Duquesne Light

Nuclear Construction Division
Robinson Plaza, Building 2, Suite 210
Pittsburgh, PA 15205

2NRC-5-006
(412) 787-5141
(412) 923-1960
Telecopy (412) 787-2629

January 15, 1985

United States Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Mr. George W. Knighton, Chief
Licensing Branch 3
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Fracture Prevention of Containment Boundary (GDC-51)

Gentlemen:

Mr. B. K. Singh has recently informed Duquesne Light Company (DLC) that Attachments I and II to DLC letter 2NRC-3-087 from Mr. E. J. Woolever to Mr. H. R. Denton, dated November 14, 1983, are missing from the records. In accordance with Mr. Singh's request, attached is a copy of both of these attachments.

Mr. Singh has also informed DLC that the MTEB Reviewer, Mr. J. Halapatz, has indicated that GDC 51 is satisfied and that there are no related SER Open Items. This submittal of Attachments I and II is accordingly only for record purposes.

DUQUESNE LIGHT COMPANY

By E. J. Woolever
E. J. Woolever
Vice President

JJS/wjs
Attachment

cc: Mr. B. K. Singh, Project Manager (w/a)
Mr. G. Walton, NRC Resident Inspector (w/a)

B001
1/1

TECHNICAL SUMMARY GDC-51 J.O. No. 12241
BEAVER VALLEY POWER STATION - UNIT 2
DUQUESNE LIGHT COMPANY

1. Lowest Service Metal Temperature

The lowest service metal temperature (LSMT) for appurtenances of the containment liner, equipment hatch, and personnel airlock is identified as +70°F during normal operating maintenance.

The LSMT for the main steam piping and valve is 120°F and the feedwater piping and valves is 120°F. The LSMT in this evaluation applies during hot hydrostatic testing. The 120°F is a minimum value for hot hydrotest of the system and the actual test temperature would be higher to assure that the minimum is not violated.

2. Containment Pressure Boundary Materials

The materials of the containment pressure boundary reviewed within the context of GDC51 were:

a. Equipment Hatch; Personnel Airlocks

Equipment hatch bolt flange, 5 1/2 in. SA 516 Gr. 60 normalized, is identified as a limiting material. Summer 1977 addenda of ASME Class 2 rules would assign as Tndt of 0°F and an LPSMT of +58°F. However, CMTR indicates that the material was DWT tested to a measured NDT of -10°F, which would assign a lowest permissible service metal temperature (LPSMT) of +48°F to the material, allowing adjustment for thickness.

Personnel airlock head ring, 5 1/2 in. SA516 Gr 70 quenched and tempered, is identified as a limiting material. CMTR indicates that the material was DWT tested to a measured NDT of -10°F. Summer 1977 addenda of ASME Class 2 rules would assign an LPSMT of +48°F to the material, allowing adjustment for thickness.

b. Sleeves

(1) SA 333 Gr. 6 is applied in penetration sleeves with a max wall of 0.937 in., (18 in. electrical penetration). CMTR indicates that the material was normalized and DWT tested to a measured Tndt of -10°F. Summer 1977 addenda of ASME Class 2 rules would assign an LPSMT of +20°F to the material.

(2) SA 155 KCF60, 1/2 in. thick, (pens. 90 and 91) is exempted from testing as the material is less than 5/8 in. in thickness.

(3) SA 537 Cl. 2, 1 1/4 wall thickness (pens 73, 74, 75) is identified as a limiting material. CMTR indicates the material was quenched and tempered and DWT tested to a measured Tndt of -10°F. Summer 1977 addenda of ASME Class 2 rules would assign an LPSMT of +20°F to the material.

c. Flued Heads

SA 508 Class 1, max axial thickness of 9 in. main steam, is identified as a limiting material. CMTR indicates that the material was normalized and quenched and tempered and DWT tested to a measured Tndt of -30°F. Summer 1977 addenda Class 2 rules would assign an LPSMT of +45°F to the material allowing adjustment for thickness.

SA 508 Class 1, max axial thickness of 7 in. feedwater, is identified as a limiting material. CMTR indicates that the material was DWT tested to a measured Tndt of -40°F. Summer 1977 addenda Class 2 rules would assign an LPSMT of +27°F, allowing adjustment for thickness.

d. Process Pipe

Process pipes are integral with flued head forgings in flued head penetrations.

Process pipes, penetrating and welded to liner, were reviewed as sleeves with max wall of .432 in.

e. Multiple Penetration Header Plate

Limiting material is identified as SA 350 Gr. LF2, 2 1/4 in. thickness. CMTR indicates that the material was quenched and tempered and DWT tested to a measured Tndt of -10°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +20°F to the material.

f. Main Steam/Main Feedwater Systems

(1) Main Steam System (MK MSS 169/170/171-1
169/170/171-3)

Piping:

SA106, 30 in. x 1.875 in. wall, by Cameron, normalized with no CVN. NUREG 0577 Fig. B.7, given that the material normalized, would place the Tndt in that population at or below the Table 4.4 NDT of +40°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +70°F to the material.

Fittings: (MK MSS 169/170/171-2 TYP)

Tee: SA234 WPCW, 30 in. x 1.875 in. minimum wall, applying SA106 Gr. C fittings quenched and tempered no CVN. NUREG 0577 Fig. B.7 would assign the material a Tndt in that population below +40°F (Table 4.4). Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +70°F to the material.

Bosses: SA105, normalized, -2 1/2 in. max thickness typica . NUREG 0577 Table 4.4 assigns a (NDT +1.3T)NDT of -5°F. Summer 1977 Addenda ASME Class 2 rules would assign an LPSMT of +25°F.

Headers(Relief Valve) MSS 105/106/107-1

SA106 Gr C, 35.945 nominal OD x 30.000 in. minimum I.D. x 2.750 in. wall by Cameron, normalized. NUREG 0577 Fig. B.7 would assign an NDT in that population at or below 40°F of Table 4.4, given that the material is normalized. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +75°F, allowing adjustment for thickness.

Header Cap:

SA234 WPC, 36 in. OD x 2.75 in. minimum wall, applying SA106 Gr.C with no CVN normalized. NUREG 0577 Fig. B.7 would assign an NDT in that population at or below +40°F of Table 4.4. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +75°F, allowing adjustment for thickness.

Header W/N Flanges

SA105, 6 in. x 1500 lb, normalized per CMTR. NUREG 0577 Table 4.4 assigns a (NPT +1.3T) NDT of -5°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +30°F.

Main Steam Isolation Valve (HYV-101A/B/C)

Body: SA350 Gr. LF2: normalized, quenched, and tempered with a 2.28 in. minimum design thickness. NUREG 0577 Table 4.4 would assign a Tndt in the population below -28°F, given that the material was quenched and tempered. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +19°F, allow adjustment for thickness.

Bonnet: SA350 Gr. LF2, normalized, quenched, and tempered, 6.5 in. minimum design thickness. NUREG 0577 Table 4.4 would assign a Tndt in the population below -25°F, given that the material was quenched and tempered. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +37°F, allowing adjustment for thickness.

Ball: Exempt - fabricated from austenitic stainless steel

Bolting: NA

Reducers: Ht216492 also applied for the bonnet, thus the reducers have the same heat treat as bonnet. The minimum design thickness is 1 7/8 in. Therefore the bonnet is limiting.

(2) Main Feedwater (105/106/107-1)

Pipe: SA106 Gr. C, 16 in. Sch. 80 (0.843 in. wall thickness) by Phoenix Steel. No heat treat nor CVN. However, Phoenix practice (as developed from Salem 2 review) discharges pipe to cooling at or above AR_3. Material can reasonably be characterized as normalized. NUREG 0577, Fig. B.7 would assign the material a NDT in that population at or below the NDT of +40°F of Table 4.4. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +70°F.

Fittings

Fittings: 3/4, 1 1/2, and 2 in. X3000 lb socket weld bosses of SA105 normalized with a wall thickness less than 2 1/2 in. NUREG 0577 Table 4.4 assigns a (NDT +1.3T) NDT of -5°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +25°F.

Feedwater Check Valve (VCW-06082V305/306/307)

Body: SA 216 Gr WCB, 1.094 in. minimum wall design thickness, normalized, and tempered. NUREG 0577 Fig. B.2 data would locate the Tndt of the material in the population at or below the Table 4.4 NDT of +35°F, taking into account the size effort. Summer 1977 addenda, ASME Class 2 rules would assign an LPSMT of +65°F.

Disc: SA 216 Grade WCB, less than 2 1/2 thick, normalized and tempered. LPSMT same as as check valve body.

Cover: SA 515 Gr. 70, 3 1/2 in. thick, normalized. NUREG 0577 Fig. B.7 data would locate the Tndt in the Table 4.4 population above the NDT. Assuming a (NDT +1.3T) NDT of +77°F, Summer 1977 Addenda, ASME Class 2 rules would assign an LPMST of +122°F, allowing adjustment for thickness.

Bolts and Nuts: The bolts and nuts used in assembly of the check valve are SA-193 B7 and SA-194 2H respectively. NUREG 0577 Table 4.6 categorizes the material as having the least susceptibility to brittle fracture.

Feedwater Islation Valve (2FWS-HYV157 A/B/C)

Body: SA 105, 22 1/2 in. dia x 1.008 in. wall, normalized. NUREG 0577 Table 4.4 assigns a (NDT +1.3T) NDT of -5°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +25°F.

Bonnet: SA 105, 2.935 in. in thickness, normalized. NUREG 0577 Table 4.4 assigns a (NDT +1.3T) NDT of -5°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +35°F, allowing adjustment for thickness.

Neck: SA 105, 1.015 in. in thickness, normalized. NUREG 0577 Table 4.4 assigns a (NDT +1.3T) NDT of -5°F. Summer 1977 addenda ASME Class 2 rules would assign an LPMST of +25°F.

Retainer: SA 105, less than 2 1/2 in. in thickness, normalized. NUREG 0577 Table 4.4 assigns a (NDT +1.3T) NDT of -5°F. Summer 1977 addenda ASME Class 2 rules would assign an LPSMT of +25°F.

Gate: SA 351 Gr. CF8M, 10 in. x 1500 lb gate, casting. This is an austenitic stainless steel material and exempt from testing.

PROJECT: Beaver Valley Power Station - Unit No. 2

GDC-51 Fracture Prevention of Containment Pressure Boundary (Criterion 51)

Component System	Item (In)	Thick. (In)	Material	Heat Treatment	Impact Type	Nureg 0577	NDTT (°F)	LPMST (°F)	LMST (°F) See Note
Equip. Hatch	Bolt Flange	5½	SA 516 GR 60	Normalized	DWT -10°F	NA	-10	+48	+70
Personnel Air Lock	Head Ring	5½	SA 516 GR 70	Quenched Tempered	DWT -10°F	NA	-10	+48	+70
Sleeves	Elect. Pent. 18 ".	0.937	SA 333 GR 6	Normalized	DWT -10°F	NA	-10	+20	+70
	Pen 90 & 91	0.500	SA 155 KCF 60	Exempt - less than 5/8" wall thickness					
	Pen.73, 74,75	2¼	SA 537 CL 2	Quenched & Tempered	DWT -10°F	NA	-10	+20	+70
Flued Heads	Main Steam	9(axial)	SA 508 CL 1	Normalized Quenched Tempered	DWT -30°F	NA	-30	+45	+70
	Feed Water	7(axial)	SA 508 CL 1	Normalized Quenched Tempered	DWT -40°F	NA	-40	+27	+70
Process	Integral with flued heads - see flued heads								
	Welded	0.432	(See Electrical Penetration for limiting Case)						
Multiple Penetration	Header Plate	2½	SA 350 GR LF2	Quenched Tempered	DWT -10°F	NA	-10	+20	+70
Main Steam	Piping	1.875	SA 106 GR C	Normalized	NA	Fig.B.7 Table4.4	+40	+70	+120
	Tee Fitting	1.875	SA 234 WPCW	Quenched Tempered	NA	Fig.B.7 Tbl.4.4	+40	+70 C	+120
	Boss Fitting	2½Max.	SA 105	Normalized	NA	Tbl.4.4	-5	+25	+120

GDC-51 Fracture Prevention of Containment Pressure Boundary (Criterion 51)

Component System	Item (In)	Thick. (In)	Material	Heat Treatment	Impact Type	Nureg 0577	NDTT (°F)	LPMST (°F)	LMST (°F) See Note
Main Steam (Cont)	Header (Relief Valve)	2.75	SA 106 GR. C	Normalized	NA	Fig.B.7 Tbl 4.4	+40	+75	+120
	Header Cap	2.75	SA 234 WPC	Normalized	NA	Fig.B.7 Tbl 4.4	+40	+75	+120
	Header Weld Neck Flange	3.25	SA 105	Normalized	NA	Tbl4.4	-5	+30	+120
	Isolation Valve Body	2.28	SA 350 GR. LF2	Normalized Quenched Tempered	NA	Tbl 4.4	-28	+19	+120
	Isolation Bonnet	6.5	SA 350 GR LF2	Normalized Quenched Tempered	NA	Tbl 4.4	-25	+37	+120
	Isolation Valve Ball	Exempt - fabricated from austenitic stainless steel							+120
	Isolation Valve Reducers	1 7/8	Same Heat as bonnet, therefore bonnet is limiting						+120
Main Feed Water	Piping	0.843	SA 106 GR. C.	Normalized	NA	Fig.B.7 Tbl4.4	+40	+70	+120

GDC-51 Fracture Prevention of Containment Pressure Boundary (Criterion 51)

Component System	Item (In)	Thick. (In)	Material	Heat Treatment	Impact Type	Nureg 0577	NDTT (°F)	LPMST (°F)	LMST (°F) See Note
Main Feed-Water	Fitt-ings	2½max.	SA 105	Normalized	NA	Tb14.4	-5	+25	+120
	Check Valve Body	1.094	SA 216 GR WCB	Normalized Tempered	NA	Fig.B.2 Tb14.4	+35	+65	+120
	Check Valve Disc	2½max	SA 216 GR 70	Normalized	NA	Fig.B.2 Tb14.4	+35	+65	+120
	Check Valve Cover	3½max.	SA 515 GR 70	Normalized	NA	Fig.B.7 Tb14.4	+77	+122	+120
	Check Valve Bolts & Nuts	1 3/8 max.	SA 193 B7 SA 194 2H	NA	NA	Tb14.6	Least Susceptibity to Failure		
	Isola-tion Body	1.008	Sa 105	Normalized	NA	Tb14.4	-5	+25	+120
	Isola-tion Valve Bonnet	2.935	SA 105	Normalized	NA	Tb14.4	-5	+35	+120
	Isola-tion Neck	1.015	SA 105	Normalized	NA	Tb14.4	-5	+25	+120
	Isola-tion Valve Retain-er	Less than 2½	SA 105	Normalized	NA	Tb14.4	-5	+25	+120

GDC-51 Fracture Prevention of Containment Pressure Boundary (Criterion 51)

Component System	Item (In)	Thick. (In)	Material	Heat Treatment	Impact Type	Nureg 0577	NDTT (°F)	LPMST (°F)	LMST (°F)
Main Feedwater	Isolation Valve Gate		SA 351 GR CF8M	Exempt - Stainless Material					

Note 1 The 120°F for the main steam and feed water systems is a minimum for hot hydrotest of the system and the actual temperature would be higher to assure that the minimum is not violated.

Attachment II

INDEX OF CMTR's

Section	Item
1.	Equipment Hatch
2.	Personnel Air Lock
3.	Sleeve Electrical Pen. 18"
4.	Sleeve Pen. 73,74,75
5.	Flued Heads Main Steam
6.	Flued Heads Feed Water
7.	Multiple Penetration Header Plate
8.	Main Steam Piping
9.	Main Steam Tee Fitting
10.	Main Steam Boss Fitting/Header/Header Cap/ Header Weld Neck Flange
11.	Main Steam Isolation Valve Body/Bonnet/ Valve Ball/Valve Reducers
12.	Main Feed Water Piping/Fittings
13.	Main Feed Water Check Valve Body/Disc/Cover
14.	Main Feed Water Isolation Valve Body/Bonnet/ Neck/Retainer

SECTION 1

United States Steel Corporation

13? 1

ID-60?

TEST REPORT OF PLATES

WORKS HOMESTEAD DISTRICT U.S.S. ORDER NO LA16610 LOAD TALLY OR INVOICE NO 163-29945

CUSTOMER ORDER NO 214 1/30/74

CAR OR TRUCK NO PLE 009506 SHIPPER NO. & DATE 54060 10/30/74 160

THIS REPORT HAS BEEN CHECKED AND FOUND TO COMPLY WITH APPLICABLE SPECIFICATIONS

Signed J. Buchanan Date 3-20-75

PITTSBURGH DES MOINES STEEL CO
NEVILLE ISLAND BRANCH
PITTSBURGH PA 15225

SOLD TO

PITTSBURGH DES MOINES STEEL CO
NEVILLE ISLAND PA

ASME SA-516 WINTER 1972 ADDENDA GRADE 60 PR V.D TO PDM SPEC MS-7.
2212 DTD 12/7/73. NORM VAC DEGAS. D.M.T NO BREAK @ -10 LONG ULTRAS
CNIC INSPECT SA-578 LEVEL 1, 100% SCAN. ADDL SET TEST NORM STR REL
MILL CERT T/H ANALYSIS TEST RESULTS PER SPEC 3 T/R TO SOLD TO 012121
AITH ANN KIESE INCL CUST SPECN

0604

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 M.W. MAXSON, CH. MET.

DATE 10/30/74

ITEM NO	HEAT NO	TEST OR PIECE IDENTITY NO.	MATERIAL DESCRIPTION: 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
01	5W7457	215349 **BC ***BC	1	6.0000	96	176	28720	* 39.6 * 41.1	71.3 67.7		29.0 31.0	

ID 6010

**P.3.-LONG. NDT @ -10 DEG. F. PASSED.
***P.3.-LONG. NDT @ -10 DEG. F. PASSED.

ABOVE VALUES EXPRESSED IN K.S.I.

**PLATE NORMALIZED @ 1652 DEG. F. PLUS OR MINUS 25 DEG. F. MTD. 180.0 MINUTES. AIR COOLED.

***PLATE NORMALIZED @ 1652 DEG. F. PLUS OR MINUS 25 DEG. F. MTD. 180.0 MINUTES. AIR COOLED.
***TEST SPECIMENS STRESS RELIEVED @ 1125 DEG. F. PLUS OR MINUS 25 DEG. F. MTD. 10.00 HRS. FCE COOLED TO BELOW 600 DEG. F. HEATING RATE 100 DEG. F. PER HOUR. COOLING RATE 100 DEG. F. PER HOUR. AIR COOLED.

ULTRASONIC INSPECTION---OK REPORT ATTACHED.

BEAVER VALLEY - UNIT NO. 2
DUQUESNE LIGHT COMPANY
ID NO. 2241 28V-65
CONTAINMENT LINER AND MAT EMBEDMENTS
FOR STEEL CO.
PITTSBURGH, PA.

*YIELD POINT @ .0050 EXT.

WE CERTIFY THAT THE ABOVE MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATION LISTED ABOVE

* B OR H INDICATE COMPLIANCE OF BEND OR HOMO TESTS RESPECTIVELY

HEAT NO	TYPE	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	N	V	Cb	Co
5W7457	LADL	19	106	010	014	25										

AVG GR SIZ 08

A-225

ML

09 32

SECTION 2

IRWIN STEEL FABRICATORS
CANTON, OHIO 44708

COATESVILLE, PA. 19320

TEST CERTIFICATE

CONSIGNEE:

MILL ORDER NO.	CUSTOMER P.O.	
66933-1	I-3224	DP 9275 DM 4/10

THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION

SA-516 GR. 70 ASME CODE SECT. 2 & 3 SUB NE 1974 EDITION THRU WINTER 1974 ADDENDA

SHEET #1 OF 2

BEND TEST O.K. HOMOGENEITY TEST

CHEMICAL ANALYSIS

MELT NO.	C	MN	P	S	CU	SI	NI	CR	MO	V	TI	AL	B		GRA
D1563	26	96	008	020		21									
C5744	25	95	007	020		21									

THIS MATERIAL IS IDENTICAL AND COMPLIES WITH ASME SPECIFICATION SA-516 Gr. 70 Sub II - Melt Heat Treated Fine Grain Practice

9-25-78

IRWIN STEEL FABRICATORS INC.

BEAVER VALLEY – UNIT NO. 2
DUQUESNE LIGHT COMPANY
J.O. NO. 12241 28V-65
CONTAINMENT LINER AND
MAT EMBEDMENTS
PDM STEEL CO.
PITTSBURGH, PA

PERSONNEL AIR LOCK

PHYSICAL PROPERTIES

MELT NO.	SLAB NO.	YIELD PSI X100	TENSILE PSI X100	% ELONG. IN 2"	% R.A.	BHN	IMPACTS LV-10°F.			FRACTURE APPEARANCE % SHEAR	DESCRIPTION
D1563	6	492 533	730 765	32 32			75	75	73	60-60-60	1- 5-1/2" x 54 x 32
					LATERAL EXPANSION IN INCHES		.065	.068	.067		
"	5	495 487	750 745	30 30			38	42	3	30-30-30	1- 5-1/4" x 60 x 16
					LATERAL EXPANSION IN INCHES		.040	.034	.037		
C5744	6	535 544	790 801	31 30			68	71	73	60-60-60	1- 4-1/4" x 79 x 18
					LATERAL EXPANSION IN INCHES		.063	.066	.067		

LONG. DROP WEIGHT TESTS PER E208 (SIZE P3) @ 0°F., EXHIBIT NO BREAK N.D.T. IS -10°F. OR BELOW

WJW 02 OCT 30 1978

SUPERVISOR TESTING

IRWIN STEEL
CANTON OHIO 44703

TEST CERTIFICATE

MILL ORDER NO.	CI	ER P.O.	
66933-1	I-324		4/11

THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATIONS.

SALE

BEND TEST HOMOGENEITY TEST

CHEMICAL ANALYSIS

MELT NO.	C	MN	P	S	CU	SI	NI	CR	MO	V	AL	B

VALLEY – UNIT NO. 2
LIGHT COMPANY
12241 28V-65
MENT LINER AND
EMBEDMENTS
DUSA STEEL CO.
PITTSBURGH, PA

AIR L50K

PHYSICAL PROPERTIES

MELT NO.	SLAB NO	YIELD PSI X100	TENSILE PSI X100	% ELONG. IN	% R.A.	BHN	IMPACTS	DESCRIPTION

PLATES AND TESTS HEATED 1525-1675°F., HELD 1/2 HR. PER INCH MI
AND WATER QUENCHED, THEN TEMPERED 1220°F., HELD 1/2 HR. PER IN
MIN. AND WATER QUENCHED.

TESTS STRESS RELIEVED BY HEATING WITHIN A RATE OF 100°F. PER HR. TO
1100-1200°F., HELD 8 HRS. AND FURNACE COOLED WITHIN A RATE OF 100°F.
PER HR. TO 800°F.

Q.A. APPROVED
IRWIN STEEL FABRICATORS

2 of 2

WJW 02 OCT 30 1978

We hereby certify the above information is correct.

SUPERVISOR TESTING

SECTION 3

A-5[illegible]

CAPITOL PIPE
WORLD-WIDE
NUCLEAR PRODUCTS DIVISION OF
capitol
PIPE & STEEL PRODUCTS, INC.

July 12

MATERIAL CERTIFICATION

BEAVER VALLEY – UNIT NO. 2
DUQUESNE LIGHT COMPANY
J.O. NO 12241 2BV-65
CONTAINMENT LINER AND
MAT EMBEDMENTS
PDM STEEL CO.
PITTSBURGH, PA

ID-39 12

Item: 18" S/80 SMLS ASME SA-333 GR 6

Heat Number: B93318 UNITED STATES STEEL CORP

Other Identification: PDM P.O.# 299474
Contract# 13691

Specification: ASME SA-333 GR 6

Material Identification: Paint Stencil Mfgr Name
Specification
Size, Sch Heat Lot
Seamless
PO# 299474
Contract# 13691
Item# 39 Detail AH
Item# 40 Detail AJ
Item# 41 Detail AK

We Certify that the above listed material conforms to the requirements of ASME SA-333 GR 6 and PDM Specifications MS- 9.9.2 Dated 2/21/74.

M.D.# 3917

PDM
QA

J. L. H.
6-23-75
MS-9.9.2, 4-16-75

Sworn to and subscribed before me
this 12th day of July 1974

Robert Feldman

E. C. HINKLE
NUCLEAR DIVISION

18" S/80 Sch 6

National

United States Steel Corporation

STANDARD SWORN TEST REPORT

TUBULAR PRODUCTS

APPLICABLE SPECS

5-21-74 DATE

Seamless pressure pipe

Production Normalized @ 1600°F for 11 & MIN.

Capitol Pipe & Steel Products Inc.

GRADE

& ASME-SA 333 Gr. 6. ASTM A 333

CUSTOMER'S ORDER NO.

65893-00N

U.S. STEEL ORDER NO.

KE 63055

INVOICE NO.

356-03065

HEAT NUMBER	HYDRO. TEST PRESSURE MIN. P.S.I.	MECHANICAL PROPERTIES: YIELD STRENGTH P.S.I.	TENSILE STRENGTH P.S.I.	ELONG. % 2"	CHEMICAL ANALYSIS (%): C	Mn	P	S	Si	Mo
B93318	2200	39710	68450	51.5	.19	.90	.018	.022	.24	Check
B93318	2200	40310	70850	50.0	.20	.94	.018	.023	.24	Check
					.18	.84	.018	.018	.22	Ladle

BEAVER VALLEY – UNIT NO 2
DUQUESNE LIGHT COMPANY
P.O. NO 12241 28V-65
CONTAINMENT LINER AND MAT EMBEDMENTS
POM STEEL CO.
PITTSBURGH, PA.

ID-89-12-1

Flattening tests satisfactory

Full size longitudinal CVN's @ MIN'S -50°F. (3 specs)

HEAT NUMBER	FT LBS	% SHEAR	LAT EXP.
B93318	35	30	.033
	38	33	.036
	27	27	.027

Pitts. Des-Moine Co.
P.O. 299474
Ch# P-16507
Detail AH
Capitol S.O.# RN-9651-A
Item# 39

MILL

DATE 6-19-75

PENNSYLVANIA
ALLEGHENY } SS.

BEING DULY SWORN ACCORDING TO LAW DEPOSES AND SAYS THAT THE FIGURES SET FORTH ABOVE ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

SUBSCRIBED AND SWORN TO BEFORE ME THIS

21st DAY OF May A.D. 1974.

NOTARY PUBLIC

MY COMMISSION EXPIRES

JOHN A. WORLEY, Notary Public
Monroeville, Allegheny County

(SIGNATURE OF DISTRICT MANAGER)

Chief Metallurgist
(DEPARTMENT OR TITLE)

United States Steel Corporation, National Duquesne Works

PITTSBURGH TESTING LABORATORY
ESTABLISHED 1891
850 POPLAR STREET, PITTSBURGH, PA. 15220
PLEASE REPLY TO P. O. BOX 1641 PITTSBURGH, PA. 15230
AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL
AREA CODE 412 TELEPHONE 922-4000

LABORATORY No. 746532
ORDER No. PO-17500
REPORT No. 1
DATE 2-1-74

CLIENT'S No. L-66651-03
Release #105

REPORT OF LONGITUDINAL DROP WEIGHT TEST

BEAVER VALLEY – UNIT NO. 2
DUQUESNE LIGHT COMPANY
J.O. NO 12241 2BV-65
CONTAINMENT LINER AND MAT EMBEDMENTS
PDM STEEL CO.
PITTSBURGH, PA

REPORT TO: Capitol Pipe & Steel Products Inc.
Nuclear Products Division
720 Sutherland Avenue
Carnegie, Pennsylvania 15106

APPLICABLE SPEC'S CHECKED TO PDM PURCH. QA

REPORT FOR: P.D.M. RN-9651A P16507
P.O. 299474

MATERIAL INFORMATION: TYPE ASTM A333 Gr. 6
SIZE 18" SCH XO. HT B93318

SPECIFICATION: ASTM E-208 Part. 31
Test Temp. not higher than -10°F

Material Identification	Heat No.	Test	Results
1	B93318	P2 Drop Weight	Accepted
2	B93318	P2 Drop Weight	Accepted
3	B93318	P2 Drop Weight	Accepted

Test Temp. -10°F

ID-39121

Pitts. Des-Moine Co.
P.O. 299474
Ch# P-16507
Detail AH
Capitol S.O.# RN-9651-A
Item# 39

WE [illegible]
[illegible]
[illegible]
CAPITAL [illegible]
PRODUCTS [illegible]
SIGNED [signature] DATE 6-19-75

6/28/74
Date of Test

Earl Gallagher, Manager
Physical Tests Department

cc: 4-Client
Attn: Mr. Brinner

SECTION 4

United States Steel Corporation

CORRECTED REPORT 12-18-75

136

TEST REPORT OF PLATES

WORKS HOMESTEAD DISTRICT USS ORDER NO LA89835 LOAD TALLY OR INVOICE NO 163-18913

CUSTOMER ORDER NO 735 712175

CAR OR TRUCK NO BO 009840 SHIPPER NO & DATE 55890 12/04/75 160

THIS REPORT HAS BEEN CHECKED AND FOUND TO COMPLY WITH APPLICABLE SPECIFICATIONS

Signed J A Barbarotta Date 12-23-75

PITTSBURGH DES MOINES STEEL CO
NEVILLE ISLAND BRANCH
PITTSBURGH PA 15225

SHIP TO PITTSBURGH DES MOINES STEEL CO
NEVILLE ISLAND PA

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 M.W. MAXSON, CH. MET.

DATE 12/05/75

PDM DES MOINES SPECN MS 10.15 REV 0 DTD 12/10/74 QUENCH & TEMPER W/ (SA537CL2)
TEST SPECIMENS STRESS RELIEVED @ 1125 DEG F + CR -25 DEG F HOLDING
FOR 8 HRS W/ TEMP. W/SR IN ACCORD W/ASME CODE CASE SEC I (SEE ORD)

013057

MILL CERTIFIED T/R - ANALYSIS - REPORT TEST RESULTS PER SPEC 3
T/R TO SOLD TO ATTN ANN WIESE

0604

ITEM NO	HEAT NO	TEST OR PIECE IDENTITY NO		MATERIAL DESCRIPTION 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	FIN GRN PRACT
01	72A467	246911	BC TC	1	1 1/4	85	324	A1222	9753	* 74.3 * 70.9	89.0 86.3		38.0 38.0		B
	ABOVE TEST SPECIMENS STRESS RELIEVED AT 1125 DEG. F. MTD. 8.00 HRS. FRN COOLED TO 600 DEG. F. TEST SPECIMENS CHARGED COLD. HEATING RATE 300 DEG. F. PER HOUR. COOLING RATE 300 DEG. F. PER HOUR.														
	ABOVE VALUES EXPRESSED IN K.S.I.														
02	72A467	246913	BC TC	1	1 1/4	72	324	A1221	8261	* 75.1 * 75.7	90.0 90.5		30.0 34.0		B
	ABOVE TEST SPECIMENS STRESS RELIEVED AT 1125 DEG. F. MTD. 8.00 HRS. FRN COOLED TO 600 DEG. F. TEST SPECIMENS CHARGED COLD. HEATING RATE 300 DEG. F. PER HOUR. COOLING RATE 300 DEG. F. PER HOUR.														
	ABOVE VALUES EXPRESSED IN K.S.I.														

PLATES CHARGED COLD. AUSTENITIZED @ 1680 DEG. F. PLUS OR MINUS 25 DEG. F. MAINTAINED 70.5 MINUTES. WATER QUENCHED COLD.
TEMPERED @ 1200 DEG. F. PLUS OR MINUS 25 DEG. F. MAINTAINED 87.5 MINUTES. AIR COOLED.

P3- 2 DWT'S OK @ -10DEG. F. 100 % SHEAR RATE

*YIELD POINT @ .0050 EXT.

* B OR H INDICATE COMPLIANCE OF BEND OR HOMO TESTS RESPECTIVELY

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

HEAT NO	TYPE	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	N	V		Co
72A467	LADL	18	124	008	022	32	25	20	14	05			011			

BEAVER VALLEY - UNIT NO. 2
DUQUESNE LIGHT COMPANY
P.O. NO. 12211 - 28445
CONTAINMENT LINER AND APPURTENANCES
MET EMBEDMENTS --
PDM STEEL CO.
PITTSBURGH, PA

AVG GR SIZ 08 FIN GRN PRACT

Pittsburgh-Des Moines Steel Co.

