

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

(Construction Quality Assurance)

SS.

8404040375 840319  
PDR ADCK 05000275  
Q PDR

2. We have reviewed the records of the wall thickness measurements of reactor coolant pressure boundary valves which were made in 1973 for Unit 1 at Diablo Canyon Nuclear Power Plant. We also have read the portion of the Unscheduled Audit #34 of Harold Hudson pertaining to the boundary valves which allegedly did not meet the 2% accuracy requirement of the AEC. We reviewed the data report for the two valves: 1-8067-C and 1-8956-C.

3. Valve location 1-8067-C was shown on Unscheduled Audit #34 as having calibration data as 10% out of tolerance. As shown on the data report for the valve (Exhibit 1 attached), the calibration block has four points of reference used for each calibration data. All the points but one match the pretest calibration. The point that does not show the same is lower by approximately 10%. This is quite obviously an error of the pencil and not of the actual test. Only two points are, in fact, needed to check an ultrasonic machine calibration. The lowest point of calibration and the highest point match the pretest calibration data, thereby verifying the machine's valid calibration within the 2% tolerance.

4. When one compares the entries of paragraph 3 with paragraph 5, which represent calibration before and after the test measure, respectively, one can see the direct correlation of instrument readings and the obvious absence of one digit.

5. Valve location 1-8956-C was identified in Unscheduled Audit #34 as having accuracy out of tolerance by 48%. All valve calibration block data on the data report (Exhibit 2 attached) before thickness measurement matches the calibration block data after the thickness measurement (paragraphs 3 and 5). The 48% difference is noted on the data recorded between the mechanical (micrometer point) and the actual UT measurement of the mechanical point.

6. The Mechanical Point was 1.062 and UT was 2.050 after thickness measurement versus Mechanical Point 1.062 and UT 1.050 before thickness measurement. If all calibration block data matched before and after thickness measurement, as they did, there is no possible way the after thickness measurement of the mechanical point could be 2.050. This was again an obvious pencil error and not an equipment error.

DATED: March 16, 1984

*Gary D. Larson*

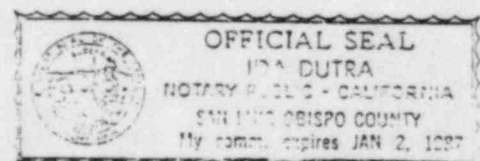
GARY D. LARSON

~~DANIEL R. Cady~~

Subscribed and sworn to  
before me this 16th day  
of March, 1984

*Ida Dutra*

Ida Dutra  
Notary Public in and for the  
County of San Luis Obispo,  
State of California.  
My commission expires  
January 2, 1987



5. Valve location 1-8956-C was identified in Unscheduled Audit #34 as having accuracy out of tolerance by 48%. All valve calibration block data on the data report (Exhibit 2 attached) before thickness measurement matches the calibration block data after the thickness measurement (paragraphs 3 and 5). The 48% difference is noted on the data recorded between the mechanical (micrometer point) and the actual UT measurement of the mechanical point

6. The Mechanical Point was 1.062 and UT was 2.050 after thickness measurement versus Mechanical Point 1.062 and UT 1.050 before thickness measurement. If all calibration block data matched before and after thickness measurement, as they did, there is no possible way the after thickness measurement of the mechanical point could be 2.050. This was again an obvious pencil error and not an equipment error.

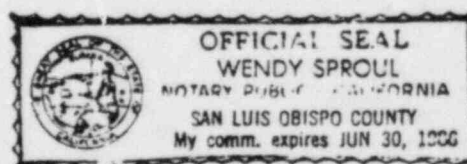
DATED: March 17, 1984

~~GARY D. LARSON~~

*Daniel R. Cady*  
DANIEL R. CADY

Subscribed and sworn to  
before me this 17th day  
of March, 1984

*Wendy Sproul*  
Wendy Sproul  
Notary Public in and for the  
County of San Luis Obispo,  
State of California.  
My commission expires  
June 30, 1986



