

# PACIFIC GAS AND ELECTRIC COMPANY

PG&E +

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J. O. SCHUYLER  
VICE PRESIDENT  
NUCLEAR POWER GENERATION

April 11, 1984

PGandE Letter No.: DCL-84-140

Mr. John B. Martin, Regional Administrator  
U. S. Nuclear Regulatory Commission, Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596-5368

Re: Docket No. 50-275, OL-DPR-76  
Docket No. 50-323  
Diablo Canyon Units 1 and 2  
Revision to IEIR 83-37 and 83-25 -- Notice of Violation

Dear Mr. Martin:

NRC Inspection Report 50-275/83-37 and 50-323/83-25, dated February 29, 1984, included a notice for a Severity Level IV violation. PGandE responded to this notice on March 29, 1984 (PGandE Letter No. DCL-84-124). This response supercedes, in its entirety, the March 29, 1984 submittal.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,

*W. Hayward*  
*for J. O. Schuyler*

Enclosure

cc: Service List

FILE COPY

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PDR ADOCK 05000275  
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ENCLOSURE

RESPONSE TO NOTICE OF VIOLATION IN NRC  
INSPECTION REPORT NOS. 50-275/83-37 AND 50-323/83-25

On February 29, 1984, NRC Region V issued a Severity Level IV Notice of Violation ("Notice") as part of NRC Inspection Report Nos. 50-275/83-37 and 50-323/83-25 on Diablo Canyon Units 1 and 2.

The "Notice" cited:

- Twenty-eight Pullman employees began inspecting and accepting weldments prior to completion of required training and certification as welding inspectors.

DEFICIENCIES IN THE TRAINING AND CERTIFICATION OF PULLMAN WELDING INSPECTORS

STATEMENT OF VIOLATION

"As a result of the inspection conducted on November 14-18 and November 28 - December 9, 1983, and in accordance with NRC Enforcement Policy, 10 CFR Part 2, Appendix C, the following violation was identified:

Section 17.1.5 of the FSAR (dated October 1978) and the Pacific Gas and Electric Company Quality Assurance Manual Section V (dated August 15, 1978) states, in part, that, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings...and shall be accomplished in accordance with these instructions, procedures, or drawings...."

Engineering Standard Diablo (ESD) No. 237, "Quality Assurance Inspector Training Program," dated February 26, 1974, states in paragraph 2.3 that, "All personnel engaged as Field QA Inspectors involved in the inspection of weldments, interpretation of Engineering Specifications and Welding Procedures, and documentation work, shall be required to complete an indoctrination period as described in Section 4 of this specification." Paragraph 4.1 states that, "The indoctrination period for the Field Q.A. Inspectors described in Section 2.3 shall contain as a minimum, but not necessarily limited to, the following courses:

Visual Inspection  
Welding Inspection  
Basic Q.A.

Welding Procedures  
Welding Processes

Other courses offered as optional are:

Welding  
Basic Power Plan Instruction  
Introducing Nuclear Power

Steam Power Plant Fundamentals  
Welding & Piping Engineer. Technology  
(I.C.S.)

The Visual Inspection and Welding Inspection tests shall be administered and controlled by the N.D.E. Training Officer. All N.D.T. training, qualifications and certifications will be covered by ESD-235."

Paragraph 4.2 states that, "Tests used for the indoctrination courses for Field Q.A. Inspectors shall be:

1. For Basic Q.A. Test-ESD's.
2. For Weld Procedure Test-Approved Welding Procedures.
3. For the Weld Process Test, Welder Qualification Card and Pipefitter's Manual.
4. For Welding Inspection Qualifications, General Welding Information.
5. Visual Inspection Qualifications-General Dynamics NDT Introduction."

A Nuclear Services Corporation (NSC) Audit dated October 27, 1977, identified in Criterion IX, Finding No. 3 (of the audit) twenty-eight individuals which were alleged to have begun performing their duties without fulfilling the Pullman Power Products procedural requirements for certification and qualification of Quality Assurance (Welding) Inspectors.