RECEIVED

DEC 23 1975

Quality Assurance Department

FORM G 20831 REV 671 02 000 0447

M

32

SECTION 5

13691

REVISED DOCUMENT PACKAGE AUG 19 1976

FORM NO. 10578

A-734

NATIONAL FORGE COMPANY

MATERIAL CERTIFICATION DOCUMENTATION PACKAGE

Customer: PITTSBURGH-DES MOINES STEEL COMPANY

Forge Div. Irvine [X] **Erie** [ ]

Purchase Order No.: 122375 item 4

Foundry Div. [ ]

Drawing No.: SKWB54, REV. E1 AND 183303 A, REV. 5

NFC Order No.: 60-A-1833

Nomenclature: FLUED HEAD PENETRATION NO. [redacted]

NFC Serial No.: 03-001

Specification: 1971 EDITION ASME CODE, SECTION II, SA-508 CLASS I, MODIFIED BY PDM SPEC. MS 61.6 DTD 11/15/74 AND ASME CODE SECTION III CLASS II THRU W-72

NATIONAL FORGE COMPANY DOCUMENTS APPROVED AND USED ON THIS CONTRACT

Ultrasonic Procedure: UT-60-1833, DTD 6/6/75
Magnetic Particle Procedure: MT-60-1833, DTD 6/3/75
Heat Treat Procedure: LT-60-A-1833, OB, DTD 5/29/75
Impact Test Procedure: LT-60-A-1833-0A, DTD 5/29/75
Forging Test Drawing:
Other: HYDROSTATIC TEST PROCEDURE: 61-GP-99-006, REV. B & TEST AGENDA 60-1833, REV. 3, DTD 3/2/76

ED-A3100

DOCUMENTATION PACKAGE TABLE OF CONTENTS

3	Chemistry/Mechanical/NDT Data	Photomicrographs
	Transition Curve	Test Material (Sep. Cover)
	Heat Treatment Charts/Table IV Form	U-1A Form
	Dimensional Data	U-2 Form
	Forging Material Log	Other
	Heat Stability Data	

BEAVER VALLEY – UNIT NO 2
DUQUESNE LIGHT [illegible]
J.O NO 12241 7PV-55
CONTAINMENT LINER AND
MAT EMBEDMENTS
PDM STEEL CO.
PITTSBURGH, PA

This is to certify that the material identified above has been processed, tested and inspected in accordance with the requirements of the purchase order and applicable specifications, including any amendments and conforms to the requirements thereof.

SPECS CHECKED PDM PURCH. QA APPROVED 8-12-76

R. S. Novack
Authorized Company Representative

Date: 8/11/76

NATIONAL FORGE COMPANY
QUALITY CONTROL DEPARTMENT

FORM NO. 1050 B

NFC SHOP NO. 60 333 SERIAL NO. 03-001

CUSTOMER PITTSBURGH-DES MOINES STEEL COMPANY

MATERIAL CERTIFICATION REPORT NO. 0- 05439

CUSTOMER ORDER NO. 122375 ID-A3100

CHEMICAL ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	V	Al	Cu	Co	Ti
4-4962	.22	1.24	.008	.006	.22	.12	.17	.04	.02		.06	.007	
CHECK	.22	1.24	.009	.006	.23				.02				

MECHANICAL PROPERTIES

LEGEND	SPECIMEN IDENT. NO.	TENSILE psi	YIELD psi @ .2	%ELONG	%R/A	GRAIN SIZE	HARDNESS
L = LONG	LA 12:00	79,750	59,500	30.5	73.3	7-10	
R = RAD	LB 6:00	78,600	60,500	31.0	74.5		
X = TRAN							
Y = TANG							

APPLICABLE SPEC. REQMTS. MET PER PDM QA 9-23-76

MANUFACTURING NOTES AND HEAT TREATMENT DATA

DROP WEIGHT TESTS
2 NO BREAK @ [redacted]
1 BREAK @ [redacted]
TNDT [redacted]

OPERATION	TO °F	HRS HOLD
NORMALIZED	1680	8
AUSTENITIZED	1550	8
QUENCHED IN WATER		
TEMPERED	1240	8

IMPACT DATA

SPCMN. IDNT. NO.	°F	FT. LBS.	%SHEAR	LATERAL EXPANSION
LA 12:00	[redacted]	155.0	74	.101
		197.0	100	.111
		141.0	57	.095
LB 6:00	[redacted]	121.0	62	.084
		131.0	67	.093
		126.0	63	.090

BEAVER VALLEY - UNIT NO 2
DUQUESNE LIGHT CO.
ID NO 12241 27-65
CONTAINMENT LINER PLATE
MAT ENCLOSURES
PCI
PITTSBURGH PA

ULTRASONIC INSPECTED PER APPROVED PROCEDURE AND FOUND TO BE SATISFACTORY WITH NO REPORTABLE INDICATIONS.

MAGNETIC PARTICLE INSPECTED PER APPROVED PROCEDURE AND FOUND TO BE SATISFACTORY WITH NO REPORTABLE INDICATIONS.

HYDROSTATIC TESTED PER APPROVED PROCEDURE AND FOUND TO BE SATISFACTORY

TENSILE SPECIMEN SIZE = .505"
ROUND FLUTED INGOT MOLD
FREE OF MERCURY CONTAMINATION

COPIES OF ACTUAL TEST DATA AVAILABLE FOR REVIEW.

ID-A3100

A1-735

SECTION 6

FORM NO. 1057B

NATIONAL FORGE COMPANY

MATERIAL CERTIFICATION DOCUMENTATION PACKAGE

Customer: PITTSBURGH-DES MOINES STEEL COMPANY

Forge Div. Irvine [X] Erie [ ]

Purchase Order No.: 122375

Foundry Div. [ ]

Drawing No.: SKWB54, REV. E1 & 183305 A, REV. 3

NFC Order No.: 60-A-1833

Nomenclature: FLUED HEAD PENETRATION

NFC Serial No.: 05-001

Specification: 1971 EDITION ASME CODE, SECTION II, SA-508, CLASS I, MODIFIED BY PDM SPEC. MS 61.6 DTD 11/15/74 & ASME CODE SECTION III, CLASS II II THRU W-72

NATIONAL FORGE COMPANY DOCUMENTS APPROVED AND USED ON THIS CONTRACT

Ultrasonic Procedure: UT-60-1833, DTD 6/6/75
Magnetic Particle Procedure: MT-60-1833, DTD 6/3/75
Heat Treat Procedure: HT-60-A-1833, OB, DTD 5/29/75
Impact Test Procedure: LT-60-A-1833-0A, DTD 5/29/75
Forging Test Drawing:
Other: HYDROSTATIC TEST PROCEDURE: 61-GP-99-006, REV. B & TEST AGENDA 60-1833, REV. 3, DTD 3/2/76

DOCUMENTATION PACKAGE TABLE OF CONTENTS

This is to certify that the material identified above has been processed, tested and inspected in accordance with the requirements of the purchase order and applicable specifications, including any amendments and conforms to the requirements thereof.

R. S. Newark
Authorized Company Representative

Date: 4/21/76

FORM NO. 1056 3

C LITY CONTROL DEPARTMENT

MATERIAL CERTIFICATION REPORT NO. 0- 04657

NFC SHOP NO. 60-1 SERIAL NO. 05-001

CUSTOMER ITSBURGH-DES MOINES STEEL COMPANY

CUSTOMER ORDER NO. 122375

Page of

CHEMICAL ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	V	Al	Cu	Co	Ti						
4-4956	.22	1.15	.011	.007	.26	.17	.19	.05	.02										
CHECK	.23	1.18	.011	.007	.26				.02										

MECHANICAL PROPERTIES

LEGEND	SPECIMEN IDENT. NO.	TENSILE psi	YIELD psi @	% ELONG	% R/A	GRAIN SIZE	HARDNESS
L = LONG	LA 12:00	83,750	67,000 .2	27.0	74.9	7-9	
R = RAD	LB 6:00	86,000	67,500	30.0	75.5		
X = TRAN							
Y = TANG							

MANUFACTURING NOTES AND HEAT TREATMENT DATA

DROP WEIGHT TEST RESULTS

2 NO BREAK @ [redacted]

1 BREAK @ [redacted] INDT

[redacted]

TENSILE SPECIMEN SIZE = .505"

ROUND FLUTED INGOT MOLD

FREE OF MERCURY CONTAMINATION

OPERATION	TO °F	HRS HOLD
NORMALIZED	1650	6
AUSTENITIZED	1550	6
QUENCHED IN WATER		
TEMPERED	1240	6

IMPACT DATA

SPCMN. IDNT. NO.	°F	FT. LBS.	% SHEAR	LATERAL EXPANSION
L	[redacted]	126.0	67	.085
		170.0	100	.095
		185.0	100	.107
L 6:00	[redacted]	139.0	74	.095
		144.0	77	.087
		188.0	100	.095

ULTRASONIC INSPECTED PER APPROVED PROCEDURE AND FOUND TO BE SATISFACTORY WITH NO REPORTABLE INDICATIONS.

MAGNETIC PARTICLE INSPECTED PER APPROVED PROCEDURE AND FOUND TO BE SATISFACTORY WITH NO REPORTABLE INDICATIONS.

HYDROSTATIC TESTED PER APPROVED PROCEDURE AND FOUND TO BE SATISFACTORY WITH NO REPORTABLE INDICATIONS.

COPIES OF ACTUAL TEST DATA AVAILABLE FOR REVIEW.

SECTION 7

A-101

GW Lenape Forge Division
Energy Products Group
GULF-WESTERN MANUFACTURING COMPANY

P.O. Box 536, West Chester, Pennsylvania 19380
PHONE 215-793-1500 TWX 510-663-0372 TELEX 083-5453

MATERIAL TEST REPORT

S. O. No. 0440-5 LENAPE, PA.. June 9, 19 75

PURCHASER Pittsburgh-Des Moines Steel Company DISTRIBUTOR Same

PURCHASER'S ORDER NO. P.O. 438474 Contract 13691 DISTRIBUTOR'S ORDER NO. Same

ITEM NO.	QTY.	PRODUCT	SPEC.	HEAT OR CODE NO.	REMARKS
1	4	8.625" Dia. x 2-1/4" Lg. Penetration (Ref. Dwg. SKWB33A, Rev. A)	SA350-LF2 as modified by Customer's P.O. PDM Spec. MS-15.13.1 dated 9/6/74 (Sec. II and III ASME Code 1971 Edition thru Winter 1972 Addenda Class 2)	B13QT	M/O 332H-1,2,3,4 (Serial #'s 55, 56, 57, and 97)
2	2	8.625" Dia. x 2-1/4" Lg. Penetration (Ref. Dwg. SKWB33B, Rev. A)		B13QT	M/O 333H-1 and 2 (Serial #'s 105 and 110)

PDM PURCH. QA 9-16-75

BEAVER VALLEY – UNIT NO. 2
DUQUESNE LIGHT COMPANY
P.O. NO 12241 ZBV-65
CONTAINMENT LINER AND
SEAT EMBEDMENTS
PDM STEEL CO.
PITTSBURGH, PA

ID-A0806 ID-98 29

CHEMICAL ANALYSIS AND MECHANICAL PROPERTIES

HEAT NO.	C	MN	P	S	SI	CR	NI	MO			REMARKS
B13QT	.25 .23	1.34 1.27	.010 .013	.014 .016	.27 .27	--- ---	--- ---	--- ---	Ladle Check		HEAT TREATMENT: HT-2, Rev. 2 1650°F±25°F for 3 hrs.- Water Quench 1250°F±25°F for 3 hrs.- Air Cool Test specimens were stress relieved as follows: Held @1125°F±25°F for 3 hrs. Heating from and cooling to 600°F @100°F/hr. max.

HEAT NO.	TENSILE R.T.	YIELD	ELONG % IN 2"	R.A. %	B.H.N.	IMPACT V-Notch @-10°F.	REMARKS Lat. Exp.	% Shear
B13QT	79,040	49,920	30.0	64.5		37-27-29	.034-.028-.029	20-10-10

P-3 dropweight specimens: Two (2) no breaks per forging per heat @±0°F.

ATTACHMENTS:
Magnetic Particle Inspection
Heat Treat Charts

We hereby certify the above results to be correct and contained in the records of the Company.

L. P. Litton

SECTION 8

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES*

As Required by the Provisions of the ASME Code Rules, Section III, Div. 1 N-1141-3267

1. Fabricated by Power Piping Company, Donora, PA 15033 Order No. N-1141
2. Fabricated for Beaver Valley Power Station, Unit #2 Order No. 2BV-58, J.O. No. 12241
3. Owner Duquesne Light Company, Pittsburgh, PA 4. Location of Plant Shippingport Borough, PA
5. Piping System Identification Main Stesm and Safety Valve Header (MSS) MK MSS-170-1/1002-170-45
   (Brief description of interconnected parts, main system, etc.) ISO 100207
   (a) Drawing No. RP-2 B, E, F Prepared by Stone & Webster Engineering Corp.
   (b) National Board No. N/A Boston, Massachusetts
6. The material, design, construction, and workmanship complies with ASME Code Section III. Class 2
   Edition 1971, Addenda Date Winter 1972, Case No. N/A
   Remarks: Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report
   (Name of Part – Item number, Manufacturer's name, and Identifying stamp)
7. Shop Hydrostatic Test By Field psi.
8. Description of piping inspected
   (Including – mark no. – material spec. – nom. pipe size – schedule or thickness – length – fittings – flanges, etc.)

1 Pc. - 30" I.D. X 1.875" M.W. Smls. C.S. Pipe, SA 106, Gr, C, Item #4, L.C. No. P-1783, Ht. ID L-5616, Ser. #35461-YU, Lgth. = 0'-11½" Lg.

: Welding Electrode L.C. No. E-88, E-108, E-109

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 April 30, 1982 Signed Power Piping Company By Alan C. Hartlin

Certificate of Authorization Expires January 7, 1983 Certificate of Authorization No. N-1623

CERTIFICATE OF SHOP INSPECTION N-1141-3267

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 PENNSYLVANIA and employed by Lumbermens Mutual Casualty Co. of Long Grove, IL have inspected the piping described in this Data Report on 4-30, 19 82, and state that to the best of my knowledge and belief, the NPT Certificate Holder 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 makes 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 4-30 19 82 Commissions PA 2130

(Inspector) (National Board, State, Province, and No.)

Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ x 11, (2) information in items 1, 2, and 3 on this data report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded in item 7. Remarks

FORM NPP-1 (88)

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 _____ (NPT Certificate Holder) By _____ (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 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 NPT Certificate Holder 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 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.)

CERTIFICATE OF TEST ON PIPE MATERIAL

Cameron IRON WORKS, INC.

P. O. BOX 1212
HOUSTON, TEXAS 77001

POWER PIPING COMPANY
BEAVER AVENUE
[illegible]SBURGH, PA 15233

CORRECTED REPORT,
2/12/80

ASME QUALITY SYSTEM CERTIFICATE
(MANUFACTURER) NO. N-2209 EXPIRES 10-27-81

ALL OPERATIONS WERE PERFORMED BY CIW & MEET THE REQUIREMENTS
OF THE MATERIAL SPECIFICATION AND SEC.III,DIV.1. DATE 30 JAN. 1980

CUSTOMER ORDER NO.	C.I.W. SALES ORDER NO.	SPECIFICATION
225550-N-1141	F-9985	ASME SA106 GR.C; ASME SEC. III, CL.2 WITH NO IMPACTS AND POWER PIPING SPEC. N-1141-01, REV. A

CIW PART NO. 86-9985-341-300
DESCRIPTION OF MATERIAL SEAMLESS PIPE
O.D. 30.000" I.D. WALL 1.875" M.W.

HEAT NO.	LOCATION OR SERIAL NO.	CHEMICAL ANALYSIS C	MN	P	S	SI	CR	NI	MO	CU	CO	TI
L 5616		.24	.84	.008	.018	.22						

T NO.	QUANTITY OR SERIAL NO.	TEST LOC.	MECHANICAL PROPERTIES TENSILE PSI	YIELD PSI .2%	% ELONG 2"	% RED AREA	FLATTENING TEST	BAR SIZE	LOT NO.
L 5616	7	T-A	73,900	44,400	32.1	56.5	OK	.505	1812

FORG.SER.#	TEST LOT#	HEAT#
P-1780-35461YZ	1812	L 5616
P-1782-35461YY	"	"
P-1781-35461YX	"	"
P-1785-35461YW	"	"
P-1783-35461YU	"	"
P-1779-35462YZ	"	"
P-1784-35462YY	"	"

EACH LENGTH OF PIPE HYDROSTATICALLY TESTED AT 2800 PSI FOR 5 SEC. AND FOUND ACCEPTABLE.

HEAT TREATMENT: 1600F., HELD 1 HR. AT TEMP. AIR COOLED.

SWORN TO BEFORE ME THIS
12TH DAY OF FEB. 1980.

NOTARY PUBLIC
G. A. TOUSHTON
[illegible] Harris County, Texas

I CERTIFY THESE TESTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY

METALLURGICAL REPRESENTATIVE

DUQ. LIGHT CO., BEAVER VALLEY #2
P.O. NO. 2 BV-58, J.O. NO. 12241 PIPE FAB.

Auth. No. [illegible] Ledger Control No. [illegible] Thru [illegible] Page 1 of 1

SECTION 9

FORM NM-1 DATA REPORT FOR TUBULAR PRODUCTS AND FITTINGS WELDED WITH FILLER METAL
As required by the Provisions of th ASME Code Rules

1. Manufactured by Tube Turns, 2900 W. Broadway, Louisville, Ky. 40210
(Name and address of Manufacturer of tubular products)

2. Manufactured for Power Piping Co. Donora, Pa. 15033
(Name and address of purchaser)

3. Identification-Manufacturer's Serial No. 13692 (Ser. etc.) (CRN & Drawing No.) NA (Nat'l Board No.) 1982 (Yr. mfg.)

4. (a) Manufactured according to Mat'l Spec. SA234-WPCW (SA or SB) Purchase Order No. 32403-N-11A1

(b) Description of Product Inspected 30" Nominal ID 1.875 MW Tee

(c) Applicable ASME Code: Section III, Edition 1971 Addenda date W-72 Case No. NA Class 2

5. Remarks: Plate formed into cylinder, welded, and formed to shape
(Brief Description of Fabrication)

CERTIFICATE OF COMPLIANCE

We certify the statements made in this report are correct and the products defined in this report conform to the requirements of the ASME Material Specification listed above on line 4 (a). The radiographic film and a radiographic report showing film locations are attached to the Certified Material Test Reports provided for the material covered by this report.

Date 4-20 19 82 Signed Tube Turns (Manufacturer) By

ASME Certificate of Authorization No. N-1111 to use the NPT Symbol expires 6/16/84 (Date)

CERTIFICATE OF INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Kentucky and employed by HSB&I Co.

of Hartford, CT have inspected the products described in this Manufacturer's Partial Data Report on 4-22 19 82 and state that to the best of my knowledge and belief, the Manufacturer has produced this product in accordance with the ASME Code Section III.

By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the product described in this Manufacturer's Partial 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 4-22 19 82 (Inspector's Signature) Commissions KY593 PA WC2560 (National Board, State, Province and No.)

Q. LIGHT CO., BEAVER VALLEY NO. 2
.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB

REV. (4-78)

DETAILED AN. SIS REPORT

Tube Turns Division

LOUISVILLE, KY. APRIL 20, 1982

TUBE TURNS ORDER NO. 080361

CUSTOMERS' ORDER NO. 32403-N-1141

TO POWER . ING CO.
829 BEAVER AVE.
PITTSBURGH, PA 15233

TO POWER PIPING CO.
6TH ST. GATE
DONORA, PA 15033

DESCRIPTION	HEAT TREAT-MENT	YIELD STRENGTH PSI	TENSILE STRENGTH PSI	PERCENT ELONGATION IN 2"	PERCENT REDUCTION IN AREA	C	MN	P	S	SI	NI	CR	MO	CU	HEAT OR LOT NO	MADE FROM MATERIAL OF CHEMISTRY AND TENSILE PROPERTIES OF SPECIFICATION
TEM 1 3 PCS.	a	66000	92500	* 23	57	.31	.87	.018	.023	.15					T0161FA	SA106/C
		70000	96000	* 20	54	.31	.86	.019	.021	.15					T0161FB	SA106/C
		71000	98000	* 21	52	.30	.86	.018	.021	.15					T0161FC	SA106/C
0" NOMINAL ID 1.875" MW TEE ITH ENDS SIZED TO 34" NOMINAL D AND BEVELED PER SK-101 EV. 9	a	FITTINGS WERE HEATED TO 1650°F, HELD FOR 3 1/2 HOURS AND WATER QUENCHED: REHEATED TO 1100°F, HELD FOR 4 HOURS AND AIR COOLED.														
A234 WPCW		COUPONS FOR WELDING PROCEDURE QUALIFICATIONS AND WELD MATERIAL TESTING WERE HEAT TREATED AS SHOWN ON THE ATTACHED CERTIFIED MATERIAL TEST REPORTS FOR WELDING MATERIALS NUMBERS 41-74B, 41-75Q, AND 41-755.														
ERIAL NOS. 13690, 13691, 13692		10 CFR PART 21 APPLIES.														
TTACHMENTS:		FITTINGS HAVE A MAXIMUM HARDNESS OF 197 BHN.														
ORM NM-1		FITTINGS CONFORM TO THE REQUIREMENTS OF SA234 GRADE WPCW; ASME SECTION III, SUBSECTION NC; and POWER PIPING SPECIFICATION N-1141-01 REV. 5.														
ELD MATERIAL TEST REPORTS																
ADIOGRAPHY REPORT																
ADIOGRAPHY PROCEDURE																
LTRASONIC EXAM REPORT																
AGNETIC PARTICLE REPORT																
		THE SPECIFIC MARKING THAT WILL IDENTIFY THE MATERIAL TO THIS CERTIFICATION IS THE TUBE TURNS SYMBOL, SIZE SPECIFICATION, GRADE, AND HEAT OR LOT NUMBER.														
SME SECTION III CLASS 2 971 EDITION WITH ADDENDA HROUGH WINTER 1972																

THIS DOCUMENT HAS BEEN CHECKED AND FOUND TO COMPLY WITH THE APPLICABLE SPECIFICATIONS. BY [illegible] PPCO DATE 4/6/82

DUQ. LIGHT CO. BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 1224, PIPE FAB.

* STANDARD ROUND TEST SPECIMEN
1 ANNEALED
2 NORMALIZED
3 NORMALIZED AND STRESS RELIEVED
4 STRESS RELIEVED
5 QUENCHED AND TEMPERED
6 HOT FORMED
7 HEAT TREAT PER ORDER SPECIFICATION

ANI REVIEW
ANI [signature]
DATE 5/18/82

SUBSCRIBED AND SWORN TO BEFORE ME THIS ____ DAY OF ____ 19____

NOTARY PUBLIC

I HEREBY CERTIFY THIS REPORT TO BE TRUE AND CORRECT ACCORDING TO RECORDS IN THE POSSESSION OF THIS CORPORATION

[signature]

S. D. VITATOE - QUALITY CONTROL

SECTION 10

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES*

As Required by the Provisions of the ASME Code Rules, Section III, Div. 1 ~~N-1141-6321~~

1. Fabricated by Power Piping Company, Donora, PA 15033 Order No ~~N-1141~~
2. Fabricated for Beaver Valley Power Station, Unit #2 Order No 28V-58, J.O. No. 12241
3. Owner Duquesne Light Company, Pittsburgh, PA 4. Location of Plant Shippingport Borough, PA
5. Piping System Identification Main Steam And Safety Valve Header (MSS) MK-MSS-170-3/100&-170-106
   (Give description of each piece of piping) ISO 100207
6. (a) Drawing No RP-2B, E, F Prepared by Stone & Webster Engineering Corp.
   (b) National Board No N/A Boston, Massachusetts
7. The material, design, construction and workmanship complies with ASME Code Section III, Class 2
   Edition 1971 Addenda Date Winter 1972 Case No N/A
   Remarks Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report
   (Name of Part, Item number, Manufacturer's name and identifying stamp)
8. Shop Hydrostatic Test By Field psi
9. Description of piping inspected (Material spec. no., grade, size, schedule, thickness, weight, fittings, flanges, etc.)

1 Pc. - 30" I.D. X .875" M.W. Smls. C.S. Pipe SA-106, Gr. C, Item #1, L.C. No. P-1787, Ht. ID L-2618, Ser. #3-4622, Lgth. = 7'-11" LG
- 2" 3000# F.S. S/W Weld Boss, SA 105, Item #21, L.C. No. M-3992, Ht. ID ABX
- 1½" 3000# F.S. S/W Weld Boss, SA 105, Item #22, L.C. No. M-3029, Ht. ID ACF
- 1" 3000# F.S. S/W Weld Boss, SA 105, Item #23, L.C. No. M-4540, Ht. ID ADE;
- 3/4" 3000# F.S. S/W Weld Boss, SA 105, Item #24, L.C. No. M-3678, Ht. ID ADE; Item #25, L.C. No. M-3577, Ht. ID ADE; Item #26, L.C. No. M-7879, Ht. ID ADE; Item #27, L.C. No. M-7880, Ht. ID ADE
- 6" (X-Stg.) F.S. W-O-L SA 105, X 30" I.D. (1.875" M.W.), Item #32, L.C. No. M-7607, Ht. ID 386B
- 3" (X-Stg.) X 30" I.D. (1.150" M.W.) F.S. W-O-L SA 105, Item #33, L.C. No. M-3962, Ht. ID 416AK

NOTE: Welding Electrode L.C. No. E-49, E-84, E-111, E-112, E-115

RECEIVED
JUL 9 1982
Stone & Webster
Engineering Corporation
Document Review

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 6-30-82 Signed Power Piping Company By [signature] N-1623

Certificate of Authorization Expires January 7, 1983 Certificate of Authorization No.

CERTIFICATE OF SHOP INSPECTION N-1141-6321

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 PENNSYLVANIA and employed by Lumbermens Mutual Casualty Co. of Long Grove, IL have inspected the piping described in this Data Report on June 30, 19 82, and state that to the best of my knowledge and belief, the NPT Certificate Holder 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 makes 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 loss of any kind arising from or connected with this inspection.

Date June 30 19 82

[signature] Commissions PA 2226
(Inspector) (National Board, State, Province and No.)

*Supplemental sheets in form of lists, sketches or drawings may be used provided (1) size is 8½ x 11, (2) information in items 1, 2, 3, 4, 5, 6a, 6b, 7 and 8 on this data report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded in item 9. Revised

FORM NPP-1

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341

Phone (814) 589-7033

JAN. 29, 1982

POWER PIPING COMPANY
P.O. BOX 11
DONORA, PA 15033

CERTIFIED MILL TEST REPORT

R ORDER NO.	OUR ORDER NO.	DATE SHIPPED
34692-N-1141	17066	1/29/82

ITEM	MATERIAL-SPEC.	SHIPPED	HEAT NO.	CMC CODE
	ASME SECTION II & III CLASS 2 (1971 EDITION THRU SUMMER 1973 ADDENDA) ASME SA105 NORMALIZED			
1	3/4" 3000# S/W WELD BOSSES PER SK 102, REV. 3	15	55684	ADE
	REQ. NO. 2-P-26			

ITEM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	N	OTHER ELEMENTS
1	.26	.80	.015	.029	.23									

RECEIVED
JUL 9 1982
Document Review

ITEM	TENSILE	2% YIELD	% ELONG.	% R.A.	HARDNESS	REMARKS:
1	74500	46500	31.0	59.8	BHN 156	

THE ABOVE MATERIAL HAS BEEN FURNISHED IN ACCORDANCE WITH OUR QUALITY ASSURANCE PROGRAM, LATEST REVISION DATED 2/27/80, DESIGNED TO SATISFY THE REQUIREMENTS OF ASME SECTION III SUBARTICLE NA-3700/NCA-3800, AS AUDITED AND APPROVED BY POWER PIPING ON 8/28/80, AND THE REQUIREMENTS OF YOUR SPEC. N-1141-01 REV. 5, AND THE PROVISIONS OF 10 CFR PART 21.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-53, J.O. NO. 12241, PIPE FAB

We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements covered by the specification and your purchase order.

ANI REVIEW
ANI
DATE 2-11-82

THIS DOCUMENT HAS BEEN CHECKED AND FOUND TO COMPLY WITH THE APPLICABLE SPECIFICATIONS.
BY DATE 2/5/82

By

Ledger Control No. 2-123 FAB Page 1 of 1

SALES ORDER

ERWELD STEEL COMPANY - WARREN, OHIO 44482

DIST.	CUSTOMER'S PURCHASE ORDER NUMBER	DATE MO. DAY YR.	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF:	SALES ORDER NO.
CLE	CM 4837 ADD	060679	1 1	SAP	10/21/79	80108

COMPETITIVE FREIGHT FROM: | PRICE: IN EFFECT AT TIME OF SHIPMENT | TERMS OF PAYMENT: % OF 1% OF MILL VALUE: 10 DAYS, NET 30 DAYS

CLASS: NUCLEAR RD 7-3-79

PPD. | COL. X | SHIP VIA: CUST TRK - IN TRK LOADS

SOLD TO:
COLONIAL MACHINE COMPANY, INC.
. BOX 290
ASANTVILLE, PA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY
KC 11/6/79

PIECES	LBS.	SIZE AND SHAPE	SIZE TOLERANCE STD. X	PLUS	MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
	7,500	1 1/2" RD	X			MACHINING	

SHORTS: 10'

MULTS:

LENGTH TOLERANCE STD. | PLUS | MINUS

CT DESCRIPTION: NORM MS

MAG (206)

PART

HARDNESS: 187 MAX BHN

ADDIT. MAG'S/MICRO REQ.

SPECIFICATION: ASME-SA-105 77 (W78A) ASME-NCA-3800(W78A) 10 CFR-21 (10/19/78) 30 MAX CARBON

IE

NORM CHG NO. AND ASME-SA-5 (W78A)

STRAIGHTNESS

POWER PIPING COMPANY
ORDER NO. 34692-N-1141

MAX.

PA... & MARK

INSPECTION: OUR CUST GOVT OTHER: X

Audit. No.

Ledger Control No.

COPPERWELD STEEL COMPANY
751 / WARREN, OHIO 44482

TEST REPORT
for a Copperweld product

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	80108

DATE 11/5/79

ADE

1526 Mod SIL KLD

RECEIVED
JUL 9 1982
Nuclear & Welding Engineering Department
Document Review

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Al	GRAIN SIZE
55684 (ADE)	.26	.80	.015	.029	.23					6-8

1	2	3	4	5	6	7	8	9	10	11	12	15	16	20	24	28	32	36

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %
46,500	74,500	.2	31.0	59.8

HARDNESS*: 156

*Surface unless otherwise noted

OTHER DATA:
ASME Quality Systems Certificate (Materials) No. 2211, expires 10-20-81
Mercury is not used in the production or testing of Copperweld Steel materials.
Normalize - 1650 - 2 hrs.
Material identified with non low stress die stamping
Heat Code RD
Norm. Charge No 3A-137A

DUQ. LIGHT CO., BEAVER VALLEY NO 2
P.O. NO. 2 BV-53, J.O. NO. [illegible] PIPE [illegible]

MATERIAL PRODUCED AND CERTIFIED TO SPECIFICATIONS SHOWN ABOVE. NO ADDITIONAL CERTIFICATION IS IMPLIED OR WARRANTED

CUSTOMER REVIEW
A.N.I.
DATE 2 MAR 82

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

..... a Notary Public do hereby certify that his ...davit was subscribed and sworn to before me by ... duly authorized representative of Copperweld Steel Company.

6 day of 19 81

MY COMMISSION EXPIRES .....

NOTARY PUBLIC

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

THIS DOCUMENT HAS BEEN REVIEWED FOR CONFORMANCE TO CUSTOMER'S PURCHASE ORDER REQUIREMENTS AND FOUND TO COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS.
BY [signature] DATE 2/5/82

Cheryl A. Kifer
SUPV. MET. LAB.
Nov 5, 1979

GW Bonney Forge Division
Energy Products Group
CARLINVILLE, ILLINOIS

Log No. _____ Page 1 of 1

PHONE 217/854-9611

CUSTOMER: Power Piping
CUSTOMER'S Order No.: 15600-N-1141
SHIPPED TO:

Date July 25, 1978
Bonney Order No. 9830
Mark

Item No.	Quantity No.	Bonney Lot No.	Grade or Specification No. Chemical Analysis, Physical Properties, Remarks:
			ASME SA105-Gr.II
1	6	416AA	32.500 (1.150MW) x 3 (.300) Weldolet Ladle Analysis: C.25 Mn.81 P.009 S.017 Si.19 T/S 75,550 Y/S 48,110 El 36.5 Ra 65.4 Mill Heat No: 65595 Brinell Hardness: 143

RECEIVED
JUL 9 1982
Stone & Webster
Engineering Corporation
Document Review

This certifies that the fittings supplied were normalized by heating to within 1625°F and 1675°F for 3/4 hr. per inch of thickness (1 hr.min.) followed by cooling in still air.

This certifies that the fittings supplied are in complete accordance with the ASME Boiler and Pressure Vessel Code, Section III, Class 2, 1971 edition including winter 1972 addenda; SA105; NB2130; Power Piping Purchasing Spec. N-1141-01, Rev. 4 dated 10-6-77 and the purchase order requirements.

Auth. No. N-1141 Ledger Control No. M-3150 Thru M-3166 Page 1 of 17

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

Bonney Forge Division
Energy Products Group
Carlinville, Illinois

by Phil Simpson
QUALITY ASSURANCE MANAGER
PHIL SIMPSON

GW Bonney Forge Division
Energy Products Group
CARLINVILLE, ILLINOIS

Log No. _____ Page 1 of 1

PHONE 217/854-9611

CUSTOMER: Power Piping
CUSTOMER'S Order No.: 34973-N-1141
SHIPPED TO:

Date Feb. 25, 1982
Bonney Order No. 9505
Mark

Item No.	Quantity No.	Bonney Lot No.	Grade or Specification No. Chemical Analysis, Physical Properties, Remarks:
			ASME SA105N
1			30 (1.875) x 6 XS Weldolet
M-7606 & 7607 2		386B	C.26 Mn.81 P.015 S.024 Si.26 T/S 82,017 Y/S 58,441 El 27.1 Ra 64.8
M-7601 1		318B	C.26 Mn.81 P.015 S.024 Si.26 T/S 81,442 Y/S 56,250 El 22.8 Ra 49.4

JUL 1982

DUQ. LIGHT CO. BEAVER
P.O. NO. 2 BURR NO. [illegible]

This certifies that the fittings supplied were normalized by heating to within 1625°F and 1675°F for 3/4 hr. per inch of thickness (1 hr.min.) followed by cooling in still air.

