. LEV's

U.S. Nuclear Regulatory Commission

Region V - Palo Verde RECEIVED

Nuclear Generating Station

Wintersburg, Arizona 1983 SEP 19 AM 10 13

REGION V

FACSIMILE TRANSMISSION

Status Transmission Sheet

#1

Summary of Civil Inspection Items - L.F.S.

1. Windsor Probe Testing of Concrete

Auxiliary Building

2 Floor Tests - HPSI A Pump Room and Pipeway

3 Wall Tests - HPSI A Pump Room and Pipeway

Containment Building

2 Floor Tests - Basemat at 80 ft. Elevation

Control Building

1 Floor Test - Battery A Charging Room - 100 ft. Elevation

1 Floor Test - Battery A Room - 100 ft. Elevation

1 Floor Test - Battery C Room - 100 ft. Elevation

1 Floor Test - Room of [illegible] Train A - 4160 volt breaker

[illegible]

All satisfactory.

2. [illegible] Testing

Concrete Expansion Anchors

Control Building

Wedge Bolts - 11 measured for embed depth - 8 torqued

Multi-Bolts - 2 torqued and measured for embed depth

Auxiliary Building

Multi-Bolts - 2 torqued and measured for embed depth

[illegible] Building

Wedge Bolts - 6 torqued and measured for embed depth

Results

All tests satisfactory. One item of noncompliance: No [illegible] for Hexi - Bolts in Control Building.

Safety Related Bolts

Approximately 30 embed plates were ultrasonically tested in Control, Auxiliary and Containment Buildings for plate thickness and anchor bolt presence, length and thread engagement.

Results

All thickness satisfactory except thread engagement found slightly less than specified for 1 or 2 bolts on 6 of the [illegible] were examined.

[illegible]

Auxiliary Building

[illegible] and Trip Corridor at 40 ft. elevation -- [illegible] and form work checked against framing plans. Attempt was [illegible] qualification of welders.

[illegible] to be as specified. Welder identification [illegible] was painted, hence welder qualification [illegible].

Bechtel Power Corporation
Engineers - Constructors
Palo Verde Nuclear Generating Station
P.O. Box 49
Palo Verde, Arizona 85343

September 29, 1983
B/ANPP-K-11865-G
FLN 18401

Arizona Nuclear Power Project
P.O. Box 49
Palo Verde, Arizona 85343

Attention: Mr. D. B. Fasnacht
Nuclear Construction Manager

Subject: Palo Verde Nuclear Generating Station
Bechtel Job 10407
Reinspection of Nuclear Pipe Hangers (Q Class)
File: K.38.02

Dear Mr. Fasnacht:

The following is the program for the reinspection of nuclear class pipe supports in conjunction with CIP #543.0:

1. Inspect all Nuclear Class I supports
2. Inspect all pipe supports installed and inspected prior to June, 1980.
3. Inspect all supports that were a part of the ISI program.
4. Inspect (3) Nuclear Class II system and (3) Nuclear Class III systems. These will be selected on the basis of systems having the greatest amount of welded attachment; and in addition to the systems listed above.

Note: If the line is supported by a rack, the complete rack will be inspected and not just the support.

Very truly yours,

BECHTEL POWER CORPORATION

W. J. Stubblefield
Field Construction Manager

WJS:ph
attachment
cc: E. E. Van Brunt, Jr.
W. H. Wilson

#2

REV. 2

PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, & 3
CONSTRUCTION INSPECTION PLANNING FOR
JOB NO. 10407

SPECIAL
CIP NO. 543.0

1. EQUIPMENT NAME Nuclear Pipe Hangers & Supports 2. QUALITY CLASS Q 3. CIP REV. 0

4. UNIT NO. 1 5 DWG. NO (S). N/A REV. N/A DCN N/A FCN N/A FCR N/A

TASK	INSPECTION CRITERIA	INSPECTION METHOD	REFERENCE	FE		QCE	
				INITIAL	DATE	STAMP	DATE
	INSPECTION CRITERIA/REFERENCE						
	1. WPP/QCI No. 201.1						
	2. Pipe Hanger/Support Drawing, Latest Rev.						
	3. Spec. 13-PM-204						
	4. Welding Inspection Handbook						
	a. Sect. 2 - Measurement of Fillet Welds						
	b. Sect. 3 - Use of Insp. Gages						
	c. Sect. 4 - Groove Welds						
	d. Sect. 6 - Acceptance Criteria						
	5. System 38						
1.0	Enter system _____ Nuclear Class _____	Record	2,5				

PF-3261 (10407) 3/79

OM

TASK	INSPECTION CRITERIA	INSPECTION METHOD	REFERENCE	FE		QCE	
				INITIAL	DATE	STAMP	DATE
2.0	DOCUMENTATION REQUIREMENTS						
2.1	Obtain a System 38 computer printout for each system	Verify	5				
	to be reinspected.						
3.0	INSPECTION INSTRUCTIONS						
3.1	QCE to perform a re-inspection for Task No's as	Visual/ Verify	1,2,3,4	XXXXXXXX	XXXXXXXX		
	specified on Exhibit 543.0-1.	Tape/ Scale					
3.2	QC stamp and date the computer printout adjacent	Record	XXXXXXXX	XXXXXXXX	XXXXXXXX		
	to each accepted pipe hanger and/or support.						
3.3	Non-conforming condition(s) detected during	Review/ Record	WPP/QCI No. 5.0	XXXXXXXX	XXXXXXXX		
	reinspection, shall require a review of previously						
	written NCR's for similar condition(s). If the						
	non-conforming condition(s) have not been previously						
	dispositioned "Use as is", an NCR shall be initiated.						
	The NCR number (either previous or current) shall be						
	entered on the computer printout adjacent to the affected						
	pipe hanger and/orsupport.						

REV. 2

PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, & 3
CONSTRUCTION INSPECTION PLANNING FOR (CONTINUATION SHEET)
JOB NO. 10407

SPECIAL

CIP NO. 543.0

TASK	INSPECTION CRITERIA	INSPECTION METHOD	REFERENCE	FE		QCE	
				INITIAL	DATE	STAMP	DATE
	INSPECTION INSTRUCTIONS (con't)						
	NOTE: One (1) NCR may be used for each subsystem.						
4.0	INSULATION REMOVAL						
4.1	Insulation pipe hangers and/or supports requiring reinspection shall have an Insulation Removal Request (IRR) prepared for insulation removal.	Visual/ Record	XXXXXXXXXX	XXXXXXXX	XXXXXXXX		
	NOTE: Reinstallation of removed insulation shall be in accordance with WPP/QCI No. 204.0.						
	EXCEPTIONS:						
	1. Paint need not be removed unless requested by the inspector.						
	2. Required NDE need not be performed unless request by the inspector.						

REV. 2

PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, & 3
CONSTRUCTION INSPECTION PLANNING FOR (CONTINUATION SHEET)
JOB NO. 10407

SPEC. 543.0
CIP 543.0
PG. 4 OF 5

TASK	INSPECTION CRITERIA	INSPECTION METHOD	REFERENCE	FE		QCE	
				INITIAL	DATE	STAMP	DATE
5.0	DOCUMENTATION						
5.1	CIP for Nuclear pipe hangers and/or supports is complete.	Review	XXXXXXXXXX	XXXXXXXX	XXXXXXXX		
5.2	Completed computer printout shall be attached to this CIP						
	and fowarded to the PFQCE.						
	ATTACHMENTS						
1.	Exhibit Attachment 543.0-1 (Rev. 0), "CIP for Nuclear						
	Pipe Supports".						

