REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8103300087 DOC.DATE: 81/03/12 NOTARIZED: NO DOCKET #
FACIL:50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga 05000275
50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
AUTH.NAME AUTHOR AFFILIATION
CRANE,P.A. Pacific Gas & Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
MIRAGLIA,F.J. Licensing Branch 3

SUBJECT: Forwards addl info requested by NRC 800827 ltr re application for OL.Submittal addresses:main feedwater & steam piping feedwater isolation valves FCV-441,FCV-44, penetration sleeves & flued head & equipment hatch. See rpt

DISTRIBUTION CODE: B001S COPIES RECEIVED:LTR 1 ENCL 40 SIZE: 53
TITLE: PSAR/FSAR AMDTS and Related Correspondence

NOTES:1 cy:J Hanchett (Region V) 05000275
1 cy:J Hanchett (Region V) 05000323

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
ACTION:	A/D LICENSNG	1	0	MIRAGLIA,F.	1	0
	LEE,J.	1	0	BUCKLEY,B. 04	1	1
INTERNAL:	ACCID EVAL BR26	1	1	AUX SYS BR 07	1	1
	CHEM ENG BR 08	1	1	CONT SYS BR 09	1	1
	CORE PERF BR 10	1	1	EFF TR SYS BR12	1	1
	EMERG PREP 22	1	0	EQUIP QUAL BR13	3	3
	GEOSCIENCES 14	1	1	HUM FACT ENG BR	1	1
	HYD/GEO BR 15	2	2	I&C SYS BR 16	1	1
	I&E 06	3	3	LIC GUID BR	1	1
	LIC QUAL BR	1	1	MATL ENG BR 17	1	1
	MECH ENG BR 18	1	1	MPA	1	0
	NRC PDR 02	1	1	OELD	1	0
	OP LIC BR	1	1	POWER SYS BR 19	1	1
	PROC/TST REV 20	1	1	QA BR 21	1	1
	RAD ASSESS BR22	1	1	REAC SYS BR 23	1	1
	REG FILE 01	1	1	SIT ANAL BR 24	1	1
	STRUCT ENG BR25	1	1	SYS INTERAC BR	1	1
EXTERNAL:	ACRS 27	16	16	LPDR 03	1	1
	NSIC 05	1	1			

MAR 31 1981

TOTAL NUMBER OF COPIES REQUIRED: LTTR ~~51~~ 58 ENCL ~~51~~ 52

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

P. O. BOX 7442 • 77 BEALE STREET, 31ST FLOOR, SAN FRANCISCO, CALIFORNIA 94106
TELEPHONE (415) 781-4211 TELECOPIER (415) 543-7813

MALCOLM H. FURBUSH
VICE PRESIDENT AND GENERAL COUNSEL

ROBERT OHLBACH
ASSOCIATE GENERAL COUNSEL

CHARLES T. VAN DEUSEN
PHILIP A. CRANE, JR.
HENRY J. LaPLANTE
JOHN B. GIBSON
ARTHUR L. HILLMAN, JR.
CHARLES W. THISSELL
DANIEL E. GIBSON
ASSISTANT GENERAL COUNSEL

GILBERT L. HARRICK
GLENN WEST, JR.
JOSEPH I. KELLY
HOWARD V. GOLUB
JAMES C. LOSSOON
ROBERT L. BORDON
PETER W. HANSCHEN
RICHARD F. LOCKE
DAVID L. LUDVIGSON
WILLIAM H. EDWARDS
F. RONALD LAUPHEIMER
ROBERT R. RICKETT
DAVID J. WILLIAMSON
BRUCE R. WORTHINGTON
EDWARD J. MCDANNEY
DAN GRAYSON LUBBOCK
JACK F. FALLIN, JR.
BERNARD J. DELLASANTA
JOSHUA BARLEY
JOSEPH S. ENGLERT, JR.
ROBERT L. HARRIS
DOUGLAS A. OGLESBY
J. PETER BAUMGARTNER
JOHN N. FRYE
J. MICHAEL REIDENBACH
IVOR E. BAMSON
SHIRLEY A. WOO
SENIOR COUNSEL

DAVID W. ANDERSON
DIANA BERGHAUSEN
LEIGH S. CASSIDY
AUDREY DAINES
DONALD O. ERICKSON
PATRICK D. GOLDEN
PAULA Y. HAYNES
RICHARD C. JONES
HARRY W. LONG, JR.
JOHN R. LOW
ROBERT S. MCLENNAN
RICHARD H. MOSS
SHIRLEY A. SANDERSON
JACK W. SHUCK
KENNETH YANG
NATHAN T. ANNANO
STEVEN P. BURKE
PAMELA CHAPPELLE
GARY P. ENCINAS
DAVID C. GILBERT
STEVEN F. GREENWALD
JUAN M. JAYO
MEREK E. LIPSON
JESSICA LORING
A. KIRK MCKENZIE
RICHARD L. MEISS
ROGER J. PETERS
JO ANN SHAFFER
LOUIS E. VINCENT
ATTORNEYS

March 12, 1981

Mr. Frank J. Miraglia, Jr., Chief
Licensing Branch No. 3
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Docket No. 50-275
Docket No. 50-323
Diablo Canyon Units 1 and 2

Dear Mr. Miraglia:

Enclosed is additional information in response to Items 1 and 2 of paragraph 6 of the enclosure to the letter dated August 27, 1980 from Mr. A. Schwencer. Attachment 1 is a list of the documentation enclosed. We believe this documentation to be complete and to satisfy the requirements addressed.

We have also reviewed the estimate of the lowest service metal temperature in relation to the definition given in the footnote to Section NE-2331 to the 1977 Edition of the ASME Boiler and Pressure Vessel Code.

The containment lowest service metal temperature for Diablo Canyon was determined from the following data:

B001
S
1/40

1. Atmospheric ambient conditions are obtained from Appendix 2.3A of the FSAR, Page 78, Figure 1-15. The mean minimum ambient temperature is 48°F.

2. In accordance with Operating Procedure H-2, the containment is operated at below 120°F during normal operation. The average operating temperature is conservatively assumed for this purpose to be 100°F.

The lowest service metal temperature occurs for materials on the containment boundary which are exposed to outside air temperature, such as the equipment hatch. In this case, the lowest service

A 8103300087

metal temperature, calculated as the arithmetic mean of the inside and outside temperatures, is 74°F. This value can be used in determining compliance with the various components of 10 CFR 50, Appendix A, Criterion 51 - Fracture Prevention of Containment Pressure Boundary.

Two advance copies of this submittal have been sent by courier to Mr. Bart Buckley.

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

Very truly yours,

Philip A. Crane, Jr.

Attachment
CC w/attachment: Service List
Mr. Bart Buckley

1. Main Feedwater Piping

500146-2 (Line 2) 03

FORM P-4A MANUFACTURERS' DATA REPORT FOR FABRICATED PIPING

As Required by the Provisions of the ASME Code Rules

1. Manufactured by *THE M.W. KELLOGG CO., PARAMOUNT, CALIF. (Name and Address of Manufacturer) Order No. 2542

2. Manufactured for PACIFIC GAS & ELECTRIC CO., SAN FRANCISCO, CALIF. (Name and Address) Order No. 4R-8707

DIABLO CANYON (NORTH OF AVILA BEACH, CALIFORNIA) (Destination)

3. Identification Feedwater, Unit No. 1 Ser. No. 1315 (Main Steam, Boiler Feed, Blow-off or other Service Piping - state which)

4. Design Conditions of Piping 1415 (Pressure) psi 450 (Temperature) °F. Specified by PACIFIC GAS & ELECTRIC CO. (Name of Co.)

Code Design by PACIFIC GAS & ELECTRIC CO.

5. The construction complies with the ASME BOILER AND PRESSURE VESSEL CODE Par. PW-41. Materials and workmanship conform to the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

6. Descriptions of Piping: (Include materials identifications by ASME specification or other recognized Code designation.)

1 - Piping Ass'y Pc. Mk. 1-K16-556-47 per MWK Dwg. No. F-110

Pipe: 16" Sch. 80 Seamless SA-106 Gr. B
8" Sch. 60 Seamless SA-106 Gr. B (For Support Attach.)
B.W.Ftgs: 16" Sch. 80 Seamless SA-106 Gr. B (ASTM A234 Gr. WPB)
Weldolets: 3" Sch. 80 SA-105 Gr. II
Cplgs: 1" 3000# Socketweld SA-105 Gr. II
Plugs: 1" Scr'd SA-105 Gr. II
Plate: A-516 Gr. 70 (For Support Attachment)
All Pressure Retaining Materials Charpy Impact Tested
100% RT All Girth Buttwelds; 100% MT All Welds Stress Relieved

7. Shop Hydrostatic Test NONE psi.

Certificate of Authorization No. 10409 to use the Pressure Piping Symbol expires 2-4-73

We certify the statements in this data report to be correct.

Date February 23, 1972 *THE M.W. KELLOGG COMPANY (Fabricator) By H. G. La Forte (Representative)

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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA have inspected the piping described in this manufacturer's data report on Feb. 8 1972 and state that to the best of my knowledge and belief, the manufacturer has constructed this piping in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

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 March 6 1972

J E Warren (Inspector) Commissions CALIF. NO. 857 (Nat'l Board, State, Province and No.)

*A Division of Pullman Incorporated

REF: P.G.&E. Dwg. 500146, Rev. 4 2-13

500146-2 (2 of 2)

Form P-4A (Back)

8. Description of Field Fabrication:
WELD ONE X-RAY PLUG, SA 105, GR II; WELD # 239C 3-7-75
WELD ONE 3000# S.W. SOCKOLET, SA105, GR II, WELD # 239D 3-7-75

9. Field Hydrostatic Test 1356 psi.

Certificate of Authorization No. 10372 to use the Pressure Piping Symbol expires 12/10/75

We certify the statements in this data report to be correct.

Date 9/15/75 *THE M.W. KELLOGG CO. (Fabricator) By [signature] (Representative)

10. We certify that the field assembly of the described piping conforms with the requirements of SECTION 1 of the ASME BOILER AND PRESSURE VESSEL CODE.

Date 3/16, 1975 Signed *THE M.W. KELLOGG CO. (Assembler) By [signature] (Representative)

Our Certificate of Authorization No. 10372 to use the PP (A) (S) or (PP) Symbol Expires 12/10 19 75

CERTIFICATE OF FIELD ASSEMBLY 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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA have compared the statements in this manufacturer's data report with the described piping and state that the parts referred to as data items 7, 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 and/or assembler has constructed and assembled this piping in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE. The described piping was inspected and subjected to a hydrostatic test of _____ psi.

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 [illegible]

[signature] Inspector Commissions CALIF. NO. [illegible] Nat'l Board, State, Province and No.

*A Division of Pullman Incorporated

PHOENIX STEEL CORPORATION

TUBE DIVISION
PHOENIXVILLE, PENNA.

F110

67

CERTIFICATE OF INSPECTION AND TESTS

DATE: 8/26/70	DATE SHIPPED: 8/25/70	MILL ORDER NO.	T-8371-A2-(105A)
SOLD TO: Standard Pipe & Supply Co., Inc. 301 City Line Avenue Bala Cynwyd, Pennsylvania 19004		CUSTOMER ORDER NO.	2604-D
		CAR NO.	PC 577229
		SPECIFICATION:	SA 106 B (O.H.)
SHIP TO: M. W. Kellogg Company #8504-4 #35 705		MATERIAL: SEAMLESS TUBE	
		CONTRACT NO.	~~P.O. # 8504-3 Item 35~~ M. W. KELLOGG SPEC. NO. ~~N 8504 ES 3~~

NO. PCS.	OD	WALL	LENGTH	TOTAL FT.	TOTAL WT.	HEAT NO.
	16.000" x	.844"				40148

Longitudinal Vee Notch Charpy at minus 0 °F 22-21-20 Ft. ~~Lbs.~~
S-2 Check Analysis- one test per lot
S-3 Transverse Tension- one test per lot
S-4 Flattening Test-one test per lot- OK
S-5 Etch Test- one test per lot- OK
S-6 Etch Test- one test per lot- OK

HEAT NO.	C.	MN.	P.	S.	SI.	CR.	NI.	MO.	CU
40148	.23	.86	.011	.026	.23	Ladle			
40148	.24	.86	.011	.027	.23	Check			

HEAT NO.	TENSILE (KSI)	YIELD (KSI)	% ELONG. IN 2"	% RA	HARDNESS ROCKWELL	HARDNESS BRINELL	GRAIN SIZE
40148	74.0	47.5	35.00	Norm. @ 1650 °F	Temp. @ 1250 °F		Long.
40148	71.5	47.3	32.00	" "	" "	" "	Trans.

FLANGE FLATTENING OK FLARING CRUSH HYDROSTATIC PSI 2225

JOMINY DISTANCE - 16TH. 1 2 4 6 8 10 12 14 16 20 24 28 32

THE PHOENIX STEEL CORPORATION HEREBY CERTIFIES THAT THE ABOVE MATERIALS HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE TERMS PRESCRIBED IN THE APPLICABLE SPECIFICATIONS AND THE RESULTS OF SUCH INSPECTION AND TESTS AS CONTAINED IN THE COMPANY RECORDS ARE AS SHOWN ABOVE. FOR PROPERTIES OR CHARACTERISTICS FOR WHICH NO METHODS OF INSPECTION OR TESTING ARE PRESCRIBED IN SPECIFICATIONS, THE STANDARD MILL INSPECTION AND TESTING PRACTICES OF THE PHOENIX STEEL CORPORATION HAVE BEEN APPLIED. BASED UPON SUCH INSPECTION AND TESTS, THE ABOVE MATERIALS HAVE BEEN APPROVED AS FULFILLING THE REQUIREMENTS OF SAID SPECIFICATION.