The above fittings are in accordance with ASME Section III, Class 2, 1971 edition thru summer 1973 addenda; and NCA-3800.

Fittings supplied are in complete accordance with the purchase order specifications and were manufactured in accordance with the Quality Assurance Program audited to NCA-3800 and approved by W.R.Nicolls, Divisional Q.A. Mgr., June 1981.

Carlinville Plant QA Manual Rev. 3 dated 5/20/81.

This certifies that the provisions of 10 CFR Part 21 are applicable.

THIS DOCUMENT HAS BEEN CHECKED AND FOUND TO COMPLY WITH THE APPLICABLE SPECIFICATIONS
BY _____ DATE 5/4/82

ANI 4/23/82

Bonney Forge Division
Energy Products Group
Carlinville, Illinois

by _____
QUALITY ASSURANCE MANAGER

Auth. No. [illegible] Ledger Control No. [illegible] Page [illegible]

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341
Phone (814) 589-7033

SEPT. 1, 1978

POWER PIPING COMPANY
P. O. BOX 11
DONORA, PA 15033

CERTIFIED
MILL TEST REPORT

ORDER NO.	OUR ORDER NO.	DATE SHIPPED
16381-N-1141	11973	9/1/78

EM	TYPE	MATERIAL-SPEC.	SHIPPED	HEAT NO.	CMC CODE
		ASME SECTION III CLASS 2 (WITH ALL ADDENDA TO AND			
		INCLUDING THE WINTER OF 1972) IN ACCORDANCE WITH SPEC. N-1141-01 REV. 4			
		ASME SA105			
		2" 3000# S/W BOSSES PER SK 102 REV. 2	20	91337	ABX

EM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	OTHER ELEMENTS
	.22	.83	.008	.018	.22								

RECEIVED
JUL 9 1979
Engineering Section

EM	TENSILE	2% YIELD	% ELONG.	% R.A.	HARDNESS	HARDEN-ABILITY	REMARKS: 1. 2. 3. 4. 5. 6. ETC.
	73500	47000	34.0	67.0			MILL SOURCE - COPPERWELD

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements as covered by the specification and your purchase order.

DATE:

By Rosemary A. Wagner

Audit No. 44 1114 Ledger Control No. 1112 1112 Item 1 Page 1 of 1

PERWELD STEEL COMPANY - WARREN, OHIO 44482

SALES ORDER

DISTRICT	CUSTOMER'S PURCHASE ORDER NUMBER	DATE MO DAY YR	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF	SALES ORDER NO.
CLE	4250	082377	6 11	WK 11/6/77	11/6/77	18278

MILL	COMPETITIVE FREIGHT FROM	PRICE IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT & OF 1% OF MILL VALUE
	SP		10 DAYS NET 30 DAYS

	PPD	COL	SHIP VIA	CLASS
BARS		X	CUST TRK - IN TRK LOADS	

SOLD TO:
COLONIAL MACHINE COMPANY
BOX 290
CASANTVILLE, PENNSYLVANIA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

PIECES	LBS.	SIZE AND SHAPE	STD	SIZE TOLERANCE PLUS	MINUS	PURPOSE	CUSTOMER'S FINISH DESIGNATION
	30,000	3 1/16"Ø	X			MACHINING	

	SHORTS	MULTS	LENGTH TOLERANCE STD	PLUS	MINUS
101					

GRADE DESCRIPTION	MPG	PART
NORM MS	(206)	ASTM A 105 ASTM A 696 GR B (EXC COND

	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION NO.	STRAIGHTNESS	INSPECTION: QUES	CUST	GOVT	OTHER
IE	187 MAX BHN		ASME-SA-105 SECTION 2; AS M SA-696 GR B SECTION 2 EXC COND		X			

RECEIVED
JUL 9 1982

	PAINT & MARK
000# MIN BDL ,000# MAX BDL	STAMP HEAT NUMBER

COPPERWELD
STEEL COMPANY
WARREN, OHIO 44482

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18278

GRADE	CODE	SPEC'N / DESCRIPTION	DATE
1026 Mod DII			11/10/77

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
1337 (ABX)	.22	.83	.008	.018	.22								5-7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
23	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*	OTHER DATA
7,000	73,500		34.0	67.0	149	Normalize - 1600 - 2 hrs. Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 1977

*Surface unless otherwise noted

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241 PIPE BAR

a Copperweld process

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

..... a Notary Public do hereby certify that affidavit was subscribed and sworn to before me by a duly authorized representative of Copperweld Steel Company.

..... day of .....

MY COMMISSION EXPIRES

NOTARY PUBLIC

POWER PIPING COMPANY
ORDER NO. 16381-N-1141 ITEM 1

MAR 1 3 1978

I hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

Quality Control

Hunger Control No. [illegible] thru [illegible] Page [illegible] of [illegible]

HERRON TESTING LABORATORIES, INC

Purchase Order No. CM4357

File No. K 3589

January 6, 1978

Test of 1-13/16" Dia. Steel Coupon, per ASME-SA350, Gr. LF1 and LF2, Heat No. 91337 (ABX)

Client THE COLONIAL MACHINE COMPANY, INC.

Attention Mr. Barry W. Mallory

CHEMICAL ANALYSIS

Carbon	0.22%
Manganese	0.86%
Phosphorus	0.003%
Sulphur	0.020%
Silicon	0.23%

POWER PIPING COMPANY
ORDER NO. 16381-N-1141 ITEM 1

HERRON TESTING LABORATORIES, INC.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-88, J.O. NO. 12241, PIPE FAB.

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341

Phone (814) 589-7033

JUNE 13, 1979

POWER PIPING COMPANY
829 BEAVER AVE.
PITTSBURGH, PA

FOR: SAME, DONORA, PA

CERTIFIED MILL TEST REPORT

OUR ORDER NO.	OUR ORDER NO.	DATE SHIPPED
20601-N-1141	13315	6/13/79

ITEM	MATERIAL-SPEC.	SHIPPED	HEAT NO.	CMC CC
	ASME SECTION III CLASS 2 (1971 EDITION THRU WINTER 1972 ADDENDA). ~~AND POWER PIPING SPEC. N-1141-01 REV. 4~~ ASME SA105			
1	2" 3000# S/W BOSSES PER SK 102 REV. 2 N-5014 THRU N-5023	10	91337	ABX
2	1-1/2" DITTO N-5024 THRU N-5033	10	91337	ACF
3	3/4" DITTO N-5034 THRU N-5053	20	91337	ACD

ITEM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	N	OTHER ELEMENTS
1	.22	.83	.008	.018	.22									
2														
3														

ITEM	TENSILE	5% YIELD	% ELONG.	% R.A.	HARDNESS	REMARKS:
1	73500	47000	34.0	67.0		RECEIVED
2	71000	45500	36.0	64.7		JUL 9 1979
3	74500	52000	35.0	65.9		Combustion Engineering Corporation Nuclear Power

~~DUQ. LIGHT CO., BEAVER VALLEY NO. 2~~
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

HARTFORD S.B.I. & I. CO. INSPECTION

We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements as covered by the specification and your purchase order.

By Rosemary C. Wilson

PPERWELD STEEL COMPANY - WARREN, OHIO 44482

SALES ORDER

DATE YR	DISTRICT	CUSTOMER'S PURCHASE ORDER NUMBER	DATE MO. DAY YR.	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF:	SALES ORDER NO.
3077	CLE	4250	082377	4 11	WK 10/30/77	11/6, 17	18276

MILL (COMPANY OR PLANT)	FREIGHT FROM	PRICE IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT: % OF 1% OF MILL VALUE
NDP			10 DAYS, NET 30 DAYS

STEEL	PPD	COL	SHIP VIA	CLASS
BARS		X	CUST TRK - IN TRK LOADS	

SOLD TO:
E COLONIAL MACHINE COMPANY
O BOX 290
EASANTVILLE, PENNSYLVANIA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

PIECES	LBS	SIZE AND SHAPE	STD	SIZE TOLERANCE PLUS	SIZE TOLERANCE MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
	10,000	2 9/16"Ø	X			MACHINING	

/10'	SHORTS	MULTS	STD	LENGTH TOLERANCE PLUS	LENGTH TOLERANCE MINUS

JCT DESCRIPTION	MFG	PART
NORM MS	(206)	ASTM A 105 ASTM A 696 GR B (EXC COND)

IE	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION NO
	187 MAX BHN		ASM-E-SA-TUS SECTION 2. AS M E SA-696 GR B SECTION 2 EXC COND

STRAIGHTNESS	INSPECTION: YOURS	OURS	GOVT	OTHER
	X			

E	PAINT & MARK
300# MIN BDL ,000# MAX BDL	STAMP HEAT NUMBER

L INSTRUCTIONS

Auth. No. [illegible] Peugeot Control No. [illegible] Thru [illegible] Page [illegible] Rev. 2

COPPERWELD
E EL COMPANY
P.A. 351 / WARREN, OHIO 44

CORRECTED COPY 3/7/78

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18276

DE	CODE	SPEC'N / DESCRIPTION	DATE
E 1026 Mod DH			10/20/77

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Cu	Pb	Al		GRAIN SIZE
01337 (ACF)	.22	.83	.008	.018	.22							5-7

JUL 9 1982

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
23	21	17	15	13	12	11	10		7						4	3	3	2	2	

Document Package

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %
45,500	71,000		36.0	64.7

HARDNESS*
146

*Surface unless otherwise noted

OTHER DATA

Normalize - 1600 - 2 hrs.
Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 2, 1977

a Copperweld product

HIS CERTIFICATE NOTARIZED WHEN REQUIRED

..... a Notary Public do hereby certify that is affidavit was subscribed and sworn to before me by a duly authorized presentative of Copperweld Steel Company.

is ..... day of .....

Y COMMISSION EXPIRES ..... NOTARY PUBLIC

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITEM 2

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

Jackal Chavez
SUPV. MET LAB

DPPERWELD STEEL COMPANY - WARREN, OHIO 44482

KC 3/15/78

SALES ORDER

DISTRICT	CUSTOMER'S PURCHASE ORDER NUMBER	DATE (MO DAY YR)	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF:	SALES ORDER NO.
CLE	4250	082377	2 11	WK 10/30/77	10/30/77	18274

B & M'S COMPETITIVE PREDICT FROM	PRICE IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT: % OF 1% OF MILL VALUE
NSP		10 DAYS NET 30 DAYS

	PPD	COL	SHIP VIA	CLASS
BARS		X	CUST TRK - IN TRK LOADS	

SOLD TO
HE COLONIAL MACHINE COMPANY
O BOX 290
LEASANTVILLE, PENNSYLVANIA 16341

SHIP TO (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

PIECES	LBS	SIZE AND SHAPE	SIZE TOLERANCE STD	PLUS	MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
	6,000	1 1/2"Ø	X			MACHINING	

ITEM	SHORTS	MULTS	LENGTH TOLERANCE STD	PLUS	MINUS
2/10'					

PRODUCT DESCRIPTION	MPG	PART
R NORM MS	(206)	ASTM A 105 ASTM A 696 GR B (EXC CO

AIM	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION NO.
INE	187 MAX BHN		ASM-E-SA-105 SECTION 2. AS M-SA-696 GR B SECTION 2 EXC COND

STRAIGHTNESS	INSPECTED: DUKE	CUST	GOVT	OTHER
	X			

SOLE	PAINT & MARK
,000# MIN BDL),000# MAX BDL	POWER PIPING COMPANY ORDER NO. 20601-N-1141 ITEM 3

CORRECTED COPY 3/7/78

COPPERWELD
STEEL COMPANY
BOX 351 / WARREN, OHIO 44482

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18274

GRADE	CODE	SPEC'N / DESCRIPTION	DATE
E 1026 Mod DH			10/28/77

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
91337 (ACD)	.2?	.83	.008	.018	.22				JUL 9	1982			5-7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
												Document Review								
23	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*	OTHER DATA
52,000	74,500		35.0	65.9	149	Normalize - 1600 - 2 hrs. Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 2, 1977

*Surface unless otherwise noted

Rev. 1

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

I, ... a Notary Public do hereby certify that this affidavit was subscribed and sworn to before me by a duly authorized representative of Copperweld Steel Company.

this ..... day of

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

MY COMMISSION EXPIRES

NOTARY PUBLIC

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

MAR 17 1978

SUPV. MET LAB

HERRON TESTING LABORATORIES, INC.

Purchase Order No. CM4357

File No. K 3589

January 6, 1978

Test of 1-13/16" Dia. Steel Coupon, per ASME-SA350, Gr. LF1 and LF2, Heat No. 91337 (ABX, ICF & ACD)

Client THE COLONIAL MACHINE COMPANY, INC.

Attention Mr. Barry W. Mallory

CHEMICAL ANALYSIS

Carbon	0.22%
Manganese	0.86%
Phosphorus	0.003%
Sulphur	0.020%
Silicon	0.23%

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITS. 1 THRU 3

HERRON TESTING LABORATORIES, INC.

The test report is expressly limited to findings based upon material, information, and/or specifications furnished by client and excludes any express or implied warranties as to the fitness of the material and/or process so subjected to examination and/or analysis for any particular purpose or use.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

RECEIVED
JUL 3 1982
Document Review

QUAL. INC. Ledger Control No. M-5053 Item M-5053 Page 5 of 5 Rev. 2

ERTIFICATE OF TEST ON PIPE MATERIAL

Cameron
IRON WORKS, INC.
P. O. BOX 1212
HOUSTON, TEXAS 77001

POWER PIPING COMPANY
820 BEAVER AVENUE
PITTSBURGH, PA 15233

ASME QUALITY SYSTEM CERTIFICATE (MATERIALS)
NO. 2209 (EXPIRATION DATE OCT. 27, 1981)

ALL OPERATIONS WERE PERFORMED BY CIW & MEET THE REQUIREMENTS OF THE LISTED MATERIAL SPECIFICATION AND SEC. 111, DIV. 1.

DATE 6 FEB. 1980

CUSTOMER ORDER NO	C I W SALES ORDER NO	SPECIFICATION
22550-N-1141	F-9985	ASME SA106 GR. C; ASME SEC. 111, CLASS 2 WITH NO. IMPACTS AND POWER PIPING SPEC. N-1141-01, REV. A

PART NO. R6-9985-341-300
DESCRIPTION OF MATERIAL SEAMLESS PIPE
O.D. 30.000" WALL 1.875" M.W.

CHEMICAL ANALYSIS

HEAT NO.	LOCATION OR SERIAL NO.	C	MN	P	S	SI	CR	NI	MO	CU	CO	TI
L 5616		.24	.84	.008	.018	.22						

MECHANICAL PROPERTIES

HEAT NO.	QUANTITY OR SERIAL NO.	TEST LOC.	TENSILE PSI	YIELD PSI .2%	ELONG 2"	RED AREA	FLATTENING TEST	BAR SIZE	LOT NO.
L 5616	2	T-A	73,900	44,400	32.1	56.5	OK	.505	1812

FORG. SER. #	TEST LOT #	HEAT #
35461Z - PIPE	1812	L 5616
35462Z - PIPE	"	"

RECEIVED
JUL 9 1982
Engineering Correspondence
Document Review

EACH LENGTH OF PIPE HYDROSTATICALLY TESTED AT 2800 PSI FOR 5 SEC. AND FOUND ACCEPTABLE.

HEAT TREATMENT: 1600F., HELD 1 HR. AT TEMP. AIR COOLED.

SUBSCRIBED AND SWORN TO BEFORE ME THIS
6TH DAY OF FEB. 1980

NOTARY PUBLIC
[illegible] Harris County, Texas

WE CERTIFY THESE TESTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THIS COMPANY

AUTHORIZED REPRESENTATIVE

E59851/vc

DUQ. LIGHT CO. BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341

Phone (814) 589-7033

JAN. 29, 1982

POWER PIPING COMPANY
P.O. BOX 11
DONORA, PA 15033

CERTIFIED MILL TEST REPORT

OUR ORDER NO.	OUR ORDER NO.	DATE SHIPPED
34692-N-1141	17066	1/29/82

ITEM	MATERIAL-SPEC.	SHIPPED	HEAT NO.	CMC CODE
	ASME SECTION II & III CLASS 2 (1971 EDITION THRU SUMMER 1973 ADDENDA) ASME SA105 NORMALIZED			
1	3/4" 3000# S/W WELD BOSSES PER SK 102, REV. 3	15	55684	ADE
	REQ. NO. 2-P-26			

ITEM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	N	OTHER ELEMENTS
	.26	.80	.015	.029	.23									

RECEIVED
JUL 9 1982
Document Review

ITEM	TENSILE	2% YIELD	% ELONG.	% R.A.	HARDNESS	REMARKS:
1	74500	46500	31.0	59.8	BHN 156	

THE ABOVE MATERIAL HAS BEEN FURNISHED IN ACCORDANCE WITH OUR QUALITY ASSURANCE PROGRAM, LATEST REVISION DATED 2/27/80, DESIGNED TO SATISFY THE REQUIREMENTS OF ASME SECTION III SUBARTICLE NA-3700/NCA-3800, AS AUDITED AND APPROVED BY POWER PIPING ON 8/28/80, AND THE REQUIREMENTS OF YOUR SPEC. N-1141-01 REV. 5, AND THE PROVISIONS OF 10 CFR PART 21.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB

DW **We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements as covered by the specification and your purchase order.**

ANI REVIEW
ANI
DATE 2-11-82

THIS DOCUMENT HAS BEEN CHECKED AND FOUND TO COMPLY WITH THE APPLICABLE SPECIFICATIONS
BY DATE 2/5/82

By

Ledger Control No. N-1141-24 Thru N-1141-25 Page 1 of 2

SALES ORDER

PPERWELD STEEL COMPANY - WARREN, OHIO 44482

DIST.	DISTRICT	CUSTOMER'S PURCHASE ORDER NUMBER	DATE MO. DAY YR.	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF:	SALES ORDER NO.
10379	CLE	CM 4837 ADD	060679	1 1	SAP	10/21/79	80108

COMPETITIVE FREIGHT FROM	PRICE: IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT: % OF 1% OF MILL VALUE
BP		10 DAYS; NET 30 DAYS

NUCLEAR RD 7-3-79

CLASS

STEEL BARS	PPD.	COL.	X	SHIP VIA: CUST TRK - IN TRK LOADS

SOLD TO:
HE COLONIAL MACHINE COMPANY, INC.
.O. BOX 290
LEASANTVILLE, PA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY.
KC 11/6/79

T	PIECES	LBS.	SIZE AND SHAPE	STD.	SIZE TOLERANCE PLUS MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
		7,500	1 1/2" RD	X		MACHINING	

LENGTH	SHORTS	MULTS	STD.	LENGTH TOLERANCE PLUS MINUS
2/10'				

PRODUCT DESCRIPTION	MFG	PART
R NORM MS	(206)	

ALYSIS	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION
INE	187 MAX BHN		ASME-SA-105 77 (W78A) ASME-NCA-3800(W78A) 10 CFR-21 (10/19/78) 30 MAX CARBON

NOLE	STRAIGHTNESS	PA... & MARK	INSPECTION: OUR CUST	OUR OTHER
NORM CHG NO. AND ASME-SA-05 (W78A)			X	

POWER PIPING COMPANY
ORDER NO. 34692-N-1141

T MAX.

Audit. No. 1-11441

Ledger Control No. 2-15577 Thru 2-15582 Page 1 of 1

COPPERWELD
EEL COMPANY
OX 351 / WARREN, OHIO 44482

TEST REPORT
for a Copperweld product

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	80108

DATE 11/5/79

GRADE
1526 Mod SIL KLD

RECEIVED
JUL 9 1982
Stone & Webster
Engineering Corp.
Document Review

ANALYSIS	HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al		GRAIN SIZE
	55684 (ADE)	.26	.80	.015	.029	.23							6-

JOMINY	1	2	3	4	5	6	7	8	9	10	11	12	15	16	20	24	28	32	36

MECHANICAL PROP.	YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*
	46,500	74,500	.2	31.0	59.8	156

*Surface unless otherwise noted

DUQ. LIGHT CO. BEAVER VALLEY NO 2
P.O. NO. 2 BV-53, J.O. NO. [illegible] SIZE [illegible]

OTHER DATA

ASME Quality Systems Certificate (Materials) No. 2211, expires 10-20-81
Mercury is not used in the production or testing of Copperweld Steel materials.
Normalize - 1650 - 2 hrs.
Material identified with non low stress die stamping
Heat Code RD
Norm. Charge No 3A-137A

MATERIAL PRODUCED AND CERTIFIED TO SPECIFICATIONS SHOWN ABOVE. NO ADDITIONAL CERTIFICATION IS IMPLIED OR WARRANTED.

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

ANI REVIEW
ANI
DATE 2 M 82

..... a Notary Public do hereby certify that
lidavit was subscribed and sworn to before me by duly authorized
..... sentative of Copperweld Steel Company.
this ..... day of .....

NOTARY PUBLIC

MY COMMISSION EXPIRES

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

THIS PRODUCT [illegible]
CUSTOMER [illegible]
PLY WITH THE [illegible]
SPECIFICATIONS
BY [signature] DATE 2/5/82

Veryl D. Kifer
SUPV. MET. LAB.
Nov 5, 1979

Bonney Forge Division
Energy Products Group
CARLINVILLE, ILLINOIS

Log No. _____ Page 1 of 1

PHONE 217/854-9611

CUSTOMER: Power Piping
CUSTOMER'S Order No.: 15600-N-1141
SHIPPED TO:

Date July 25, 1978
Bonney Order No. 9830
Mark

Item No.	Quantity No.	Bonney Lot No.	Grade or Specification No. Chemical Analysis, Physical Properties, Remarks:
			ASME SA105-Gr.II
1	6	416AA	32.500 (1.150MW) x 3 (.300) Weldolet Ladle Analysis: C.25 Mn.81 P.009 S.017 Si.19 T/S 75,550 Y/S 48,110 El 36.5 Ra 65.4 Mill Heat No: 65595 Brinell Hardness: 143

RECEIVED
JUL 9 1982
Stone & Webster
Engineering Corporation
Document Review

This certifies that the fittings supplied were normalized by heating to within 1625°F and 1675°F for 3/4 hr. per inch of thickness (1 hr.min.) followed by cooling in still air.

This certifies that the fittings supplied are in complete accordance with the ASME Boiler and Pressure Vessel Code, Section III, Class 2, 1971 edition including winter 1972 addenda; SA105; NB2130; Power Piping Purchasing Spec. N-1141-01, Rev. 4 dated 10-6-77 and the purchase order requirements.

Auth. No. N-1141 Ledger Control No. M-3956 Thru M-3963 Page 1 of 1

...LIGHT CO., BEAVER VALLEY NO. 2
...O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

Bonney Forge Division
Energy Products Group
Carlinville, Illinois

by Phil Simpson/sr
QUALITY ASSURANCE MANAGER
PHIL SIMPSON

Bonney Forge Division
Energy Products Group
CARLINVILLE, ILLINOIS

Log No. _____ Page 1 of 1

PHONE 217/854-9611

CUSTOMER: Power Piping
CUSTOMER'S Order No.: 34973-N-1141
SHIPPED TO:

Date Feb. 25, 1982
Bonney Order No. 9505
Mark

Auth. No. 24-27626 Ledger Control No. 24-27626 Thru 24-27626 Page 1 of 1

Item No.	Quantity No.	Bonney Lot No.	Grade or Specification No. Chemical Analysis, Physical Properties, Remarks:
			ASME SA105N
1 M-7606 & 7607 2		386B	30 (1.875) x 6 XS Weldolet C.26 Mn.81 P.015 S.024 Si.26 T/S 82,017 Y/S 58,441 El 27.1 Ra 64.8
M-7601 1		318B	C.26 Mn.81 P.015 S.024 Si.26 T/S 81,442 Y/S 56,250 El 22.8 Ra 49.4

JUL [illegible] 1982

[illegible]tion

DUQ. LIGHT CO. BEAVER [illegible]
P.O. NO. 2 BV-[illegible]

This certifies that the fittings supplied were normalized by heating to within 1625°F and 1675°F for 3/4 hr. per inch of thickness (1 hr.min.) followed by cooling in still air.

The above fittings are in accordance with ASME Section III, Class 2, 1971 edition thru summer 1973 addenda; and NCA-3800.

Fittings supplied are in complete accordance with the purchase order specifications and were manufactured in accordance with the Quality Assurance Program audited to NCA-3800 and approved by W.H.Nicolls, Divisional Q.A. Mgr., June 1981.

Carlinville Plant QA Manual Rev. 3 dated 5/20/81.

This certifies that the provisions of 10 CFR Part 21 are applicable.

THIS DOCUMENT HAS BEEN CHECKED AND FOUND TO COMPLY WITH THE APPLICABLE SPECIFICATIONS.
BY _____ DATE 5/4/82

ANI 4/30/82

Bonney Forge Division
Energy Products Group
Carlinville, Illinois

by _____
QUALITY ASSURANCE MANAGER

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341
Phone (814) 589-7033

SEPT. 1, 1978

POWER PIPING COMPANY
P. O. BOX 11
DONORA, PA 15033

CERTIFIED MILL TEST REPORT

OUR ORDER NO.	OUR ORDER NO.	DATE SHIPPED
16381-N-1141	11973	9/1/78

ITEM	TYPE	MATERIAL-SPEC.	SHIPPED	HEAT NO.	CMC CODE
		ASME SECTION III CLASS 2 (WITH ALL ADDENDA TO AND INCLUDING THE WINTER OF 1972) IN ACCORDANCE WITH SPEC. N-1141-01 REV. 4 ASME SA105			
1		2" 3000# S/W BOSSES PER SK 102 REV. 2	20	91337	ABX

ITEM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	OTHER ELEMENTS
1	.22	.83	.008	.018	.22								

RECEIVED
JUL 9 1982

ITEM	TENSILE	2% YIELD	% ELONG.	% R.A.	HARDNESS	HARDENABILITY	REMARKS: 1. 2. 3. 4. 5. 6. ETC.
1	73500	47000	34.0	67.0			MILL SOURCE - COPPERWELD

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements as covered by the specification and your purchase order.

By Rosemary R. Wagner

Auth. No. M-1141 Ledger Control No. M-3995 Thru M-3997 1 of 1

P.W.D

OPPERWELD STEEL COMPANY - WARREN, OHIO 44482

SALES ORDER

		CUSTOMER'S PURCHASE ORDER NUMBER	DATE MO DAY YR	ITEM	DATE WANTED	SHIPPING PRIORITY WEEK OF	
183077	CLE	4250	082377	6 11	WK 11/6/77	11/6/77	18278

COMPETITIVE FREIGHT FROM	PRICE: IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT: % OF 1% OF MILL VALUE
NSP		10 DAYS NET 30 DAYS

	PRD.	COL.	SHIP VIA
STEEL BARS		X	CUST TRK - IN TRK LOADS

SOLD TO
HE COLONIAL MACHINE COMPANY
O BOX 290
LEASANTVILLE, PENNSYLVANIA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

PIECES	LBS.	SIZE AND SHAPE	STD.	SIZE TOLERANCE PLUS	MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
	30,000	3 1/16"Ø	X			MACHINING	

LENGTH	SHORTS	MULTS	STD.	LENGTH TOLERANCE PLUS	MINUS
2/10'					

PRODUCT DESCRIPTION	MPG	PART
R NORM MS	(206)	ASTM A 105 ASTM A 696 GR B (EXC CON

CHAIN	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION NO.
INE	187 MAX BHN		ASME-SA-105 SECTION 2 AS M SA-696 GR B SECTION 2 EXC COND

STRAIGHTNESS	INSPECTION: OURS	CUST	CONT	OTHER
	X			

RECEIVED
JUL 9 1982

INDEX	PAINT'S MARK
,000# MIN BDL 0,000# MAX BDL	STAMP HEAT NUMBER

Auth. No. AC1141

Ledger Control No. M-3771 Page 1 of 2

COPPERWELD STEEL COMPANY
BOX 351 / WARREN, OHIO 44482

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18278

GRADE	CODE	SPEC'N / DESCRIPTION	DATE
E 1026 Mod DII			11/10/77

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
91337 (ABX)	.22	.83	.008	.018	.22								5-7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
23	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*
47,000	73,500		34.0	67.0	149

*Surface unless otherwise noted

OTHER DATA

Normalize - 1600 - 2 hrs.
Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 1977

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 82041 PIPE BAR

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

..... a Notary Public do hereby certify that ... davit was subscribed and sworn to before me by a duly authorized epresentative of Copperweld Steel Company.

his ... day of .....

... EXPIRES

POWER PIPING COMPANY
ORDER NO. 16381-N-1141 ITEM 1

MAR 1 1983

... hereby certify that the above data are correct as ... in the records of Copperweld Steel Company.

HERRON TESTING LABORATORIES, INC.

Purchase Order No. CM4357

File No. K 3589

January 6, 1978

Test of 1-13/16" Dia. Steel Coupon, per ASME-SA350, Gr. LF1 and LF2, Heat No. 91337 (ABX)

Client THE COLONIAL MACHINE COMPANY, INC.

Attention Mr. Barry W. Mallory

Auth. No. N-1141 Ledger Control No. D-3975 Thru M-3994 Page 3 of 13

CHEMICAL ANALYSIS

Carbon	0.22%
Manganese	0.86%
Phosphorus	0.003%
Sulphur	0.020%
Silicon	0.23%

POWER PIPING COMPANY
ORDER NO. 16381-N-1141 ITEM 1

HERRON TESTING LABORATORIES, INC.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-50, J.O. NO. 12241, PIPE FAB.

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341

Phone (814) 589-7033

JUNE 13, 1979

POWER PIPING COMPANY
829 BEAVER AVE.
PITTSBURGH, PA

FOR: SAME, DONORA, PA

CERTIFIED MILL TEST REPORT

YOUR ORDER NO.	OUR ORDER NO.	DATE SHIPPED
20601-N-1141	13315	6/13/79

ITEM	MATERIAL SPEC.	SHIPPED	HEAT NO.	CMC CODE
	ASME SECTION III CLASS 2 (1971 EDITION THRU WINTER 1972 ADDENDA). ~~AND POWER PIPING SPEC. N-1141-01 REV. 4~~ ASME SA105			
1	2" 3000# S/W BOSSES PER SK 102 REV. 2 N-5014 THRU N-5023	10	91337	ABX
2	1-1/2" DITTO N-5024 THRU N-5033	10	91337	ACF
3	3/4" DITTO N-5034 THRU N-5053	20	91337	ACD

ITEM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	N	OTHER ELEMENTS
1	.22	.83	.008	.018	.22									
2														
3														

ITEM	TENSILE	2% YIELD	% ELONG.	% R.A.	HARDNESS	REMARKS:
1	73500	47000	34.0	67.0		
2	71000	45500	36.0	64.7		
3	74500	52000	35.0	65.9		

RECEIVED
JUL 9 1979
Engineering Corporation

HARTFORD S.B.I. & I. CO.
INSPECTION

~~DUQ. LIGHT CO., BEAVER VALLEY NO. 2~~
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements as covered by the specification and your purchase order.

By R. Rosemary Quality Control

Auth. No. 14777 Ledger Control No. 2820.2

COPPERWELD STEEL COMPANY - WARREN, OHIO 44482

SALES ORDER

DATE	DISTRICT	CUSTOMER'S PURCHASE ORDER NUMBER	DATE (MO. DAY YR)	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF:	SALES ORDER NO.
083077	CLE	4250	082377	4 11	WK 10/30/77	11/6/77	18276

	COMPANY'S FREIGHT FROM	PRICE IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT: % OF 1% OF MILL VALUE
	NDP		10 DAYS, NET 30 DAYS

AD.		PPD	COL.	SHIP VIA	CLASS
STEEL	BARS		X	CUST TRK - IN TRK LOADS	

SOLD TO:
THE COLONIAL MACHINE COMPANY
P O BOX 290
PLEASANTVILLE, PENNSYLVANIA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

LET	PIECES	LBS	SIZE AND SHAPE	STD	SIZE TOLERANCE PLUS	MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
		10,000	2 9/16"D	X			MACHINING	

LENGTH	SHORTS	MULTS	STD	LENGTH TOLERANCE PLUS	MINUS
2/10'					

PRODUCT DESCRIPTION	MPG	PART
R NORM MS	(206)	ASTM A 105 ASTM A 696 GR B (EXC COND)

MAN	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION NO	STRAIGHTNESS	INSPECTION OURS	CUST	GOVT	OTHER
INE	187 MAX BHN		SA-696 GR B SECTION 2 EXC COND		X			

NOLE	PAINT & MARK
,000# MIN BDL 0,000# MAX BDL	STAMP HEAT NUMBER

SPECIAL INSTRUCTIONS

Auth. No. M-11141

COPPERWELD STEEL COMPANY
BOX 151 / WARREN, OHIO 44482

CORRECTED COPY 3/7/78

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18276

Ledger Control No. M-50574 Thru M-50633 Page 1 of 5 Rev. 2

GRADE	CODE	SPEC'N / DESCRIPTION	DATE
E 1026 Mod DH			10/20/7

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Cu	Pb	Al	GRAIN SIZE
91337 (ACF)	.22	.83	.008	.018	.22						5-7

JUL 9 1982

	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	20	24	28	32	36
	23	21	17	15	13	12	11	10		7				5	4	3	3	2	2	

Document Location

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*
45,500	71,000		36.0	64.7	146

*Surface unless otherwise noted

OTHER DATA

Normalize - 1600 - 2 hrs.
Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 2, 1977.