Contrary to the above requirements of the FSAR and Pullman procedures, the inspector identified on November 15, 1983 that in virtually all cases the individuals hired after September 25, 1973, named in the NSC audit finding (who were assigned to perform welding inspections), began inspecting and accepting weldments, before completing the required training, taking the required examinations, and before being certified as a welding inspector. It is noted that the Pullman Power Products response to this Nuclear Services Corporation finding states, in part that, "All current inspectors have been qualified by test as outlined in ESD-237. The requirement for qualification and certification of field inspector were added in ESD-237 on September 25, 1973 to reflect the requirements of ANSI N45.2.6, just published. Persons hired before this time were not necessarily tested at time of hire. Subsequent to 1973, the records indicate that all inspection personnel received required training and examination." However, the Pullman response is silent with regards to inspectors performing inspections prior to certification.

This is a Severity Level IV Violation (Supplement II)."

#### EXPLANATION AND CORRECTIVE STEPS TAKEN

The following discusses the corrective measures being taken in response to the issues raised by this Notice. Briefly, we will (1) provide background information concerning Pullman's approach to welder inspector training and qualification; (2) explain the corrective steps taken to address the issue of inspector qualification identified in the NSC audit meeting including the scope of the reinspection program; and (3) identify any rework of those welds that require modification.

Prior to January 1973, no requirement or guidance existed within the industry directing the documentation, qualification, or certification of inspectors. First guidance to industry appeared in ANSI N45.2.6 Standard issued on January 25, 1973. This guidance was subsequently incorporated in NRC Regulatory Guide 1.58. Review of the M. W. Kellogg ("Pullman")

inter-office correspondence indicates that as of June 14, 1973, they had determined that a documented training program was desirable. The development of this program began in September 1973 and the program as described in ESD 237 was approved by PGandE on February 6, 1974.

In PGandE's investigations, 17 of the 28 individuals cited by the NSC Audit were welding inspectors. The other eleven were non-destructive test inspectors who were fully qualified to perform ND Testing prior to beginning those activities. Pullman Welding Inspectors have been placed into three categories according to their time of hire:

- A. Four individuals were hired to perform weld inspections from the start of work through August 1973. All inspectors were qualified to perform visual weld inspections based on a review of documentation of previous work experience and education.
- B. The files of all inspectors hired during the period from September 1, 1973 through December 31, 1980 were reviewed. Fifty-three inspectors were hired between September 1, 1973 and October 3, 1975. Of these, seventeen inspectors performed inspections prior to completion of the training and testing requirements of ESD-237. After October 3, 1975, all individuals were qualified to ESD-237 requirements before performing inspections.
- C. One hundred and seven individuals were hired to perform weld inspections from January 1, 1981 to the present. The records of twenty-three of these individuals were reviewed. All years (between 1981 and 1984) were included in this sample. Twenty-one were qualified in accordance with ESD-237 requirements prior to becoming inspectors. The remaining two became inspectors one day prior to documentation being placed in their records. This is considered an administrative delay.

These results provide confidence that the requirements of ESD-237 have been fully implemented from October 3, 1975 to date.

Based on documentation of previous work experience and education, all except two individuals who performed inspections prior to documentation of qualification were knowledgeable in welding inspection. We consider these individuals provisionally qualified to perform inspections unless proven otherwise during the reinspection program. Messrs. Guy and Cubbage were not considered qualified to perform inspections, based on past experience.

For the 15 inspectors who are provisionally qualified, a sampling of 20% or more of accessible welds inspected prior to compliance with the ESD-237 procedure is being reinspected. The reinspection is limited to accessible welds only. Accessible welds are defined as not being inside concrete, within sleeves, penetrations, or on heat traced lines. If more than one percent of the welds reinspected for any individual is rejected, the reinspection program will continue until a rejection rate of 1% or less is achieved, or 100% of the accessible welds inspected by this individual have been reinspected.



For Messrs. Guy and Cabbage, all accessible welds inspected prior to qualification are being reinspected.

These welds were originally inspected to B31.1 and B31.7 requirements. At that time, the codes required a minimum socket weld size of  $1.25t$  ( $t$ =nominal piping wall) but not less than  $1/8$  of an inch. The welds were measured with a variety of methods, including visual inspection, straight edge rules, handmade weld gauges, or Palmgren Gauges designed for measuring  $90^\circ$  structural steel fillet welds. Inspectors used interpolation of the scale markings while rotating the scale around the socket weld.