I&T-0153-R2

2-20

A. W. Pechin
ENGINEER OF TESTS

L[illegible]H CO.
Ma[illegible]lysis Report
METALLURGICAL DEPARTMENT

PURCHASER: The M.W. Kellogg Company- Power Piping Division

CUDAHY, WIS., August 19 19 70

PURCHASER'S ORDER NO.: M8504-9

LSO NO.: E 80697A

ADDRESS: P.O. Box 881 Reach Road-Williamsport, Pa. 17704

INVOICE NO.: N 29143

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH LB. PER SQ. IN.	ULTIMATE STRENGTH LB. PER SQ. IN.	ELONG. %	RED. OF AREA
4	Item 9 26" ID x 1.002 MW 90° IR Ells- A234 WPB -W 8504-S 5	86A7[illegible] MMJA[illegible]	.21 .26	1.11 .68 CHECK ANALYSIS .9[illegible]	UNCHECK ANALYSIS .016 .01[illegible]	ANALYSIS .023 .0[illegible]	.1[illegible] .3[illegible]				46600	73200	31.0	58.[illegible]
			Joe notch impacts at 0°- 15.0- 24.5- 22.[illegible] ft. lbs. Brinell Hardness - 153 BHN Manufactured from A 106-Gr. B - Pipe											
	Item 20 36"OD x 0.850 MW x 18' S/60 Bev. End. A234-WPB-W -8504-S-5 Weld Nos. 342- 343	6404256 CH4MW	.22 .25	LADLE ANALYSIS 1.06 CHECK ANALYSIS 1.09	.015 .01[illegible]	.034 .02[illegible]	.2[illegible] .2[illegible]				46000	77500	28.0	51
			Manufactured from A53 Gr. 70-Pipe											
	Item 37 16" S/80 30°LR Ell A234-WPB N8504-S-5	Welds were radiographically inspected per ASME Sec. VIII Para. UW 51-Satisfactory. 200353 NE3TJ	.20 .19	LADLE ANALYSIS .89 CHECK ANALYSIS .83	.013 .011	.014 .019	.22 .20				42100	70200	34.0	66.[illegible]
			Joe notch impacts at 0°- 46.0- 12.5- 19.0 ft. lbs. Brinell Hardness - 137 BHN Manufactured from A106-Gr. B - Pipe											
		Finishing all conform to the specified Hydrostatic tes[illegible]												

SUBSCRIBED AND SWORN TO BEFORE ME THIS

_____ DAY OF _____ 19 _____

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

Page 1 of 2

METALLURGIST

LCO 1016 R1

2-21

(4)

FM-1063
FORM 2749

PORTER

H. K. PORTER COMPANY, INC.

FABRICATED METALS DIVISION

P.O. BOX 95, ROSELLE, NEW JERSEY 07203

W-S FITTINGS WORKS
AREA CODE 201
TEL. 241-1600

/71
ADDED HILL
& HILL HEAT,
& CHECK CHEM/Lab

CUSTOMER M. W. Kellogg

DATE 1/22/71 Rev. 2/16/71

CUSTOMER'S ORDER NO. N-8504-11

OUR NO. 1-65033

MATERIAL/SPECIFICATION .CS / ASTM Spec A-105 Gr. 2

DATE SHIPPED 12/8/70

DESCRIPTION			CHEMICAL ANALYSIS									PHYSICAL PROPERTIES (MIN.)			
ITEM NO.	DESCRIPTION	QUAN.	C.	Mn.	P.	S.	Si.	Ni.	Chr.	Moly.	HEAT CODE NO.	TENSILE STRENGTH P.S.I.	YIELD POINT P.S.I.	% ELONGATION IN 2"	% RED. IN AREA
1	2" Half Coupling 3000 S/W	12	.30	.80	.009	.011	.23				FB-7	76,300	38,600	37	46
	CHECK Item 74	—	.30	.74	.014	.030	.21				HT. NO. 5	014340	REPUBLIC STEEL		
2	1" ditto	180	.30	.70	.008	.024	.22				HA-9	79,100	45,800	28	37
	CHECK Item 75	—	.30	.68	.010	.022	.24				HT. NO.	655X564	BETHLEHEM STEEL		
3	3/4" ditto	40	.28	.73	.010	.009	.18				PA-8	72,800	39,600	46	52
	ITEM 76 CHECK	—	.27	.76	.015	.019	.23				HT NO.	077699	U.S. STEEL		

Heat Treatment

Material has been normalized at 1700-1750°F, held for one (1) hour per inch of thickness, followed by cooling in still air.

Sworn and subscribed to before me this 16th day of February 1971

Caroline L. Ries

NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Mar. 24, 1971

I hereby certify that the above analysis is correct to the best of my knowledge and belief.

H. K. PORTER COMPANY, INC.
W-S FITTINGS WORKS

BY [illegible]

500146-3 (1 of 2)

FORM P-4A MANUFACTURERS' DATA REPORT FOR FABRICATED PIPING

As Required by the Provisions of the ASME Code Rules

1. Manufactured by *THE M.W. KELLOGG CO., PARAMOUNT, CALIF. Order No. 2542
(Name and Address of Manufacturer)

2. Manufactured for PACIFIC GAS & ELECTRIC CO., SAN FRANCISCO, CALIF. Order No. 4R-8707
(Name and Address)

DIABLO CANYON (NORTH OF AVILA BEACH, CALIFORNIA)
(Destination)

3. Identification Feedwater, Unit No. 1, Ser. No: 1316
(Main Steam, Boiler Feed, Blow-off or other Service Piping - state which)

4. Design Conditions of Piping 1415 psi (Pressure) 450 °F. (Temperature) Specified by PACIFIC GAS & ELECTRIC CO. (Name of Co.)

Code Design by PACIFIC GAS & ELECTRIC CO.

5. The construction complies with the ASME BOILER AND PRESSURE VESSEL CODE Par. PW-41. Materials and workmanship conform to the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

6. Descriptions of Piping: (Include materials identifications by ASME specification or other recognized Code designation.)

1 - Piping Ass'y Pc. Mk. 1-K16-556-48 per MWK Dwg. No. F-111
Pipe: 16" Sch. 80 Seamless SA-106 Gr. B
Flued Head: 26" X 16" SA-105 Gr. II (Furnished by Customer)
Plugs: 1" Scr'd SA-105 Gr. II
All Pressure Retaining Materials Charpy Impact Tested
100% RT Girth Buttweld
100% MT All Welds
Stress Relieved

7. Shop Hydrostatic Test NONE psi.

Certificate of Authorization No. 10409 to use the Pressure Piping Symbol expires 2-4-73

We certify the statements in this data report to be correct.

Date Sept. 12, 1972 *THE M.W. KELLOGG COMPANY By [signature]
(Fabricator) (Representative)

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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA have inspected the piping described in this manufacturer's data report on _____ 19 72 and state that to the best of my knowledge and belief, the manufacturer has constructed this piping in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

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 9-13- 19 72

J. Warren Commissions CALIF. NO. 857
Inspector Nat'l Board, State, Province and No.

*A Division of Pullman Incorporated

REF: P.G.&E. Dwg. 500146, Rev. 4 237

500146-3 (2 of 2)

Form P-4A (Back)

8. Description of Field Fabrication:
WELD ONE X-RAY PLUG, SA105, GR II, WELD # ~~336~~ 336 JAB 3-7-75

9. Field Hydrostatic Test 1350 psi.

Certificate of Authorization No. 10372 to use the Pressure Piping Symbol expires 12/10/75

We certify the statements in this data report to be correct.

Date 9/15/75 *THE M.W. KELLOGG CO. (Fabricator) By [signature] (Representative)

10. We certify that the field assembly of the described piping conforms with the requirements of SECTION 1 of the ASME BOILER AND PRESSURE VESSEL CODE.

Date 3/19, 1975 Signed *THE M.W. KELLOGG CO. (Assembler) By [signature] (Representative)

Our Certificate of Authorization No. 10372 to use the PP (A) (S) or (PP) Symbol Expires 12/10 19 75

CERTIFICATE OF FIELD ASSEMBLY 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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA 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 and/or assembler has constructed and assembled this piping in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE. The described piping was inspected and subjected to a hydrostatic test of _____ psi.

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 _____

[signature] Inspector Commissions CALIF. NO. 7-7C Nat'l Board, State, Province and No.

*A Division of Pullman Incorporated

PHOENIX STEEL CORPORATION

TUBE DIVISION
PHOENIXVILLE, PENNA.

F 111

67

CERTIFICATE OF INSPECTION AND TESTS

DATE 8/26/70	DATE SHIPPED: 8/25/70	MILL ORDER NO.	T-8371-A2-(105A)
SOLD TO	Standard Pipe & Supply Co., Inc. 301 City Line Avenue Bala Cynwyd, Pennsylvania 19004	CUSTOMER ORDER NO.	2604-D
		CAR NO.	PC 577229
		SPECIFICATION:	SA 106 B (O.H.)
SHIP TO	M. W. Kellogg Company #8504-4 #35 705	MATERIAL: SEAMLESS TUBE	
		CONTRACT NO.	~~P.O. N 8504-3 Item 35~~ M. W. KELLOGG SPEC. NO. ~~N 8504 ES 3~~

NO. PCS.	OD	WALL	LENGTH	TOTAL FT.	TOTAL WT.	HEAT NO.
	16.000" x .844"					40148

Longitudinal Vee Notch Charpy at minus 0 °F 22-21-20 Ft. Lbs.
S-2 Check Analysis- one test per lot
S-3 Transverse Tension- one test per lot
S-4 Flattening Test-one test per lot- OK
S-5 Etch Test- one test per lot- OK
S-6 Etch Test- one test per lot- OK

HEAT NO.	C.	MN.	P.	S.	SI.	CR.	NI.	MO.	CU.
40148	.23	.86	.011	.026	.23	Ladle			
40148	.24	.86	.011	.027	.23	Check			

HEAT NO.	TENSILE (KSI)	YIELD (KSI)	% ELONG. IN 2"	% RA	HARDNESS ROCKWELL	HARDNESS BRINELL	GRAIN SIZE
40148	74.0	47.5	35.00	Norm. @ 1650 °F	Temp. @ 1250 °F		Long.
40148	71.5	47.3	32.00 "	"	"	"	Trans.

FLANGE FLATTENING OK FLARING CRUSH HYDROSTATIC PSI 2225

JOMINY DISTANCE - 16TH. 1 2 4 6 8 10 12 14 16 20 24 28 32

THE PHOENIX STEEL CORPORATION HEREBY CERTIFIES THAT THE ABOVE MATERIALS HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE [illegible] PRESCRIBED IN THE APPLICABLE SPECIFICATIONS AND THE RESULTS OF SUCH INSPECTION AND TESTS AS CONTAINED IN THE COMPANY'S [illegible] AS SHOWN ABOVE. FOR PROPERTIES OR CHARACTERISTICS FOR WHICH NO METHODS OF INSPECTION OR TESTING ARE PRESCRIBED BY [illegible] SPECIFICATIONS, THE STANDARD MILL INSPECTION AND TESTING PRACTICES OF THE PHOENIX STEEL CORPORATION HAVE BEEN APPLIED. BASED UPON SUCH INSPECTION AND TESTS, THE ABOVE MATERIALS HAVE BEEN APPROVED AS FULFILLING THE REQUIREMENTS OF SAID SPECIFICATIONS

I&T-0153-R2

R. W. Pickin
ENGINEER OF TESTS

2. Main Steam Piping

500139-7 (1 of 2)

04

MODIFIED MANUFACTURERS' DATA REPORT FOR FABRICATED PIPING

As Required by Purchaser's Specification

1. Manufactured by *THE M.W. KELLOGG CO., PARAMOUNT, CALIF. (Name and Address of Manufacturer) Order No. 2542

2. Manufactured for PACIFIC GAS & ELECTRIC CO., SAN FRANCISCO, CALIF. (Name and Address) Order No. 4R- 8707

   DIABLO CANYON (NORTH OF AVILA BEACH, CALIFORNIA) (Destination)

3. Identification Main Steam, Unit No. 1, Ser. No. F-148C (Main Steam, Boiler Feed, Blow-off or other Service Piping - state which)

4. Design Conditions of Piping 1085 (Pressure) psi 600 (Temperature) °F. Specified by PACIFIC GAS & ELECTRIC CO. (Name of Co.)

   Code Design by PACIFIC GAS & ELECTRIC CO.

5. The construction materials and workmanship complies with Pacific Gas & Electric Co. specification 8707.

6. Description of Piping: (Include materials identifications by ASME specifications or other recognized Code designation.) Note: Piping had been rolled from SA-516 GR. 70 plate and welded by a Fabricator in possession of the "PP" stamp only.