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

..... a Notary Public do hereby certify that ..... affidavit was subscribed and sworn to before me by a duly authorized representative of Copperweld Steel Company.

this ..... day of .....

MY COMMISSION EXPIRES ..... NOTARY PUBLIC

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITEM 2

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

Jack Adams
SUPV. MET LAB.

COPPERWELD STEEL COMPANY - WARREN, OHIO 44482

KC 3/15/78

SALES ORDER

MO	DAY	YR	DISTRICT	CUSTOMER'S PURCHASE ORDER NUMBER	DATE MO	DAY	YR	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF:	SALES ORDER NO.
083	07	7	CLE	4250	08	23	77	2 11	WK 10/30/77	10/30/77	18274

P.O.	COMPETITIVE FREIGHT FROM	PRICE IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT: % OF 1% OF MILL VALUE
	MBP		10 DAYS, NET 30 DAYS

CLASS	PPD	COL	SHIP VIA
STEEL BARS		X	CUST TRK - IN TRK LOADS

SOLD TO:
THE COLONIAL MACHINE COMPANY
P O BOX 290
PLEASANTVILLE, PENNSYLVANIA 16341

SHIP TO (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

FEET	PIECES	LBS	SIZES AND SHAPE	STD	SIZE TOLERANCE PLUS	SIZE TOLERANCE MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
		6,000	1 1/2"Ø	X			MACHINING	

LENGTH	SHORTS	MULTS	STD	LENGTH TOLERANCE PLUS	LENGTH TOLERANCE MINUS
12/10'					

PRODUCT DESCRIPTION: HR NORM MS (205)

PART:

GRAIN: FINE

HARDNESS: 187 MAX BHN

ADDIT. MACRO/MICRO REQ.:

SPECIFICATION NO.: ASTM A 105 ASTM A 696 GR 3 (EXC COND) ASME-SA-105 SECTION 2. AS MOD SA-696 GR B SECTION 2 EXC COND

TAG:

STRAIGHTNESS:

INSPECTION: QUAL X | CUST | GOVT | OTHER

BUNDLE:
6,000# MIN BDL
10,000# MAX BDL

PAINT & MARK:
POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITEM 3

Auth. No. M-50174 Item M-50553 Rev. 2 Page 1 of 3

Lehigh Control No. M-50174 Jim

COPPERWELD STEEL COMPANY
BOX 351 / WARREN, OHIO 44482

CORRECTED COPY 3/7/78

TEST REPORT

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18274

GRADE: E 1026 Mod DH

CODE:

SPEC'N / DESCRIPTION:

DATE: 10/28/77

ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
91337 (ACD)	.22	.83	.008	.018	.22				JUL 9	1992			5-7

JOMINY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
23	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

Document Review

MECHANICAL PROP.

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*	OTHER DATA
52,000	74,500		35.0	65.9	149	Normalize - 1600 - 2 hrs. Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 2, 1977

*Surface unless otherwise noted

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

..... a Notary Public do hereby certify that ...ffidavit was subscribed and sworn to before me by a duly authorized ...presentative of Copperweld Steel Company.

this ..... day of .....

MY COMMISSION EXPIRES .....

NOTARY PUBLIC

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

MAR 13 1978

SUPV. MET LAB

HERRON TESTING LABORATORIES, INC.

Purchase Order No. CM4357

File No. K 3589

January 6, 1978

Test of 1-13/16" Dia. Steel Coupon, per ASME-SA350, Gr. LF1 and LF2, Heat No. 91337 (ABX, ACF, ACO)

Client THE COLONIAL MACHINE COMPANY, INC.

Attention Mr. Barry W. Mallory

CHEMICAL ANALYSIS

Carbon	0.22%
Manganese	0.86%
Phosphorus	0.003%
Sulphur	0.020%
Silicon	0.23%

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITS. 1 THRU 3

HERRON TESTING LABORATORIES, INC.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

CERTIFICATE OF TEST ON PIPE MATERIAL

Cameron
IRON WORKS, INC.
P. O. BOX 1212
HOUSTON, TEXAS 77001

ER PIPING COMPANY
BEAVER AVENUE
.TSBURGH, PA 15233

ASME QUALITY SYSTEM CERTIFICATE (MATERIALS)
NO. 2209 (EXPIRATION DATE OCT. 27, 1981)

ALL OPERATIONS WERE PERFORMED BY CIW & MEET THE REQUIREMENTS OF THE LISTED MATERIAL SPECIFICATION AND SEC. 111, DIV. 1.

DATE 6 FEB. 1980

CUSTOMER ORDER NO	CIW SALES ORDER NO	SPECIFICATION
22550-N-1141	F-9985	ASME SA106 GR. C; ASME SEC. 111, CLASS 2 WITH NO. IMPACTS AND POWER PIPING SPEC. N-1141-01, REV. A

CIW PART NO. 86-9985-341-300
DESCRIPTION OF MATERIAL SEAMLESS PIPE
O.D. 30.000" WALL 1.875" M.W.

CHEMICAL ANALYSIS

HEAT NO.	LOCATION OR SERIAL NO.	C	MN	P	S	SI	CR	NI	MO	CU	CO	TI
L 5616		.24	.84	.008	.018	.22						

MECHANICAL PROPERTIES

T NO.	QUANTITY OR SERIAL NO.	TEST LOC.	TENSILE PSI	YIELD PSI .2%	ELONG 2 "	RED AREA	FLATTENING TEST	BAR SIZE	LOT NO.
L 5616	2	T-A	73,900	44,400	32.1	56.5	OK	.505	1812

FORG. SET. #	TEST LOT#	HEAT #
35461Z-FWD	1812	L 5616
35462Z-AFT	"	"

RECEIVED
JUL 9 1982
Engineering Correlation
Document Review

EACH LENGTH OF PIPE HYDROSTATICALLY TESTED AT 2800 PSI FOR 5 SEC. AND FOUND ACCEPTABLE.

HEAT TREATMENT: 1600F., HELD 1 HR. AT TEMP. AIR COOLED.

SUBSCRIBED AND SWORN TO BEFORE ME THIS
6TH DAY OF FEB. 1980

NOTARY PUBLIC
[illegible] TOUCHTON
[illegible] Harris County, Texas

I CERTIFY THESE TESTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THIS COMPANY

METALLURGICAL REPRESENTATIVE

E80851/vc

DUQ. LIGHT CO. [illegible] VALLEY NO. 2
P.O. NO. 2 5V-58, C.O. NO. 12241, PIPE FAB.

Auth. No. [illegible] Ledger Control No. [illegible] Third [illegible] Page 1 of 1

G+W Bonney Forge Division
Energy Products Group
CARLINVILLE, ILLINOIS

Lot No. _____ Page 1 of 1

PHONE 217/854-9611

CUSTOMER: Power Piping
CUSTOMER'S Order No.: 34973-N-1141
SHIPPED TO:

Date Feb. 24, 1982
Bonney Order No. 9505
Mark

Item No.	Quantity No.	Bonney Lot No.	Grade or Specification No. Chemical Analysis, Physical Properties, Remarks:
			ASME SA105
2	3	358B	30 x 4 (1.875xXS) Weldolet C.23 Mn.72 P.013 S.021 Si.21 T/S 75,218 Y/S 50,962 El 22.1 Ra 44.4

DUQ. LIGHT CO., BEAVER VALLEY NO 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

The above fittings are in accordance with ASME Section II Class 2, 1971 thru summer 1973 addenda; and NCA-3800.

Fittings supplied are in complete accordance with the purchase order specifications and were manufactured in accordance with the Quality Assurance Program edited to NCA-3800 and approved by W.R.Nicolls, Divisional Q.A. Mgr., June 1981.

Carlinville Plant QA Manual Rev. 3 dated 5/20/81.

This certifies that the provisions of 10 CFR Part 21 are applicable.

THIS SYSTEM IS APPROVED FOR USE IN NUCLEAR POWER PLANTS
SPECIFICATIONS
BY _____ DATE 3/4/82

Bonney Forge Division
Energy Products Group
Carlinville, Illinois
by D L Kelly
QUALITY ASSURANCE MANAGER

Auth. No. 82-2222 Ledger Control No. 82-2222 Item No. 2

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES*

As Required by the Provisions of the ASME Code Rules, Section III, Div. 1 N-1141-6322

1. Fabricated by Power Piping Company, Donora, PA 15033 Order No N-1141
2. Fabricated for Beaver Valley Power Station, Unit #2 Order No 28V-58, J.O. No. 12241
3. Owner Duquesne Light Company, Pittsburgh, PA 4. Location of Plant Shippingport Borough, PA
5. Piping System Identification Main Steam And Safety Header(MSS) MX-MSS-41-1/1002-041-107 ISO 100207
6. Drawing No BP-2B & E & F Prepared by Stone & Webster Engineering Corp.
7. National Board No N/A Boston, Massachusetts
8. The material design, construction and workmanship complies with ASME Code Section III, Class 2
9. Edition 1971 Addenda Date Winter 1972 Case No N/A
10. Remarks: Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report

(Name of Part, Item number, Manufacturer's name, Address and Identifying number)

11. Shop hydrostatic Test By Field psi
12. Description of piping inspected

(Line number, Mark No., Material spec., Nom. pipe size, Schedule or thickness, Length, Couplings, Flanges, etc.)

1 Pc. - 30" I.D. x 1.875" Min Wall Smls. C.S. Pipe, SA-106, Gr. C, Item No. 4, L.C. No. P-1780, Ht. ID L-5616, Serial # 35461-YZ, Lgth. = 2' - 11 3/16" lg.

1 - 4" (X-Stg.) on 30" I.D.(1.875" MW) F.S. W-O-L SA-105, Item No. 20, L.C. No. M-7602, Ht. ID 358-B

NOTE: Welding Electrodes L.C. No. E-69, E-88, E-107, E-108, E-111

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 June 10, 1982 Signed Power Piping Company By Alice L. Castella

Certificate of Authorization Expires January 7, 1983 Certificate of Authorization No N-1023

CERTIFICATE OF SHOP INSPECTION N-1141- 6322

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 PENNSYLVANIA and employed by Lumbermens Mutual Casualty Co. of Long Grove, have inspected the piping described in this Data Report on [illegible], 19[illegible], and state that to the best of my knowledge and belief, the NPT Certificate Holder 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 makes 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 [illegible] 19[illegible]

[illegible] Commissions PA [illegible]

(Authorized Inspector) (National Board, State, Province and Endorsements)

CERTIFICATE OF TEST ON PIPE MATERIAL

Cameron
IRON WORKS, INC.
P. O. BOX 1212
HOUSTON, TEXAS 77001

POWER PIPING COMPANY
809 BEAVER AVENUE
PITTSBURGH, PA 15233

CORRECTED REPORT
2/12/80

ASME QUALITY SYSTEM CERTIFICATE
(MANUFACTURER) NO. N-2209 EXPIRES 10-27-81

ALL OPERATIONS WERE PERFORMED BY CIW & MEET THE REQUIREMENTS OF THE MATERIAL SPECIFICATION AND SEC.III,DIV.1. DATE 30 JAN. 1980

CUSTOMER ORDER NO	C-I-W SALES ORDER NO	SPECIFICATION
225550-N-1141	F-9985	ASME SA106 GR.C; ASME SEC. III, CL.2 WITH NO IMPACTS AND POWER PIPING SPEC. N-1141-01, REV. A

C-I-W PART NO / DESCRIPTION OF MATERIAL: 86-9985-341-300 SEAMLESS PIPE

O.D. 30.000" WALL 1.875" M.W.

HEAT NO.	LOCATION OR SERIAL NO.	CHEMICAL ANALYSIS C	MN	P	S	SI	CR	NI	MO	CU	CO	TI
L 5616		.24	.84	.008	.018	.22						

HEAT NO.	QUANTITY OR SERIAL NO.	TEST LOC.	MECHANICAL PROPERTIES TENSILE PSI	YIELD PSI .2%	% ELONG 2"	% RED AREA	FLAT-TENING TEST	BAR SIZE	LOT NO.
L 5616	7	T-A	73,900	44,400	32.1	56.5	OK	.505	1812

FORG.SER.#	TEST LOT#	HEAT#
P-1780 -35461YZ	1812	L 5616
P-1782 -35461YY	"	"
P-1781 -35461YX	"	"
P-1785 -35461YW	"	"
P-1783 -35461YU	"	"
P-1779 -35462YZ	"	"
P-1784 -35462YY	"	"

EACH LENGTH OF PIPE HYDROSTATICALLY TESTED AT 2800 PSI FOR 5 SEC. AND FOUND ACCEPTABLE.

HEAT TREATMENT: 1600F., HELD 1 HR. AT TEMP. AIR COOLED.

SUBSCRIBED AND SWORN TO BEFORE ME THIS 12TH DAY OF FEB. 1980.

I CERTIFY THESE TESTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY

METALLURGICAL REPRESENTATIVE

DUQ. LIGHT CO. BEAVER VALLEY P.S. Unit
P.O. NO. 8 RVSS I.O. NO. 19541 PIPE FAB

Auth. No. P-1782 Ledger Control No. P-1782 Item 2

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES*

As Required by the Provisions of the ASME Code Rules, Section III, Div. 1 N-1141-3268

1. Fabricated by Power Piping Company, Donora, PA 15033 Order No. N-1141
2. Fabricated for Beaver Valley Power Station, Unit #2 Order No. 2BV-58, J.O. No. 12241
3. Owner Duquesne Light Company, Pittsburgh, PA 4. Location of Plant Shippingport Borough, PA
5. Piping System Identification Main Steam Safety Valve Header (MSS) MK-MSS-106-1/1002-106-46
(Sheet identification number and total number of sheets) ISO 100207
   (a) Drawing No. RP-23, 2E Prepared by Stone & Webster Engineering Corp.
   (b) Nearest Guard No. N/A Boston, Massachusetts
6. The material, design, construction, and workmanship complies with ASME Code Section III, Class 2
   Edition 1971, Addenda Date Winter 1972, Case No. N/A
   Remarks: Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report
   (Name of Part — item number, Manufacturer's name and identifying stamp)
7. Shop Hydrostatic Test By Field psi.
8. Description of piping inspected
   (Line number — mark no. — material spec. — nom. pipe size — schedule or thickness — length — fittings — flanges etc.)

1 Pc. - 35.945" Nom O.D. x 30.000" Min I.D. Smls. C.S. Extruded Header, SA-106, Gr. C, Item No. 1, L.C. No. M-5607, Ht. ID KMMM

2 - 36" x 2.672" M.W. Smls. C.S. Cap, SA-234, WP-C, Item No. 7, L.C. No. M-5611, Ht. ID KMKO; Item No. 10, L.C. No. M-5612, Ht. ID KMKO

5 - 6" 1500# F.S. Long W/N Flg. R/F SA-105, Item No. 17, L.C. No. M-1789, Ht. ID TPOK, Serial # 609381-601; Item No. 18, L.C. No. M-1790, Ht. ID TPOK; Serial # 609381-601; Item No. 19, L.C. No. M-1791, Ht. ID TPOK; Serial # 609381-601; Item No. 20, L.C. No. M-1792, Ht. ID TPOK, Serial # 609381-601; Item No. 21, L.C. No. M-1793, Ht. ID TPOK; Serial # 609381-601

DEC 0 3 1981

Stone & Webster Engineering Corporation Document Control

NOTE: Welding Electrodes L.C. No. E-69, E-88, E-89, E-90, E-106, E-105, E-108, E-110

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 November 19, 1981 Signed Power Piping Company By Alvin J. Portella

Certificate of Authorization Expires January 7, 1983 Certificate of Authorization No. N-1033

CERTIFICATE OF SHOP INSPECTION N-1141-3268

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 PENNSYLVANIA and employed by Lumbermens Mutual Casualty Co. of [illegible] have inspected the piping described in this Data Report on 11-23-81, 19 81, and state that to the best of my knowledge and belief, the NPT Certificate Holder 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 makes 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 11-23-81 19 81

[signature] Commissions [illegible]

(Authorized Inspector) (National Board, State, Province and No.)

*Supplementary sheets in form of lists, sketches or drawings may be used provided (1) size is 8½ in. x 11 in., (2) information in items 1, 2, 3, 4, 5 and 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at top of this form.

*CORRECTED REPORT 2-18-82

CUSTOMER Power Piping Company
829 Beaver Avenue
Pittsburgh, Pennsylvania 15233

CUSTOMER ORDER NO. 16208-N-1141

PACKING LIST NO.

Auth. No. N-1141 Ledger Control No. 02-5606 Thru 02-5608

GW Taylor Forge Engineered Systems
FPD Special Products Division
P.O. Box 8
Paris, Kansas 66071
913/294-5331

OUR ORDER NO. 802404

NUCLEAR

Our Item 1A, 1B, 1C

Material SA-106-C
SPECIFICATION NO. SA-106 Rev. Dated
Nuclear Piping
HEAT TREATMENT per MTE-01 Rev.0
Design per ASME SECT. III CLASS 2
1100 PSIG @ 540° F. 1971 Winter 72
Quality System Certificate (Materials
Number N-1938 Expires 11/25/80

HEAT NUMBER	PHYSICAL PROPERTIES: YIELD POINT OR YIELD STRENGTH AT ___ % OFFSET, PSI	TENSILE STRENGTH PSI	ELONG. IN ___" %	RED. OF AREA %	CHEMICAL ANALYSIS: C	Mn	P	S	Si	Mo	Cr	Ni	DESCRIPTION
	Item 1 -	(THREE)	- 30"	ID x	0" ID	Header	SA-106 Gr.	C Material	with (1) 32-				0" OD Outlet and
								(5) 9" OD	Outlets x 9				- 6" OAL
K1001	44300	79,200 --72900--	C. Massey 2/8/82 28.4	0	.26	.90	.014	.019	.23	SA - 106 - C			2-3/4" MH Pipe
			(.505)										
	1B	1A	1C										
BHN:	167	167	170										

REMARKS: This Certifies that the requirements of Section III including the Winter of 1972 and specification No. N-1141-01 have been met.

DUQ. LIGHT CO. BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

MARGARET MAISCH
STATE NOTARY PUBLIC

SUBSCRIBED AND SWORN TO BEFORE ME

28TH DAY OF Oct 1982

Margaret Maisch
NOTARY PUBLIC

CERTIFICATE OF TEST ON PIPE MATERIAL

Cameron
IRON WORKS, INC.
P. O. BOX 1212
HOUSTON, TEXAS 77001

G & W ENERGY PRODUCTS
6TH & CHESTNUT STREETS
OSAWATOMIE, KS 66064

*SUPPLEMENTARY REPORT 6/12/79.
ASME QUALITY SYSTEM CERTIFICATE
(MANUFACTURER) NO. N-2209 EXPIRES 10-27-81

ALL OPERATIONS WERE PERFORMED BY CIW & MEET THE REQUIREMENTS OF THE MATERIAL SPECIFICATION AND SEC. III, DIV. 1. DATE 30 MAY 1979.

CUSTOMER ORDER NO.	C.I.W. SALES ORDER NO.	SPECIFICATION
12-2203	F-9598	ASME SA106 GR. C; ASME SEC. III, CLASS 2 THRU WINTER 1972 ADDENDUM; NO IMPACTS

CIW PART NO. 86-9598-358-300
DESCRIPTION OF MATERIAL SEAMLESS PIPE
O.D. X I.D. 30.000" x WALL 2.750" M.W.

HEAT NO.	LOCATION OR SERIAL NO.	CHEMICAL ANALYSIS C	MN	P	S	SI	CR	NI	MO	CU	CO	TI
J 7984		.26	.90	.014	.019	.23						

HEAT NO.	QUANTITY OR SERIAL NO.	TEST LOC.	MECHANICAL PROPERTIES TENSILE PSI	YIELD PSI .2%	% ELONG 2"	% RED AREA	FLAT. TENING TEST	BAR SIZE	LOT NO.
J 7984	3	TRANS.	79,200	44,300	28.4	52.5	OK	.505	933

FORG. SER.#	TEST LOT#
33801	933
33802	933
33803	933

MATERIAL HAS BEEN MANUFACTURED IN ACCORDANCE WITH NA-3700.

Released Q.C. ESD-P 16 July 3, 1979

*Test material from heat treated pipe.

*Heat Treatment: 1600F., held 1 hr. at temp. Air cooled.

*Each length of pipe hydrostatically tested at 2800 psi for 5 sec. and found acceptable.

DUQ. LIGHT CO. BEAVER VALLEY P.P. 2 802404
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE PAD

SUBSCRIBED AND SWORN TO BEFORE ME THIS 30TH DAY OF MAY 1979.

Notary Public in and for Harris County, Texas

NUCLEAR

I CERTIFY THESE TESTS TO BE CORRECT AS SHOWN IN THE RECORDS OF

Auth. No. [illegible] Ledger Control No. [illegible]

GW FPG Special Products Division
Box B
Ola, Kansas 66071
913/294-5331

Material SA- -W.P.C.
SPECIFICATION NO. FABR. MPS-B2
HEAT TREATMENT
Design per SAME SECT. III CLASS 2
1100 PSIG @ 560° F. 1971 Winter 72
Quality System Certificate (Materia) Number N-1938 Expires 11/25/80

CUSTO Power Piping Company
829 Beaver Avenue
Pittsburgh, Pennsylvania 15233

CUSTOMER ORDER NO. 16208-N-1141
OUR ORDER NO. 802404
PACKING LIST NO. 01174
Our Item 2A thru 2F

NUCLEAR

HEAT NUMBER	PHYSICAL PROPERTIES: YIELD POINT OR YIELD STRENGTH AT ____ % OFFSET, PSI	TENSILE STRENGTH PSI	ELONG. IN ____" %	RED. OF AREA %	CHEMICAL ANALYSIS: C	MN	P	S	SI	MO	CR	NI	DESCRIPTION
	Item 2 - (SIX) - 36" OD x 2.672" M. W. Cap												
KMKO	46500	78000 (std 2" Rd)	28		.33	.74	.020	.023	.20				36" OD Weld Caps
	2A	2B	2C	2D	2E	2F							
BHN:	188	192	190	192	190	190							

REMARKS: This Certifies that the requirements of Section III including the Winter of 1972 and specification No. N-1141-01 have been met.

UT per NB-2530, SA-577 & SA-578. Acceptable

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

MARGARET MAISCH
STATE NOTARY PUBLIC
Miami County, Kansas
My Appointment Expires: 4-16-82

SUBSCRIBED AND SWORN TO BEFORE ME
THIS 30th DAY OF Oct. 19 79

Margaret Maisch
NOTARY PUBLIC

Quality Control No. M-2614 Page 1 of 4 Thru M-2614 Page 4 of 4

Auth. No. ____ Ledger Control No. ____ Page ____ of ____

Heat Code: GH-E
* Revised 5/25/79

CUSTOM ALLOY CORPORATION

MATERIAL MANUFACTURERS TEST REPORT

PRODUCT DESCRIPTION		CUSTOMER DATA	
Item	CAP *	Name	Capitol Pipe & Steel Products
Size	36" OD	P.O. No.	D-87961-35N
Wall	2 3/4" MW	Tag No.	12-3523
Grade	WPC	Job No.	N-11792-1

Specifications ASME SA234 WPC per Section III Class 2, 1971 Edition thru Winter 1972 Addenda

*3" Straight flange & square cut ends.

CHEMICAL ANALYSIS

	C	Mn	P	S	Si	Cr	Ni	Mo	Cb			
Ladle	.33	.74	.020	.023	.20							
Check												

MECHANICAL PROPERTIES

Yield Point PSI	Tensile Strength PSI	Elong. in 2" %	Red. of Area %		Starting Material Control No.	Starting Material conforms to the chemical and tensile requirements of
		STD 2" RD.				
500	78,000	28.0			CAC 9150	

MILL HEAT NO: 401E 8311 - Bechlehem Steel Corporation

REMARKS: (A) Heat Treatment: Normalize at 1650°F ± 25°F, held at temperature f
1 hr. per inch, then cooled in still air.

(B) Hardness: RB 76

(C) We certifly these items were manufactured under a Quality System meeting the requirements of ASME Section III, Par. NCA-3800.

(D) U.T. Procedure: NB-2530, SA-577 and SA-578. Longitudinal and Shear Wave. - Satisfactory

2A thru 2F

NUCLEAR KNLO

JUN - 4 1979

JANET P SHERMAN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires May 21 1982

State of New Jersey
County of Hunterdon

nd subscribed before me this

8 day of May 1979.

Janet P. Sherman
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires - - -

ESD-P 16

5/8/79

DUQ. LIGHT CO., BEAVER VALLEY NC
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE

Acceptance and Approval by Customer Representative/Inspector

I certify the above product has been manufactured in accordance with all applicable parts of the above order and specifications.

CUSTOM ALLOY CORPORATION

Rpt. No. N-1141 Ledger Control No. M-5609 Thru M-5614 Page 5 of 7

Custom Alloy Corporation [illegible] • Telephone [illegible] • TWX: 510-235-3362 • TELEX: 13-6456

* Revised 5/25/79 CAC NO: 9150

HEAT NO: N/A

ULTRASONIC TEST REPORT

STOMER: Capitol Pipe & Steel		INSPECTOR/LEVEL II	DATE:
B NO: -11792-1	ALLOY: WP-C	EXAMINER/LEVEL II: [signature]	DATE: 3/21/79
EM: isk	SIZE: 46 dia. x 3.5 thick	CUSTOMER APPROVAL	DATE:

OCEDURE: * SA-577, SA-578, NB-2530

ST EQUIPMENT: Krautkramer USIP-11	COUPLANT: Exosen 14	
NSDUCER SIZE: " dia and 1/2 x 1	TYPE: Gamma	FREQUENCY: 2¼ MHz
LIBRATION STANDARD CONFIGURATION: ac eflection and 3% Buttress Notch		
CE LEVEL (%): D and DAC Curve	[illegible]: 90° and 45°	

The following material has been inspected and accepted in accordance with the above procedure:

6 fittings Accepted

RELEASED JUN - 4 1979 QC

CSD-P 16

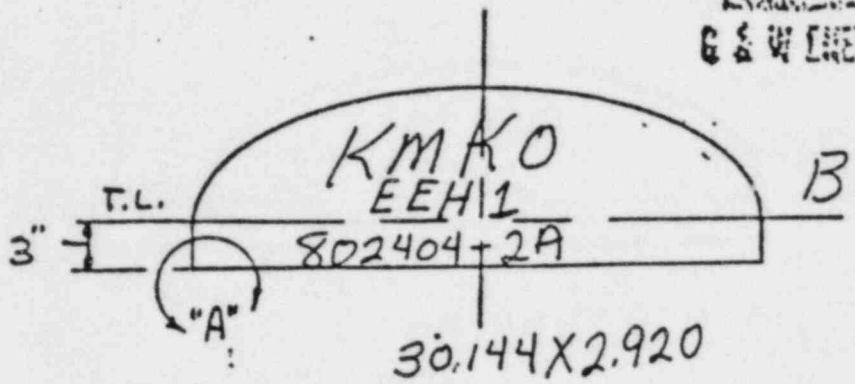
KAKO

2A thru 2F

NUCLEAR

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

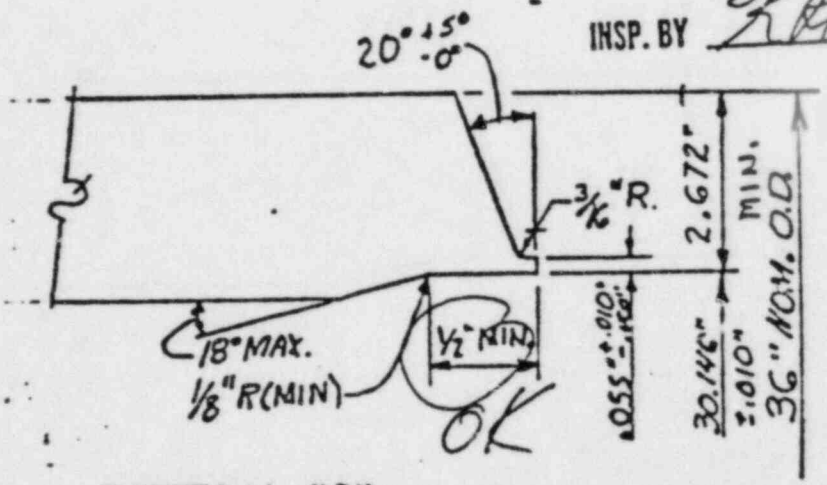
REVISED
CERTIFIED
POWER SYSTEMS DIVISION
G & W ENERGY PRODUCTS GROUP



BHN-188

AS-BUILT DRAWING

INSP. BY K Rose DATE 8-7-79



DETAIL "A"

UN—CONTROLLED

NOTES:

1. DESIGN PER ASME SECT III CL 2 1100 PS.IG @ 560°F.
2. FAB'R. PER MPS-B2
3. MAT'L. SA-234-W.P.C. (6) REQ'D.

CLEAR

REV.	DATE	DESCRIPTION	BY	CH.
		~~DUQ. LIGHT CO., BEAVER VALLEY NO. 2~~		
		~~P.O. NO. 2 BV-53, J.O. NO. 12241, PIPE FAB~~		
1	10-13-78	PER CUST.	SEE	SEE

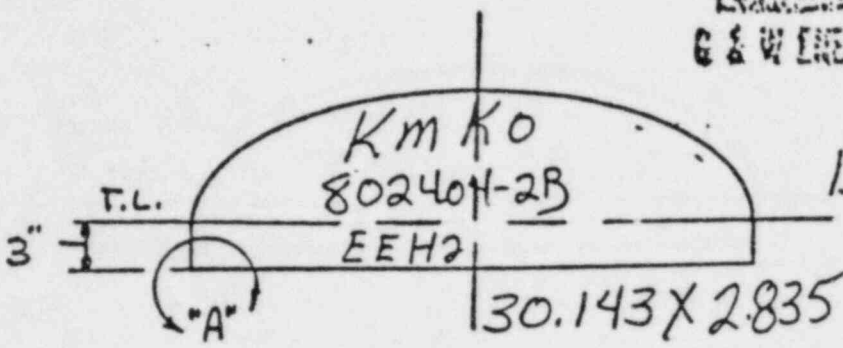
NUCLEAR
Engineered Systems Division
GULF + WESTERN MANUFACTURING COMPANY

36"O.D.X 2.672" M.W. CAP

POWER PIPING CO.

DR.	JOB 12704	P.O. NO. 2108-N-1141	
CH.	FILE	DRAWING NO. 802404	ITEM 2 / PLY. 1
APP.	DATE 7-17-78	SHEET A-1 OF	
SCALE			

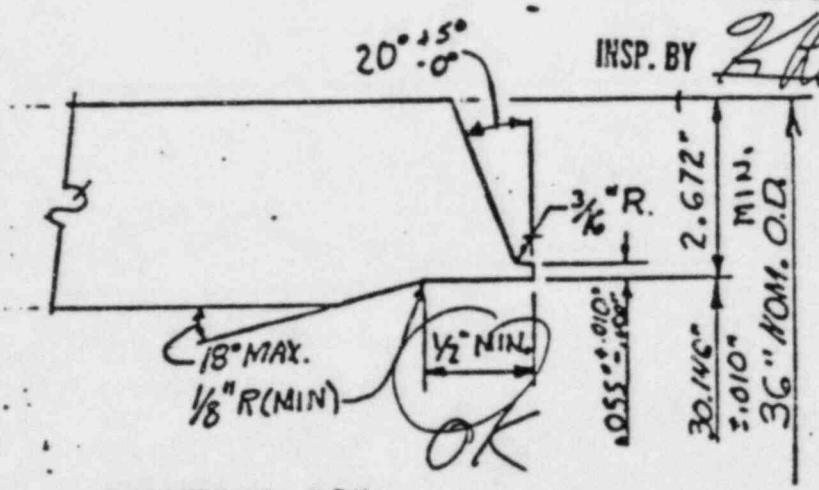
EXPIRED
DESIGNED
DESIGNER ENTITY DIVISION
C & W ENERGY PRODUCTS GROUP



BHN-192

AS-BUILT DRAWING

INSP. BY L Rosa DATE 8-7-79



DETAIL "A"

UN—CONTROLLED

NOTES:

1. DESIGN PER ASME SECT III CL 2 1100 PS.IG @ 560°F.
2. FAB'R. PER MPS-B2
3. MAT'L. SA-234-W.P.C (6) REQ'D.

CLEAR

CY.	DATE	DESCRIPTION	BY	CH.
		~~PP. LIGHT CO., BEAVER VALLEY NO. 2~~		
		~~O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.~~		
1	10-13-78	PER CUST.	MLL	LEE

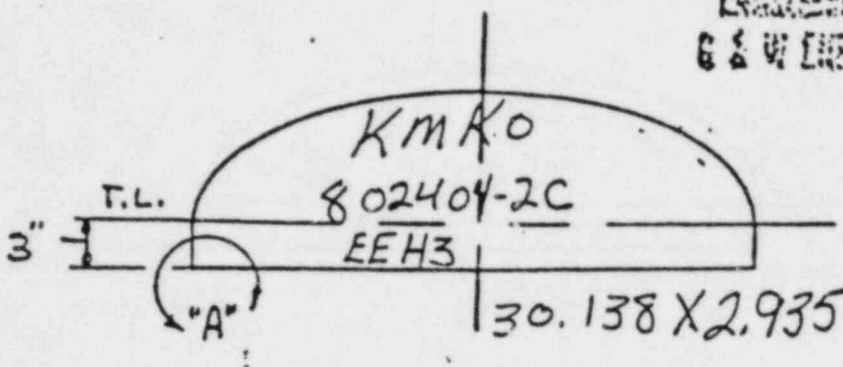
NUCLEAR
Engineered Systems Division
GULF + WESTERN MANUFACTURING COMPANY

36"O.D. X 2.672" M.W. CAP

POWER PIPING CO.

