

# *Construction Inspection Program: Reactor Prenatal Care*



**Union of  
Concerned  
Scientists**

Citizens and Scientists for Environmental Solutions

David Lochbaum  
Director, Nuclear Safety Project  
March 14, 2007

**Prenatal human care is important as a fetus develops from a fertilized egg through rapid cell division to an infant.**

**Prenatal reactor care is equally important as a nuclear plant develops from blueprint to backyard through frenetic construction activities.**

**The point is that the level of NRC engagement must be far greater at a construction site than at an operating site because the pace of activities is orders of magnitude faster.**

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# Causes and Significance of Design-Basis Issues at U.S. Nuclear Power Plants

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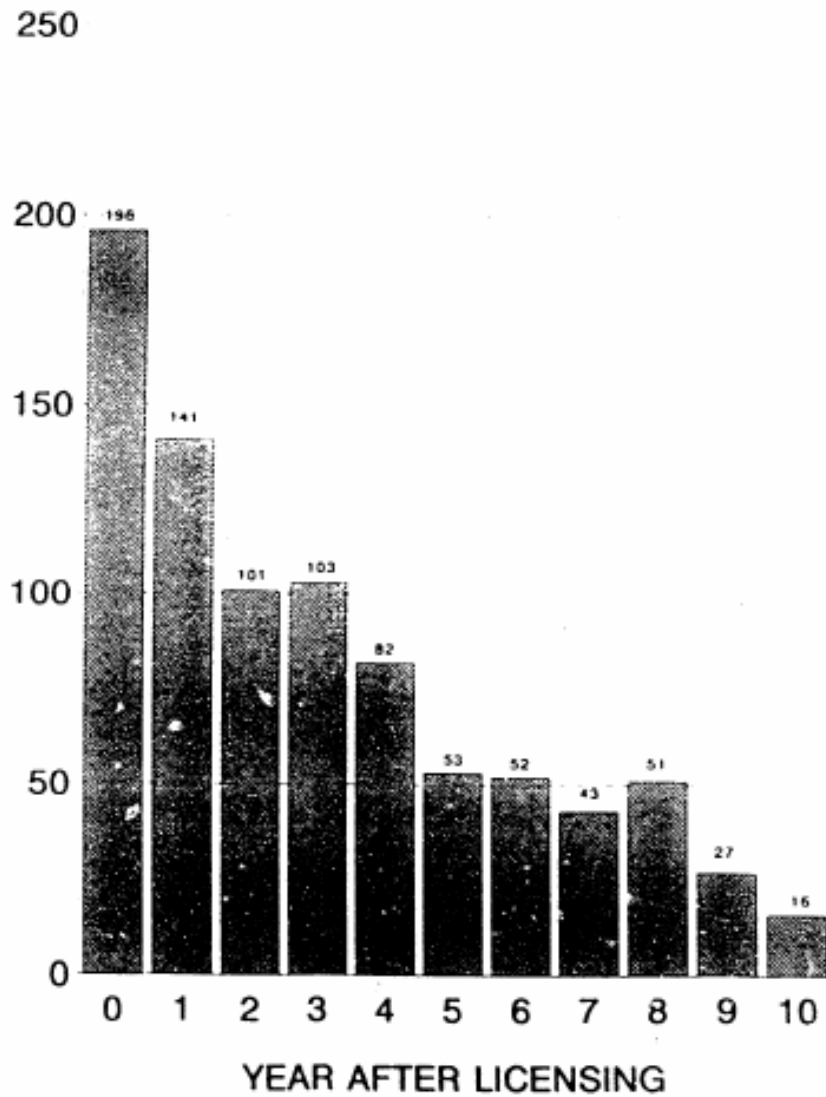
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Washington, DC 20555-0001



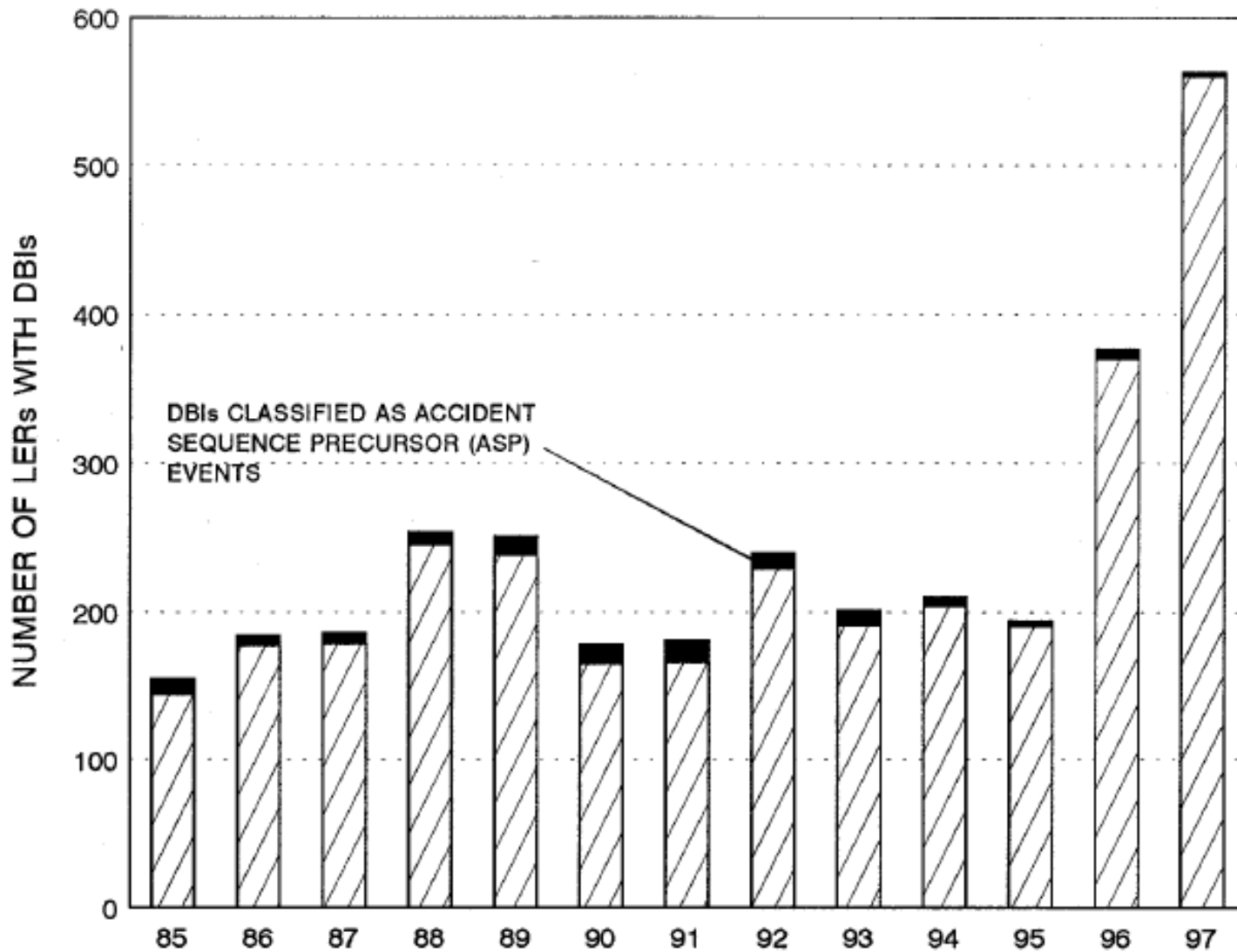
# NUMBER OF DESIGN ERRORS



NEW PLANTS - GROUP 2: THOSE 30 PLANTS LICENSED DURING 1985 - 1995

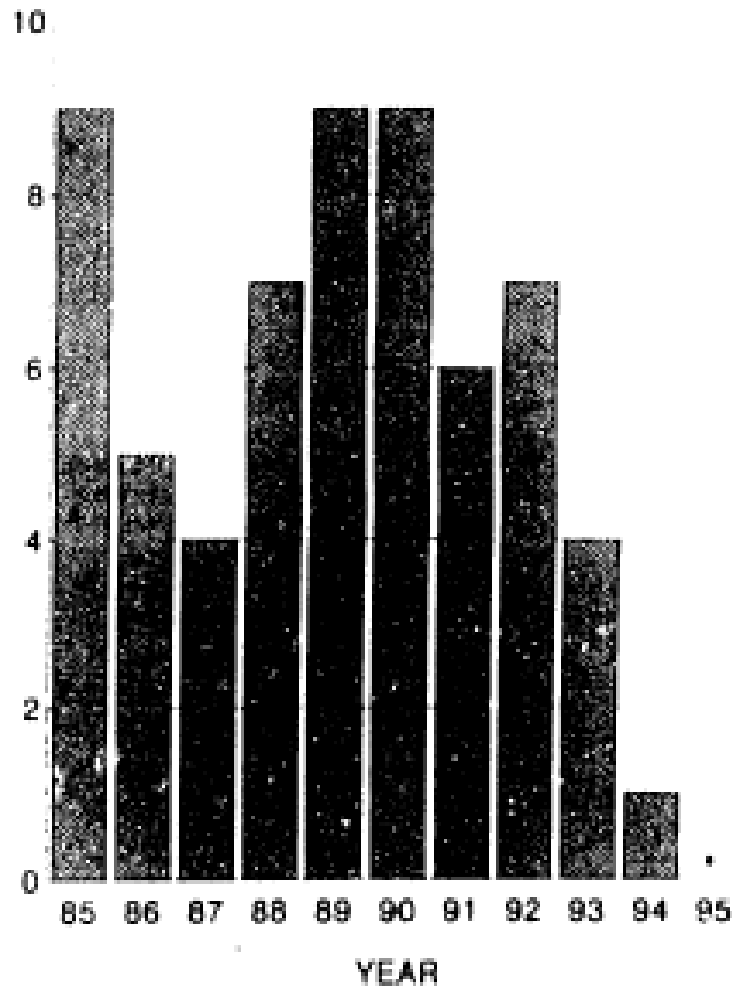
C I P

Can't identify problems?



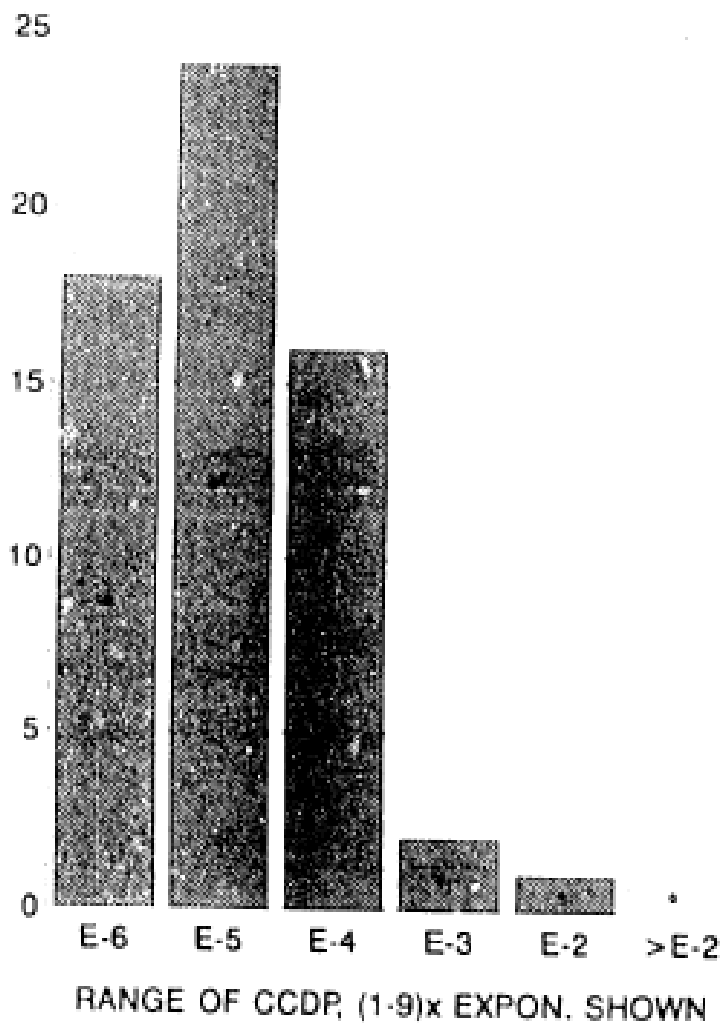
**Figure 1 Trend of design basis issues reported for 1985–1997**