   1 - Piping Ass'y Pc. Mk. 1-K15-225-84C per MWK Dwg. No. F-148C
   Pipe: 26" I.D. X 1.002" Min. Wall Welded SA-516 Gr. 70
   Flued Head: 40" X 28" SA-105 Gr. II (Furnished by Customer)
   Plug: 1" Scr'd SA-105 Gr. II
   Pipe & Flued Head Charpy Impact Tested
   100% RT All Girth & Long. Welds
   100% MT All Welds
   Stress Relieved

7. Shop Hydrostatic Test NONE psi.

   We certify the statements in this data report to be correct.

   Date June 16, 1972 *THE M.W. KELLOGG COMPANY (Fabricator) By H. A. [illegible] (Representative)

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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA have inspected the piping described in this manufacturer's data report on _____ 19 72 and state that to the best of my knowledge and belief, the manufacturer has constructed this piping in accordance with the applicable sections of Pacific Gas & Electric Co. specification 8707.

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 9-13 - 19 72

J E Warren (Inspector) Commissions CALIF. NO. 857 (State and No.)

*A Division of Pullman Incorporated

REF: P.G.&E. Dwg. 500139, Rev. 3

7

LADISH CO.
Material Analysis Report
METALLURGICAL DEPARTMENT

PURCHASER The M.W. Kellogg Company - Power Piping Division

CUDAHY, WIS., September 14 19 70

PURCHASER'S ORDER NO. N 8504- 1

LSO NO. E 80696H

ADDRESS P.O.Box 881 Reach Road-Williamsport.Pa.

INVOICE NO. N28557 rb

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH LB. PER SQ. IN.	ULTIMATE STRENGTH LB. PER SQ. IN.	ELONG. %	RED. OF AREA
	Item 1													
	26" ID x 1.002 MW Rolled and welded Carbon Steel Pipe	63L 106 CU4MAC	LADLE ANALYSIS .24	1.05	.008	.020	.19				PARENT METAL 42100	74700	22.5	
			CHECK ANALYSIS .26	1.04	.008	.018	.19				CENTER WELD	70300		
	A155- KCF- 70 and Kellogg Spec. N8504 ES-1													
		42024151	ANALYSIS OF WELD WIRE .14	1.94	.01	.02	.05							
	Weld No. J88-1													
	Pipe manufactured from A516 Gr. 70 Plate		Transverse Hardness Survey					163- 170 BHN						

SUBSCRIBED AND SWORN TO BEFORE ME THIS

14th DAY OF September 19 70

Rose Rusbarski
NOTARY PUBLIC

MY COMMISSION EXPIRES October 18, 1970

Page ~~1~~ of 2

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

James A. Grigg
METALLURGIST

MH 1/19

S-I

LCO 1016 R1

500159-1 (2 of 2)

8. Description of Field Fabrication:
ADD WELDED X-RAY PLUG, SA 105, GR II, WELD # 342A 3-7-75

9. Field Hydrostatic Test SEE MN-5 psi.

We certify the statements in this data report to be correct.

Date 9/24/75 *THE M.W. KELLOGG CO. (Fabricator) By [signature] (Representative)

10. We certify that the field assembly of the described piping conforms with the requirements of Pacific Gas and Electric Co. specification 8711.

Date 3/14, 19 75 Signed *THE M.W. KELLOGG CO. (Assembler) By [signature] (Representative)

Our Certificate of Authorization No. 10372 to use the PP (A) (S) or (PP) Symbol Expires 12/10 19 75

CERTIFICATE OF FIELD ASSEMBLY 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 ~~**DIVISION OF INDUSTRIAL SAFETY~~ of ~~STATE OF CALIFORNIA~~ have compared the statements in this manufacturer's data report with the described piping and state that the parts referred to as data items 8, 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 and/or assembler has constructed and assembled this piping in accordance with the applicable sections of Pacific Gas & Electric Co. Spec. 8711. The described piping was inspected and subjected to a hydrostatic test of _____ psi.

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 10/13/75 [signature] Inspector Commissions CALIF. NO. 1275 (State and No.)

*A Division of Pullman Incorporated

** HARTFORD STEAM BOILER INSPECTION & INSURANCE CO.

LAD[illegible] CO.
M[illegible]l Analysis Report
METAL[illegible]RGICAL DEPARTMENT

PURCHASER _____ CUDAHY, WIS., ~~September 14~~ 19 70

PURCHASER'S ORDER NO. _____ LSO NO. E80696H

ADDRESS _____ INVOICE NO. N28557

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH LB. PER SQ. IN.	ULTIMATE STRENGTH LB. PER SQ. IN.	ELONG. %	RED. OF AREA
		Guided weld bends- root and face of each weld- satisfactory												
		Pipe was welded in accordance with (L) Procedure 16F- 001- Rev.5												
		Welds were radiographically inspected per (L) Proc.9-Q-212 and instruction Sheet No.1 - satisfactory X-Rays submitted												
		Welds were Magnetic Particle inspected per (L) Proc. 9-Q-10[illegible] Rev.[illegible]1 - satisfactory												
		Pipe conforms to the specified Hydrostatic test requirements												

SUBSCRIBED AND SWORN TO BEFORE ME THIS

11th DAY OF September 19 70

Rose Ruzbowski
NOTARY PUBLIC

MY COMMISSION EXPIRES October 18, 1970

LCO 1016 R1

Page ~~2 of 2~~
2 of 3

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

James R. Guiza
METALLURGIST

500139-5 (1-52) 07

MODIFIED MANUFACTURERS' DATA REPORT FOR FABRICATED PIPING

As Required by Purchaser's Specification

1. Manufactured by *THE M.W. KELLOGG CO., PARAMOUNT, CALIF. (Name and Address of Manufacturer) Order No. 2542
2. Manufactured for PACIFIC GAS & ELECTRIC CO., SAN FRANCISCO, CALIF. (Name and Address) Order No. 4R- 8707

   DIABLO CANYON (NORTH OF AVILA BEACH, CALIFORNIA) (Destination)
3. Identification Main Steam, Unit No. 1, Ser. No. F-148A (Main Steam, Boiler Feed, Blow-off or other Service Piping - state which)
4. Design Conditions of Piping 1085 (Pressure) psi 600 (Temperature) °F. Specified by PACIFIC GAS & ELECTRIC CO. (Name of Co.)

   Code Design by PACIFIC GAS & ELECTRIC CO.
5. The construction materials and workmanship complies with Pacific Gas & Electric Co. specification 8707.
6. Description of Piping: (Include materials identifications by ASME specifications or other recognized Code designation.) Note: Piping had been rolled from SA-516 GR. 70 plate and welded by a Fabricator in possession of the "PP" stamp only.

   1 - Piping Ass'y Pc. Mk. 1-K15-225-84A per MWK Dwg. No. F-148A
   Pipe: 26" I.D. X 1.002" Min. Wall Welded SA-516 Gr. 70 (Charpy Impact Tested)
   Cplgs: 3/4" 3000# Socketweld SA-105 Gr. II
   Plug: 1" Scr'd SA-105 Gr. II
   100% RT All Long Welds (No Girth)
   100% MT All Welds
   Stress Relieved

Shop Hydrostatic Test NONE psi.

We certify the statements in this data report to be correct.

Date June 16, 1972 *THE M.W. KELLOGG COMPANY (Fabricator) By H. G. La Fonte (Representative)

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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA have inspected the piping described in this manufacturer's data report on 9-8- 1972 and state that to the best of my knowledge and belief, the manufacturer has constructed this piping in accordance with the applicable sections of Pacific Gas & Electric Co. specification 8707.

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 9-8- 1972

J E Warren Inspector Commissions CALIF. NO. 857 (State and No.)

*A Division of Pullman Incorporated

REF: Dwg. 500139, Rev. 3

500139-5 (2 of 2)

8. Description of Field Fabrication:
WELD X-RAY PLUG, SA 105 GR II, WELD # 341A 3-7-75

9. Field Hydrostatic Test SEE MN-5 psi.

We certify the statements in this data report to be correct.

Date 9/24/75 *THE M.W. KELLOGG CO. By
(Fabricator) (Representative)

10. We certify that the field assembly of the described piping conforms with the requirements of Pacific Gas and Electric Co. specification 8711.

Date 3/16, 1975 Signed *THE M.W. KELLOGG CO. By
(Assembler) (Representative)

Our Certificate of Authorization No. 10372 to use the PP Symbol Expires 12/10 1975
(A), (S) or (PP)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of Province of CALIFORNIA and employed by ~~**DIVISION OF INDUSTRIAL SAFETY~~ of ~~STATE OF CALIFORNIA~~ have compared the statements in this manufacturer's data report with the described piping and state that the parts referred to as data items 8, 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 and/or assembler has constructed and assembled this piping in accordance with the applicable sections of Pacific Gas & Electric Co. Spec. 8711. The described piping was inspected and subjected to a hydrostatic test of _____ psi.

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 10/13/75

Inspector

Commissions CALIF. NO. 1275
(State and No.)

*A Division of Pullman Incorporated

** HARTFORD STEAM BOILER INSPECTION & INSURANCE CO.

DISH CO.
Ma[illegible] Analysis Report
METALLURGICAL DEPARTMENT

PURCHASER The M.W. Kellogg Company - Power Piping Division

CUDAHY, WIS., September 14 19 70

PURCHASER'S ORDER NO. N8504-1

LSO NO. E80696N

ADDRESS P.O. Box 881 Reach Road- Williamsport, Pa.

INVOICE NO. E28557

rb

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH LB. PER SQ. IN.	ULTIMATE STRENGTH LB. PER SQ. IN.	ELONG. %	RED. OF AREA
	Item 1													
			LADLE ANALYSIS								PARENT METAL			
	26" ID x 1.002 MW Rolled and Welded Carbon Steel Pipe	63L 106 GL4MAA	.24	1.05	.003	.020	.19				42100	74700	22.5	
			CHECK ANALYSIS								CENTER WELD			
	A155-KCF- 70 and Kellogg Spec.N8504 ES-1		.26	1.04	.008	.018	.19					72500		
			ANALYSIS OF WELD WIRE											
	Weld No. J86	4022A151	.14	1.94	.011	.022	.05							
	Pipe manufactured from A516 Gr.70 Plate		Transverse Hardness Survey - 163 - 170 BHN											

SUBSCRIBED AND SWORN TO BEFORE ME THIS

14th DAY OF September 19 70

Rose Bu[illegible]

NOTARY PUBLIC

MY COMMISSION EXPIRES October 18, 1970

Page ~~1 of 2~~

~~1 of 7~~

MH 7/19

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

James P. Gi[illegible]

METALLURGIST

90

S-I

LCO 1016 R1

500139-6 (1762) 04

MODIFIED MANUFACTURERS' DATA REPORT FOR FABRICATED PIPING

As Required by Purchaser's Specification

1. Manufactured by *THE M.W. KELLOGG CO., PARAMOUNT, CALIF. (Name and Address of Manufacturer) Order No. 2542

2. Manufactured for PACIFIC GAS & ELECTRIC CO., SAN FRANCISCO, CALIF. (Name and Address) Order No. 4R- 8707

   DIABLO CANYON (NORTH OF AVILA BEACH, CALIFORNIA) (Destination)

3. Identification Main Steam, Unit No. 1, Ser. No. F-148B (Main Steam, Boiler Feed, Blow-off or other Service Piping - state which)

4. Design Conditions of Piping 1085 (Pressure) psi 600 (Temperature) °F. Specified by PACIFIC GAS & ELECTRIC CO. (Name of Co.)

   Code Design by PACIFIC GAS & ELECTRIC CO.

5. The construction materials and workmanship complies with Pacific Gas & Electric Co. specification 8707.

6. Description of Piping: (Include materials identifications by ASME specifications or other recognized Code designation.) Note: Piping had been rolled from SA-516 GR. 70 plate and welded by a Fabricator in possession of the "PP" stamp only.

   1 - Piping Ass'y Pc. Mk. 1-K15-225-84B per MWK Dwg. No. F-148B
   Pipe: 26" I.D. X 1.002" Min. Wall Welded SA-516 Gr. 70
   4" XXHY Smls SA-106 Gr. B (For Support Attachment)
   B.W.Ftgs: 26" I.D. X 1.002" Min. Wall, 24" Sch. 60 Welded SA-516 Gr. 70 (ASTM A234)
   26" I.D. X 1.002" Min. Wall Smls SA-106 Gr. C (ASTM A234 Gr. WPC)
   Plugs: 1" Scr'd SA-105 Gr. II
   Plates: A-516 Gr. 70 (For Support Attachment)
   All Pressure Retaining Materials Charpy Impact Tested
   100% RT All Girth & Long. Welds; 100% MT All Welds
   Stress Relieved

7. Shop Hydrostatic Test NONE psi.

   We certify the statements in this data report to be correct.

   Date June 16, 1972 *THE M.W. KELLOGG COMPANY (Fabricator) By H. G. Lizarte (Representative)

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 DIVISION OF INDUSTRIAL SAFETY of STATE OF CALIFORNIA have inspected the piping described in this manufacturer's data report on 9-8 1972 and state that to the best of my knowledge and belief, the manufacturer has constructed this piping in accordance with the applicable sections of Pacific Gas & Electric Co. specification 8707.

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 9-8 19 72

J E Warren (Inspector) Commissions CALIF. NO. 859 (State and No.)

*A Division of Pullman Incorporated

REF: P.G.&E. Dwg. 500139, Rev. 3

6

500139-61 (2 of 2)

8. Description of Field Fabrication:

WELD X-RAY PLUG, SA105, GR II, WELD # 338A 3-7-75

ADD PIPE SUPPORT SA516 GR70, WELD # X1686 3-11-75

9. Field Hydrostatic Test SEE MN-5 psi.

We certify the statements in this data report to be correct.

Date 9/24/75 *THE M.W. KELLOGG CO. (Fabricator) By [signature] (Representative)

10. We certify that the field assembly of the described piping conforms with the requirements of Pacific Gas and Electric Co. specification 8711.

Date 3/16, 1975 Signed *THE M.W. KELLOGG CO. (Assembler) By [signature] (Representative)

Our Certificate of Authorization No. 10372 to use the PP (A) (S) or (PP) Symbol Expires 12/10 1975

CERTIFICATE OF FIELD ASSEMBLY 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 ~~**DIVISION OF INDUSTRIAL SAFETY~~ of ~~STATE OF CALIFORNIA~~ 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 and/or assembler has constructed and assembled this piping in accordance with the applicable sections of Pacific Gas & Electric Co. Spec. 8711. The described piping was inspected and subjected to a hydrostatic test of _____ psi.

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 10/13/75

[signature] Inspector

Commissions CALIF. NO. 1275 (State and No.)

*A Division of Pullman Incorporated

** HARTFORD STEAM BOILER INSPECTION & INSURANCE CO

83-79-200

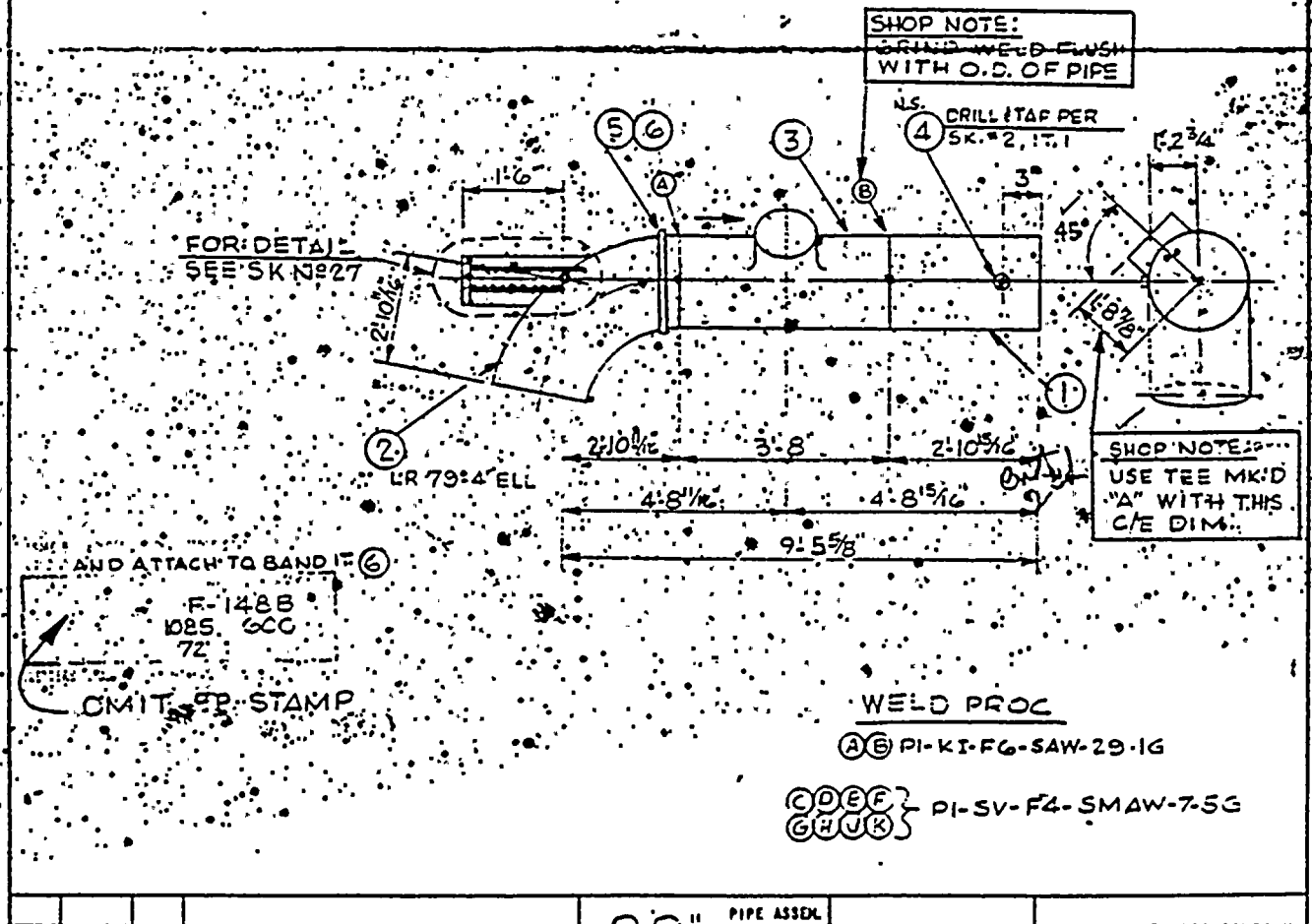
2542 (PAR)

ITEM	QUAN.	DESCRIPTION	SPEC.	SOURCE
		" CARB. STL ASS'Y		
1	1	26" I.D. x 1.002" W/W WELDED	SA 516 GR 70 R	F-151 IT. 26
		PIPE EE = 2'-10 15/16"	N8504 ES-1	HT.
		MK Nº M1-1-3 LGTH = 3'-6"		
2	1	26" I.D. x 1.002" W/W LR 79°-4' ELL	A234 WPC	RO-2 IT. 10
		ENDS BEVELED PER PFI-ES-21 FIG. 3	N8504 ES-5	HT.
3	1	26" I.D. (1.002" W/W) x 26" I.D. (1.002" W/W)	SA 516 GR 70 R	RO-2 IT. 11
		x 24" O.D. S/60 RED. TEE (USE TEE MK-0-"A")	N8504 ES-5	HT.
		ENDS BEVELED PER PFI-ES-21 FIG. 3		
4	1	1" DIA. x 1.002" Lg RADIC G. PLUG	SA-105	RO-12 IT. 79
		PER SK. #2, IT. 1	B5-70-G31	HT. 3101725
5	1	CODE NAME R	STN STL	—
6	1	1/8" THK x 2 1/2" WIDE NAME R BAND	CARB. STL	—
7	2	26.146" O.D. x 1/8" W. x 5/32" THK	A5-18	RO-7741-244-7/11
		SPLIT K-INSERT	E70S-2	HT. 1683-B1
8	1	4" XXHY SMLS PIPE, EE = 2'-0" (HT. L22313)	A106 GRB	RO-2542-24 IT. 1
9	1	1" THK x 1'-1" x 1'-1" R (HT. E28245)	A516 GR 70	RO-2542-45 IT. 2
10	1	5/8" THK x 4 1/4" x 3'-0" SHAPED R (HT. D20165)		RO-2542-45 IT. 6
11	2	5/8" THK x 6 1/2" x 3'-6" SHAPED R (HT. D20165)		RO-2542-45 IT. 8
12	2	5/8" THK x 6 1/2" x 3'-0" SHAPED R (HT. D20165)		RO-2542-45 IT. 7
13	1	5/8" THK x 4 1/4" x 2'-0" SHAPED R (HT. D20165)		RO-2542-45 IT. 5

MARK NO. 1-K15-225-84B	N8504 JOB NO.	F-148B SHEET NO.	0 REV.
SYSTEM LEAD #4 MAIN STEAM			
REF. DWGS. 500139 REV. 3			
STRESS 17.3 °F	°F	HYDRO-TEST	RADIO-GRAPH	MAGNA-FLUX
HEAT °F/HR	HEAT °F/HR	— — —	ALL BUTT WELDS	ALL WELDS
HOLD. HRS	HOLD HRS	INSP.	CODE	EST. WT.
FURNACE COOL	COOL	CUST/AUTH	ASME SECT. I	3675#
TO		BEVEL ENDS	CLEAN	FAB SPEC
MIN. PREHEAT		SK #1	ES-JP101	ES-JP101
K-123		IT. 8		

-NOTES-

1- PROTECT FIELD END PREPS. WITH DEOXY ALUMINITE
2- PAINT RED OXIDE PRIMER
3- QUALITY ASSURANCE REQUIRED
4- ALL SHOP BUTT WELDS TO BE K-INSERT WELDS
5- PAINT STENCIL ON PIPE O.D.
"P.G&E. DESIGN CODE CLASS B"



WELD PROC

(A)(B) PI-KI-F6-SAW-29-1G

(C)(D)(E)(F)(G)(H)(J)(K) PI-SV-F4-SMAW-7-5G

REV.	DATE	BY	DESCRIPTION
0	[illegible]	[illegible]	[illegible]

28" PIPE ASSEM.

DRAWN	CHK'D	APPR'D
[illegible]	[illegible]	[illegible]

THE M. W. KELLOGG COMPANY
POWER PIPING DIVISION

D I H CO.
Material Analysis Report
METALLURGICAL DEPARTMENT

PURCHASER: The M.W. Kellogg Company -Power Piping Division

CUDAHY, WIS., March 25 19 71.

PURCHASER'S ORDER NO.: N8504-1

LSO NO.: E80696H

ADDRESS: P.O.Box 881 Reach Road- Williamsport, Pa. 17704

INVOICE NO.: N39848

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH KSI	ULTIMATE STRENGTH KSI	ELONG. %	RED. OF AREA
	Item 1		LADLE ANALYSIS								PARENT METAL			
	26" I.D. x 1.002 MW Rolled and Welded Carbon Steel Pipe	E0 8660 DB4RJ	.26	1.00	.013	.022	.20				46.8	78.7	25.5	
			CHECK ANALYSIS								CENTER WELD			
			.25	1.04	.013	.020	.19					71.9		
			ANALYSIS OF WELD WIRE											
	A155-KCF-70 and Kellogg Spec. N8504-ES-1	411A7211	.14	1.84	.013	.022	.04							
			Charpy Vee notch impact tested at 0°F.- 10 x 10 x 8 mm.											
							111.0 - 57.0 - 40.0 ft. lbs.							
							77% - 58% - 43% Shear							
	Weld No. T3-1 T3-2						.084 - .09 - .041 Lateral Expansion							
	Pipe manufactured from A516 Gr. 70 Plate		Guided Weld Bend tests satisfactory											
			Transverse Hardness survey - 149- 197 BHN											
			Pipe was welded in accordance with (L) Procedure											
			Welds were radiographically inspected per (L) Procedure											
			and instruction sheet No.1 - Satisfactory -											
			Weld was Magnetic Particle inspected per (L) Procedure											
			Pipe conforms to the specified Hydrostatic test requirements											
			Heat treated per (L) Procedure 13-F-40- T 1200 F.											

SUBSCRIBED AND SWORN TO BEFORE ME THIS 25th DAY OF March 19 71.

Rose Bartkowski
NOTARY PUBLIC Dec 13, 1971

MY COMMISSION EXPIRES

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

METALLURGIST

120

[illegible] I CO.
Ma[illegible] Analysis Report
METALLURGICAL DEPARTMENT

PURCHASER The M. W. Kellogg Company - Power Piping Division

CUDAHY, WIS., December 1, 19 70

PURCHASER'S ORDER NO. N 8504-2

LSO NO. E 80697A

ADDRESS ~~P.O. Box 881 Reach Road, Williamsport, Pa.~~ 17704

INVOICE NO. N 28179

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH LB. PER SQ. IN.	ULTIMATE STRENGTH LB. PER SQ. IN.	ELONG. %	RED. OF AREA
	Item 9			LADLE ANALYSIS										
6	26" I.D. x 1.002 M/W 90° L.R. Ells	86A742 NM3AJ	.21	.68	.019	.021	.16							
				CHECK ANALYSIS										
	A234 WPC & N 8504-ES-5		.26	.92	.017	.015	.15				46600	73200	31.0	58.0
			Vee notch impacts at 0° = 25.0 - 24.5 - 23.0 ft. lbs.											
			Brinell Hardness - 137 BHN											
			Manufactured from A106 Gr. C Pipe											
	Item 10			LADLE ANALYSIS										
1	26" I.D. x 1.002 M/W 79° 4' L.R. Ells	86A742 NM3AK	.21	.68	.019	.021	.16							
				CHECK ANALYSIS										
	A234 WPC & N 8504-ES-5		.26	.88	.015	.020	.15				47700	73100	32.0	59.0
			Vee notch impacts at 0° = 24.5 - 24.0 - 20.5 ft. lbs.											
			Brinell Hardness - 137 BHN											
			Manufactured from A106 Gr. C Pipe											
			Above fittings conform to the specified Hydrostatic test.											

SUBSCRIBED AND SWORN TO BEFORE ME THIS

1st DAY OF December 19 70

NOTARY PUBLIC

MY COMMISSION EXPIRES August 27, 1972

1 of 2

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

METALLURGIST

8

L[illegible] A CO.
Ma[illegible] Analysis Report
METALLURGICAL DEPARTMENT

(19)

PURCHASER: The M. W. Kellogg Company - Power Piping Division

CUDAHY, WIS., March 2, 19 71

PURCHASER'S ORDER NO.: N8504-2

LSO NO.: E80697A

ADDRESS: P.O. Box 831 Reach Road, Williamsport, Pa. 17704

INVOICE NO.: N 29575

CORRECTED REPORT

NO. PCS.	DESCRIPTION AND SPECIFICATION	HEAT NO. AND CODE	CHEMICAL COMPOSITION C	MN	P	S	SI	NI	CR	MO	PHYSICAL PROPERTIES YIELD STRENGTH KSI	ULTIMATE STRENGTH KSI	ELONG. %	RED. OF AREA
	Item 11			LADLE ANALYSIS							MILL TENSILE			
2	26" I.D. 1.002 M/W x 26" I.D. 1.002 M/W x 24" S/60 Red. Tees	091111 CMBL	.25	1.02	.010	.015	.20				41.3	72.0	22.5	
				CHECK ANALYSIS							C. M. TENSILE			
			.30	.94	.005	.024	.18					79.1		
				WELD WIRE ANALYSIS										
	A234 WPB-W N8504-ES-5	402A4151	.14	1.94	.011	.021	.05							
	Weld Nos. J46-1, J46-3		Vee notch impacts at 0°F. = 46.0 - 33.0 - 27.0 ft. lbs.											
			Hardness Survey - Bhn 136 to 161.											
			Welds were radiographically inspected per (1) Procedure 9-Q-212 and Instruction Sheet #1.											
			Welds were magnetic particle inspected per (1) Procedure 9-Q-105.											
			Fittings will conform to the specified hydrostatic test.											
			Manufactured from A515 Grade 70 plate.											

3.4.71

SUBSCRIBED AND SWORN TO BEFORE ME THIS 2nd DAY OF March 19 71

Lorraine Rogers
NOTARY PUBLIC

MY COMMISSION EXPIRES August 27, 1972

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE ABOVE REPORT IS TRUE AND CORRECT.

METALLURGIST

(30)

LCO 1016 R2

3. Main Feedwater Isolation Valve

FCV-441

VALVE TEST REPORT

JOB NO: 0480-2
CUSTOMER: P G & E CONTRACT NO: 14-16-G-0932 ITEM NO: 14
TYPE & SIZE: 16"- 900# Gate RS Motor Op DRAWING NO: 15-1557-3
SERIAL NO: 0480-2-1-4 TAG NO: 16"-G-0932 WEIGHT:

(REQUIRED) FCV-441 (ACTUAL)

	PRESS	TIME	MAX TORQUE	ALLOW SEAT LEAK.	PRESS	TIME	MAX TORQUE	SEAT LEAK	INSPECTED	DATE
HYDRO TEST BODY	3250	23 Min	—	None	3250	23 MIN	—	0		2-15-72
HYDRO TEST SEAT	2200	5 Min	Motor	42 cc P11	2200	5 MIN	MOTOR	A-2CCPH B-4CCPH		2-15-72
AIR TEST SEAT										
TEST BACK SEAT	3250	23 Min	—	None	3250	23 MIN	MOTOR	0		2-15-72

COMMENTS: COMMENTS:

OPERATOR

(REQUIRED) S/N 139671 (ACTUAL) MOTOR S/N 713-12006-02

TIME TO OPEN	60 sec	54 sec
TIME TO CLOSE	60 sec	54 sec
LIMIT SWITCHES SET		OPEN OK CLOSED OK
TORQUE SWITCHES SET		OPEN 2 CLOSED 2

WITNESSED BY: DATE: ACCEPTED BY: DATE: 2-15-72
Authorized Inspector Anchor Valve Company

Form NQA 8-S

ASSEMBLY INSPECTION REPORT

JOB NO: 0480-2 CONTRACT NO: 14-16-G-0932
CUSTOMER: P G & E TAG NO: 16-G-0932
ITEM NO: 14 VALVE NO: #4 PRESSURE: 900# OPERATION: Motor
VALVE TYPE: Gate SIZE: 16"

PART I — CERTIFICATIONS REQUIRED

PART	MATL	RT	HT	PT	UT	OTHER (LIST)
BODY	A216 WCB	X	X	X		
BONNET/CAP	A216 WCB	X	X	X		
DISC	A216 WCB	X	X	X		
STEM	A182 GR F6(4Cr)	-	-	X		
SEAT RING	A216 WCB	-	-	X		
STUDS	A193 B7					
NUTS	102908					
BYPASS	A106 GRB			X		

PART II — VALVE IDENTIFICATION RECORD

PART	SERIAL NO	HEAT NO	NDT IDENT NO.	CHECKED BY/DATE
BODY	0480-2-1-4	H 2037		2-15-72
BONNET	0480-2-2-4	H 1380		2-15-72
DISC	0480-2-4-1	H 1355		2-15-72
STEM	0480-2-5-4	B13212		2-15-72
SEAT RING				
STUDS				
NUTS				
BYPASS	Velan	Gate ART		2-15-72

PART III — ACCEPTED BY

	DATE
PARTS DEBURRED	2-15-72
PARTS CLEANED	2-15-72
ASSEMBLY CHECKED	2-15-72
DISC CLEARS BORE(GATE)	2-15-72
CAVITIES FREE OF FOREIGN MATL	2-15-72
STUDS & NUTS TIGHT	2-15-72
STEM BACKSEATS	2-15-72
GEAR BACKLASH CHECKED	
LANTERN RINGS INSTALLED	
TACKWELDS & SET SCREW SECURE	
HANDWHEEL & GLAND NUTS TIGHT	2-15-72
GREASE FITTINGS INSTALLED	
GEARS LUBRICATED WITH	
BEARGS LUBRICATED WITH	

ACCEPTED BY ANCHOR VALVE CO DATE 2-15-72

Form NQA 8-4 (6/70)

PS 151

ALL WELDING PERFORMED ON THIS CASTING PER PROCESS SPECIFICATION PSC-13

DEFECT - WELDING RECORD

No.	Dy.	Date	Type	By	L	W	O	L	W	Sam.	Batch Test No.	Electrode Type	Heat No.	Lot No.	Welder
1			1	✓	2	2	1/2	—	—	1/2			411A3531	H005J1A	Costa
2			1	✓	3	3	1/2	—	—	1/2			411A3531	H005J1A	1

DEFECT TYPE: G—Gas, B—Build Up, M—Mach. Error, S—Shrink, C—Crack, I—Inclusion

FOUND BY: V—Visual, MT—Mag. Part, RT—Radiography, PT—Penetrant, UT—Ultrasonic

PO No. 8583-0480-2
WO No. 36772
Mat'l 6103

Pacific Steel Casting Company

Patt No. 2822-5-2
Heat No. H-1380

SAN MATEO OFFICE
145 North Bayshore Blvd.
San Mateo, California
342-4183 & 347-9011

OAKLAND OFFICE
850 - 57th Street
Oakland, California
652-1100

X-RAY ENGINEERING CO.

ANCHOR EQUIPMENT CO.
24747 Clawiter Road
Hayward, Calif.

CERTIFIED INSPECTION REPORT

Control No.
Report No. SM-09-012-71
Date 9-15-71

Serial No.	Vigo No.	Acept	Rej	Gas	Tear	Shrink	Slag	Sand M.D.	Sand	Surf	OTHER
04802-2 SN-4											
	1-2	X								✓	
	2-3	X								✓	
	3-4	X								✓	
	4-1	X		✓							
	5-6	X								✓	
	7-8	X								✓	

P.O. No. 8584-0480-2
Part Name Bonnet 16" 900# Gate
Part No. 2822-5-2
Heat No. H-1380
Material Cast Steel

Radiographic Insp. Spec. ASTM E94-68

Acceptance Std. ASTM E71,E186 & E28

Class 2; except defect types D,E,F,& G are unacceptable.

Other Insp. MT ☒ PT ☐

Insp. Spec. ASME Sec.III para N-6

Acceptance Std. SAME

Our Shipper 12508

Foundry Job No. 36772

Cust. Shipper 0781

		FILM USED	
Qty. Rec.	1	3½ x 8½	
Qty. Insp.	1	5 x 7	
Total Accept.	1	4½ x 8½	
Total Rej.	0	3½ x 17	
Qty. X-Rayed	1	4½ x 17	
Qty. Accept.	1	8 x 10	
Qty. Rej.	0	7 x 17	
No. of Views	6	10 x 12	4
		14 x 17	8

Other Insp. MT
Qty. Accept. 1
Qty. Rej. 0

The X Ray Film used remains the property of X Ray Engineering Co. X Ray Engineering Co. assumes no responsibility for loss of any film due to improper processing.

Contract No. 14-16-G-0932
P. G. & E.

Drawing No. 6037-1-5
RSSS No. 35-99-66-7-XRENG

Renewed by:

P.G.&E. INSPECTOR

Interpreter: Ray Rash
Ray Rash

X-RAY ENGINEERING COMPANY ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND

PS 151

DEFECT - WELDING RECORD

No.	By	Date	Defect Type	By	L	W	D	L	W	Sec.	Pts.	No.	Type
1	[illegible]	[illegible]	No weld repair req'd										

DEFECT TYPE: G—Gas, B—Build Up, M—Mach. Error, S—Shrink, C—Crack, I—Inclusion

FOUND BY: V—Visual, MT—Mag. Part, RT—Radiography, PT—Penetrant, UT—Ultrasonic

PO No. 8583-0480-2

Patt No. 2822-5-4

[illegible] Pacific Steel Casting Company

H-1355

MATEO OFFICE
145 North Bayshore Blvd.
San Mateo, California
342-4183 & 347-9011

☐ OAKLAND OFFICE
850 - 87th Street
Oakland, California
652-1100

X-RAY ENGINEERING CO.

ANCHOR EQUIPMENT CO.
24747 Clawiter Road
Hayward, Calif.

CERTIFIED INSPECTION REPORT

Control No.
Report No. SM-09-020-71
Date 9-20-71

Bend No.	View No.	Arch	Rad.	Gas	Tear	Shrink	Drag	Sand M.D.	Sand	Sort	OTHER
04802-3 SN-1											
	1-2	X								✓	
	2-3	X								✓	
	3-4	X								✓	
	4-1	X								✓	

P.O. No. 8584-0480-2
Part Name Disc 16"900# Gate
Part No. 2822-5-4
Heat No. H-1355
Material Cast Steel

Radiographic Insp. Spec. ASTM E94-68

Acceptance Std. ASTM E71,E186 & E280
Class 2; except defect types D,E,F,& G are unacceptable

Other Insp. MT ☒ PT ☐
Insp. Spec. ASME Sec.III para. N-626

Acceptance Std. SAME

Our Shipper 12520

Foundry Job No. 36773

Cust. Shipper 0804

		FILM USED	
Qty. Rec.	1	3½ x 8½	
Qty. Insp.	1	5 x 7	
Total Accept.	1	4½ x 8½	
Total Rej.	0	3½ x 17	
Qty. X-Rayed	1	4½ x 17	
Qty. Accept.	1	8 x 10	
Qty. Rej.	0	7 x 17	
No. of Views	4	10 x 12	
		14 x 17	16

Other Insp. MT	1	The X-Ray film used remains the property of X-Ray Engineering Co. X-Ray Engineering Co. is furnishing reports but is for losses of any kind due to misinterpretation
Qty. Accept.	1	
Qty. Rej.	0	

Contract No. 14-16-G0932
P. G. & E.

Drawing No. 6037-1-5

RSSS No 35-99-66-7-XRE?

Reviewed by:

P. G. & E. INSPECTOR

Interpreter: Roy Reed
FYE
K. D. Miller

X-RAY ENGINEERING COMPANY [illegible] OF SOLE LIABILITY FOR LOSSES OF ANY KIND DUE TO INTERPRETATION

☒ SAN MATEO OFFICE
145 North Bayshore Blvd.
San Mateo, California
342-4183 & 347-9011

☐ OAKLAND OFFICE
950 - 57th Street
Oakland, California
652-1100

X-RAY ENGINEERING CO.

ANCHOR VALVE
24747 Clawiter Road
Hayward, California

CERTIFIED INSPECTION REPORT

Control No.
Report No.
Date 1-22-72

Bend No.	View No.	Axial	Rad.	Gas	Tear	Shrink	Slag	Int. M.D.	Bend	Surf	OTHER
802-1											
SH-4											
	1-2	X		✓					✓	✓	
	2-3	X		✓					✓	✓	
	4-5	X		✓						✓	
	5-6	X		✓					✓	✓	
	7-8	X								✓	
	8-9	X							✓	✓	
	10-11	X							✓	✓	
	11-12	X							✓	✓	
	13-14	X							✓	✓	
	14-15	X							✓	✓	
	16-17	X								✓	
	17-18	X							✓	✓	
	18-21	X								✓	
	20-21	X								✓	
	22-23	X								✓	
	23-24	X								✓	
	25-26	X								✓	
	26-27	X								✓	
	28-29	X								✓	
	29-30	X								✓	
	31-32	X								✓	
	32-33	X							✓	✓	
	34-35	X								✓	
	35-36	X							✓	✓	
	37-38	X								✓	
	38-39	X								✓	
	40-41	X							✓	✓	
	41-42	X								✓	
	43-44	X								✓	CROC
	44-45	X								✓	
	46-47	X							✓	✓	
	47-48	X							✓	✓	
	49-50	X							✓	✓	
	50-51	X							✓	✓	
	52-53	X							✓	✓	
	53-54	X								✓	
	55-56	X		✓					✓	✓	
	56-57	X		✓		✓			✓	✓	
	58-59	X		✓						✓	
	59-60	X		✓		✓			✓	✓	
	61-62	X							✓	✓	
	62-63	X		✓					✓	✓	
	63-64	X		✓					✓	✓	
	64-65	X							✓	✓	
	66-67	X							✓	✓	

P.O. No. 8584-0480-2
Part Name Body 16" 900# Gate
Part No. 2822-5-1
Heat No. H-2037
Material Cast Steel

Radiographic Insp. Spec. ASTM E94-68
Acceptance Std. ASTM E71, E186, & E280 Class 2; except defect types D, E, F, & G are unacceptabl
Other Insp. MT ☒ PT ☐
Insp. Spec. ASME sec III para N-626
Acceptance Std. same

Our Shipper 13230
Foundry Job No. 36771
Cust. Shipper 0921

		FILM USED	
Qty. Rec.	1	3½ x 8½	
Qty. Insp.	1	5 x 7	
Total Accept.	1	4½ x 8½	
Total Rej.	0	3½ x 17	
Qty. X-Rayed	1	4½ x 17	
Qty. Accept.	1	8 x 10	
Qty. Rej.	0	7 x 17	188
No. of Views	206	10 x 12	
		14 x 17	4
Other Insp.	1		
Qty. Accept.	1		
Qty. Rej.	0		
MT			

Contract No. P. G. & E. 12-8-GC629
Drawing No 6037-1 5
RSSS No 35-99-66-7
Reviewed by XRENCO
P. G. & E. Inspector
Interpreter
K. D. MILLER

CPCT-D

PACIFIC STEEL CASTING COMPANY
Berkeley

CERTIFICATE OF PHYSICAL AND CHEMICAL TESTS

CUSTOMER Anchor Valve Co.
24747 Clawiter Rd.
Hayward, Calif.

HEAT NO. H. 2037
STEEL SPEC. ASTM A 216 WCB
DATE 10-25-71

Contract No. PG & E 14-16-G 0932
Customer's Order No. 8583-0480-2
PSC Order No. 36771
Pattern No. 2822-5-1 0480-2-1-4
Part Name Body
Serial No. 4, Heat Code No. #4N, Total Pcs. This Heat 1

YIELD STRENGTH	52000	PSI	
TENSILE STRENGTH	77500	PSI	
ELONGATION	33	%	
REDUCTION OF AREA	54.7	%	
BEND TEST			
IMPACT TEST RESULTS		ft. lbs.	TYPE OF IMPACT TEST
IMPACT TEST TEMPERATURE		°F	Charpy V. Notch

CHEMICAL ANALYSIS	
C.	.25
Mn.	.70
P.	.027
S.	.029
Si.	.40
Ni.	
Cr.	
Mo.	
Al.	
Co.	

HEAT TREATMENT PROCESSES

NORMALIZE @1650-1690 °F For 5:00 Hours, Temper @1110-1170 °F For 3:30 Hours
WATER QUENCH @ °F For Hours, Temper @ °F For Hours
STRESS RELIEVE (Post Weld Heat Treat) @ °F For Hours

We hereby certify that the material represented by this report is in conformance with the above indicated Steel Specification and also meets all applicable special requirements of ☐ Article of the ASME Draft Code for Pumps and Valves.
☐ Section III of the ASME Boiler and Pressure Vessel Code.

Certified By
Charles W. Lee
CHARLES LEE, Quality Assurance Mgr.

MT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph

1981 MAR 19 PM 10: 12

for castings: measurements conform to ASME SA-613 article 5 RG. Dimensions below are exclusive of flanges and non-pressure retaining boundary mat.

PAC G&E GO SF

WU INFOMASTER 1-017185M078 03/19/81
TLX ANCORCO HYWD
PD HAYWARD CALIFORNIA
TWX 910 372 6587 PAC G&E GO SF
ATTENTION MR BACIARELLI ROOM 1491

AS DISCUSSED IN OUR TELECON 3-19-81 PREVIOUSLY REPORTED DIMENSIONS FOR THE VALVE DEPICTED ON A/DV DWG 1557-3 → MAIN FEEDWATER ISOL. VALVES. WERE MAXIMUM SECTION THICKNESSES. NOMINAL THICKNESS OF THE PRESSURE BOUNDARY IS AS FOLLOWS:

BODY	2"
BONN	2-1/2"
DISC	2"

JOHN CHAPPELL
ANCORCO HYWD
3-19-81

1308 EST

PAC G&E GO SF

CPCT-D

PACIFIC STEEL CASTING COMPANY
Berkeley

CERTIFICATE OF PHYSICAL AND CHEMICAL TESTS

CUSTOMER Anchor Valve Co.
24747 Clawiter Rd.
Hayward, Calif. 94545

HEAT NO. I-133
STEEL SPEC. ASTM A216 WCB
DATE 1/18/72

Contract No. PG&E 14-16-G0932
Customer's Order No. 8583-0480-2
PSC Order No. 36774
Pattern No. 2822-5-1
Part Name Body 0480-02-1-9
Serial No. 9, Heat Code No. 9, Total Pcs. This Heat 1

CHEMICAL ANALYSIS	
C.	.25
Mn.	.69
P.	.021
S.	.023
Si.	.39
Ni.	.05
Cr.	.09
Mo.	.07
Al.	.073
Cu.	.13

YIELD STRENGTH	55,000	PSI	
TENSILE STRENGTH	79,000-	PSI	
ELONGATION	31	%	
REDUCTION OF AREA	53.0	%	
BEND			
IMPACT TEST RESULTS		ft. lbs.	TYPE OF IMPACT TEST
IMPACT TEST TEMPERATURE		°F	Charpy V. Notch

HEAT TREATMENT PROCESSES

NORMALIZE @ 1650-1670 °F For 4:10 Hours, Temper @ 1140-1170 °F For 5:00 Hours
WATER QUENCH @ ____ °F For ____ Hours, Temper @ ____ °F For ____ Hours
STRESS RELIEVE (Post Weld Heat Treat) - - - - - @ ____ °F For ____ Hours

We hereby certify that the material represented by this report is in conformance with the above indicated Steel Specification and also meets all applicable special requirements of ☐ Article ____ of the ASME Draft Code for Pumps and Valves.
☐ Section III of the ASME Boiler and Pressure Vessel Code.

Certified By
Charles Lee
CHARLES LEE, Quality Assurance Mgr.

MT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph ____
RT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph ____

CPCT-D

PACIFIC STEEL CASTING COMPANY
Berkeley

CERTIFICATE OF PHYSICAL AND CHEMICAL TESTS

CUSTOMER: Anchor Valve Co.
24747 Clawiter Rd.
Hayward, Calif.

HEAT NO. H 2054
STEEL SPEC. ASTM A 216 WCB
DATE 10-26-71

Contract No.	PG & E 14-16-G-0932
Customer's Order No.	8583-0480-2
PSC Order No.	36776
Pattern No.	2822-5-4
Part Name	Disc 0480-02-4-3
Serial No. 3 + , Heat Code No. #1-4, Total Pcs. This Heat 4	

CHEMICAL ANALYSIS	
C.	.24
Mn.	.70
P.	.026
S.	.028
Si.	.40
Ni.	
Cr.	
Mo.	
Al.	
Cu.	

YIELD STRENGTH	45000	PSI	
TENSILE STRENGTH	72500	PSI	
ELONGATION	35	%	
REDUCTION OF AREA	60.3	%	
BEND TEST			
IMPACT TEST RESULTS		ft. lbs.	TYPE OF IMPACT TEST
IMPACT TEST TEMPERATURE		°F.	Charpy V. Notch

HEAT TREATMENT PROCESSES

NORMALIZE @ 1670-1690 °F For 5:00 Hours, Temper @ 1140-1170 °F For 3:00 Hours

WATER QUENCH @ _____ °F For _____ Hours, Temper @ _____ °F For _____ Hour

STRESS RELIEVE (Post Weld Heat Treat) @ _____ °F For _____ Hour.

We hereby certify that the material represented by this report is in conformance with the above indicated Steel Specification and also meets all applicable special requirements of ☐ Article _____ of the ASME Draft Code for Pumps and Valves.
☐ Section III of the ASME Boiler and Pressure Vessel Code.

Certified By
Charles Lee
CHARLES LEE, Quality Assurance Mgr.

MT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph _____

RT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph _____

CPCT-D

PACIFIC STEEL CASTING COMPANY
Berkeley

CERTIFICATE OF PHYSICAL AND CHEMICAL TESTS

CUSTOMER	Anchor Valve Co.	HEAT NO.	H-2054
	24747 Clawiter Rd.	STEEL SPEC.	ASTM A216 WCB
	Hayward, Calif.	DATE	10-26-71

Contract No.	P.G.&E. 14-16-G-0932
Customer's Order No.	8583-0480-2
PSC Order No.	36775
Pattern No.	2822-5-2 0480- 2-2-5
Part Name	Bonnet

Serial No. 5, Heat Code No. ~~1-4~~ S/B 5-8, Total Pcs. This Heat 4

CHEMICAL ANALYSIS	
C.	.24
Mn.	.70
P.	.026
S.	.028
Si.	.40
Ni.	
Cr.	
Mo.	
Al.	
Cu.	

YIELD STRENGTH	45,000	PSI	
TENSILE STRENGTH	72,500	PSI	
ELONGATION	35	%	
REDUCTION OF AREA	60.3	%	
BE[illegible]T			
IMPACT TEST RESULTS		ft. lbs.	TYPE OF IMPACT TEST
IMPACT TEST TEMPERATURE		°F	Charpy V. Notch

HEAT TREATMENT PROCESSES

NORMALIZE @1650-1690 °F For 5:00 Hours, Temper @1125-1160 °F For 3:30 Hours

WATER QUENCH @____ °F For ____ Hours, Temper @____ °F For ____ Hours

STRESS RELIEVE (Post Weld Heat Treat) - - - - - @____ °F For ____ Hours

We hereby certify that the material represented by this report is in conformance with the above indicated Steel Specification and also meets all applicable special requirements of ☐ Article ____ of the ASME Draft Code for Pumps and Valves.
☐ Section III of the ASME Boiler and Pressure Vessel Code.

Certified By

11-2-71 SW

Charles W. Lee
CHARLES LEE, Quality Assurance Mgr.

MT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph ____

RT Performed By XRAY ENGINEERING CO. Acceptable per Paragraph ____

4. Main Steam Isolation Valve

FCV-44

Form Lq-131-3-69

NUC7-NU60L-V

QUAKER ALLOY CASTING CO., MYERSTOWN, PA.

Report of Chemical Analysis and Physical Properties

CUSTOMER Lehigh Valve Co. ORDER No. 32048-B FILE No.

ADDRESS PATTERN No. 67-C-25-13 DESIGNATION 67

ATTENTION OF SPECIFICATION 1216 [illegible] DATE 4-14-71

HEAT No.	C	Mn	Si	P	S	Cr.	Ni	Mo	V-Nitr. Plus	3.2 H	Yield P.S.I.	Tensile P.S.I.	Elong. Per Cent.	Red. of Area Per Cent.	Tensile Serial #	Tensile Serial #	Per Ship
6751	.26	.89	.51	.021	.013	.08	NIL	.05 Cu NIL	20-22	0-22	47.500	81.000	26.0	45.2	J466	N-690546	1
F6758																	
6732	.25	.71	.42	.017	.015	.12	.07	.02 Cu .04	21-22	0-20	39.500	76.500	30.0	53.5	J543	N-690547	1

F6758 UNIT 2 ISOLATION VALVE

F6732 UNIT 3 " "

100% Radiography [illegible] Acts [illegible] 6-71 + 6-94

100% [illegible] [illegible] [illegible] MS-5 [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] QUALITY CONTROL

P.O. [illegible]

A.K. 1-[illegible]

REVIEWED & ACCEPTED

REMARKS: 4-14-71 [illegible] O.E.W. 10/19/72

DATE 4/15/71 BY [illegible]

"I Certify the above information is correct."

QUAKER ALLOY CASTING CO.

BY [illegible]

METALLURGIST

PURCHASER:
Schutte & Koerting Co.
Bucks County
Cornwell Hts., Pa. 19020

LUKENS STEEL COMPANY

COATESVILLE, PA. 19320

TEST CERTIFICATE

DATE: 3-12-71 FILE NO. 7[illegible]-01-01

CONSIGNEE:

M69-00606 V
P. 2-22

MILL ORDER NO.	CUSTOMER P.O.	
38786-1	13776E	EZ 31071 DF

SPECIFICATIONS: A-515-69 Gr. 55

MILL RECD [illegible] 1971 9:00 AM

BEND TEST O.K. HOMOGENEITY TEST

CHEMICAL ANALYSIS

MELT NO.	C	Mn	P	S	Cu	Si	Ni	Cr	Mo	V	Ti	Al	B		
2345	19	48	016	021		22									

PHYSICAL PROPERTIES

MELT NO.	SLAB NO.	YIELD PSI X100	TENSILE PSI X100	% ELONG. IN 2"	% R.A.	BHN	IMPACTS				DESCRIPTION
2345	6	447	647	33							8-34-1/4 Dia. x 5-1/2"

Analysis and tests norm.

P.E. 10/19/72

S & K QUALITY CONTROL
P.O. M69-00606 & 6074
M. K. COVER
REVIEWED & ACCEPTED
DATE 10/9/72 BY [illegible]

We hereby certify the above figures are correct as contained in the records of the company.

SUPERVISOR TESTING [illegible]

PURCHASER:

3 Schutte & Koerting Co.
Bucks County
Cornwell Heights, Pa. 19020

LUKENS STEEL COMPANY
COATESVILLE, PA. 19320
TEST CERTIFICATE

MILL ORDER NO.	CUSTOMER P.O.	
18546-1	21173E	CJ 91972 DR

DATE: 9-22-72 FILE NO. 9-02-02
CONSIGNEE:

SPECIFICATIONS: SA-542 CL 2 1971 Addenda

BEND TEST O.K. HOMOGENEITY TEST

CHEMICAL ANALYSIS

MELT NO.	C	MN	P	S	CU	SI	NI	CR	MO	V	TI	AL	B	Basic Proc.	
B5137	13	48	014	023		22		2.24	96					Elec.	V.I.P. Steel

PHYSICAL PROPERTIES

MELT NO.	SLAB NO.	YIELD PSI X100	TENSILE PSI X100	% ELONG. IN 2"	% R.A.	BHN	IMPACTS				DESCRIPTION
B5137	5B	1189 1059	1299 1163	18 19							(16- 3-9/16" x 23-1/2 Dia. (16- 3-9/16" x 3-9/16 x 9-1/2

Circles, plates and tests heated 1650°F ±25°F., held 3/4hr. per inch min. and waterquenched to 500°F. then tempered 1140°F., ~~xxxx~~ held 1/2 hr. per inch min.

Mill Inspection by Schutte & Koerting

11/3/72

S & K QUALITY CONTROL
P.O. M69-00606-V
M.K. DISC & PIN
REVIEWED & ACCEPTED
DATE 10/9/72 BY MP

We hereby certify above figures are correct as contained in the records of the company.

SUPERVISOR-TESTING P. H. Line

JED Manufacturing Company, Inc.

5535 Lena St. Phila., Pa. 19144

Area Code 1-215 848-8221

STUDS • U BOLTS • HIGH TENSILE BOLTS & NUTS • ALLOY & CARBON STEEL • NON FERROUS METALS

ROLLED and CUT THREADED PRODUCTS

Sold To: Schutte & Koerting Co., Cornwallis Heights, Bucks County, Penna. 19020

Via: FU

Ship To: Same

ORDER DATE	SHIPPING DATE	INVOICE DATE	REQ. NO.	YOUR ORDER NO.	OUR ORDER NO.
8/19/70	6/17/71		AC 999	13517 E	13445

INV. COPIES	TAX	CERTIFICATION	F.O.B.			
R 3	[X] EXEMPT [ ] SUBJECT	S. [X] I. [X]	[X] SHIPPING PT. [ ] DESTINATION	[ ] L/O. [X] L/M	[ ] QUOTE [X] P. O.	MERCHANDISE MUST NOT BE RETURNED, WITHOUT OUR CONSENT.

Item	Ordered	Shipped	Description
			NO VARIATION IN SHIPMENT
A	176	176	Alloy Steel A 193 B-16 STUDS to dwg. #67-S-230 (pt.#1A)
B	16	16	DITTO 60-S-12 (pt.#1B)
C	16	17	5/8" x 3-1/2" ALLOY STEEL A 193 B-16 STUDS S&K Spec. 1-C

P.O. M69-00606-0

CERTIFICATION

This will certify that the items purchased on the above order number conforms to the specification of:

1 7/8 Ø STUDS ... A193 ... B-16

HEAT NO. 66785

C	.40 ✓		
MN	.69 ✓	TENSILE	143,000 ✓
P	.008 ✓	YIELD	135,000 ✓
S	.020 ✓	ELONG.	19.0 % ✓
SI	.28 ✓	R.A.	63.5 % ✓
CR	1.07 ✓	HARDNESS	302
MO	.54 ✓		
VA	.32 ✓		

Date Promised 1-

S&K QUALITY CONTROL
P.O. M69-00606-0 607-0
M.K. 1 A & 1B
REVIEWD & ACCEPTED
DATE 10-22-71 BY MB

Frederick G. Ott

5. Penetration Sleeves and Flued Heads

A-257

February 11, 1970

Pittsburgh-Des Moines Steel Company
P. O. Box 1447
Provo, Utah 84601

Attn: Mr. John Lott

Reference: Your purchase order #39711
Our order #50-5642

See the attached test reports from Capitol Pipe #43719.

Item #	Size	Heat #
2054 thru 2058 & 2053	12" Sch 80	192967
2102 thru 2105	14" Sch 80	69084

Sincerely yours,

Jay Anderson
Office Manager

FJA/glj

FORM P-99-80 (6/62)

NUCLEAR

ARMCO ARMCO STEEL CORPORATION
AMBRIDGE WORKS
Ambridge, Pennsylvania

REPORT OF TESTS

OK'D 2-17-70 ASTM A-333 per B. York

CUSTOMER Capitol Pipe & Steel Products, Inc. DATE 10-28-69

SPECIFICATION ASTM-A333 & ASME-SA333 GR. 1 Item 2102 thru 2105 OUR ORDER NO. 00133702-02

MATERIAL Smls. Gr. 1 Steel Pipe CUSTOMER'S ORDER NO. 47189

150' CAP. PIPE #43719

IDENTIFICATION STRIP TEST Norm	TENSILE TESTS YIELD PSI	ULTIMATE PSI	% ELONG. IN 2 IN	HYDRO TEST PSI	HEAT NUMBER	ANALYSIS C	Mn	P	S	Si	Ni	Cr	Mo
						.24	.91	.012	.017		CHEM.		
14×750	49200	76300	42.5	1900#	69084	.25	.92	.010	.016		CHECK		
						.24	.92	.010	.016		LADLE		
V-NOTCH CHARPY — 50°F.			26-21	-21 = 23 AVG.		10×10mm SIZE							
MATERIAL NORM. AT 1600°F. — 45 MIN. SOAK — STILL AIR COOLED													
CHARPY SPECIMENS STR. REL. AT 1100°F. — 45 MIN. SOAK — FURNACE COOLED													
Flattening Tests OK													

Sworn to and subscribed before me this 29th day of October A.D. 1969.

Pauline Dimitrakis

PAULINE DIMITRAKIS, NOTARY PUBLIC
AMBRIDGE BOROUGH, BEAVER COUNTY
MY COMMISSION EXPIRES MARCH 4, 1972

Tubular Service #50-8642

THE CHEMICAL ANALYSES AND PHYSICAL OR MECHANICAL PROPERTIES REPORTED ABOVE ARE CORRECT AS CONTAINED IN THE RECORDS OF THE ARMCO STEEL CORPORATION.

E. Masselroot

MILLS-WOLF STEEL, INC.

7721 PINEMONT • HOUSTON, TEXAS 77040 • TELEPHONE 714 • HO 2-2601

TEST CERTIFICATE

DATE [illegible]/70
FILE NO. [illegible]0 5544

PURCHASER Pittsburg-Des Moines Steel Co.
P.O. Box 1447
Provo, Utah 84601

OCTD per ASTM A-516 Gr 70 PDM MS-8. 4/13/70 [illegible]

FLG., STRUCT & HULL QUAL
BENDING TESTS.

FIRE BOX QUALITIES
BENDING TESTS. ok
HOMOGENEITY TESTS. ok

CHEMICAL ANALYSIS

MELT NO.	C	Mn	P	S	Cu	Si	Ni	Cr	Mo	V	Ti	Al	B	Producer:
C7758	.21	1.07	.015	.010		.15								LeTourneau

PHYSICAL PROPERTIES

CUSTOMER P.O.	SPECIFICATIONS	MELT NO.	SLAB NO.	YIELD P.S.I.	TENSILE P.S.I.	% ELONG. IN 2"			DESCRIPTION
39711 - Add #1 Item #299	ASME SA-516 Gr 70 A-300 Cl 1	C7758	162	46000	75000	25.0			1 - 1-1/4 x 64 x 258

Normalized - Longitudinal Charpy V-Notch Impact Tested @ -50°F. @ 15 Ft. Lbs., MIN. Values: 1/21, 2/22, 3/25 ok

I HEREBY CERTIFY THAT THE ABOVE TESTS ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS AS LISTED.

PRODUCTION DEPARTMENT – METALLURGICAL

United States Steel Corporation

PAGE 2

REPORT OF TUBULAR PRODUCTS

LORAIN-CUYAHOGA U.S.S. ORDER NO. 1327340 LOAD TALLY OR INVOICE NO.

MER ORDER NO. 405271

TRUCK NO. 640123 SHIPPER NO. & DATE 06/24/70

RECEIVED JUL 3 1970

KEYSTONE PIPE & SUPPLY CO
PO BOX 991
BUTLER PENNSYLVANIA

MAIL TO

KEYSTONE PIPE & SUPPLY CO 3
PO BOX 991
BUTLER PENNSYLVANIA

30470
ITEM #S 2032 THRU. 2046

WE HEREBY CERTIFY THAT THE FIGURES SET FORTH BELOW ARE CORRECT, AS CONTAINED IN THE RECORDS OF THE COMPANY.

MILL CERTIFIED

MATERIAL: SMLS

SIGNATURE E. L. BARTOLOTTA
DATE DIV MGR. QUALITY CONTROL 06/29/70

ITEM NUMBER	MATERIAL DESCRIPTION: OUTSIDE DIAMETER SIZE INCHES	WALL INCHES	GRADE	SPECIFICATION	HEAT NUMBER	MIN. HYDRO TEST PRESSURE P.S.I.	YIELD STRENGTH P.S.I.	TENSILE STRENGTH P.S.I.	ELONGATION INCHES	ELONGATION %
	20	1.812	B	AST A106	81A304	2130	42800	74900	2	420
	20	1.031	B	AST A106	84E856	2710	37800	74300	2	360
1	20	1.031	B	AST A106	82E815	2710	36200	70700	2	410

PDM
PROVO QUALITY ASSURANCE
ASTM ASME SA-333
GRADE 1 (FLATTENING TESTS)
DATE JUL 20 197
BY
APPROVED

FLATTENING TESTS OK

EN SIZE TESTED ACCORDING TO CO[illegible] RECORDS CONFORMS TO THE REQUIREMENTS OF THE SPECIFICATION LISTED ABOVE.

EM NO.	TYPE	HEAT NO.	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	N	V	B	Ti	Cb	Ce
4	LAD	81A304	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]												
5	LAD	84E856	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]												
5	LAD	82E815	20	01	006	022	[illegible]												

PER DIV MK 30040 - 29 PR

FORM 407 REV.-PG

PAGE 3

PITTSBURGH TESTING LABORATORY

ESTABLISHED 1881

850 POPLAR STREET, PITTSBURGH, PA. 15220

AREA CODE 412 . TELEPHONE 922-4000

PLEASE REPLY TO: 470-646 ... PA. 1523

A-587

LABORATORY No. 713779

ORDER No. PG-10039

Revised 5/24/71 **

CLIENT'S No. 50-C-1867

RECEIVED MAY 26 1971

REPORT

April 3, 1971

Report of: Charpy Impact Tests
V Notch, Minus 30° F.

Report to: Keystone Tubular Service Corporation
Post Office Box 991
Butler, Pennsylvania 16001

SPECIMEN IDENTIFICATION	SIZE OF SPECIMEN	IMPACT FOOT POUNDS
Ht. 82E815	10 MM x 10 MM	51
Ht. 82E815	10 MM x 10 MM	35
Ht. 82E815	10 MM x 10 MM	44
Ht. 233220 24" Diameter	10 MM x 10 MM	66
Ht. 233220 24" Diameter	10 MM x 10 MM	66
Ht. 233220 24" Diameter	10 MM x 10 MM	56.5
~~*26" Diameter~~	~~10 MM x 10 MM~~	~~3.5~~
~~*26" Diameter~~	~~10 MM x 10 MM~~	~~8~~
~~*26" Diameter~~	~~10 MM x 10 MM~~	~~3~~
Ht. 84E856	10 MM x 10 MM	28.5
Ht. 84E856	10 MM x 10 MM	33.5
Ht. 84E856	10 MM x 10 MM	31

The above samples were heat treated per ASTM A333, Para. 4.4.1.1 before machining and testing.

*No heat number.

**Revised per client's instructions.

PDM
PROVO QUALITY ASSURANCE
ASTM ASME SA-333
GRADE T1 (CHARPY V-NOTCH)
DATE JUL 20 1971
BY
APPROVED

PITTSBURGH TESTING LABORATORY

Earl Gallagher

Earl Gallagher, Manager
Physical Testing Department

cc: 3-Client

PEE DVR# 30470-29 PR

PITTSBURGH TESTING LABORATORY

ESTABLISHED 1881
850 POPLAR STREET, PITTSBURGH, PA. 15220

AREA CODE 412 . TELEPHONE 922-4000

Revised 5/24/71 **

CLIENT'S No. 50-C-1867

LABORATORY No. 713779

ORDER No. PO-10039

470 A-588

MAY 26 1971

REPORT

April 3, 1971

Report of: Charpy Impact Tests
V Notch, Minus 30° F.

Report to: Keystone Tubular Service Corporation
Post Office Box 991
Butler, Pennsylvania 16001

SPECIMEN IDENTIFICATION	SIZE OF SPECIMEN	IMPACT FOOT POUNDS	%EXPAND	%SHEAR
Ht. 82B815	10 MM x 10 MM	51	.035	42
Ht. 82B815	10 MM x 10 MM	35	.038	42
Ht. 82B815	10 MM x 10 MM	44	.029	47
Ht. 233220 24" Diameter	10 MM x 10 MM	66	.024	20
Ht. 233220 24" Diameter	10 MM x 10 MM	66	.026	20
Ht. 233220 24" Diameter	10 MM x 10 MM	56.5	.026	20
*26" Diameter	10 MM x 10 MM	2.5		
*26" Diameter	10 MM x 10 MM	REJECTED THIS		
*26" Diameter	10 MM x 10 MM	SIZE & HEAT 3		
Ht. 84B856	10 MM x 10 MM	28.5	.028	25
Ht. 84B856	10 MM x 10 MM	33.5	.026	25
Ht. 84B856	10 MM x 10 MM	21	.026	25

The above samples were heat treated per ASTM A333, Para. 4.4.1.1 before machining and testing.

*No heat number.

**Revised per client's instructions.

PDM
PROVO QUALITY ASSURANCE
ASTM ASME LATERAL
GRADE EXPANSION & SHEAR PROFILE
DATE JUL 20 1971
BY
APPROVED

PITTSBURGH TESTING LABORATORY

Earl Gallagher, Manager
Physical Testing Department

cc: 3-Client

REF. DVR 30470-29PR

dtr

TELEPHONE
-662-6277

E. J. COX, PRESIDENT

HEAT TREATING
FLAME HARDENING
INDUCTION HARDENING
CASE HARDENING

PITTSBURGH COMMERCIAL HEAT TREATING CO.
49TH STREET & A.V.R.R., PITTSBURGH, PA. 15201

470
A-589
2 copies

METAL TREATING CERTIFICATION

We hereby certify that we have performed the following metal treating operation:

Customer: Keystone Pipe & Supply
P.O. Box 992
Butler, Pa 16001

PDM Contact
30470

Customer's Purchase Order Number: 5002156

Quantity and Part: 25 Pieces Tubing

Material: A106 Tubing

Our Shop Order Number: #60604

Treatment: Material was Hardened 1475°F (±25°F) held for a minimum of one (1) hour per inch of thickness
Then water quenched in agitated water

Tempered 1080°F (±15°F) Held for a minimum of one (1) hour per inch of thickness
Then air cooled

Results on hardness-Random inspection 170/217 BHN

Date of Treatment: 4-13-1971 to 4-21-1971

PDM
PROVO QUALITY ASSURANCE
ASTM ASME HEAT
GRADE TREATING PROCEDURE
DATE JUL 20 1971
BY
APPROVED

Pittsburgh Commercial Heat Treating Co.

By Roy R. Fick

PCHT Form QA20

REF. DVR-30470-29

470
A-590

KEYSTONE TUBULAR SERVICE CORP.
A SUBSIDIARY OF THE MARMON GROUP, INC.
750 West 1625 South, Salt Lake City, Utah 84104 ☎ 801-467-1546

June 8, 1971

Pittsburgh-Des Moines Steel
P. O. Box 1447
Provo, Utah 84601

Attn: Mr. John Lott

Reference: Your order #30470 .

26" OD X 3/4" Wall x 5'-0" item # 2022

24" Sch 80 x 5'-2" item # 2023 through 2026 4

20" Sch 80 x 5'-5" item # 2032 through 2043 12 25

20" Sch 80 x 5'-2" item # 2044 through 2046 3

24" Sch 40 x 5'-2" item # 2027 through 2031 5

Due to the lack of availability of A-333 Gr. 1 nuclear steel and after discussing with Pittsburgh-Des Moines' engineers, we selected A-53-Gr. B & A-106 Gr. B material with the proper physical & chemical analysis and performed heat treatment and charpy V notch impact test in accordance with A-333 Gr. 1 nuclear and Pittsburgh-Des Moines specification MS9.

The material was impact tested by Pittsburgh Testing Laboratories and the results are shown on their laboratory reports #713779, 710235, & 715315 which are attached.

The heat treatment was performed by Pittsburgh Commercial Heat Treating Company. Temper charts, furnace charts, certifications and evidence of calibration are attached.

Sincerely yours,

KEYSTONE TUBULAR SERVICE

Jay Anderson

Jay Anderson
Office Manager

REF DVR#30470-29 PR

FJA/glj

6. Equipment Hatch

INSPECTION DEPARTMENT — METALLURGICAL

United States Steel Corporation

TEST REPORT OF PLATES

WORKS HOMESTEAD DISTRICT U.S.S. ORDER NO. 1L7A90L LOAD TALLY OR INVOICE NO. 163-36324

CUSTOMER ORDER NO. 30711-PTS 1/14471

CAR OR TRUCK NO. NKP 008160 SHIPPER NO. & DATE 44858 3/25/71 160

PBM

PROVO QUALITY ASSURANCE

ASTM ASME SA-516

GRADE 70

DATE APR 28 1971

BY [illegible]

APPROVED

PITTSBURGH DES MOINES STEEL CO
P O BOX 1447
PROVO UTAH 84601

SHIP TO: PITTSBURGH DES MOINES STEEL
8TH SOUTH & 5TH EAST
PROVO UTAH

ASME-SA-516-69-GR-70-PRESSURE-VESSEL-QUAL-LOW-CHARPY-V-NOTCH-IMPA CT-TE-VALUES-20-FT-LBS-MIN-AVG-3-SPLC-AT-MINUS-20-DEG-F-IN-ACCORD WITH-SA300-68-&-SA370-PLTS-NORM-ADDL-TEST-SPECIMENS-SR-AT-9-HRS

028483

BILL CERT T/R APPLICABLE ANALYSIS AND TEST RESULTS & CERT T/R AP PLICABLE ANALYSIS AND TEST RESULTS TO SOLD TO ATTN MR JOHN LOTT P ?? PURCH AGENT

0610

WE HEREBY CERTIFY THAT THE CHEMICAL ANALYSIS AND/OR TESTS SHOWN IN THIS REPORT ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

SIGNATURE H. W. HAXSON, CH. MET.

DATE 03/25/71

ITEM NO.	HEAT NO.	TEST OR PIECE IDENTITY NO.	NO. PCS.	THICKNESS OR SECTION	WIDTH, DIA. OR FT. WT.	LENGTH	WEIGHT	YIELD PT. PSI.	TENSILE STR. PSI.	ELONGATION % IN 8"	ELONGATION % IN 2"	% RED. OF AREA
558	668094	046315 BC	1	4 1/2	59	93	8188	47600	76700		30.0	

Longitudinal V Notch Charpy Impact Tests 10 x 10 MM Made at Minus 20 Deg F. 20-42-31 Ft Lbs.
% Shear Rate - 40-33-37 and Lateral Expansion - .018-.033-.028 Mils.
LATERAL EXPANSION AND PERCENT SHEAR FOR INFORMATION ONLY.
Plates and Tests Normalized
Test specimens only Stress Relieved @ 1125 Deg F. Maintained 9 hours. Furnace cooled to below 600 Deg F.
Heating Rate - 90 Deg F. per hour.
Cooling Rate - 90 Deg F. per hour.

Furnace Charts attached to Test Reports 3/31/71

YIELD POINT @ .0050 EXT.

SPECIMEN SIZE TESTED ACCORDING TO COMPANY RECORDS CONFORMS TO THE REQUIREMENTS OF THE SPECIFICATION LISTED ABOVE

* B OR H INDICATE COMPLIANCE OF BEND OR HOMO TESTS, RESPECTIVE

HEAT NO.	TYPE	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	N	V	B	Ti	Cb	Co
668094	LADL	.22	1.12	.015	.019	.20												

Grain Size #8 FINE GRN S

FORM G-262-1 REV 11/65 (7-66)

ADDENDUM

LOWEST SERVICE METAL TEMPERATURE FOR FEEDWATER AND MAIN STEAM LINE COMPONENTS.

The lowest service metal temperature for the Feedwater and Main Steam lines components were deduced using the minimum inside containment temperature of 100°F (item 2, letter) and the process fluid temperature in these lines of 434°F and 536°F (Feedwater and Steam respectively). These lines are also insulated with class IV or better insulation. It is obviously conservative to assume a lowest service metal temperature of 100°F for the sleeves, flued heads and valves in these lines.

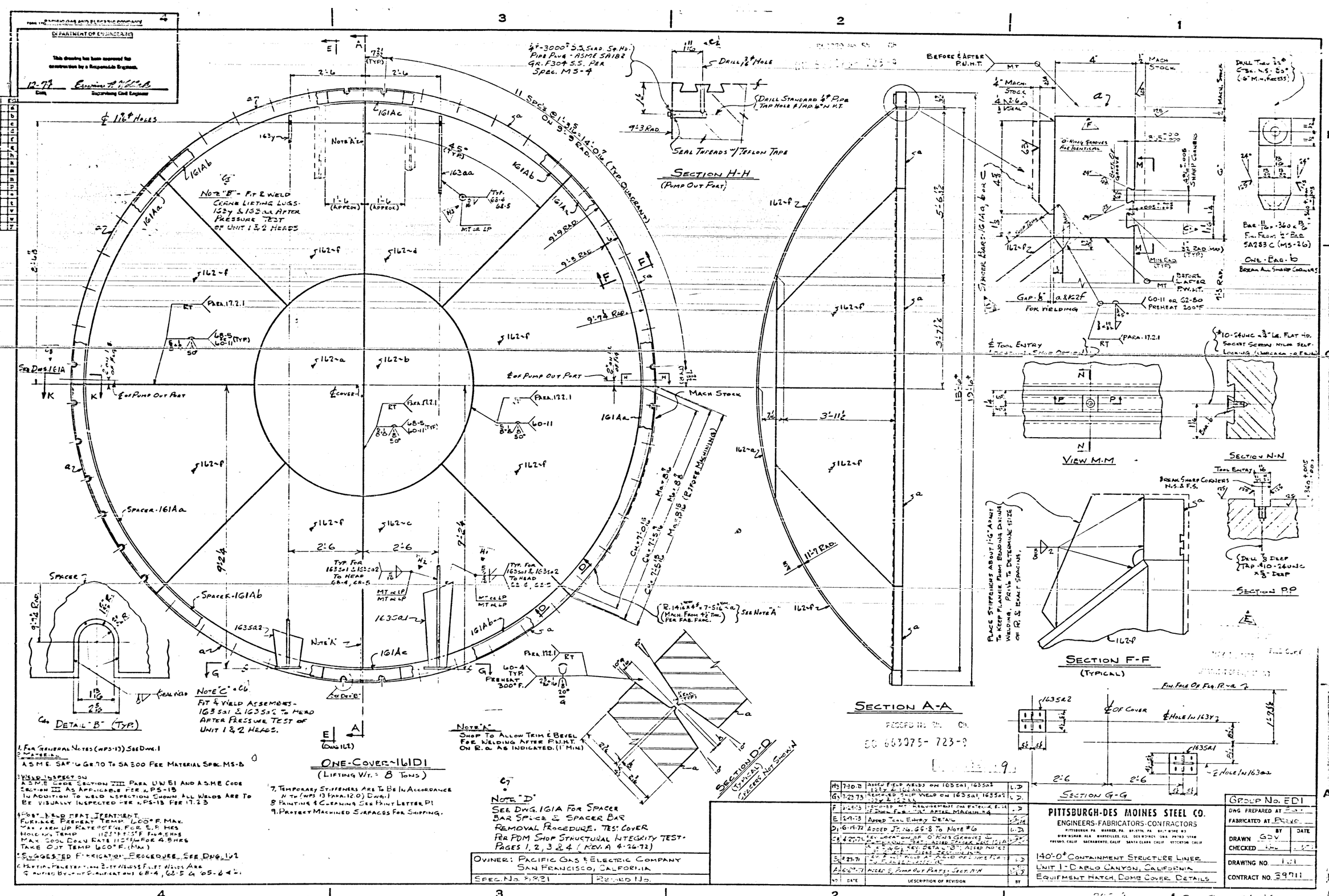
In the case of auxiliary feedwater injection, the mean fluid temperature is 40°F. When the large mass of insulated lines, steam generator and other components is considered together with the short time involved for the reactor shut-down under these conditions, one finds that the temperature of the components such as valves and flued heads will not drop below the conservative 100°F value estimated above.

These values can be used in determining compliance of the various components with 10 CFR 50, Appendix A, Criterion 51 - Fracture Prevention of Containment Pressure Boundary.

Attachment 1

List of Documentation

1. Main Feedwater Piping
2. Main Steam Piping
3. Main Feedwater Isolation Valve - FCV-441
4. Main Steam Isolation Valve
5. Penetration Sleeves and Flued Heads
6. Equipment Hatch (Thickest Hatch)



SHEET No:-1 S FIRST, CHANGE LAST.

PG&E 24 X

JAN MAR MAY JULY SEPT NOV
FEB APR JUNE AUG OCT DEC
78

8103300087