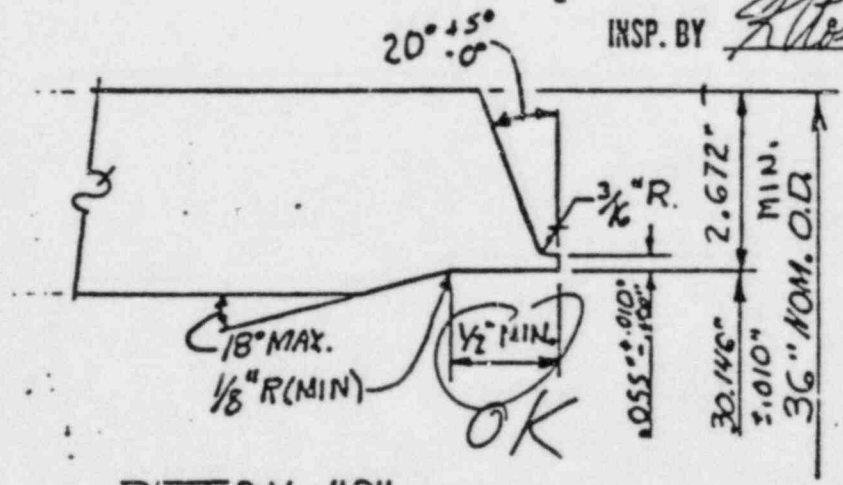
DR. [illegible]	JOB 7/27/79	P.O. NO. 3108-N-1171	
CH. [illegible]	FILE	DRAWING NO. 1024041 ITEM 2	REV. 1
APP. [illegible]	DATE 7-17-79	SHEET A-1 OF	
SCALE [illegible]			

EXCESS
RETURNED
DRESSER PIPING DIVISION
G & W ENERGY PRODUCTS GROUP



AS-BUILT DRAWING

INSP. BY R Ross DATE 8-7-79



DETAIL "A"

UN—CONTROLLED

NOTES:

1. DESIGN PER ASME SECT III CL 2 1100 PS.IG @ 560°F.
2. FAB'R. PER MPS-B2
3. MAT'L. SA-234-W.P.C (6) REQ'D.

CLEAR

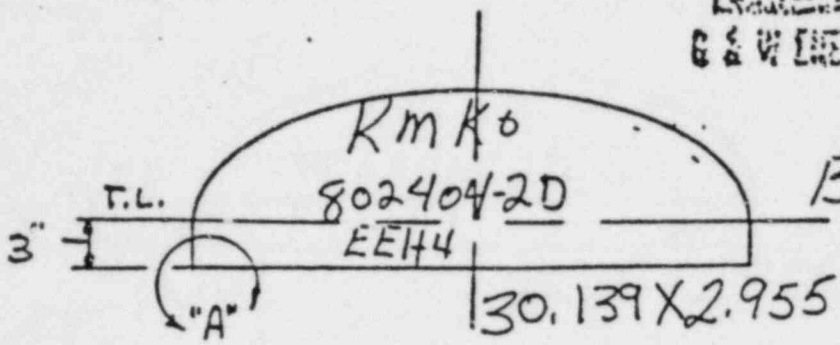
REV.	DATE	DESCRIPTION	BY	CH.
		DUQ LIGHT CO. BEAVER VALLEY NO. 2		
		NO. 2 BV-58, I.O. IO. 18241, PIPE FAB.		
	10-13-78	PER CUST.		

NUCLEAR
Engineered Systems Division
GULF + WESTERN MANUFACTURING COMPANY

36"O.D. X 2.672" M.W. CAP

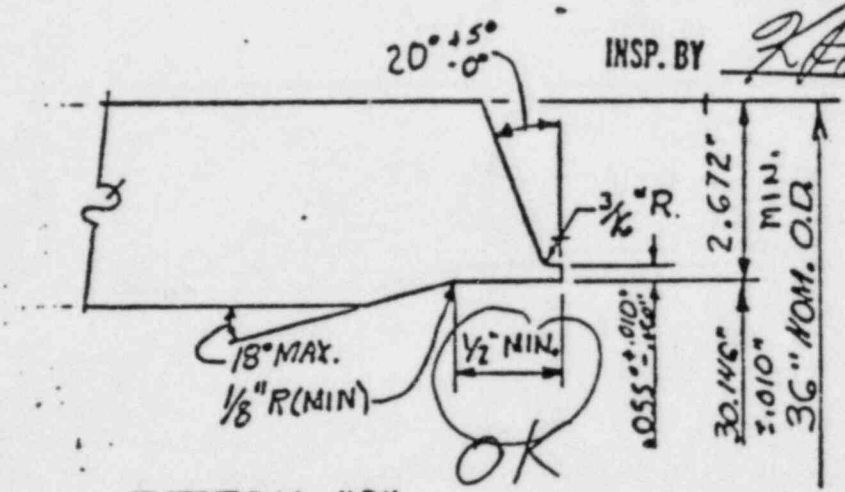
POWER PIPING CO.

DR. [illegible]	JOB [illegible]	P.O. NO. 3205-N-1141	
CH. [illegible]	FILE	DRAWING NO. F024941	ITEM 2 / KEY 1
APP. [illegible]	DATE 7-17-78	SHEET A-1 OF	
SCALE [illegible]			



AS-BUILT DRAWING

INSP. BY KAss DATE 8-7-79



DETAIL "A"

NOTES:

1. DESIGN PER ASME SECT III CL 2 1100 PS.IG @ 560°F.
2. FAB'R. PER MPS-B2
3. MAT'L. SA-234-W.P.C. (6) REQ'D.

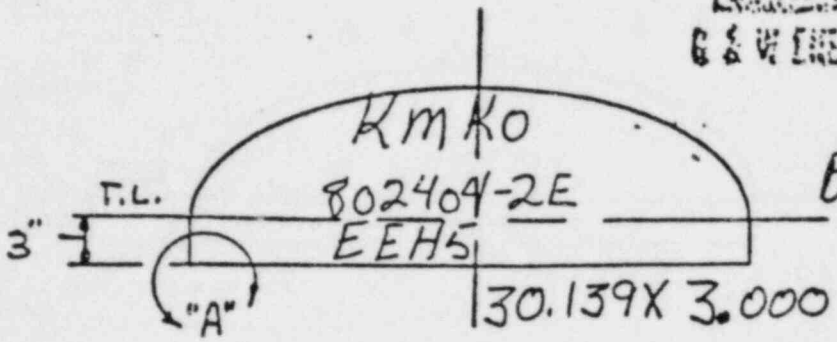
REV.	DATE	DESCRIPTION	BY	CH.
		DUQ LIGHT CO. BEAVER VALLEY NO. 2		
2		P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.		
1	10-13-78	PER CUST.		

NUCLEAR
Engineered Systems Division
GULF + WESTERN MANUFACTURING COMPANY

36" O.D. X 2.672" M.W. CAP

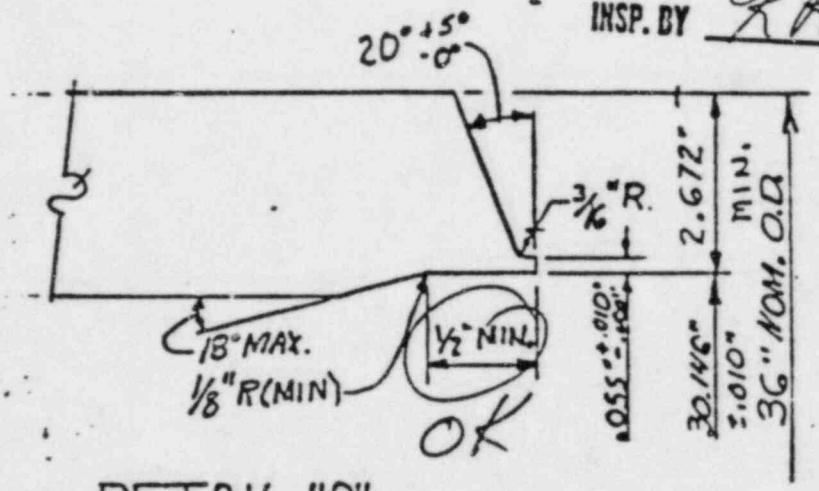
POWER PIPING CO.

DR. [illegible]	JOB 12134	P.O. NO. 2108-N-1141	
CH. [illegible]	FILE	DRAWING NO. AD24041	ITEM 2 / REV. 1
APP. [illegible]	DATE 7-17-79	SHEET A-1 OF	
SCALE [illegible]			



AS-BUILT DRAWING

INSP. BY K Ross DATE 8-7-79



DETAIL "A"

NOTES:

1. DESIGN PER ASME SECT III CL 2 1100 PS.IG @ 560°F.
2. FAB'R. PER MPS-B2
3. MAT'L. SA-234-W.P.C. (6) REQ'D.

NO.	DATE	DESCRIPTION	BY	CH.
		NO. LIGHT CO. BEAVER VALLEY NO. 2		
		P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.		
1	10-13-78	PER CUST.	MR	MR

NUCLEAR
Engineered Systems Division
GULF + WESTERN MANUFACTURING COMPANY

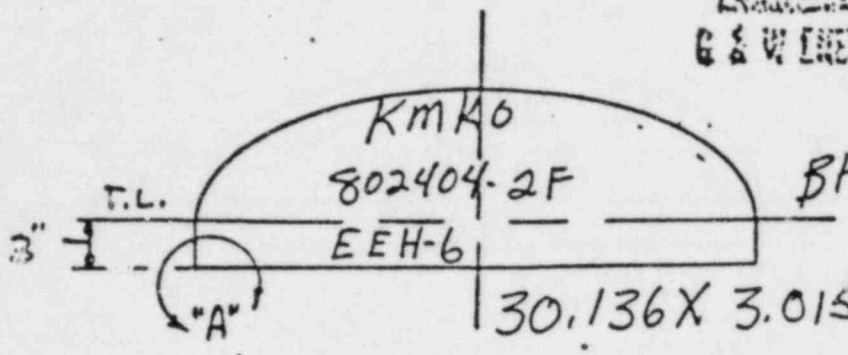
36"O.D.X 2.672" M.W. CAP

POWER PIPING CO.

DR. [illegible]	JOB 81,274	P.O. NO. 2205-N-1141	
CH. [illegible]	FILE	DRAWING NO. 802441	ITEM 2
APP. [illegible]	DATE 7-17-78	SHEET A-1 OF	REV. 1
SCALE 1/4			

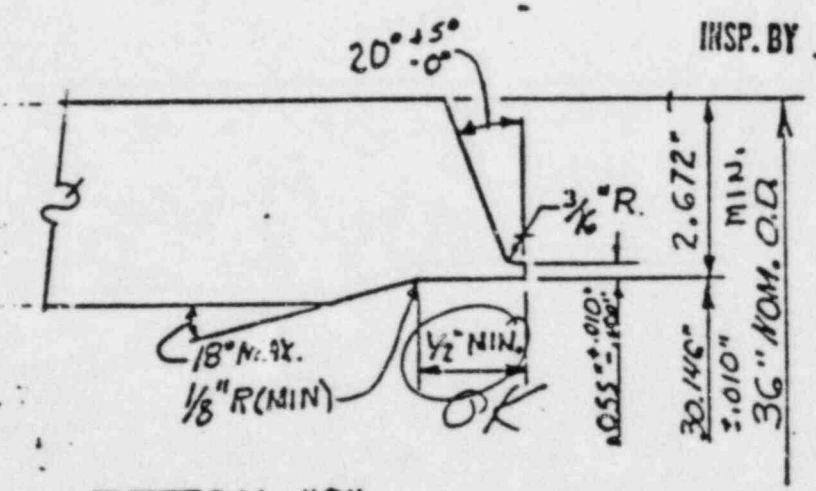
Ch. No. N-1141 Ledger Control No. M-5609 Thru M-5614 Page 9 of 9

EXCESS
RECEIVED
DRESSER SYSTEMS DIVISION
G & W ENERGY PRODUCTS GROUP



AS-BUILT DRAWING

INSP. BY RKoss DATE 8-7-79



DETAIL "A"

UN—CONTROLLED

NOTES:

1. DESIGN PER ASME SECT III CL 2 1100 PS.IG @ 560°F.
2. FAB'R. PER MPS-B2
3. MAT'L. SA-234-W.P.C
   (6) REQ'D.

CLEAR

REV.	DATE	DESCRIPTION	BY	CH.
2		LIGHT CO. BEAVER VALLEY NO. 2		
		NO. 2 BV-58. J.O. NO. 12241, PIPE FAB.		
1	10-13-78	PER CUST.	WJ.	LAL

GPD NUCLEAR
Engineered Systems Division
GULF + WESTERN MANUFACTURING COMPANY

36"O.D.X 2.672" M.W. CAP

POWER PIPING CO.

DR. [illegible]	JOB 12424	P.O. NO. 3208-N-1141	
CH. [illegible]	FILE	DRAWING NO. 802404	ITEM 2 / REV. 1
APP. [illegible]	DATE 7-17-78	SHEET A-1 OF	
SCALE [illegible]			

Heat To Procedure Acceptance

Taylor Forge Division
Energy Products Group
GULF-WESTERN MANUFACTURING COMPANY

P.O. Box 6331
Houston, Texas 77005

CUSTOMER POWER PIPING CO.
829 BEAVER AVE.
PITTSUBRGH PA 15233

SPECIFICATION NO ASME SA105
ASME SEC III CL 2
HEAT TREATMENT NORMALIZED

Auth. No. N-1141 Ledger Control No. M-1781 Thru M-1789 Page 1 of 1

CUSTOMER ORDER NO. 4402- N1141 OUR ORDER NO 609381

PACKING LIST NO. 61364

HEAT NUMBER	PHYSICAL PROPERTIES: FIELD POINT OR FIELD STRENGTH AT ___ % OFFSET, PSI	TENSILE STRENGTH PSI	ELONG. IN 2" %	RED. OF AREA %	CHEMICAL ANALYSIS: C	Mn	P	S	Si	Mo	Cr	Ni	DESCRIPTION
ITEM 601													
TPOK	48,340	76,100	29.4	59.3	.26	.77	.010	.032	.16				15- 6" 1500 RF LWN SA105 ASME SI III CL 2 AND PWERE PIPING SPEC N 1141 REV 2

REMARKS:

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

SUBSCRIBED AND SWORN TO BEFORE ME

THIS 27 DAY OF FEBRUARY 19 76

Linda A. Clark
NOTARY PUBLIC

LINDA A. CLARK
Notary Public in and for Lucas County, Texas
My Commission Expires June 1, 1977

Paul D. Shuler
CHIEF INSPECTOR

P.P.C.O. SO. INSP.

GRAPHITED
DEC 0 CI981
Supervising Engineer
Quality Assurance
Document Review

SECTION 11

FORM NPV-1 MANUFACTURERS' DATA REPORT FOR NUCLEAR PUMPS OR VALVES*

(As Required by the Provisions of the ASME Code, Section III, Div. 1)

1. Manufactured by Fluid Systems Division – Gulf + Western Manufacturing Company
(Name and Address of Manufacturer)

2. Manufactured for Stone & Webster Engineering Corporation, Boston, MA
(Name and Address of Purchaser or Owner)

3. Location of Installation Beaver Valley Unit #2 Shippenport, PA
(Name and Address)

4. Pump or Valve Valve. Nominal Inlet Size 24 (inch) Outlet Size 24

	(a) Model No., Series No. or Type	(b) Manufacturers' Serial No.	(c) Canadian Registration No.	(d) Drawing No.	(e) Class	(f) Nat'l. Bd. No.	(g) Year Built
(1)	Ball Valve	6246	N/A	E-24-900-8 - Rev. B	2		1980
(3)							
(4)							
(5)							
(6)							
(7)							
(8)							
(9)							
(10)							

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2
check for
23V-211
J.O. 12241 P.O. NO.
2 MSS-HYV101
MARK NO.
ESD-Gulf+Western
VENDOR'S NAME

5. Main Steam Line Trip Valve
(Brief description of service for which equipment was designed)

6. Design Conditions 1100 (Pressure) psi 558 (Temperature) °F or Valve Pressure Class _____ (1)

7. Cold Working Pressure 2220 psi at 100°F.

8. Pressure Retaining Pieces

Mark No.	Material Spec. No.	Manufacturer	Remarks
(a) Castings			
S/N 2-HT 2896	SA 351 CF8M	Dodge Foundry & PRL	Ball
(b) Forgings			
SN0004 HT#57197	SA 350 Gr LF2	Forged Products, G+W	Body
SN3 HT#216492	SA 350 Gr LF2	Forged Products, G+W	Bonnet
SN2 HT#216492	SA 350 Gr LF2	Forged Products, G+W	Reducer
SN5 HT#216492	SA 350 Gr LF2	Forged Products, G+W	Reducer
SN 1A thru 1D			
HT#79708/EPZD	SA 182-F6	Taylor Forge, G+W	Seal Retainer

(1) For manually operated valves only.

* Supplemental sheets in form of lists, sketches or drawings may be used provided (1) size is 8-1/2" x 11", (2) information in items 1, 2 and 5 on this data report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded at top of this form.

FORM NPV-1 (Back)

Mark No.	Material Spec. No.	Manufacturer	Remarks
(c) Bolting N/A			
		DUQUESNE LIGHT CO. STONE & WEBSTER ENG. BEAVER VALLEY UNIT 2	
		J. O. 12241 P.O. NO. 2BV 211	
		MARK NO 2MSS HYV101	
		VENDOR'S NAME FSD - Gulf + Western	
(d) Other Parts			
Trace 8H/HT#C17396	SA 479 Type 316	Vitco	Pipe Plug (Qty. 2)

9. Hydrostatic test 3350 psi.

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and that this pump, or valve, conforms to the rules of construction of the ASME Code for Nuclear Power Plant Components. Section III, Div. 1, Edition 74, Addenda None (Date), Code Case No. N/A. Date 10 Nov 80

Signed Fluid Systems Division (Manufacturer) by Raymond V. Allen - QA Manager

Our ASME Certificate of Authorization No. 1209 to use the N (N) (NPV) symbol expires 9/8/81 (Date).

CERTIFICATION OF DESIGN

Design information on file at EPG G+W

Stress analysis report (Class 1 only) on file at N/A

Design specifications certified by (1) Carl Otto Richardson

PE State PA Reg. No. 016297E

Stress analysis certified by (1) N/A

PE State N/A Reg. No. N/A

(1) Signature not required. List name only.

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Massachusetts and employed by HSB&I Co. of Hartford, Connecticut have inspected the pump, or valve, described in this Data Report on 11-10 19 80, and state that to the best of my knowledge and belief, the Manufacturer has constructed this pump, or valve, in accordance with the ASME Code, Section III.

By signing this certificate, neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the equipment described 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 11-10 19 80 (Inspector)

Commissions MA946 WC 108 (Nat'l Bd., State, Prov. and No.) PA

QA RELEASE TO ASS'Y.:		PAGE 3 OF 3	PTR NO.: 1798-1

MATERIAL IDENTIFICATION

ITEM	SERIAL NUMBER	HEAT NUMBER	COMMENT
BODY	0004	57117	
BONNET	3	216492	
BALL	2	2896	
REDUCER	2	216492	
REDUCER	5	216492	← part # is away from weld area
SEAT RETAINER	1A TO 1D	79708/EPZD	
P.R. BOLTING	N/A	N/A	
OTHER Pipe Plug	8H	C17396	
SEAT-	6	PO 919	ADDED TO LIST PER QA REQUEST NOT REQUIRED - PR INFO ONLY R.V.Allin 10/7/80
SEAT-	2	PO 917	

Verified:
F.S.D.: Raymond V. Allin 10/7/80 CUST: _____ A.N.I. VJS 10-7-80

Final Dimensional Inspection:
Drawing: E-24-900-8 Rev.: B Accepted: FSD A. Jensen 10-17-80
Ref N&O-14 CUST [illegible] 11-7-80

Cleaning and Preservation:
Spec.: PS 1105 Rev.: 2 Accepted: FSD Raymond V. Allin 11/7/80
Ref N&O-14 CUST [illegible] 11-7-80

Painting:
Spec.: PS 1105 Rev.: 2 Accepted: FSD A. Jensen 11-24-80
CUST [illegible]

Packaging:
Spec.: PS 1105 Rev.: 2 Accepted: FSD R.V.Allin 11/12/80
CUST [illegible] 11/20/80

Product Approval and Certification
By: Raymond V. Allin Title: QA Manager Date: 12 Nov 80

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 2BV-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

Form 14b
1/10/80

3.0.2

Grinnell

RADIOGRAPHIC EXAMINATION REPORT

System or Register No.	Piece No.	Weld No.	Pipe Size and Schedule	Welder No.
24"-900# VALVE BODY	#004	5	30.5" x 4.75"	N/A

TECHNIQUE	
Views	
Source	
Source Curie or kVP & mA	
Source Size or Focal Spot	
Source Film Distance	
Time	
Actual Gold Thickness	
Penetrameter	
Sensitivity	
Skin Thickness	
Film Size	
Film Type	
Viewing Technique	Single ☐ Double ☐
Screens — Front	
Screens — Back	
Development — 68° Kodak 6 min.	
Development — Automatic	
Welding Procedure	

INTERPRETATION

Film Interval	Defect Type (LP, LF, S, P, HT, UC, C, CR, T, HL)	Comments	Interpretation ACC	Interpretation R
A-D			✓	
D-G			✓	
G-J			✓	
J-M			✓	
M-P			✓	
P-S			✓	
U-X		MARK FROM PB FILTER ~ ck of overlap	✓	
X-A			✓	
S-V		OVERAGE FOR AREA T	✓	
		Density Acceptable to reference standard (RTE-1) (SKETCH)		

LP - Lack of Penetration
LF - Lack of Fusion
S - Slag
P - Porosity
HT - Burn Thru
UC - Under Cut
C - Crater
CR - Crack
T - Tungsten
HL - High-Low

Severity
A - Acceptable
R - Rejectable
B - Borderline

* SEE ATTACHED TECHNIQUE SHEET # EPG-1

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.

John Tiggs 12-28-78
Signed Date

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

4.2A2

VTL 3-8-79

Radiographer - Date DEC. 14 1978 By J. GIARRUSSO

Interpreted - Date DEC. 15 1978 By Henry L. Hankins Level III

DEC. 15 1978 Henry L. Hankins

Customer EPG

Contract 3334

Inspection Standard RTE-1 REV 05-77

12-20-78 R. D. Hamilton C.

Location WARWICK, R.I.

Job No. 21-2932

Acceptance Std RTE-1 (5.3.1)

AC 5320 (TH)

CERTIFICATE OF TESTS

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 1

Body CMTR S.O. #

Cameron
IRON WORKS, INC
P. O. BOX 1212
HOUSTON, TEXAS 7700

S
O

ENERGY PRODUCTS GROUP
FLUID SYSTEMS DIVISION
235 Kilvert St.
Warwick, RI 02886

ASME QUALITY SYSTEM CERTIFICATE (MANUFACTURER)
NO. N-1261 EXPIRES 10-27-78.

DATE 28 September 197

CUSTOMER ORDER NO.	C.I.W. SALES ORDER NO.	SPECIFICATION
9701	F-20022-1	ASME Sec. II, Part A, SA350 Gr. LF2 ASME Sec. III, Cl. 2 '74 Edition. ~~Process per Energy Products Group Specification, MS-1153 Rev. E~~

DESCRIPTION OF MATERIALS 24" Valve Body Dwg.# D-112-000-0924 Rev. E

CIW PART NUMBER 66350-01 Rev. C

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed Date

HEAT NO.	LOCATION OR SERIAL NO.	CHEMICAL ANALYSIS C	MN	P	S	SI	CR	NI	MO
57197		.20	1.17	.008	.006	.23			

O.K / 28V-211

ALL OPERATIONS WERE PERFORMED BY CIW & MEET THE REQUIREMENTS OF THE LISTED MATERIAL SPECIFICATION AND SEC. III DIV. 1.

No weld repairs performed.

QUANTITY & SERIAL NO.	HEAT NO.		MECHANICAL PROPERTIES Tensile PSI	.2 % Offset Yield PSI	% Elong. 2 In.	% Red. Area	Bar Size	Test Lot#
3	57197		75,200	52,700	32.5	71.0	.505	#0007

V-Notch Charpy Impact Test Results:

Form Ser.#	Test Lot#	Test Temp.	Ft.Lbs.	Lat. Exp.	% D/F
#0004	0007	40°F.	86.0	72 MILS	45%
0005	0007	40	82.0	64	40
0006	0007	40	95.0	71	45

Parts ultrasonically examined in accordance with approved procedure FU-212 Rev. B with Fig. 4, dated 1-24-78, and Addenda 1 dated 8-18-78 and found acceptable. Report attached.

Parts magnetic particle examined in accordance with approved procedure FI-75, dated 1-8-74 with Addenda 1 dated 5-18-78 and found to be acceptable. Report attached.

A.N.I. REVIEW
BY [illegible] DATE 10-4-78
☒ INITIAL ☐ FINAL

Heat treatment was in accordance with approved Procedure FH-455 N/C.

HEAT TREATMENT:
1650°F., held 3 hrs. at temp. Air cooled.
1600°F., held 3 hrs. at temp. Water quenched.
1200°F., held 6 hrs. at temp. Air cooled.
Heat furnace reports attached.

SWORN AND SUBSCRIBED TO BEFORE ME THIS 28th DAY OF September 1978

NOTARY PUBLIC
G. A. TOMLINSON
Notary Public in and for Harris County, Texas
My Commission Expires June 1, 1979

I CERTIFY THESE TESTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

METALLURGICAL REPRESENTATIVE H. O. WRIGHT, JR.

WALL THICKNESS MEASURING PROCEDURE MW 5.1 A

PLT DWG Nº D-112-000-092403 Rev B
PLT NAME 24"-900# BODY
TERIAL SA 350 GR. LF-2
T SERIAL Nº 0004

HEAT Nº 57197
INSPECTED BY John Triggs
DATE 3-1-79
CUSTOMER Q/A
DATE

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed
3-22-79
Date

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

ZONE AREA	MIN DIM.	METHOD *	ACTUAL DIM. & LOCATION 1	2	3	4	5	6	7	8
A	3.60 INCH	U	4.075	4.075	4.128	4.092	4.067	3.995		
B	3.60 INCH	U	4.260	4.390	4.525	4.440	4.275	4.185		
	3.60 INCH	U	4.170	4.250	4.300	4.165	4.113	4.160		
E	2.59 INCH	U	5.505	5.510	4.935	5.054	5.150	5.180	5.037	5.260
F	2.79 INCH	U	5.600	5.599	5.998	5.997				
G	2.59 INCH	U	5.250	5.060	4.500	5.000	5.050	4.760	4.450	4.830
						/				

TYPE INSTRUMENT Branson 303B NO. 1094
CALIBRATION STANDARD SA350 LF2 4"x6"x7" BLOCK #1092
TYPE TRANSDUCER Aerotech
TRANSDUCER SIZE .750
TRANSDUCER FREQUENCY 1 MHz
COUPLANT Exosen #30
OPERATOR John Triggs LEVEL I/II

Min 2.59 per

* C = DIAL CALIPER
U = ULTRASONIC

3-1-79

SUPPLEMENT 5
SPECIFICATION FS-1056
SHEET 5 OF 5 Rev 3

Forged Products Division

6505 N. HOUSTON-ROSSLYN ROAD
HOUSTON, TEXAS 77091
GULF-WESTERN MANUFACTURING COMPANY

ENERGY PRODUCTS GROUP

CERTIFIED TEST REPORT

6.0 A

SOLD TO
ENERGY PRODUCTS GROUP
FLUID SYSTEMS DIVISION
235 KILVERT STREET
WARWICK, RHODE ISLAND 02886

SHIPPED TO
SAME
1R 1448 R1
1R 1447-1
P.O. 0186

DATE SHIPPED	CUSTOMER'S ORDER NO.	SHIPPED VIA	
10/5/78	P.O. 10133 SHOP ORDER 3EH-1798		COLLECT ☐ PREPAID ☐

QTY.	SIZE	PC. NO.	HEAT NO. CIRC.	DESCRIPTION	BY
3	25826	1-3	216492 ✓	ROUGH MACHINED DOISET FORGINGS TO FINISH PER DWG. 0240-000-0924000 REV. 0	
2	25826		216492 ✓	7" X 10" X 24" TEST BARS	

MATERIAL HAS BEEN MANUFACTURED IN ACCORDANCE WITH ASME BOILER & PRESSURE VESSEL CODE, SECTION III, CLASS 2 REQUIREMENTS 1974 EDITION WITH NO ADDENDA.

MATERIAL WAS MANUFACTURED PER MATERIAL SPECIFICATION MS-1041 REV. 1 DTD 12/3/75 AND CONFORMS TO THE REVISED MATERIAL SPECIFICATION MS-1041 REV. 3 DATED 6/6/78 UNDER CHANGE ORDER #3 DATED 8/21/78.

MATERIAL HAS BEEN HEAT TREATED PER CHANGE ORDER #3 DTD 8/21/78 AND MS-1041 REV. 3 DATED 6/6/78 UTILIZING LINDBERG/COOK HEAT TREATMENT PROCEDURE 41478 APPROVED BY FLUID SYSTEMS DIVISION.

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signature 11-16-78 Date

DUQUESNE LIGHT CO.
[illegible] VALLEY POWER STATION

CHEMICAL ANALYSIS

	HEAT NO	MILL SOURCE	C	MN	PHOS	SUL	SIL	NI	CR	CU	MO				
1	216492	SHARON	.24	1.14	.015	.015	.27								
2															
3															

PHYSICAL PROPERTIES

	YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	% ELONG	RED OF AREA %	HARDNESS	TYPE CHARPY	TEMP °F	ABSRB ENERGY FT./LBS	LATERAL EXP (MILS)	% SHEAR
1	72,600	92,100	33.6	68.2		V-NOTCH	+40°F	85.0-90.0-91.0	.030	50
2									.030	50
3									.030	50

MISCELLANEOUS TESTING

TYPE OF TEST	G S
MAGNETIC PARTICLE EXAMINATION PER SCT FLUORESCENT METHOD PROCEDURE 41411 REV. 2 DTD 7/19/78 ACCEPTABLE WITH NO REPORTABLE INDICATIONS.	

WGLANL 3-8-79

SWORN TO AND SUBSCRIBED BEFORE ME THIS 16 DAY OF OCTOBER 19 78

MONNA M. HENDON
Notary Public in Harris County, Texas
My Commission Expires June 19, 1980

I CERTIFY THAT THIS IS A TRUE COPY OF ORIGINAL TEST SHEET NOW ON FILE AT THE OFFICE OF FORGED PRODUCTS, INC. AND THAT THIS STEEL WAS MANUFACTURED AND FORGED IN THE UNITED STATES OF AMERICA

AUTHORIZED SIGNATURE

Forged Products Division

EPG ENERGY PRODUCTS GROUP

6505 N. HOUSTON-ROSSLYN ROAD
HOUSTON, TEXAS 77091
GULF-WESTERN MANUFACTURING COMPANY

CERTIFIED TEST REPORT

6.0 B

SOLD TO
ENERGY PRODUCTS GROUP
FLUID SYSTEMS DIVISION
235 KILVERT STREET
WARWICK, RHODE ISLAND 02886

SHIPPED TO
SAME

DATE SHIPPED	CUSTOMER'S ORDER NO		SHIPPED VIA	
10/5/78	P.O. 60105	SHOP ORDER 80H-1700		COLLECT ☐ PREPAID ☐

QTY	DOR	PCS	HEAT CODE	DESCRIPTION
3	25026	1-3	216492	ROUGH MACHINED BONNET FORGINGS TO FINISH PER DWG. 0248-000-0324000 REV. 0
2	25026		216492	7" X 10" X 24" TEST BARS

MATERIAL WAS PHYSICALLY TESTED FOR TENSILE REQUIREMENTS @ 40°F PER MATERIAL SPECIFICATION MS-1041 REV. 3 DTD 6/6/78. CHARPY V-NOTCH WAS PERFORMED AT +40°F PER INSTRUCTIONS OF L. CAPRON

MATERIAL WAS WET FLUORESCENT MAGNETIC PARTICLED TESTED PER EPG-PROCEDURE 41.411 REV. 2 DTD 7/15/76 AND MATERIAL SPECIFICATION MS-1041 REV. 3 DTD 6/6/78 UNDER CHANGE ORDER #3 DTD 8/21/78

DRAWINGS SUBMITTED OF "AS SHIPPED" ROUGH MACHINED FORGINGS AND TEST BAR PER MS-1041 REV. 3 DTD 6/6/78 UNDER CHANGE ORDER #3 DTD 8/21/78.