The reinspection program is being performed in accordance with B31.1 (1967) including the Summer 1974 Addendum, B31.7 (1969) and ASME Section III which requires a minimum socket weld size of  $1.09t$  ( $t$ =nominal piping wall). The reinspection uses Fibremetal weld gauges which are more accurate than previous methods.

Attachments A and B summarize the inspection scope and results to date. During the reinspection program, 1059 welds have been reinspected. Fifty-seven are suspect.

The suspect welds are, in general, on small bore piping. Ninety-five percent are socket welds connecting adjacent piping spools. Two are butt welds connecting 4-inch to 6-inch pipe. The remainder connect stanchions or lugs to the pipe.

Suspect welds found by welding inspectors will be reinspected by supervisory level welding inspectors. If the suspect condition is verified by the supervisors, the weld will be rejected and referred to Engineering. Engineering will either accept the welds based on analysis or the welds will be repaired.

A high level of confidence in the quality of work being reinspected is established by:

1. All Code Class A and B, and pressure retaining Code Class C welds were inspected using NDE methods by qualified individuals in addition to the visual inspections.
2. In some cases, the welding inspection was witnessed by the Authorized Nuclear Inspector.
3. All Design Class 1 piping has been hydro-tested and, in some cases, reinspected for the base line data as a part of the Inservice Inspection Program.

#### CORRECTIVE STEPS WHICH WILL BE TAKEN

Weldments are being re-inspected for acceptability by qualified inspectors in accordance with the above discussion. Should any of these welds be unacceptable, they will be repaired in accordance with the existing approved procedures or the basis for acceptance will be established.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance with procedure ESD-237 has been in effect since October 3, 1975.

PGandE plans to complete all corrective action within 30 days for Unit 1, and 60 days for Unit 2 of the date on this submittal. A final report detailing the results of all inspection activities and the disposition of suspect welds will be submitted for Unit 1 and Unit 2 after completion of all corrective action.

Attachment AREINSPECTION PROGRAM FOR  
PROVISIONALLY QUALIFIED INSPECTORS(1)

<u>Name</u>	<u>No. of Inspections(2)</u>	<u>Minimum No. to be Reinspected(3)</u>	<u>No. Already Reinspected(4)</u>	<u>Suspect(5)</u>
Allmendinger	69	14	31	1
Bloom	2	2	2	0
Bowlby	387	78	117	7
Boyd	192	39	51	1
Finch	289	58	114	4
Jennings	423	85	96	4
Kaz	3	3	1	0
Kincade	84	17	23	2
Page	149	30	42	2
Pennie	294	59	81	2
O'Brien	2	2	2	0
Sarvwatari	313	63	72	1
Silver	47	10	11	0
Thomas	17	10	10	0
Willard	<u>367</u>	<u>74</u>	<u>135</u>	<u>16</u>
	2638	544	788	40

NOTES

1. These results have been revised and updated from the March 23, 1984 (DCL-84-115) and March 29, 1984 (DCL-84-124) submittals and are correct as of April 10, 1984.
2. No. of inspections - Number of weld inspections prior to meeting the requirements of ESD-237.
3. No. to be reinspected - 20% or more of accessible welds which are being reinspected.
4. No. already reinspected - progress of program to date.
5. Suspect - Welds which have been referred to Supervision for review against code tolerances.

Attachment BREINSPECTION PROGRAM FOR  
UNQUALIFIED INSPECTORS (1)

<u>Name</u>	<u>No. of</u> <u>Inspections</u> (2)	<u>Minimum</u> <u>No. to be</u> <u>Reinspected</u> (3)	<u>No. Already</u> <u>Reinspected</u> (4)	<u>Suspect</u> (5)
Guy	300	300	260	16
Cubbage	23	12	11	1
	323	312	271	17

NOTES

1. These results have been revised and updated from the March 23, 1984 (DCL-84-115) and March 29, 1984 (DCL-84-124) submittals and are correct as of April 10, 1984.
2. No. of Inspections - Number of weld inspections prior to meeting the requirements of ESD-237.
3. No. to be reinspected - All of accessible welds which are being reinspected.
4. No. already reinspected - Progress of program to date.
5. Suspect - Welds which have been referred to Supervision against Code tolerances.