NUMBER OF DESIGN ERROR EVENTS



Note: 61, out of 3540 design errors reported, were evaluated under ASP.

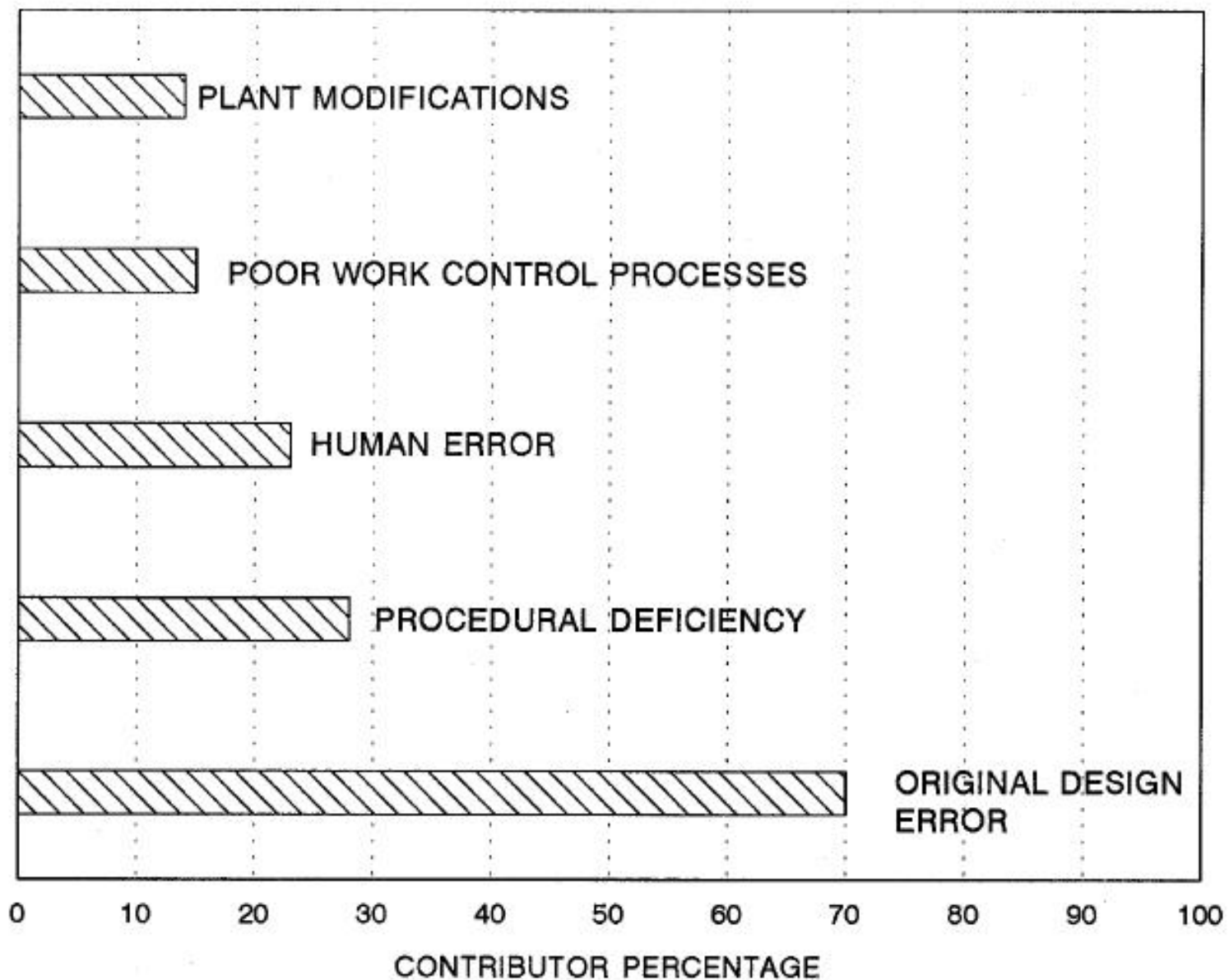
DESIGN ERROR EVENTS IN EACH RANGE



C I P

Can't identify problems?





**Causes of design-basis issues for 1997**

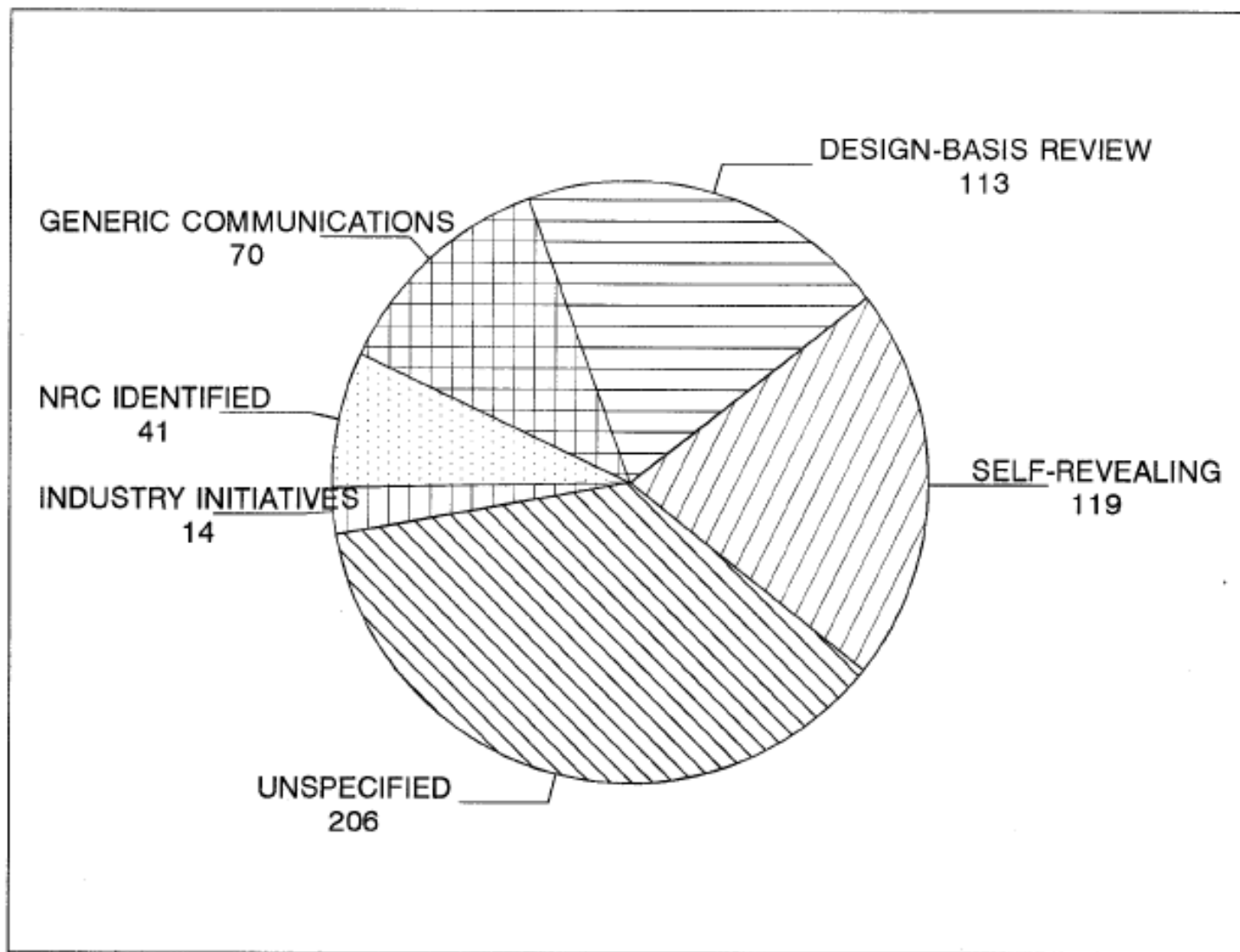
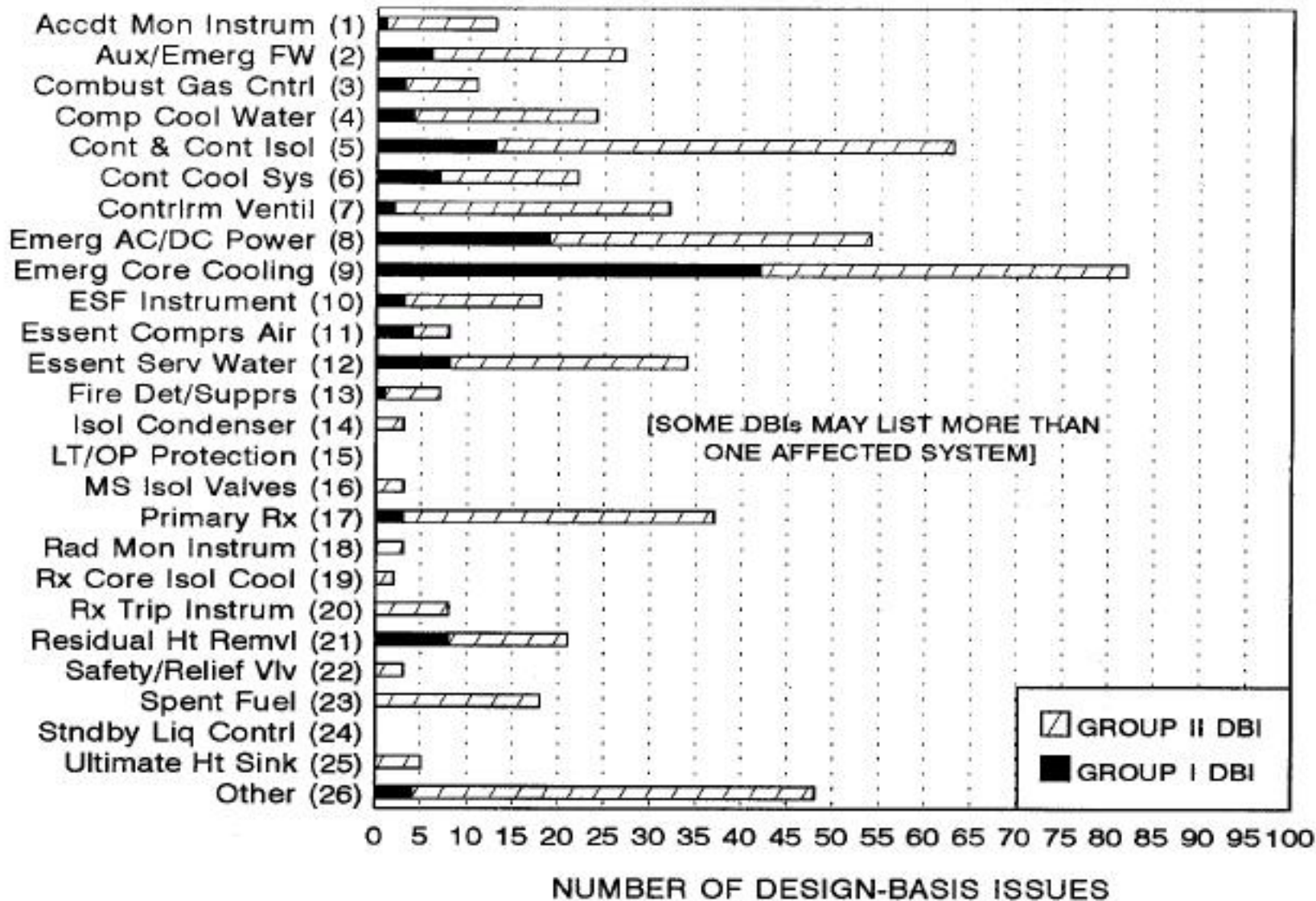


Figure 8 Activity that initiated licensee event reports with design-basis issues for 1997

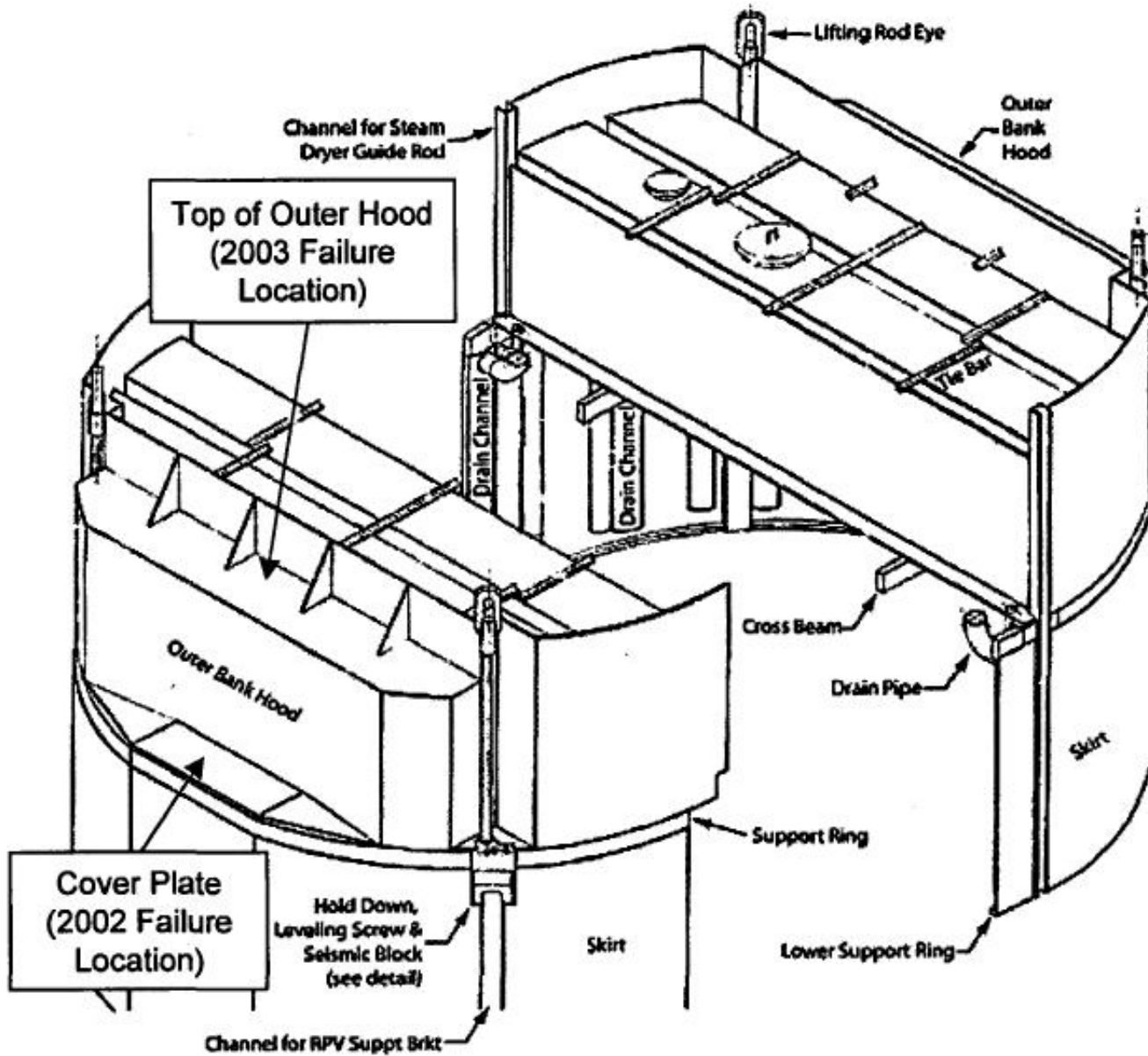
GENERIC SYSTEM GROUP



**Table 4 Accident sequence precursor events (1997)**

<b>Plant</b>	<b>Event Date</b>	<b>LER Number</b>	<b>Description</b>	<b>Involved DBI</b>	<b>CCDP</b>
Maine Yankee	01/22/97	309/97-004	Reactor coolant system loop fill header motor-operated valve overpressure	Yes	$1.3 \times 10^{-5}$
Oconee 2	04/21/97	270/97-001	Unisolable reactor coolant leak due to inadequate surveillance program	No	$2.2 \times 10^{-5}$
Oconee 3	05/03/97	287/97-003	High-pressure injection system inoperable due to design deficiency and improper work practices	Yes	$5.4 \times 10^{-6}$
TMI 1	06/21/97	289/97-007	Generator output breaker failure resulting in a loss of offsite power and reactor trip	No	$9.6 \times 10^{-6}$
St. Lucie 1	11/02/97	335/97-011	Nonconservative recirculation actuation signal set point	Yes	$3.4 \times 10^{-5}$

# Quad Cities



**Licensee had repeated problems keeping a non-moving part from moving, breaking the old and new designs.**

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-06-003A

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region IV, Arlington, Texas, staff on this date.

**Facility**

Arizona Public Service Company  
Palo Verde Nuclear Generating Station Unit 1  
Tonopah, Arizona  
Docket No: 50-528  
License No. NPF-41

**Licensee Emergency Classification**

Notification of Unusual Event  
 Alert  
 Site Area Emergency  
 General Emergency  
 Not Applicable

SUBJECT: UPDATE - PALO VERDE UNIT 1 EXTENDED SHUTDOWN TO REPAIR SHUTDOWN COOLING VALVE VIBRATION

DESCRIPTION: This preliminary notification updates information previously provided regarding the shut down of Unit 1 on March 18, 2006. Unit 1 was shut down to perform additional testing to confirm the source of the shutdown cooling line vibration. Prior to this outage, power was limited to approximately 25 percent because of this vibration. On March 25, 2006, the licensee announced that Palo Verde Nuclear Generating Station Unit 1 would remain shut down for an extended period to correct high vibration on a shutdown cooling suction valve.

During this outage, the licensee performed numerous activities including an inspection of the core barrel and relocation of a shutdown cooling suction valve to address the high vibration condition. The licensee determined that the high vibration levels would be significantly reduced by moving the valve closer to the reactor coolant system hot leg piping. The NRC conducted inspections and in-plant observations of these activities and reviewed the design modification associated with the relocation of

S C I P

Still Can't identify problems?



Vermont Yankee Nuclear Power Corporation

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

Facility Operating License

License No. DPR-28

Amendment No. 3

[TEMPORARY OPERATING LICENSE]

The Atomic Energy Commission (the Commission) having found that:

- a. Construction of the Vermont Yankee Nuclear Power Station (the facility) has been substantially completed in conformity with the application, as amended, the Provisional Construction Permit No. CPPR-36, the provisions of the Atomic Energy Act of 1954, as amended (the Act), and the rules and regulations of the Commission as set forth in Title 10, Chapter 1, CFR; and
- b. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission; and



C I P

Can't identify problems?