NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

# LICENSEE EVENT REPORT

CONTROL BLOCK: ① (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 LICENSEE CODE: OHDBS1 ② LICENSE NUMBER: 00-00NPF-03 ③ LICENSE TYPE: 41111 ④ CAT ⑤

CON'T
01 REPORT SOURCE: L ⑥ DOCKET NUMBER: 050-0346 ⑦ EVENT DATE: 111279 ⑧ REPORT DATE: 112379 ⑨

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES ⑩

02 While performing calculations for I.E. Bulletin 79-02, ITT Grinnell personnel dis-
03 covered the design of 11 seismic hangers was not as conservative as was required
04 by the design criteria and assumptions used by ITT Grinnell. This finding is reporta-
05 ble under T.S. 6.9.1.8.i as an item requiring remedial action to prevent operation in
06 a manner less conservative than assumed in the accident analysis. There was no danger
07 to the health and safety of the public or station personnel. These supports are not
08 required for normal system operation. (NP-32-79-13)

| | | | | | |
|---|---|---|---|---|---|
| SYSTEM CODE | CAUSE CODE | CAUSE SUBCODE | COMPONENT CODE | COMP. SUBCODE | VALVE SUBCODE |
| 09 XX ⑪ | B ⑫ | A ⑬ | SUPORT ⑭ | A ⑮ | Z ⑯ |

⑰ LER/RO REPORT NUMBER

| EVENT YEAR | | SEQUENTIAL REPORT NO. | | OCCURRENCE CODE | REPORT TYPE | | REVISION NO. |
|---|---|---|---|---|---|---|---|
| 79 | — | 106 | / | 01 | T | — | 0 |

| ACTION TAKEN | FUTURE ACTION | EFFECT ON PLANT | SHUTDOWN METHOD | HOURS ㉒ | ATTACHMENT SUBMITTED | NPRD-4 FORM SUB. | PRIME COMP. SUPPLIER | COMPONENT MANUFACTURER |
|---|---|---|---|---|---|---|---|---|
| F ⑱ | Z ⑲ | C ⑳ | Z ㉑ | 0084 | Y ㉓ | N ㉔ | A ㉕ | I207 ㉖ |

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS ㉗

10 The occurrence was caused by design errors by ITT Grinnell in the initial calculations
11 of the stresses and deflections in these hangers. The errors in the original design
12 were random and were not due to a deficiency in the original method. The affected
13 hangers were modified prior to the unit returning to operation. Work was completed by
14 1200 hours on 11/15/79.

15 FACILITY STATUS: G ㉘ % POWER: 000 ㉙ OTHER STATUS ㉚: NA METHOD OF DISCOVERY: D ㉛ DISCOVERY DESCRIPTION ㉜: During analysis of I.E. Bulletin 79-02

16 ACTIVITY RELEASED: Z ㉝ CONTENT OF RELEASE: Z ㉞ AMOUNT OF ACTIVITY ㉟: NA LOCATION OF RELEASE ㊱: NA

PERSONNEL EXPOSURES
17 NUMBER: 000 ㊲ TYPE: Z ㊳ DESCRIPTION ㊴: NA

PERSONNEL INJURIES
18 NUMBER: 000 ㊵ DESCRIPTION ㊶: NA

1432 350

LOSS OF OR DAMAGE TO FACILITY ㊸
19 TYPE: Z ㊷ DESCRIPTION: NA

7911290315

PUBLICITY
20 ISSUED: N ㊹ DESCRIPTION ㊺: NA NRC USE ONLY

DVR 79-164 NAME OF PREPARER Stan Batch/Ken Dieterich PHONE: 419-259-5000, Ext. 236/293

GPO 917-926

# TOLEDO EDISON COMPANY
# DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
# SUPPLEMENTAL INFORMATION FOR LER NP-32-79-13

DATE OF EVENT: November 12, 1979

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Design of eleven seismic supports was not as conservative as required.

Conditions Prior to Occurrence: The unit was in Mode 5, with Power (MWT) = 0, and Load (Gross MWE) = 0.