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
11-10-78
Date
Signed

DUQUESNE LIGHT CO.
[illegible] POWER STATION

CHEMICAL ANALYSIS

	HEAT NO	MILL SOURCE	C	MN	PHOS	SUL	SIL	NI	CR	CU	MO				
1															
2															
3															

PHYSICAL PROPERTIES

	YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	% ELONG	RED OF AREA %	HARDNESS	TYPE CHARPY	TEMP °F	ABSRB ENERGY FT./LBS	LATERAL EXP (MILS)	
1										
2										
3										

MISCELLANEOUS TESTING

TYPE OF TEST		G.S

SWORN TO AND SUBSCRIBED BEFORE ME THIS 5TH DAY OF OCTOBER 19 70

MONNA M. HINDON
Notary Public in Harris County, Texas

I CERTIFY THAT THIS IS A TRUE COPY OF ORIGINAL TEST SHEET NOW ON FILE AT THE OFFICE OF FORGED PRODUCTS, INC. AND THAT THIS STEEL WAS MANUFACTURED AND FORGED IN THE UNITED STATES OF AMERICA

[illegible]
QUALITY ASSURANCE

LINDBERG/COOK
HEAT TREATING
COMPANY

Division of
LINDBERG
CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

DATE: 9/13/78

CERTIFICATION NO. 54181

CUSTOMER'S ORDER NO. 25826

OTHER ORDER NOS.: (NONE)

NUMBER OF PARTS SIX (6)

PART NUMBERS: 3) RGH MACH FORG BONNETS TO FIN PER DWG#D-248-000-0924000 3) TEST BARS 7x10x 24"LG

SPEC. NO. 41478 -

MATERIAL: SA350LF2

HT# 216492

CAL. DATE 9/14/78 -

(1)

- FORGED PRODUCTS
- HOUSTON, TEXAS
-

NUCLEAR

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT

			TIME AT HEAT	COOLANT
ANNEALED		°F		
NORMALIZED	1600	°F	12 HRS	AIR
QUENCHED	1600	°F	12 HRS	WATER
DRAWN	1200	°F	16 HRS	AIR
NITRIDED		°F		
STRESS RELIEVED		°F		
HARDNESS TEST	156-196 BHN		% OF PCS. TESTED	100%

We further certify that heat treatment described above is true and correct and that temperatures and test results were obtained with standard approved methods.

Subscribed and sworn to before me this 2 ND day of OCTOBER, 19 78

Notary Public in and for the County of Harris, State of Texas

My Commission Expires 9/30/80

LINDBERG/COOK HEAT TREATING COMPANY

Paul Gamble

PAUL GAMBLE
PLANT SUPERINTENDENT

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.

Signed

Date

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

6.0E

WeldEx

NUCLEAR

TO Forged Products

REPORT NO. 104-7 P. O. NO. 9637 JOB NO. 25826

MATERIAL SPECIFICATION A-350 LF-2, HT # 216492 PC# 1-3 INCLUSIVE

P.O. #0186 MATERIAL: ROUGH MACHINED BONNET FORGINGS (3)

TENSILE TEST

Specimen No.	Y. S. (psi)	T. S. (psi)	% Elong.	% R. A.
1	52,600	82,100	33.6	68.2

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed 11-10-78 Date

CHARPY V-NOTCH IMPACT TEST

Test Temperature: +40°F

Specimen No.	Ft. Lbs.	Percent Shear	Lateral Exp.
1	83.0	50.0	.060
2	98.0	50.0	.069
3	81.0	50.0	.060

THIS MATERIAL CONFORMS TO ASME SA350 LF2 & MS-1041 REV. 3 DATED 6/6/78

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 20V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

MEETS SPECIFICATION: XX YES ___ NO ___ NA

By: Edward C. Wiren

Date: 10-5-78

sh

SHARON STEEL CORPORATION • SHARON, PENNSYLVANIA 15146 • TELEPHONE (216) 448-40

6.0C

INVOICE DATE	P.S. DATE	P.O. NO.	CUST. CODE	OPER. CODE	PROD. CODE	INVOICE NO
01-03-77	12-27-76	H-03198	62812		0785	721 3044

SOLD TO
X BODINE
PITTSBURGH, PA. 15230
BOND 00-290-

DMS RATING

INVOICE DATE 1-26-77

TERMS
NET 30 DAYS

A LATE PAYMENT CHARGE WI ASSESSED MONTHLY ON BALANCE DUE ON OUR NET 30 DAY TERMS.

TO
STEEL CORPORATION OF TEXAS
6500 NORTH HOUSTON-ROSSLYN RD
HOUSTON, TX 77091

SHIP TO
STEEL CORPORATION OF TEXAS
C/O FORGED PRODUCTS
6500 N HOUSTON-ROSSLYN RD
HOUSTON, TX 77091

	B/L	INV.
SOLD TO		
SHIP TO		
SPECIAL		

REQUESTED SHIP DATE	DATE SHIPPED	FROM	VEHICLE IDENTIFICATION
01-24-77	1-26-77	Farrell, Pa.	

SHIP VIA	MIN. WT.	F.O.B.	ROUTE
RAIL	80000	FARRELL	CONRAIL % ST. LOUIS % % FT. WORTH % FWD. 004 PC 564982

TAX	DEF.	F.I.N.	OTHER	BALANCE DUE	PREPAID OR COLLECT	WT.	DATE ARR. LF
				41860	PREPAID	200000	01-24-77

SPECIFICATIONS & DESCRIPTION

UF YOUR P.O. ITEM NO. 1
PRODUCT - HOT ROLLED SEMI-FINISHED STEEL, BLOOMS, ALLOY, ELECTRIC FURNACE VACUM DEGAS, FORGING QUALITY
SPECIFICATION - EF-A-350 LF-2-M
C .30 MAX, MN .95/1.35, P .035 MAX, S .04 MAX, SI .15/.30 AL .045 MIN
SPECIAL INFORMATION - FORGED PRODS #7208
CARRIER - GONDOLA
DIMENSIONS - 32.0000 X 32.000 X 29000#
PIECE WT - 29000 MINIMUM
ANNUAL - 200,000 LBS

SPECIFICATIONS & DESCRIPTION

P.O.#0185
MATERIAL: ROUGH MACHINED BONNET FORGINGS
HEAT NO.: 216492 ✓
JOB NO.: 25826
THIS MATERIAL CONFORMS TO ASME SA350 LF2 & MS-1041 REV. 3 DATED 6/6/78

Edward F. B...

HEAT NO.	B/L NO.	LIFTS / SKIDS	PCS. / COILS	WEIGHT SHIPPED	THEO. WEIGHT
216492	096878	5	5	158140	

Plus Prepaid Freight 79.070

ANALYSIS

	C	MN	P	S	SI	AL
1	.24	1.34	.015	.015	.27	.056
2						
3						
4						

WE HEREBY CERTIFY THAT MA... COVERED BY THIS INVOICE WE... DUCED IN CONFORMITY WITH THE... CABLE PROVISIONS OF THE FAIR... STANDARDS ACT OF 1938, AS AM... AND THAT PRICES CHARGED ... ARE NOT IN EXCESS OF THOSE ...LY CHARGEABLE UNDER THE ...IC STABILIZATION PROGRAM.

DUQUESNE LIGHT CO.
POWER STATION
P.O. No. 2

	P.S.I.	P.S.I.
Tensile		
Elastic Yld.		
Elongation		
Hardness		
Bend		
Size	7 - 8	

LINE STOP VALVE

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Date 1/27/77

I certify that the above f... are a true and correct cop... those contained in the rec... this Corporation.

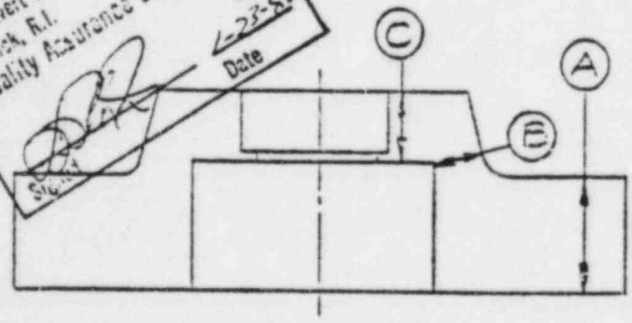
6.1

PART DWG No. D-248-000-0924000 ✓
PART NAME 24"-900# BONNET ✓
MATERIAL SA350 LF2 ✓
PART SERIAL No. #3

HEAT No. 216492 ✓
INSPECTED BY h. Fuller
DATE 3-7-79 ✓
CUSTOMER C/A
DATE

ZONE A	MINIMUM DIM.	METHOD *	ACTUAL DIM.	ZONE B	MINIMUM DIM.	METHOD *	ACTUAL DIM.
START	6.5	C	6.633	START	2.19	C	4.450
30°			6.634	90°			4.440
60°			6.635	180°			4.445
90°			6.631	270°	2.19	C	4.448
120°			6.626				
150°			6.627				
180°			6.623				
210°			6.624	ZONE C	MINIMUM DIM.	METHOD *	ACTUAL DIM.
240°			6.625	START	4.4	C	5.555
270°			6.629	90°			5.552
300°			6.638	180°			5.553
330°	6.5	C	6.635	270°	4.4	C	5.554

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Date 4-23-81



STAMP STARTING POINTS Ⓐ Ⓑ Ⓒ ON ℄ - USE LOW STRESS STAMP - MEASURE IN A CLOCKWISE DIRECTION.

A - 12 POINTS
B - 4 POINTS
C - 4 POINTS

TYPE INSTRUMENT DIAL CALIPER NO. 1275
CALIBRATION STANDARD 6" LENGHT STD.
TYPE TRANSDUCER N/A
TRANSDUCER SIZE N/A
TRANSDUCER FREQUENCY N/A
COUPLANT N/A
OPERATOR h. Fuller LEVEL II

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 2BV-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

(E) DIAL CALIPER
(U) ULTRASONIC

SUPPLEMENT 2
SPECIFICATION PS-1056
SHEET 3 REV. Rev 3

CUSTOMER: EBV Systems Division
235 Kilvert St.
Warwick, R.I. 02886

24"-900# BALL
EH1798N

SHIP TO: Same
PRLS/N K460 ✓

RECEIVED JUN 24 1977 GEW MACHINE 235 KILVERT ST WARWICK, R.I.

CODE 200 | MARK FOR P.O.

PREPAID | COLLECT xx | VIA Truck | TERMS Net 30 days

CUSTOMER: EBV Systems Division | SHIP DATE | D.F. ORDER NO. 1-04292

CUSTOMER ORDER NO. 6110

QUANTITY	C.O.	PATTERN NO.	UNIT WGT.	TOTAL WGT.	OPER.
3	1	D-004-000-0924005-A	4450	13,350	25

PAT. REF. 1 | MOLDS 3 | B/P NO.

ORD. ENTERED	CUSTOMER SPECIFICATION	METAL	H.T. CODE	ROUTING CODE
12/23/76	SA351 CF8M VT-MSS-SP55 pract. nucl.fdry	514	114	128

SALESMAN 05 | TEST BARS 3 K.B.

BUYER Lockwood

CUST. REQ. DEL. 3/1/77

INSTRUCTIONS

(2) 2 copies T.R. & docu., Subm. 2 rgh TB/ht.
(8) Melt & Lab use 514 metal with 8/15% ferrite, aim for 11% ferrite using Schaeffler diagram, No weld. design for nucl. H.T. Water Quench 1950°F H.T. chart req. Submit sample and obtain RT results befor production. Notify EBV quality Control 5 days befor pouring

CERTIFICATION OF CHEMICAL & PHYSICAL TESTS–HEAT TREATMENT–N.D.E. TESTS

HEAT NO. 2896 | SERIAL NO'S. | QUANTITY IN HEAT 1 | DATE POURED 5-4-77

CHEMICAL ANALYSIS–MAT. SPEC. SA351 CF8M

C	MN	P	S	SI	CR	NI	MO	FER
.03	.90			1.11	19.07	11.49	2.40	10%

TENSILE PROPERTIES

T.S.	Y.S.	EL.	R.A.	BHN RANGE
81900	48450	40%		170

IMPACT TEST (FT.-LBS.)

TEMP. F°	1	2	3	AVG.

BEND TEST

DEG.	TYPE	NO.	RESULTS

IMPACT TEST (M.L.E.)

TEMP. F°	1	2	3	AVG.

SHEAR | CORROSION TEST

AVG	TYPE	RESULTS

HEAT TREATMENT

TYPE	TEMP. F°	TOT. HRS		CHART #
HOMOGENIZED				
NORMALIZE				
TEMPER				
WATER QUENCH	1950°F	4¼	✓	
OIL QUENCH				
STRESS RELIEVE				
ANNEAL				

REMARKS: Castings heat treated at Dodge Found. All heat treat charts are filed in QC lab
2. Polish Test Bar

NON-DESTRUCTIVE TESTS AND RELEASE REPORT

N.D.E. SPECIFICATIONS	SER. NO.	APP'D.	DATE	REPORTS ATTACHED
VT PER MSS-SP55	2896 1	OK ✓	5/77	[illegible] LIGHT CO. DIMENSIONAL LAYOUT
MT-LPT PER				[illegible] VALLEY POWER STATION MT-LPT WELD REPAIR MAP [illegible]
RT PER				RT WELD REPAIR MAP; RT SHOOT SKETCH & TECH.; RT FILM & READER SHEETS; [illegible]
UT PER	EBV Systems Date 5-27-77 Signed John Thiry			UT WELD REPAIR MAP [illegible]
ER Ferrite % (Schaeffler diagram) 10%		VDL	5-27-77	

REMARKS: HEAT TREAT PROCEDURE ✓ 48.05 + 48.51

THIS REPORT CERTIFIES THAT THESE RESULTS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATIONS AND ORDER.

SUPERVISOR OF TESTS [signature] | 5/16/77 DATE

DODGE FOUNDRY & MACHINE CO.

7.1 P

PRL Industries, Inc.

CORNWALL, PENNSYLVANIA 17016 / TELEPHONE (717) 273-6787 / TELEX 84-2372

HEAT TREAT CERTIFICATION

page 1 of 8

HEAT TREAT FURNACE NO. C

CUSTOMER EPG DATE 7-5-78

P. O. NO. 10510 PRL FILE NO. 2797

DESCRIPTION 24" Ball Castings PATTERN NO. D-004-000-0924005 R/A

MATERIAL ASME SA351 CF8M

CASTING INFORMATION

PRL NO.	CUSTOMER SER. NO.	HEAT NO.
K460	2	2896

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 25V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

Heat Treat Procedure PRL HTB, Rev. 0, Add. 1&2 H.T. Process Solution Anneal

Charge No. M-17 Charge Temp 600°

Time to Equilibrium 8 hrs 30 mins Htg. Rate NA °/hr.

Holding Temperature Range 2050°F ± 25°

Time at Temp. 1 hrs Clg. Rate NA °/hr.

Cooling Data Water Quench thru 1800° to below 800° within 4 minutes.

Thermocouple Information Thermocouples in contact with castings.

Original Heat Treat Charts are maintained at PRL Industries, Inc.

Heat Treated by Metlab Form No. 148, Rev. 1

Approved by QA P 3 Date 7-12-78

Forged Products Division

6505 N. HOUSTON-ROSSLYN ROAD
HOUSTON, TEXAS 77091
GULF-WESTERN MANUFACTURING COMPANY

CERTIFIED TEST REPORT

 8.0 A

SOLD TO
ENERGY PRODUCTS GROUP
FLUID SYSTEMS DIVISION
235 KILVERT STREET
WARWICK, RHODE ISLAND 02886

SHIPPED TO
DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 2BV-211
MAIN STEAM LINE TRIP VALVE

DATE SHIPPED	CUSTOMER'S ORDER NO.		SHIPPED VIA	
10/5/78	P.O.#0187	SHOP ORDER #EH1798N M&P	No. 2 MSS-HYV101	COLLECT ☐ PREPAID ☐

PCS	PIECE NO.	ITEM	HEAT NO.	DESCRIPTION
6	25827	1-6	216492	ROUGH MACHINED REDUCER FORGINGS TO FINISH PER DWG. C254-000-0924320 REV. D SUBMITTED PER CHANGE ORDER #2 DTD 8/10/77
2	25827		216492	6" X 9" X 24" TEST BARS

MATERIAL HAS BEEN MANUFACTURED IN ACCORDANCE WITH ASME BOILER & PRESSURE VESSEL CODE, SECTION III; CLASS 2 REQUIREMENTS 1974 EDITION WITH NO ADDENDA

MATERIAL WAS MANUFACTURED PER MATERIAL SPECIFICATION MS-1038 REV. 2 DTD 2/23/78 AND CONFORMS TO THE REVISED MATERIAL SPECIFICATION MS-1038 REV. 4 DTD 6/6/78 UNDER CHANGE ORDER #4 DTD 8/21/78

MATERIAL HAS BEEN HEAT TREATED PER CHANGE ORDER #4 DTD 8/21/78 AND MS-1038 REV. 4 DTD 6/6/78 UTILIZING LINDBERG/COOK HEAT TREATMENT PROCEDURE 41478 APPROVED BY FLUID SYSTEMS DIVISION.

ASME Quality Systems Certificate No. N-1777 Exp. 6-10-80

ANI 3-8-79

ENERGY PRODUCTS GROUP
Gulf-Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
11-7-78
Date
Group

CHEMICAL ANALYSIS

	HEAT NO	MILL SOURCE	C	MN	PHOS	SUL	SIL	NI	CR	CU	MO				
1	216492	SHARON	.24	1.14	.015	.015	.27								
2															
3															

PHYSICAL PROPERTIES

	YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	% ELONG	RED OF AREA %	HARDNESS	TYPE CHARPY	TEMP °F	ABSRD ENERGY FT./LBS	LATERAL EXP (MILS)	% SHEAR
1	50,000	75,900	32.4	69.3		V-NOTCH	+40° F	130.0-111.0-143.0	.092	100
2									.080	60
3									.086	100

MISCELLANEOUS TESTING

TYPE OF TEST	G-S
MAGNETIC PARTICLE EXAMINATION PER WET FLUORESCENT METHOD OF EPG-PROCEDURE 41.411 REV. 2 DTD 7/15/76 ACCEPTABLE WITH NO REPORTABLE INDICATIONS.	

SUBSCRIBED AND SWORN TO BEFORE ME

5th DAY OF OCTOBER 19 78

MONNA M. HENDON
Notary Public in Harris County, Texas
My Commission Expires June 19, 1980

I CERTIFY THAT THIS IS A TRUE COPY OF ORIGINAL TEST SHEET NOW ON FILE AT THE OFFICE OF FORGED PRODUCTS INC. AND THAT THIS STEEL WAS MANUFACTURED AND MELTED IN THE UNITED STATES OF AMERICA

Quality Assurance

Forged Products Division

6505 N. HOUSTON-ROSSLYN ROAD
HOUSTON, TEXAS 77091
GULF-WESTERN MANUFACTURING COMPANY

CERTIFIED TEST REPORT

S.O.A1

SOLD TO
ENERGY PRODUCTS GROUP
FLUID SYSTEMS DIVISION
235 KILVERT STREET
WARWICK, RHODE ISLAND 02886

SHIPPED TO
DUQUESNE LIGHT CO.
SAME
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE

DATE SHIPPED	CUSTOMER'S ORDER NO.	MARK	SHIPPED VIA	
10/5/78	P.O. #0107 SHOP ORDER #EH1798N		TRUCK-MOTOR FREIGHT	COLLECT ☐ PREPAID ☐

ITEM	HEAT NO.	PCS.	HEAT CODE	DESCRIPTION
6	25827	1-6	216492	ROUGH MACHINED REDUCER FORGINGS TO FINISH PER DWG. C254-000-0924320 REV. D SUBMITTED PER CHANGE ORDER #2 DTD 8/10/77
2	25827		216492	6" X 9" X 24" TEST BARS MATERIAL WAS PHYSICALLY TESTED FOR TENSILE REQUIREMENTS AND CHARPY V-NOTCH IMPACT REQUIREMENTS @+40°F PER MATERIAL SPECIFICATION MS-138 REV. 4 DTD 6/6/78. CHARPY V-NOTCH WAS PERFORMED AT +40°F PER INSTRUCTIONS OF L. CAPRON. MATERIAL WAS WET FLUORESCENT MAGNETIC PARTICLE TESTED PER EPG PROCEDURE 41.411 REV. 2 DTD 7/15/76 AND MATERIAL SPECIFICATION MS-1038 REV. 4 DTD 6/6/78 UNDER CHANGE ORDER #3 DTD 8/21/78 DRAWINGS SUBMITTED OF "AS SHIPPED" ROUGH MACHINED FORGINGS AND TEST BAR PER MS-1038 REV. 4 DTD 6/6/78 UNDER CHANGE ORDER #4 DTD 8/21/78.

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed
11-9-78
Date

CHEMICAL ANALYSIS

	HEAT NO.	MILL SOURCE	C	MN	PHOS	SUL	SIL	NI	CR	CU	MO				
1															
2															
3															

PHYSICAL PROPERTIES

	YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	% ELONG	RED OF AREA %	HARDNESS	TYPE CHARPY	TEMP °F	ABSRB ENERGY FT /LBS	LATERAL EXP (MILS)	
1										
2										
3										

MISCELLANEOUS TESTING

	TYPE OF TEST		G.S
1			

SUBSCRIBED AND SWORN TO BEFORE ME

5th DAY OF OCTOBER 19 78

MONNA M. HENDON
Notary Public in Harris County, Texas
My Commission Expires June 19, 1980

I CERTIFY THAT THIS IS A TRUE COPY OF ORIGINAL TEST SHEET NOW ON FILE AT THE OFFICE OF FORGED PRODUCTS INC. AND THAT THIS STEEL WAS MANUFACTURED MELTED IN THE UNITED STATES OF AMERICA

Edward F. Bole
QUALITY ASSURANCE

8.0 C

LINDBERG/COOK HEAT TREATING COMPANY

Division of LINDBERG CORPORATION

P. O. BOX 24147 • HOUSTON, TEXAS 77029 • 713/672-6601

CERTIFICATION OF HEAT TREATMENT

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kinzie Street
Quality Assurance Dept.
Stamp

- FORGED PRODUCTS
- HOUSTON, TEXAS

DATE: 9/13/78

CERTIFICATION NO. 54216

CUSTOMER'S ORDER NO. 25827

OTHER ORDER NOS.: P.O. # 0187

NUMBER OF PARTS: NINE (9)

PART NUMBERS: 6) RGH MACHINED FORGED REDUCER TO RUN PER DWG C-254-000-0924320 REV. D
3) TEST BARS 6 x 9 x 24"LG

SPEC. NO. 41470

MATERIAL: SA350-LF 2

HTW 216492

FURN. CALIB. 9/14/78

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT

		TIME AT HEAT	COOLANT
ANNEALED	°F		
NORMALIZED 1600	°F	8 HRS	AIR
QUENCHED 1600	°F	8 HRS	WATER
DRAWN 1200	°F	10 HRS	AIR
NITRIDED	°F		
STRESS RELIEVED	°F		
HARDNESS TEST 163-187 BHN		% OF PCS. TESTED 100%	

We further certify that heat treatment described above is true and correct and that temperatures and test results were obtained with standard approved methods.

Subscribed and sworn to before me this 28 TH day of SEPTEMBER, 19 78

Notary Public in and for the County of Harris, State of Texas

My Commission Expires 9/30/78

LINDBERG/COOK HEAT TREATING COMPANY

Paul Gamble

PAUL GAMBLE
PLANT SUPERINTENDENT

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 20V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

S.O.D.1

WeldEx

NUCLEAR

TO Forged Products

REPORT NO 8-2317 P. O. NO. 9637 JOB NO. 25827

MATERIAL SPECIFICATION SA-350 LF-2, HT.#216492 PC# 1-6 INCLUSIVE

P.O. # 0187 MATERIAL: ROUGH MACHINED REDUCER FORGINGS (6 pc)

CHARPY V-NOTCH IMPACT TEST

Test Temperature: +40°F

Specimen No.	Ft. Lbs.	Percent Shear	Lateral Exp.
1	130.0	100.0	.092
2	111.0	60.0	.080
3	143.0	100.0	.086

THIS MATERIAL CONFORMS TO ASME SA350 LF2 & MS-1038 REV. 4 DATED 6/6/78

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
11-5-
Date
Signed

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

MEETS SPECIFICATION: ✓ YES ___ NO ___ NA

By: Richard Allen

Date: 10-3-78

8.0B

ENTRY DATE	P.O. DATE	P.O. NO.	CUST. CODE	OPER. CODE	PROD. CODE	INVOICE NO.
01-03-77	12-27-76	H-03198	62812		0765	72130441

DMS RATING

INVOICE DATE: 1-26-77

REMIT TO
BOSTON
PITTSBURGH, PA. 15230
S 00-270-

TERMS: NET 30 DAYS

A LATE PAYMENT CHARGE WILL BE ASSESSED MONTHLY ON BALANCES NOT DUE ON OUR NET 30 DAY TERMS.

SOLD TO
STEEL CORPORATION OF TEXAS
8800 N HOUSTON-ROSSLYN RD
HOUSTON, TX 77091

SHIP TO
STEEL CORPORATION OF TEXAS
C/O FORGED PRODUCTS
8800 N HOUSTON-ROSSLYN RD
HOUSTON, TX 77091

	R/L	INV	S/O
SOLD TO			
SHIP TO			02
SPECIAL			

REQUESTED SHIP DATE	DATE SHIPPED	FROM	VEHICLE IDENTIFICATION
01-24-77	1-26-77	Farrell, Pa.	

SHIP VIA	WGT. MIN. WT.	F.O.B.	ROUTE
RAIL	80000	FARRELL	CONRAIL % ST. LOUIS % % FT. WORTH % FWD. 004 PC 5649H2

TAX	DLR.	PEN.	OTHER	BALANCE DUE	PREPAID OR COLLECT	WT.	DATE AR OF	
				418.00	PREPAID	200000	01-24-77	

SPECIFICATIONS & DESCHIPTION

UF YOUR P.O. ITEM NO. 1
PRODUCT - HOT ROLLED SEMI-FINISHED STEEL, BLOOMS, ALLOY, ELECTRIC FURNACE VACUM DEGAS, FORGING QUALITY
SPECIFICATION - EF-A-350 LF-2-M
C .30 MAX, MN .95/1.35, P .035 MAX, S .04 MAX, SI .15/.30 -Al.005 MIN
SPECIAL INFORMATION - FORGED PRODS #7208
CARRIER - GONDOLA
DIMENSIONS - 32.0000 X 32.000 X 29000#
PIECE WT - 29000 MINIMUM
QUANTITY - 200,000 LBS

SPECIFICATIONS & DESCRIPTION

P.O. #-0187
MATERIAL: ROUGH MACHINED REDUCER FORGINGS (6 pc)
HEAT NO.: 216492
JOB NO.: 25827
THIS MATERIAL CONFORMS TO ASME SA350 LF2 & MS-1038 REV. 4 DTD 6/6/78 EZ Bak 1961

HEAT NO.	B/L NO.	UNITS / SKIDS	PCS. / COILS	WEIGHT SHIPPED	THEO. WEIGHT
216492	096878	5	5	158140	

Plus Prepaid Freight 79.070

ANALYSIS	C	MN	P	S	SI	AL		
1	.34	1.34	.015	.015	.27	.056		
2								
3								
4								

WE HEREBY CERTIFY THAT MA... COVERED BY THIS INVOICE WE ...DUCED IN CONFORMITY WITH THE ...CABLE PROVISIONS OF THE FAI... STANDARDS ACT OF 1938, AS A... AND THAT PRICES CHARGED ... ARE NOT IN EXCESS OF THOS... ...LY CHARGEABLE UNDER THE ...IC STABILIZATION PROGRAM.

	P.S.I.	P.S.I.
Tensile		
Elastic Yld.	P.S.I.	P.S.I.
Elongation		
Hardness		
Bend		
Grain Size	7 - 8	

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.

I certify that the above fi... are a true and correct copy ... those contained in the rec... this Corporation.

FOR C...

Title

Date

MARK NO.

STEEL CORPORATION

8.0 D

WeldEx NUCLEAR

TO Forged Products

REPORT NO. 8-2317 P. O. NO. 9637 JOB NO. 25827

MATERIAL SPECIFICATION SA-350 LF-2, HT # 216492 PC# 1-6 INCLUSIVE

P.O. # 0187 MATERIAL: ROUGH MACHINED REDUCER FORGINGS (6 pc)

TENSILE TEST

Specimen No.	Y. S. (psi)	T. S. (psi)	% Elong.	% R. A.
1	50,000	75,900	32.4	69.3

THIS MATERIAL CONFORMS TO ASME SA350 LF2 & MS-1038 REV. 4 DATED 6/6/78

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed
11-5-78
Date

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 2BV-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HYV101

MEETS SPECIFICATION: XX YES ___ NO ___ NA

By: Richard Alvin

Date: 9-28-78

sh

10.0 A

CERTIFIED TEST REPORT

VITCO NUCLEAR PRODUCTS INC. 4445 HAMANN PARKWAY, WILLOUGHBY, OH 44094
PHONE AREA CODE 216 946 9550

Energy Products Group
235 Kilvert Street
Warwick, Rhode Island 02886

DATE SHIPPED	VITCO ORDER NUMBER	CUSTOMER ORDER NUMBER
2/21/79	6130	01759

ITEM (1) 76 Pcs. 3/4"-14 NPT Pipe Plug (Trace # 8H)
Drawing # A-156-000-0075000 Rev. A

SPECIFICATION ASME-SA-479 Type 316 ASME Boiler and Pressure Vessel Code, Section III, Division I, 1974 Edition through Winter of 1976 Addenda Class 1

CHEMICAL COMPOSITION

ITEM	HEAT NO.	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Fe	Al	Ti	Co
1	C17396	.053	1.79	.020	.019	.58	17.45	2.85	12.46	.13				.29

PHYSICAL COMPOSITION

ITEM	TENSIL STRENGTH PSI	YIELD PSI. 2%	ELONG. % IN 2"	RED. AREA %	HARDNESS	HEAT TREAT DATA
1	82,500	35,630	55.0	71.6	Rb 72/74	Heat Treat 1950°F for 30 Min.
						Hydrogen Quench - Rapid

ADDITIONAL SPECIFICATION REQUIREMENTS OR SPECIAL TESTS

ATTACHMENT

UNIVERSAL CYCLOPS STEEL MILL TEST REPORT FOR HEAT # C17396.
Conforms to ASME Section III, 74 Edition No Addenda 1-15-80

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 20V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HV101

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
Signed 1-15-80 Date

We CERTIFY THAT THE ABOVE MATERIAL IS COMMERCIALLY FREE FROM MERCURY CONTAMINATION AND MEETS THE REQUIREMENTS OF SPECIFICATION ASME-SA-479 Type 316 AND YOUR ORDER # 01759.

THE ABOVE TESTS CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION LISTED

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____ BY A DULY AUTHORIZED AGENT OF VITCO NUCLEAR PRODUCTS INC.

WE HEREBY CERTIFY THAT THE ABOVE DATA IS A TRUE COPY OF THE DATA FURNISHED US BY THE PRODUCING MILL OR SUPPLIER OR OF THE DATA RESULTING FROM TESTS PERFORMED IN APPROVED LABORATORIES AND MEETS THE REQUIREMENTS OF THE SPECIFICATION NOTED

VITCO NUCLEAR PRODUCTS INC.

BY _____

IF PAID ON OR BEFORE 10.0 13 — B/L NO.

2% 10 DAYS NET = 1% DISCOUNT ON $

ORDER NUMBER	CUST. ORDER DATE	STK. CTL. NO.	S.I.C.	MILL ENTR. DATE	DIST. SI SMN.	SHPD. B/L DATE
7513-015-0106	11/21/74			11/22/74	75 035	

CUST. CODE NO.	DUNS FOLE	STATE/CNTY.	GOVT. RATING	MARKETING	PROD. OFF.	INVOICE NUMBER
						D37-3462

LLIAMS AND COMPANY, INC.
1 PENNSYLVANIA AVENUE
TTSBURGH PA 15233

SHIPPED TO
WILLIAMS AND COMPANY, INC.
301 PENNSYLVANIA AVENUE
PITTSBURGH PA 15233

BRIDGEVILLE AVELLA EXPRESS
BRIDGEVILLE

SPEC. [A] REV. F.O.B. F/E

MARKING INSTRUCTIONS
MAX BUNDLES PAINT ONE END YELLOW
TAG WITH CUST NO, SIZE, HEAT, TYPE, FIN, COND, WEIGHT PER BUNDLE

ITEM NO.	QUAN. ORDERED PCS. OR WT.	SIZE AND DESCRIPTION	HEAT NO.	QUAN. SHIPPED NET WEIGHT	PRICE	AMOUNT
	1500#	UNILOY 316 CONTERLESS GROUND BARS 1-1/8" RD X 12/14 FT	C17396			

PRICE B/O — OTHER: 2 S/M
SALES DEPT

TEST REPORT INSTR. — ANAL. — PHYSICALS — NO. T/R: 3 — CERT. — NOTARIZED

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 28V-211
MAIN STEAM LINE TRIP VALVE
MARK No. 2MSS-HV-[illegible]CT-17458

SPEC: AMS-5648L, QQS 763D AMEND 1 COND A, PHY of MILS 7720, ASTM-A-276, ASTM-A-479, ASME-SA-479, SECTION II ONLY

SIZE: 1.125" RD

DRAWING NO.

Conterless Ground

HEAT	C	MN	SI	S	P	CR	W	V	NI	MO	CO	CU
7095	.053	1.79	.58	.019	.020	17.45			12.46	2.85	.29	.13

COND.	HARDNESS	YIELD	TENSILE	% EL.	% R.A.	BENDS	OTHER PROPERTIES
	BHN 207/223	.2% 78,800	94,000	36.5	72.7		Resistance to intergranular Corrosion: Satisfactory Free from Continuous Carbide Network.

