TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

January 24, 1984

Director of Nuclear Reactor Regulation
Attention: Mr. Carl H. Berlinger, Chief
Core Performance Branch
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Berlinger:

In the Matter of ) Docket Nos. 50-327
Tennessee Valley Authority )

Enclosed is the peaking factor limit report for unit 1, cycle 3 operations. This report is being provided in accordance with the requirements of paragraph 6.9.1.14 of the Sequoyah unit 1 technical specifications.

If you have any questions concerning this matter, please get in touch with Jerry Wills at FTS 858-2683.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

Sworn to and subscribed before me
this 24th day of January 1984

Paulette H. White
Notary Public
My Commission Expires 9-5-84

Enclosure
cc (Enclosure):
U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Director of Nuclear Reactor Regulation
Attn: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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ENCLOSURE

# PEAKING FACTOR LIMIT REPORT

SEQUOYAH NUCLEAR PLANT
UNIT 1, CYCLE 3

This Peaking Factor Limit Report is provided in accordance with Paragraph 6.9.1.14 of the Sequoyah Unit 1 Technical Specifications.

The Cycle 3 W(z) functions for RAOC operation in the cycle burnup ranges of 0 to 2000 MWD/MTU, 2000 to 5000 MWD/MTU, 5000 to 11000 MWD/MTU, 11000 to 14000 MWD/MTU, 14000 MWD/MTU to EOL are shown in Figures 1 through 5 respectively. W(z) was calculated using the method described in Reference 1.

The appropriate W(z) function is used to confirm that the heat flux hot channel factor, $F_Q(z)$, will be limited to the Technical Specifications values of:

$$F_Q(z) \leq \frac{2.237}{P} [K(z)] \text{ for } P > 0.5 \text{ and}$$

$$F_Q(z) < 4.474 [K(z)] \text{ for } P \leq 0.5$$

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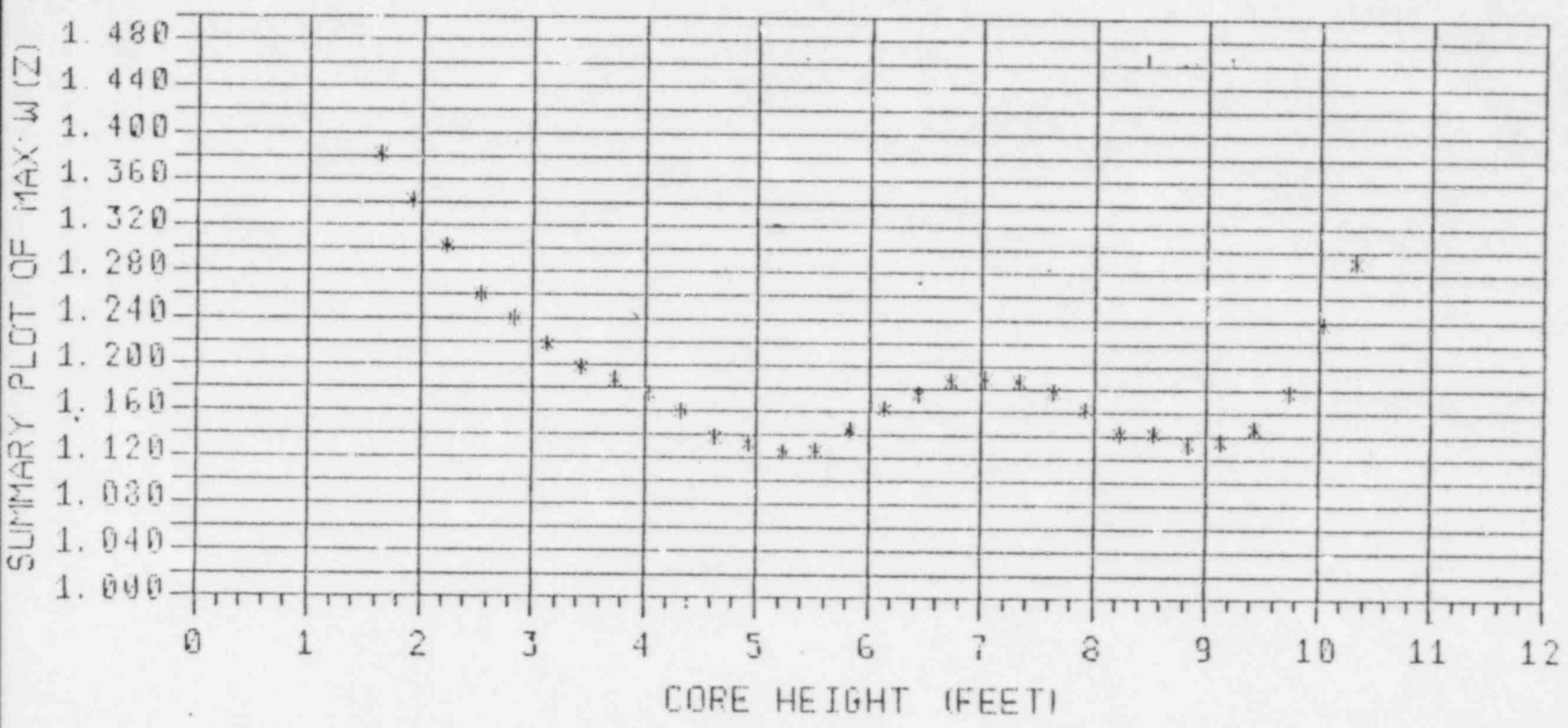
The appropriate W(z) functions, when applied to a power distribution measured under equilibrium conditions, demonstrates that the initial conditions assumed in the LOCA are met, along with the ECCS acceptance criteria of 10CFR50.46.

(1) WCAP-10216-P-A, Relaxation of Constant Axial Control - $F_Q$ Surveillance Technical Specification.

FIGURE 1
SEQUOYAH UNIT 1, CYCLE 3 RAOC W(Z)
FOR CYCLE BURNUPS BETWEEN 0 AND 2000 MWD/MTU



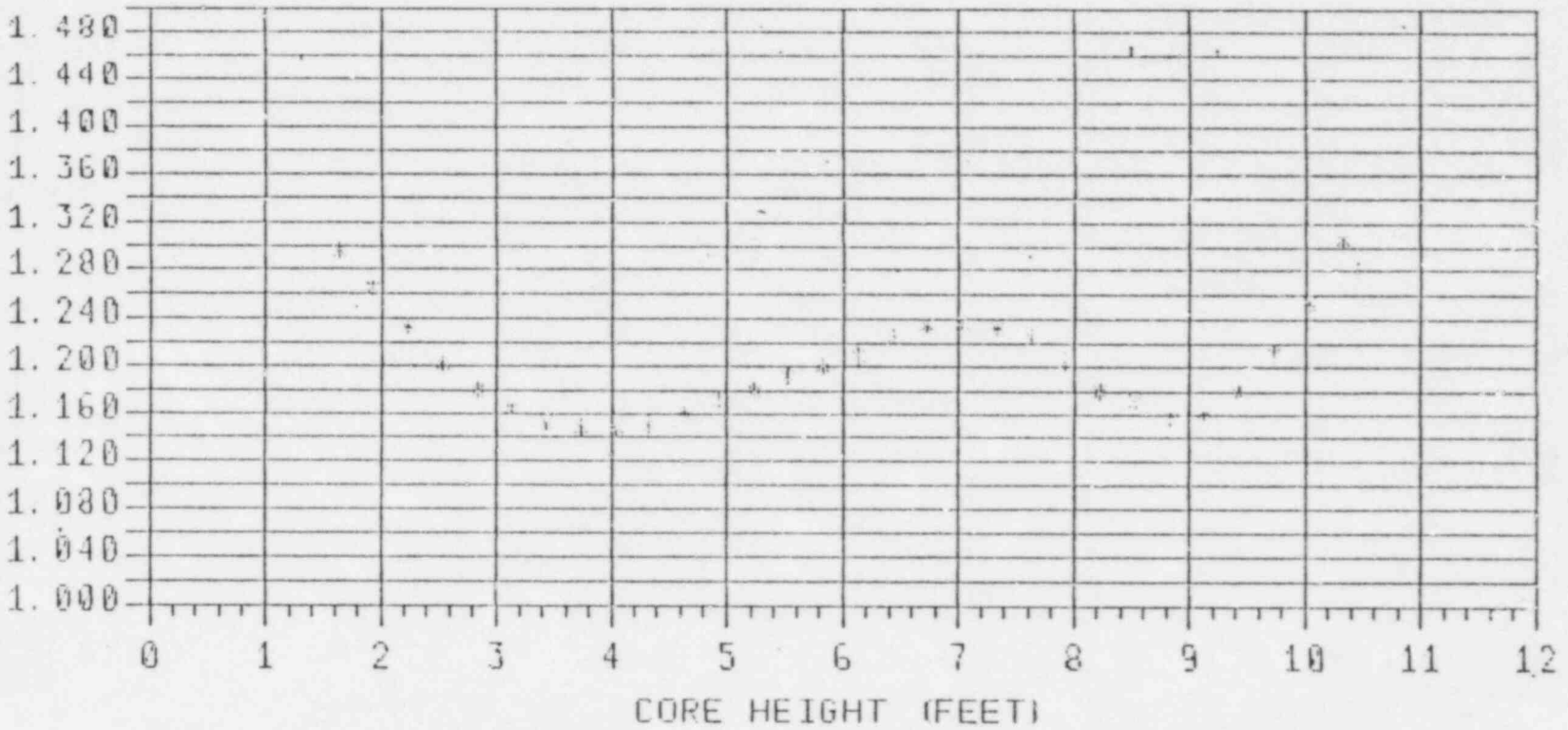

| HEIGHT (FEET) | MAX W(Z) |
|---|---|
| .15 | 0.000 |
| .45 | 0.000 |
| .75 | 0.000 |
| 1.05 | 0.000 |
| 1.35 | 0.000 |
| 1.65 | 1.382 |
| 1.95 | 1.343 |
| 2.25 | 1.302 |
| 2.55 | 1.260 |
| 2.85 | 1.239 |
| 3.15 | 1.219 |
| 3.45 | 1.197 |
| 3.75 | 1.187 |
| 4.05 | 1.175 |
| 4.35 | 1.160 |
| 4.65 | 1.137 |
| 4.95 | 1.133 |
| 5.25 | 1.125 |
| 5.55 | 1.127 |
| 5.85 | 1.145 |
| 6.15 | 1.163 |
| 6.45 | 1.176 |
| 6.75 | 1.186 |
| 7.05 | 1.189 |
| 7.35 | 1.185 |
| 7.65 | 1.178 |
| 7.95 | 1.163 |
| 8.25 | 1.142 |
| 8.55 | 1.142 |
| 8.85 | 1.134 |
| 9.15 | 1.135 |
| 9.45 | 1.147 |
| 9.75 | 1.179 |
| 10.05 | 1.238 |
| 10.35 | 1.292 |
| 10.65 | 0.000 |
| 10.95 | 0.000 |
| 11.25 | 0.000 |
| 11.55 | 0.000 |
| 11.85 | 0.000 |

*Top and bottom 15% excluded as per Technical Specification 4.2.2.2.g

FIGURE 2

SEQUOYAH UNIT 1, CYCLE 3 RAOC W(Z)

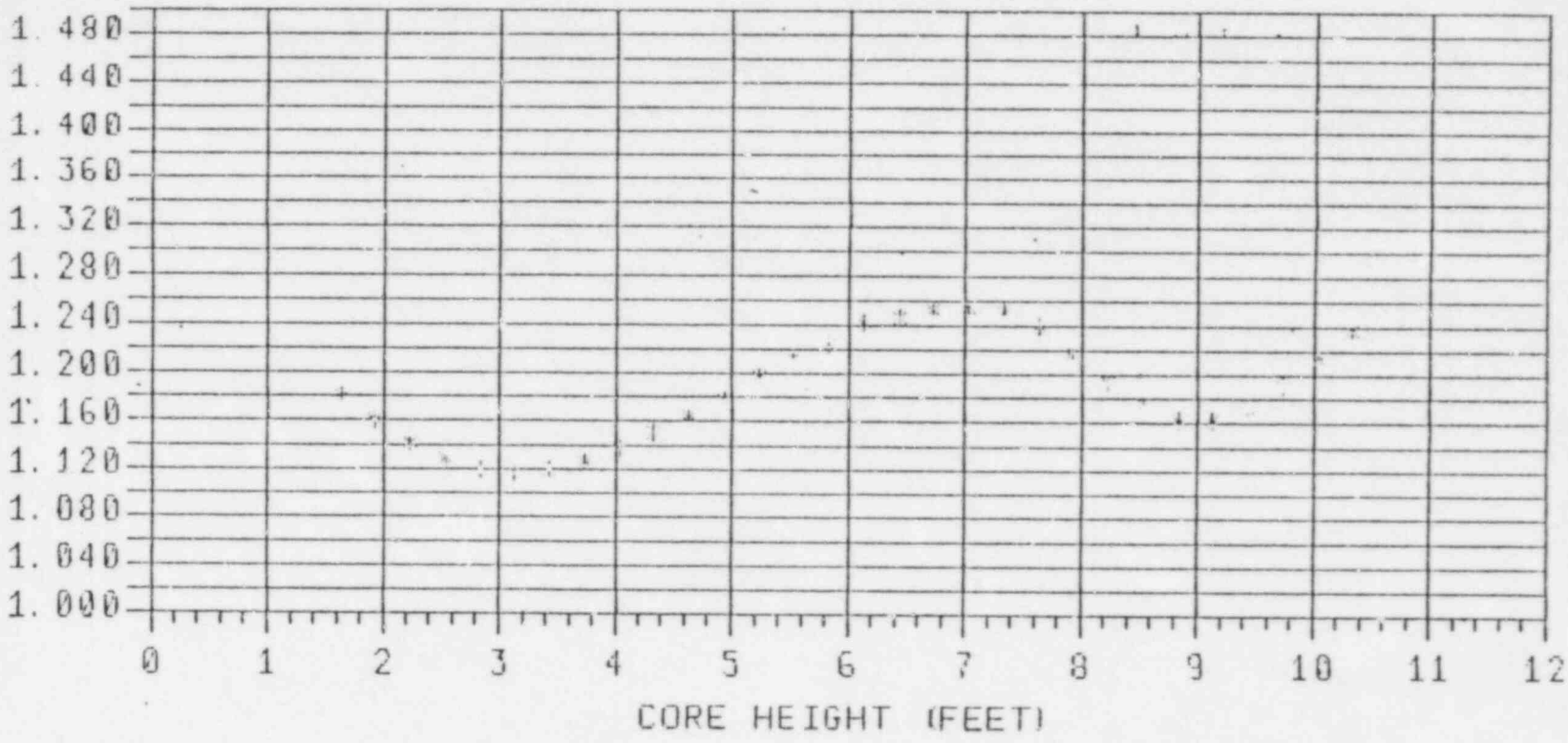
FOR CYCLE BURNUPS BETWEEN 2000 AND 5000 MWD/MTU




| HEIGHT (FEET) | MAX W(Z) |
|---|---|
| .15 | 0.000 |
| .45 | 0.000 |
| .75 | 0.000 |
| 1.05 | 0.000 |
| 1.35 | 0.000 |
| 1.65 | 1.296 |
| 1.95 | 1.255 |
| 2.25 | 1.233 |
| 2.55 | 1.201 |
| 2.85 | 1.180 |
| 3.15 | 1.166 |
| 3.45 | 1.153 |
| 3.75 | 1.149 |
| 4.05 | 1.149 |
| 4.35 | 1.151 |
| 4.65 | 1.160 |
| 4.95 | 1.172 |
| 5.25 | 1.180 |
| 5.55 | 1.192 |
| 5.85 | 1.200 |
| 6.15 | 1.208 |
| 6.45 | 1.225 |
| 6.75 | 1.235 |
| 7.05 | 1.238 |
| 7.35 | 1.234 |
| 7.65 | 1.224 |
| 7.95 | 1.205 |
| 8.25 | 1.180 |
| 8.55 | 1.173 |
| 8.85 | 1.158 |
| 9.15 | 1.161 |
| 9.45 | 1.173 |
| 9.75 | 1.212 |
| 10.05 | 1.253 |
| 10.35 | 1.309 |
| 10.65 | 0.000 |
| 10.95 | 0.000 |
| 11.25 | 0.000 |
| 11.55 | 0.000 |
| 11.85 | 0.000 |

*Top and bottom 15% excluded as per Technical Specification 4.2.2.2.g

FIGURE 3
SEQUOYAH UNIT 1, CYCLE 3 RAOC W(Z)
FOR CYCLE BURNUPS BETWEEN 5000 AND 11000 MWD/MTU



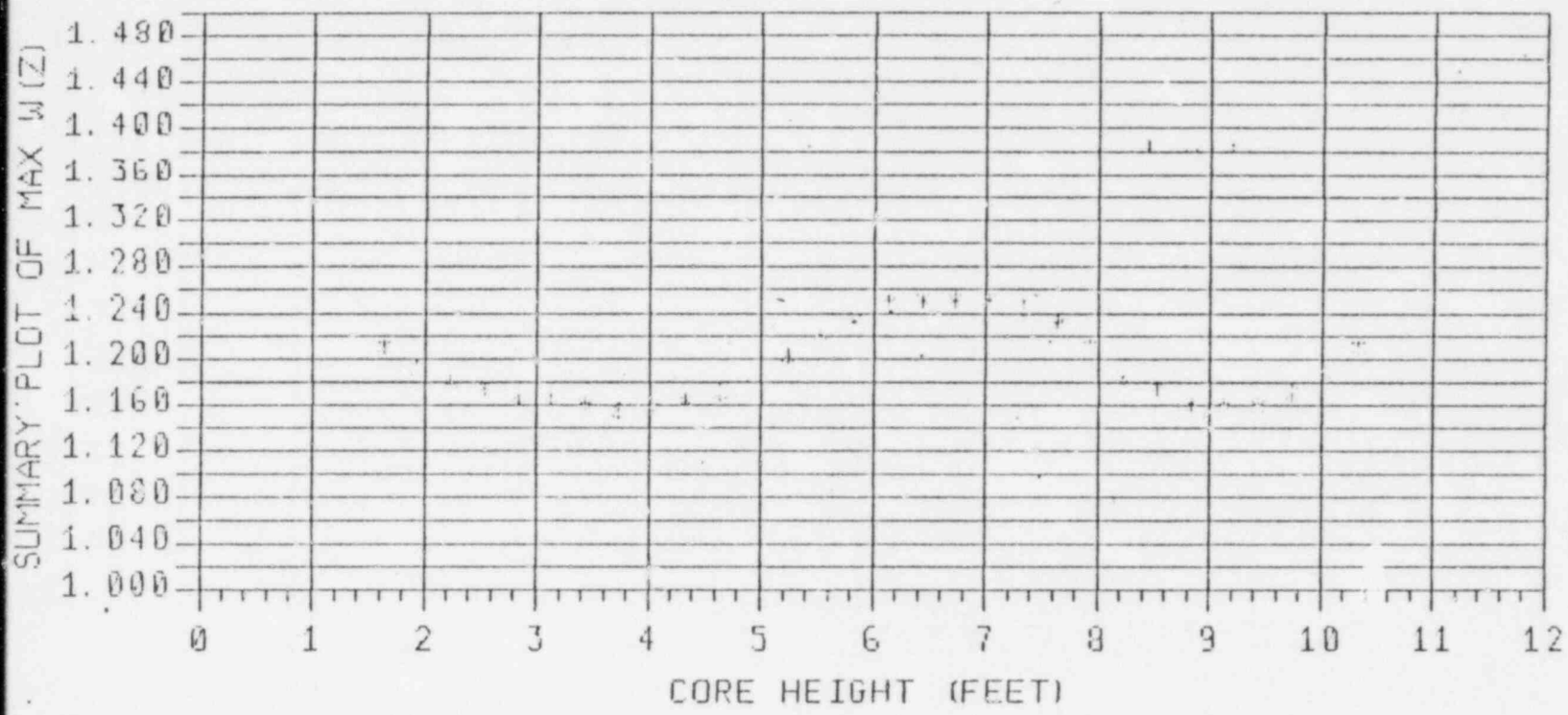

| HEIGHT (FEET) | MAX W(Z) |
|---|---|
| .15 | 0.000 |
| .45 | 0.000 |
| .75 | 0.000 |
| 1.05 | 0.000 |
| 1.35 | 0.000 |
| 1.65 | 1.179 |
| 1.95 | 1.160 |
| 2.25 | 1.141 |
| 2.55 | 1.129 |
| 2.85 | 1.119 |
| 3.15 | 1.117 |
| 3.45 | 1.120 |
| 3.75 | 1.126 |
| 4.05 | 1.137 |
| 4.35 | 1.151 |
| 4.65 | 1.164 |
| 4.95 | 1.177 |
| 5.25 | 1.197 |
| 5.55 | 1.213 |
