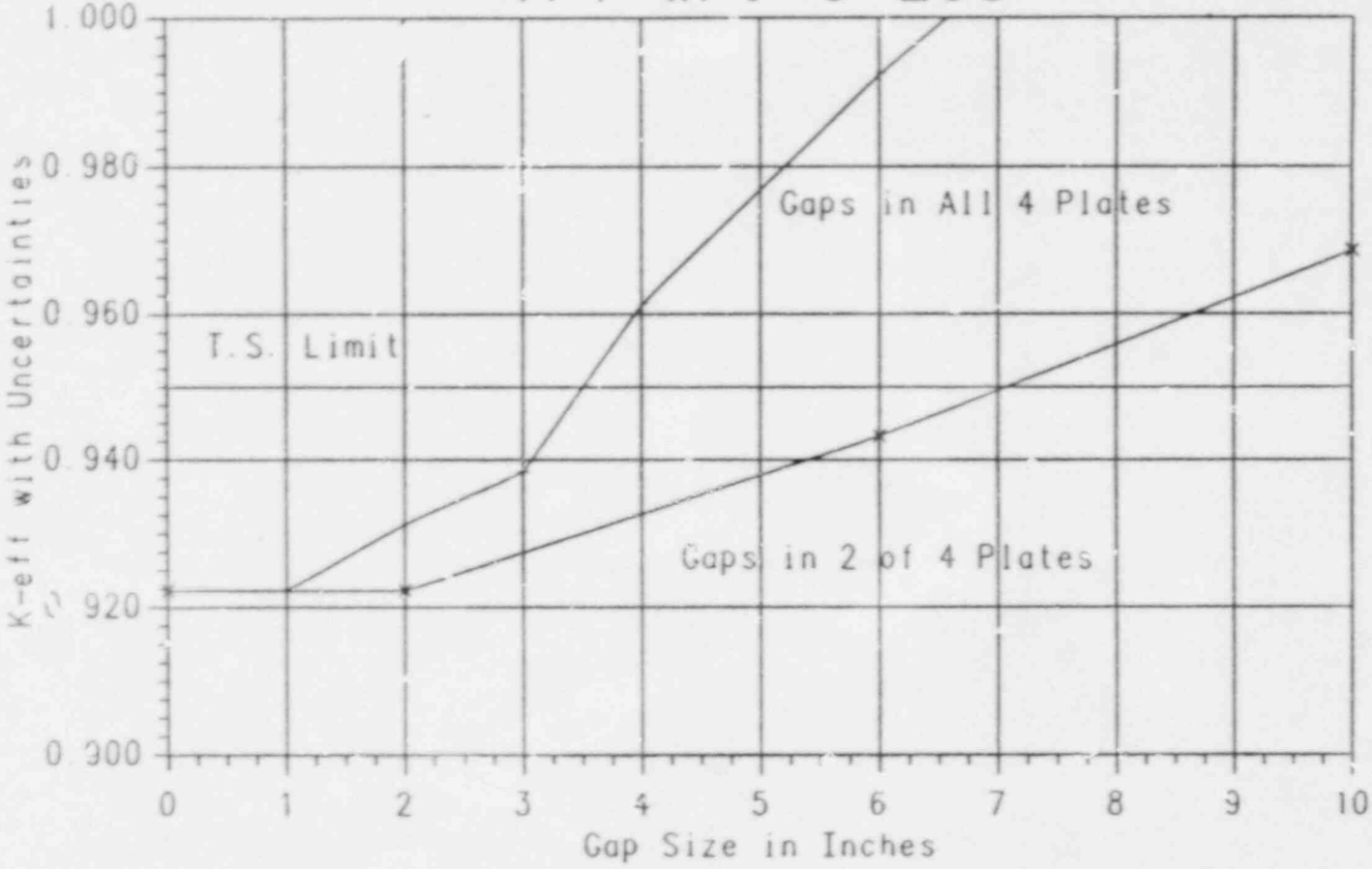

EXHIBIT A

STATEMENT OF PROFESSIONAL QUALIFICATIONS
OF WILLIAM A. BOYD

My name is William A. Boyd, and my business address is Westinghouse Electric Corporation, P.O. Box 7912, Pittsburgh, Pennsylvania, 15230. I am a Senior Engineer in the Core Engineering section of the Westinghouse Nuclear Fuel Division.

I graduated from Alliance College in 1973 with a Bachelors Degree in Mathematics. In 1975, I received a Masters Degree from Drexel University in Electrical Engineering. I received a Masters Degree in Nuclear Engineering from the Massachusetts Institute of Technology in 1977.

From 1977 to 1981, I was a Design Engineer at the General Electric Knolls Atomic Power Laboratory in Schenectedy, New York. My duties included the nuclear design and evaluation of a light water breeder reactor and certain navy propulsion reactors.

In June of 1981, I joined Westingnouse in the Nuclear Design section of the Nuclear Fuel Division, as a Senior Engineer B. My duties included the reload nuclear core design of the Turkey Point Unit 4 reactor. I was later given the added responsibility of fuel rack and shipping container criticality coordinator of the Nuclear Fuel Division. As the criticality coordinator my duties included

the direction, coordination, development and review of the methods used to perform all fuel rack and shipping container criticality analysis for the Nuclear Fuel Division. In 1984, I was promoted to the position of Lead Engineer with the technical responsibility for the efforts of several engineers and technicians in the reload core nuclear design and analysis of the Point Beach Units 1&2, R. G. Ginna, and Prairie Island Units 1&2.

In 1986, I was transferred to the lead engineer position for Turkey Point Units 3 and 4.

Attachment

B

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Christine N. Kohl
Howard A. Wilber

July 28, 1988
(ALAB-898)

In the Matter of	)	
FLORIDA POWER & LIGHT COMPANY	)	Docket Nos. 50-250-OLA-2 50-251-OLA-2
(Turkey Point Nuclear Generating Plant, Units 3 and 4)	)	(Spent Fuel Pool Expansion)

Joette Lorion, Miami, Florida, pro se and for the intervenor Center for Nuclear Responsibility, Inc.

Steven P. Frantz, Washington, D.C., and Norman A. Coll, Miami, Florida, for the applicant Florida Power & Light Company.

Benjamin H. Vogler for the Nuclear Regulatory Commission staff.

DECISION

1. In March 1984, the Florida Power & Light Company (applicant) submitted an application for amendments to the operating licenses for its two-unit Turkey Point nuclear facility to enable it to expand the capacity the spent fuel pools at the facility. In July 1984, the Center for Nuclear Responsibility, Inc., and Joette Lorion (intervenors) filed with the Licensing Board a timely request for a hearing and petition for leave to intervene in the proceeding.

While the intervenors' submission was still under Licensing Board advisement, the NRC staff determined that

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the proposed license amendments "involve[d] no significant hazards consideration" within the meaning of 10 CFR 50.92(c). Accordingly, in November 1984 and under the authority of 10 CFR 50.91 a)(4), the staff issued the amendments subject to the outcome of the pending intervention petition.[1]

In September 1985, the intervenors were admitted to the proceeding, together with seven of their proffered contentions.[2] Subsequently, the applicant obtained summary disposition on five of the contentions and the other two (contentions 5 and 6) went to hearing.

On April 19, 1988, the Licensing Board rendered its initial decision in which it resolved contentions 5 and 6 in the applicant's favor.[3] The Board therefore concluded that the license amendments issued by the staff in 1984 should remain in effect without modification.[4]

The intervenors have not appealed this conclusion and, thus, the initial decision is now before us for review on

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[1] See 49 Fed. Reg. 46,832 (1984).

[2] See LBP-85-36, 22 NRC 590.

[3] See LBP-88-9A, 27 NRC 387.

[4] Id. at 415.

our own initiative.[5] That review has disclosed no reason to disturb the license amendments. For the reasons set forth below, however, we are constrained to incorporate in our affirmance of the Licensing Board result a direction that the applicant give effect to a representation it made to the staff.

2. The expansion of the capacity of each Turkey Point spent fuel pool has been accomplished by the replacement of the former fuel storage racks with ones that provide less spacing between the individual fuel assemblies. To ensure that the interaction between assemblies remains subcritical by a specified amount, the applicant has placed a neutron-absorbing material, Boraflex, in the new racks.

The applicant supplied the Licensing Board with copies of letters to the staff in which it stated that it would (1) establish surveillance programs to assess the continued effectiveness of the Boraflex;[6] and (2) not store any fuel with an enrichment in U-235 greater than 4.1 weight percent

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[5] See Georgia Power Co. (Vogtle Electric Generating Plant, Units 1 and 2), ALAB-859, 25 NRC 23, 27 (1987), and cases cited therein.

[6] See letter from Steven P. Frantz to the Licensing Board (July 15, 1987), Attachment (letter from C.O. Woody to the Commission (July 10, 1987), designated L-87-279).

prior to completion of the next surveillance in approximately three years.[7]

In the initial decision, the Licensing Board took both of these representations to be commitments on the applicant's part and, in reaching its result, placed considerable reliance upon them. Given that reliance, we thought it desirable to seek the parties' views on whether the Licensing Board should have converted the representations into license conditions. Although our June 27 order (unpublished) soliciting those views did not so note, in taking that step we were also influenced by the seeming internal disagreement within the staff respecting whether, in fact, the applicant had committed itself not to store fuel with more than a particular U-235 enrichment prior to the next surveillance. Staff witness Laurence I. Kopp, a nuclear engineer in the Reactor Systems Branch of the Office of Nuclear Reactor Regulation (NRR), expressed the opinion that no such commitment had been made or, indeed, was warranted.[8] But shortly thereafter, Conrad E.

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[7] See letter from Steven P. Frantz to the Licensing Board (August 31, 1987), Attachment (letter from C.O. Woody to the Commission (August 27, 1987), designated L-87-363). According to applicant witness Russell Gouldy, the surveillance has now been scheduled for December 1989. Tr. 246-47, 312.

[8] Tr. 358-59. Dr. Kopp was not asked about the representation concerning the surveillance programs.

McCracken, the Acting Chief of a different NRR Branch and a member of the same panel of staff witnesses, stated unequivocally that letters from applicants such as the one embracing the representations in question are treated as commitments.[9]

In their response to our order, the intervenors maintain that a license condition embracing the two representations should have been imposed by the Licensing Board and should now be imposed by us.[10] For their part, the applicant and the staff take the opposite position. In this connection, those parties call attention to our decision almost a decade ago in the proceeding involving the proposed expansion of the capacity of the Trojan facility's spent fuel pool. Rejecting the insistence of the intervenor State of Oregon that, inter alia, certain operational details set forth in the applicants' "design report" for the expansion be converted into technical specifications to be imposed upon the operating license, we observed:

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[9] Tr. 376. Mr. McCracken made this statement after being reminded of Dr. Kopp's earlier contrary testimony.

[10] In exercising our discretion to hear from all of the parties below on the matter of the warrant for a license condition, we saw no need to pass upon whether, by not taking an appeal from the initial decision, the intervenors gave up any further entitlement to participate as of right in the proceeding. We similarly now reserve judgment on that question.

> there is neither a statutory nor a regulatory requirement that every operational detail set forth in an applicant's safety analysis report (or equivalent) be subject to a technical specification, to be included in the license as an absolute condition of operation which is legally binding upon the licensee unless and until changed with specific Commission approval. Rather, as best we can discern it, the contemplation of both the [Atomic Energy] Act and the regulations is that technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety.[11]

We need not decide here whether that standard is satisfied. For there is an acceptable alternative means of ensuring the observance of the applicant's representations.

The year after the Trojan decision, we confronted in Zion an appeal by the State of Illinois from the Licensing Board's authorization of the expansion of the storage capacity of a spent fuel pool. The State claimed, inter alia, that that Board should have raised to the level of a technical specification certain commitments of the applicant respecting such matters as the conduct of a corrosion surveillance program. Although concluding that the Trojan standard was not met, we went on to say:

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[11] Portland General Electric Co. (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979) (footnote omitted). See "Proposed Policy Statement on Technical Specification Improvements for Nuclear Power Reactors," 52 Fed. Reg. 3788 (1987).

> This does not mean the State's concerns are frivolous. The slow action of corrosion and a gradual loss of neutron-absorbent material can present serious problems if left unchecked. However, Illinois' fears -- that the commitments to guard against these possibilities might be withdrawn without prior staff notification or approval and that the means for enforcing them are inadequate -- can be allayed without freighting the applicant's license with additional technical specifications. The applicant has pledged to the staff, to the Licensing Board and to this Board not to change or drop those commitments without prior staff approval; it has expressly acknowledged that those promises were made to obtain favorable action on the proposal now before us. . . . We perceive no reason why that pledge should not be formally incorporated in our own order in this case, which as of course enforceable to the same extent as a Commission decision. This disposition settles the permanence and enforceability of the applicant's commitments without trampling on any party's rights . . . .[12]

If anything, there is even greater cause to follow the Zion route in this case. As we have seen, the record leaves in doubt whether the staff deems the applicant to have made a commitment not to store, prior to completion of the next surveillance program, fuel with an enrichment in U-235 greater than 4.1 weight percent.[13] In this connection, there is at least some foundation for Dr. Kopp's opinion that no commitment was made. For the evidence indicates

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[12] Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 423-24 (1980) (footnote omitted).

[13] It is not clear from the staff's submission to us whether it supports Dr. Kopp's position on the question or, instead, that of Mr. McCracken.

that (1) in their present form the license amendments unconditionally authorize the storage of fuel with an enrichment in U-235 of 4.5 weight percent; and (2) the applicant has agreed, at most, merely to notify the staff if it decides to exceed the 4.1 weight percent limit before the next surveillance.[14]

In short, at present there is a lack of full assurance that the applicant will adhere to what the Licensing Board (perhaps mistakenly) took to be a commitment that could be relied upon in arriving at its ultimate determination that the reracking of the spent fuel pools did not pose a significant safety concern.[15] On the basis of the evidence before it, however, the Licensing Board was quite right in attaching importance to the applicant's representations.

The testimony of witnesses for both the applicant and the staff cited the Boraflex degradation that had occurred in the spent fuel storage racks at the Quad Cities nuclear facility. That degradation brought about, among other things, gaps (i.e., holes) in the Boraflex sheets incorporated into those racks.[16]

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[14] Tr. 282-83, 303.

[15] See LBP-88-9A, 27 NRC at 413-14.

[16] See Kilp and Gouldy, fol. Tr. 222, at 27-28; Wing, fol. Tr. 339, at 6-9.

Whether such gaps will be experienced at Turkey Point remains to be seen.[17] Should gaps develop, however, they would have an effect upon the neutron absorption efficacy of the Boraflex sheets. The extent of that effect would hinge upon the size and location of the gaps. The results of a gap sensitivity study performed by the Westinghouse Electric Corporation, taken in conjunction with the Quad Cities experience, suggests that it is unlikely that, so long as the stored fuel does not have an enrichment greater than 4.1 weight percent, the reactivity limit specified for the pools will be exceeded.[18] But, should the enrichment level be 4.5 weight percent, there will be much less room for confidence that any gaps at Turkey Point will not occasion the violation of that limit.[19]

In the circumstances, we might remand this matter to the Board for a reassessment of its determination that no safety concern attends upon the reracking. As we see it, however, the preferable course is to invoke the Zion precedent and, by doing so, to bring the proceeding to a

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[17] According to staff witness James Wing, the mechanism causing gap formation remains undetermined. See Wing, fol. Tr. 339, at 7. Dr. Wing did offer the conjecture that the gaps might be produced by the shrinkage of the sheets as the result of gamma radiation. Ibid.

[18] See Boyd, fol. Tr. 222, at 3, 7-9 & Figure 3.

[19] Id., Figure 2.

close without further delay. More particularly, we direct that, pending the obtaining of satisfactory results from the next surveillance, the applicant shall not store in either of the reracked pools any fuel with an enrichment in U-235 greater than 4.1 weight percent unless it requests approval to do so pursuant to 10 CFR 50.59(a)(1) as if a technical specification were involved.[20]

On the basis of that direction, coupled with our review of the balance of the record, LBP-88-9A, 27 NRC 387, is affirmed.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[20] We see no need for a specific incorporation into this order of the applicant's representation respecting the conduct of surveillance programs to assess the continued effectiveness of the Boraflex. The staff's filing with us characterizes that representation as a commitment and we are confident that the staff will enforce it as such. Moreover, our direction with regard to the enrichment limitation provides an additional incentive to carry out the promised surveillance programs.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-335-OLA
FLORIDA POWER AND LIGHT COMPANY	)	
	)	ASLBP No. 88-560-01-LA
(St. Lucie Plant, Unit No. 1)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of

1) Intervernor's Statement of Material Facts as to which There is a Genuine Issue to be Heard with Respect to Intervernor's Contentions;

2) Intervernor's Response to Licensee's Motion for Summary Disposition of Intervenor's Contention 3;

3) Intervenor's Response to Licensee's Motion for Summary Disposition of Intervenor's Contention 6;

4) Intervenor's Response to Licensee's Motion for Summary Disposition of Intervenor's Contention 7.

all dated 5 September 1988, were served upon the following by express mail, postage prepaid on the date shown below:

B. Paul Cotter, Jr., Chairperson
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Glenn O. Bright
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Richard F. Cole
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Adjudicatory File
Atomic Safety and Licensing Board Panel Docket
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555 (two copies)

Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Attn: Chief, Docketing and Service Section
(original plus two copies)

Benjamin H. Vogler, Esq.
Office of General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Michael A. Bauser
Newman & Holtzinger, P.C.
1615 L Street, N.W., Suite 1000
Washington, D.C. 20036

Harold F. Reis, Esq.
Newman & Holtzinger, P.C.
1615 L Street, N.W., Suite 1000
Washington, D.C. 20036

John T. Butler, Esq.
Steel Hector & Davis
4000 Southeast Financial Center
Miami, Fl. 33131

Dated this 23rd day of September, 1988.

Campbell Rich

Pro Se Litigant
4626 S.E. Pilot Avenue
Stuart, Fl. 34997
407 286 5724