PE 3202 (10407) 11/80

CAT Team Inspection - Narbut

APS Documents Required 9/20/83

Hgr SI-176 H004 Pipe Clamp has welded shim
Need ① Hgr CIP
② N-5 Data report which shows welded shims (Grinnells)

Hgr SI 100-H003 ① Copy of Dispositioned NCR PA-7141

Hgr SI 089-H008 ① Copy of NCR on rubber penetration seal material on slide plate
SI-100 H005 Copy of FCR 27,697-P

SI-100 H012 Need Copy of ED or IP procedure which states that non safety related loads should be included in safety hanger calculations

Hg. SI 100 H015 Need NCR 7155 of 9/13/83
SI 100 H034 - Need current NCR written on undersize lug weld
- Need NCR 7151 of 9/13/83 (Subject not known)

Hgr SI 102 H008 - Need NCR written
- Need Hgr buy off CIP
- Need Weld inspection records

Hgr SI 176 H001 } Need NCR's, CIP's, Weld Inspection Docs
Hgr SI 176 H003 } on hgr

#3

Hgr SI 176 H001 - Need NCR, CIP, Welding Inspection Paper

Hgr SI 176 H003 - Need NCR CIP Welding Paper

Narhat's Draft

Appendix A

A. 10CFR50 Appendix B Criterion 5 requires in part that activities affecting quality be prescribed by documented instructions, procedures and drawings and be accomplished in accordance with these instructions.

[redacted]'s Procedure WPP/QCI 201.1 Revision 18 dated May 25, 1983, "Nuclear Pipe Hangers and Supports Installation", Appendix I requires [redacted] the QC Engineer to verify each completed task on the "CIP for Nuclear Pipe Supports" 5T

[redacted] The inspection requirements on the CIP [redacted]

for "Task 1" is to verify the support assembly correct per approved engineering drawings and specifications November 20, 1981.

This is a Severity Level ___ Violation

#4

B. ~~10 CFR 50~~

10CFR50 Appendix B Criterion 5 requires in part that activities affecting quality ~~shall~~ be prescribed by documented instructions, procedures and drawings and ~~shall~~ be accomplished in accordance with these instructions.

~~The basis~~ is Procedure WPP/QCI 201.1 Revision 15 dated ~~5/25/83~~ May 25, 1983, "Nuclear Pipe Hangers and Supports Installation", Appendix I requires the ~~Welding~~ QC Engineer to verify each completed task on the "CIP for Nuclear Pipe Supports" "CIP" The inspection requirements for Task 8 require the Welding QC Engineer to verify field welding is complete. For Task 9 he is to ~~verify the~~ check the vendor welding ~~weld data~~ for size and length. ~~The~~ Additional instructions to the Welding QC Engineer in Appendix I instruct ~~him~~ to verify welding acceptability.

(over)

C. ~~10CFR50~~

10CFR50 Appendix B Criterion 5 requires in part that activities affecting quality ~~shall~~ be prescribed by documented instructions, procedures and drawings and ~~shall~~ be accomplished in accordance with these instructions.

Specification 3-PM-204 Revision 12 dated 4/7/83 Paragraph 12.1.2 states the design and location of all pipe supports shall be the responsibility of project engineering. Paragraph 12.1.4 states pipe supports designed by engineering will be shown on drawings and all design details will be shown including miscellaneous steel. (over)

This is a Severity Level ____ Violation

2 Persons Contacted

a Arizona Public Service Company APS

W.E Ide Construction QA/QC Manager

P Moore QA Engineer

T. Love QA Engineer

R.J. Kimmel Field Engineering Supervisor

G. Pankonin Startup QA/QC Manager

b. Bechtel Power Corporation (Bechtel)

T.E. Hawkinson, Project QA Mgr.

J White Lead Pipe Support QCE

G. Slam Weld Engineering Supervisor

J. Sabol Lead Pipe Support Engineer

D. Keith Bechtel, Downey

IV.4. Hangers and Supports including Snubbers and Restraints

a. Areas Examined

(1) Hardware: The inspector examined all pipe hangers, supports, snubber and restraints on the HPSI piping system from the start of the suction line SI A-008-GCBC-10" through the discharge lines SI-A-100-CCBA-4" and SI-A-106 CCBA-3" ~~up to the~~ throughout the 40 foot elevation, up through the vertical pipe chase to the 89 foot elevation pipe chase. At this junction one of the five injection branch lines, SI-E-176-CCBA-3" was followed to the injection point and all ~~[illegible]~~ pipe supports, hangers, snubbers and restraints were examined. Additionally miscellaneous branch lines from the HPSI discharge path were examined for supports (to the first isolation valve on the branch). Additionally, a few supports not involved in the line description above were examined if a condition was noted which warrented followup.

All supports examined are listed in

Table 1.

In most cases pipe insulation was ~~required to be~~ removed for inspection. In those cases where a support was only partially examined Table 1 so notes. These cases generally fall into the following conditions:

- Insulation not removed. This condition precluded examining pipe lug welds only. The hanger members and welds are not covered by insulation and can be thoroughly inspected.
- Lug welds only. In these cases the inspector examined only the lug welds to increase the sample of lug welds by inspecting supports ~~in~~ ~~the~~ ~~selected~~ which were not on the selected branch lines but were part of HPSI-A.
- One aspect only (e.g. "base plate only") In these cases the support was not included in the lines selected but was partially examined because a condition warranting followup was noted.

- Location and configuration only In These cases involved a series of replicate supports in a horizontal run. The location of the support and the configuration were checked against drawing requirements and support member sizes and weld sizes were checked by visual examination rather than by measurement.

All other supports were examined fully: ~~in accurate detail, support member sizes and welds verified by measurement~~

The inspector examined the supports to determine that:

- All supports shown on the piping isometric drawings were installed
- No additional supports were installed
- The support configuration was as shown on the support drawing
- The support member sizes were ~~correct~~ per the drawing.
- The support member material was per the drawing.
- The welds on the support were the correct size and met the applicable code and standard requirements.

- The welded attachments to piping were per drawing
- The attachment welds to pipe were per drawing and met code and standard requirements.
- Mechanical snubbers and restraints were installed where required by drawing
- The snubber and restraints were the proper size (load rating)
- The snubbers and restraints had the proper cold setting shown on the drawing.
- The supports were properly located per the drawing relative to the piping and the structure
- ~~Clearances, when specified, were proper.~~

There are a total of 116 pipe supports involved in all of the HPSI-A system. The inspector examined 68 supports or about 60%. Of the 68 supports examined 14 supports had one or more problems. This is about a 20% reject rate. The problems

identified are discussed ~~factors~~ in the "Findings" section below.

(2) Drawings, specifications and procedures.

The inspector gathered and reviewed the applicable piping drawings, hanger drawings, specifications, work and inspection procedures, and pertinent vendor information.

Other safety related documentation, ~~[redacted]~~ including documents authorizing deviations from the drawings, records of hanger inspection by QC, non-destructive examination records, welding inspection records, nor conformance reports, vendor certification records, code reports, and piping spool fabrication records were reviewed as they were identified in the pursuit of questions raised on a particular supports apparent anomolies

The inspector also reviewed the FSAR and ASME codes for applicable requirements.

The ~~above~~ discussed above documents will be listed and

specifically addressed only as they apply to findings, discussed in the "Findings" section below

(3) Tools The inspection was conducted utilizing unaided visual exams, tape measure, weld gages, angle finder, and adequate lighting. Safety equipment was utilized as required.

No NRC independent ~~nondestructive~~ non-destructive examination was ~~performed~~ performed on the pipe supports due to other priorities.

In the one case where the visual ~~exam~~ inspection indicated a possible weld defect, the inspector requested the licensee ~~contractor~~ re-examine the weld using liquid ~~penetrant~~ penetrant examination. The inspector observed the entire performance of the examination

b. Findings

Table 1 lists all supports inspected and shows which supports were found unsatisfactory and provides a brief description of the problem(s) found.

The problems found group into 3 areas which are considered apparent violations of NRC regulations. Each problem identified in Table 1 is explained more fully below.

(1) Failure of the pipe support QC personnel to identify support conditions which are not in accordance with drawing or specification requirements.