Description of Occurrence: While performing calculations for IE Bulletin 79-02, ITT Grinnell personnel discovered the design of eleven seismic hangers was not as conservative as was required by the design criteria used by ITT Grinnell. Four of the hangers did not meet the NRC criteria for pipe support operability. On five other supports, the slenderness ratio exceeded the design criteria of 200 used by ITT Grinnell. The remaining two supports were analyzed to have a maximum deflection of approximately .5 inches which could result in stresses on the piping in excess of the design criteria of ITT Grinnell. These analyses were performed assuming the worst case design base earthquake loading.

Further information on the affected hangers is contained on Attachment 1. Since more than one part of a redundant system was affected, this incident is being reported in accordance with Technical Specification 6.9.1.8.i.

These design deficiencies were discovered while the unit was in cold shutdown during a unit outage.

Designation of Apparent Cause of Occurrence: The cause of this occurrence was design errors by ITT Grinnell in the initial calculations of the stresses and deflections in these hangers. These design errors were discovered while calculating base plate forces and moments for the analysis required by IE Bulletin 79-02. The errors in the original design were random and not due to a general deficiency in the original design method.

Analysis of Occurrence: There was no danger to the health and safety of the public or to station personnel. These supports are not required for normal system performance but are required only to protect the systems from a worst case condition of maximum earthquake loading.

The affected systems have been re-analyzed taking into account the non-conservative support designs. These analyses show that all affected safety systems would have performed their safety function if a design basis accident had occurred.

Corrective Action: All affected hanger modifications were completed by 1200 hours on November 15, 1979, prior to the unit returning to operation. Details on the work performed, the applicable facility change request (identical to work order number), and the location of hanger is contained in Attachment 1.

The design of all Q-listed supports attached to concrete on 2½" and larger piping (over 1000 supports) have been reviewed duirng work performed while responding to IE Bulletin 79-02. Supports on piping smaller than 2½" were not designed by ITT Grinnell.

Failure Data: There has been one previously reported similar occurrence, see Licensee Event Report NP-32-79-08.

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## ATTACHMENT 1
## LICENSEE EVENT REPORT NP-32-79-13

| FCR/W.O. | HANGER NO. | LOCATION | CONTROLLING ITEM | WORK PERFORMED |
|---|---|---|---|---|
| 79-379 | 41-HBC44-H5 | Service Water Supply to Emergency Core Cooling Room Cooler 1-3 | SF < 2 | 1/4" x 5" cover bar welded to channel |
| 79-380 | 33A-HCB2-H44 | Borated Water Storage Tank Supply to Emergency Core Cooling System 1 | SF < 2 | 3" x 3" x 3/8" angle iron added |
| 79-381 | 34-GCB5-H17 | Containment Spray Pump 1-1 discharge | Deflection ~ .5" | Added 2-1/2" pipe and 3/4" x 5" x 7" Gusset plates |
| 79-381 | 34-HCC38-H19 | Containment Spray Pump 1-1 Recirculation Test Line | Deflection ~ .5" | Added 2-1/2" pipe and 3/4" x 5" x 7" Gusset plates |
| 79-387 | 34-EBD19-H79 | Main Steam (upstream of MS-107A) | Slenderness ratio > 200 | 1/2" x 4-1/2" stiffener bar added to I-beam, replaced kickers with W4 x 13 I-beam |
| 79-388 | 6C-EBD14-H43 | Auxiliary Feed Pump 1-2 Discharge | Slenderness ratio > 200 | Replaced kicker with 4" x 4" x 3/8" structural tubing |
| 79-389 | 31-CCB21-H22 | Letdown Delay Coil | SF < 2 | 1/2" x 5" cover bar added |
| 79-390 | 33A-GCB4-H5 | High Pressure Injection 1-2 Suction | Slenderness ratio > 200 | 3/8" x 3-1/2" bar added to flanges |
| 79-391 | 34-6CB5-H2 | Containment Spray Pump 1-2 Discharge | Slenderness ratio > 200 | 3/8" x 4-1/2" stiffener plate added to kicker |
| 79-392 | 36-HBC39-H8 | Component Cooling Water Supply to Letdown Coolers | Slenderness ratio > 200 | 3/8" x 4-1/2" stiffener plate added to kicker |
| 79-393 | 41-HBC36-H26 | Service Water Outlet of Component Cooling Water Heat Exchanger 1-3 | SF < 2 | 1/4" x 2-3/4" stiffener plate added, W6 x 15 beam added |

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