EXHIBITS

1. Data report for valve 1-8067-C
2. Data report for valve 1-8956-C

1. Valve Identification: Unit No. 1, Mfr. W. J. R. D.  
 Location No. 1-8067-C, Type 2T5K  
 Remarks: (S/N, RN, Etc.) QCR216 R 312
2. Test Equipment: Mfr. BRANSON Model 303  
 S/N 154060 Transducer: S/N 1  
 Frequency 2.25 M Hz. Couplant Glycerin
3. Calibration: Step wedge material 316 Forged ASTM A182 HTN 511240  
 Actual step thickness: A .992 B .747 C .497 D .247  
 Ultrasonic readings: A 1.000 B .750 C .500 D .250  
 Calibration check (when possible on valve): Mechanical .515 UT .515  
 Performed by: William B. Johnson Date: 7-30-73
4. Valve Body Measurements: (Refer to Step 7.3.1 for Grid Lay-out)

	1	2	3	4	5	1	2	3	4
A	1.165	.650	.625	.680	.520	A-1	.650	.645	.650
B	1.250	.635	.640	1.025	.965	B-1	.650	.635	.640
C	1.200	.805	.800	1.020	1.000				
D	.950	.940	1.135	1.000	1.050				
E	.750	.530	1.135	.950	1.090				
F	.575	.510	1.095	1.000	1.070				
G	.650	.565	1.000	1.000	1.060				
H	.860	.970	1.050	.950	1.000				
I	1.050	.800	.860	.935	.950	I-1	.645	.645	.635
J	1.150	.665	.660	1.000	.900	J-1	.650	.645	.650
K									
L									
M									

Note: If additional space is required, attach pages as required.

5. Measurement and Post Calibration by: William B. Johnson Date: 7-30-73  
 Actual step thickness: A .992 B .747 C .497 D .247  
 Ultrasonic readings: A 1.000 B .750 C .45 D .250  
 Calibration check (when possible on valve): Mechanical .515 UT .515
6. Wall Thickness: Min. allowed .437 Min. obtained .510
7. Valve Identified per Step 7.3.5 by: Bowden Date: 7-30-73
8. Valve Protection restored by: Bowden Date: 7-30-73
9. Remarks:

DESTROY THIS COPY WHEN  
 NO LONGER NEEDED.  
 MASTER COPY LOCATED IN  
 PROJECT CENTRAL FILE

Serial No. of Micrometers: 22500 MWK

Report by: William B. Johnson Date: 7-30-73



- Replaced: (W/N, H, L, etc.) 94-12892-77
- REPLACEMENT FOR ORIGINAL 1-8958-C TESTED
2. Test Equipment: Mfr. BRANSON Model SONORAY 301  
 S/N 7012417 Transducer: S/N Z101CS  
 Frequency 1.00 MHz Hz. Couplant GLYCERINE
3. Calibration: Step wedge material CAST SS 304 ASTM A351LF3 HT1277E  
 Actual step thickness: A 2.489 B 1.988 C 1.485 D .987  
 Ultrasonic readings: A 2.500 B 2.000 C 1.500 D 1.000  
 Calibration check (when possible on valve): Mechanical 1.062 UT 1.050  
 Performed by: [Signature] Date: 11-29-73
4. Valve Body Measurement: (Refer to Step 7.3.1 for Grid Lay-out)

	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										
F										
G										
H										
I			<u>1.850</u>	<u>1.475</u>	<u>1.685</u>					
J										
K										
L										
M										

Note: If additional space is required, attach pages as required.

5. Measurement and Post Calibration by: [Signature] Date: 11-29-73  
 Actual step thickness: A 2.489 B 1.988 C 1.485 D .987  
 Ultrasonic readings: A 2.500 B 2.000 C 1.500 D 1.000  
 Calibration check (when possible on valve): Mechanical 1.062 UT 2.050
6. Wall Thickness: Min. allowed 1.310 Min. obtained 1.475
7. Valve Identified per Step 7.3.5 by: [Signature] Date: 11-29-73
8. Valve Protection restored by: [Signature] Date: 11-29-73
9. Remarks:

FLAT PAD ON BOTTOM OF CASTING INSPECTED  
ONLY FOR THICKNESS

Serial No. of Micrometers: 22303 MARK

Report by: [Signature] Date: 11-29-73