| 5.85 | 1.225 |
| 6.15 | 1.242 |
| 6.45 | 1.246 |
| 6.75 | 1.253 |
| 7.05 | 1.255 |
| 7.35 | 1.250 |
| 7.65 | 1.239 |
| 7.95 | 1.219 |
| 8.25 | 1.193 |
| 8.55 | 1.176 |
| 8.85 | 1.163 |
| 9.15 | 1.163 |
| 9.45 | 1.173 |
| 9.75 | 1.190 |
| 10.05 | 1.213 |
| 10.35 | 1.238 |
| 10.65 | 0.000 |
| 10.95 | 0.000 |
| 11.25 | 0.000 |
| 11.55 | 0.000 |
| 11.85 | 0.000 |

*Top and bottom 15% excluded as per Technical Specification 4.2.2.2.g

FIGURE 4

SEQUOYAH UNIT 1, CYCLE 3 RAOC W(Z)

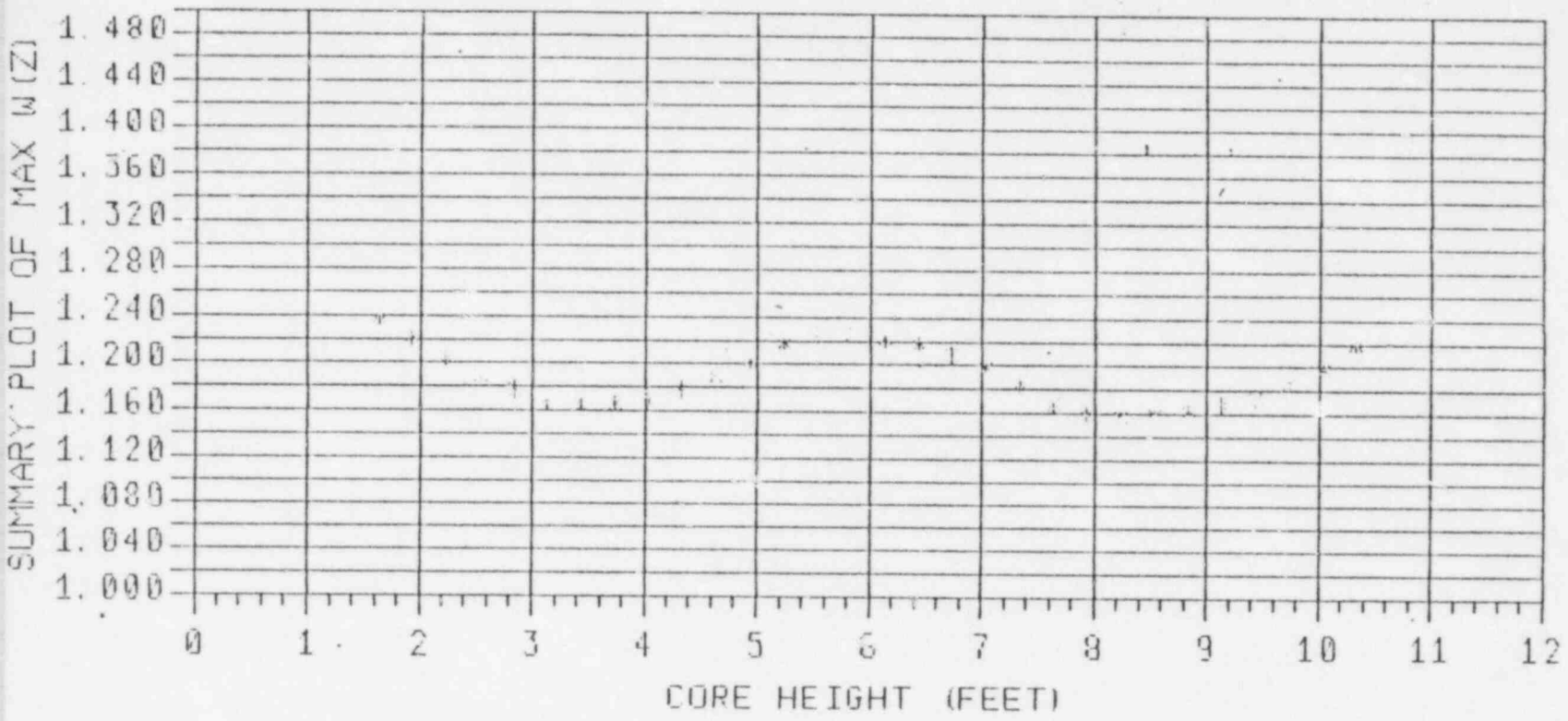
FOR CYCLE BURNUPS BETWEEN 11000 AND 14000 MWD/MTU




| HEIGHT (FEET) | MAX W(Z) |
|---|---|
| .15 | 0.000 |
| .45 | 0.000 |
| .75 | 0.000 |
| 1.05 | 0.000 |
| 1.35 | 0.000 |
| 1.65 | 1.212 |
| 1.95 | 1.191 |
| 2.25 | 1.180 |
| 2.55 | 1.175 |
| 2.85 | 1.169 |
| 3.15 | 1.168 |
| 3.45 | 1.160 |
| 3.75 | 1.156 |
| 4.05 | 1.159 |
| 4.35 | 1.164 |
| 4.65 | 1.171 |
| 4.95 | 1.187 |
| 5.25 | 1.202 |
| 5.55 | 1.223 |
| 5.85 | 1.234 |
| 6.15 | 1.248 |
| 6.45 | 1.251 |
| 6.75 | 1.250 |
| 7.05 | 1.251 |
| 7.35 | 1.244 |
| 7.65 | 1.232 |
| 7.95 | 1.211 |
| 8.25 | 1.184 |
| 8.55 | 1.175 |
| 8.85 | 1.161 |
| 9.15 | 1.160 |
| 9.45 | 1.159 |
| 9.75 | 1.170 |
| 10.05 | 1.187 |
| 10.35 | 1.211 |
| 10.65 | 0.000 |
| 10.95 | 0.000 |
| 11.25 | 0.000 |
| 11.55 | 0.000 |
| 11.85 | 0.000 |

*Top and bottom 15% excluded as per Technical Specification 4.2.2.2.g

FIGURE 5
SEQUOYAH UNIT 1, CYCLE 3 RAOC W(Z)
FOR CYCLE BURNUPS BETWEEN 14000 MWD/MTU AND EOL




| HEIGHT (FEET) | MAX W(Z) |
|---|---|
| .15 | 0.000 |
| .45 | 0.000 |
| .75 | 0.000 |
| 1.05 | 0.000 |
| 1.35 | 0.000 |
| 1.65 | 1.239 |
| 1.95 | 1.221 |
| 2.25 | 1.205 |
| 2.55 | 1.189 |
| 2.85 | 1.178 |
| 3.15 | 1.169 |
| 3.45 | 1.165 |
| 3.75 | 1.167 |
| 4.05 | 1.172 |
| 4.35 | 1.177 |
| 4.65 | 1.189 |
| 4.95 | 1.202 |
| 5.25 | 1.217 |
| 5.55 | 1.224 |
| 5.85 | 1.224 |
| 6.15 | 1.221 |
| 6.45 | 1.217 |
| 6.75 | 1.208 |
| 7.05 | 1.197 |
| 7.35 | 1.185 |
| 7.65 | 1.169 |
| 7.95 | 1.160 |
| 8.25 | 1.158 |
| 8.55 | 1.159 |
| 8.85 | 1.162 |
| 9.15 | 1.169 |
| 9.45 | 1.174 |
| 9.75 | 1.186 |
| 10.05 | 1.198 |
| 10.35 | 1.220 |
| 10.65 | 0.000 |
| 10.95 | 0.000 |
| 11.25 | 0.000 |
| 11.55 | 0.000 |
| 11.85 | 0.000 |

*Top and bottom 15% excluded as per Technical Specification 4.2.2.2.g