



MECHANICAL, AEROSPACE AND
NUCLEAR ENGINEERING DEPARTMENT
SCHOOL OF ENGINEERING AND APPLIED SCIENCE
LOS ANGELES, CALIFORNIA 90024

August 13, 1984

Mr. Richard DeYoung
Director, Inspection and Enforcement
EWW359
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dick:

This is pursuant to our phone conversation of August 10. Manuel Gonzalez-Cuesta, the Ph.D student who is working on trying to assess the contribution to risk from seismic errors in design and construction, is preparing a brief memo to me describing his information needs in order to estimate the reduction in fragility corresponding to some reported deficiencies. I mentioned motor control centers on the phone. He may also include a few instances of battery racks.

He is trying to finish up by November so an early response would be very helpful to his schedule.

A copy of the Gonzalez memo is enclosed. His phone number is on it. His mailing address at UCLA is the same as mine:

5532 Boelter Hall
UCLA
Los Angeles, CA 90024

Thanks again for your help.

Sincerely,

Dave
David Okrent
Chairman

50-142
DO:cde

Attachment

FOR: Dr. OKRENT

FROM: MANUEL GONZALEZ TEL. (213) 825-8116

RE.: INFORMATION NEEDED FOR EVALUATION OF
ELECTRICAL EQUIPMENT ANCHORAGE DEFICIENCIES

THE PURPOSE OF THIS EVALUATION IS TO DETERMINE THE LEVEL OF ANCHOR BOLT (OR OTHER FASTENER DEVICE) LOADING UNDER AN SSE FOR SOME DEFICIENT ANCHORAGE CONFIGURATIONS FOUND IN THE PAST. IN ORDER TO DO THIS, BOTH THE SPECIFIC ELECTRICAL EQUIPMENT CHARACTERISTICS AND THE DETAILS OF THE DEFICIENT ANCHORAGE ARE NEEDED.

THE REQUIRED EQUIPMENT CHARACTERISTICS ARE:

1. CABINET DIMENSIONS : HEIGHT, WIDTH, DEPTH.
2. DISTRIBUTED AND CONCENTRATED WEIGHTS FOR CABINET, INTERNAL COMPONENTS, MISCELLANEOUS HARDWARE. INCLUDE CONCENTRATED WEIGHT LOCATIONS.
OR ELSE, TOTAL WEIGHT AND CENTER OF GRAVITY LOCATION.
3. POSITION OF EQUIPMENT IN THE PLANT.

THESE DATA CAN USUALLY BE FOUND IN THE CALCULATION SHEETS FOR ANCHORAGE REEVALUATION. ACTUALLY, IT WOULD BE MOST HELPFUL TO OBTAIN THOSE CALCULATION SHEETS, AS OUR EVALUATION CONSISTS OF SIMILAR FORMULATIONS.

WITH REGARD TO THE DEFICIENT ANCHORAGE CONFIGURATIONS,
THE FOLLOWING DATA ARE NEEDED :

1. ANCHORAGE DETAIL : PLAN OF CABINET, BASE CHANNEL AND CROSS SECTION FOR BASE TO FLOOR ANCHORAGE, SHOWING THE NUMBER AND LOCATION OF BOLTS IN THE ORIGINAL CONFIGURATION.

SHOULD DETAILS ON THE ORIGINAL CONFIGURATION BE NOT AVAILABLE, AN ESTIMATE OF THE PERCENTAGE OF MISSING OR LACKING BOLTS AND DIAGRAMS FOR THE PRESENT CONFIGURATION WOULD COMPENSATE FOR THIS.

2. BOLTING CHARACTERISTICS : SIZE, TYPE, AND MATERIAL SPECIFICATIONS FOR ANCHOR BOLTS, OR OTHER FASTENING DEVICES.
3. WELDING DETAIL : IN SOME CASES, WELDING INSTEAD OF BOLTING IS THE DEFICIENT ITEM. FOR THESE, PROVIDE WELD SIZE, LENGTH, AND DIAGRAMS SHOWING LOCATION.

THE SPECIFIC PIECES OF EQUIPMENT IN EACH PLANT FOR WHICH THE INFORMATION IS DESIRED ARE DESCRIBED IN THE FOLLOWING ATTACHMENTS.

I. YANKEE ROWE PLANT

REFERENCES :

1. SEP TOPIC III.6 RE ANCHORAGE OF SAFETY-RELATED ELECTRICAL EQUIPMENT.
2. USNRC LETTER TO YAEC DATED JAN 1, 1980.
3. YAEC LETTER TO USNRC DATED JULY 9, 1980
WVR 80-78.

AS NONE OF THE ELECTRICAL EQUIPMENT ANCHORAGE FOR YANKEE ROWE WERE ENGINEERED FOR SEISMIC LOADS, WE WOULD LIKE TO GET AN ESTIMATE FOR THEIR CAPACITY. FOR THIS PURPOSE, DATA FOR TWO INSTANCES OF ELECTRICAL EQUIPMENT IS DESIRED, ONE REPRESENTING A WORST CASE AND ANOTHER AN AVERAGE CASE.

