

MAY 3 1983

ocket file
DCS MS-016

LICENSEE: Florida Power and Light Company

FACILITY: St. Lucie Plant, Unit No. 1

SUBJECT: MEETING SUMMARY - THERMAL SHIELD ANALYSIS

On April 25, 1983, a meeting was held in Bethesda, MD with Florida Power and Light Company (FP&L) to discuss FP&L's plans to address the questions of thermal shock to the reactor pressure vessel with the removal of the thermal shield from St. Lucie Plant, Unit No. 1. A list of attendees is attached.

Vugraph slides used in the FP&L presentation are attached also.

FP&L sees no problem with regard to thermal shock or embrittlement resulting from the operation of St. Lucie 1 with the thermal shield removed. In support of this initial conclusion, FP&L will conduct an evaluation of one surveillance capsule, update its fluence calculations, and conduct a 100% beltline weld inservice inspection. In addition, all vessel welds will be inspected. The surveillance capsule was scheduled to be removed on April 25. The staff pointed out that the use of one capsule only to establish a benchmark may not be valid.

The metal pieces that have been recovered from the core have been prepared for shipment to Battelle Columbus for examination.

Original signed by

Donald E. Sells, Project Manager
Operating Reactors Branch #3
Division of Licensing

Attachments:
As stated

cc: See next page

8305120520 830503
PDR ADOCK 05000335
PDR

OFFICE	ORB#3:DL	ORB#2:DL	ORB#8:DL				
SURNAME	PM Reutzer	DSe149/pn	RAClark				
DATE	5/3/83	5/3/83	5/3/83				

MEETING SUMMARY DISTRIBUTION

Licensee: Florida Power & Light Company

*Copies also sent to those people on service (cc) list for subject plant(s).

Docket File
NRC PDR
L PDR
NSIC
ORB#3 Rdg
ORB#3 Summary File
JHeltemes
BGrimes
RAClark
Project Manager
PMKreutzer
OELD
ELJordan
JMTaylor
ACRS-10
NRC Participants

Florida Power & Light Company

cc:

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ATTN: Regional Radiation
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Regional Administrator
Nuclear Regulatory Commission, Region II
Office of Executive Director for Operations
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Attachment

LIST OF ATTENDEES
THERMAL SHIELD ANALYSIS MEETING
APRIL 25, 1983

NRC

R. Clark
B. D. Liaw
D. Sells
R. Klecker
P. Randall
L. Lois
F. Litton
P. Leech
K. Heitner

FP&L

D. Chaney
T. Dillard
J. Moaba

CE

T. Gates
D. Peck
S. Ritterbusch

ST, LUCIE - 1

PTS MEETING AGENDA

1. REVIEW PRESENT PTS STATUS
2. EFFECTS OF THERMAL SHIELD REMOVAL ON PTS
3. ONGOING PTS EFFORT
4. SCHEDULES

ST. LUCIE - 1

PRESENT PTS STATUS

1. WELD CHEMISTRY
 2. FLUENCE CALCULATIONS
 3. RT-NDT PREDICTIONS
-

FIGURE F6-1

ST. LUCIE #1 REACTOR PRESSURE VESSEL MAP
INITIAL RT_{NDT} IN °F

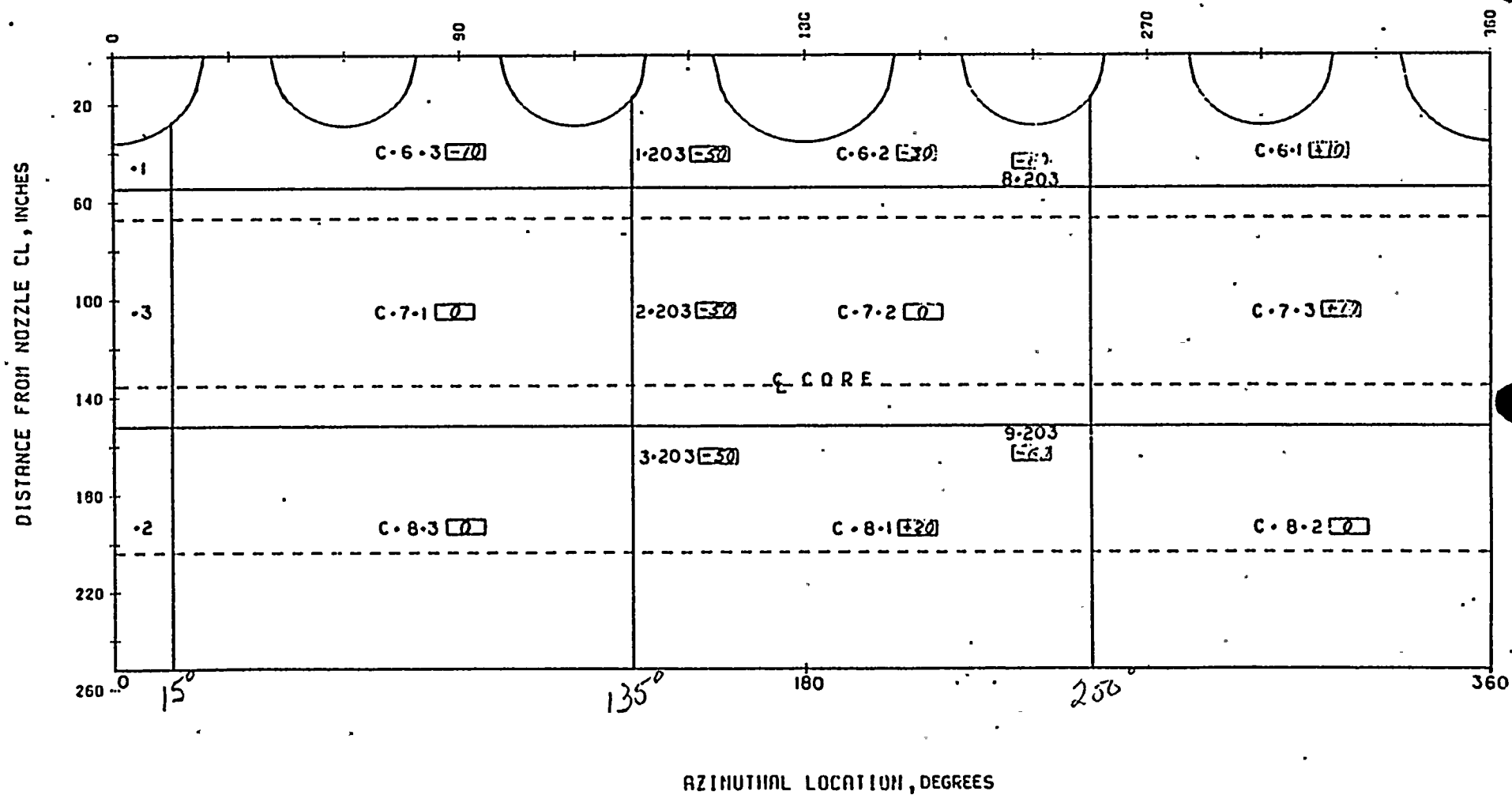


TABLE F6-1 ST. LUCIE UNIT #1
REACTOR VESSEL MATERIALS

<u>Product Form</u>	<u>Material Identification</u>	<u>Drop Weight NDTT (°F)</u>	<u>Initial RTNDT (°F)</u>	<u>Chemical Content (%)</u>		
				<u>Nickel</u>	<u>Copper</u>	<u>Phosphorus</u>
Plate	C6-1	10	10 ^a	.53	.14 ^b	.012
Plate	C6-2	-30	-30 ^a	.53	.14 ^b	.011
Plate	C6-3	-10	-10 ^a	.53	.14 ^b	.011
Plate	C7-1	0	0 ^a	.64	.11	.004
Plate	C7-2	-30	0 ^a	.64	.11	.004
Plate	C7-3	-30	10 ^a	.58	.11	.004
Plate	C8-1	-10	20 ^a	.56	.15	.006
Plate	C8-2	0	0 ^a	.57	.15	.006
Plate	C8-3	0	0 ^a	.58 ^d	.12	.004
Weld	1-203 A,B,&C	N/A	-50 ^c	.99 ^e	.22	.015
Weld	2-203 A,B,&C	N/A	-50 ^c	.20 ^e	.12	.018
Weld	3-203 A,B,&C	N/A	-50 ^c	.64	.30	.013
Weld	8-203	N/A	-60 ^c	.71	.21	.016
Weld	9-203	N/A	-60 ^c	.11	.23	.013

N/A Not Available

a Determined using Branch Technical Position MTEB 5-2

b Estimated based on average of similar plates

c Estimated (see Table F6- 2)

d Estimated Ni content (high nickel type wire)

e Estimated Ni content (low nickel type wire)

ST. LUCIE - 1

CURRENT FLUENCE CALCULATIONS

(REF. CEN-189)

- MS-2 RO DOT PROFILE (MS-2 POWER DIST.)
- MS-2 CAPSULE BENCHMARK
- SL-1 POINT KERNEL PEAK (SL-1 POWER DIST.)

ST. LUCIE1 AZIMUTHAL FLUENCE VARIATION

AT VESSEL CLAD INTERFACE

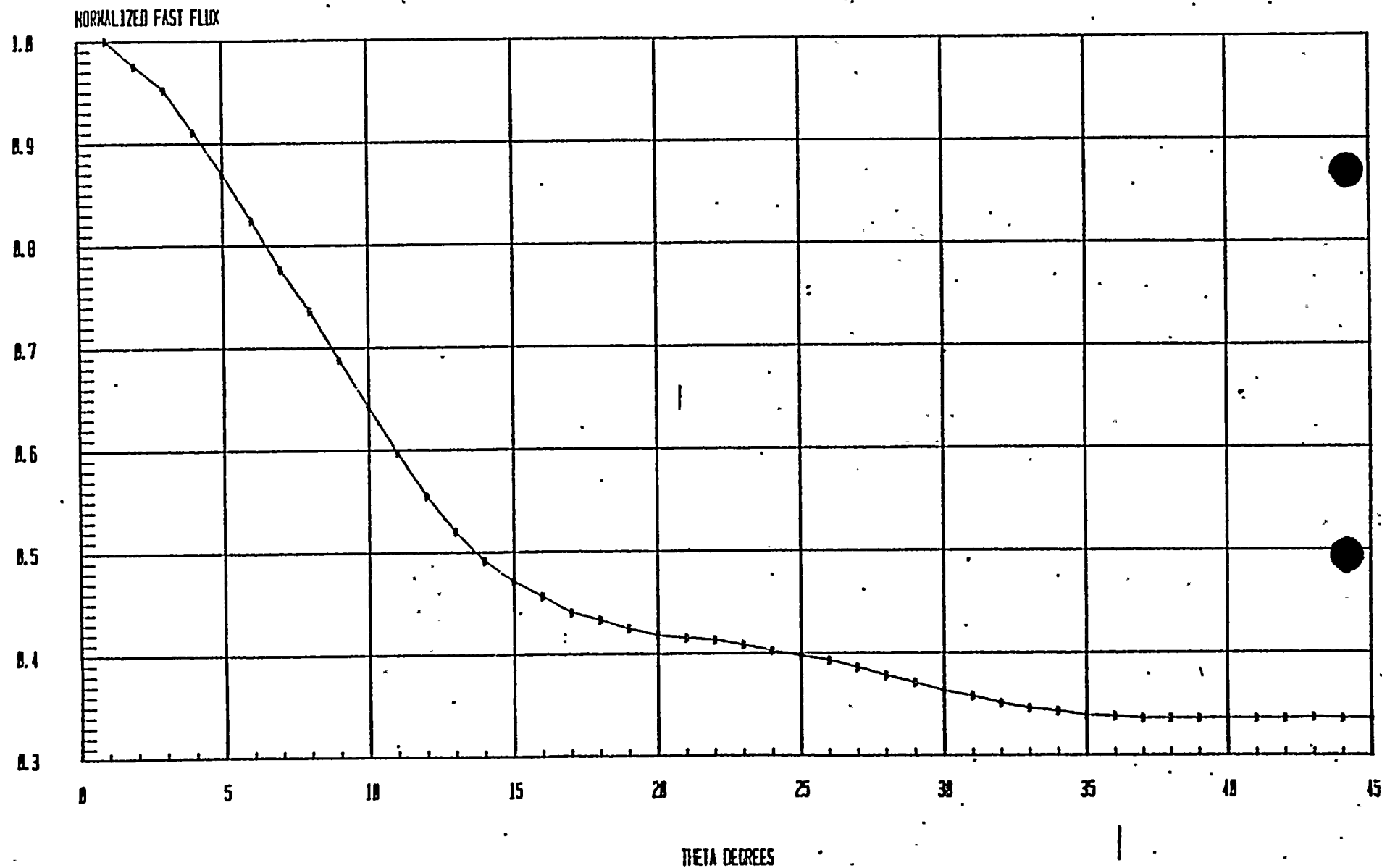
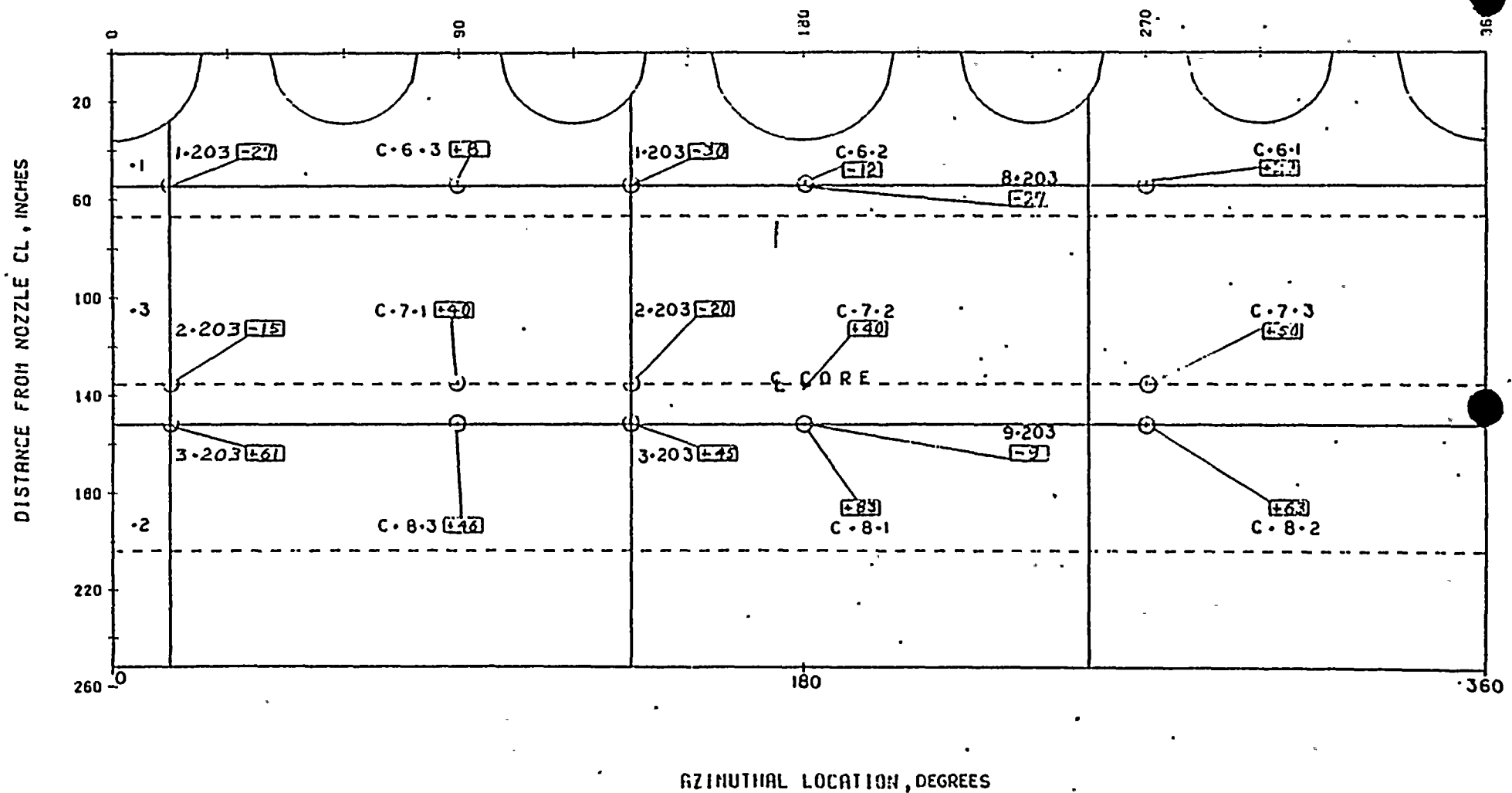


FIGURE F5-3

FIGURE F6-2
ST. LUCIE #1 REACTOR PRESSURE VESSEL MAP
ADJUSTED RT_{NDT} IN °F (12/31/81)
3.55 Effective Full Power Years
0.33 x 10¹⁹n/cm² Peak Surface Fluence



ST. LUCIE - 1

CURRENT STATUS

EOL PEAK FLUENCE $\hat{=}$ 2.83×10^{19} N/CM² (>1 MeV)

EOL WELD FLUENCE $\hat{=}$ 47.5% $\times$ PEAK
 $\hat{=}$ 1.345×10^{19} N/CM²

EOL WELD RT_{NDT} = 217.7°F

ST. LUCIE - 1

EFFECTS OF THERMAL SHIELD REMOVAL ON PTS

- 1) EOL FLUENCE
- 2) EOL RT-NDT

ST. LUCIE - 1

*(32 EFY W/O T.S.)

THERMAL SHIELD WORTH $\sim 1.75 \times$ FLUENCE

EOL PEAK FLUENCE $\rightarrow 4.95 \times 10^{19} \text{ N/cm}^2$

EOL WELD FLUENCE $\rightarrow 2.35 \times 10^{19} \text{ N/cm}^2$

EOL WELD $RT_{NDT} \rightarrow 252.7^\circ\text{F}$ (CONSERVATIVE
UPPER BOUND)

ST. LUCIE - 1

ONGOING PTS EFFORT

- 1) SURVEILLANCE CAPSULE EVALUATION
- 2) UPDATED FLUENCE CALCULATIONS
- 3) 100% BELTLINE WELD ISI

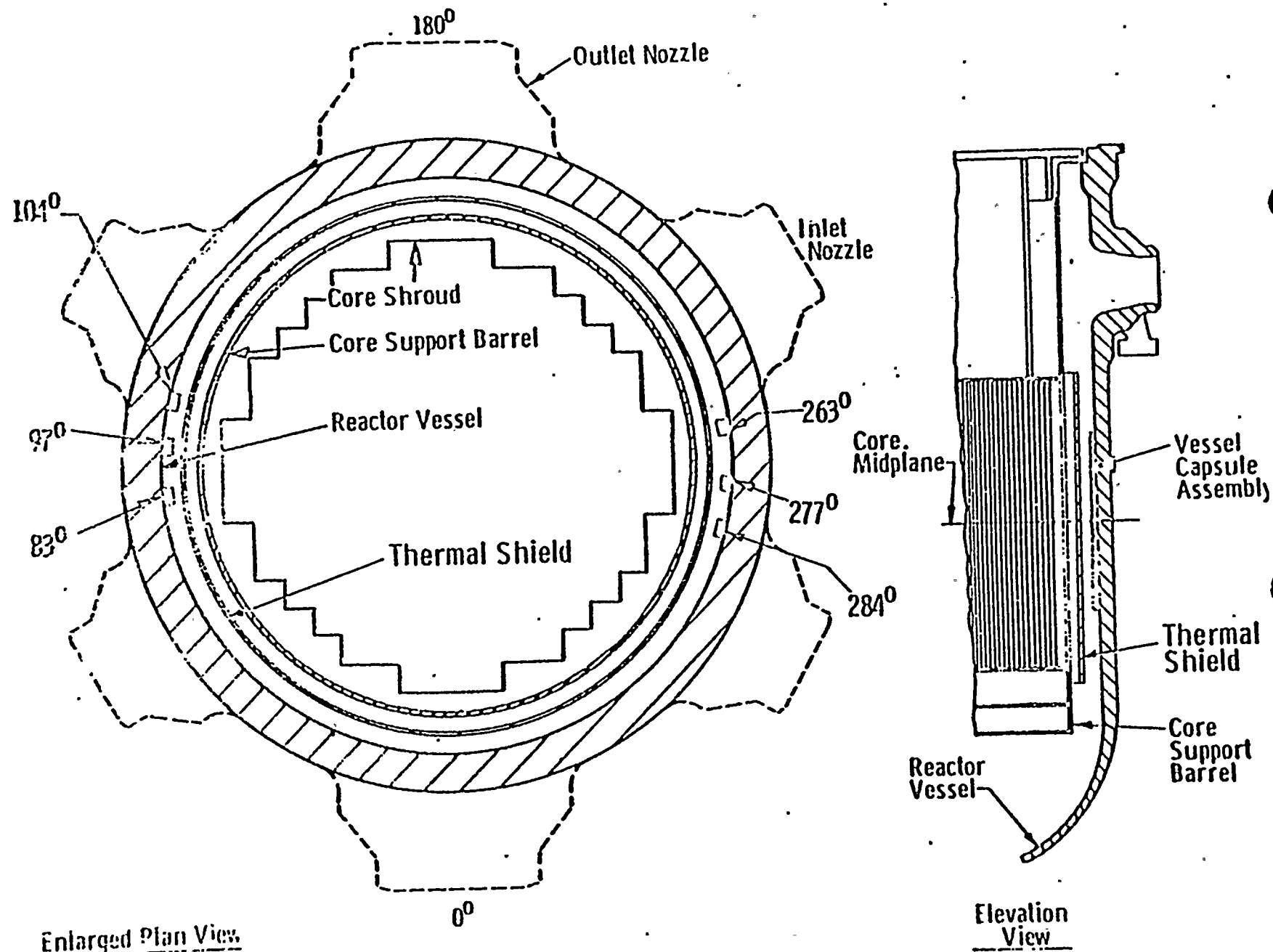


FIGURE F5-4

ST. LUCIE - 1

UPDATED FLUENCE CALCULATIONS

- SL-1 RO DOT (SL-1 POWER DIST. CY 1-5)
- SL-1 RO DOT (SL-1 CY6 POWER DIST.)
- SL-1 SURVEILLANCE CAPSULE BENCHMARK

