



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TEXAS 76012

TTC
7/2/79

June 27, 1979

In Reply Refer To:

RIV


Docket Nos. 50-445/IE Circular No. 79-11
50-446/IE Circular No. 79-11

Texas Utilities Generating Company
ATTN: Mr. R. J. Gary, Executive Vice
President and General Manager
2001 Bryan Tower
Dallas, Texas 75201

Gentlemen:

The enclosed Circular 79-11, is forwarded to you for information. No written response to this Circular is required. If you require additional information regarding this subject, please contact this office.

Sincerely,


Karl V. Seyfrit
Director

Enclosures:

1. IE Circular No. 79-11
2. List of IE Circulars
Issued in the Last
12 Months

337 310

7907180 266

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

IE Circular No. 79-11
Date: June 27, 1979
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DESIGN/CONSTRUCTION INTERFACE PROBLEM

Description of Circumstances:

Apparent inadequate communication between nuclear steam supply system (NSSS), architect/engineer (A/E) and constructors have resulted in several cases where reactor vessels or the supports have been misoriented. The misorientation problems appear to occur at sites where dual reactor units are being constructed and one primary system layout is a mirror image of the other.

In 1975 TVA reported a misorientation problem with the Sequoyah Unit 2 reactor vessel. Westinghouse was the NSSS supplier and TVA provided their own A/E service.

In 1977 the Southern California Edison Company reported a reactor vessel misorientation at San Onofre Unit 2. Combustion Engineering was the NSSS supplier and Bechtel provided the A/E service.

In 1979 the Texas Utilities Generating Company reported a reactor vessel support system misorientation at Comanche Peak Unit 2. Westinghouse supplied the NSSS, Gibbs and Hill was the plant engineer and Brown and Root was the constructor.

Even though there appears to be minimal safety implications associated with the particular misorientation problems mentioned, repetition of the same type of errors suggests breakdowns in the design/construction interface relationships that could in turn lead to more significant safety problems.

Corrective preventive action is recommended for the following reasons:

- . If the interface control system between the NSSS/AE/Construction is marginal or ineffective as evidenced by the misorientation of reactor vessels and their supports, it is possible that other safety related equipment may also be misoriented and/or mislocated. In some cases the errors may not be as obvious as a misoriented reactor vessel.
- . This type of error can and has resulted in hardware modifications and could cause functional and/or structural changes that affect design and operating parameters.
- . In translating NSSS design information into site construction documents, the A/E may make changes to facilitate construction of the balance of plant. These translations may also introduce errors which may not be

recognized as errors by the A/E's review system. The organization responsible for function and/or structural design must be made aware of changes affecting design and operating parameters so that proper evaluation is performed.

It is recognized that there are effective field construction inspection systems, deficiency reporting systems and as-built check systems to uncover and correct for deviations from design. However, these are reactive type systems that address the problems after the errors occur and that rely on detection of errors and design deviations in the construction phase. The detection of certain other errors and design deviations may only be recognizable at the design level.

The NRC's concern is that in some instances sufficient checks at the design level are not being performed to preclude design errors discovered at the construction site and that the designer may not be aware of other design related changes that affect design and operating parameters. The 10 CFR 50, Appendix B requirement that addresses this concern is contained in Criteria III which states in part:

"Measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces."

Preventive action at the design level is necessary to minimize the possibility of the appropriate parties not being aware of A/E and construction related design changes and to prevent errors from occurring. An appropriate preventive action would be to have the NSSS review A/E drawings that show the location, orientation, clearance, etc., for equipment that the NSSS has functional and/or structural design responsibility.

All holders of construction permits should be aware of the potential problems caused by inadequate communication between the design organization and the construction organization and should take appropriate action to assure themselves that adequate interface controls are established and implemented.

No written response to this circular is required. If you require additional information regarding this matter, contact the Director of the appropriate NRC Regional Office.

LISTING OF IE CIRCULARS ISSUED IN
LAST TWELVE MONTHS

78-12	HPCI Turbine Control Valve Lift Rod Bending	6/30/78	All Holders of BWR Operating Licenses (OL) or Construction Permits (CP) with Similar HPCI Design
78-13	Inoperability of Service Water Pumps	7/10/78	All Holders of Reactor Operating Licenses (OL) or Construction Permits (CP) except for plants located in: AL, AK, CA, FL, GA, LA, MS, SC
78-14	HPCI Turbine Reversing Chamber Hold Down Bolting	7/12/78	All Holders of BWR Operating Licenses (OL) or Construction Permits (CP) for plants with a HPCI Terry Turbine excepting Duane Arnold and Monticello
78-15	Tilting Disc Check Valves Fail to Close With Gravity in Vertical Position	7/20/78	All Holders of Reactor Operating Licenses (OL) or Construction Permits (CP)

78-16	Limitorque Valve Actuators	7/26/78	All Holders of Reactor Operating Licenses (OL) or Construction Permits (CP)
78-17	Inadequate Guard Training/Qualification and Falsified Training Records	10/13/78	All Holders of and applicants for Reactor Operating Licenses (OL)
78-18	Underwriters Laboratory Fire Test	11/6/78	All Holders of Reactor Operating Licenses (OL) or Construction Permits (CP)
78-19	Manual Override (Bypass) of Safety Actuation Signals	12/29/78	All Holders of Reactor Construction Permits (CP)
79-01	Administration of Unauthorized Byproduct Material to Humans	1/12/79	All Medical Licensees except Teletherapy Medical Licensees and each Radiopharmaceutical Suppliers
79-02	Failure of 120 Volt Vital AC Power Supplies	1/16/79	All Holders of Reactor Operating License (OL) and Construction Permits (CP)
79-03	Inadequate Guard Training - Qualification and Falsified Training Records	2/23/79	All Holders of and applicants for Special Nuclear Material Licenses in Safeguards Group I
79-04	Loose Locking Nut On Limitorque Valve Operators	3/16/79	All Holders of Reactor Operating License (OL) or Construction Permits (CP)

79-05	Moisture Leakage in Stranded Wire Conductors	3/20/79	All Holders of Reactor Operating License (OL) or Construction Permits (CP)
79-06	Failure to Use Syringe and Battle Shields in Nuclear Medicine	4/19/79	All Holders of Medical Licensees except teletherapy licensees
79-07	Unexpected Speed Increase of Reactor Recirculation MG Set Resulted in Reactor Power Increase	5/2/79	All Holders of BWR Operating Licenses (OLs) or Construction Permits (CPs)
79-08	Attempted Extortion - Low Enriched Uranium	5/18/79	All Fuel Facilities and Reactors Licensed by NRC
79-09	Occurrences of Split or Punctured Regulator Diaphragms In Certain Self Contained Breathing Apparatus	6/22/79	All Materials Priority I, Fuel Cycle and Operating Reactor Licenses (OL)
79-10	Pipefittings Manufactured from Unacceptable Material	5/26/79	All Power Reactor Licensees with a Construction Permit and/or Operating License (OL)