SPEC.	HARDENABILITY	TREATMENT	STRESS RUPTURE: STRESS-PSI	TEMP.-°F.	TIME-HRS.

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
235 Kilvert Street
Warwick, R.I.

Free of Mercury Contamination.

1-23-75
DATE

Q.A. APPROVED

I CERTIFY THAT THIS IS A TRUE AND CORRECT COPY OF THE TESTS SHOWN ON OUR LABORATORY RECORDS.

BY _____
AUTHORIZED SIGNATURE
QUALITY CONTROL REPRESENTATIVE

asap

TEST REPORT

TRACE # 8H

105

Taylor Forge Division
GULF + WESTERN INDUSTRIAL PRODUCTS COMPANY
P.O. Box 485 Chicago, Illinois 60690

9.0A

SUBSCRIBED AND SWORN TO BEFORE ME THIS 5 DAY OF July 19 77

QUALITY CONTROL — NOTARY PUBLIC

		TERMS	CUST. CD	P.O.	DATE ENTERED	PAGE	PACKING LIST	OUR INVOICE NO.
56							31048	

SPECIFICATION NO. ASME SA182-F6 Per ASME Code Sect. III Cl. 2, 1974 Edit. and Matl Spec. No. MS-1043 Rev. 0

HEAT TREATMENT Normalized & Tempered per TF Proc. HT-107984 Dtd 12/20/76. 1800°F 3 hrs - Air cooled. 1350°F. 6 hrs - Air cooled.

REMARKS: Forgings were heat treated at TF Cicero and original charts are maintained in Q.C. Dept.

Heat Treat Charts and Steel Mill reports attached.

Part has been visually and dimensionally examined and is in full compliance with purchase order and specification requirements

SOLD TO
EBV SYSTEMS DIV.;
235 KILVERT STREET
WARWICK, RHODE ISLAND 02886

SHIPPED TO
EBV SYSTEMS DIV.;
235 KILVERT STREET
WARWICK RHODE ISLAND 02886

REF 0036
TF-107984

REQUESTED SHIP DATE	PROMISED	ROUTE	
		BEST WAY PPD	38-0140

ORDER NO.	ITEM NO	PRODUCT NO	QUANTITY	DESCRIPTION
TEST REPORTS (PER TEST REPORT DATA SHEET)				
184	601		1	35.563" OD X 32.250" ID X 8" THICK TYPE 410 RING ROUGH MACHINED MATERIAL: ASME SA182-F6 PER ASME CODE
F-T-W-C				
2247				SECT. XI CLASS 2 1974 EDIT & EBV MATERIAL SPEC. MS 1043 REV. 0 DWG. C-250-000-0924000A ENERGY PRODUCTS GROUP Gulf & Western Mfg. Co. 235 Kilvert Street Warwick, R.I. Quality Assurance Dept. Signature Date
4/1/77 N/S		HT-EPZD		NO REPAIR WELDING ALLOWED PER TRAIL CARD
				CHG. NO. #270
				ITEM NO. 1
				DUQUESNE LIGHT CO. BEAVER VALLEY POWER STATION UNIT No. 2 P. O. No. BV-211 MAIN STEAM LINE TRIP VALVE MARK No. 2MSS-HYV101
				EBV Systems Date 7-26-77 Signature
				ANI 8-27-77

	MILL HEAT NO.	PHYSICAL PROPERTIES				CHEMICAL ANALYSIS										
		YIELD STRENGTH PSI	TENSILE STRENGTH PSI	ELONG. IN 2" %	RED. OF AREA %	C	Mn	P	S	Si	Mo	Cr	Ni	CU	AL	SN
21 EPZD	179703	72600	96220	25.0	71.9	.10	.41	.010	.011	.36	.05	12.11	.33	.04	.012	.00
"	"	72105	94730	25.5	71.6										Nb .035	
"	"	Brinell Hardness: 207														

CARPENTER TECHNOLOGY CORPORATION

P.O. BOX 662 • READING, PA. 19603

CERTIFICATE OF TESTS

403

DATE: 3/31/75

"CORRECTED COPY"

TAYLOR FORGE
GULF WESTERN INDUSTRIES
PO BOX 485
CHICAGO, IL 60690

ATTN: MET. DEPT.

CUSTOMER ORDER NO.	CARP. ORDER NO.	DATE SHIPPED	
1-34059	U73720	3/31/76	CHI

PRODUCT DESCRIPTION	SPECIFICATION
TYPE 410 HR UNANLD FORGE BILLET	ASTM-A182 GR F6 MOD 1.75 MAX

WEIGHT	SIZE	HEAT NO.	C	MN	SI	P	S	CR	NI	MO	CU
7058	10.000" RCS	79708	.10	.41	.36	.010	.011	12.41	.33	.05	.04

AL	SN	N
.012	.003	.035

3

CAPABILITY	
YIELD STRENGTH, KSI @ .2%	67.5
TENSILE STRENGTH, KSI	91.0
ELONGATION IN 2 ", %	27.0
REDUCTION OF AREA, %	71.0
HARDNESS BRINELL	197

ENERGY PRODUCTS GROUP
Gulf & Western Mfg. Co.
295 Kilvert Street
Warwick, R.I.
Quality Assurance Dept.
1-27-76
Date

V Systems
7-26-77
Sign

BRINELL HARDNESS AS SHIPPED - 17[illegible]

HARDENABILITY: 1750°F, AIR TREAT - ROCKWELL C 40

DUQUESNE LIGHT CO.
BEAVER VALLEY POWER STATION
UNIT No. 2
P. O. No. 2BV-211
MAIN STEAM LINE TRIP VALVE
Tag No. 2MSS-HYV101

RELEASED AS SEC III CL
DATE 4/6/77

SLH/IN 5
WS 1

THIS INFORMATION TO BE TRUE AND
AS CONTAINED IN THE RECORDS OF
CARPENTER TECHNOLOGY CORPORATION

Claudia L Maurer
AUTHORIZED REPRESENTATIVE

STATE OF PENNSYLVANIA
COUNTY OF BERKS

Subscribed and sworn to before me

this _____ day of _____ 19 _____

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

SECTION 12

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES*

As Required by the Provisions of the ASME Code Rules, Section III, Div. 1 N-1141-5301

1. Fabricated by Power Piping Company, Donora, PA 15033 Order No. N-1141

Fabricated for Beaver Valley Power Station, Unit #2 Order No. 2BV-58, J.O. No. 12241

Owner Duquesne Light Company, Pittsburgh, PA 4. Location of Plant Shippingport Borough, PA

5. Piping System Identification Steam Generator Feedwater MK FWS-107-01/1017-107-01 ISO-101701

(brief description of intended use, main variations, etc.)

(a) Drawing No. RP-17 B Prepared by Stone & Webster Engineering Corp.

(b) National Board No. N/A Boston, Massachusetts

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

Edition 1971, Addenda Date Winter 1972, Case No. N/A

Remarks: Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report

(Name of Part — Item number, Manufacturer's name, and identifying stamp)

7. Shop Hydrostatic Test By Field psi.

8. Description of piping inspected

(Sketch — mark no. — material spec. — nom. pipe size — schedule or thickness — length — fittings — flanges, etc.)

1 Pc. - 16" Sch. 80 Smls. C.S. Pipe, SA-106, Gr. C, Item No. 3, Lgth. = 2'-0" lg., L.C. No. P-1544, Ht. ID 68521, Tube Serial No. 1-6695

NOTE: Welding Electrodes L.C. No. E-57, E-62

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 February 5, 1980 Signed Power Piping Company By Alice L Jones

Certificate of Authorization Expires January 7, 1980 Certificate of Authorization No. N-1623

Letter of Extension to February 15, 1980

CERTIFICATE OF SHOP INSPECTION N-1141- 5301

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 PENNSYLVANIA and employed by HARTFORD STEAM BOILER INSPECTION & INSURANCE COMPANY of HARTFORD, CONN. have inspected the piping described in this Data Report on 2/7/80, 19____, and state that to the best of my knowledge and belief, the NPT Certificate Holder 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 makes 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 2/7/80 19____

Signed Hartford S.B.I. & I. Co. Commissions 7187

(Authorized Inspector) (National Board, State, Province and No.)

CAPITOL PIPE
WORLD-WIDE

Capitol
PIPE & STEEL PRODUCTS CO.
Division of BOWLINE Corporation
ALLOY PIPING MATERIALS FOR HIGH TEMPERATURE AND LOW TEMPERATURE APPLICATIONS

301 CITY LINE AVENUE • AREA CODE 215 • TE 9-4300
BALA-CYNWYD, PENNSYLVANIA 19004

CAPITOL PIPE CERTIFICATE OF COMPLIANCE

ASME QUALITY SYSTEM CERTIFICATE (MATERIALS) NUMBER N-936

EXPIRATION DATE: *May 6, 1981*

MATERIAL: 16" SCH. 80 SA 106 GRADE C /

HEAT NO: *68521* /

MANUFACTURER: *Phoenix Tube Division* /

This Certification affirms that the content of the attached report(s) is correct and accurate and that all test results and operations performed are in compliance with the below listed Specifications:

1. ASME CODE SECTION II - 1971 EDITION INCLUDING ADDENDA THROUGH WINTER 1972, FOR ASME SA 106 GRADE C MATERIAL.
2. ASME CODE SECTION III - 1971 EDITION INCLUDING ADDENDA THROUGH WINTER 1972, ARTICLE NC-2550 FOR CLASS 2 MATERIAL.
3. POWER PIPING SPECIFICATION N-1141-01, REVISION 4

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 18241, PIPE FAB.

REFERENCE: POWER PIPING
P/O# 19063-N-1141
CAPITOL S/O# N-1141-
IT# -2

QUALITY ASSURANCE

Auth. No. [illegible] Ledger Control No. [illegible] Thru [illegible] Page 4 of [illegible]

PHOENIX STEEL CORPORATION

TUBE DIVISION
PHOENIXVILLE, PENNA.

CERTIFICATE OF INSPECTION AND TESTS

DATE:	DATE SHIPPED:	MILL ORDER NO.	SHIPPING LIST NO.
4-27-79	4-26-79	T-6695-B2	113D

CUSTOMER ORDER NO. S94994-00N

Capitol Pipe & Steel Products Co.

CAR NO.

MATERIAL: SEAMLESS ☒ PIPE ☐ TUBE, HOT FINISHED

SPECIFICATION:

Power Piping Co.

ASTM A-106-C-77, ASME SA-106-C (O.H.)

NO. PCS.	OD	WALL	LENGTH	TOTAL FT.	TOTAL WT.	HEAT NO.
—	16.000" x .844"					68521

The material was produced in accordance with a Q.A. Program as audited by Capitol's annual vendor evaluation program.

HEAT NO.	C	Mn.	P.	S.	Si.	Cu.	Ni.	Cr.	Mo.	V.	
68521	.27	.95	.013	.025	.25						Ladle Analysis
68521	.32	.80	.012	.014	.19						Product Analysis

Power Piping Co.
P.O. #19063-N-1141
S.O. #RN-1241-A9
Item #2

HEAT NO.	TENSILE (KSI)	YIELD (KSI)( )	% ELONG. IN 2"	% RA	HARDNESS ROCKWELL	HARDNESS BRINELL	GRAIN SIZE
68521	82.3	51.3	28.00 (.505" Test Specimen)				

CAPTIOL PIPE
QUALITY
ASSURANCE
6
ACCEPTED

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

MAY 9 1979

MINY DISTANCE - 16TH ROCKWELL C FLATTENING OK HYDROSTATIC PSI 2555

2 4 6 8 10 12 14 16 20 24 28 32

PHOENIX STEEL CORPORATION HEREBY CERTIFIES THAT THE ABOVE MATERIALS HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE APPLICABLE SPECIFICATIONS AND THE RESULTS OF SUCH INSPECTION AND TESTS AS CONTAINED IN THE COMPANY'S RECORDS ARE AS SHOWN ABOVE. FOR PROPERTIES OR CHARACTERISTICS FOR WHICH NO METHODS OF INSPECTION OR TESTING ARE PRESCRIBED BY THE 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.

R. W. Perkins
ENGINEER OF TESTS

Page 2 of 2

FORM NPP-1 DATA REPORT FOR FABRICATED NUCLEAR PIPING SUBASSEMBLIES

As Required by the Provisions of the ASME Code Rules, Section III, Div. 1

1. Fabricated by Power Piping Company, Donora, PA 15033 Order No. N-1141
2. Fabricated for Beaver Valley Power Station, Unit #2 Order No. 2BV-58, J.O. No. 12241
3. Owner Duquesne Light Company, Pittsburgh, PA 4. Location of Plant Shippingport Borough, PA
5. Piping System Identification [illegible]
   (a) Drawing No. [illegible] Prepared by Stone & Webster Engineering Corp.
   (b) National Board No. N/A Boston, Massachusetts
6. The material, design, construction, and workmanship complies with ASME Code Section III, Class [illegible]
   Edition 1971 , Addenda Date Winter 1972 , Case No. N/A
   Remarks: Manufacturers' Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report
   (Name of Part — item number; Manufacturer's name and identifying stamp)
7. Shop Hydrostatic Test By Field psi.
8. Description of piping inspected
   (Quantity — mark no. — material spec. — nom. pipe size — schedule or thickness — length — fittings — heat no. etc.)

1 Ea. - 16" Sch. 80 S.T. Stl. Pipe, SA-106, Gr. B, Item No. 3, Lgth. [illegible]
4'-5 1/16" lg., L.C. No. [illegible], Ht. (ID 5321) Pipe Serial No. [illegible]
1 Ea. - 16" 3000# R.S. F&W Weld Body, SA-105, Item No. 5, L.C. No. [illegible],
Ht. (ID [illegible])
1 Ea. - 3/4" 3000# [illegible] F&W Weld Body, SA-105, Item No. 10, L.C. No. [illegible]
M-5039, Ht. (ID ACD)

Sum [illegible]
of Fwd [illegible]
Tot

NOTE: Welding Electrodes L.C. No. [illegible]

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 January 31, 1980 Signed Power Piping Company By [illegible]

Certificate of Authorization Expires January 7, 1980 Certificate of Authorization No. N-1623
Letter of Extension to February 15, 1980

CERTIFICATE OF SHOP INSPECTION N-1141-[illegible]

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 PENNSYLVANIA and employed by HARTFORD STEAM BOILER INSPECTION & INSURANCE COMPANY of HARTFORD, CONN. have inspected the piping described in this Data Report on 2/1/80, 19___, and state that to the best of my knowledge and belief, the NPT Certificate Holder 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 makes 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 2/1/80 19___ Signed [illegible] Commissions PA 587
(National Board, State or Province and No.)

FORM NPP

Capitol
PIPE & STEEL PRODUCTS CO.
301 CITY LINE AVENUE • AREA CODE 215 • TE 9-4300
BALA-CYNWYD, PENNSYLVANIA 19004

Auth. No. [illegible] Ledger Control No. [illegible] Thru [illegible] Page [illegible] of [illegible]

CAPITOL PIPE CERTIFICATE OF COMPLIANCE

ASME QUALITY SYSTEM CERTIFICATE (MATERIALS) NUMBER N-936

EXPIRATION DATE: *May 6, 1981*

MATERIAL: [redacted]

HEAT NO: [redacted]

MANUFACTURER: *Phoenix Tube Division*

We Certify that this is the content of the attached report(s) is correct and accurate and that all test results and operations performed are in compliance with the below listed Specifications:

1. ASME CODE SECTION II - 1971 EDITION, INCLUDING ADDENDA THROUGH WINTER 1972, FOR ASME SA 106 GRADE C MATERIAL.
2. ASME CODE SECTION III - 1971 EDITION INCLUDING ADDENDA THROUGH WINTER 1972, ARTICLE NC-2510 FOR CLASS 2 MATERIAL.
3. POWER PIPING SPECIFICATION N-1141-01, REVISION 4

PITTSBURGH DES MOINES CORP. HEATER VALLEY NO. 2
P.O. NO. P-5781, S.O. NO. 11841, PIPE FAB.

REFERENCE: POWER PIPING
P/O# 19068-N-1141
CAPITOL S/O# [illegible]
IT# -2

[signature]
QUALITY ASSURANCE

[redacted]

CERTIFICATE OF INSPECTION AND TESTS

DATE: 4-27-72	DATE SHIPPED: 4-26-72	MILL ORDER NO.: T-6695-B2	SHIP NO. & DT. NO.: 1150
SOLD TO: Capitol Pipe & Steel Products Co.		CUSTOMER ORDER NO.: S94994-00N	
		CAR NO.	
		MATERIAL: SEAMLESS ☒ PIPE ☐ TUBE, HOT FIN ☐ CD	
SHIP TO: Power Piping Co.		SPECIFICATION: ASTM A-106-C-77, ASME SA-106-C (C.H.)	

NO. PCS.	OD	WALL	LENGTH	TOTAL FT.	TOTAL WT.	HEAT NO.
	16.000" x .344"					68521

The material was produced in accordance with a Q.A. Program as audited by Capitol's annual vendor evaluation program.

HEAT NO.	C	Mn.	P.	S.	Si.	Cu.	Ni.	Cr.	Mo.	V.
68521	.27	.95	.013	.025	.25	Ladle Analysis				
68521	.32	.80	.012	.014	.19	Product Analysis				

Power Piping Co.
P.O. #10062-N-1141
S.O. #RM-1241-A9
Item #2

HEAT NO.	TENSILE (KSI)	YIELD (KSI) ( )	% ELONG. IN 2"	% RA	HARDNESS ROCKWELL	HARDNESS BRINELL	GRAIN SIZE
68521	82.3	51.3	28.00 (.505" Test Specimen)				

CAPITOL PIPE
QUALITY
ASSURANCE
6
ACCEPTED

DUQ. LIGHT CO, BEAVER VALLEY NO. 2
P.O. NO. 8 ST-30, I.O. NO. 12241, PIPE FAB.

CRUSH DISTANCE = 18TH	ROCKWELL C	FLATTENING	OK	HYDROSTATIC PSI	2955

1 2 4 6 8 10 12 14 16 20 24 28 32

THE PHOENIX STEEL CORPORATION HEREBY CERTIFIES THAT THE ABOVE NAMED MATERIALS HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AND THE RESULTS OF SUCH INSPECTION AND TESTS AS CONTAINED IN THE COMPANY'S RECORDS ARE AS SHOWN ABOVE. FOR PROPERTIES OR CHARACTERISTICS FOR WHICH NO METHODS OF INSPECTION OR TESTING ARE PRESCRIBED BY THE 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 ACCEPTED AS FULFILLING THE REQUIREMENTS OF THE SPECIFICATION.

R. W. Robins
ENGINEER OF TESTS

The Colonial Machine Company, Inc.

P. O. Box 290 — Pleasantville, Pa. 16341

Phone (814) 589-7033

JUNE 13, 1979

[illegible]
[illegible]
[illegible]

FOR: SALE, DOM. A, PA

CERTIFIED
MILL TEST REPORT

YOUR ORDER NO.	OUR ORDER NO.	DATE SHIPPED
[illegible]	13315	6/13/79

ITEM	MATERIAL SPEC.	SHIPPED	HEAT NO.	CMC COD
	S. SECTION III [illegible] (1971 EDITION, THRU WINTER 1972 ADDENDA)			
	~~NUC. POWER PIPING SPEC. M-1141-01 REV. 4~~			
	ASME SA105			
1	2" B3004 S/W BOSSES PER SK 102 REV. 2 HEAT SOLN THRU A-5023	10	91337 •	ALX
2	1-1/2" DITTO HEAT SOLN THRU A-5032	10	91337 •	ACT
3	3/4" DITTO A-5024 THRU A-5025	20	91337 •	ACL

ITEM	C	MN	P	S	SI	CR	NI	MO	CU	CB	TI	CO	N	OTHER ELEMENTS
1	.21	.85	.021	.011	.25									

ITEM	TENSILE	2% YIELD	% ELONG.	% R.A.	HARDNESS	REMARKS:
1	73500	47000	34.0	67.0		
2	71000	45500	36.0	64.7		
3	74500	52000	33.0	65.9		

~~DUQ. LIGHT CO., BEAVER VALLEY NO. 2~~
P.O. NO. 2 EV-58, J.O. NO. 12241, PIPE FAB.

We hereby certify that the information contained hereon has been taken from the original mill test report from the producing mill, which is now on file in our office. We also certify that the material and the items as listed above meet the specification and all requirements as covered by the specification and your purchase order.

By: [signature]

COPPERWELD STEEL COMPANY - WARREN, OHIO 44482

SALES ORDER

	CUSTOMER'S PURCHASE ORDER NUMBER	DATE	ITEM	DATE WANTED	SHIPPING RELEASE WEEK OF	SALES ORDER NO.
WESTINGHOUSE	4250	082377	5 11	WK 11/6/77	11/6/77	18278

FOB POINT	PRICE IN EFFECT AT TIME OF SHIPMENT	TERMS OF PAYMENT & DATE OF BILLING
WARREN	MLP	10 DAYS NET 30 DAYS

SHAPE	PKG	EXTRA	SPECIAL INSTRUCTIONS
BARS		X	CUST TRK - IN TRK LOADS

SOLD TO:
THE COLONIAL MACHINE COMPANY
P O BOX 290
PLEASANTVILLE, PENNSYLVANIA 16341

SHIP TO: (SAME AS SOLD TO UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

LOT	PIECES	LBS	SIZE AND SHAPE	STD	SIZE TOLERANCE PLUS	SIZE TOLERANCE MINUS	PURPOSE	CUSTOMER'S ITEM CHECK DIGIT
		30,000	3 1/15"Ø	X			MACHINING	

ORDER	LENGTHS	HEATS	STR	LENGTH TOLERANCE PLUS	LENGTH TOLERANCE MINUS
12/101					

PRODUCT DESCRIPTION	MPG	PART
HR NORM MS	(206)	ASTM A 105 ASTM A 696 GR B (EXC CO

GRAIN	HARDNESS	ADDIT. MACRO/MICRO REQ.	SPECIFICATION	AUSTENITIZING
FINE	187 MAX BHN		SA-696 GR B SECTION 2 EXC COND	

TAG	STRAIGHTNESS	QUENCH	TEMPER	OTHER
		X		

BUNDLE	PAINT & MARK
5,000# MIN BDL 10,000# MAX BDL	STAMP HEAT NUMBER

Audit No. [illegible]

COPPERWELD STEEL COMPANY
EOY 351 / WARREN, OHIO 44482

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18278

Ledger Control No. M-5014 Thru M-5020 Rev. 1

SPEC'N	CODE	SPEC'N / DESCRIPTION	DATE
E 1026 Mod DII			11/10/77

ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
91337 (AEX)	.22	.83	.008	.018	.22								5-7

HARDENABILITY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
25	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

PHYSICAL PROPERTIES

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %
47,000	73,500		34.0	67.0

HARDNESS*	OTHER DATA
149	Normalize - 1600 - 2 hrs. Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August [illegible]

*Surface unless otherwise noted

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

I, [illegible], a Notary Public do hereby certify that [illegible] was subscribed and sworn to before me by a duly authorized agent of Copperweld Steel Company.

this [illegible] day of [illegible]

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITEM 1

I hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-88 J.O. NO. 12241 PIPE FAB.

COPPERWELD STEEL COMPANY - WARREN, OHIO 44482

SALES ORDER

ORDER NO.	DIST.	CUSTOMER'S PURCHASE ORDER NO./REF.	DATE MO DAY YR	ITEM	DATE WANTED	SHIPPING PROMISE WEEK OF	SALES ORDER DATE
052077	CLE	4250	082377	4 - 11	WK 10/30/77	11/6/77	18276

F.O.B. WARREN	PRICE (SUBJECT AT TIME OF SHIPMENT)	TERMS OF PAYMENT (A DISCOUNT MAY BE GIVEN)
MDP		10 DAYS NET 30 DAYS

PRODUCT	STOCK	SPECIAL	CLASS
STEEL BARS	X	CUST TRK - IN TRK LOADS	

SOLD TO:
THE COLONIAL MACHINE COMPANY
P O BOX 290
PLEASANTVILLE, PENNSYLVANIA 16341

SHIP TO: (SAME AS "SOLD TO" UNLESS OTHERWISE NOTED)
ADVISE WHEN READY

QTY.	PIECES	LBS.	SIZE AND SHAPE	STD	SIZE TOLERANCE PLUS	MINUS	PURPOSE	CUSTOMER'S SPECIFICATION
		10,000	2 9/16"D	X			MACHINING	

GRADE	SHEETS	MULTS	STD	LENGTH TOLERANCE PLUS	MINUS
2/10'					

PRODUCT DESCRIPTION	MPS	PART
ER NORM NS	(206)	ASTM A 105 ASTM A 696 GR B (EXC COND)

CAST	HARDNESS	ADDIT. MACRO-MICRO REQ'D	SPECIFICATION NO.
LINE	187 MAX BHN		ASME-SA-105 SECTION 2. AS M SA-696 GR B SECTION 2 EXC COND

HEAT	STRAIGHTNESS	INSPECTION: BEAM	CUT	DCM	OTHER
		X			

ANGLE	PAINT & MARK
,000# MIN BDL 0,000# MAX BDL	STAMP HEAT NUMBER

SPECIAL INSTRUCTIONS

COPPERWELD STEEL COMPANY
P.O. BOX 351 / WARREN, OHIO 44482

CORRECTED COPY 3/7/78

TEST REPORT

mr

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18276

GRADE	CODE	SPEC'N / DESCRIPTION	DATE
E 1026 Mod DH			10/20/7

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
91337 (ACO)	.22	.83	.008	.018	.22								5-7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
23	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*
45,500	71,000		36.0	64.7	146

*Surface unless otherwise noted

OTHER DATA

Normalize - 1600 - 2 hrs.
Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NA3700 as audited by The Colonial Machine Co., Inc. on August 2, 1977

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

I _____, a Notary Public do hereby certify that _____ was subscribed and sworn to before me by a duly authorized representative of Copperweld Steel Company.

this _____ day of _____

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITEM 2

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12041, PIPE FAB.

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

_____

Auth. No. M-50574 Ledger Control No. M-50574 Thru M-50574 Page 1 of 1 (Rev.)

3077 CLE	4250	052377	2	11	WK 10/30/77	10/30/77	18274

FOB PLANT FOB DEST	FREIGHT ALLOWED FROM	FREIGHT INTERESTED AT TIME OF SHIPMENT	TERMS OF PAYMENT NET 30TH OF MO. FOLL. DATE OF MILL VALUE
PPD			10 DAYS NET 30 DAYS

EL	B-RS	PPD CHG X	CUST TRK - IN TRK LOADS

CLASS

SOLD TO
THE COLONIAL MACHINE COMPANY
P O BOX 290
PLEASANTVILLE, PENNSYLVANIA 16341

SHIP TO (SAME AS SOLD TO UNLESS DIFFERENTLY NOTED)
ADVISE WHEN READY

FEET	PIECES	LBS	SIZE AND SHAPE	STD	SIZE TOLERANCE PLUS	SIZE TOLERANCE MINUS	PURPOSE	CUSTOMER'S FIRST OPERATION
		6,000	1 1/2"D	X			MACHINING	

LENGTH	SHEETS	MULTS	STD	LENGTH TOLERANCE PLUS	LENGTH TOLERANCE MINUS
12/10'					

PRODUCT DESCRIPTION
HR NORM MS (205)

MFG PART
ASTM A 105 ASTM A 696 GR B (EXC CO

GRAIN	HARDNESS	ADDIT. MACRO MICRO REQ.	SPECIFICATION NO.
FINE	187 MAX BHN		ASME-SA-105 SECTION 2. AS M-
SA-696 GR B SECTION 2 EXC COND

TAG

STRAIGHTNESS

SAW	CUT	BEVEL	BEVEL
X			

BUNDLE
6,000# MIN BDL
10,000# MAX BDL

PAINT & MARK
POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITEM 3

CORRECTED COPY 3/7/78

COPPERWELD STEEL COMPANY
P.O. BOX 351 / WARREN, OHIO 44482

TEST REPORT

ORDER NUMBER	
CUSTOMER	COPPERWELD
	18274

SPEC	CODE	SPECIN / DESCRIPTION	DATE
E 1026 Mod DH			10/28/77

ANALYSIS

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
91337 (ADD)	.22	.83	.008	.018	.22								5-7

JOMINY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
23	21	17	15	13	12	11	10		7		7		5		4	3	3	2	2	

MECHANICAL PROPERTIES

YIELD PSI	TENSILE PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*	OTHER DATA
52,000	74,500		35.0	65.9	149	Normalize - 1600 - 2 hrs. Material was produced in accordance with Copperweld Quality Assurance manual intended to meet NAS700 as audited by The Colonial Machine Co., Inc. on August 2, 1977

*Surface unless otherwise noted

a Copperweld product

THIS CERTIFICATE NOTARIZED WHEN REQUIRED

I, ... a Notary Public do hereby certify that affidavit was subscribed and sworn to before me by a duly authorized sentative of Copperweld Steel Company.

..... day of .....

DUQ. LIGHT CO., BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241 PIPE FAB.

We hereby certify that the above data are correct as contained in the records of Copperweld Steel Company.

QUALITY CONTROL

F-1

HERRON TESTING LABORATORIES, INC.

Purchase Order No. CM4337

File No. K 3589

January 6, 1978

Item 1-13/16" Dia. Steel Coupon, per ASME-SA350, Gr. LF1 and LF2,
Heat No. 91337 (A&D)

Client THE COLONIAL MACHINE COMPANY, INC.

Attention Mr. Barry W. Mallory

CHEMICAL ANALYSIS

Carbon	0.22%
Manganese	0.86%
Phosphorus	0.003%
Sulphur	0.020%
Silicon	0.23%

POWER PIPING COMPANY
ORDER NO. 20601-N-1141 ITS. 1 THRU 3

HERRON TESTING LABORATORIES, INC.

DUQ. LIGHT CO. BEAVER VALLEY NO. 2
P.O. NO. 2 BV-58, J.O. NO. 12241, PIPE FAB.

Audit No. _____ Ledger Control No. M-5014 Thru M-5053 Page 57 of _____ Rev. 1

SECTION 13

FORM NPV-1 N CERTIFICATE HOLDERS' DATA REPORT FOR NUCLEAR PUMPS OR VALVES*

As Required by the Provisions of the ASME Code, Sec. [illegible], Div. 1

1. Manufactured by Atwood & Morrill Co., Inc. Salem, MA 01970
(Name and Address of N Certificate Holder)

2. Manufactured for Stone & Webster
(Name and Address of Purchaser or Owner)

3. Location of Installation Beaver Valley Power Station Shipping Port, PA
(Name and Address)

4. Pump or Valve Valve Nominal Inlet Size 16 (inch) Outlet Size 16 (inch)

	(a) Model No. Series No. or Type	(b) N Certificate Holder's Serial No.	(c) Canadian Registration No.	(d) Drawing No.	(e) Class	(f) Nat'l. Bd. No.	(g) Year Built
(1)	16" Check Valve	7-13540	N/A	13540-03-F Rev. 4	2	N/A	1979
(2)							
(3)							
(4)							
(5)							
(6)							
(7)							
(8)							
(9)							
(10)							

5. 16" Check Valve Deep Water
(Brief description of service for which equipment was designed)

6. Design Conditions 1170 (Pressure) psi 450 (Temperature) °F or Valve Pressure Class N/A (1)

7. Cold Working Pressure 1440 psi at 100°F

8. Pressure Retaining Pieces

Parts	Mark No.	Material Spec. No.	Manufacturer	Remarks
(a) Castings				
Body	Ht. # F3896 Rt. # S1580	SA 216, Gr. WCB	Quaker Alloy	S/N 7-13540
Disc	Ht. # F3987 Rt. # S1317	SA 216, Gr. WCB	Quaker Alloy	S/N 7-13540
Brg. Cover	Ht. # E8765 Rt. # S1356	SA 216, Gr. WCB	Quaker Alloy	S/N 7-13540
Brg. Cover	Ht. # E8765 Rt. # S1308	SA 216, Gr. WCB	Quaker Alloy	S/N 8-13540
(b) Forgings				

(1) For manually operated valves only

* Supplemental sheets in form of lists, sketches or drawings may be used provided (1) size is 8-1/2" x 11", (2) information in items 1, 2 and 5 on this Data Report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded at top of this form.

(10/77) This form (E00077) may be obtained from the Order Dept. [illegible]

Form NPV-1 (Back)

Mark No.	Material Spec. No.	Manufacturer	Remarks
(c) Bolting			
Cover Bolting			
Studs	SA 193, Gr B7	Jos. Dyson & Sons	C89
Nuts	SA 194, Gr. 2H	Jos. Dyson & Sons	C11
Bearing Cover Bolting			
Studs	SA 193, Gr. B7	Jos. Dyson & Sons	E97
Nuts	SA 194, Gr 2H	Jos. Dyson & Sons	D01
(d) Other Parts			
Cover	A 515, Gr. 70	U.S. Steel Corp.	S/N 7-13540
Ht. # 656744			

9. Hydrostatic test 2175 psi. Disk Differential test pressure 1500 psi

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and that this pump, or valve, conforms to the rules of construction of the ASME Code for Nuclear Power Plant Components. Section III, Div. 1. Edition 1974 Addenda Summer 1974 (Date). Code Case No N/A. Date N/A

Signed Atwood & Morrill Co., Inc (N Certificate Holder) by Walter F. Omerza 22 Feb 79 Quality Control Manager

Our ASME Certificate of Authorization No. N-1766 to use the N (N) symbol expires 5-20-80 (Date)

CERTIFICATION OF DESIGN

Design information on file at Stone & Webster Engineering Corp.