IN ADDITION, THE BATTERIES WERE FOUND TO BE SELF STANDING IN THEIR RACKS. PLEASE, PROVIDE INFORMATION ON THE BATTERY RACK CONFIGURATION AND BATTERY CHARACTERISTICS, FROM WHICH WE CAN EVALUATE THE POSSIBILITY OF OVERTURNING, DISLODGING, OR COLLAPSE OF THE ORIGINAL BATTERIES.

ADDRESS ANY QUESTIONS TO
MANUEL GONZALEZ
(213) 825-8116

II. SAN ONDRE UNIT 1

REFERENCES :

1. SEP TOPIC III.6 : REANCHORAGE OF SAFETY-RELATED ELECTRICAL EQUIPMENT.
2. K.P. BASKIN, SCE LETTER TO USNRC DATED MARCH 25, 1981.

EQUIPMENT FOR WHICH DATA ARE NEEDED :

1. 480V SWITCHGEAR CABINETS # 1, 2 OR 3, IDENTIFIED AS ITEMS 2 AND 9 IN REFERENCE 2. IF POSSIBLE OBTAIN CALCULATION NO S-A-01 PP. 11-15 AND 1-12.
2. INVERTERS NOS. 1, 2, OR 3, IDENTIFIED AS ITEM 29 IN REFERENCE 2. IF POSSIBLE, OBTAIN CALCULATION NO. S-A-04 PP. 19-25.

ADDRESS ANY QUESTIONS TO
MANUEL GONZALEZ
(213) 825-8116

III. D.C. COOK UNITS 1 AND 2.

REFERENCES :

1. LER 81-033 DATED AUG 28, 1981.
2. R.S. HUNTER LETTER TO USNRC DATED SEPT 24, 1981. AEP : NRC : 0486 B
3. GENERIC LETTER 81-14.
4. LER 82-047 DATED JUNE 17, 1982.

EQUIPMENT FOR WHICH DATA ARE NEEDED :

1. 600 V MOTOR CONTROL CENTERS - UNIT 2
MCC - 2-AM - A OR D. REFERENCE 2.
2. 4 KV SWITCHGEAR CABINETS / BUSES. REFERENCE 2.
UNIT 1 - T11A, B, C, OR D, OR
UNIT 2 - T21A, B, C, OR D

FOR THESE, THE ANCHORAGE DETAIL IN REFERENCE 2
DO NOT PROVIDE ENOUGH INFORMATION FOR THE
ORIGINAL CONFIGURATION.

3. VALVE CONTROL CENTER 2-ABV-A. REFERENCE 4.

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(213) 825-8116

IV. PALO VERDE UNIT 1.

REFERENCES :

1. FINAL DEFICIENCY EVALUATION REPORT DER 83-84.
DATED MAY 14, 1984.
2. INTERIM DER-83-84. DATED FEB 6, 1984.

EQUIPMENT FOR WHICH DATA ARE NEEDED :

1. MOTOR CONTROL CENTERS :

1-E - PHA M33, M35 OR M-37, OR

1-E - PHB M34, M35 OR M-38.

PROVIDE ~~ADDITIONAL~~ BASE CHANNEL BOLTING DETAILS
IN ADDITION TO THE ONES SHOWN IN REFERENCE 2.

ADDRESS ANY QUESTIONS TO
MANUEL GONZALEZ
(213) 825-8116

V. NORTH ANNA UNIT 1.

REFERENCES

1. VEPCO LETTER TO I&E OFFICE REGION II
DATED DEC 12, 1978.

EQUIPMENT FOR WHICH DATA ARE NEEDED:

1. EMERGENCY DIESEL GENERATOR BATTERY
RACK.

REMARKS :

THE INFORMATION NEEDED FOR THIS CASE IS DIFFERENT THAN THE ONE OUTLINED FOR OTHER PLANTS. OUR OBJECTIVES ARE TO OBTAIN AN ESTIMATE FOR THE LOADING ON THE RACK ELEMENTS, AS WELL AS TO USE THIS RACK CONFIGURATION TO EVALUATE ~~OTHER~~ POSTULATED DEFICIENCIES OTHER THAN THE ONES FOUND IN THE PLANT.

FOR THESE PURPOSES, WE NEED A SET OF THE BATTERY RACK DESIGN DRAWINGS, ALONG WITH THE DIMENSIONS, WEIGHTS, AND MATERIAL CHARACTERISTICS NECESSARY TO CARRY OUT SEISMIC CALCULATIONS.

IN ADDITION, A DESCRIPTION OF THE DIFFERENCES DISCOVERED IN THE AS-CONSTRUCTED RACK, ~~RECALCULATED~~ OR ELSE THE NUMERICAL RESULTS OBTAINED IN THE REEVALUATION, ARE NEEDED.

ADDRESS ANY QUESTIONS TO :
MANUEL GONZALEZ
(213) 825-8116