# QA CONDITION 1

IMPELL CORP.

FOR
DUKE POWER COMPANY
ENGINEERING DEPARTMENT, MECHANICAL SECTION
VERIFICATION OF DESIGN CALCULATIONS

DOCUMENT CONTROL DATE
DEC 2 1983
DUKE POWER COMPANY
DESIGN ENGINEERING

| | |
|---|---|
| Station and Unit Number | Catwba Nuclear Station, Units 1 and 2 |
| Title of Calculation | ITT Grinnell Seismic Qualification Documents |
| Revision Number and Date | including the below specified reports.* |
| Equipment Identification | 4"-150# Active Diaphragm Valve with 14 NAT1 Rotork, Safety Class 2, Duke Item 5B-473, MPSC P.O. E-66449-11 |
| Reference: Duke File No. | CN-1205.04 |
| EDS Number | 0093-210-476.2 |

I certify that the above calculation has been reviewed as described, and is in accordance with the design criteria established by Duke Power Company Specification CNS-1205.04-00 -001, through Addendum 3, dated March 11, 1980.

Reviewed by: _____ Date 10/19/83
Impell Corp.

Based on the above independent review of a certified stress report, this document verifies Duke Power Company Design Analysis requirements, and is hereby approved.

By _____ Date 10/20/83

CNM 1205·04-0445

* - Seismic Calculations No. W-156, Appendix B, Revision 1, dated September 1983
- Static Deflection Test Results Report No. W-156-A, dated September, 1980
- Impell Seismic Qualification Analysis No. 136-2, Revision 1, dated October 10, 1983

APPROVED
DUKE POWER CO.
DATE: DEC 2 1983
S. K. BLACKLEY, JR.
CHIEF ENGINEER
By: MECHANICAL DIVISION

REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

IMPELL CORPORATION

DUKE POWER COMPANY
CATAWBA NUCLEAR POWER STATION, UNITS 1 AND 2
REVIEW OF CALCULATIONS FOR
ITT GRINNELL SEISMIC QUALIFICATION DOCUMENTS
4"-150# ACTIVE DIAPHRAGM VALVE W. 14NAT1 ROTORK
SAFETY CLASS 2, DUKE ITEM 5B-473
MPSC P.O. E-60449-11

| | YES | NO | ACCEPTABLE | UNACCEPTABLE |
|---|---|---|---|---|
| **1. IDENTIFICATION** | | | | |
| Name of Equipment | | | | |
| Classification | | | | |
| Description | | | | |
| Location | | | | |
| Number Required | | | | |
| Name of Vendor | | | | |
| **2. FORMAT AND PRESENTATION** | | | | |
| Title of Report | | | | |
| Name of Person Performing Calculations | | | | |
| Name of Person Checking Calculations | | | | |
| Index of Report Contents | | | | |
| References: | | | | |
| Drawings and Sketches | | | | |
| Data | | | | |
| Applicable Sections of Codes | | | | |
| Computer Programs | | | | |
| Formulae | | | | |
| Others | | | | |
| Vendor Certification | | | | |
| Statement of Assumptions | | | | |
| Statement of Limitations | | | | |
| Presentation of Results: | | | | |
| Tabulation of Stresses | | | | |
| Tabulation of Displacements | | | | |
| Comparison with Allowables | | | | |
| Equipment Anchorage/Support | | | | |
| Presentation of Conclusions | | | | |
| Description of Modeling | | | | |
| Description of Equipment Operation & Performance | | | | |

| | YES | NO | A | N/A |
|---|---|---|---|---|
| 3. APPLICABLE DESIGN CRITERIA | | | | |
| FSAR/PSAR | | | | |
| ASME Section III | X | | X | |
| General Design Specification | | | | |
| Individual Equipment Specification | | | | |
| Other: Specification CNS-1205.04-00-0001, Add. 3 3/11/80 | X | | X | |
| 4. ANALYTICAL PROCEDURE | | | | |
| Manual Calculations | | | | |
| Computer Calculations | X | | X | |
| Test Results Report No. W-156-A, Sept. 1980 | X | | X | |
| Other: Static Deflection Test Procedure No 2344 Rev. 2, 2/25/80 | X | | X | |
| 5. LOADS CONSIDERED | | | | |
| Self-Weight | X | | X | |
| Thermal | | | | |
| Pressure | | | | |
| Seismic OBE | X | | X | |
| Seismic DBE | X | | X | |
| Rupture | | | | |
| External/Mechanical | | | | |
| Other: As per specification | X | | X | |
| 6. LOAD COMBINATIONS | | | | |
| Normal | | | | |
| Upset | | | | |
| Emergency | | | | |
| Faulted | | | | |
| Other: As per specification | X | | X | |

7. SUMMARY OF REVIEW

The seismic qualification documents submitted by ITT-Grinnell Corp. are acceptable with the additional analysis of Impell Calc. No. 136-1, Rev. 1, regarding they fundamental frequency of 20.12 Hertz and the structural adequacy of the replaced SA 193, GR B7, pillars. The change of the pillar steel is indicated on Duke letter dated September 28, 1983.

8. CONCLUSIONS

| | |
|---|---|
| Acceptable as Presented | |
| Acceptable with Additions - Impell Calc. 136-1 | X |
| Not Acceptable | |

IMPELL