Stress analysis report (Class 1 only) on file at

Design specifications certified by (1) Faruk A. Gopalani

PE State Pennsylvania Reg No 21966E

Stress analysis certified by (1) N/A

PE State N/A Reg No N/A

(1) Signature not required. List name only.

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Massachusetts and employed by H.S.B.I. & I. Co. of Hartford, CT have inspected the pump, or valve, described in this Data Report on Feb 23rd 19 79 and state that to the best of my knowledge and belief, the N Certificate Holder has constructed this pump, or valve, in accordance with the ASME Code, Section III.

By signing this certificate, neither the inspector nor his employer makes any warranty, expressed or implied, concerning the equipment described 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 Feb 23rd 1979

(Inspector) Commissions Mass 1196 PA. WC-2580

(Nat'l Bd, State, Prov. and No.)

0 0 2 7

0030

13540-03
Body 16"

QUAKER ALLOY CASTING CO.

MATERIAL TEST REPORT

Atwood and Morrill Co.

ORDER-RELEASE NO.	PATTERN NO.	DATE
AM13187	6717-3-30223-009	10-2-78
SPECIFICATION		QUALITY CODE
ASME SA216 GR. WCB		979

ADDITIONAL INFORMATION:

ab

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 1BV-10

MARK NO. VCHOUD-A-2

VENDOR'S NAME Atwood + Morrill

REPORT OF
CHEMICAL & PHYSICAL
ACCEPTED

BY W. Francis

DATE 10-12-78

ATWOOD & MORRILL CO. INC.
Quality Assurance

CONTROL NO	84025
HEAT SERIAL	F3896-4
BT NO	31580

CHEMICAL COMPOSITION

C	.25 ✓
Mn	.81 ✓
Si	.36 ✓
P	.017 ✓
S	.010 ✓
Cr	
Ni	
Mo	
Cu	

MECHANICAL PROPERTIES

TENSILE, ksi	77.6 ✓
YIELD, ksi	42.5 ✓
ELONG. %	29.5 ✓
RED. of AREA %	51.1 ✓
ENERGY, ft-lbf	
LAT. EXP. mils	
SHEAR, %	
TEST TEMP. °F	
PIECES SHIPPED	1

"I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS CORRECT."

R. Gnupach 10-2-78
AUTHORIZED SIGNATURE

STATE OF PENNSYLVANIA, COUNTY OF LEBANON, SS.

SWORN TO AND SUBSCRIBED BEFORE ME

A&M D.C.B. 8

10-2-78
Level II

THIS DAY OF 19

QUAKER ALLOY CASTING CO., [illegible] PA.

CUSTOMER Atwood & Morrill PURCHASE ORDER AM-13187 CONTRACT NO. _____

SHOP ORDER G411-03 Q DESIGNATION 070 PATTERN NO. 6717-3-30223-000

MATERIAL SPEC. & GRADE ASME SA216 GR.WCB DESCRIPTION body SIZE 1

HEAT NO. F3896 CASTING SERIAL NO. F3896-4 R.T. SERIAL NO. S1589

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION Atw & Saw

HEAT TREATMENT RECORD

PROCESS*	N	T	PWHT	
PROCEDURE	QAP-HT.P1.1 Rev.G	Same & letter dated 8/17/78	QAP-Ws.P1.3.3.1 Rev.E & Add. 7	
DATE	5-16-78	5-22-78	9-25-78	
FURNACE	Flynn&Drefinn	Gas Machine	Gas Machine	
CHARGE NO.	FD-5-16-78-1	GM-5-22-78-1	GM-9-25-78-1	
CHARGE TEMP.	260°F	75°F	150°F	
TIME TO EQUIL. TEMP.	3 hrs.35 min.	1 hr.15 min.	45 min.	
HOLDING TEMP.(RANGE)	1700°-1720°F	1350°F	1175-1225°F	
TIME AT TEMP.	6 hrs.15 min.	6 hrs.5 min.	5 hrs.20 min.	
COOLING DATA	Air	Air	Air	

REMARKS _____

ACTUAL HEAT TREAT CHARTS ARE RETAINED IN FILE FOR THE ABOVE.

*N = Normalize or homogenize
Q = Quench or harden
T = Temper
SA = Solution Anneal
PWHT = Post Weld Heat Treat (Stress Relieve)

PREPARED BY S. Bates
Quaker Alloy Casting Co.

TITLE Q.C.Dept.

DATE 10-2-78

10-2-78 Love HL

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2
J # 12241 PO NO. 25Y-20
MARK NO [illegible]

Form 212 Rev. 1
12/20/76

0031

QUAKER ALLOY CASTING CO., MORRISTOWN PA.

CUSTOMER Atwood & Morrill PURCHASE ORDER AM-16253 CONTRACT NO. _____

SHOP ORDER G411-03 Q DESIGNATION Q70 PATTERN NO. 6717-3-30223-009

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Body SIZE 16"

HEAT NO. F3896 CASTING SERIAL NO. F3896-4 R.T. SERIAL NO. S1580

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION ATW.

HEAT TREATMENT RECORD

PROCESS*	PWHT			
PROCEDURE	QAP-Ws.P1.3.3.1 Rev.E & Add.780808			
DATE	12-28-78			
FURNACE	Gas Machine			
CHARGE NO.	GM-12-28-78-4			
CHARGE TEMP.	505°F			
TIME TO EQUIL. TEMP.	45 Mins.			
HOLDING TEMP.(RANGE)	1200°F			
TIME AT TEMP.	4 Hrs. 20 Min.			
COOLING DATA	Air			

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2
A.O. 12341 P.O. NO. 28V-30
MARK NO. VCV010-A-2
VENDOR'S NAME Atwood & Morrill

REMARKS _____

ACTUAL HEAT TREAT CHARTS ARE RETAINED IN FILE FOR THE ABOVE.

N = Normalize or homogenize
Q = Quench or harden
T = Temper
SA = Solution Anneal
PWHT = Post Weld Heat Treat (Stress Relieve)

PREPARED BY J. Spangler
Quaker Alloy Casting Co.

TITLE Q.C. Clerk

DATE 1-5-79

ALL D.C.S. A — 1-5-79 Love III

Form 212 Rev. 1
12/20/76

0 0 6 J

Z = POINT OF MIN. THICKNESS

VIEW LOOKING INTO BONNET
WITH ANGLES TAKEN FROM
POINT OF MIN. WALL THICKNESS

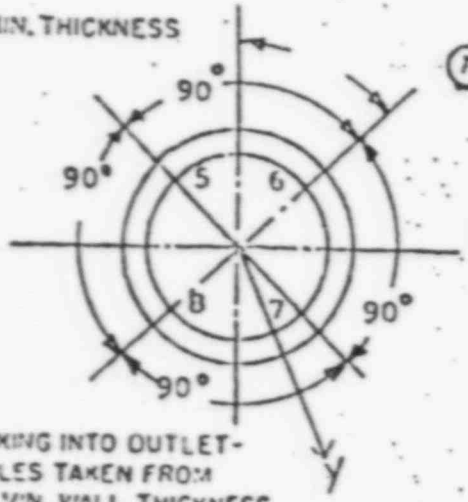
DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 2BV-20

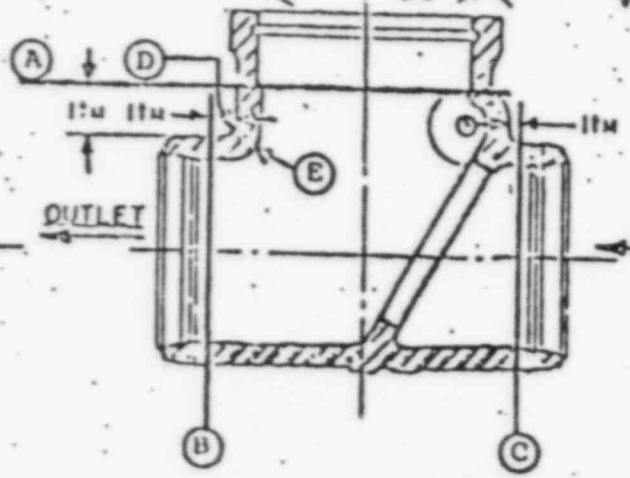
MARK NO. VC-W040-A-2

VENDOR'S NAME Atherwood & Morrill

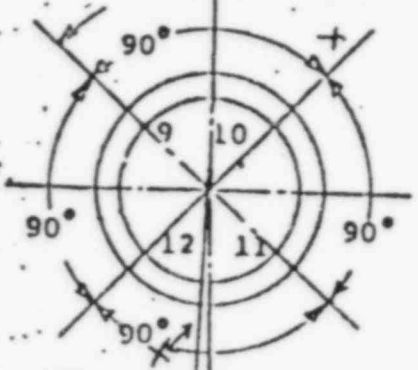
POINT OF MIN. THICKNESS



VIEW LOOKING INTO OUTLET-
WITH ANGLES TAKEN FROM
POINT OF MIN. WALL THICKNESS



X = POINT OF MIN. THICKNESS



VIEW LOOKING INTO INLET-
WITH ANGLES TAKEN
FROM POINT OF MIN. WALL THICKNESS

NOTE: - ALL DIMENSIONS WILL BE RECORDED AS FRACTIONS TO THE NEAREST 1/16 INCH.

Inspected by- A&M QC II A

Date - 2-17-79

Approved by-

Date-

Ⓓ radius-

Ⓔ radius-

t_m = 1 3/32

S.O. 13540 ITEM 03 CUSTOMER NO. 2BV-20-3 SERIAL NO. SN-7-13540

ZONE	1	2	3	4	5	6	7	8	9	10	11	12
LOCATION				Z			Y					X
A	1 5/16	1 3/8	1 3/8	1 1/4								
B					1 3/16	1 3/16	1 1/8	1 5/16				
C									1 1/4	1 3/16	1 3/16	1 1/8

601-13540-00 Rev. 0
Sheet 3 of 3

...Steel Corporation — Metallurgical Test Report

OR CONTRACT NO.

P.O. DATE	ATWOOD ORDER NO.	
	11/28/77	Cover DIN-7,8,9

SHIPPED NO.	BILL ORDER NO.	INVOICE NO.
42737 3/03/78	3x12982	103-25392

CX10106 160

HOMESTEAD WORKS
HOMESTEAD PA. 15120

U S STEEL SUPPLY DIV
UNITED STATES STEEL CORP
P O BOX 278
BRIGHTON MASS 02135

SHIP TO: U S STEEL SUPPLY DIV, UNITED STATES STEEL CORP, 176 LINCOLN STREET, BRIGHTON MASS

BEING DULY SWORN ACCORDING TO LAW, DEPOSES AND SAYS THAT THE CHEMICAL ANALYSES AND/OR TEST RESULTS SHOWN IN THIS REPORT ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

SIGNATURE M. M. MASSON, CH. OFF.

DATE 03/08/78

STATE OF PENNSYLVANIA
COUNTY OF ALLEGHENY
SUBSCRIBED AND SWORN TO BEFORE ME THIS 8 DAY OF MAR 1978

ASTM A-515-76B & ASME SA-515 SUMMER 1975 ADDENDA GR 70 & ASME SEC III 1974 EDITION THRU WINTER 1976 ADDENDA SUB ARTICLES NC-ND 213 D. 2150, 2010, 2538 CLASS 2/3 VESSELS. PRESSURE VESSEL Q (SEE ORD) PLATES
MILL MA/SM ALSO MA/LT SHOWN T/M - ANALYSIS INCL ASME CERT MAR DW T/R - TS IN ACCORDANCE WITH NC2130

MATERIAL DESCRIPTION: THICKNESS OR DIAM	WIDTH OR OD OF PIPE	LENGTH	QUANTITY	WEIGHT	HEAT NO.	TEST OR PIECE IDENTITY	YIELD PT KSI	TENSILE STR KSI	ELONGATION % IN 8"	ELONGATION % IN 2"	% RED OF AREA	BHN
3 3/4	98	224	1	20011	65C744	238258 BC	* 42.8	76.0		29.0		OK

ABOVE PLATE NORMALIZED @ 1652 DEG. F. PLUS OR MINUS 25 DEG. F. MTD. @ 130.0 MINUTES. AIR COOLED.

" ASME QUALITY SYSTEM CERTIFICATE (MATERIALS) N-1285 JANUARY 5, 1979."

SPEC: NORMALIZE. NO WELD REPAIR PERMITTED. QUALITY ASSURANCE CERTIFICATION REQUIRED

RECEIVED
AUG 21 1979
Stone & Webster Engineering Corp. Document Review

REPORT OF CHEMICAL & PHYSICAL ACCEPTED
BY W. Thomas
DATE 8-16-79
ATWOOD & MORRILL CO. INC. Quality Assurance

ATWOOD & MORRILL ORDER NO: 17140
U.S.S. ORDER NO: 805 45496
GRADE: A515 GR 70
SIZE: 3 3/4 x 24 1/2 DIA
HEAT NO: 65C744

VENDOR'S NAME: [illegible] MARK NO: [illegible] P.O. NO: [illegible] BEAVER VALLEY UNIT 2 DUQUESNE LIGHT CO

NO	TYPE	C	MN	P	S	SI	CU	NI	CR	MO	SN	AL	N	V	B	TI	CB	CO
744	HEAT	29	76	005	019	20												

We certify that the contents of this report and all operations performed by our subcontractors are in compliance with the requirements of the ASME Code Section III, 1974 Edition through Summer 1974 Addenda.

W. F. Emerson 8-16-79
W.F. Emerson
A&M QC Manager

MIN-WALL - COVER

0067

Note: Refer to Shop Drawing for Min Wall Requirements and Actual Configuration of Cover

Procedure Used: 601-13

Code Ref.: MIN SECT

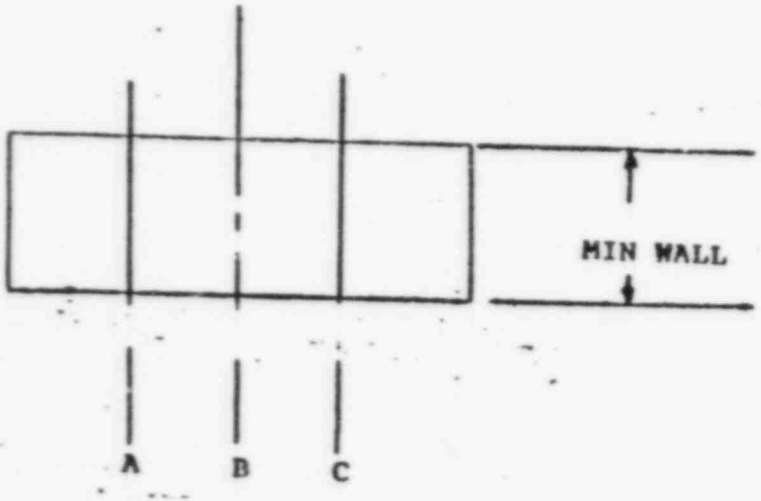
M74 Ed w/s 74 Add

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 28V-20

MARK NO. VCW060-A-2

VENDOR'S NAME Atwood & Morrill



NOTE:- ALL DIMENSIONS WILL BE RECORDED AS FRACTIONS TO THE NEAREST 1/16 INCH.

Inspected by- _____

Date - 2-15-79

Approved by- _____

Date- _____

t_m = 3½"

S.O. 13540 ITEM 03 CUSTOMER NO. 28V-20-3 SERIAL NO. 7-13540

Heat No. 65C744

LOCATION			
A	3¼		
B		3¼	
C			3¼

QUAKER ALLOY CASTING CO., [illegible], PA. S/N 7-13540

CUSTOMER Atwood & Morrill PURCHASE ORDER AM-13[illegible] CONTRACT NO. _____

SHOP ORDER G411-03 Q DESIGNATION Q70 PATTERN NO. 12772-3

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Bearing Cover

HEAT NO. E8716S CASTING SERIAL NO. E8716S-9 R.T. SERIAL NO. S1355

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION A&M & Stone

CERTIFIED MATERIAL TEST REPORT

The records enclosed in this folder comprise the certified Material Test Report for the subject material.

AFFIRMATION

We certify that the contents of this report are correct and accurate and that all test results and operations performed by Quaker Alloy Casting Company, applicable products purchased from Material Manufacturers or Material Suppliers, or sub-contracted services are in compliance with the material specification and appropriate material requirements of the

ASME Code 1974

through Summer 1974 Addenda, Section III,

as stipulated in the procurement documents.

0069

R. Bruzek
Quaker Alloy Casting Company

8-11-78
Date

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J O 12241 P O NO. BBV-20

P K NO VCWA160-A-2

VENDOR'S NAME Atwood + Morrill

A&M Q.C.C. 8-11-78 Level II

APPROVED
DATE 12-7-78
BY SC
O.A.
ATWOOD & MORRILL

HSB ANI

12-7-78

Form QAI Rev. 4
6/10/77

Q 0 6 9

1354-03
S/N 7-13540

QUAKER ALLOY CASTING CO.

MATERIAL TEST REPORT

BEARING COVER

Atwood and Morrill Co.

CUSTOMER'S ORDER NO.	PATTERN NO.	DATE
AM13187	12772-3	7-27-78
SPECIFICATION		QUALITY BASIS
ASME SA216 GR. WCB		Q70

ADDITIONAL INFORMATION

ab

CONTROL NO	84027		
HEAT SERIAL	E8765-9		
BT NO	S1356		

CHEMICAL COMPOSITION

C	.24 ✓		
Mn	.58 ✓		
Si	.38 ✓		
P	.013 ✓		
S	.022 ✓		
Cr			
Ni			
Mo			
Cu			

MECHANICAL PROPERTIES

TENSILE, ksi	71.0 ✓		
YIELD, ksi	44.0 ✓		
ELONG. %	27.5 ✓		
RED. of AREA %	51.2 ✓		
ENERGY, ft-lbf			
LAT. EXP. mils			
SHEAR %			
TEST TEMP °F			
PIECES SHIPPED	1		

REPORT OF
CHEMICAL & PHYSICAL
ACCEPTED
BY D. C. Ohara
DATE 8/30/78
ATWOOD & MORRILL CO. INC.
Quality Assurance

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. RBV-20

MARK NO. VCWQ60-A-2

VENDOR'S NAME Atwood + Morrill

"I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS CORRECT."

R. Rupach 8-11-78

STATE OF PENNSYLVANIA, COUNTY OF LEBANON, ss.

SWORN TO AND SUBSCRIBED BEFORE ME

A & M D.C.S. 8 8-11-78 Lavelle

[illegible] ALLOY CASTINGS CO., [illegible]

PURCHASER Atwood & Mo[illegible]21 PURCHASE ORDER AM-1[illegible]27 CONTRACT NO. _____

MFG ORDER G411-03 Q DESIGNATION Q70 PATTERN NO. 12772-3

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Bearing Cover

HEAT NO. E8765 CASTING SERIAL NO. E8765-9 R.T. SERIAL NO. S1356

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION A&M & Stone & Webst

HEAT TREATMENT RECORD

PROCESS*	N	T		
PROCEDURE	QAP-HT.P1.1 Rev.G	& letter dated 8/17/78 Same		
DATE	5-18-78	6-21-78		
FURNACE	Surface Comb.	Eclipse 232		
CHARGE NO.	SI-5-18-78-2	E2-6-21-78-3		
CHARGE TEMP.	1150°F	1230°F		
TIME TO EQUIL. TEMP.	1hr.40 min.	1 hr.45 min.		
HOLDING TEMP.(RANGE)	1685°-1720°F	1330°-1350°F		
TIME AT TEMP.	3 Hrs.15 min.	3 hrs.20 min.		
COOLING DATA	Air	Air		

REMARKS _____

0070

ACTUAL HEAT TREAT CHARTS ARE RETAINED IN FILE FOR THE ABOVE.

*N = Normalize or homogenize
Q = Quench or harden
T = Temper
SA = Solution Anneal
PWHT = Post Weld Heat Treat (Stress Relieve)

PREPARED BY S. Bates
Quaker Alloy Casting Co.

8-11-78 Level II

TITLE Q.C. Dept.

DATE 7-27-78

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

Form 212 Rev. 1
12/20/76

I O 17241 P O NO. 8BV-20

MARK NO VCWP60-A-2

QUAKER ALLOY CASTING CO., NIAGARA, PA. SW 8-13540

CUSTOMER Atwood & Morrill PURCHASE ORDER AM-13[illegible] CONTRACT NO. _____

SHOP ORDER G411-03 Q DESIGNATION Q70 PATTERN NO. 12772-3

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Bearing Covers

HEAT NO. E3716S CASTING SERIAL NO. E3716S-7 R.T. SERIAL NO S13078

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION A&M & Stone & Web

CERTIFIED MATERIAL TEST REPORT

The records enclosed in this folder comprise the certified Material Test Report for the subject material.

AFFIRMATION

We certify that the contents of this report are correct and accurate and that all test results and operations performed by Quaker Alloy Casting Company, applicable products purchased from Material Manufacturers or Material Suppliers, or sub-contracted services are in compliance with the material specification and appropriate material requirements of the

ASME Code 1974

through Summer 1974 Addenda, Section III,

as stipulated in the procurement documents.

R. Arupsch
Quaker Alloy Casting Company

8-11-78
Date

0076

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 28V-20

MARK NO VCW060-A-2

VENDOR'S NAME Attwood + Morrill

A&M QC 8-11-78 Level II

APPROVED
DATE 12-7-78
BY JC
O.A.
ATWOOD & MORRILL CO.

NSB AWI
12-7-78

Form QA1 Rev. 4
6/10/77

0077

13540-13

BEARING COVER

9N8-13540

MATERIAL TEST REPORT

Q'HAKER ALLOY CASTING CO.

Atwood and Morrill Co.

CERTIFICATE NO.	PATTERN NO.	DATE
AM13187	12772-3	7-27-78
SPECIFICATION		QUALITY CODE
ASME SA216 GR.WCB		Q70

ADDITIONAL INFORMATION:

ab

CONTROL NO.	84027
HEAT SERIAL	E8765-7
RT. NO.	S1308

CHEMICAL COMPOSITION

C	.24 ✓
Mn	.58 ✓
Si	.38 ✓
P	.013 ✓
S	.022 ✓
Cr	
Ni	
Mo	
Cu	

MECHANICAL PROPERTIES

TENSILE, ksi	71.0 ✓
YIELD, ksi	44.0 ✓
ELONG. %	27.5 ✓
RED. of AREA %	51.2 ✓
ENERGY, ft-lbf	
LAT. EXP. mils	
SHEAR %	
TEST TEMP °F	
PIECES SHIPPED	1

REPORT OF CHEMICAL & PHYSICAL ACCEPTED

BY D.E. Sharp

DATE 8/31/78

ATWOOD & MORRILL CO. INC.
Quality Assurance

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 2BV-20

MARK NO. VCWA60-A-2

VENDOR'S NAME Atwood & Morrill

"I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS CORRECT."

R. Rumpach 8-11-78

STATE OF PENNSYLVANIA, COUNTY OF LEBANON, S.S.

SWORN TO AND SUBSCRIBED BEFORE ME

A&M D.C.B. 8

8-11-78
Level III

QUAKER ALLOY CASTING CO., [illegible], Pa.

VENDOR Atwood & Morrill PURCHASE ORDER AM-13[illegible] CONTRACT NO. _____

SHOP ORDER G411-03 Q DESIGNATION 070 PATTERN NO. 12772-3

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Bearing Cover

HEAT NO. E8716S CASTING SERIAL NO. E8716S-7 P.O. SERIAL NO. S1308

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION A&M & Stone

HEAT TREATMENT REPORT

PROCESS*	N	T		
PROCEDURE	QAP-HT.P1.1 Rev.g	& letter dated Same	8/17/78	
DATE	5-18-78	6-21-78		
FURNACE	Surface Comb.	Eclipse 232		
CHARGE NO.	SI-5-18-78-2	E2-6-21-78-3		
CHARGE TEMP.	1150°F	1230°F		
TIME TO EQUIL. TEMP.	1 hr.40 min.	1 hr.45 min.		
HOLDING TEMP.(RANGE)	1685°-1720°F	1330°-1350°F		
TIME AT TEMP.	3 hrs.15 min.	3 hrs.20 min.		
COOLING DATA	Air	Air		

REMARKS _____

ACTUAL HEAT TREAT CHARTS ARE RETAINED IN FILE FOR THE ABOVE.

*N = Normalize or homogenize
Q = Quench or harden
T = Temper
SA = Solution Anneal
PWHT = Post Weld Heat Treat (Stress Relieve)

J.O. 12241 P.O. NO. 28V-20

MARK NO VCW060-A-2

VENDOR'S NAME Atwood-Morrill

PREPARED BY S. Bates
Quaker Alloy Casting Co.

8-11-78 Level II

TITLE Q.C. Dept.

DATE 7-27-78

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

Form 212 Rev. 1
12/20/76

QUAKER ALLOY CASTING CO., NORRISTOWN 13590-Q

CUSTOMER Atwood & Morrill PURCHASE ORDER AM-13187 CONTRACT NO. 3/N7-1

SHOP ORDER G411-03 Q DESIGNATION 070 PATTERN NO. 16246

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Disc SIZE

HEAT NO. F3997 CASTING SERIAL NO. F3997.4 R.T. SERIAL NO. 51317

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION A & M Stone Webs

CERTIFIED MATERIAL TEST REPORT

The records enclosed in this folder comprise the certified Material Test Report for the subject material.

AFFIRMATION

We certify that the contents of this report are correct and accurate and that all test results and operations performed by Quaker Alloy Casting Company, applicable products purchased from Material Manufacturers or Material Suppliers, or sub-contracted services are in compliance with the material specification and appropriate material requirements of the

ASME Code 1974

through Summer 1976 Addenda, Section III,

as stipulated in the procurement documents.

R. Ambach
Quaker Alloy Casting Company

8-11-78
Date

D 0 8 6

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 2BV-20

MARK NO. VCW060-A-2

VENDOR'S NAME Atwood + Morrill

A & M Q.C. 8 A 8-11-78 Level III

APPROVED
DATE 12-7-78
BY JL
O.A.
ATWOOD & MORRILL CO.

Form QAl Rev. 4
6/10/77

MSB AMI
GP 12-8-78

0087

13540-03
D150

Atwood
and
Morrill

QUAKER ALLOY CASTING CO.

MATERIAL TEST REPORT

CUSTOMER ORDER NO.	PATTERN NO.	DATE
AM13187	16246	7-27-78
SPECIFICATION	GRADE	HEAT CODE
ASME SA216 GR.WCB	970	

ADDITIONAL INFORMATION:

BD

CONTROL NO.	84024		
HEAT SERIAL	F3987-4		
RT NO	S1317		

CHEMICAL COMPOSITION

C	.26 ✓		
Mn	.73 ✓		
Si	.39 ✓		
P	.015 ✓		
S	.013 ✓		
Cr			
Ni			
Mo			
Cu			

MECHANICAL PROPERTIES

TENSILE, Ksi	74.5 ✓		
YIELD, Ksi	43.0 ✓		
ELONG. %	27.0 ✓		
RED. of AREA %	56.6 ✓		
ENERGY, ft-lbs			
LAT. EXP. mils			
SHEAR, %			
TEST TEMP °F			
PIECES SHIPPED	1		

REPORT OF CHEMICAL & PHYSICAL ACCEPTED
BY D. Hart
DATE 8/30/78
ATWOOD & MORRILL CO. INC.
Quality Assurance

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. SBV-20
MARK NO VCWO160-A-2
VENDOR'S NAME Atwood & Morrill

"I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS CORRECT."

R. Arnpach 8-11-78
AUTHORIZED SIGNATURE

STATE OF PENNSYLVANIA, COUNTY OF LEBANON, SS
SWORN TO AND SUBSCRIBED BEFORE ME

A&M BCB A 8-11-78 Lovette

THIS DAY OF 19

CUSTOMER Atwood & Morrill PURCHASE ORDER AM-131 CONTRACT NO.

SHOP ORDER G411-03 Q DESIGNATION Q70 PATTERN NO. 16246

MATERIAL SPEC. & GRADE ASME SA216 Gr. WCB DESCRIPTION Disc SIZE

HEAT NO. F3987 CASTING SERIAL NO. F3987-4 R.T. SERIAL NO. S1317

NUCLEAR CLASS 2 PCS. COVERED ON THIS REPORT 1 SOURCE INSPECTION A & M Stone Webs

HEAT TREATMENT RECORD

PROCESS*	N	T		
PROCEDURE	QAP-HT.P1.1 Rev.G Same	& letter dated 8/17/78		
DATE	5-26-78	5-31-78		
FURNACE	Flynn&drefinn	Gas Machine		
CHARGE NO.	FD-5-26-78-1	GM-5-31-78-2		
CHARGE TEMP.	255°F	175°F		
TIME TO EQUIL. TEMP.	3 hrs.40 min.	1 hr.15 min.		
HOLDING TEMP.(RANGE)	1700°-1725°F	1350°F		
TIME AT TEMP.	4 hrs.25 min.	5 hrs.55 min.		
COOLING DATA	Air	Air		

REMARKS

ACTUAL HEAT TREAT CHARTS ARE RETAINED ON FILE FOR THE ABOVE.

*N = Normalize or homogenize
Q = Quench or harden
T = Temper
SA = Solution Anneal
PWHT = Post Weld Heat Treat (Stress Relieve)

J.O 12241 PO NO. 2BV-20

MARK NO VCW060-A-2

VENDOR'S NAME Atwood+Morrill

PREPARED BY S. Bates
Quaker Alloy Casting Co.

A&M D.L.S. 8-11-78 Level II

TITLE Q.C.Dept.

DATE 7-27-78

Form 212 Rev. 1
12/20/76

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

CERTIFIED TEST REPORT 13540

JOS. DYSON & SONS INC./DEPENDABLE DIVISION
33220 LAKELAND BLVD. · EASTLAKE OHIO 44094 · TELEPHONE (216) 946-4200

To: Atwood & Morrill Co.
285 Canal Street
Salem, Mass. 01970

DUQUESNE LIGHT CO
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

DATE	DEPENDABLE ORDER NUMBER	CUSTO ORDER N
7-19-78	M3536-1-4N	AM1413

Description:
Item 1) 51 pcs. 3/4-10 x 3-1/4 TBE Stud per dwg. 3730
2) 50 pcs. 1-3/8-8 x 7-1/4 " " " " "
3) 51 pcs. 3/4-10 Hvy Hex Nut
4) 50 pcs. 1-3/8-8 Hvy Hex Nut

ITEM	HEAT	TRACE	C	Mn	P	S	Si	Ni	Cr	Mo	V	Ti	Al	Cu
1	578W7167	E97	.40	.89	.018	.016	.28		.96	.17	BEARING COUPLER END			
2	10760	C89	.41	.84	.011	.024	.23		.93	.17	COUPLER STUDS			
3	577P3238	D01	.40	.90	.014	.012	.29		.98	.18	BEARING FACE NUTS			
4	5772636	D11	.42	.87	.030	.016	.24		1.07	.17	COUPLER NUTS			

ITEM NO.	TENSILE STRENGTH PSI	YIELD STRENGTH PSI	PROOF LOAD LBS.	ELONGATION PERCENT IN 2"	PERCENT RED. AREA	HARDNESS		MOM TEMP TE
1	140,250	125,000		21.5	62.6			110
2	126,000	108,500		25.0	65.9			110
3			45,300			RC28	RC24	85
4			215,800			BHN302	BHN269	850

0026

SPECIFICATIONS: ASME SA193 B7, SA194-2H, Sec.III CL.2, 74ED, S74 Add.
DYSON PROCEDURE #D510, D515

REPUBLIC STEEL MILL CERT FOR TRACE D11 ATT.
WESTERN COLD DRAWN STEEL MILL CERT FOR TRACE D01, E97 ATT.
COPPERWELD STEEL MILL CERT FOR TRACE C89 ATT.
HENDERSHOT & SMITH HEAT TREAT CERT #17170, 17566 & CHARTS ATT.
NETTLETON HEAT TREAT CERT #641 & CHARTS ATT.

HERRON TEST LAB REPORT #K0367, K5834 ATT.
CROBAUGH TEST LAB REPORT #F1068 ATT.

BEAVER VALLEY UNIT 2 AM 41 8/14/78
741 P.O. NO. 2BV-20
) VGW060-A-2
S NAME Atwood-Morrill

APPROVED
DATE AUG 15 1978
BY JC
O.A.
ATWOOD & MORRILL CO. INC.

REPORT OF
CHEMICAL & PHYSICAL
ACCEPTED
BY E Sharp
DATE 8/14/78
ATWOOD & MORRILL CO. INC.
Quality Assurance

THIS CERTIFICATE NOTARIZED ONLY WHEN REQUIRED

I, _____, a Notary Public do hereby certify that this affidavit was subscribed and sworn to before me by a duly authorized agent of Jos. Dyson & Sons, Inc., this _____ day of _____

We certify that the contents of this report are corre accurate and that all operations performed by our co or subcontractors are in compliance with the require of the specifications listed above

DEPENDABLE DIVISION
JOS. DYSON & SONS INC.
F A Salvo

HERRON TESTING LABORATORIES, INC.

Purchase Order No. 10-25-7

File No. X 0367

October 3, 1977

Test of 1-3/8"-8 Heavy Hex Nut, per ASME-SA 194, Gr. 7, