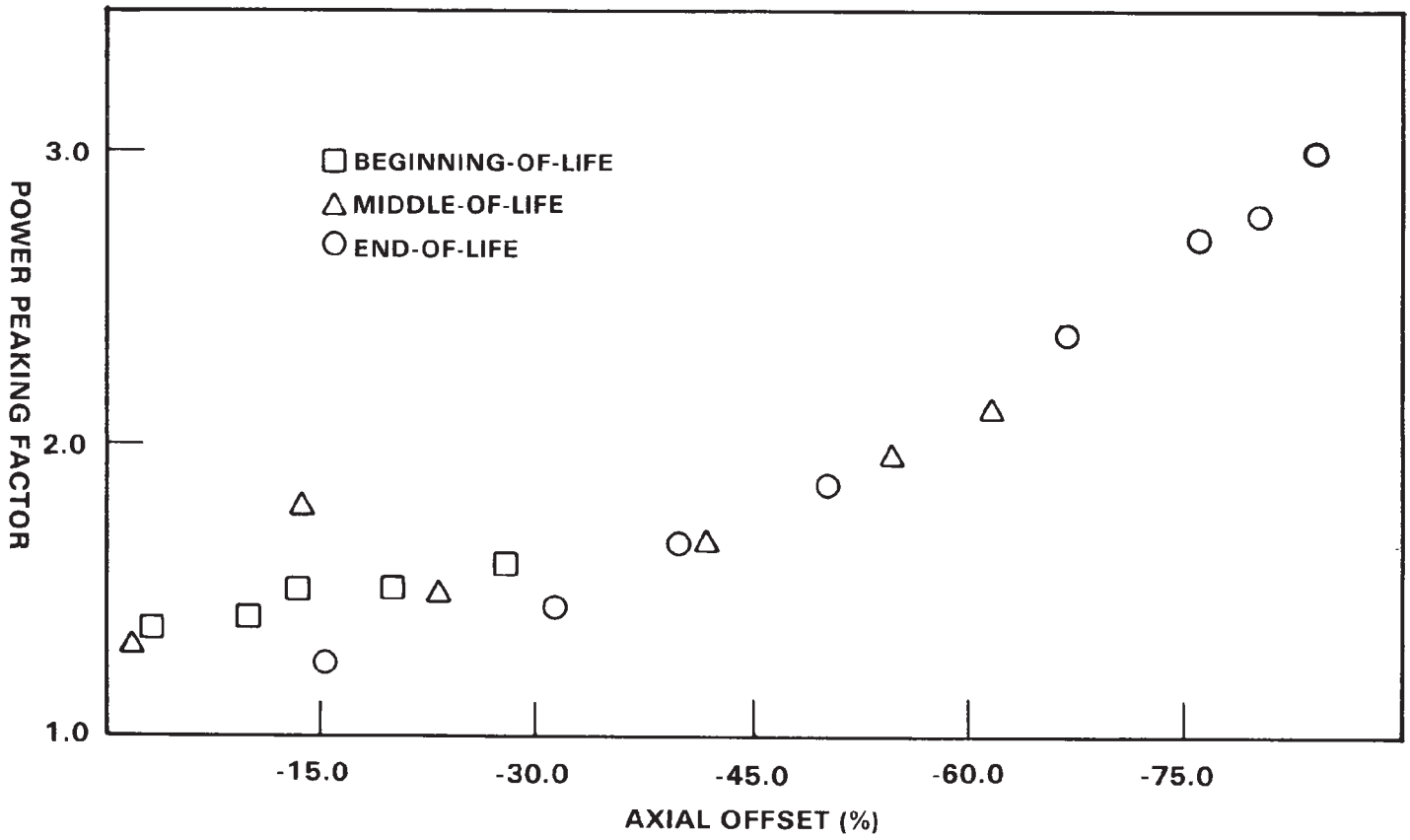
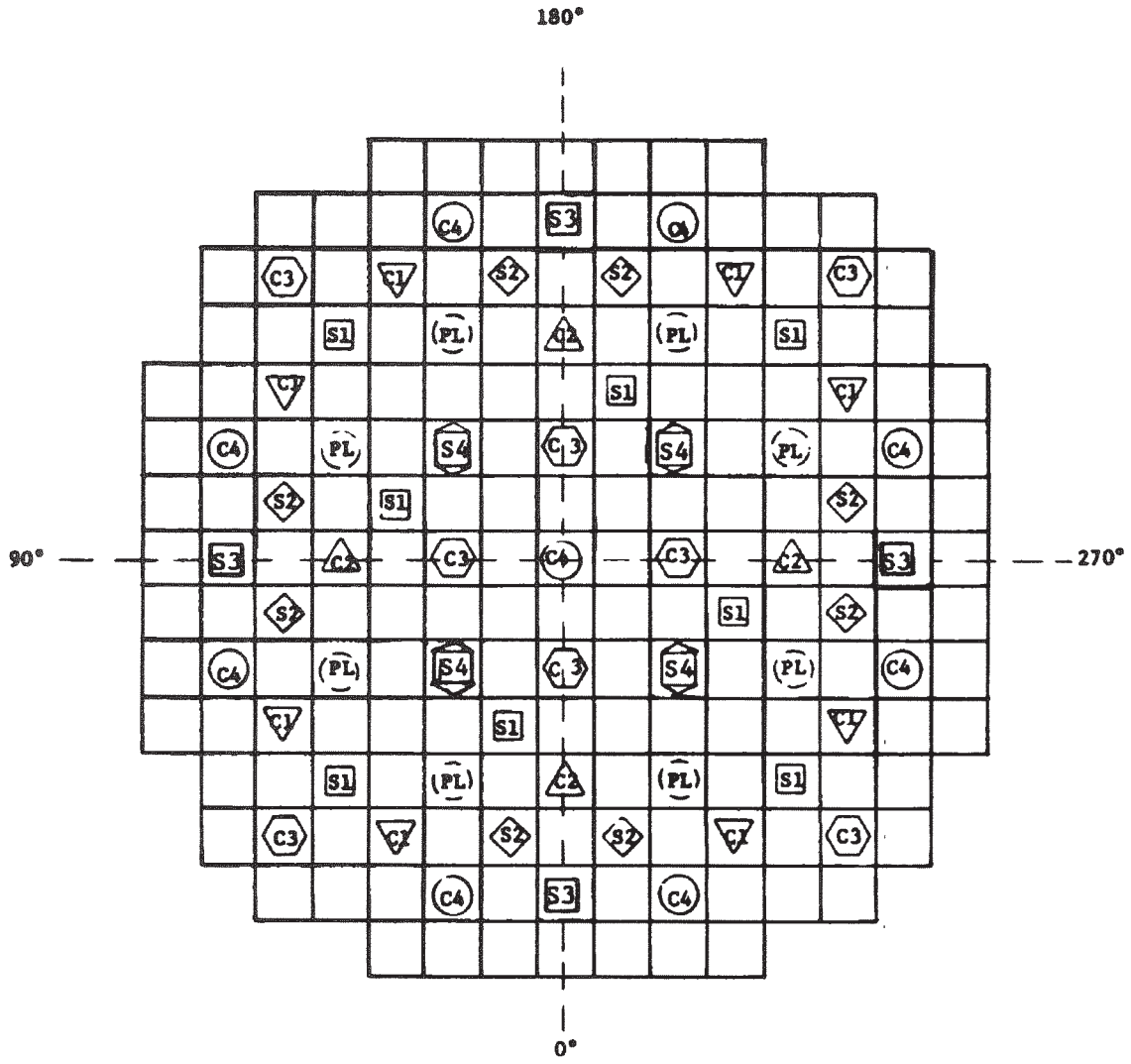
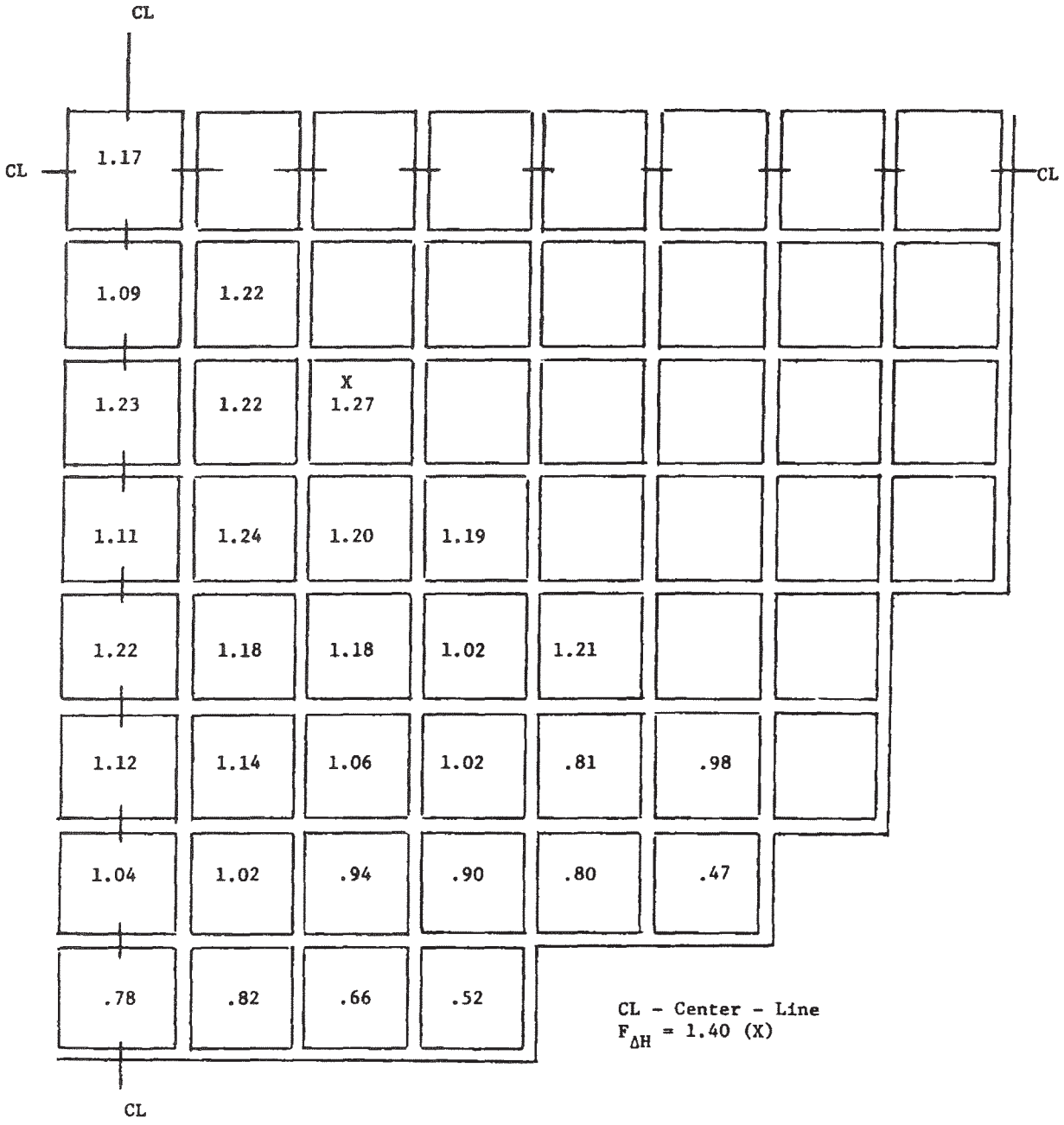


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-1 TYPICAL POWER PEAKING FACTOR VERSUS AXIAL OFFSET	
MIC. No. 1999MC3583	REV. No. 17B

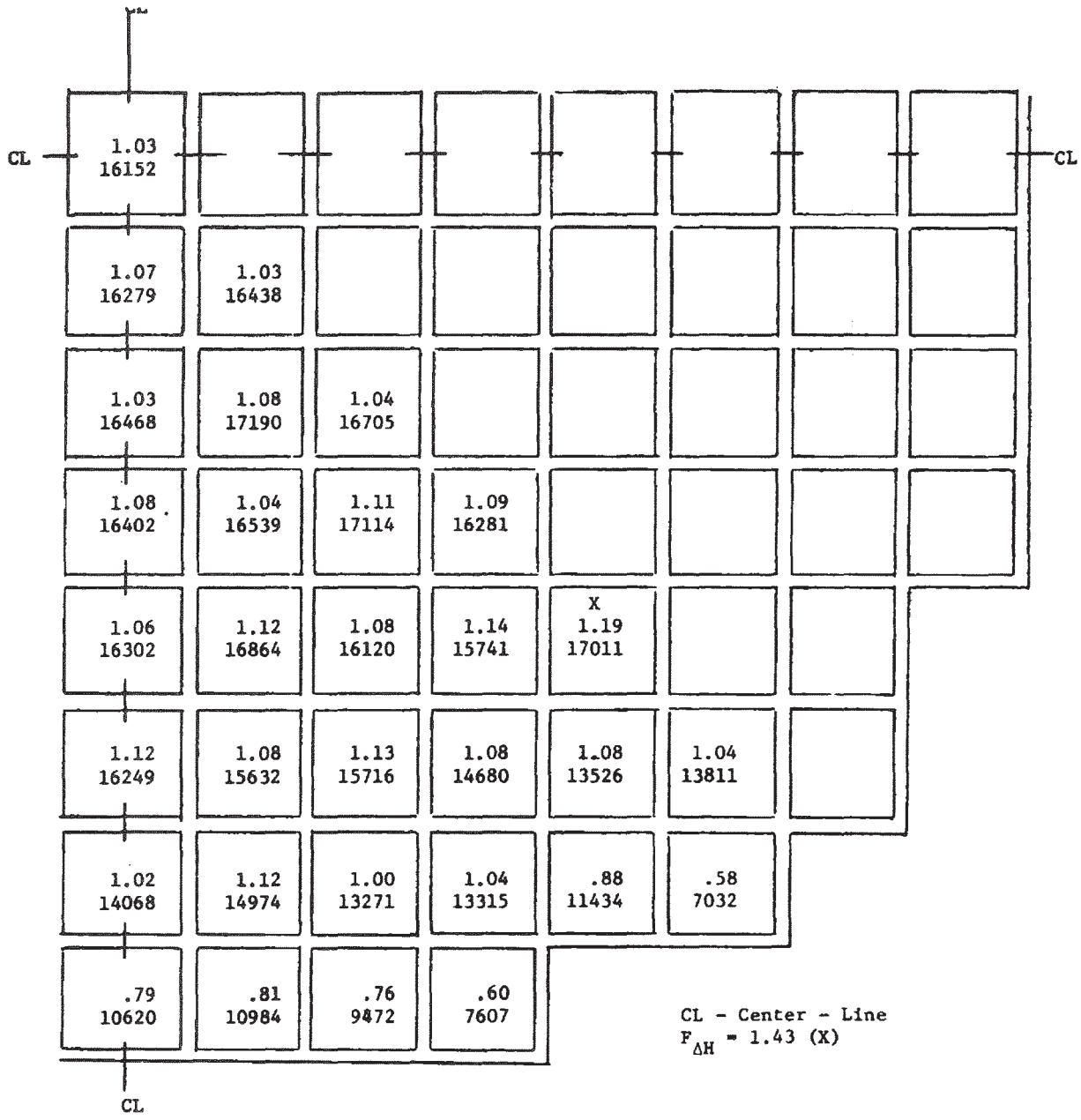


GROUP	SYMBOL	NUMBER OF ROD CLUSTERS
S1	□	8
S2	◇	8
S3	□	4
S4	⬭	4
C1	▽	8
C2	△	4
C3	⬡	8
C4	○	9
PL (Part Length)	◌	8
		61

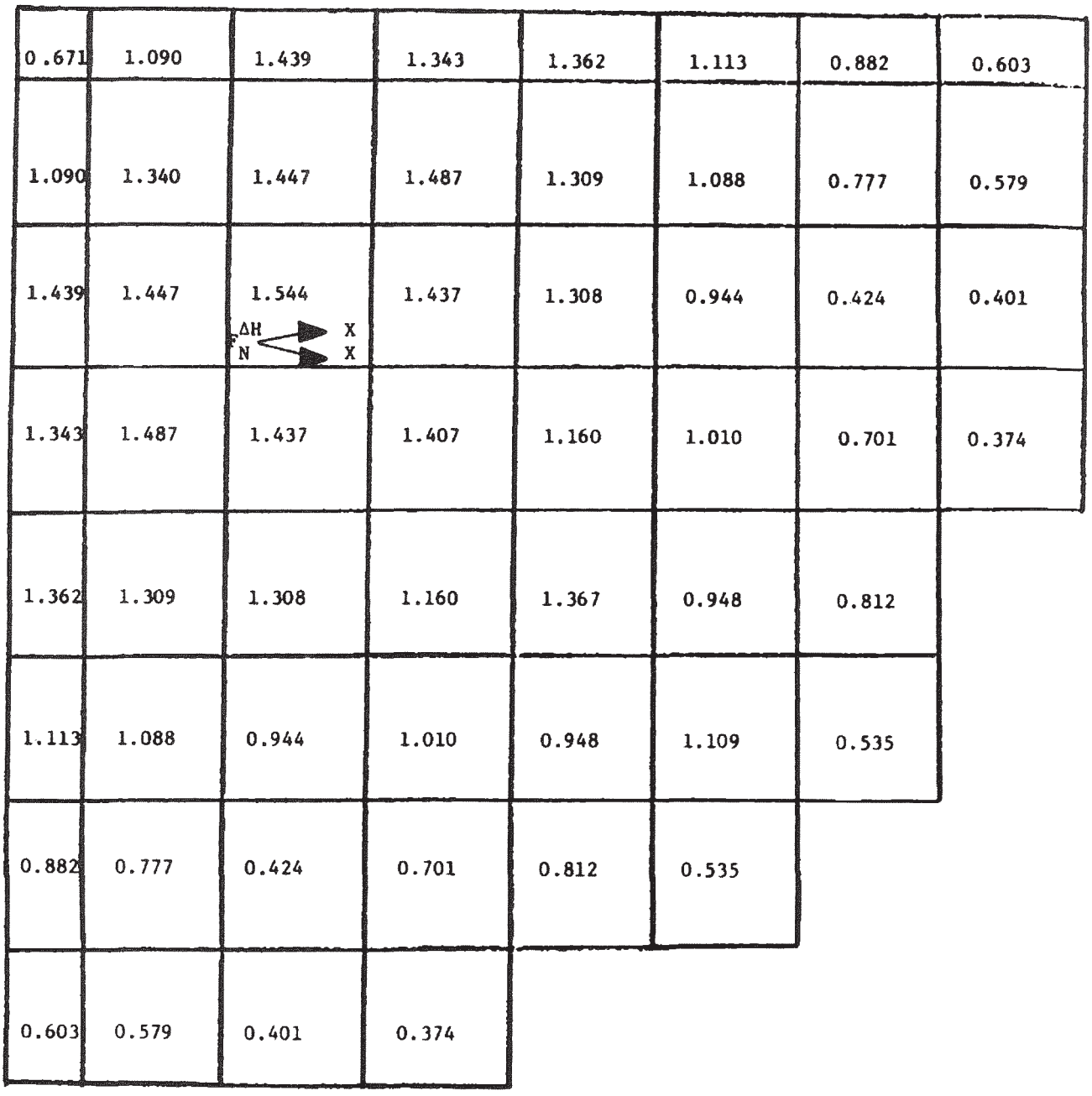
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–2 ROD CLUSTER GROUPS – CYCLE 1	
MIC. No. 1999MC3584	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-3 ASSEMBLY AVERAGE POWER & BURNUP, CYCLE 1 CALCULATIONS, BOL, UNRODDED CORE	
MIC. No. 1999MC3585	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–4 ASSEMBLY AVERAGE POWER & BURNUP, CYCLE 1 CALCULATIONS, EOL, UNRODDED CORE	
MIC. No. 1999MC3586	REV. No. 17A



INDIAN POINT UNIT No. 2

UFSAR FIGURE 3.2-5

ASSEMBLY AVERAGE POWER DISTRIBUTION
CYCLE 1 CALCULATIONS, BOL,
GROUP C4 INSERTED

MIC. No. 1999MC3587 | REV. No. 17A

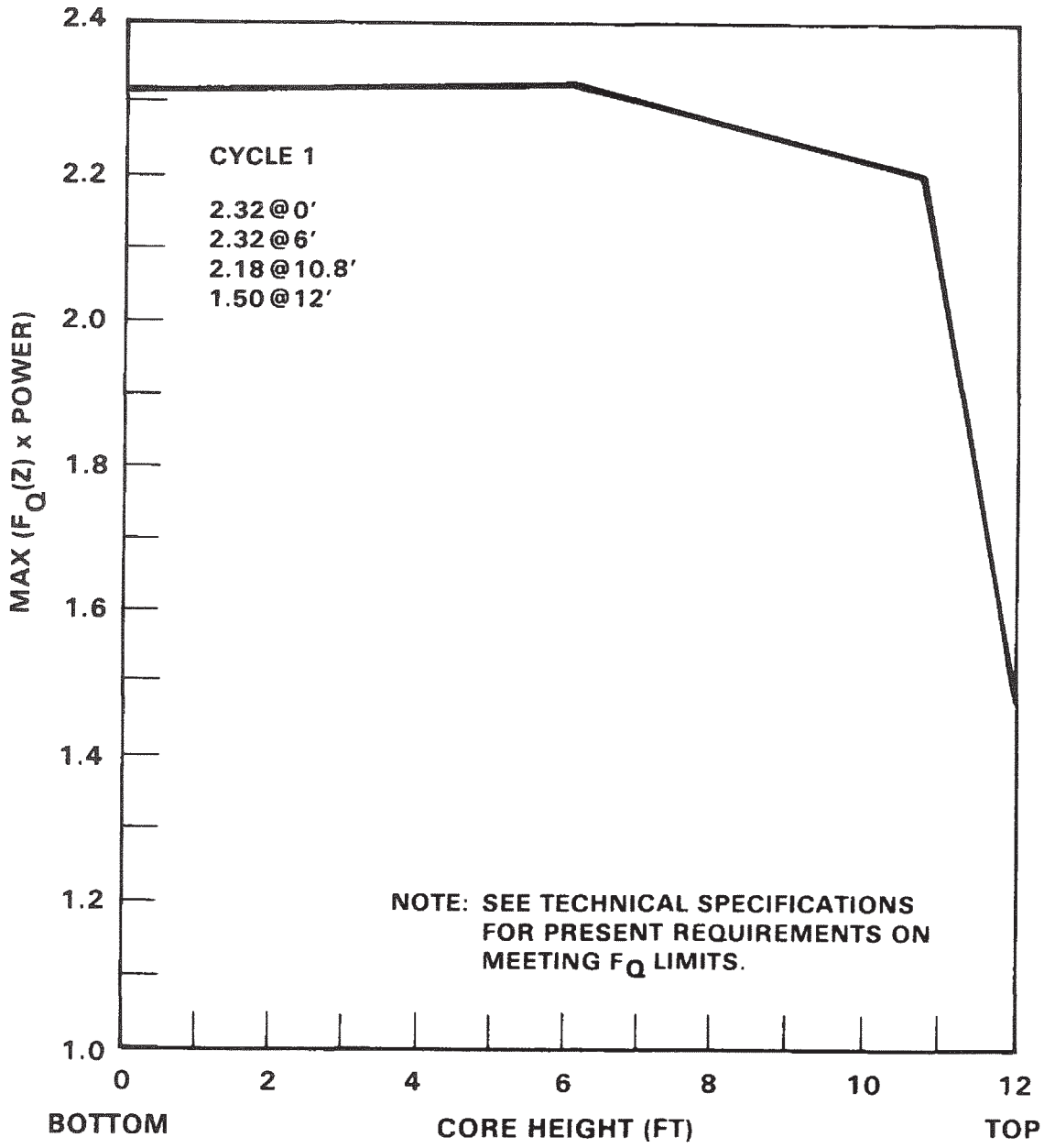
X X 1.402 X X	← $F^N_{\Delta H}$ 1.290	1.349	1.130	1.169	1.157	1.171	0.917
1.290	1.395	1.286	1.161	0.989	1.110	1.149	0.967
1.349	1.286	1.227	0.962	0.568	0.929	1.045	0.799
1.130	1.161	0.962	0.940	0.830	0.999	1.000	0.633
1.169	0.989	0.568	0.830	1.189	0.954	0.938	
1.157	1.110	0.929	0.999	0.954	1.159	0.584	
1.171	1.149	1.045	1.000	0.938	0.584		
0.917	0.867	0.799	0.633				

INDIAN POINT UNIT No. 2

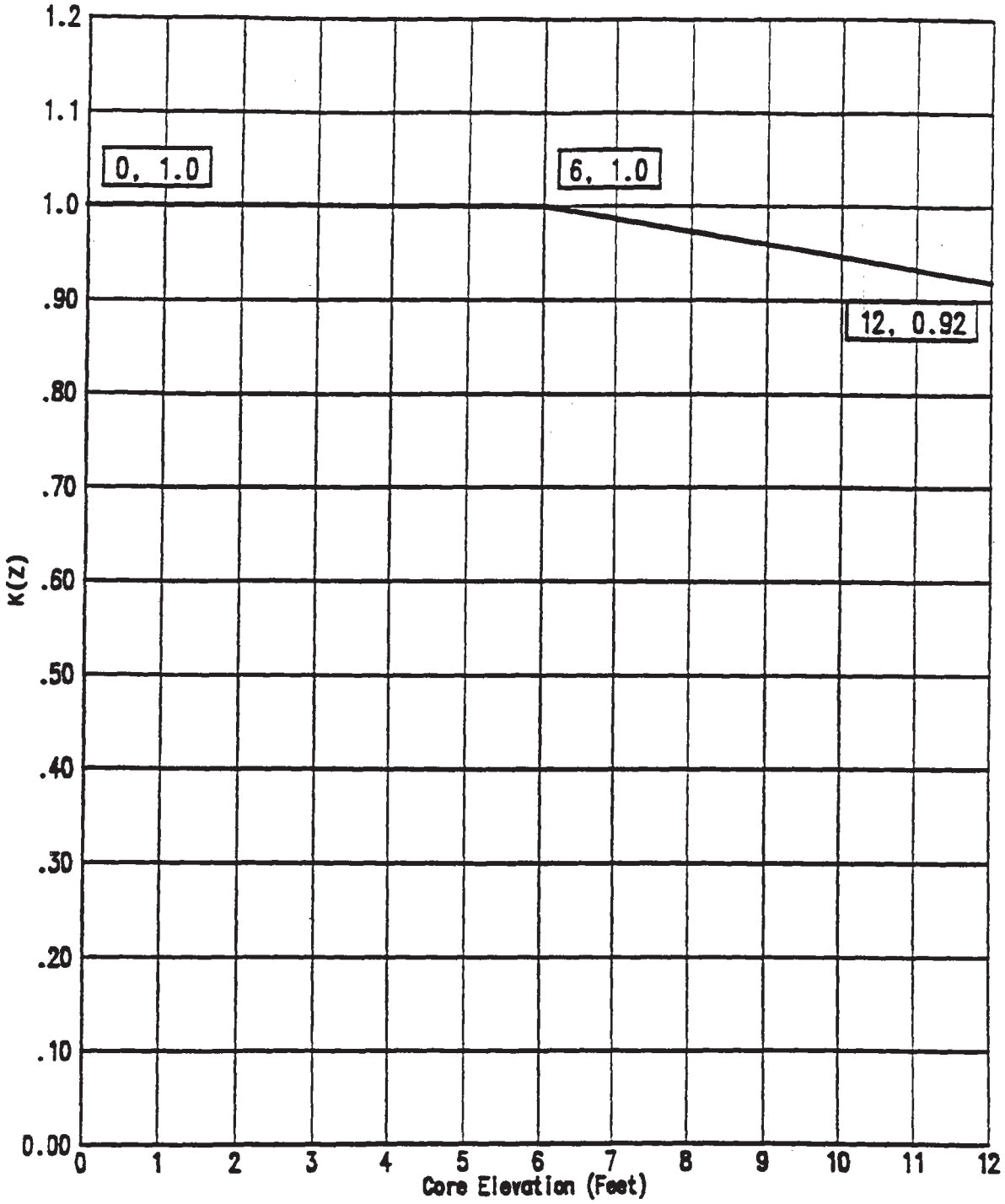
UFSAR FIGURE 3.2-6

ASSEMBLY AVERAGE POWER DISTRIBUTION
CYCLE 1 CALCULATIONS, BOL,
PART-LENGTH RODS IN

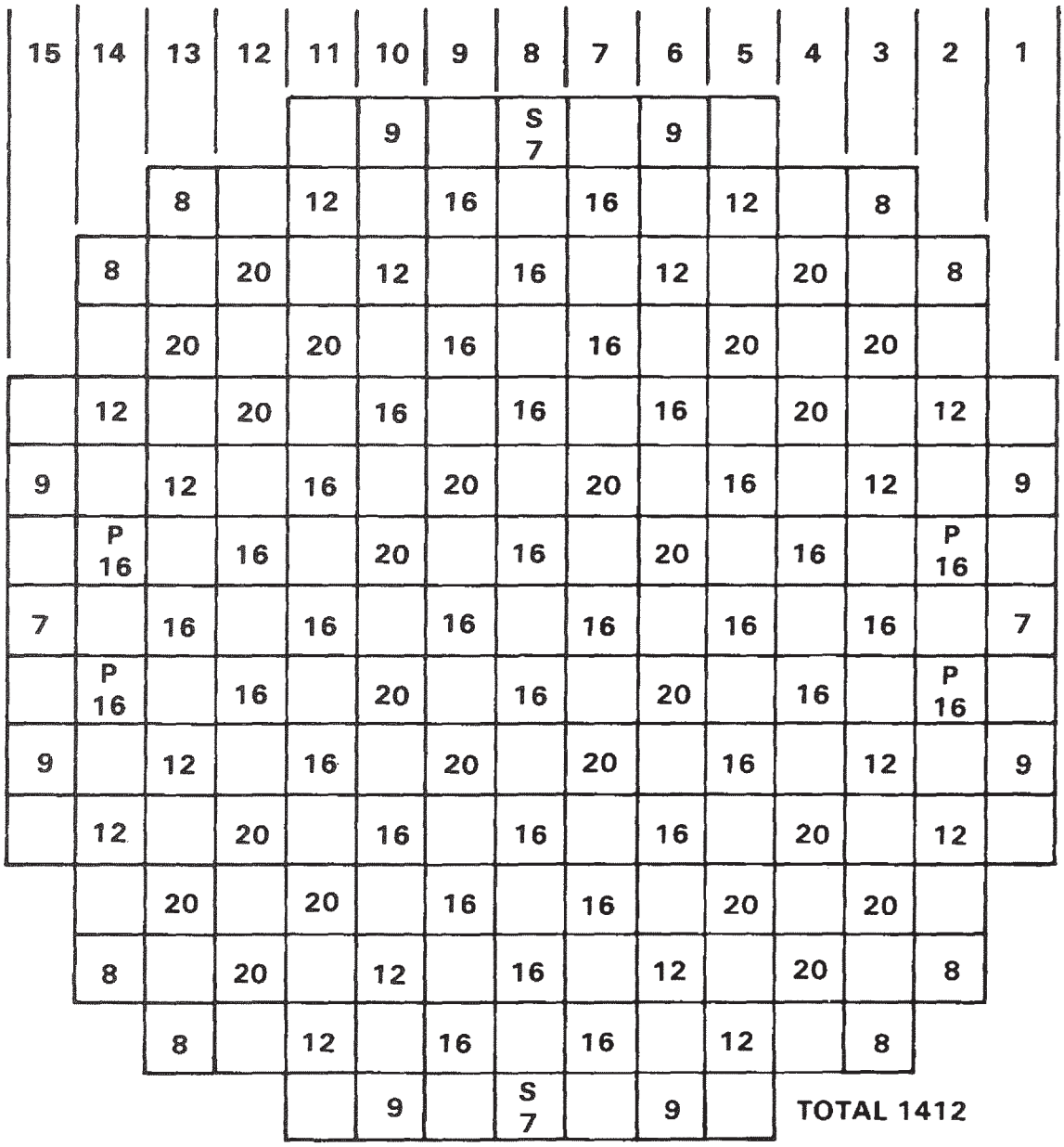
MIC. No. 1999MC3588 | REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–7 CYCLE 1 MAXIMUM F_Q x POWER VERSUS AXIAL HEIGHT DURING NORMAL OPERATIONS	
MIC. No. 1999MC3589	REV. No. 17A

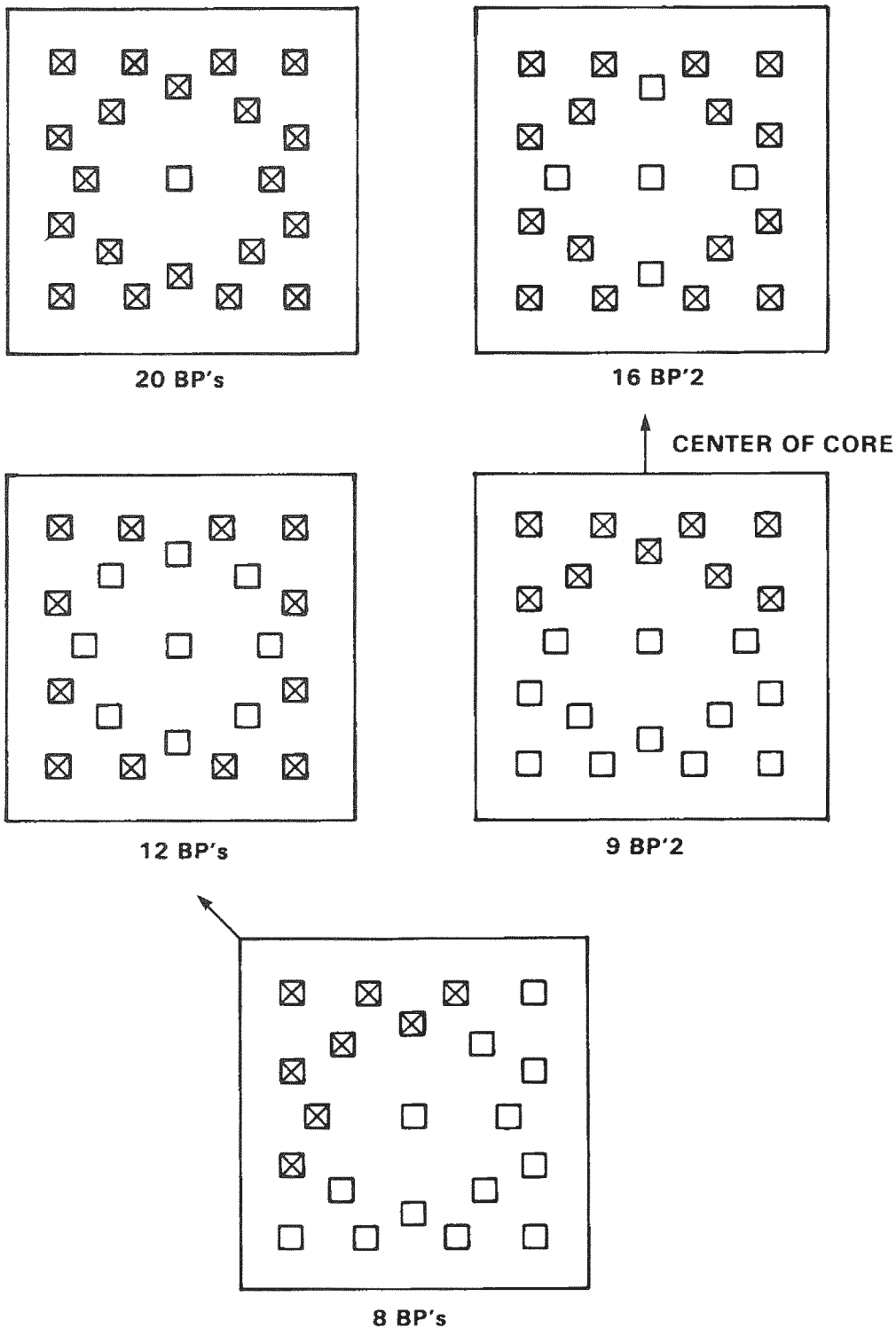


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-7A NORMALIZED K (z) – Fq VERSUS AXIAL HEIGHT FOR CYCLE 16	
MIC. No. 1999MC3590	REV. No. 17B

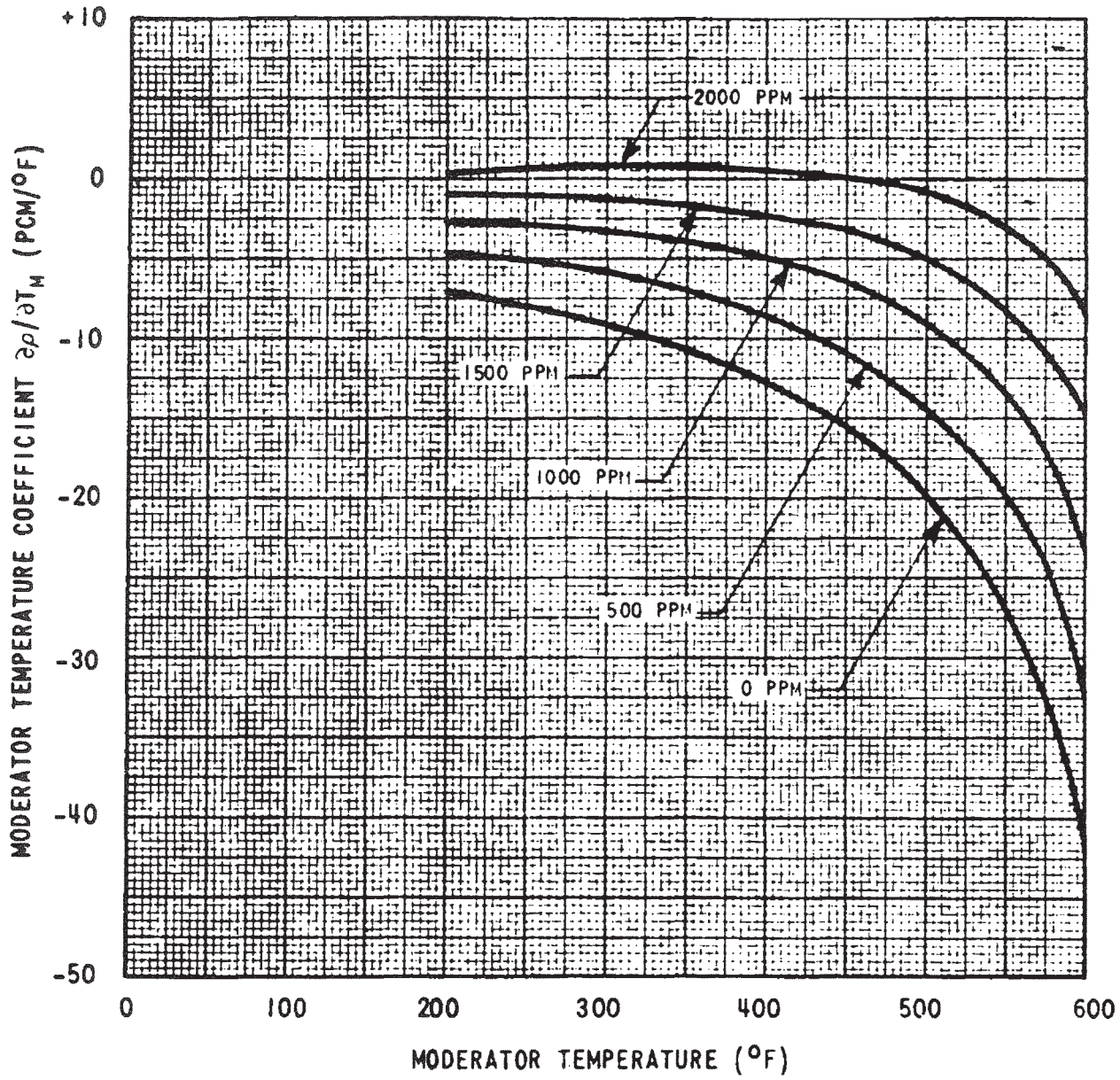


P - PRIMARY/SECONDARY SOURCE COMBINATION
S - SECONDARY SOURCE;

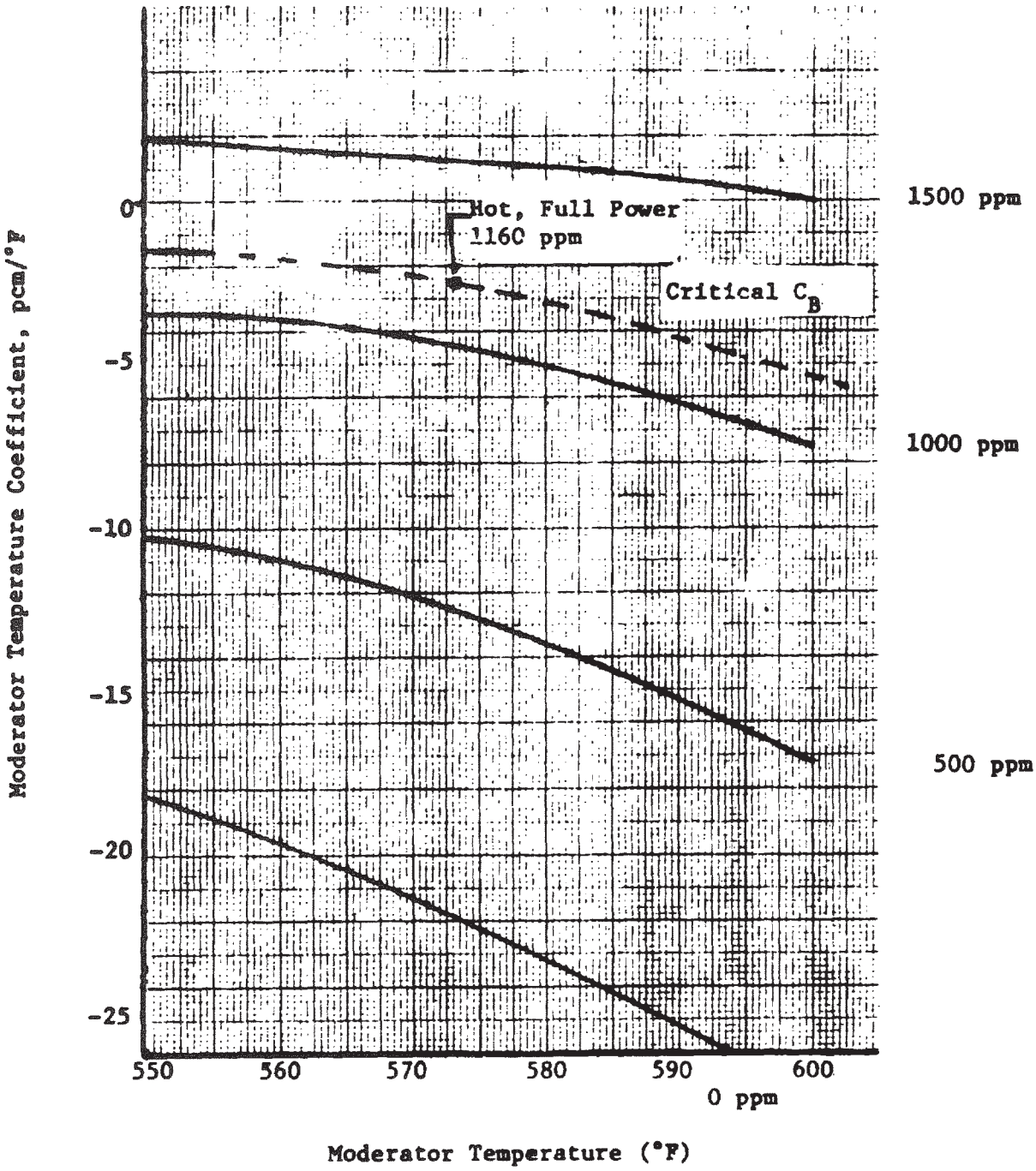
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-8 BURNABLE POISON & SOURCE ASSEMBLY LOCATIONS – CYCLE 1	
MIC. No. 1999MC3591	REV. No. 17A



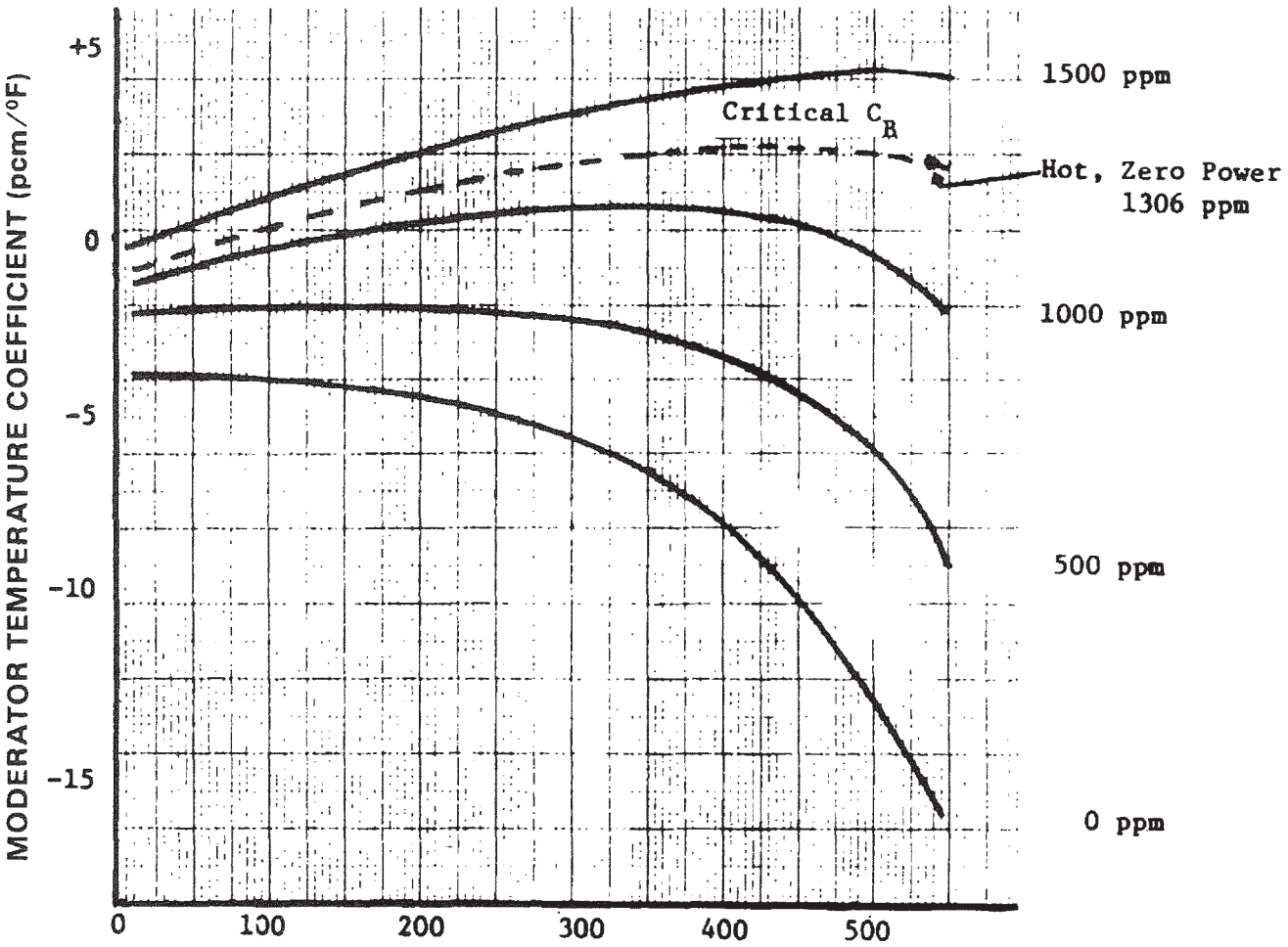
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–9 BURNABLE POISON ROD LOCATIONS CYCLE 1	
MIC. No. 1999MC3592	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–10 MODERATOR TEMPERATURE COEFFICIENT vs MODERATOR TEMPERATURE – EOL, CYCLE 1	
MIC. No. 1999MC3593	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–11 MODERATOR TEMPERATURE COEFFICIENT vs MODERATOR TEMPERATURE – BOL, CYCLE 1 FULL POWER	
MIC. No. 1999MC3594	REV. No. 17A

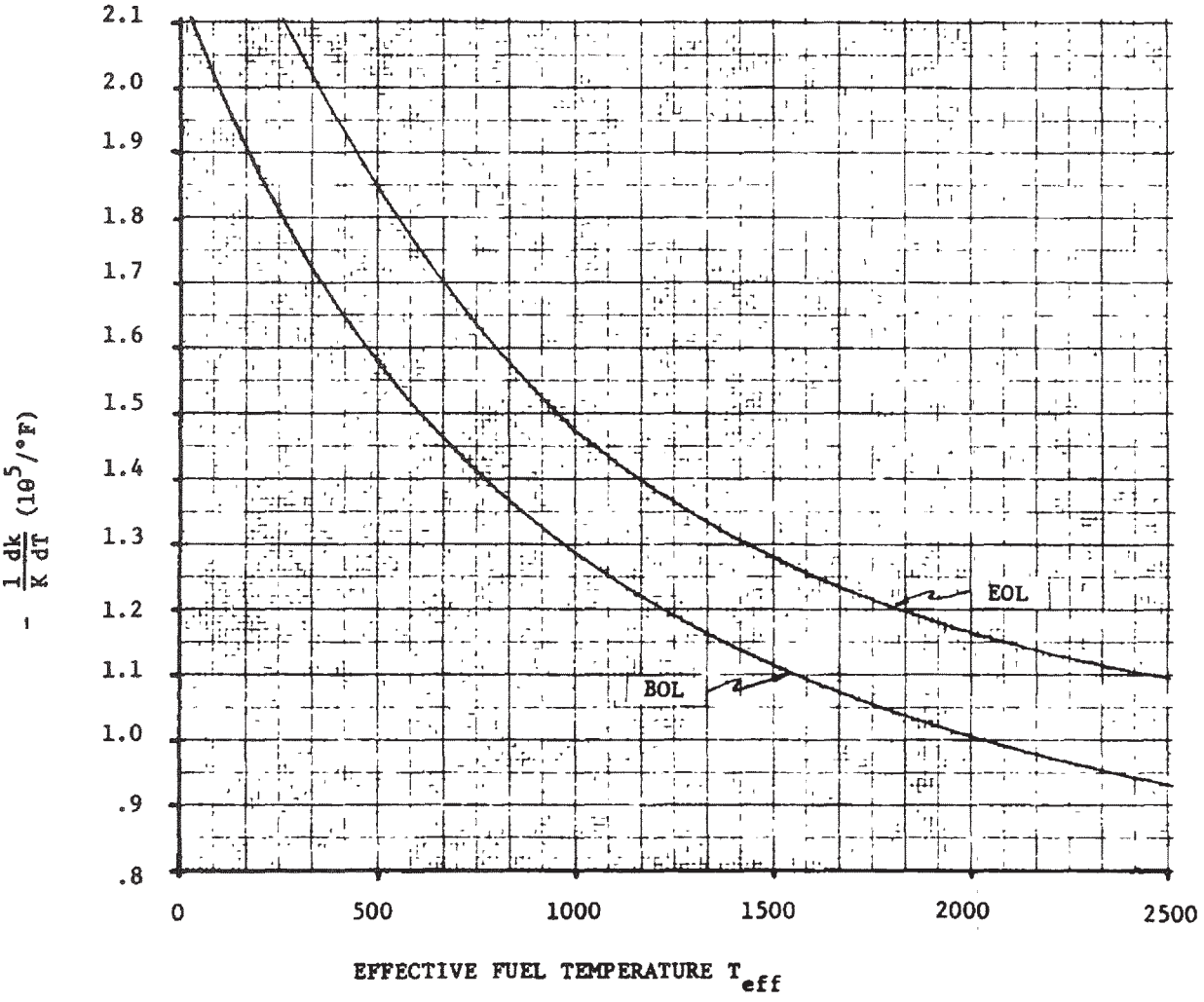


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–12 MODERATOR TEMPERATURE COEFFICIENT vs MODERATOR TEMPERATURE – BOL, CYCLE 1 ZERO POWER	
MIC. No. 1999MC3595	REV. No. 17A

DOPPLER COEFFICIENT

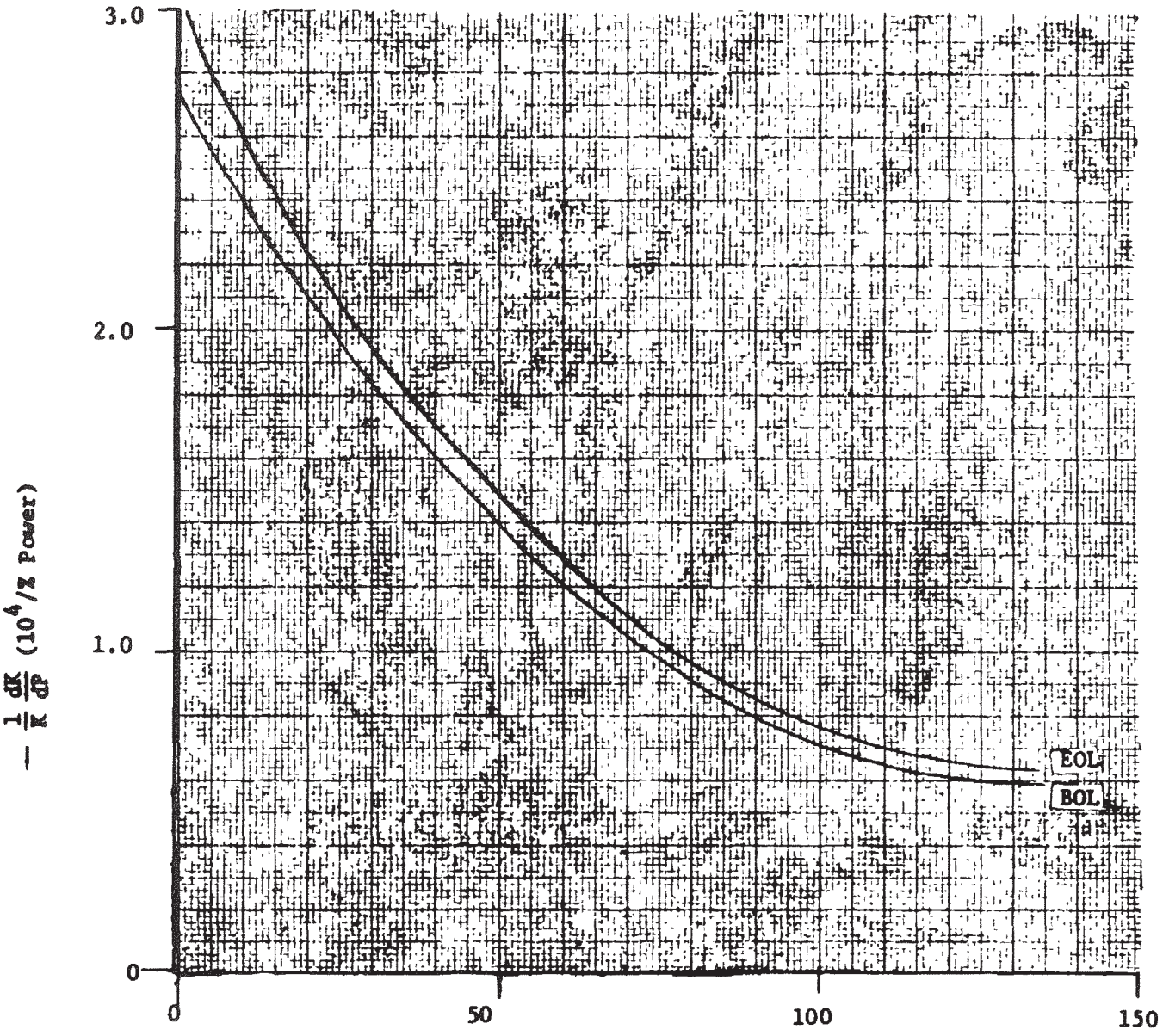
vs

EFFECTIVE FUEL TEMPERATURE



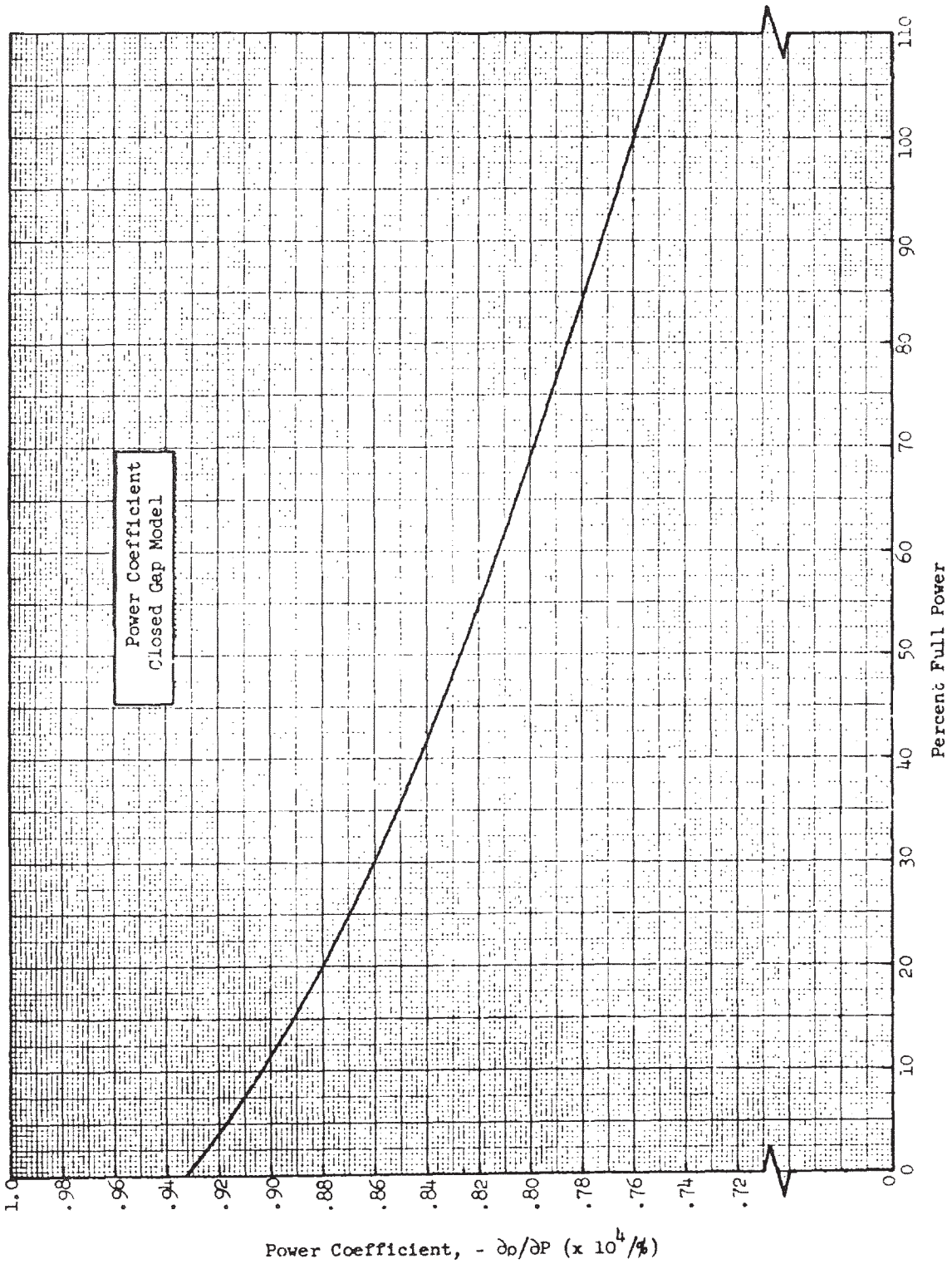
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–13 DOPPLER COEFFICIENT vs EFFECTIVE FUEL TEMPERATURE – CYCLE 1	
MIC. No. 1999MC3596	REV. No. 17A

POWER COEFFICIENT VS PERCENT POWER
WITH T_{MOD} = 572. °F
E = 2.7 W/O
BOL = 2100 ppm

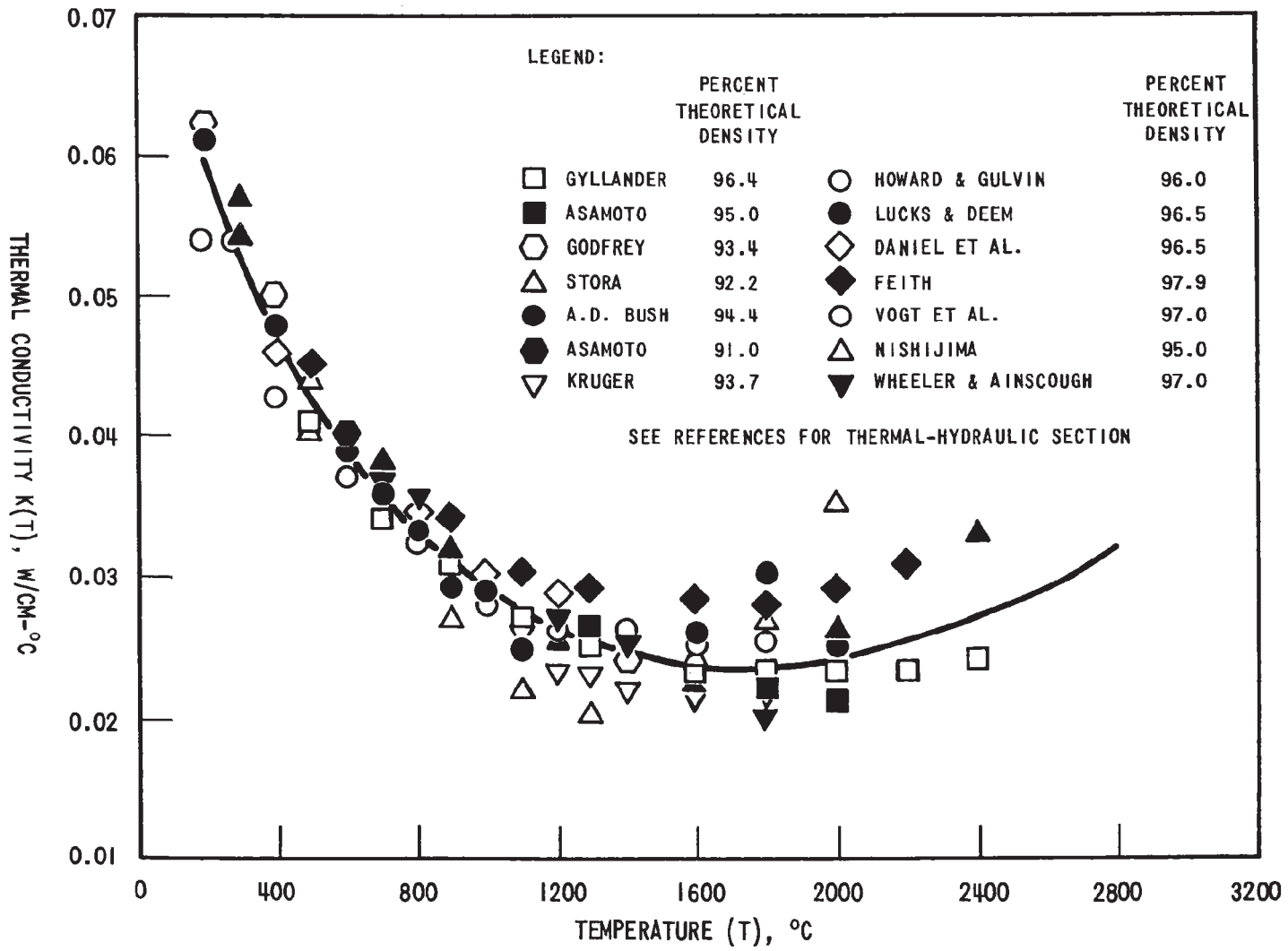


PERCENT OF FULL POWER, 2758 MWT

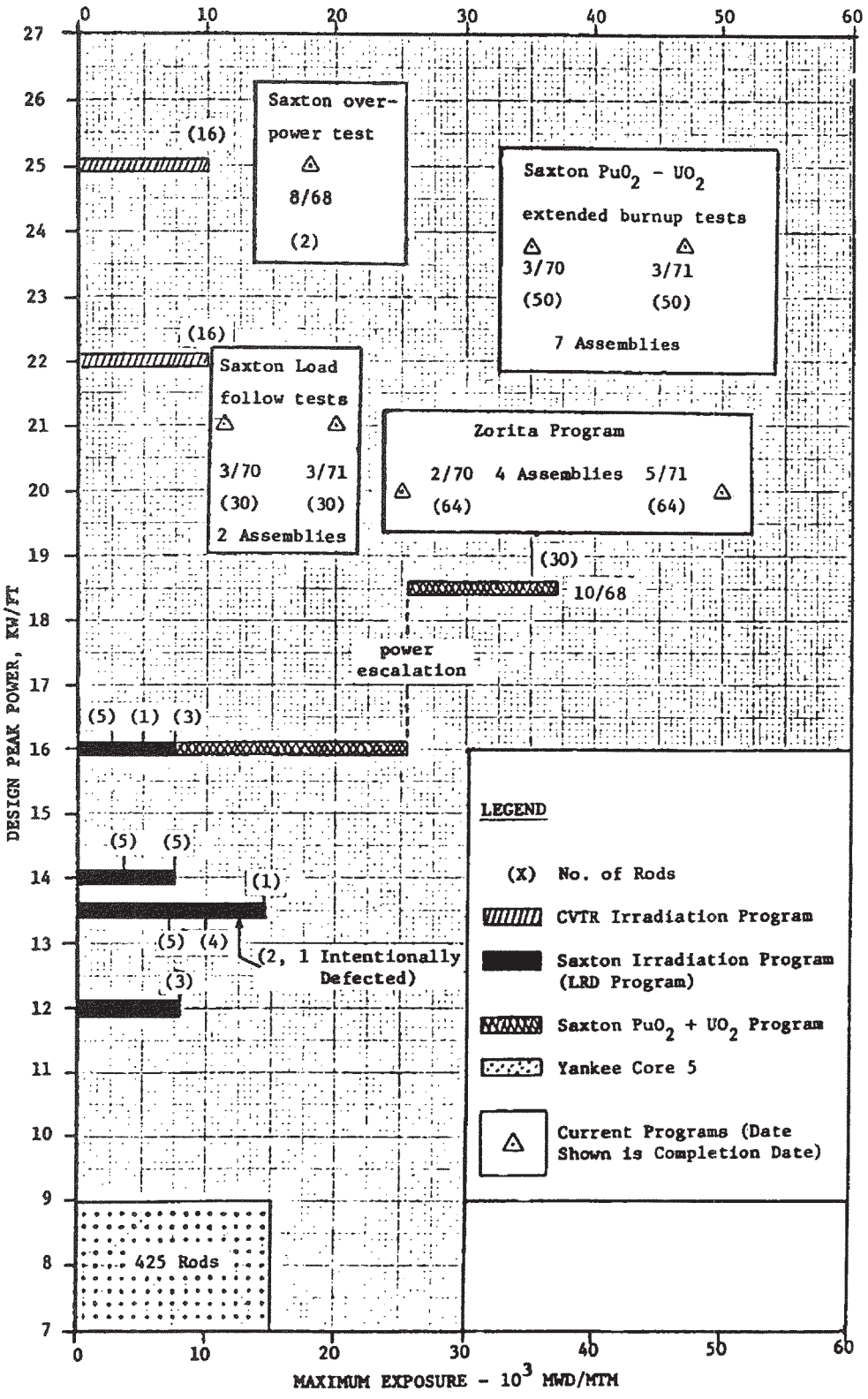
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–14 POWER COEFFICIENT vs PERCENT POWER CYCLE 1	
MIC. No. 1999MC3597	REV. No. 17A



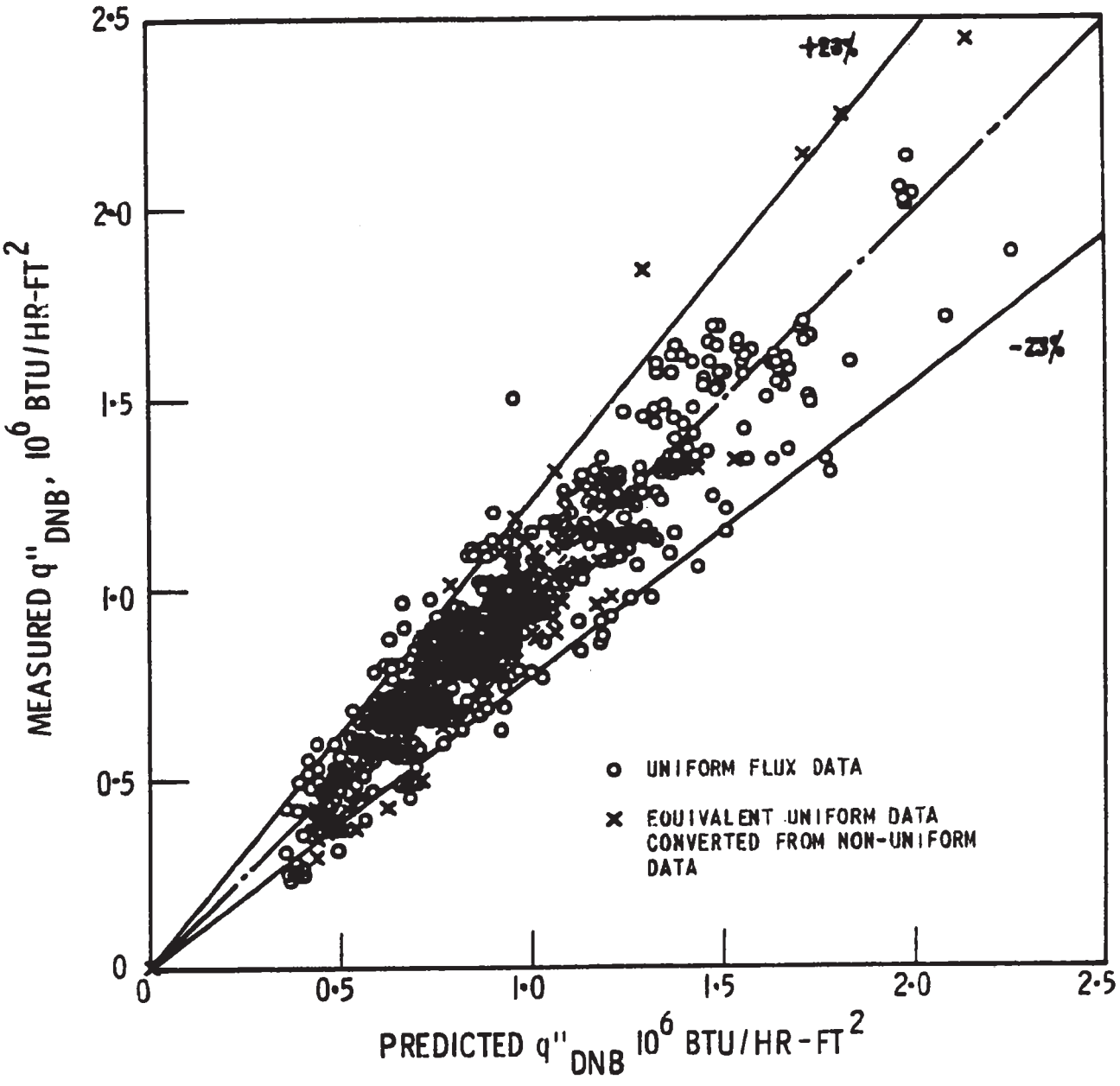
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–15	
POWER COEFFICIENT – CLOSED GAP MODEL	
MIC. No. 1999MC3598	REV. No. 17A



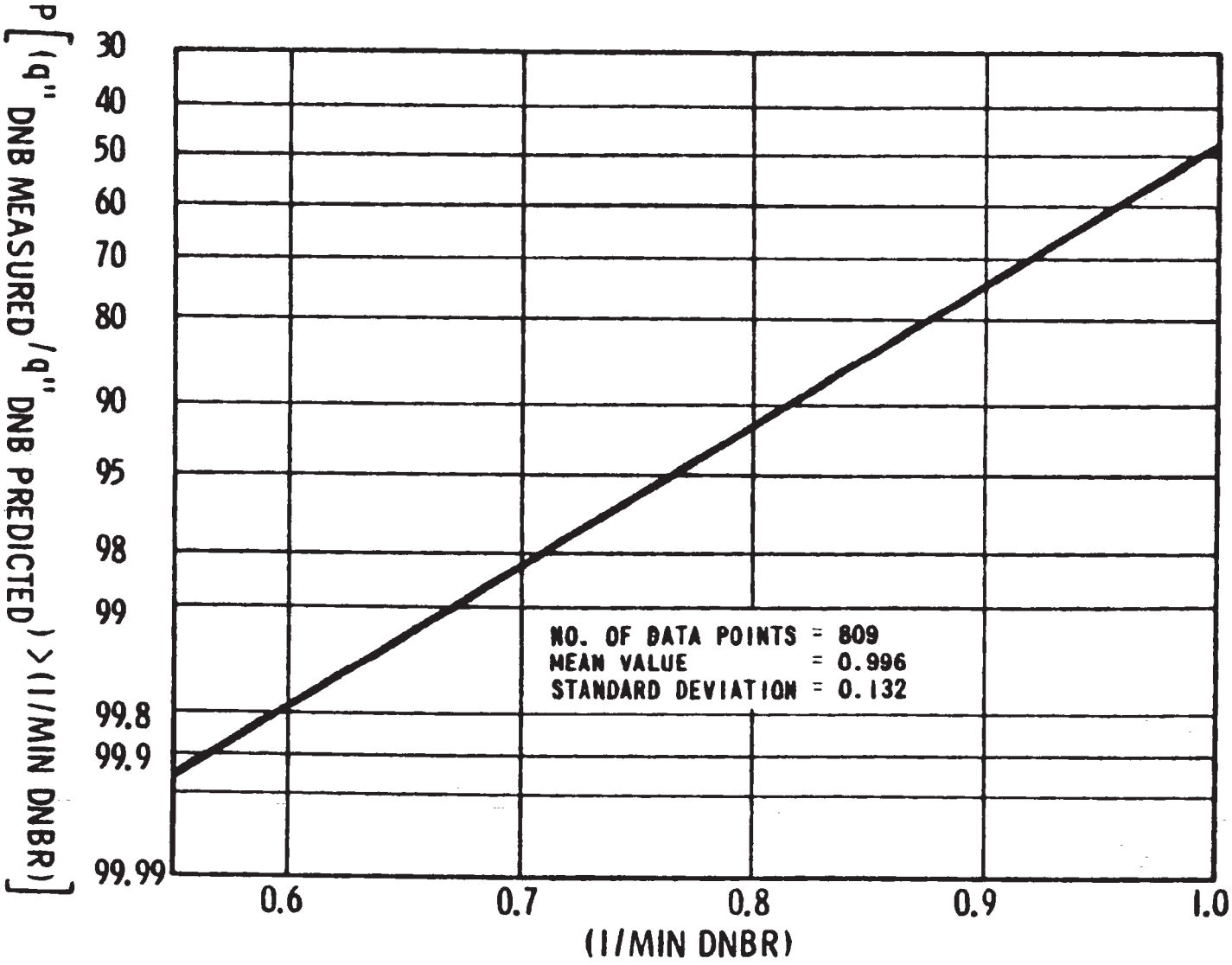
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-38 TYPICAL THERMAL CONDUCTIVITY OF UO_2	
MIC. No. 1999MC3643	REV. No. 17B



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–39	
HIGH POWER FUEL ROD EXPERIMENTAL PROGRAM	
MIC. No. 1999MC3644	REV. No. 17A

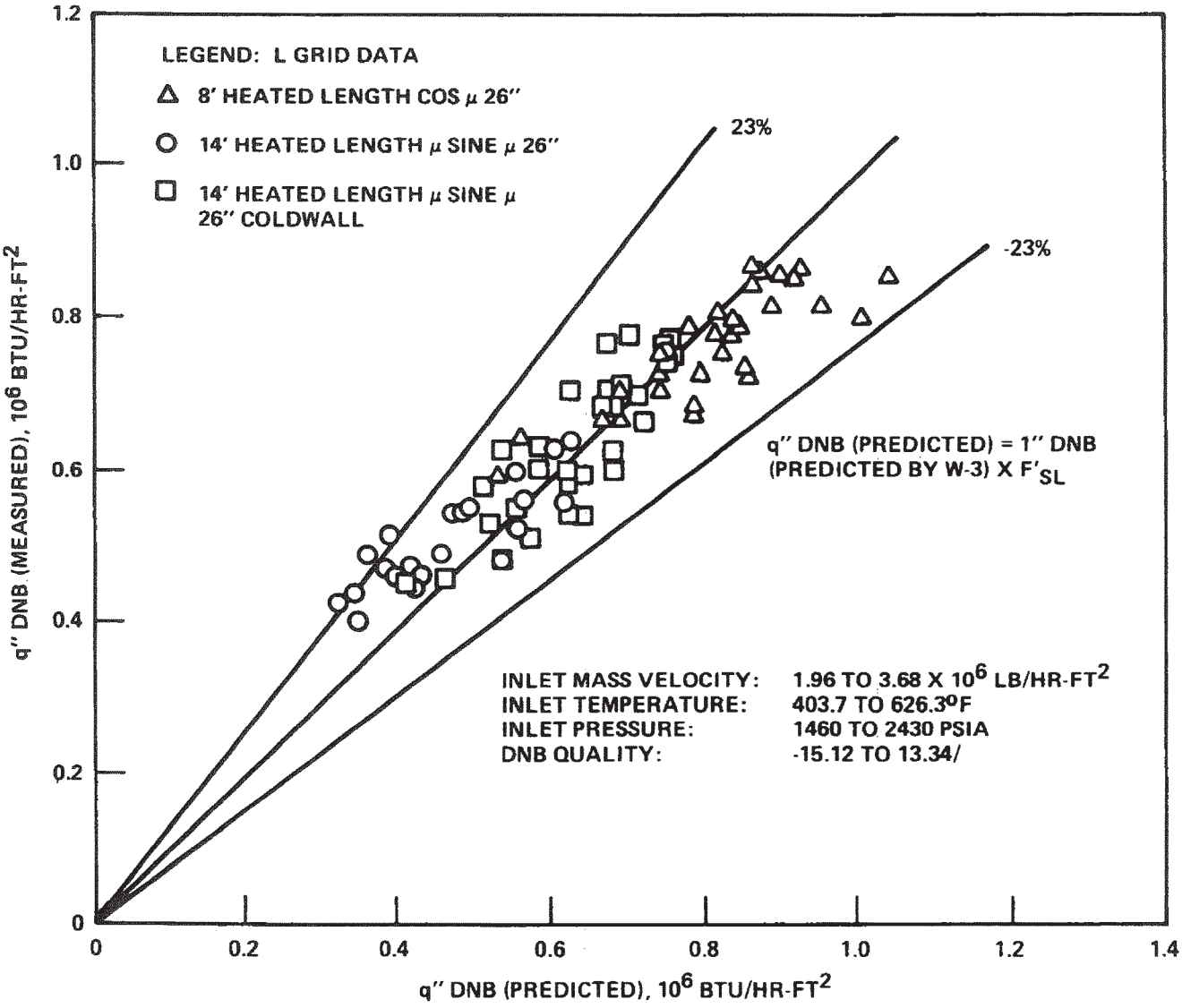


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-40 TYPICAL COMPARISON OF W-3 PREDICTION AND UNIFORM FLUX DATA	
MIC. No. 1999MC3645	REV. No. 17B

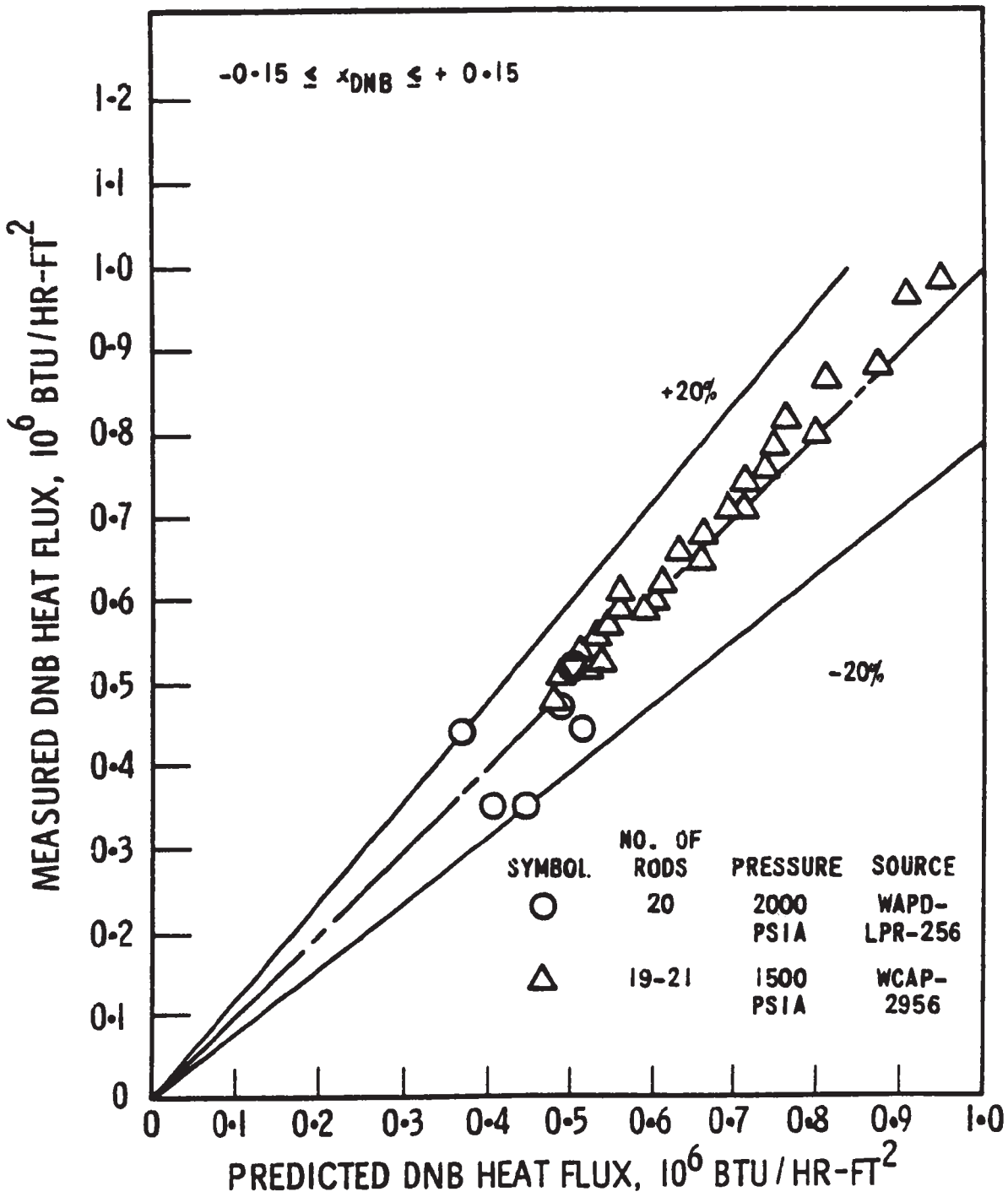


W-3 CORRELATION PROBABILITY DISTRIBUTION CURVE

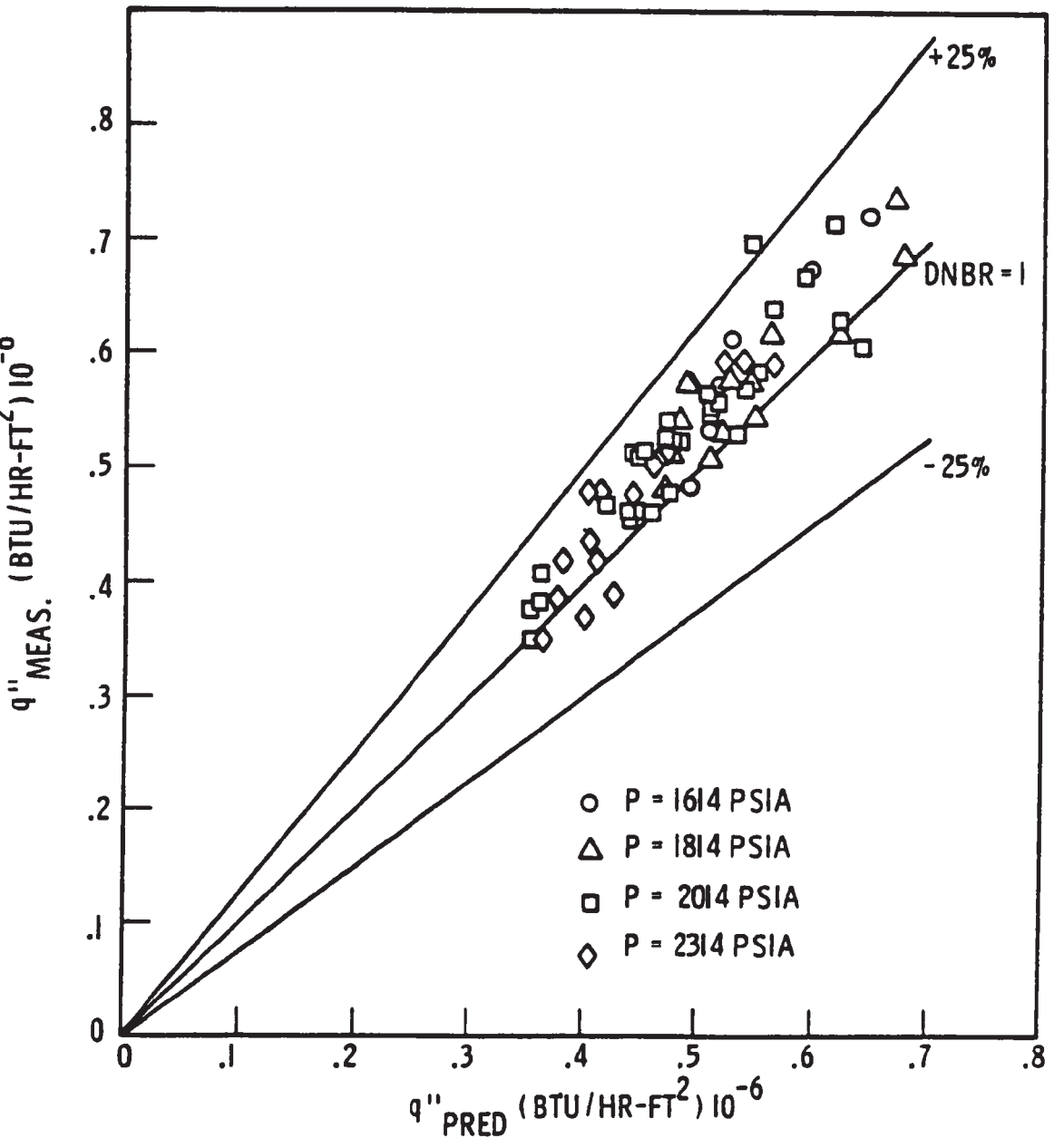
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-41 TYPICAL W-3 CORRELATION PROBABILITY DISTRIBUTION CURVE	
MIC. No. 1999MC3678	REV. No. 17B



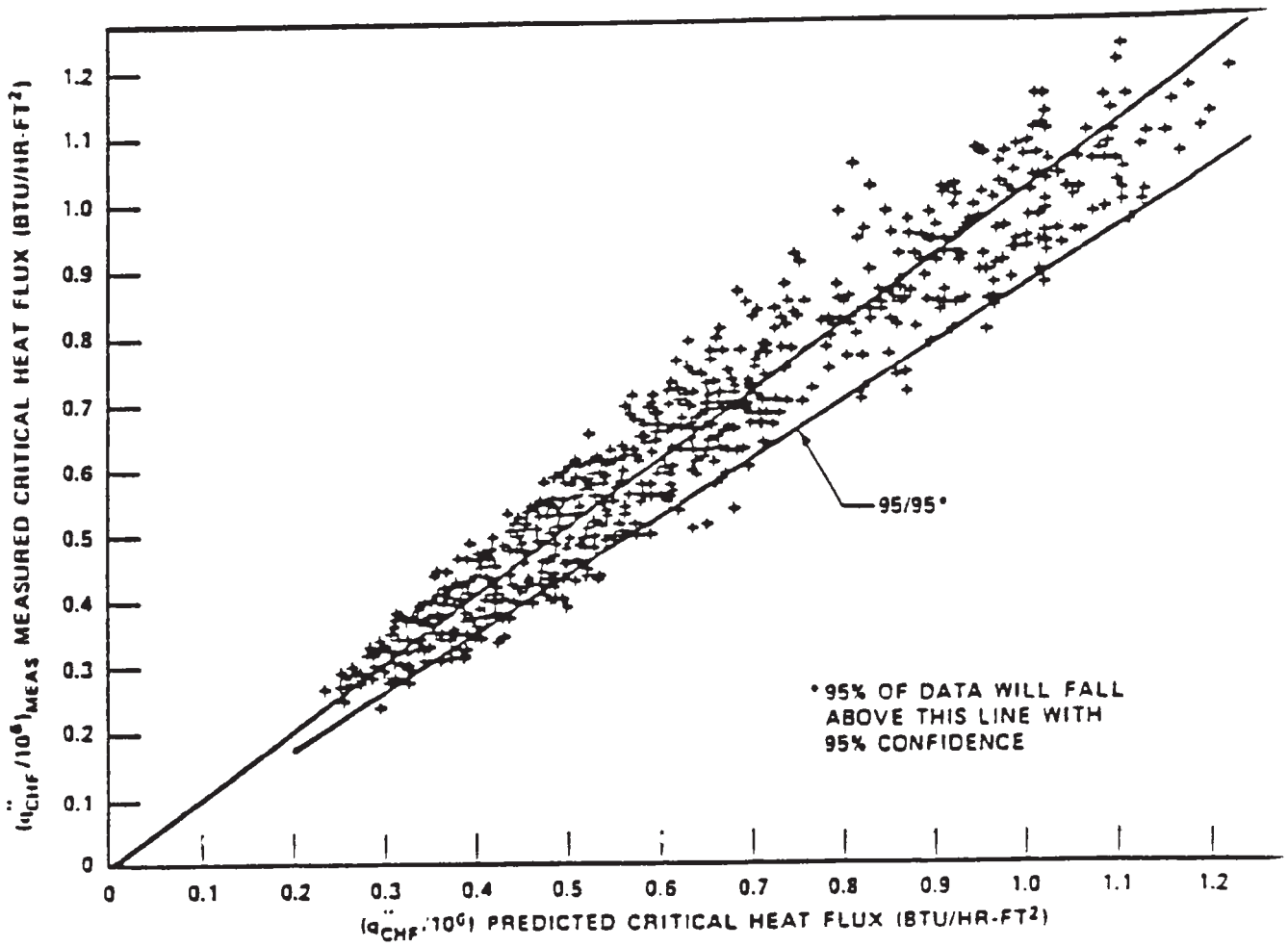
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–42 COMPARISON OF "L" GRID TYPICAL AND THIMBLE COLD WALL CELL ROD BUNDLE DNB DATA FOR NON–UNIFORM AXIAL HEAT FLUX WITH PREDICTIONS OF W–3 x F'_{SL}	
MIC. No. 1999MC3679	REV. No. 17A



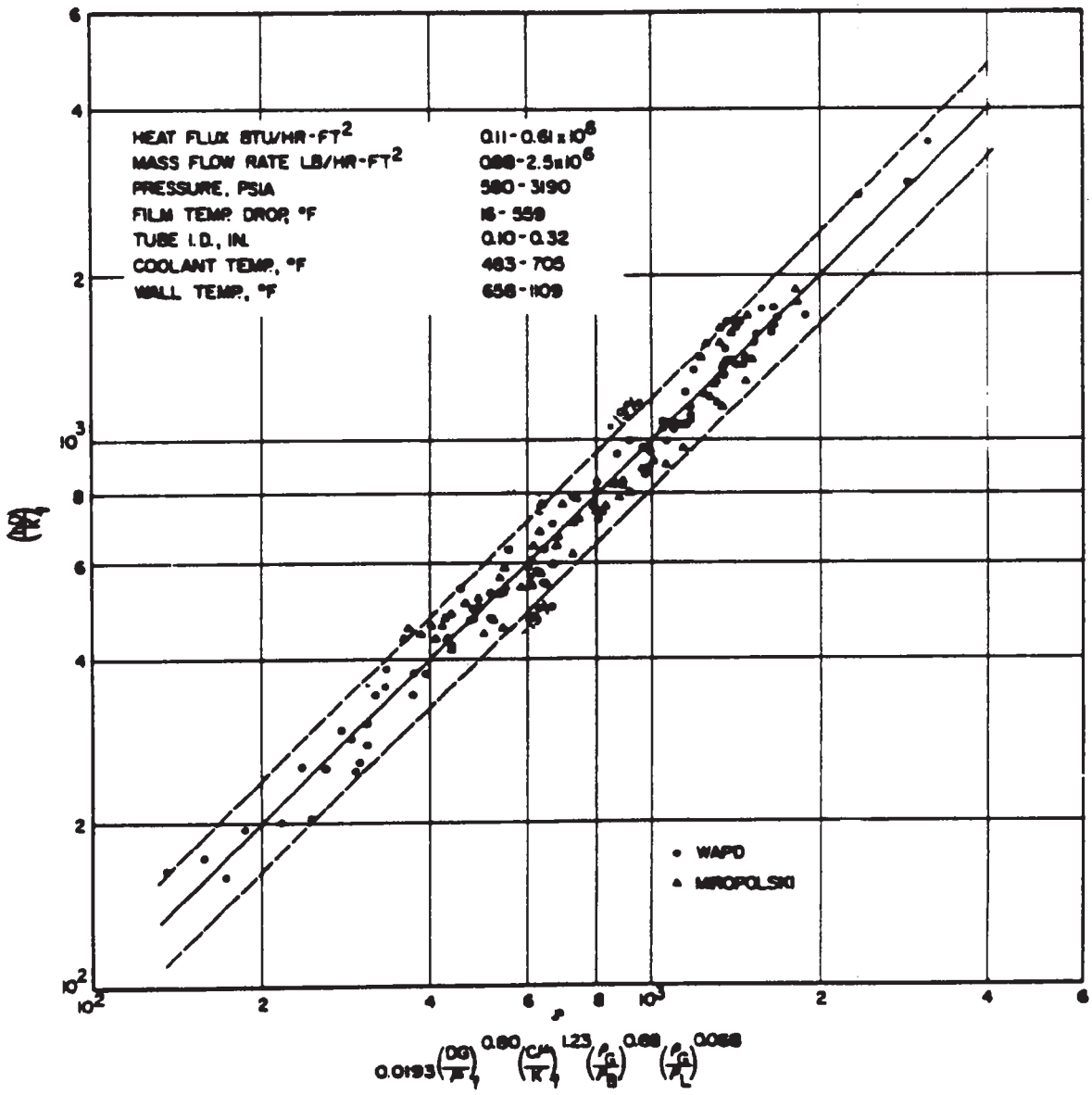
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-43 TYPICAL COMPARISON OF W-3 CORRELATION WITH ROD BUNDLE DNB DATA (SIMPLE GRID WITHOUT MIXING VANE)	
MIC. No. 1999MC3680	REV. No. 17B



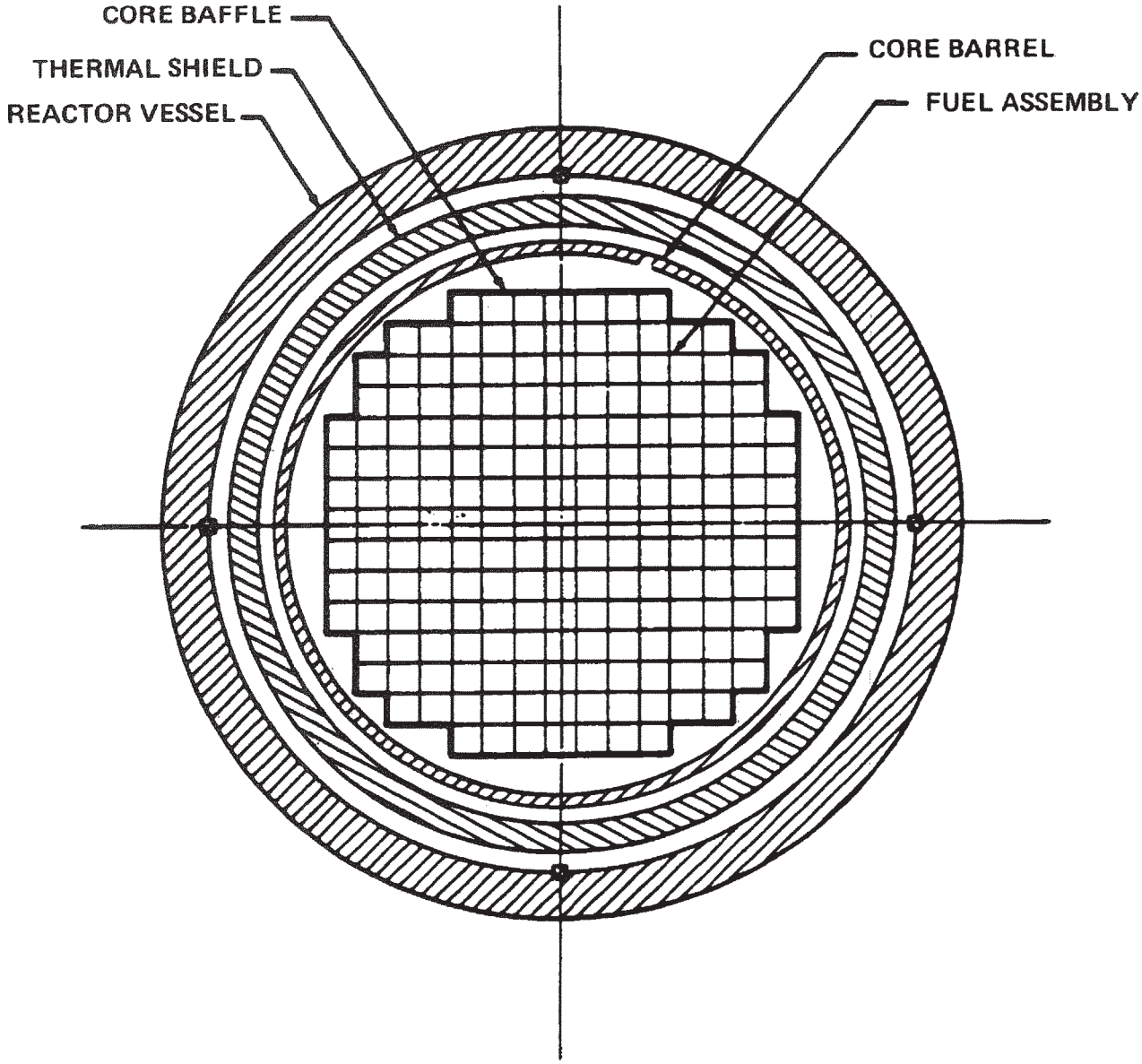
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-44 TYPICAL COMPARISON OF W-3 CORRELATION WITH ROD BUNDLE DNB DATA (SIMPLE GRID WITH MIXING VANE)	
MIC. No. 1999MC3681	REV. No. 17B



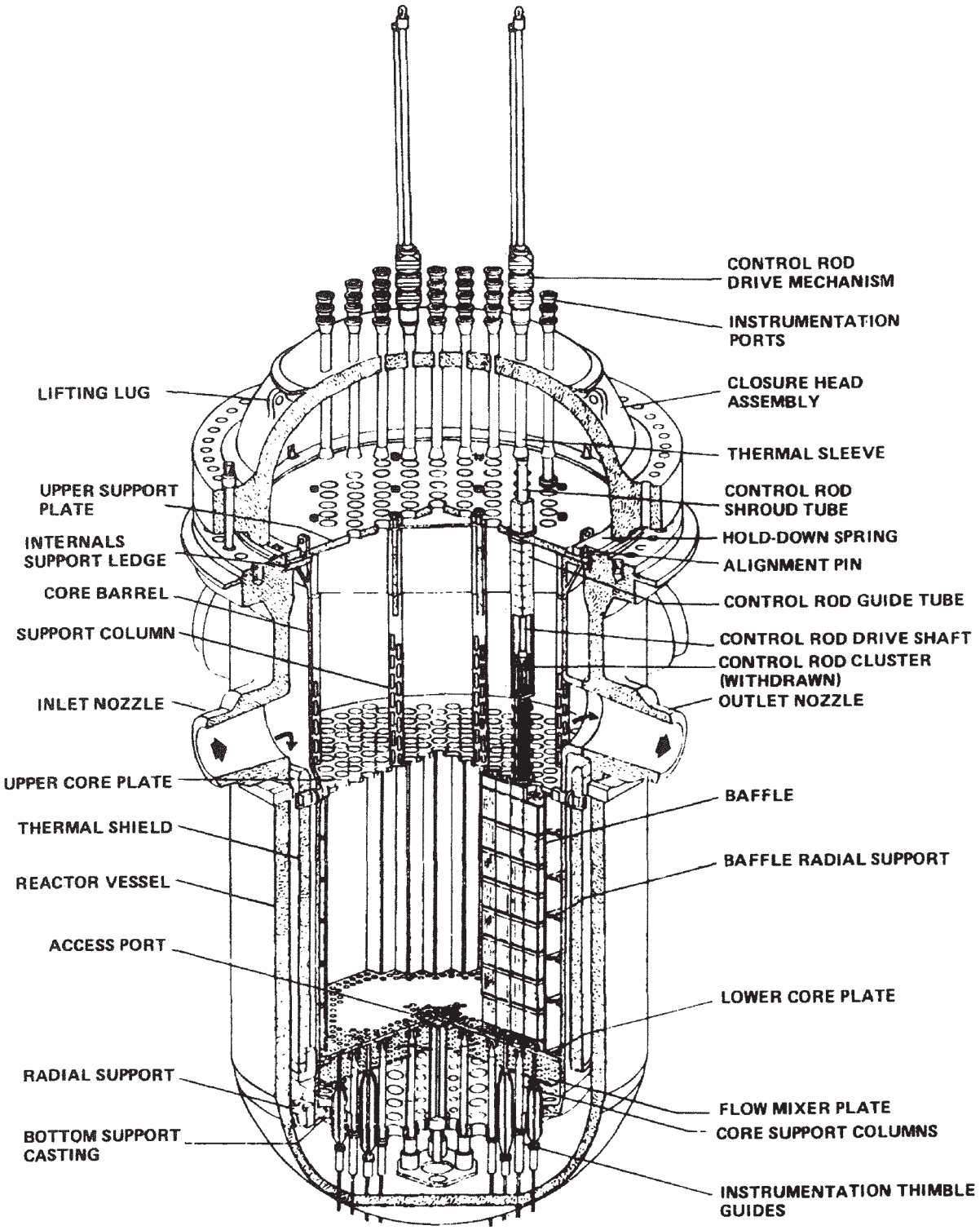
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-44A TYPICAL MEASURED VERSUS PREDICTED CRITICAL HEAT FLUX-WRB-1 CORRELATION	
MIC. No. 1999MC3682	REV. No. 17B



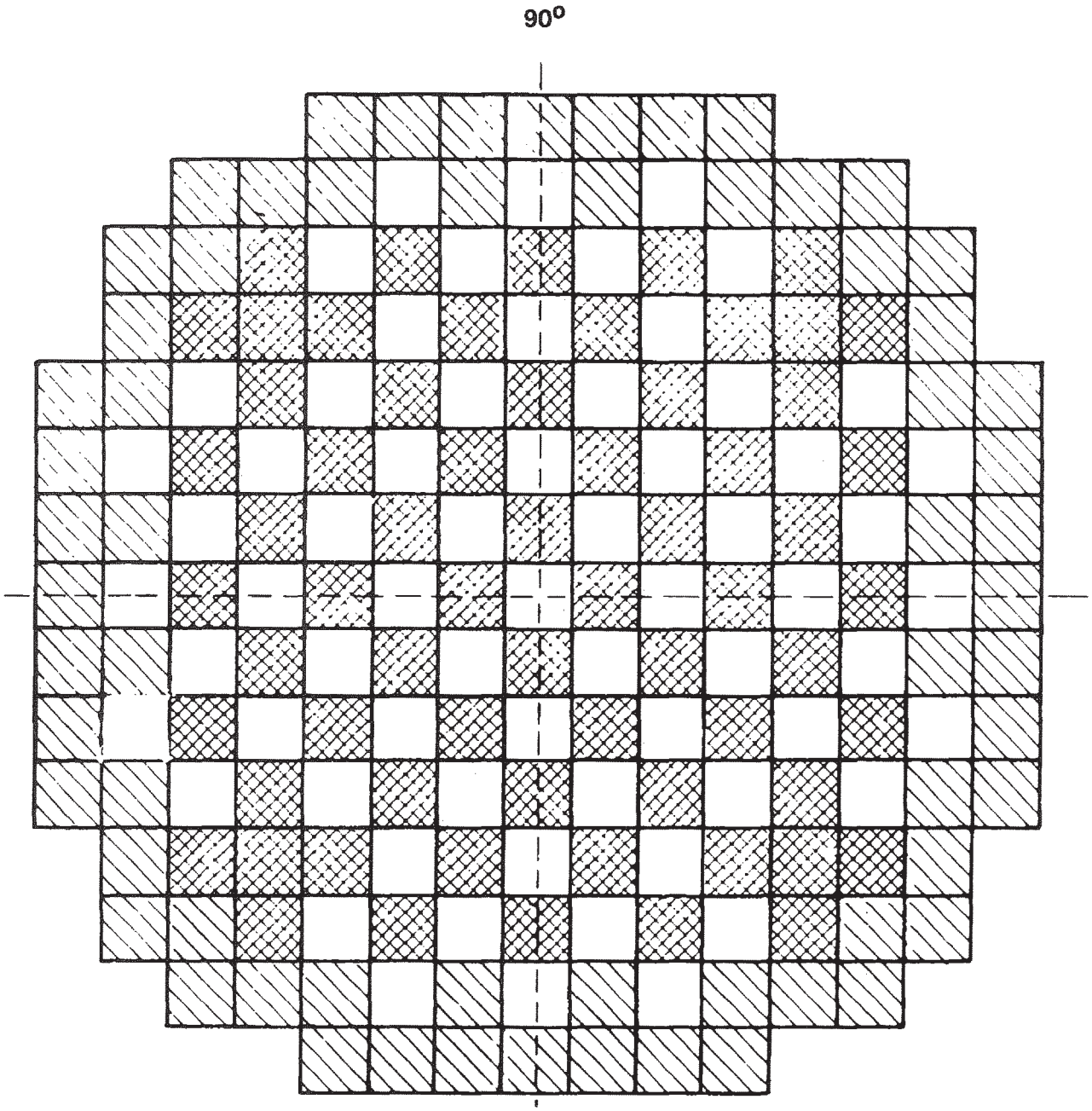
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-45 TYPICAL STABLE FILM BOILING HEAT TRANSFER DATA AND CORRELATION	
MIC. No. 1999MC3683	REV. No. 17B



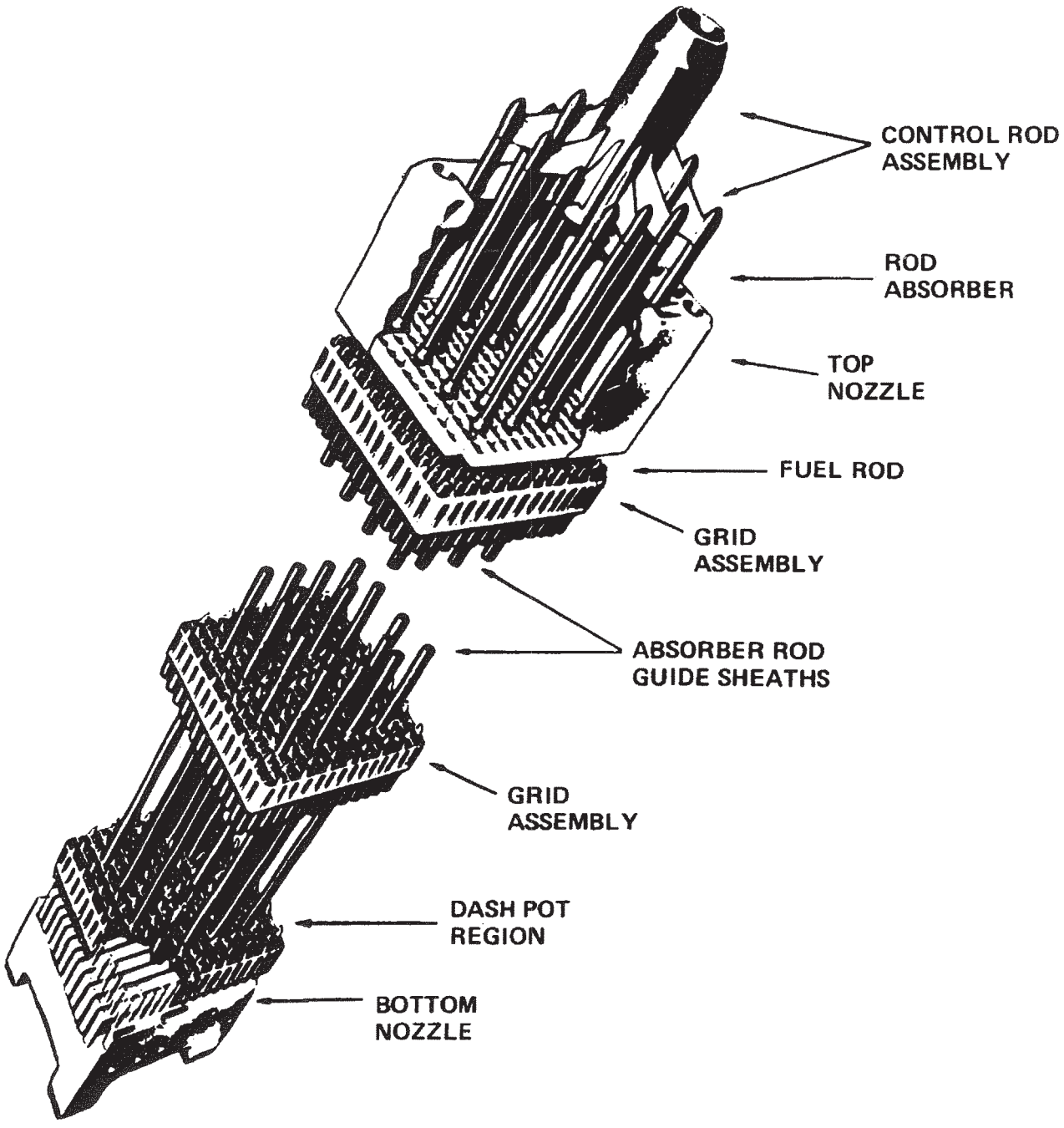
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–46 CORE CROSS SECTION	
MIC. No. 1999MC3684	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–47 REACTOR VESSEL INTERNALS	
MIC. No. 1999MC3685	REV. No. 17A

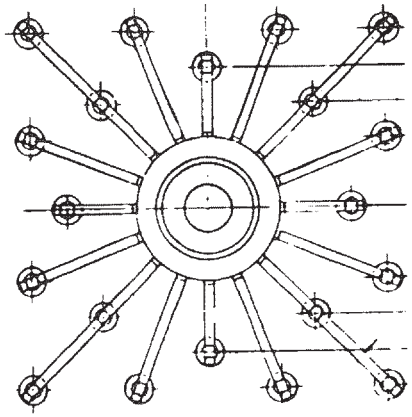


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–48 CORE LOADING ARRANGEMENT – CYCLE 1	
MIC. No. 1999MC3686	REV. No. 17A

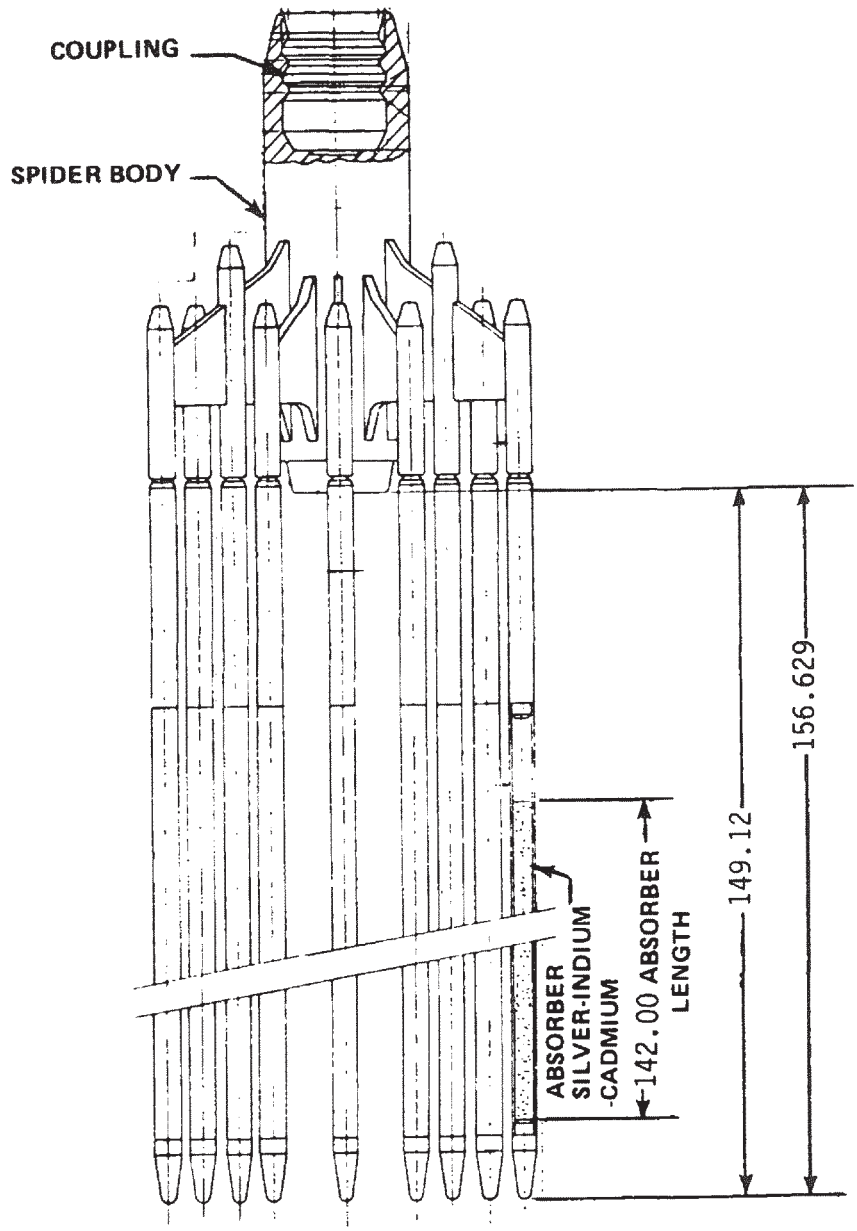


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–49 TYPICAL ROD CLUSTER CONTROL ASSEMBLY	
MIC. No. 1999MC3687	REV. No. 17A

2/0314

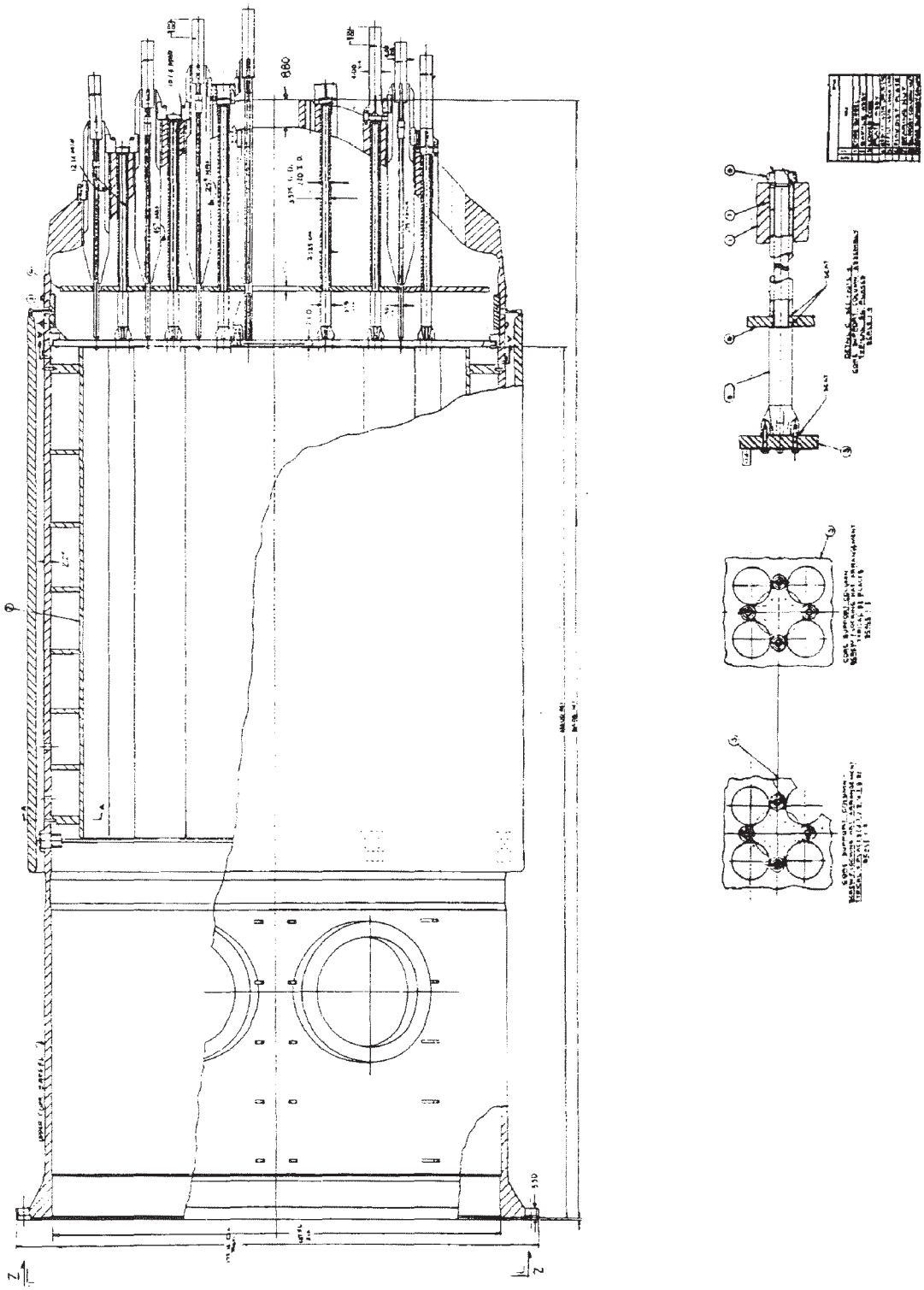


TOP VIEW

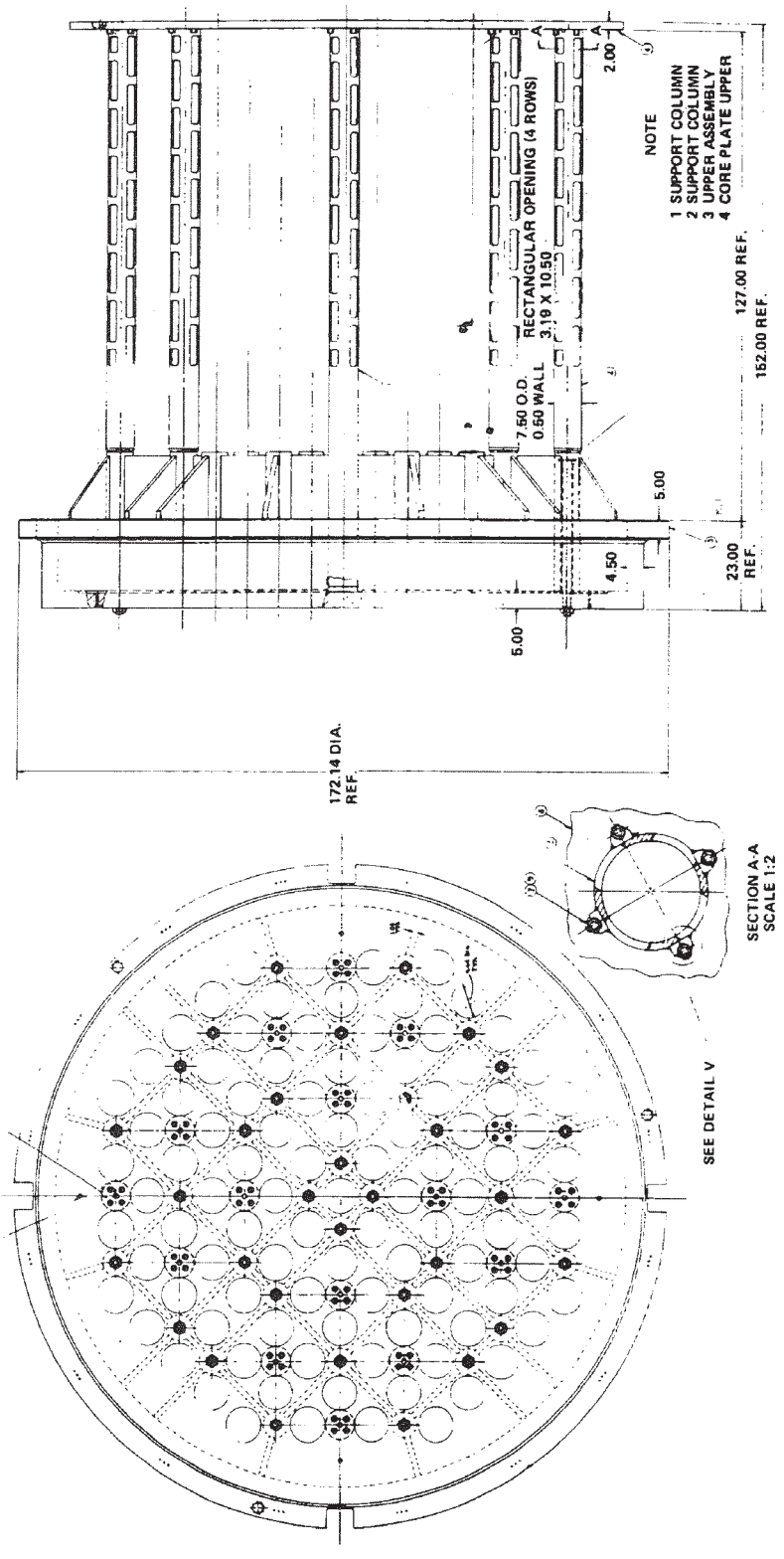


Note: Dimensions are expressed in inches.

INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–50 ROD CONTROL CLUSTER ASSEMBLY OUTLINE	
MIC. No. 1999MC3688	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–51	
CORE BARREL ASSEMBLY	
MIC. No. 1999MC3705	REV. No. 17A



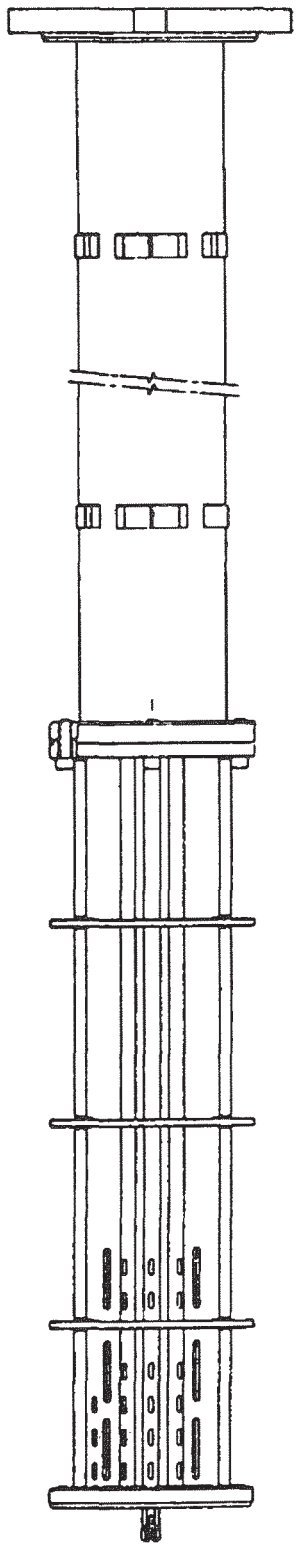
Note: Dimensions are expressed in inches.

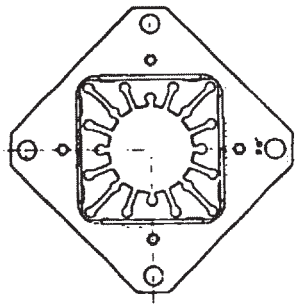
INDIAN POINT UNIT No. 2

UFSAR FIGURE 3.2–52

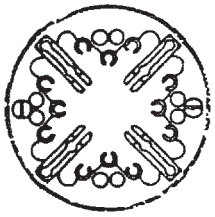
UPPER CORE SUPPORT STRUCTURE

MIC. No. 1999MC3706	REV. No. 17A



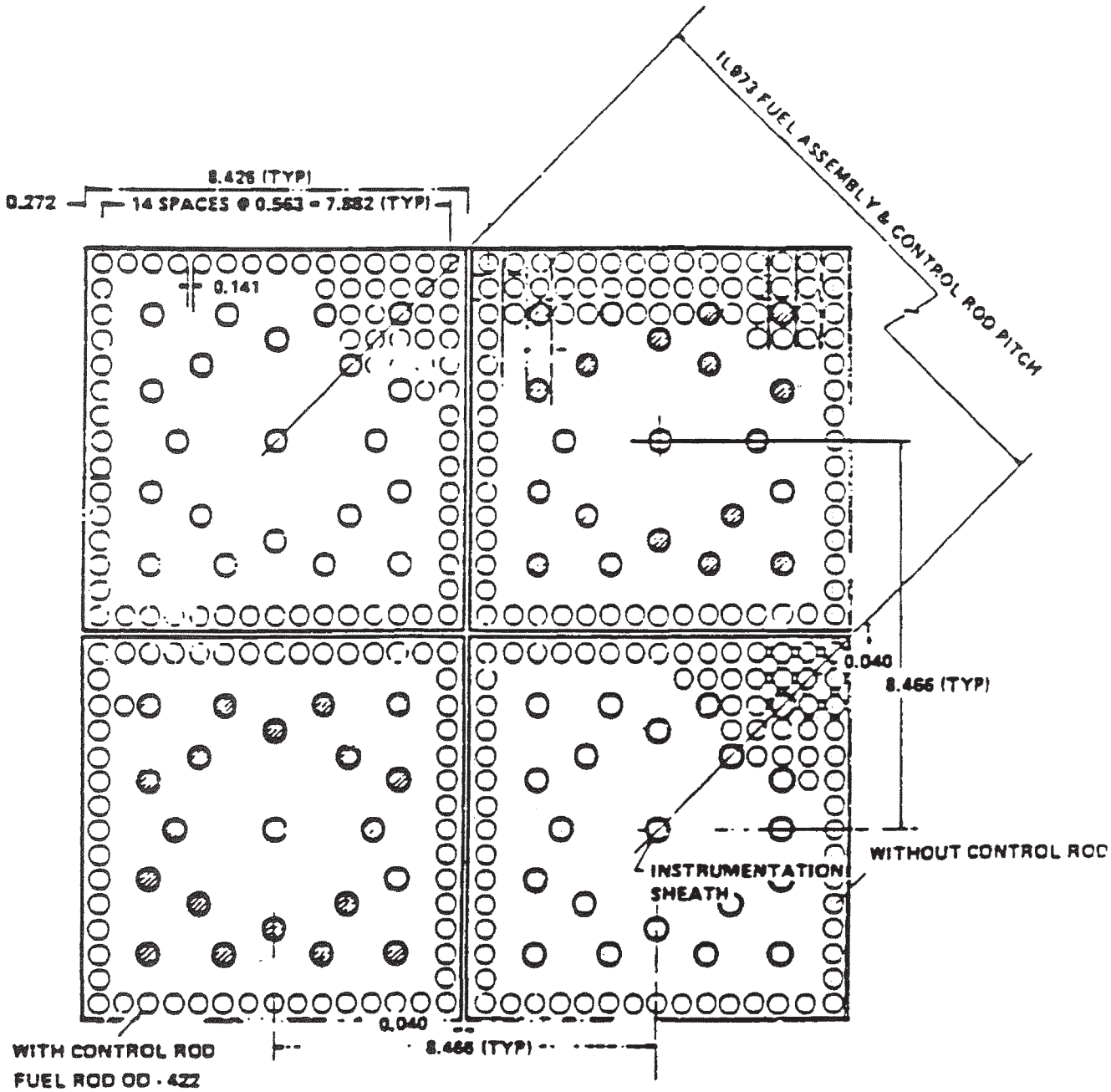


TOP VIEW



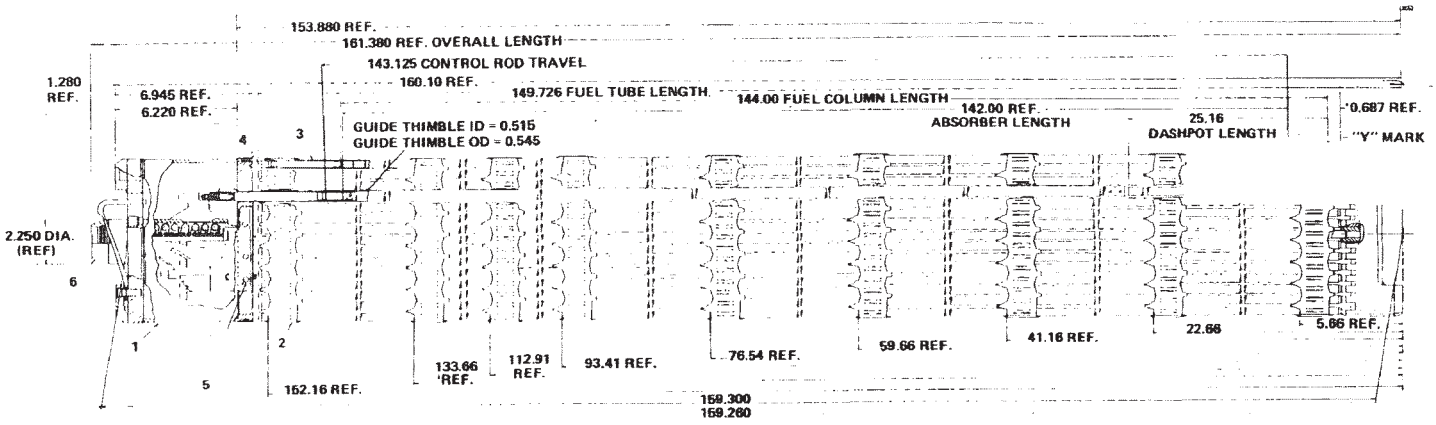
BOTTOM VIEW

INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–53 GUIDE TUBE ASSEMBLY	
MIC. No. 1999MC3707	REV. No. 17A



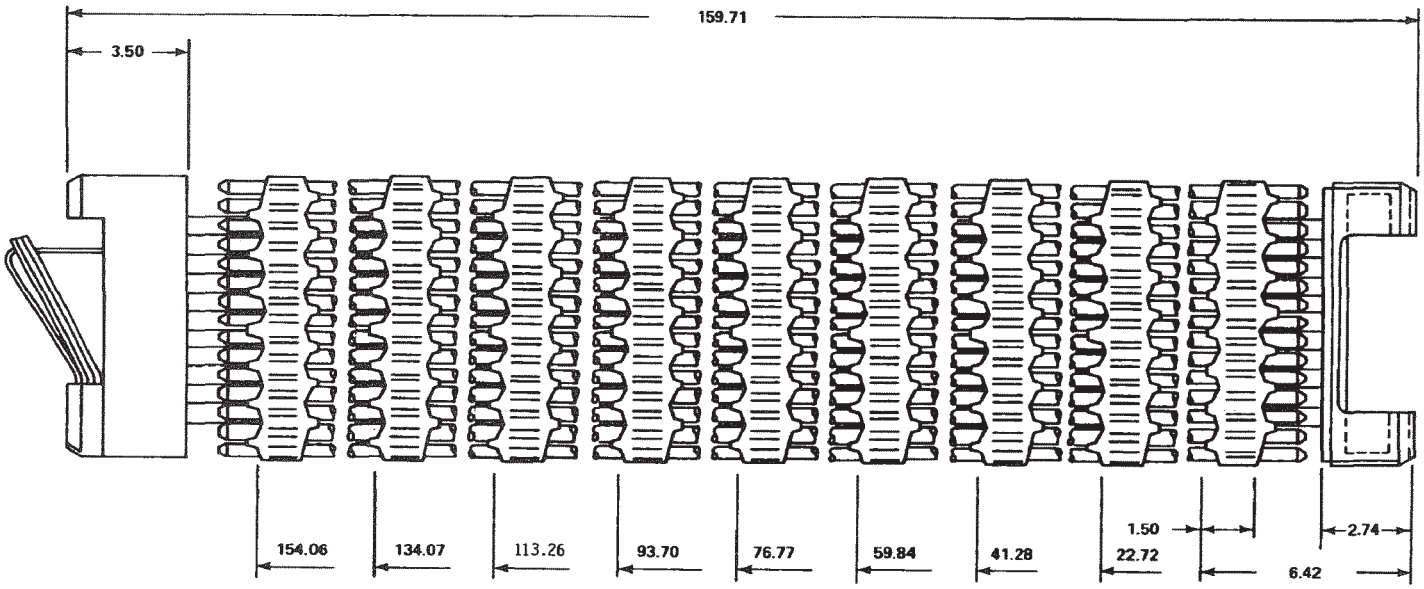
Note: (1) All dim. corrected to 68°F ± 2°
(2) Dimensions are expressed in inches

INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–54 FUEL ASSEMBLY AND CONTROL CLUSTER CROSS SECTION – HIPAR, LOPAR, OFA AND VANTAGE+	
MIC. No. 1999MC3708	REV. No. 17A



Note: Dimensions are expressed in inches.

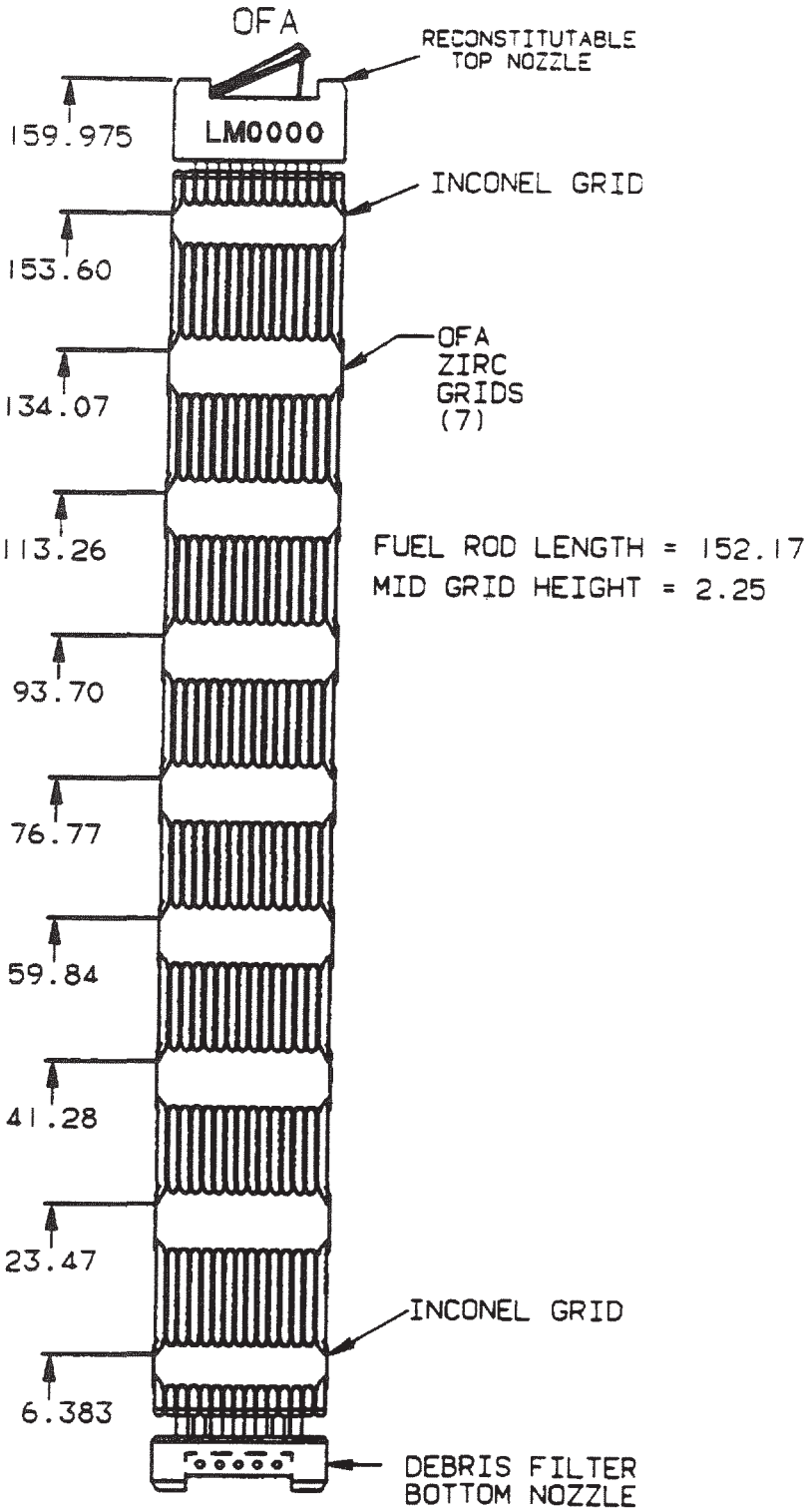
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–55	
HIPAR FUEL ASSEMBLY	
MIC. No. 1999MC3709	REV. No. 17A



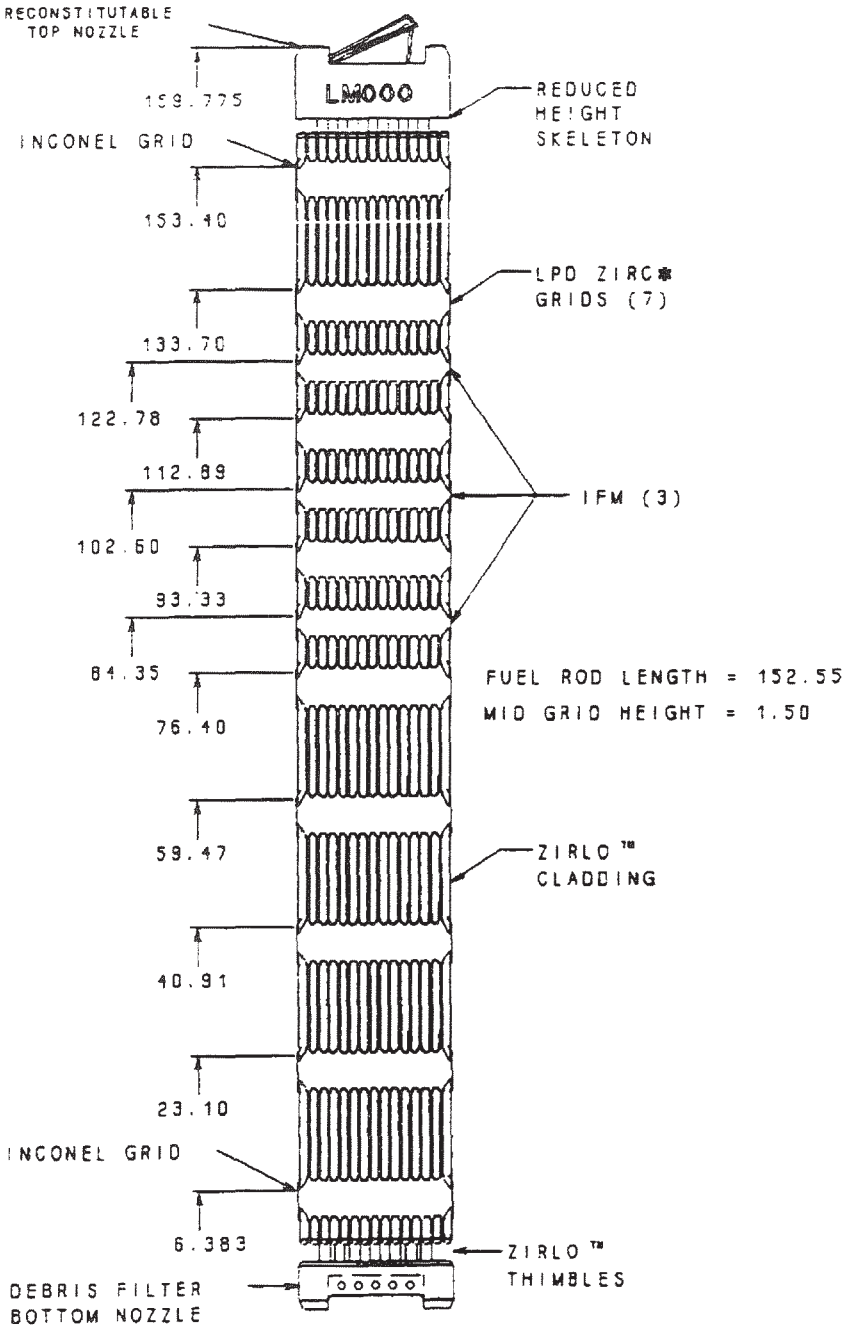
Note: Dimensions are expressed in inches.

INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–56 LOPAR FUEL ASSEMBLY	
MIC. No. 1999MC3710	REV. No. 17A

OPTIMIZED (OFA) FUEL ASSEMBLY

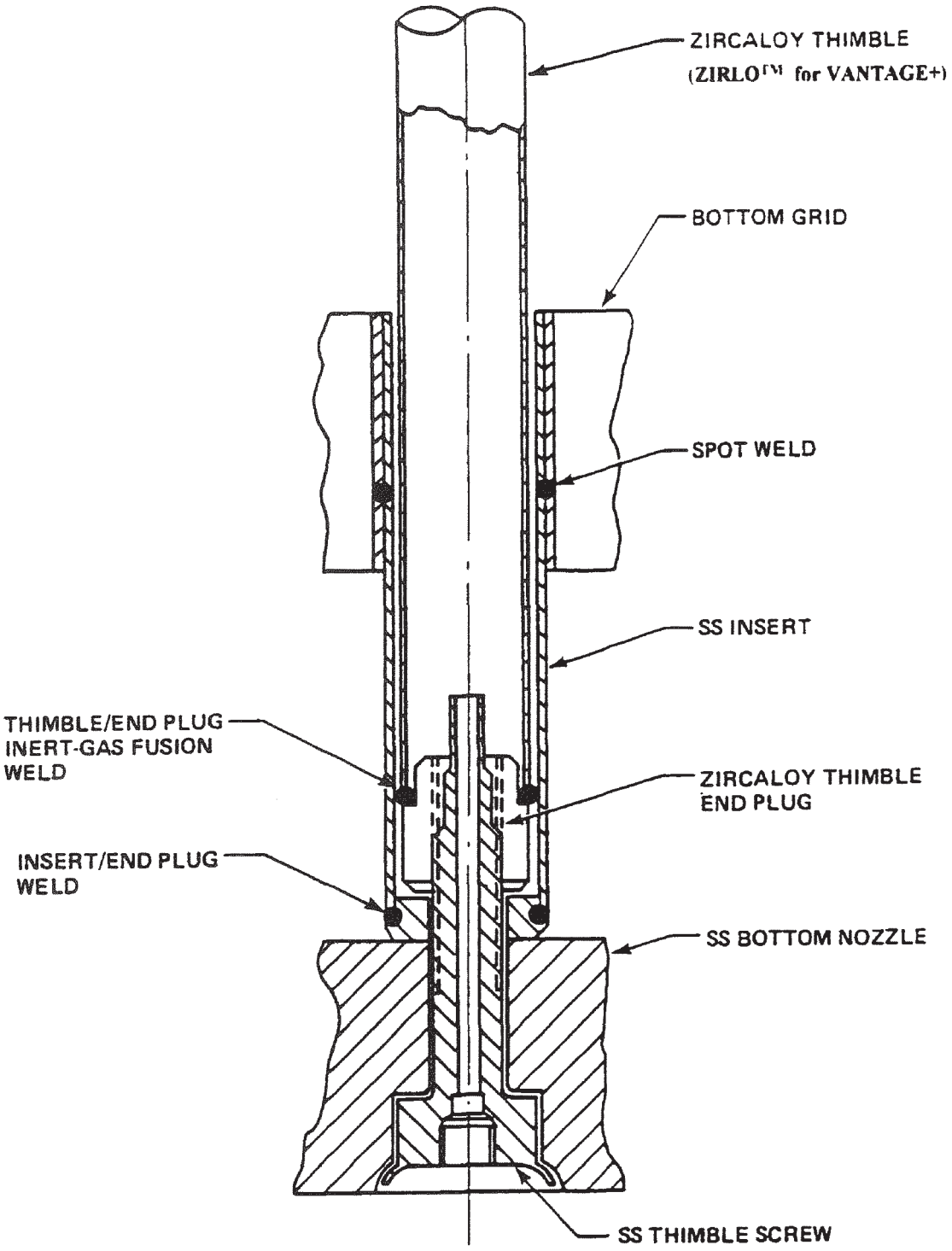


INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–56A OFA FUEL ASSEMBLY	
MIC. No. 1999MC3711	REV. No. 17A

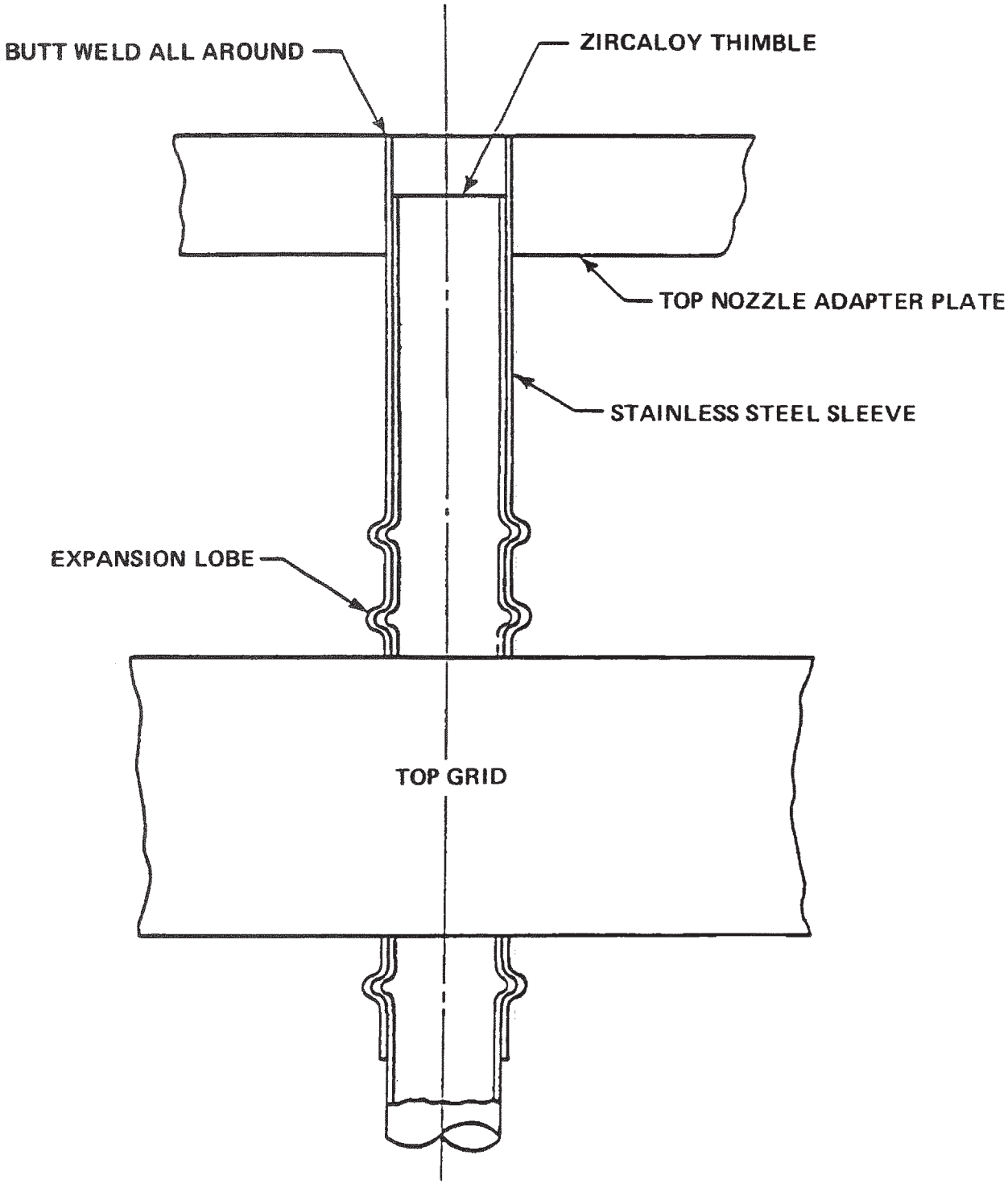


* VANTAGE+ FUEL WITH PERFORMANCE + FEATURES WILL HAVE ZIRLO™ MIDGRIDS.

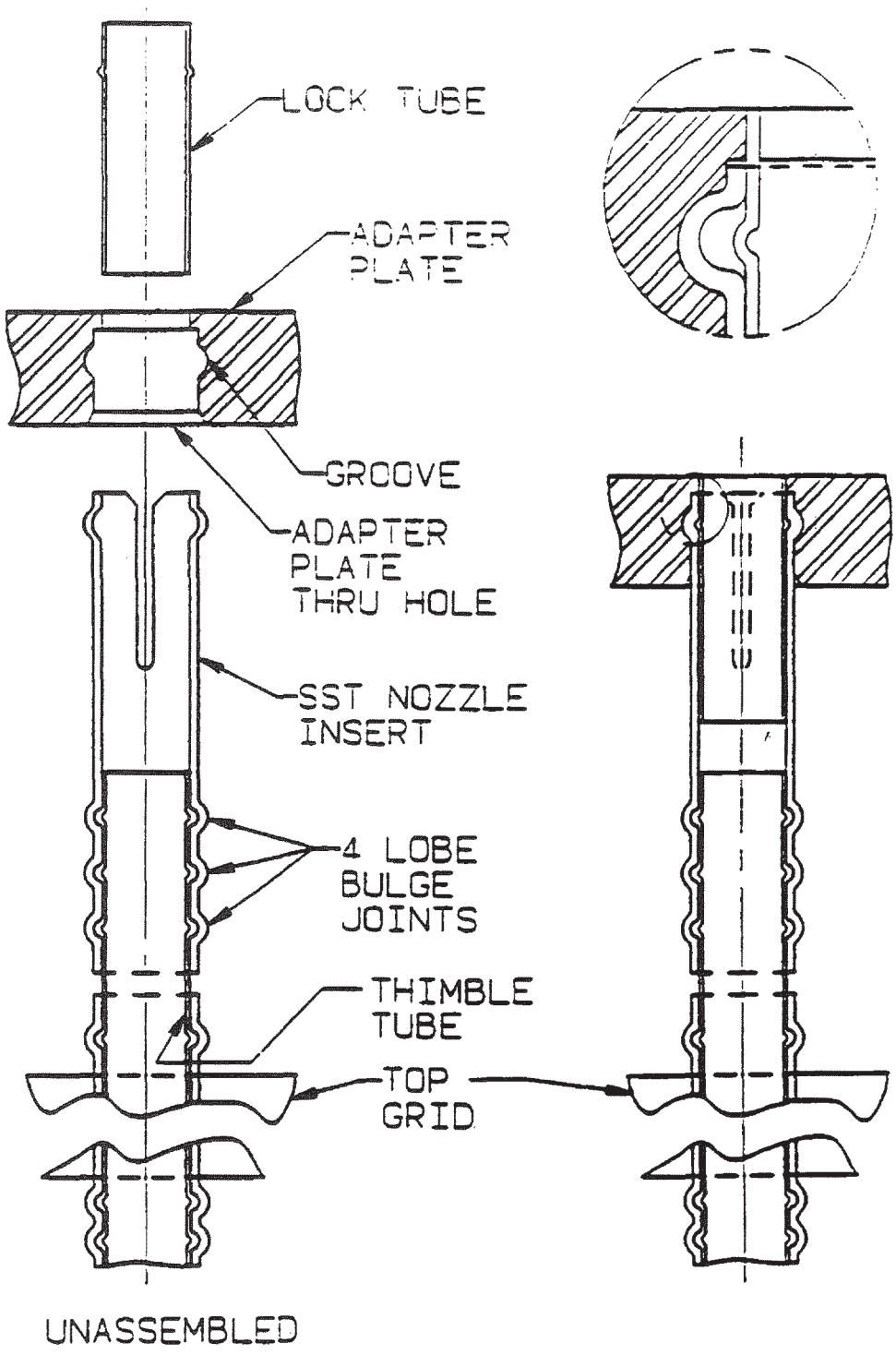
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-56B	
VANTAGE+ FUEL ASSEMBLY	
MIC. No. 1999MC3712	REV. No. 17A



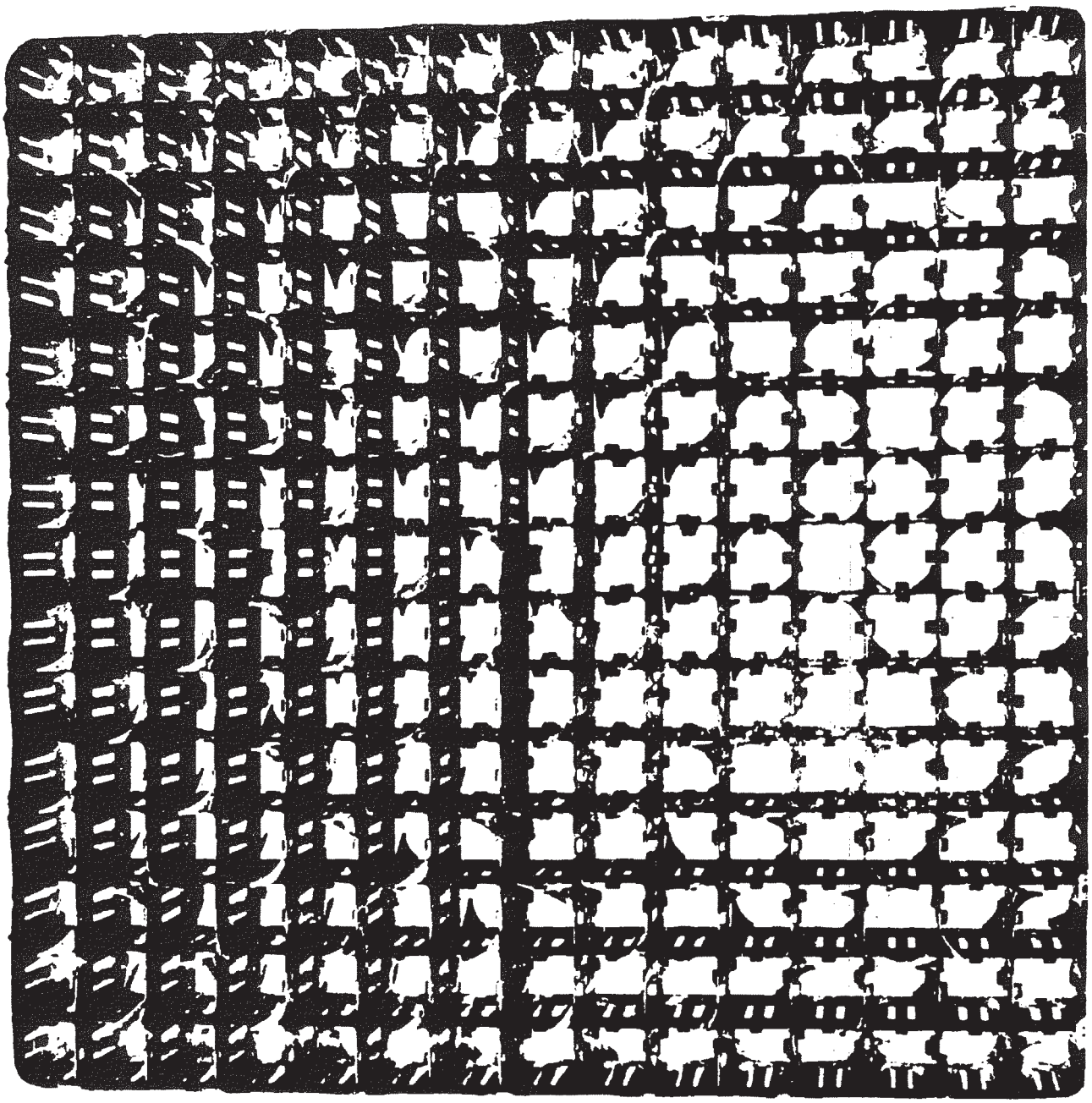
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–57 GUIDE THIMBLE TO BOTTOM NOZZLE JOINT	
MIC. No. 1999MC3713	REV. No. 17A



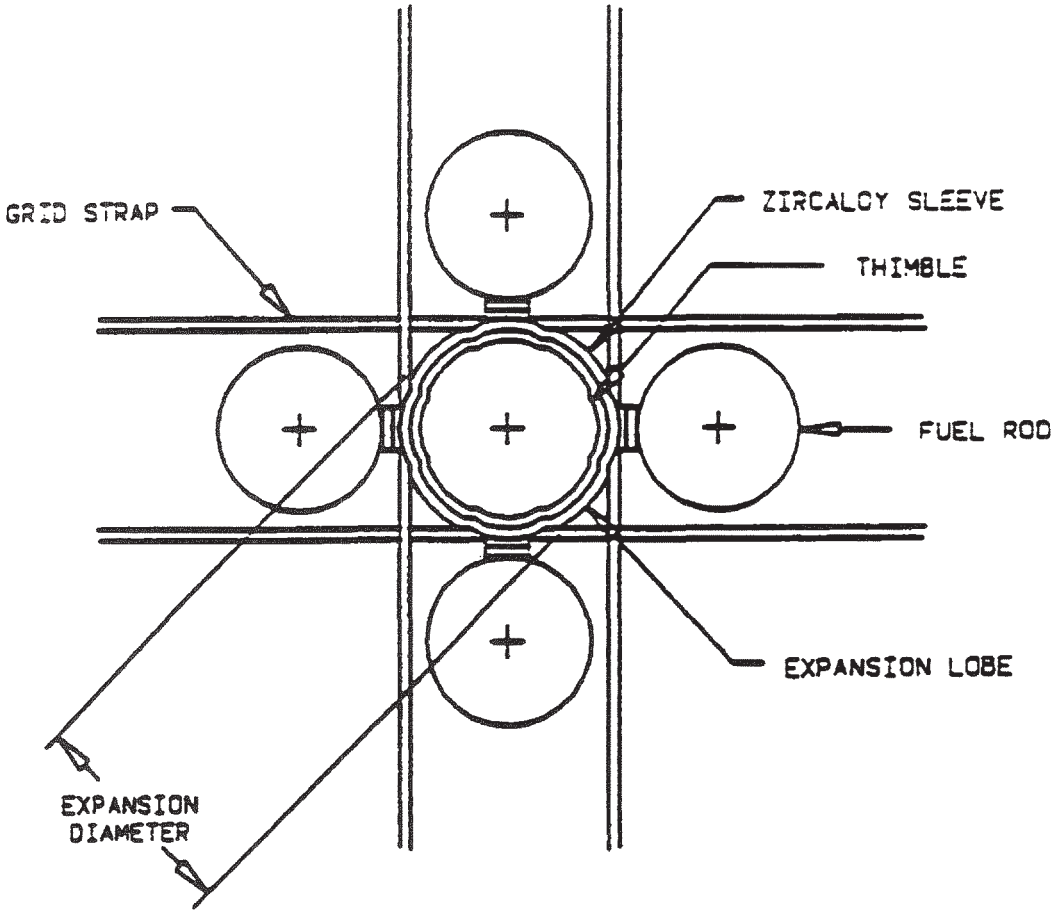
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–58 LOPAR TOP GRID TO NOZZLE ATTACHMENT	
MIC. No. 1999MC3714	REV. No. 17A



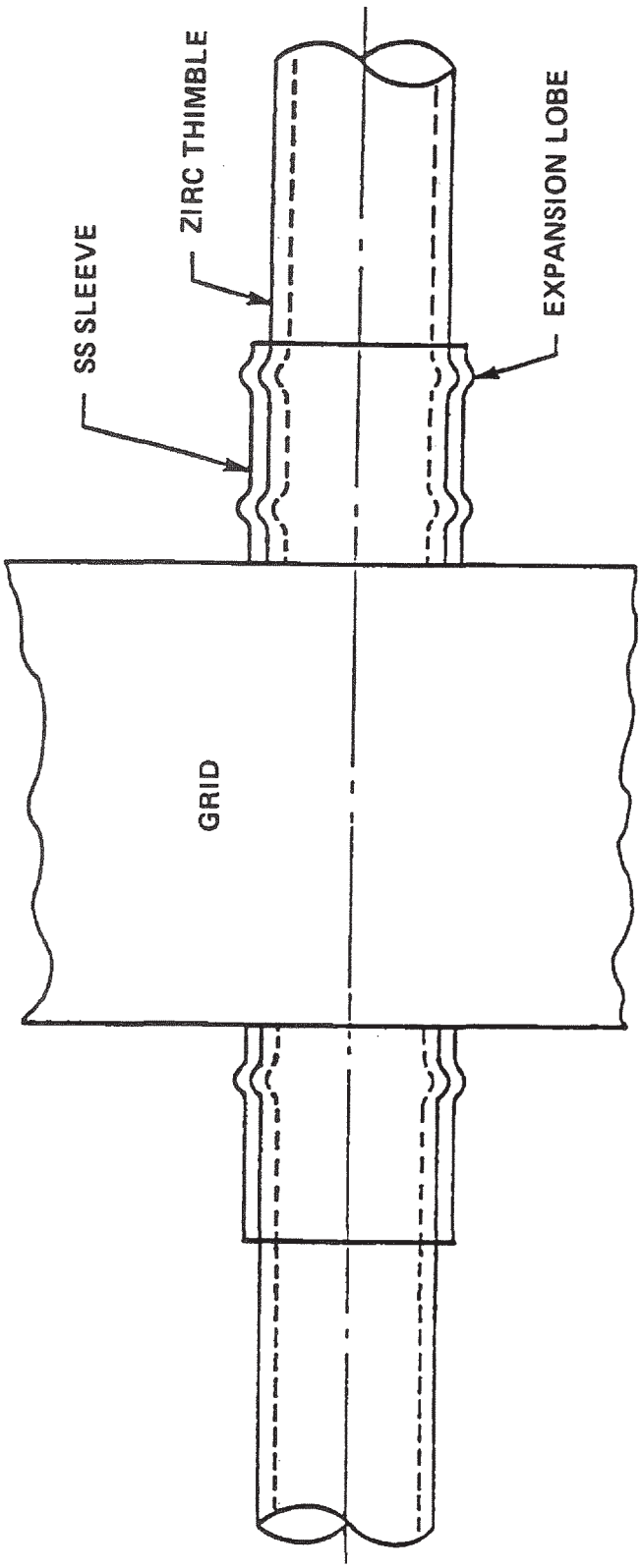
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–58A OFA and VANTAGE+ TOP GRID TO NOZZLE ATTACHMENT	
MIC. No. 1999MC3715	REV. No. 17A



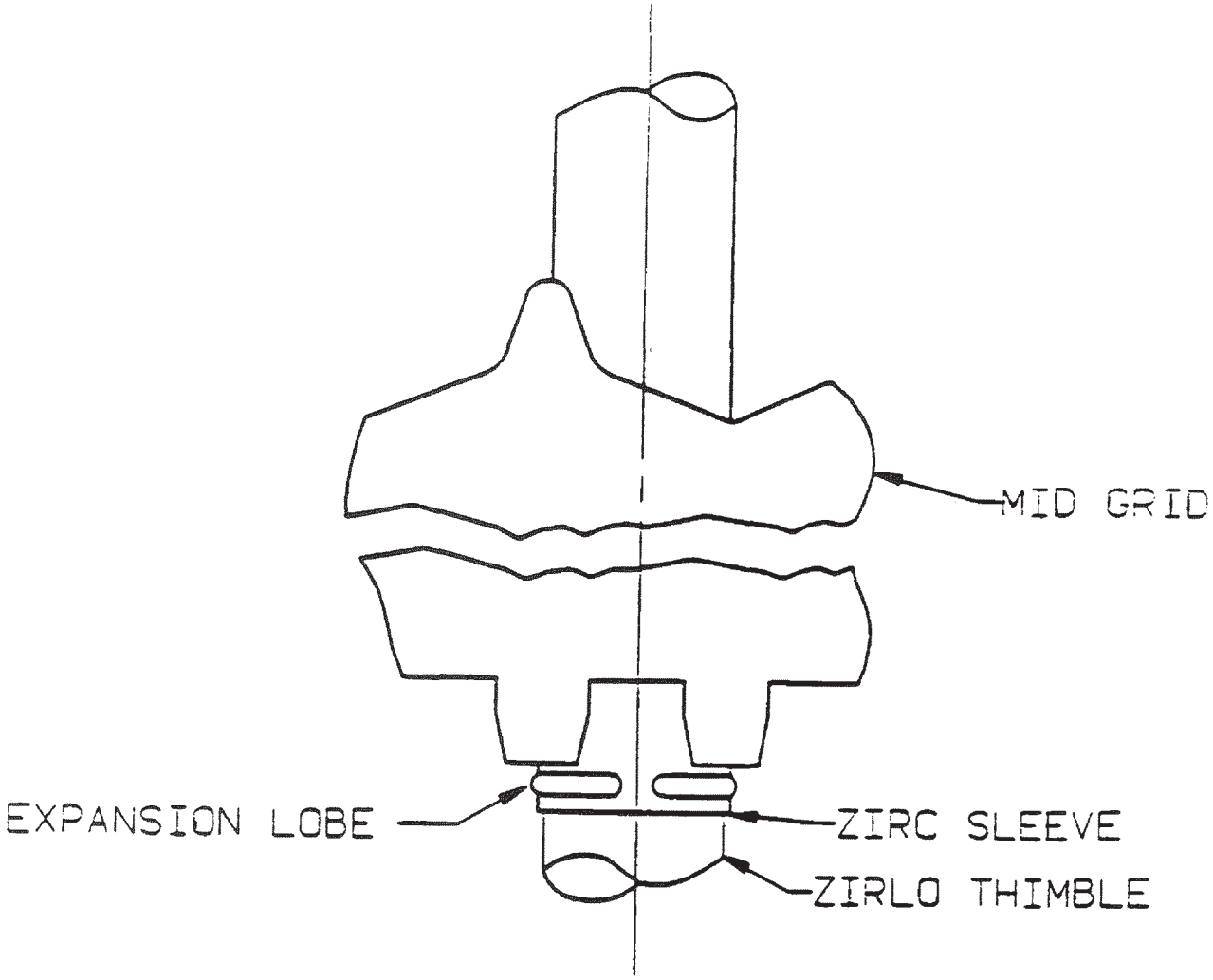
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–59 SPRING CLIP GRID ASSEMBLY	
MIC. No. 1999MC3716	REV. No. 17A



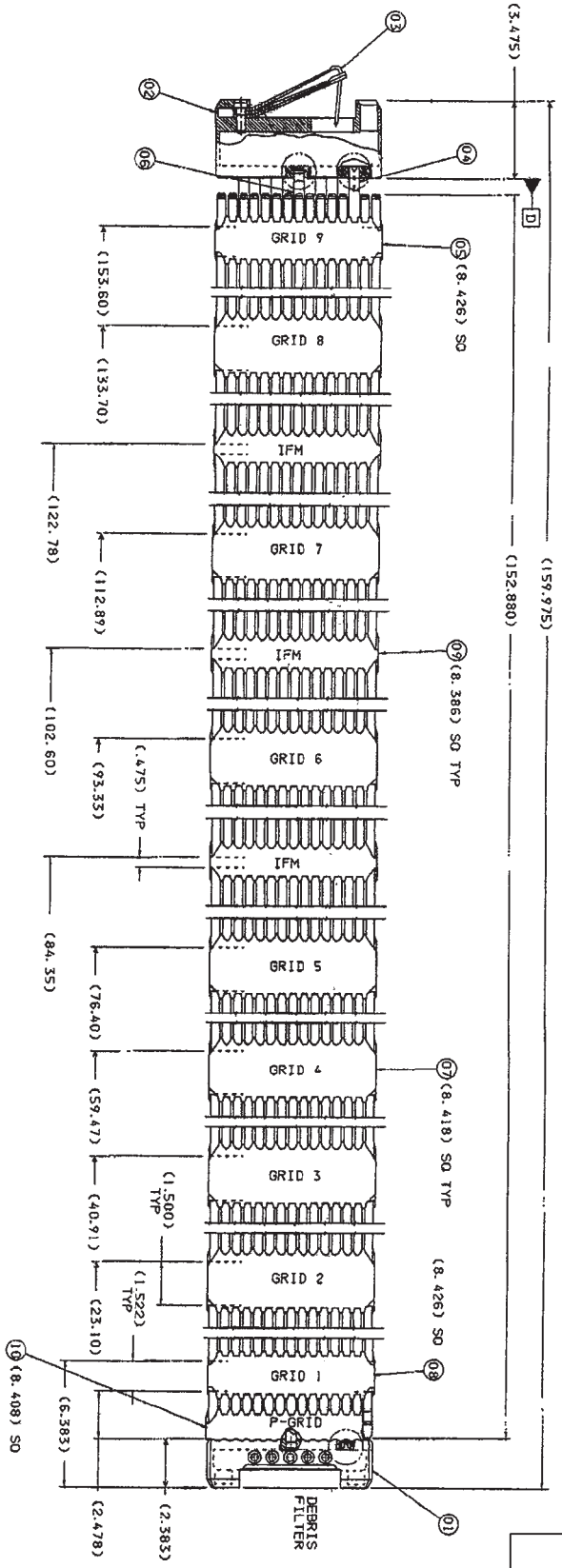
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-60 MID-GRID EXPANSION JOINT DESIGN PLAN VIEW	
MIC. No. 1999MC3717	REV. No. 17A



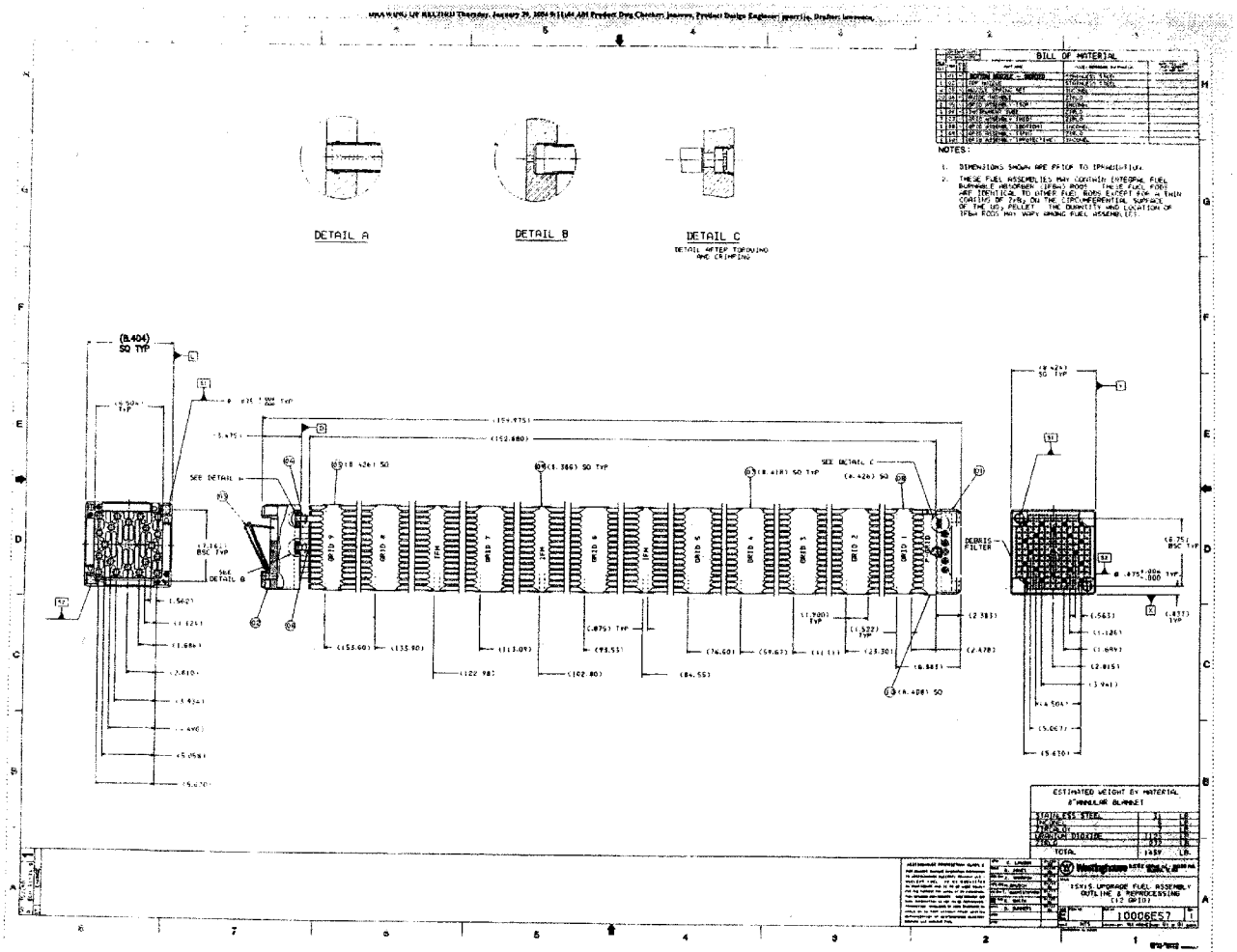
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–61 ELEVATION VIEW – LOPAR GRID TO THIMBLE ATTACHMENT	
MIC. No. 1999MC3718	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-61A ELEVATION VIEW – VANTAGE+ GRID TO THIMBLE ATTACHMENT	
MIC. No. 1999MC3719	REV. No. 17A



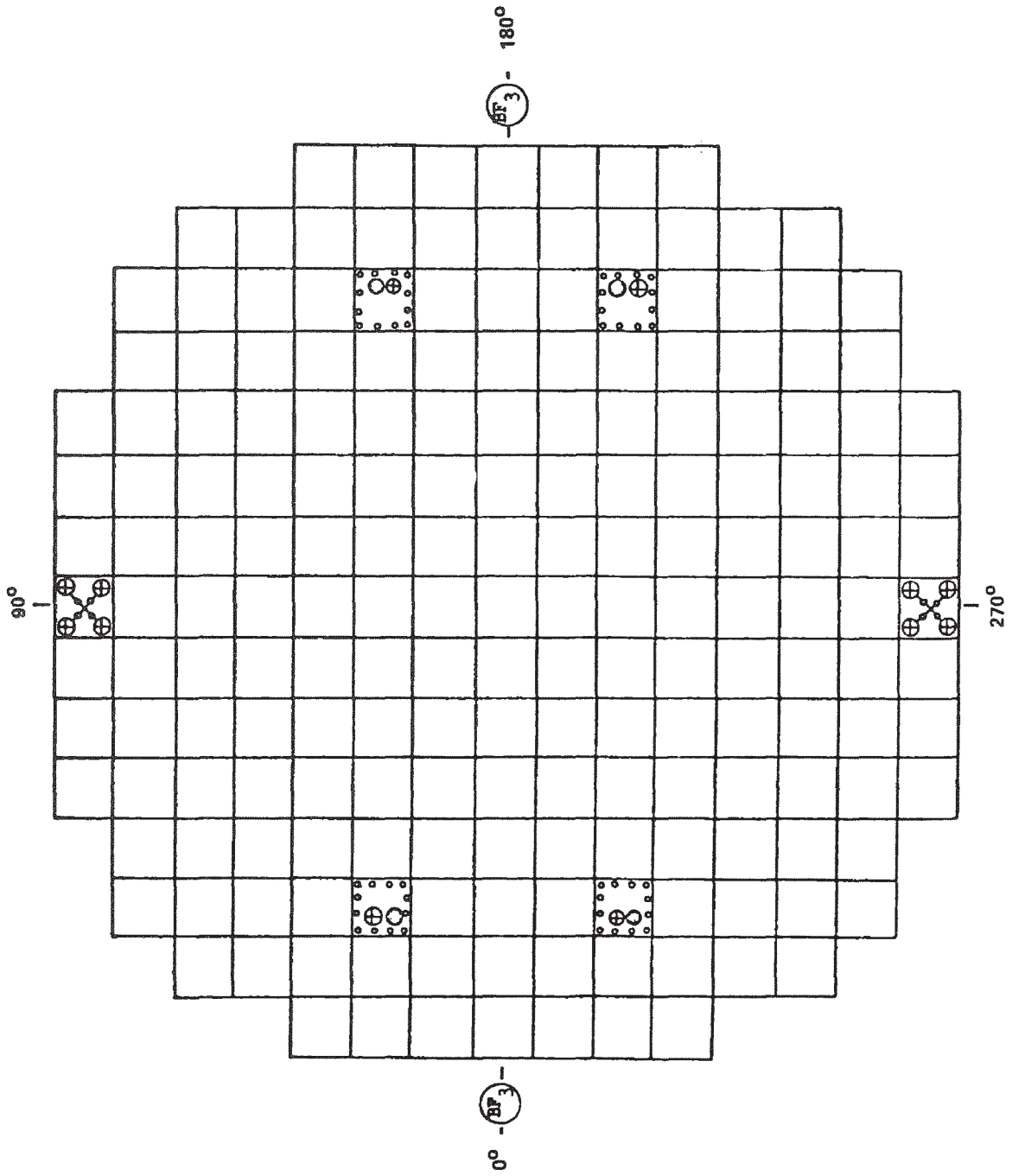
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-61B	
VANTAGE+ FUEL ASSEMBLY WITH PERFORMANCE+ ENHANCEMENTS	
MIC. No. 1999MC3720	REV. No. 17B



INDIAN POINT UNIT No. 2

15 X 15 UPGRADED FUEL ASSEMBLY

UFSAR FIGURE 3.2-61C | REV. No. 19



BURNABLE POISON ROD (16 BP'S)
UNIRRADIATED Sb-Be Rod
PRIMARY Po-Be ROD (100 CURIES)

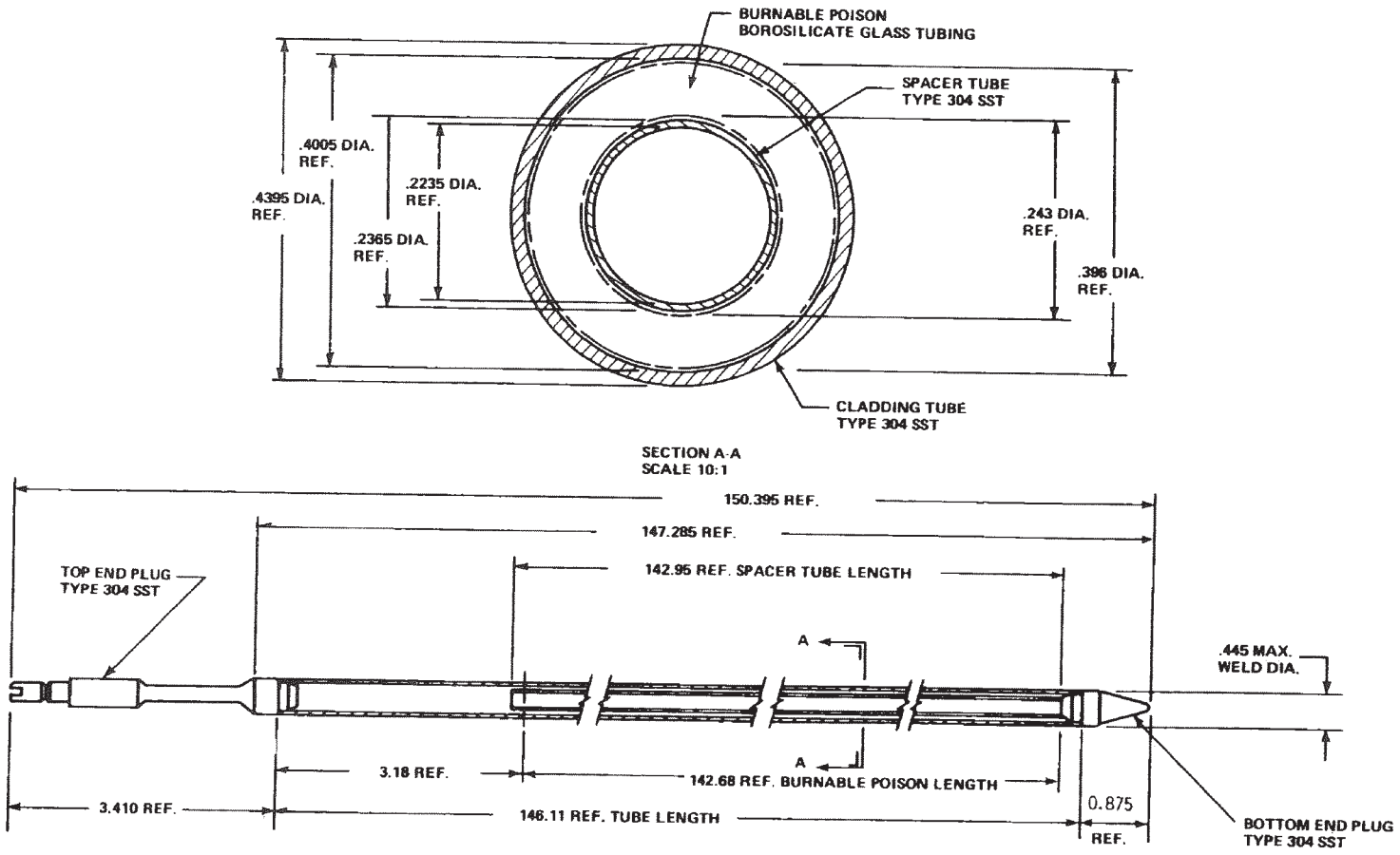
BURNABLE POISON ROD
(7 BP'S ASYMMETRICAL)
UNIRRADIATED Sb-ROD
PERMANENT SOURCE
SPIDER ASSEMBLY

INDIAN POINT UNIT No. 2

UFSAR FIGURE 3.2–62

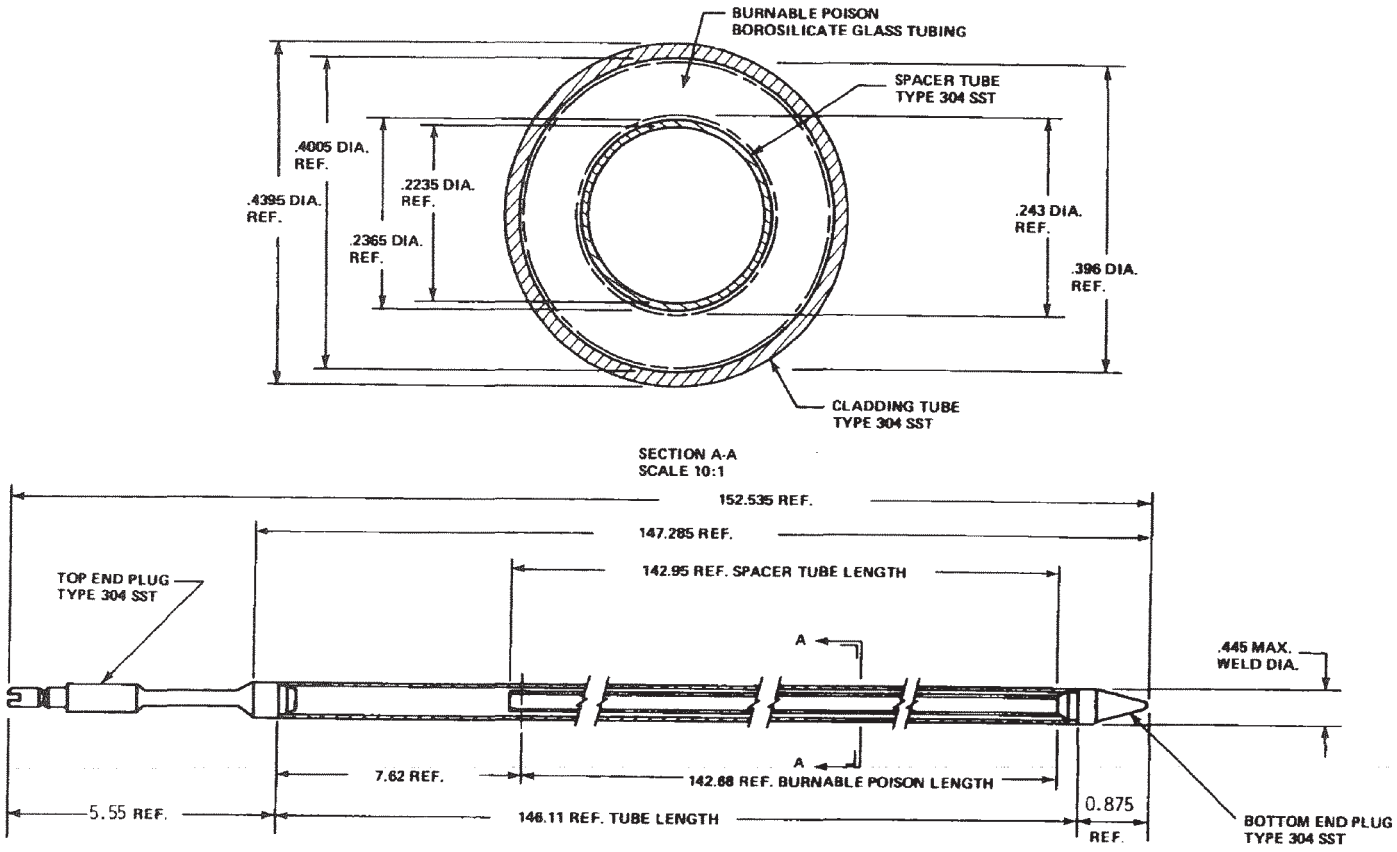
CYCLE 1 – NEUTRON SOURCE LOCATIONS

MIC. No. 1999MC3721 | REV. No. 17A



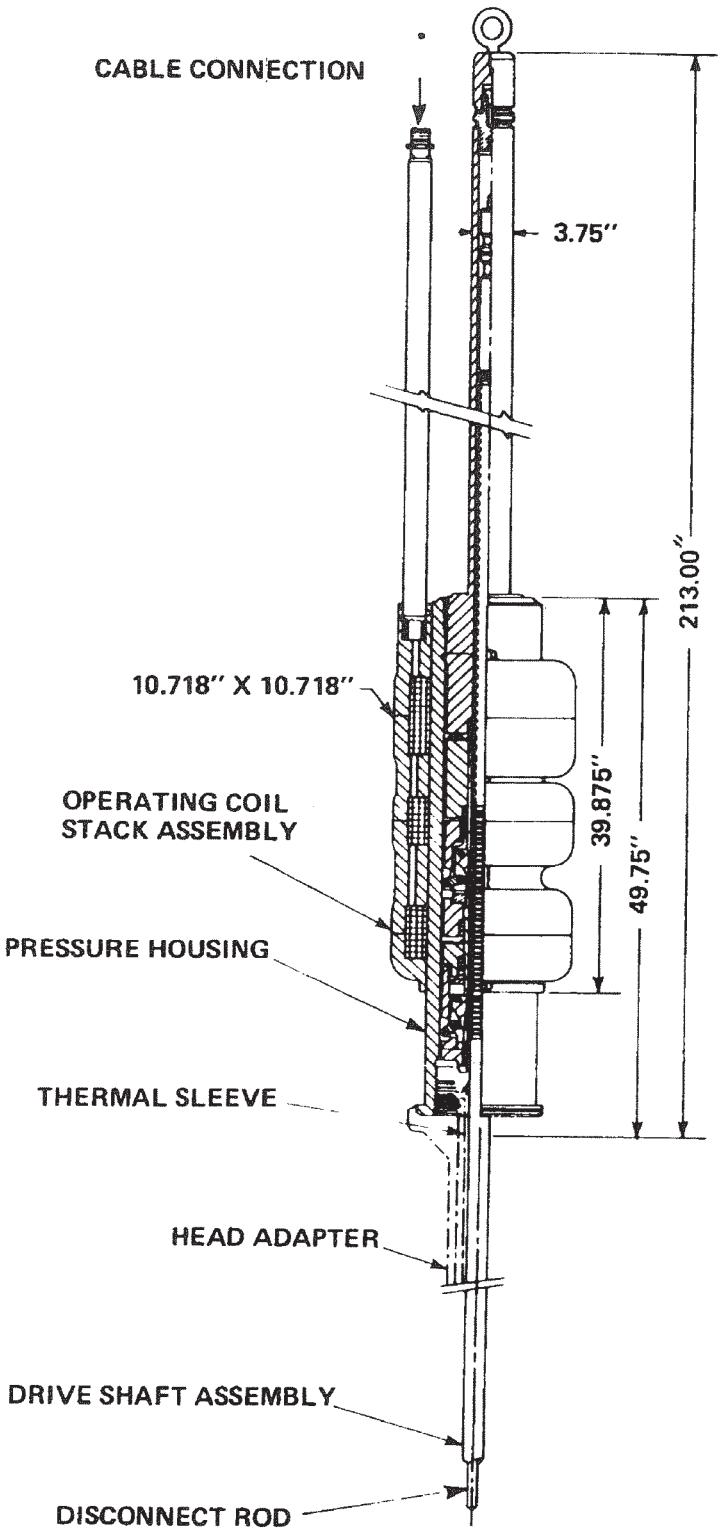
Note: Dimensions are expressed in inches.

INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-63 HIPAR BURNABLE POISON ROD	
MIC. No. 1999MC3722	REV. No. 17A

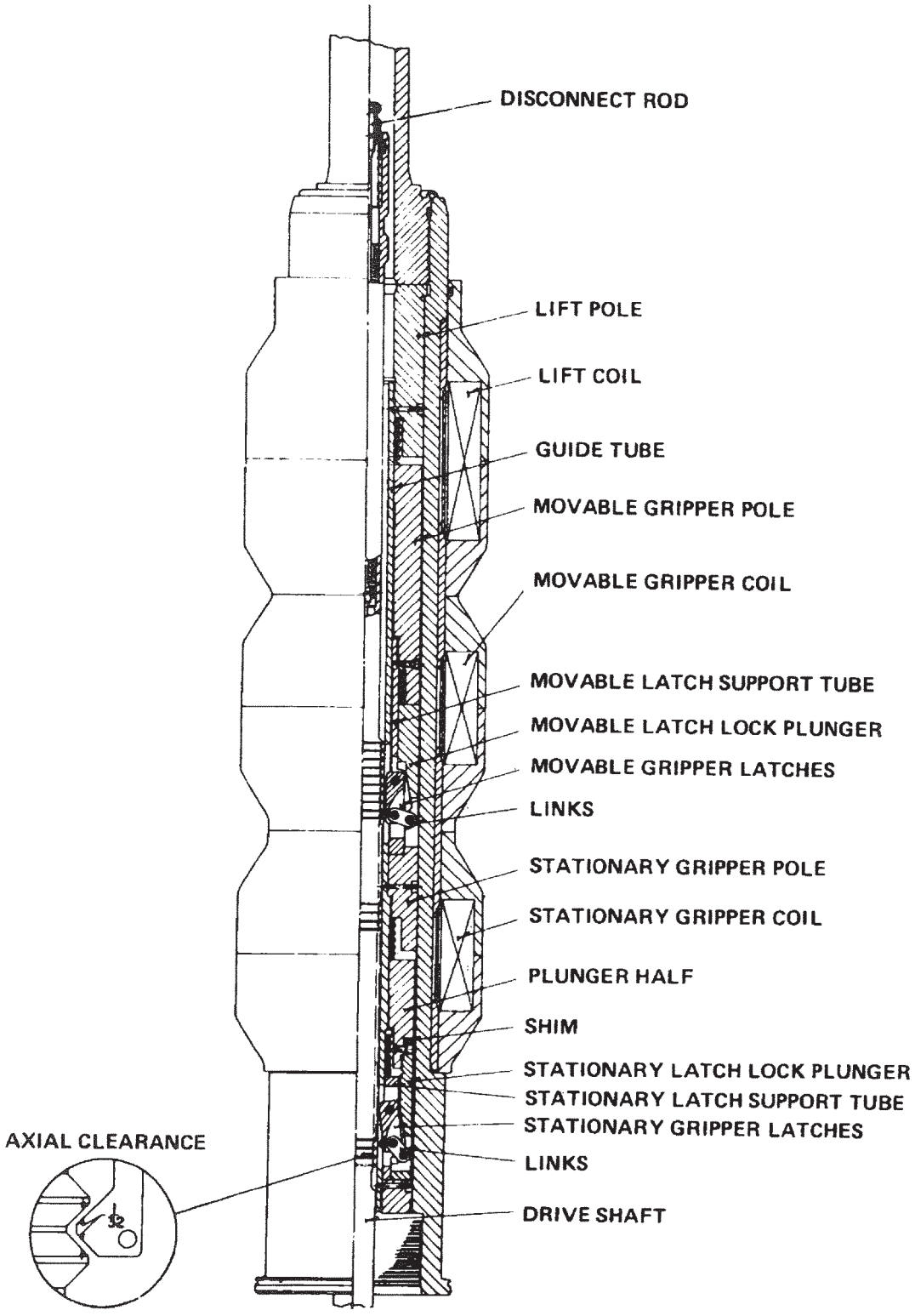


Note: Dimensions are expressed in inches.

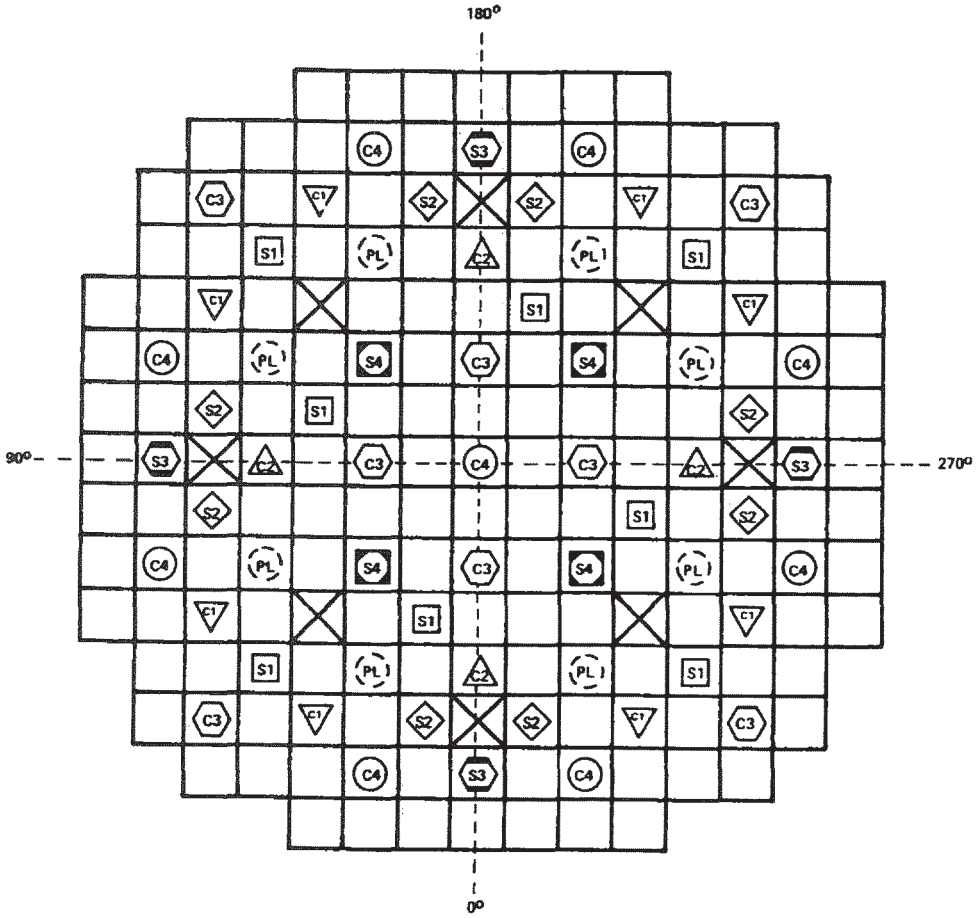
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2-64 LOPAR BURNABLE POISON ROD	
MIC. No. 1999MC3723	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–65 CONTROL ROD DRIVE MECHANISM ASSEMBLY	
MIC. No. 1999MC3724	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–66 CONTROL ROD DRIVE MECHANISM SCHEMATIC	
MIC. No. 1999MC3725	REV. No. 17A

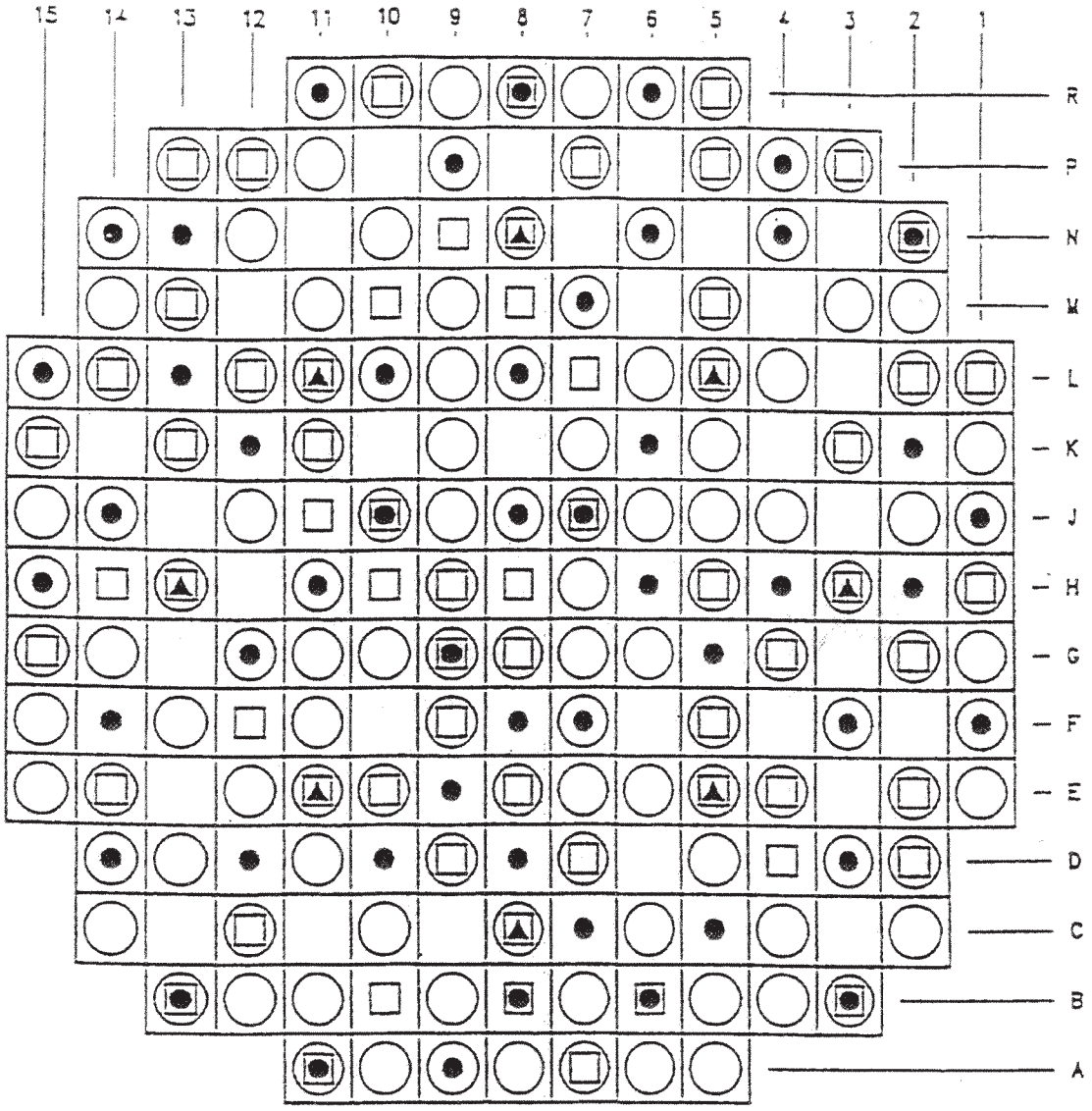


ROD CLUSTER CONTROL BANKS

BANK	SYMBOL
S1	□
S2	◇
S3	⬡
S4	□
C1	▽
C2	△
C3	⬡
C4	○
PL	◌
(PART-LENGTH ROD)* FIXED INCORE	×

Note: Part-length rods have been removed since the orginal design.

INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–67	
THIMBLE LOCATIONS – FIXED INCORE DETECTORS	
MIC. No. 1999MC3726	REV. No. 17A



□ THERMOCOUPLE LOCATION..... 65

● MOVABLE DETECTOR LOCATION.... 50

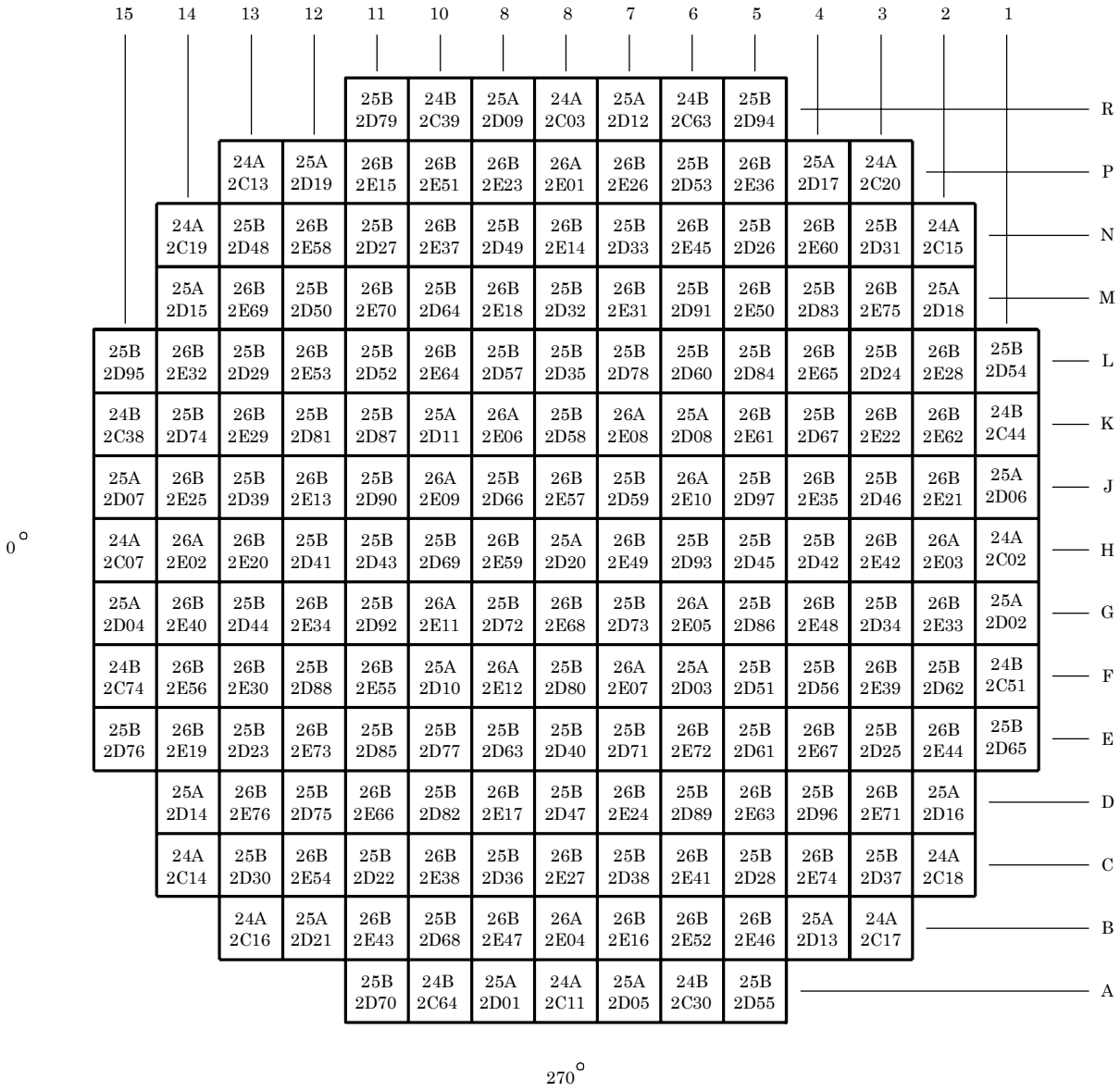
○ FLOW MIXING DEVICE LOCATION.. 132

▲ FIXED DETECTOR LOCATION..... 8

INDIAN POINT UNIT No. 2

INCORE DETECTOR, THERMOCOUPLE AND FLOW MIXING DEVICE LOCATIONS

UFSAR FIGURE 3.2-68 | REV. No. 19



LEGEND

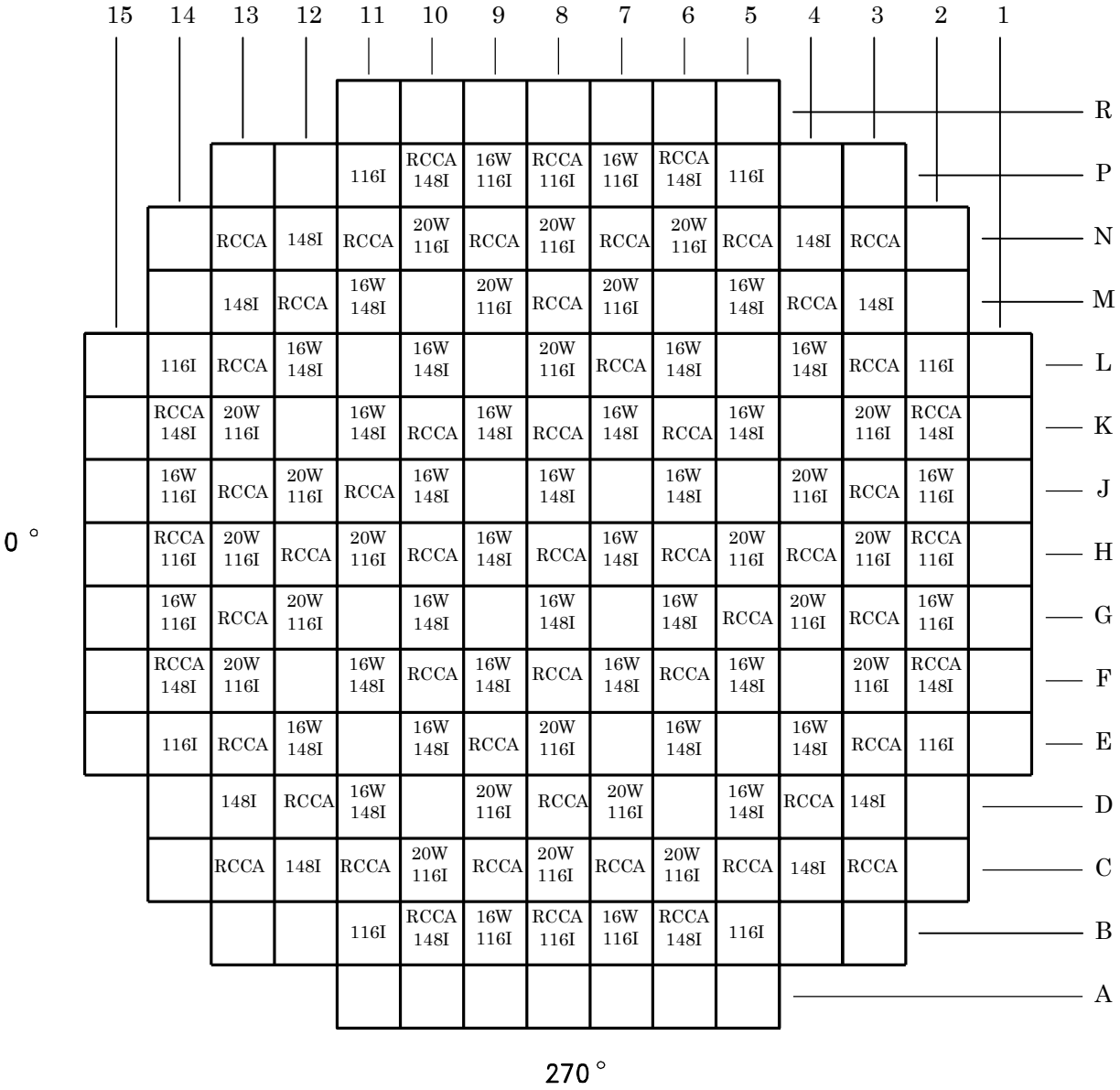
R ID	Region Identifier Fuel Assembly Identifier

Fuel Assembly Orientation

- • Reference Hole
- ○ Core Pin Hole
- ↖ Holddown Bar

NOTE: Figures are Top View

INDIAN POINT UNIT No. 2	
CYCLE 24 REGION AND FUEL ASSEMBLY LOCATIONS	
UFSAR FIGURE 3.2–68A	REV. No. 27



LEGEND

TYPE	COMPONENT TYPE
###I	NUMBER OF FRESH IFBA RODS

Fuel Assembly Orientation

- • Reference Hole
- ○ Core Pin Hole
- ↖ Holddown Bar

NOTE: Figures are Top View

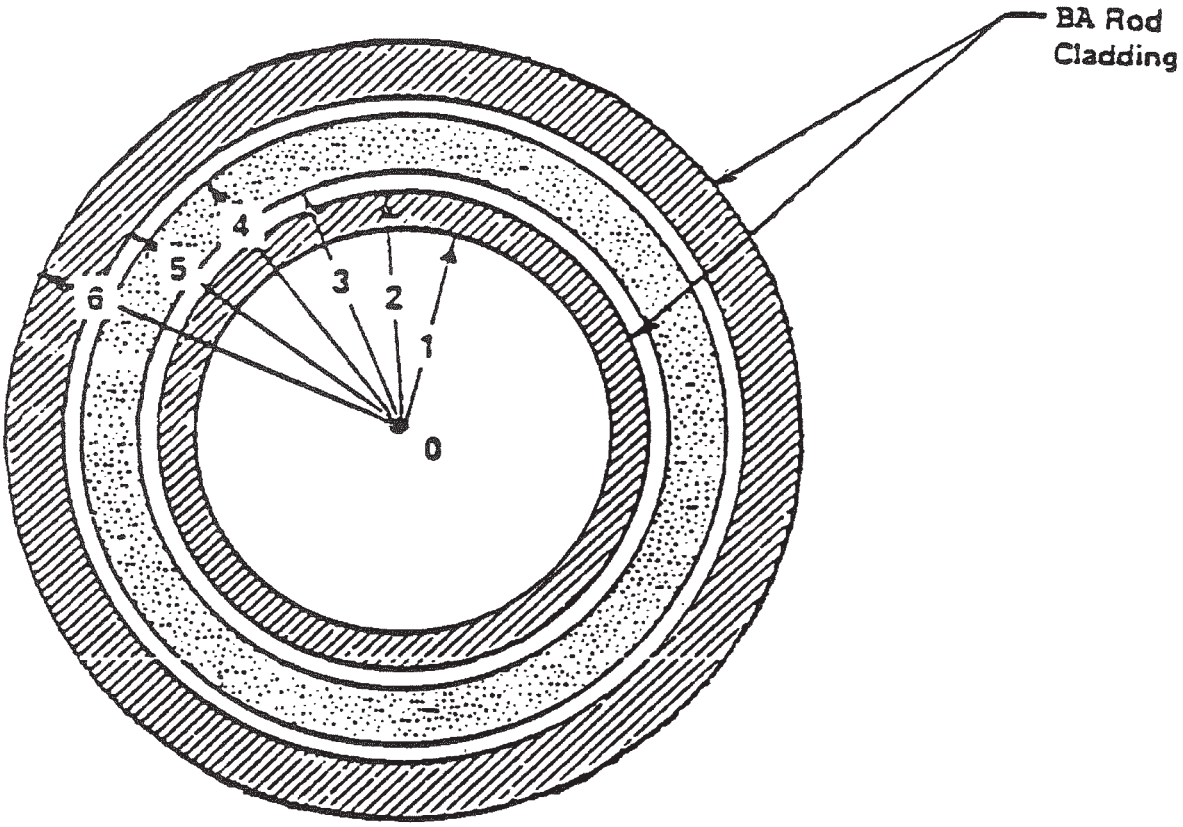
CORE COMPONENT TYPES

RCCA - CONTROL OR SHUTDOWN RCCA
W - NUMBER OF RODLETS ON WABA ASSEMBLY

INDIAN POINT UNIT No. 2

CYCLE 24 CORE COMPONENTS AND FRESH IFBA LOCATIONS

UFSAR FIGURE 3.2-68B	REV. No. 27



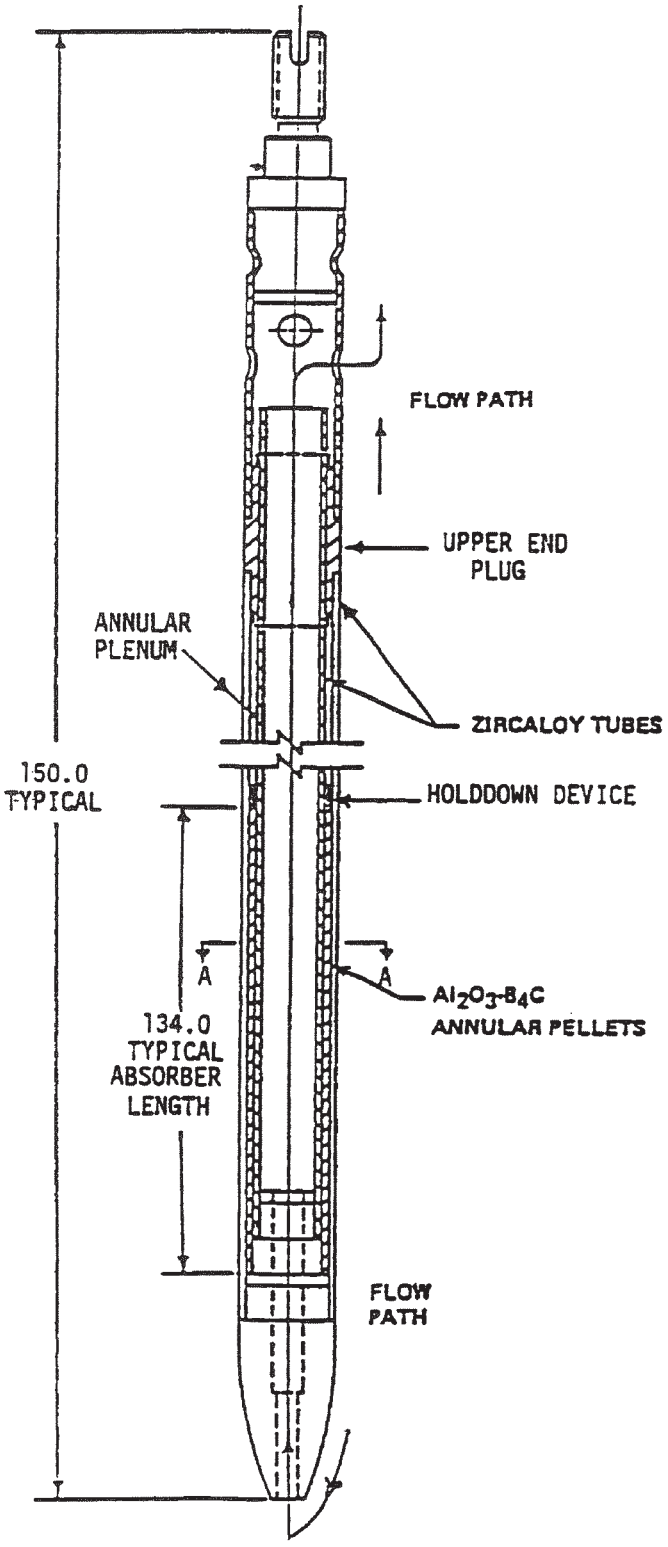
Zone Number	Previous Design BA	WABA Design
0 - 1	Air	Water
1 - 2	Stainless steel	Zircaloy
2 - 3	Air	Helium
3 - 4	Borosilicate glass	$Al_2O_3 \cdot B_4C$
4 - 5	Air	Helium
5 - 6	Stainless steel	Zircaloy

INDIAN POINT UNIT No. 2

UFSAR FIGURE 3.2-69

COMPARISON OF BOROSILICATE GLASS ABSORBER ROD WITH WABA ROD

MIC. No. 1999MC3730 | REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 3.2–70 WET ANNULAR BURNABLE ABSORBER ROD	
MIC. No. 1999MC3732	REV. No. 17A