10CFR50 Appendix B Criterion 5 requires in part that activities affecting quality shall be prescribed by documented instructions, procedures and drawings and shall be accomplished in accordance with these instructions.

The licensee's procedure WPP/QCI 201.1 Revision 18 dated 5/25/83, "Nuclear Pipe Hangers and Supports Installation", Appendix I requires the Piping QC Engineer to verify each completed task on the "CIP for Nuclear Pipe Supports"

~~Task 1.0 has an~~ The inspection requirements ~~on the CAR~~ for Task 1 is to verify the support assembly correct per approved engineering drawings and specifications

~~certain checks are as follows~~

~~Task 3 Verify the correct pipe support location~~

- Support SI-089-H008 was found with rubber seal material injected in the space by the Flourogold slides plates Items 54 and 55 on the drawing. The drawing does not show rubber sealant material. It is probable that the material was inadvertently injected after the support inspection on 11/29/79 but the material had been neatly trimmed away and the edges painted in the area painting.
- Support SI-100-H003 was found with a loose pipe clamp and installed at an angle of 4½° from vertical. WPP/QCI 201.1 paragraph 8.9 requires the clamp to be snug on the pipe. The WPP/QCI paragraph 9.2.7.1 requires the angle to be no greater than 2°. The support was accepted by QC on 11/20/81.

- Support SI-100-H005 was found with the drawing specified dimension of 3 3/4 inches between the centerline of the pipe stanchion and the centerline of the insert plate to be actually 7 1/2 inches. This difference exceeds the tolerances of ± 2 inches paragraph 9.3.12 of the WPP/QCI. The support was accepted by QC on 11/13/81

- Support SI-100-H015 was found with a clearance between item 31 and the two items E of 3/16 inch and 1/8 inch respectively. The drawing requires 1/16 inch The WPP/QCI

- Support SI-100-H036 was found in a condition which did not match the hanger drawing and modifying Field Change Request (FCR) #15,123P. Item D of the FCR was not installed. The support was accepted by QC on 10/22/81 to the drawing and FCR.

• Support SI-101-H00A was found with a loose jam nut on Item 61, the sway strut assembly. The support was accepted by QC on 10/2/81

• Support SI-106 H001 was found the 2" long pipe lugs, Item 38, bearing on the supporting steel for only 3/16 inch and 7/16 inch respectively. Paragraph 9.4.1 of the WPP/QCI indicates full bearing surface should be provided as indicated on the support drawing. The support was accepted by QC on 5/23/80.

~~Support SI-106~~

The failure of pipe support QC personnel to identify pipe support conditions were were not in accordance with drawing or specification requirements is an apparent violation of NRC regulations (Enforcement item 50-528/83-34/<>)

(2) Failure of the welding QC personnel to identify weld conditions which are not in accordance with the drawing or the welding code requirements (eight examples)

10CFR50 Appendix B Criterion 5 requires in part that activities affecting quality shall be prescribed by documented instructions, procedures and drawings and shall be accomplished in accordance with these instructions.

The licensee's procedure WPP/QCI 201.1 Revision 8 dated 5/25/83, "Nuclear Pipe Hangers and Supports Installation", Appendix I requires the Piping QC Engineer to verify each completed task on the "CIP for Nuclear Pipe Supports"

The inspection requirements for Task 8 require the welding QCE to verify field welding is complete. For Task 9 here is to verify the vendor welding was checked for size and length The instructions to the QCE in Appendix I instruct the QCE To verify welding acceptability.

- Support SI-100-H005 was found with an underfill condition in the stanchion, Item 30, to pipe weld. The weld is required to be a 5/16 inch fillet weld. The actual fill was measured to be 1/4 inch. The weld was accepted on the field weld check list on 11/9/81

- Support SI-100-H010 was observed to have an apparent lap in the weld of Item 30 to the pipe. This was a vendor weld Minor slag was also present in the toe of the weld. ~~The Licensee~~ These conditions would have precluded a satisfactory liquid penetrant examination by the vendor The vendor records show the weld was liquid penetrant examined and accepted on 12/4/77 (Job 2810, Piece 1-SI-100-S-009, "F" No 261) ~~The vendor did~~ The NRC inspector had the visual indication on the weld re examined by licensee personnel by liquid penetrant examination in his presense. The liquid penetrant examination resulted in an unacceptable linear indication.

The vendor weld had been last inspected by site QC personnel per Task B on 6/17/81 and was accepted.

- Support SI-100-H015 ~~was found with~~ has the lug item 39A, field welded to the pipe. The weld was ~~approximately~~ 1/32" undersize. The welds were originally accepted on 1/22/79 and were accepted again during the support inspection on 10/28/81.

- Support SI-100-H034 was found with one undersize vendor lug weld (item 38 to the pipe) The weld was required to be a 1/4 inch fillet and measured to be 3/16 inch. The vendor welds were checked by site QC for size and accepted on 9/11/82

- Support SI-102-H008 was found with several weld problems. The vendor weld of item E to item B was required to be a 3/16 inch fillet but was 1/8 inch on 3 sides. Additionally there was rollover (or laps) at the corners. The field weld of item C to existing structure was required to have 1 inch

end returns on the welds and did not. The vendor weld was accepted by site QC on 8/18/81. The field weld was originally accepted on 10/14/80 and was accepted again on 8/18/81.

- Support SI 106 H011 was found with the pipe lug welds (items 38 and 38A to pipe) ~~within~~ closer than 1 inch to the ~~weld~~ adjacent pipe-to-pipe circumferential weld. The actual distance was 3/4 ~~of~~ an inch. Specification 13-PM-204 "Field Fabrication and Installation of Nuclear Piping Systems", paragraph 12.2.9 states that ~~no~~ welded attachments shall not be ~~located~~ installed within 1.0 inch of existing circumferential welds.

  The field lug welds were originally accepted on 2/12/79 and again during final support acceptance on 10/2/80.

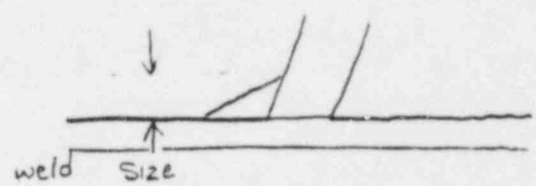
Support
SI-176 H001 was found with an undimensioned weld on the drawing, therefore the proper size of the weld could not be verified by the NRC inspector. The 3" long field fillet welds of item 84 to item B are not dimensioned on the support drawing 13-SI-176-H001 Revision 1. The welds were originally accepted on 12/18/80 and were accepted again on 9/15/82.

Support SI-176-H003 was found to have an undersize weld. The skewed (120°) fillet weld of item A to the containment insert measured 1/4 inch rather than the required 5/16th inch. The support weld was accepted on 7/14/80.

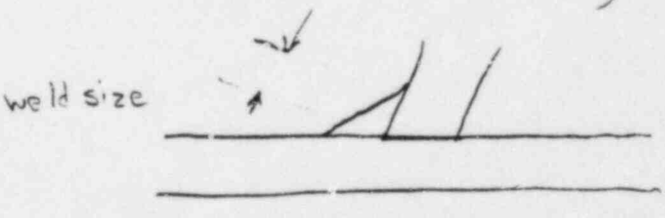
Further discussions with the Lead QC Engineer for Pipe Supports and the Lead Welding Engineer disclosed that the Welding Engineer had given verbal instructions to the QC Engineer that were contrary to the AWS D.1.1 code requirements for measuring the size of skewed fillet welds. Hence this undersize weld may be considered caused by

improper engineering information. It follows that all skewed fillet welds may require reinspection to the proper criteria.

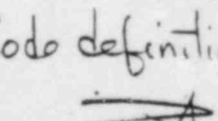
The AWS D.1.1 Code 1974 shows in Figure 2.7.1 that skewed fillet welds are measured thus

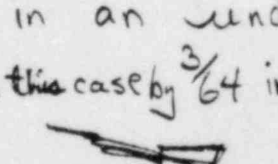


At Palo Verde the QC Engineer states weld are "measured" as shown below (it is not clear how this is "measured" since there is no access to one of the measurement points):



~~It is clear that~~ To "measure" by the Palo Verde method to a given size (e.g. 5/16 inch on a 120° weld) will result in an undersize weld by the Code definition (in this case by 3/64 inch)





Nonetheless QC inspectors are required by WPP/QCI 201.1 to inspect to AWS D1.1 criteria for this weld. The AWS D.1.1 criteria are clear and are not superceded by verbal instructions from engineering.

The failure of welding QC to identify pipe support weld conditions which are not in accordance with the drawing or welding code requirements is an apparent violation of NRC regulations (Enforcement item 50-528/83-34-01).

(3) Failure of engineering to include a non-safety load in a safe related pipe support calculation (one example)

10CFR50 Appendix B Criterion 5 requires in part that activities affecting quality shall be prescribed by documented instructions, procedures and drawings and shall be accomplished in accordance with these instructions.

Specification 13-PM-2.04 Revision 12 dated 4/7/93 Paragraph 12.1.2 states the design and location of all pipe supports shall be the responsibility of project engineering. Paragraph 12.1.4 states pipe supports designed by engineering will be shown on drawings and all design details will be shown including miscellaneous steel.

- Support SI-100-H-012 was found with a miscellaneous steel member installed which was used as a support for an Instrument Air line. The miscellaneous steel was not shown on the pipe support

drawing 13 SI-100-H-012 Revision 1.
The drawing does show the engineering design loads used in the analysis of the pipe support and the applicable calculation number (Problem No 513-E, point number 293

Engineering was contacted by telephone, and the responsible engineer stated that the loads from the miscellaneous steel member used as an instrument air support (IA-116-H0...) were not included in the design load for the ~~[illegible]~~ pipe support SI-100-H-012

The engineer stated the loads were inconsequential (29 lbs) and the instrument air ~~drawing had~~ calculation had been annotated to state attachment to the Safety Injection support was satisfactory. Now the [illegible] be stated the procedure requires the safety injection support calculation be ammended to include such loads.

The failure of engineering to include a non-safety design load in a safety related

pipe support calculation is considered an apparent violation of NRC regulations.
(Enforcement Item 50-528/83-34/XX)

c. Conclusions

(1) QC Inspections Based on the number of unacceptable ~~condition~~ pipe support conditions found, the conclusion that QC inspections are not adequate must be drawn. The underlying causes were not determined, that is whether the inadequate inspections were due to inadequate training or inadequate supervision or another cause was not determined.

· Technical significance Based on the minor nature of the items found and based on the usual pipe support design margins, the inspector considers that the probable result of the technical final analysis will show that if the defects were left undiscovered and uncorrected the technical consequences would have been nil. That is, the supports would have functioned satisfactorily. The technical resolution of the nonconformances generated by the licensee during

the inspection, as a result of the NRC findings, tended to confirm this opinion in that all that were technically resolved during the inspection were resolved as acceptable. The actual technical significance of the defects noted will be verified through followup of the licensees actions in response to the violations.

- Management significance The findings on pipe supports are disturbing from the standpoint of management significance since the undersize weld findings are repetative, i.e. problems with the inspection of pipe support welds had been identified previously. Initially in June 1979, the NRC identified undersize welds on pipe supports as a potential problem. A violation was issued in September 1979 and the licensee's expanded actions resulted in a reportable item in January of 1980. Corrective action was taken including procedure changes, personnel

training ~~and followup audits were performed by licensee QA as late as~~ and a complete reinspection of supports. It appears the actions and management followup were not effective in precluding repetition.

Table 1

	Support	Type	Finding	Problem Description	Degree of Inspection
1	SI 008 H001	S	Sat		Full
2	SI 008 H002	SS	Sat		Full
3	SI 008 H003	S	Sat		Full
4	SI 008 H004	SNB	Sat	~~Undersmall pipe not identified~~ ~~Clamp on Code Plate~~	Full
5	SI 008 H005	S	Sat		Full
6.	SI 089 H 008 (Partial Inspection)	S	Unsat	Penetration Seal Material on Slide Plate	Slide Plate only
7.	SI 099 H001	SNB	Sat		Full
8	SI 099 H002	S	Sat		Full
9	SI 100 H001	S	Sat	~~Partial inspection through penetration seal boot~~	Preserse only - seal boot on
10	SI 100 H002	S	Sat		Full
11	SI-100 H003	S	Unsat	① Loose clamp ② excessive angle	Full
12	SI-100 H004	S	Sat		Full
13	SI-100 H005	S	Unsat	① Location dimension varies more than allowed ② Lack of fill on stanchion to pipe field weld	Full
14	SI-100 H006	S	Sat	~~Partial Insp (Pipe Insulated).~~	All but lugwelds
15	SI 100 H007	SNB	Sat		Full
16	SI 100 H008	S	Sat		Full
17	SI 100 H009	S	Sat	~~Partial (Pipe Insulated)~~	All but lugwelds
18	SI 100 H010	S	Unsat	TI [illegible] Vendor w. lap and slag	Full
19	SI 100 H011	S	Sat		Full
20	SI 100 H012	S	Unsat	Non safety hanger loads not included	Full

	Support	Type	Finding	Location Description or NRC Comments	Degree of Inspection
21	SI 100 H013	S	Sat		Full
22	SI 100 H015	S	Unsat	Lug weldsize	Full
23	SI 100 H016	S	Sat		Full
24	SI 100 H 017	S	Sat		Full
25	SI 100 H018	S	Sat		Full
26	SI 100 H019	S	Sat		Full
27	SI 100 H020	SNB	Sat		Full
28	SI 100 H021	S	Sat		Full
29	SI 100 H022	S	Sat	Inspected for Location/Configuration/Clearances only	Location/Configuration/Clearances only
30	SI 100 H023	S	Sat	"	"
31	SI 100 H024	S	Sat	"	"
32	SI 100 H025	S	Sat	"	"
33	SI 100 H026	S	Sat	"	"
34	SI 100 H027	S	Sat	"	"
35	SI 100 H028	S	Sat		Full
36	SI 100 H029	S	Sat	Partial (Piping insulated)	All but pipe lugs
37	SI 100 H031	S	Sat	~~Lug welds only~~	Lug welds only
38	SI 100 H032	S	Sat	~~Lug welds only~~	Lug welds only
39	SI 100 H034	S	Unsat	Under size lug weld	Full
40	SI 100 H035	S	Sat	~~Lug welds only~~	Lug welds only
41	SI 100 H036	S	Unsat	Configuration differs from drawing	Full

	Support	Type	Finding	Problem Description or NRC action	Degree of Insertion
42	SI 101-H00A ~~Partial Insertion~~	SS	Unsat	Loose Locknut	Locknut only
43	SI 102 H00A	S	Sat		Full
44	SI 102 H00B	S	Unsat	Weld deficient (Undersize weld, rollover, no end returns)	Full
45	SI 105 H00B	S	Sat		Full
46	SI 105 H00C	S	Sat		Full
47	SI 105 H00D	S	Sat		Full
48	SI 105 H00E	S	Sat		Full
49	SI 106 H001	S	Unsat	Lack of Lug Contact area with support members	Full
50	SI 106 H002	S	Sat		Full
51	SI 106 H003	S	Sat		Full
52	SI 106 H004	S	Sat		Full
53	SI 106 H005	S	Sat		Full
54	SI 106 H006	S	Sat		Full
55	SI 106 H007	S	Sat		Full
56	SI 106 H008	SNB	Sat		Full
56	SI 106 H009	S	Sat		Full
57	SI 106 H010	S	Sat	~~Partial (Pipe insulated)~~	All but pipe lugs
(58)	SI 106 H011	S	Unsat	Pipe lug weld w/in 1" of circumferential weld	Full
59	SI 106 H012	S	Sat	~~Partial (Pipe insulated)~~	All but pipe lugs
60	SI 106 H013	S	Sat	~~Partial (Pipe insulated)~~	All but pipe lugs

Support	Type	Finding	Problem Description or Discrepancy	Degree of Description
61 SI 106 H014	S	Sat		Full
62 SI 106 H015	S	Sat		Full
63 SI 106 H016	S	Sat		Full
64 SI 106 H023	S	Sat		Full
65 SI 176 H001	S	Unsat	Undimensioned weld on drawing	Full
66 SI 176 H002	S	Sat		Full
67 SI 176 H003	S	Unsat	Undersize fillet weld	Full
68 SI 176 H004	SS	Sat	~~Lock Nut & clamp Shims~~	Full

Legend

S = Support

SS = Restraint (Sway Strut)

SNB = Snubber

STATUS: AA

VENDOR: H&A

PALO VERDE NUCLEAR GENERATING STATION — NONCONFORMANCE REPORT

NO. PA-7229 PAGE 1 OF ___

1. UNIT	2. MO DAY YR	3. DRAWING/PART NO.	REV.	4. ITEM DESCRIPTION	5. ITEM LOCATION
ONE	9 28 83	13-S1-106-H-011	2	PIPE SUPPORT WELDED ATTACHMENT - LUGS	AUX. BLDG.

6. Q CLASS	7. STARTUP SYSTEM NO.	8. SERIAL NO.	9. SUBCONTRACTOR/SUPPLIER/BECHTEL	10. P.O. OR SPEC NO.	11. ASME AUTHORIZED INSPECTION REQ'D
Q1B	1S1.09	N/A	BECHTEL	13-PM-204 (R12)	☒ YES ☐ NO AS 9/28/83

ITEM	12. DESCRIPTION LIST IN ORDER: NO. PCS., DWG/SPEC REQMT., PRESENT CONDITION	16. FIELD ENGR DECISION	17. ☒ FIELD RECOMMENDED DISPOSITION ☐ ENGINEER DISPOSITION REQ'D. ☐ ENGINEER CONCURRENCE REQ'D.
	PER REWORK DISPOSITION OF NCR PA-259, FIELD WAS TO REMOVE LUGS AND REINSTALL "IN CORRECT ALIGNMENT" ACCORDING TO DESIGN DWG. REQUIREMENTS. PER 13-PM-204, PARA. 12.2.9(d) WELDED ATTACHMENTS SHALL NOT BE INSTALLED WITHIN 1" OF EXISTING CIRCUMFERENTIAL PIPING WELDS. FIELD HAS INSTALLED LUGS 3/4" FROM PIPE WELD.	USE-AS IS	THE 1" DISTANCE FROM AN EXISTING PIPE WELD IS A BECHTEL APPLIED REQUIREMENT AN DOES NOT REFLECT A CODE VIOLATION. THE WELDING OF THE ADVERSELY LUGS AT EXISTING POSITION WILL NOT AFFECT THE HEAT EFFECTED ZONE OF THE PIPE WELD. REFERENCE THIS NCR ON THE APPLICABLE N-5 CODE DATA PACKAGE A. Spina 9/28/83

13. REPORTED BY:	15. INSPECTION/VALIDATION/REVIEW DATE
US NRC	[signature] 9/28/83

15A. REPORTABILITY EVALUATION: NOT REPORTABLE: ☑ OR DER NO. ___ REVIEWERS: R/E [signature] QA [signature] DATE 9/29/83

19. ACCEPTANCE OF REWORK/REPAIR
☐ QC ENGR ___ DATE ___ AUTHOR. INSP ___ DATE ___
☐ FIELD ENGR

18. DISPOSITION CONCURRENCE
PROJ FIELD ENGR [signature] 9/25/83 DATE
NUCLEAR GROUP SUPV N/A (IF REQUIRED) DATE
GROUP SUPV [signature] 9/28/83 DATE
PROJ ENGR [signature] 9/28/83 DATE
AUTHORIZED INSPECTOR [signature] DATE
QA ENGR [signature] 9-28-83 DATE
SEP 28 '83

14. ASSUMED CAUSE OF DISCREPANCY
FIELD AND QCE ERROR
INITIATOR [signature] DATE 9/28/83

PF-794 (10407) 12/81

#5

STATUS: AA

SUPERSEDES NCR NO. PA7143 VENDOR: HKC

Rich Lind 9-28-83

PALO VERDE NUCLEAR GENERATING STATION — NONCONFORMANCE REPORT

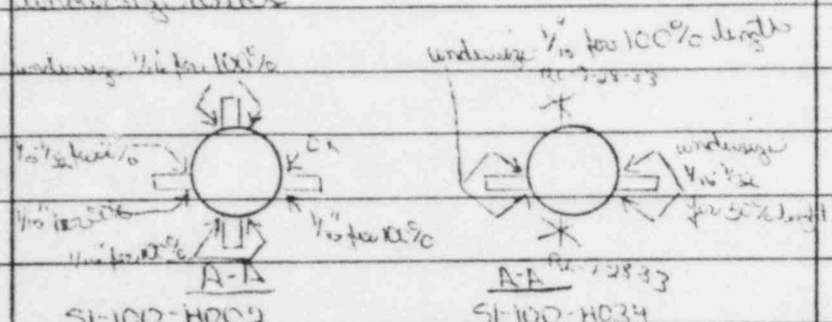
PA NO. 7230 — PAGE 1 OF 1

1. UNIT	2. MO DAY YR	3. DRAWING/PART NO.	REV.	4. ITEM DESCRIPTION	5. ITEM LOCATION
1	9 26 83	13-SI-100-H034 13-SI-100-H002	1 6	Pipe Supports	Aux El 40

6. Q CLASS	7. STARTUP SYSTEM NO.	8. SERIAL NO.	9. SUBCONTRACTOR/SUPPLIER/BECHTEL	10. P.O. OR SPEC NO.	11. ASME AUTHORIZED INSPECTION REQ'D.
QIB	1-SI-09	N-4839 N-4470	Pullman Power Pdts	13-PM-201 (10)	☑ YES ☐ NO

12. DESCRIPTION — LIST IN ORDER: NO. PCS., DWG/SPEC REQMT., PRESENT CONDITION

During a Walkdown of the 1-1 Safety Injection System it was found that the welds which attach the lug item (35) to SI-100-S004 + S002 were undersize. The required weld size was 1/4, see sketch for undersize areas



16. FIELD ENGR DECISION

17. ☐ FIELD RECOMMENDED DISPOSITION ☐ ENGINEER CONCURRENCE REQ'D. ☐ ENGINEER DISPOSITION REQ'D.

PAPER WORK CORRECTION:

US-RS-15 PER CONCURRENCE WITH ENG
REF AS BUILT CALC
513-E, 513E

15A. REPORTABILITY EVALUATION: NOT REPORTABLE: ☑ OR DER NO. ______

REVIEWERS: R/E W H Johnston; QA R.H. Beal...; DATE 9-28-83

13. REPORTED BY: USNRC

15. INSPECTION/VALIDATION/REVIEW DATE: R.H. Beal... 9-28-83

19. ACCEPTANCE OF REWORK/REPAIR

☐ QC ENGR ______ DATE — AUTHOR. INSP ______ DATE

☐ FIELD ENGR

18. DISPOSITION CONCURRENCE

PROJ FIELD ENGR ______ DATE — NUCLEAR GROUP SUPV ______ (IF REQUIRED) DATE

GROUP SUPV ______ DATE — PROJ ENGR ______ DATE

AUTHORIZED INSPECTOR ______ DATE — QA ENGR ______ DATE

14. ASSUMED CAUSE OF DISCREPANCY

Vendor Error

INITIATOR Rich Lind DATE 9-28-83

PF-794 (10407) 12/81

#6

97512

MOC ~~[illegible]~~ 10.26.79

PALO VERDE NUCLEAR GENERATING STATION

BECHTEL

FIELD CHANGE REQUEST

JOB NO. 10407

1. PAGE 1 OF 1	2. NO. 2508-P	13A. DCN NO. N/A	
QUALITY CLASS Q	3. DATE MO 8 DAY 10 YR 78	13B. SCN NO. * N/A	

4. REF DWG OR SPEC: 13-PM-204 REV 4

5. TITLE: Field Fab & Insall. of Nuclear Piping Systems

6. DESIGN ORIGIN: [X] ENGINEERING [ ] SUPPLIER (IDENTIFY BY NAME)

7. [X] UNIT 1 [X] UNIT 2 [X] UNIT 3 ~~[X] COMMON~~

8. EXISTING CONDITION

SECTION 12.3 "ALLOWABLE INSTALLATION TOLERANCES FOR PIPE SUPPORTS" DOES NOT ADDRESS ITSELF TO TOLERANCES REQUIRED FOR PIPE RACK PROBLEMS. PARTICULARLY PROBLEMS DUE TO WALLS ~~AND SLABS~~ NOT BEING VERTICAL AND FLAT, BUT WITHIN ALLOWABLE INSTALLATION TOLERANCES FOR CONCRETE.

9. CHANGE REQUEST/SKETCH

ADD SECTION 12.3.14 AS FOLLOWS:

12.3.14 WHERE PIPE SUPPORT OR PIPE RACK BEAMS CANTILEVER OFF OR SPAN BETWEEN INSERT PLATES, THE FIELD MAY ADD A PLATE OR PLATES BETWEEN THE BEAM AND INSERT PLATE PER THE FOLLOWING GUIDELINES.

1. PSDFE SHALL DETERMINE THE PROPER PLATE AND WELD SIZE REQUIRED.
2. THE CAPACITY OF THE WELD BETWEEN THE ADDED PLATE AND THE INSERT PLATE SHALL BE EQUAL TO OR GREATER THAN THE CAPACITY OF THE WELD BETWEEN THE ORIGINAL BEAM AND INSERT PLATE.
3. THE ADDED PLATE SHALL BE A MINIMUM OF 1/2" THICK.
4. PLATE WIDTH AND LENGTH SHALL BE SUCH THAT THE WELD BETWEEN ORIGINAL BEAM AND INSERT PLATE CAN BE ACCOMPLISHED. HOWEVER THE PLATE SHALL NOT EXTEND MORE THAN 2" BEYOND THE WELD BETWEEN THE BEAM AND THE ADDED PLATE.

CONCURRED WITH: AL PALMQUIST, HARRY FREEDY

CONSTRUCTION

10. REVIEWED BY: D. Montgomery 8/10/78 DISCIPLINE FIELD ENGINEER DATE

H. Freedy 9.8.78 DISCIPLINE FIELD ENGINEER DATE

11. PREPARED BY: MARK R. PATTERSON

12. APPROVAL OF FIELD DISPOSITION: A.K. Fruit 8-14-78 PROJECT FIELD ENGINEER DATE

13. BECHTEL ENGINEERING [X] APPROVED [ ] DISAPPROVED

Dennis M. Dean for HF 8-23-78 GROUP SUPERVISOR DATE

NA NUCLEAR GROUP SUPERVISOR (IF REQUIRED) DATE

[signature] 9/7/78 PROJECT ENGINEER DATE

B. Hall 8/14/78 PQAE (Q-LISTED, R1 AND SINGLE LINE DWGS) (QUALITY CLASS Q AND R SPECS) DATE

RECEIVED SEP 21 1978 CONSTRUCTION

REMARKS: ~~Resubmit at later date for discussions in Eng./Const. Interface meeting held 8/1/78.~~

DISTRIBUTION: ORIGINAL - PRINT COORDINATOR; COPIES TO - CLIENT, SURVEY, DISCIPLINE, AND RESIDENT ENGINEER

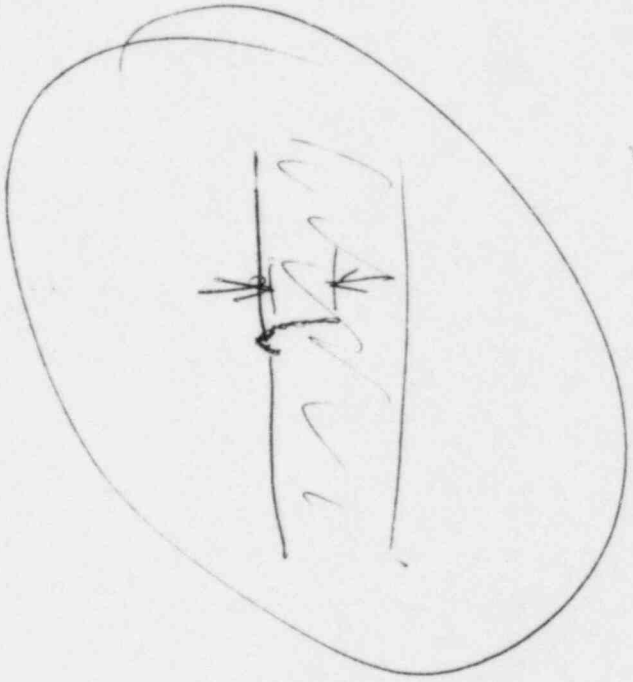
ADDITIONAL DISTRIBUTION: [ ] PROJECT PROCUREMENT MANAGER [ ] COST TREND ENGINEER

PF-1529 (10407) 6/78

* SCN 1349 ISSUED TO INCORPORATE THIS FCR INTO THE SPEC. R. Daskow 11-2-78 PER TELECON W/ B. PECK Q.E.

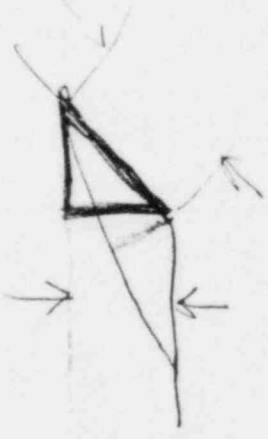
#7

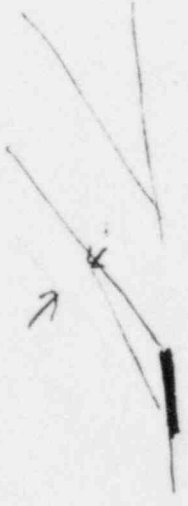
SI 100 - H010

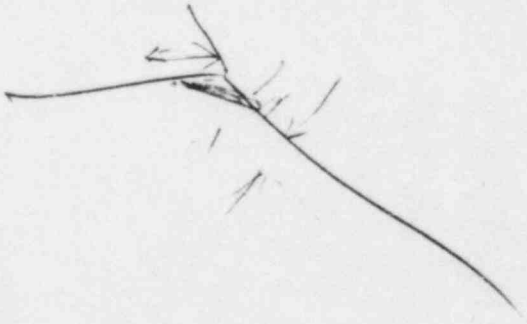


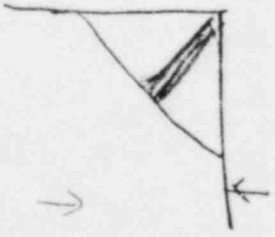
Linear Indication requires buffing

(707)(L)









POWER DIVISION

LARGE PIPE CONTROL CARD

SPOOL TAG NUMBER: [illegible]

SIZE	LENGTH	P&ID NO. / COORD	REV.	PROJ CLASS	AREA

MAT'L CLASS	S/U SYSTEM	MRR NO.	STORAGE LOC	VENDOR
			31218 D	

RECEIVED	FPT	DATE	INSTALLED	FOREMAN	DATE

ISOMETRIC DWG NO.	REV.	FCR	DCN
	9	NA	NA

TASK NO.	INSPECTION ITEM	AFE	DATE	QCE	DA
1.0	SPOOL NUMBER MARKING VERIFIED	[signature]	10/9/80	BPC 115 QCE	10/
2.0	CONFIGURATION & ORIENTATION PER ENGR DWG	[signature]	10/9/80	BPC 115 QCE	10/
3.0	ORIENTATION OF FLOW ELEMENTS, ETC.	NA		N/A	
4.0	INTERNAL CLEANLINESS INSPECTION LEVEL: F B D 10 10 8	[signature]	11/9/80	BPC 115 QCE	10/
5.0	SURFACES FREE OF INJURIOUS DEFECTS	[signature]	11/9/80	BPC 115 QCE	10/
6.0	RECORD NCR & MCN APPLICABLE TO INSTALLATION	NA		N/A	
7.0	INSTALLATION ACCEPTED Q-1.10-1 1-51-105-2001	[signature]	11/9/80	BPC 115 QCE	10/

REMARKS: INFO TRANSFERED FROM SUPPLEMENTARY SHEET DATED 3/16/79 QC HCA ~~LT~~ 12/4/80

LAO-0478

#8

RP3(T) MRR NO. 17993

RETENTION TIME Lt

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES

(As Required by the Provisions of the ASME Code Rules)

1. Fabricated by Pullman Kellogg, Paramount, CA (Name and Address of Fabricator) Order No. 2810

2. Fabricated for Bechtel Power Corp., Norwalk, CA (Name and Address) Order No. 10407-13-PM-201

3. Owner Arizona Public Service Co. 4. Location of Plant 3 miles south of Wintersburg, AZ

5. Piping System Identification Bechtel Dwg.R-2 SAFETY INJECTION & SHUTDOWN COOLING (Brief description of intended use, main coolant etc.) Serial No. N-5031

(a) Drawing No. 13-P-SIF-203 Prepared by Bechtel Power Corp., Norwalk, CA

(b) National Board No. N/A

6. The material, design, construction, and workmanship complies with ASME Code Section III, Class 2

Edition 1974, Addenda Date Summer 1975, Case No. -----

Remarks: Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report NOT APPLICABLE (Name of Part – Item number, Manufacturer's name, and Identifying stamp)

7. Shop Hydrostatic Test None psi.

8. Description of piping inspected 1-Piping Ass'y. Pc. Mk. 1-SI-105-S-001 (include – mark no. – material spec. – nom. pipe size – schedule or thickness – length – fittings – flanges, etc.)

Fabrication Drawing F- 284

PIPE: 4" SCH 80S SMLS SA312 TP304

B.W. FTG'S: 4" SCH 80S x 2" SCH 160 SA403 WP304

4" SCH 120 x 2" SCH 160 SA403 WP304

N.D.E: 100% R.T. ALL GIRTH BUTT WELDS

100% L.P. ALL ATTACHMENT WELDS

Pullman Power Products
Division of Pullman Incorporated
QVR IDENTIFICATION
2810 / F-284 /
PER P. ITEM M

We certify that the statements made in this report are correct and that the fabrication of the described piping conforms with the requirements of SECTION III of the ASME BOILER AND PRESSURE VESSEL CODE.

Date 8/30/77 Signed Pullman Kellogg (Fabricator) By [signature]

Certificate of Authorization Expires 11/30/77 Certificate of Authorization No. N-776

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of California and employed by D.I.S. of State of CA have inspected the piping described in this Data Report on 8-31 1977, and state that to the best of my knowledge and belief, the Manufacturer has constructed this piping in accordance with the applicable Subsections of ASME Code, Section III.

By signing this certificate, neither the Inspector nor his employer make any warranty, expressed or implied, concerning the piping in this Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 8-31-77, 19[illegible]

#8A

04.1(T)-3 1-SI-105

FORM NPP-1 (back)

9. Description of Field Fabrication

10. Field Hydrostatic Test _____ _____ psi.

We certify that the field fabrication of the described piping conforms with the requirements of SECTION III of the ASME BOILER AND PRESSURE VESSEL CODE, Class _____, Edition _____, Addenda Date _____ Case No. _____

Date _____, 19____ Signed _____ By _____
(Fabricator) (Representative)

Our Certification of Authorization to use the _____ Symbol Expires _____ 19____

Certificate of Authorization No. _____

CERTIFICATE OF FIELD FABRICATION INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of _____ _____ and employed by _____ of _____ have compared the statements in this Manufacturer's Data Report with the described piping and state that the parts referred to as data items _____, not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed this piping in accordance with the applicable section of the ASME CODE SECTION III.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the piping described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date _____ 19____

_____ Commissions _____
Inspector National Board, State, Province and No.

Exit Matrix, 9/30/83

NAME	ORGANIZATION
J. MARTIN	REGIONAL ADMINISTRATOR, RII
T. BISHOP	DIVISION DIRECTOR, RII
W. ALBERT	TEAM LEADER, RII
T. YOUNG JR	SECTION CHIEF, RII
P. Narbut	USNRC Inspector
W. J Wagner	" "
J. F. BURDOIN	"
L. E. VORDERBRUEGGEN	"
[illegible]	"
[illegible]	"
C. J. Crane	Consultant to NRC (Electrical)
[illegible]	[illegible]
[illegible]	[illegible]
D. J. FOGARTY	SO. CALIF. EDISON
W. J. STUBBLEFIELD	BECHTEL CORP
A Bill Beach	OIE, SR REACTOR ENGINEER
D. R. HAWKINSON	Bechtel
A.C. ROGERS	APS
MARK DE MICHELE	APS
CARL ANDOGNINI	APS.
JOHN A. ROEDEL	APS
T. G. WOODS, JR.	APS
W. E. [illegible]	APS [illegible]
E. E. Van Brunt, k	APS-VP Nuc. Proj. (#3)

Exit Meeting 3/30/83

Name	Organization
KEITH TURLEY	APS
DAN McCANDY	APS
Joe Bynum	APS
John E Kirby	APS
Dave Bedford	PNM
R.E. YORK	"
DON WATERS	EA DOE
Art Gehn	Snell & Wilmer
Tom Novak	NRC
Don Farnacht	ABS Sole Const.
Manny Lacatra	NRC.
Jim Hanchett	NRC Region V

Walton

Summary of inspection activities for G. Walton and W. Albert for the period of September 6 through September 14, 1983.

Inspection of structural steel was performed in the following locations.

HPSI Train A Pump Room

Areas Inspected:

Bolted connections and welded connections throughout the pump room

Amount of Inspection:

15 structural joints in the gallery steel

Findings:

In two bolted connections at the 50' level 2 bolts in a 3 bolt connection and 4 bolts in a 6 bolt connection were found loose.

Walton Don't recc. IONC based on others sampled appeared isolated

HPSI Train B Pump Room

Areas Inspected:

Bolted connections and welded connections

Amount of Inspection:

15 structural joints in the gallery steel

Findings:

All items were found acceptable.

Auxiliary Building Elevation 95 Penetration Area, Elevation 87-98 Pipe Chase, Elevation 51' Pipe Way

Areas Inspected:

Bolted connections and welded connections in the areas of the auxiliary

#10

building which contain the suction and discharge lines associated with the HPSI Train A.

Amount of Inspection:

13 bolted connections and 13 welded connections in the 51' elevation, Pipe Way

94 connections in the Auxiliary building penetration area

40 connections in the Auxiliary building pipe chase. Elevation 87-98.

Findings:

W8 X31 structural members Racks B-79 and B-75 located in Auxiliary building (pipe chase) 13 welds were found to have undersize fillet welds and/or undercut, drawing 13-S-ZAS-536 Rev. 3. The inspector found fillet sizes down to 5/32". The requirements contained in drawing 13-S-ZAS-536 Rev. 3 show a 5/16" fillet weld required. Undercut approximately 1/16" deep was found. Per AWS D1.1 1/32" of undercut is unacceptable. 10NC1

W 16 X 36 structural members located in the pipe way, elevation 51'6" were found with undersize fillet welds. A total of 6 welds were found with fillet sizes of 1/4", ~~1/4", 7/32"~~, 1/4", 7/32", 7/32" ~~with~~ the required fillet size ~~of~~ is 5/16" as shown on drawings 13-C-IAS-570 Rev.8 and 13-C-IAS-500 Rev. 10.

On column line A4, elevation 95, at piping penetration 77 a vertical column which support S1-106-H22 connects to, the inspector found 10 - A325 bolts installed without washers. On column line A4, 7' west of AC, elevation 97 in the Auxiliary building the inspector found 10, A325 bolts installed without washers. In accordance with AISC paragraph Delete

1.23.5 "Bolts tightened by means of a calibrated wrench shall be installed with a hardened washer under the nut or bolt head, whichever is the element turned in tightening". Based on the fact that 2 bolts in each connection was required to be torque tested, the washer requirement would apply.

Containment Building

Areas Inspected:

Elevation 86' - 100' at HPSI

Lines A248-BCAA, E176-CCBA, E157-CCBA, A236-CCBA, E218-CCBA

Amount of Inspection:

110 connections, both bolted and welded

Findings:

All inspected items were found acceptable.

Other Items Inspected Associated with Structural Steel

Torque Testing of Bolted Connections

Areas Inspected:

HPSI Pump Room A

AD06 Pipe Way

Containment Building

Amount of Inspection:

Pump Room A 10 bolts

Pipe Way AD06 28 bolts

Containment building 24 bolts

Findings:

Pipe Way - 1 bolt turned 1 flat, 60° rotation. Three bolts turned 1/8 to 1/2 flat. All others were OK.

Pump Room A - 1 bolt turned 1/2 flat (30°). All others were OK.

Containment Building - 1 bolt turned 3/4 of a flat. (45°), 3 bolts turned 1/2 flat (30°), 3 bolts turned 1/4 flat (15°). All others were OK.

Structural Steel Spec. and Proc. Review

Spec 13-CM-320 Rev. 7

Weld Proc. P1-A-LH (structural)

Inspection of Piping Penetrations

Areas Inspected:

Visual Examination of Flued Heads, Record review, including milltest reports, weld checklist, weld procedures and associated procedure qualifications.

Amount of Inspection:

Penetrations 13, 14, 15, 16, 62, 69 and 77

Findings:

All items inspected were found acceptable.

Concrete Expansion Anchor Bolt Installation

Areas Inspected:

HPSI Pump Room A Instrument Sensing Line

Amount Inspected :

1 4 bolt connection

Findings:

Concrete expansion anchor bolt installation:

Instrument sensing line 1J SIN-PT-308

Hilti bolt spacing from adjacent unistrut installed is 2" distance.

In accordance with the requirement specified in work plan procedure No. 24.1 Rev. 6 dated 3/7/83, ~~tilted~~ titled Installation and Testing of Concrete Expansion Anchors the minimum spacing required is 5".

Paragraph 8.9.1 of Specification 13-CM-307 Rev. 8 Installation Specification for Design, Installation and Testing of Concrete Anchors states: The minimum distance a new expansion anchor may be located from an unused hole or an unused bolt shall be one-half the minimum specified spacing, unless minimum embedment for the new expansion anchor is obtained beyond the depth of the unused hole. Per discussions with Randy Butler Civil Lead Discipline Engineer for Bechtel, he interpetes the min. distance from an adjacent unistrut to be the one half, or 2½". The inspector found the above support with a hilti bolt installed within 2" of a unistrut.

Paragraph 7.4 "A reduction in the minimum center to center spacing is allowable providing the allowable design load is reduced as shown on the Capacity Reduction Curve of Attachment C. The spacing shall not be less than one-half the spacing given in Attachment A, A-1 and B."

List of Pipe Supports - Norbat

	Hanger	Type	Finding	Problem Description or Notes
1	SI ~~099~~ -- H001	S	Sat.	
2	SI 008 H002	SS	Sat	
3	SI 008 H003	S	Sat	
4	SI 008 H004	SNB		Underwall pipe not identified Clamp on Code Plate
5	SI 008 H005	S	Sat	
	—			
6	SI 089 · H008 (Partial Inspection)	S	Oper Item	Penetration Seal Material on Side Plate
7	SI 099 H001	SNB	Sat	
8	SI 099 H002	S	Sat	
9	SI 100 H001	S	—	Partial inspection through penetration seal boot
10	SI 100 H002	S	Sat	
11	SI · 100 H003	S	IONC	① Loose clamp ② excessive angle
12	SI · 100 H004	S	Sat	
13	SI · 100 H005	S	IONC	① Location dimension varies more than allowed ② Lack of fill on stanchion to pipe field weld
14	SI · 100 H006	S	Sat	Partial Insp (Pipe Insulated)
15	SI 100 H007	SNB	Sat.	
16	SI 100 H008	S	Sat	
17	SI 100 H009	S	Sat	Partial (Pipe Insulated)
18	SI 100 H010	S		Incorrect
19	SI 100 H011	S	Sat	
20	SI 100 H012	S	IONC	Nor safety hanger loads not included

#11

	Hanger	Type	Finding	Problem Description or NRC Code
21	SI 100 H013	S	Sat	
22	SI 100 H015	S	IONC	Field * Lug weld size and configuration
23	SI 100 H016	S	Sat	
24	SI 100 H 017	S	Sat	
25	SI 100 H018	S	Sat	
26	SI 100 H019	S	Sat	
27	SI 100 H020	SNB	Sat	
28	SI 100 H021	S	Sat	
29	SI 100 H022	S	Sat	Inspected for Location/Configuration/Clearances only
30	SI 100 H023	S	Sat	"
31	SI 100 H024	S	Sat	"
32	SI 100 H025	S	Sat	"
33	SI 100 H026	S	Sat	"
34	SI 100 H027	S	Sat	"
35	SI 100 H028	S	Sat	
36	SI 100 H029	S	Sat	Partial (Piping insulated)
37	SI 100 H031	S	Sat	Lug Welds only
38	SI 100 H032	S	Sat	Lug Welds only
39	SI 100 H034	S	IONC	Under size lug weld
40	SI 100 H035	S	Sat	Lug Welds only
41	SI 100 H036	S	IONC	Configuration differs from drawing

	Hanger	Type	Finding	Problem Description or NPC action
42	SI 101-H00A Partial Insertion	SS	Open	Loose Lockrut
43	SI 102 H00A	S	Sat	
44	SI 102 H00B	S	IONC	Undersize weld, rollover, no end returns
45	SI 105 H00B	S	Sat	
46	SI 105 H00C	S	Sat	
47	SI 105 H00D	S	Sat	
48	SI 105 H00E	S	Sat	
49	SI 106 H001	S	IONC	Lack of Lug Contact area with support member
50	SI 106 H002	S	Sat	
51	SI 106 H003	S	Sat	
52	SI 106 H004	S	Sat	
53	SI 106 H005	S	Sat	
54	SI 106 H006	S	Sat	
55	SI 106 H007	S	Sat	
56	SI 106 H008	SNB	Sat	
56	SI 106 H009	S	Sat	
57	SI 106 H010	S	Sat	Partial (Pipe Insulated)
(58)	SI 106 H011			Inspection Required
59	SI 106 H012	S	Sat	Partial (Pipe Insulated)
60	SI 106 H013	S	Sat	Partial (Pipe Insulated)

Hanger	Type	Finding	Problem Description or Disposition
61 SI 106 H014	S	Sat	
62 SI 106 H015	S	Sat	
63 SI 106 H016	S	Sat	
64 SI 106 H023	S	Sat	
65 SI 176 H001	S	IONC	Undimensioned weld on drawing
66 SI 176 H002	S	Sat	
67 SI 176 H003	S	IONC	Undersize fillet weld
68 SI 176 H004	SS		Need N5 on clamp Shim