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 VAN BRUNT,E.E. Arizona Nuclear Power Project (formerly Arizona Public Serv
 RECIP.NAME RECIPIENT AFFILIATION
 MARTIN,J.B. Region 5, Ofc of the Director

SUBJECT: Forwards info re debris (shaving, chips & filings) on upper
 guide structure, per NRC request.

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NOTES: Standardized plant.

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88 JUN 8 AIO: 03

161-01074-EEVB/JRP
June 3, 1988

Docket No. STN 50-529

Mr. John B. Martin, Regional Administrator
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission, Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Dear Mr. Martin:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Evaluation of Debris on Upper Guide Structure
File: 88-F-056-026

Attached please find our response to a request from your staff to provide information concerning debris (shavings, chips and filings) inadvertently dropped onto the Upper Guide Structure (UGS) Top Hat and down onto the UGS (Figures 1-5).

Should you have any questions please call.

Very truly yours,

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/JRP/jle
Attachments

cc: J. G. Haynes all w/attachments
G. W. Knighton
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ATTACHMENT

On April 19, 1988, PVNGS Unit 2 was in Mode 6, the Reactor had been refueled, the Upper Guide Structure (UGS) was in the UGS Pit (Figure 5) and CEA Extension Shaft 89 was being replaced. At approximately 6:30 a.m. on April 20, 1988, it was reported that a T-handled allen wrench and a 7/16" nut had been dropped while removing the machine which was used to cut the CEA Extension Shaft.

On April 20, 1988, at approximately 10:30 a.m., debris from the removal of a CEA Extension Shaft was dropped from a piece of reinforced plastic sheeting used to retain the debris. It was immediately reported to Plant Management and, by 4:00 p.m. that afternoon, Plant and Central Maintenance Management had conducted interviews with Central Maintenance and QA personnel present at the time of the incident.

The interviews revealed that a pre-shift briefing had been conducted for the CEA Extension Shaft removal and that the debris was spread over an 18-inch to 24-inch radius onto the UGS Top Hat (Figures 1 and 2) and UGS (Figure 3). Based on the initial investigation and assessment of the event, Plant Management formulated an action plan to restore the UGS and associated equipment, as well as the surrounding area to Class B cleanliness.

Initial efforts involved an inspection and cleaning of the visible portions of the UGS Top Hat area. Shavings were present in the area around CEA 89 and on the UGS flange near CEA 89 (Figure 1). One (1) chip was found as far away as CEA 21. Based on the personnel interviews and results of the initial observations, it was determined an inspection and cleaning of the 270° to 0° quadrant, would be conducted and results evaluated. The water level in the UGS Pit when the incident occurred was 107 feet, the elevation of the Reactor Vessel flange is 114 feet. Therefore, there was no concern that foreign material entered the Reactor Vessel.

The UGS Pit was refilled to approximately 138 feet for ALARA considerations. Underwater inspections and cleanup were commenced in the 12-finger and 4-finger guide channels and flow holes of the CEA shroud in the UGS. An underwater video camera, a vacuum hose and a diver were used for this effort. While in the UGS pit the CEA area was inspected down to the Flow Distribution Plate (Figure 4).

These inspections revealed a debris dispersal pattern in which the number of chips found decreased with increased distance from CEA 89. The seven (7) 12-finger channels which form the border of the 270° to 0° quadrant were free from any debris. Table 1 indicates the approximate extent of the debris and in conjunction with Figure 1 indicates the dispersal pattern of the debris.

TABLE 1

CEA 89	15 Chips	CEA 97	Clean
CEA 73	5 Chips	CEA 5	Clean
CEA 53	15 Chips	CEA 12	Clean
CEA 72	7 Chips	CEA 28	Clean
CEA 52	2 Chips	CEA 63	Clean
CEA 33	4 Chips	CEA 13	Clean
CEA 81	3 Chips	CEA 29	Clean
CEA 41	1 Chip	CEA 65	Clean
CEA 21	1 Chip	CEA 80	Clean
		CEA 40	Clean

A T-handled allen wrench and a 7/16" nut were recovered from flow holes labeled "B" and "C" on Figure 1. All other flow holes were clean (A, D, E, F, G, H).

Using an underwater camera on the 12-finger CEA's and direct observation by divers on the 4-finger CEA's, the other three (3) quadrants (0° to 270°) were inspected and no additional debris was found. Additionally, the UGS flange was inspected and vacuummed.

The area on top of the UGS Fuel Alignment Plate (Figure 3) was inspected and vacuummed during UGS removal from its storage pit. The floor of the UGS Pit was then vacuummed to remove debris which had fallen down the outside of the UGS.

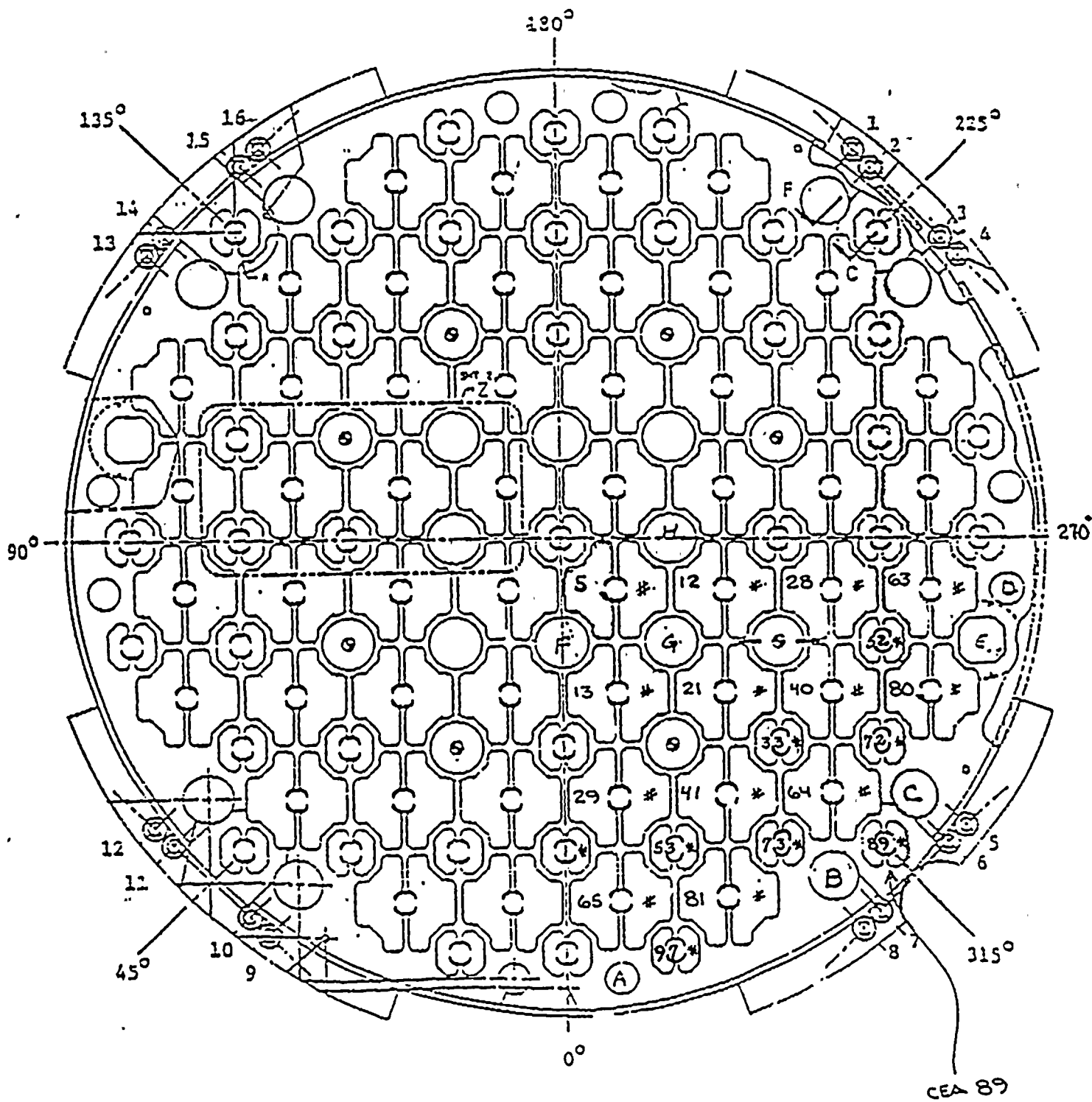
Conclusion

The debris displaced during the replacement of CEA 89 Extension Shaft was restricted to areas of the UGS, the lower portions of the UGS Lift Rig and the UGS Pit based on personnel interviews, inspections and observations. These areas were inspected and cleaned as necessary. Additionally, the UGS Lift Rig, the UGS and bottom of the UGS Pit were cleaned and inspected to verify no foreign material remained.

Based on the visual inspections and vacuuming of the affected areas, the UGS has been restored to Class B cleanliness and has been returned to service without restriction. Rod drop tests will be performed in Mode 5, in addition to those required in Mode 3 to demonstrate the ability of the CEA's to perform their intended function.

List of Figures

- Figure 1 - Plan View of Top Hat
- Figure 2 - Extension Shaft Guide Replacement (Top Hat)
- Figure 3 - Upper Guide Structure
- Figure 4 - Elevation of Reactor Vessel
- Figure 5 - Containment Building - UGS Pit Location



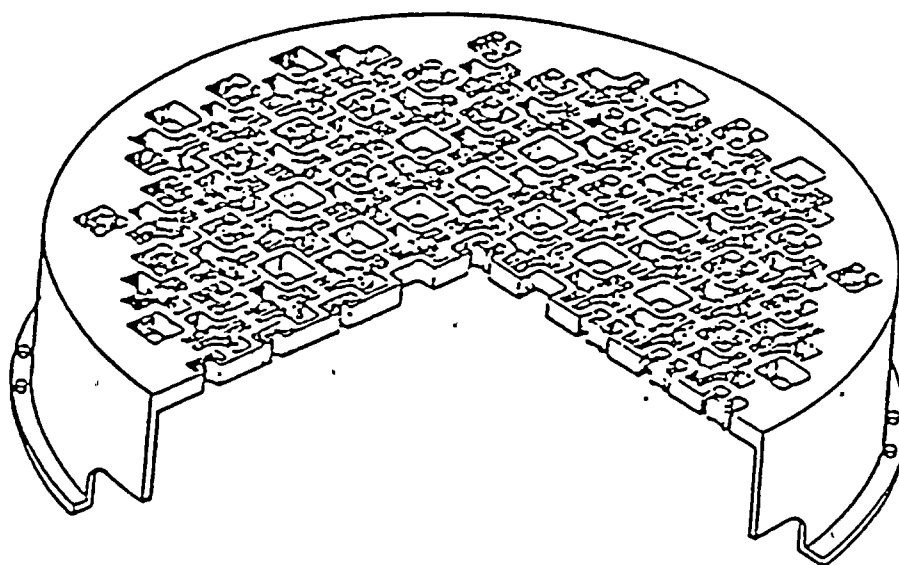
PLAN VIEW OF TOP HAT

FIGURE 1

12-Finger Guide Channel

* 4-Finger Guide Channel





EXTENSION SHAFT GUIDE REPLACEMENT
(TOP HAT)

FIGURE 2

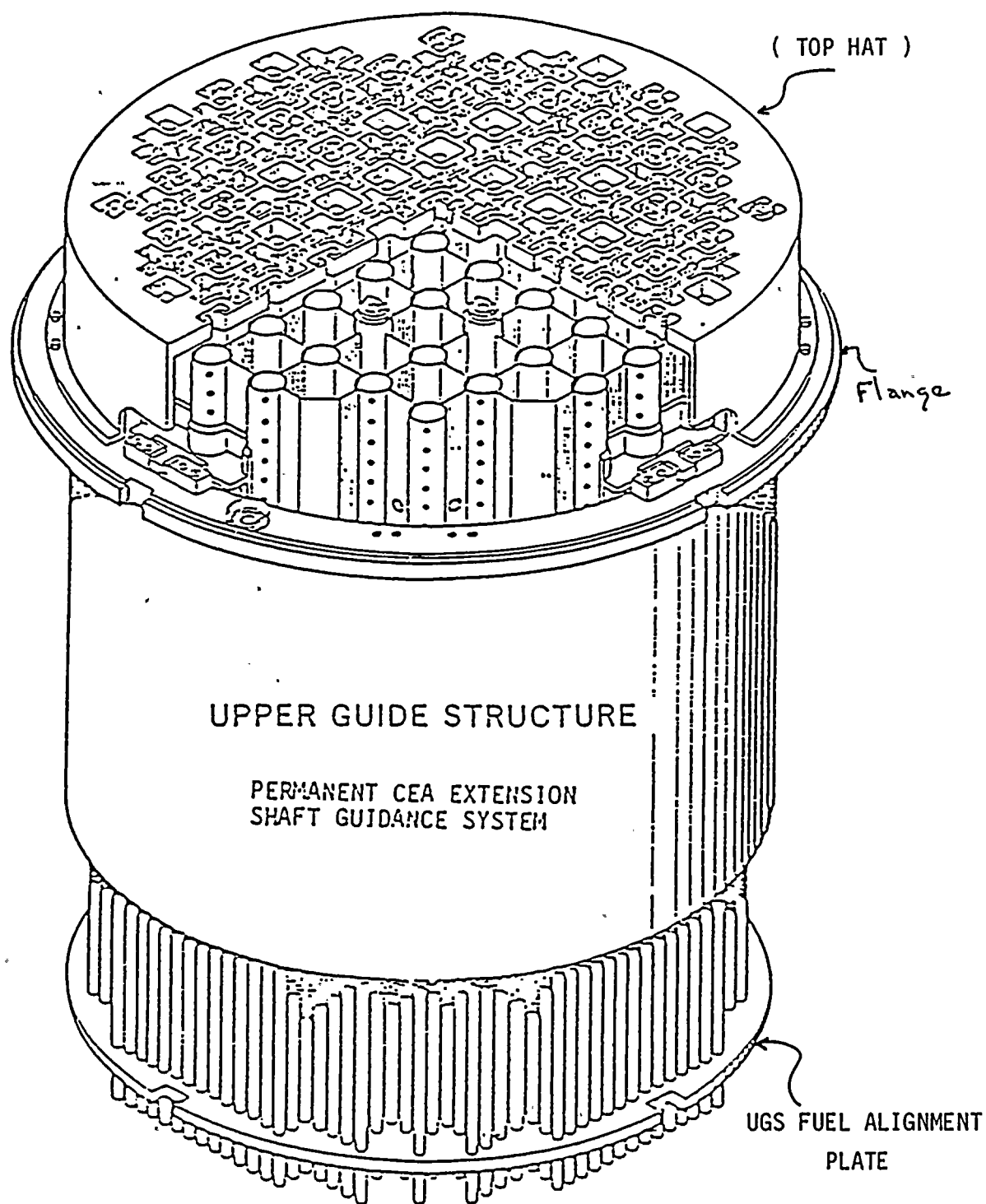


FIGURE 3

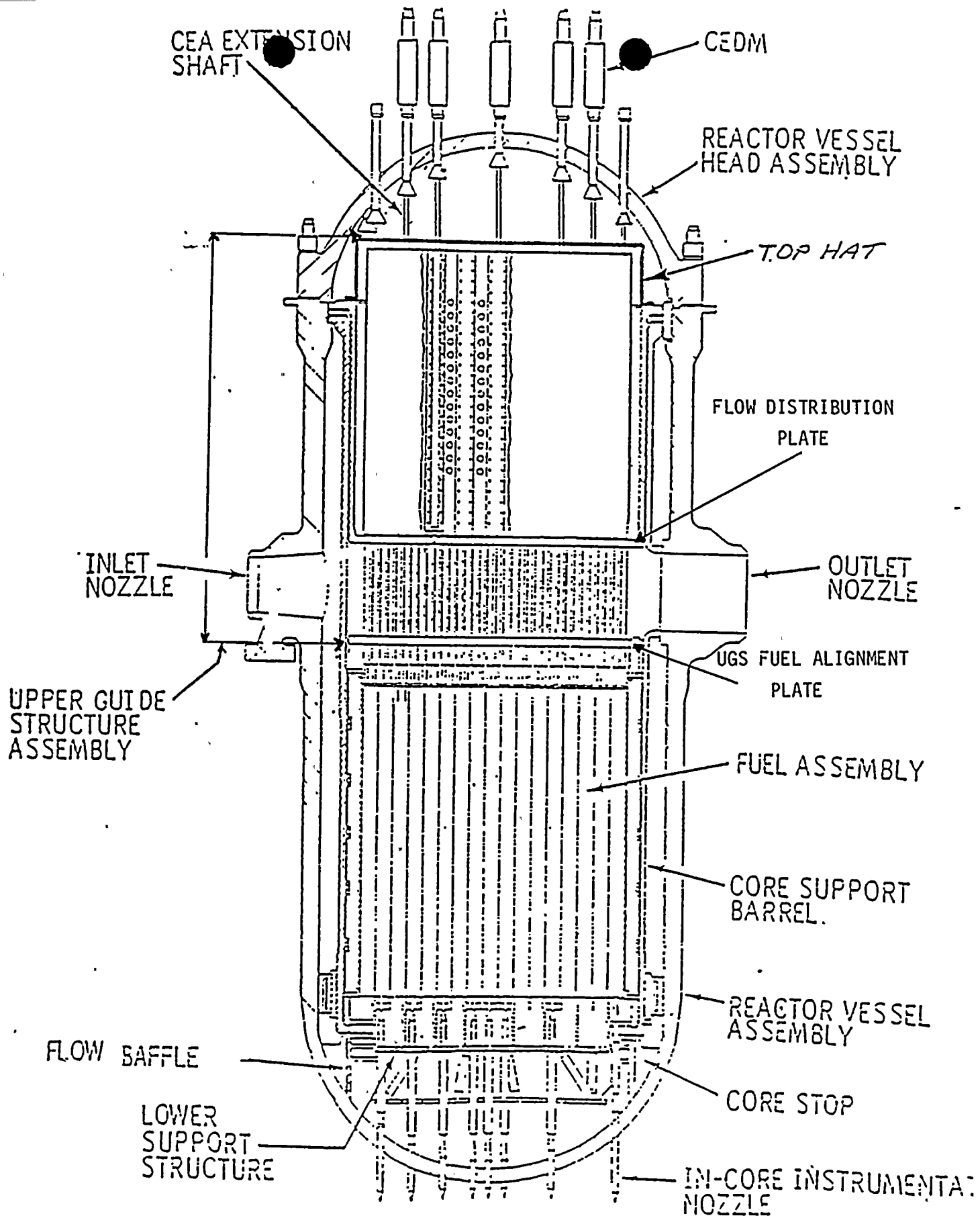
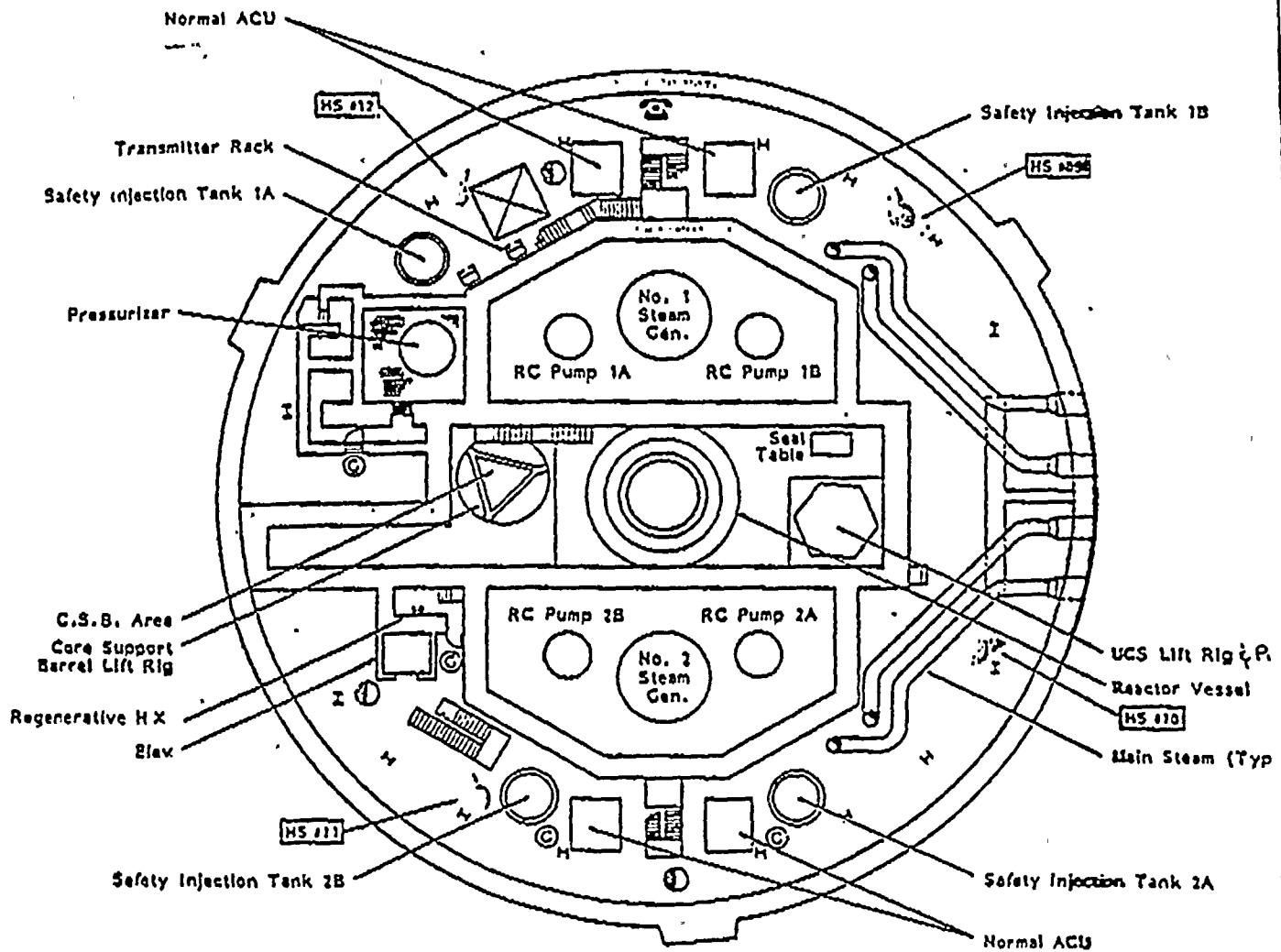


FIGURE 4



Containment Building

Elevation 120'-0"

FIGURE 5

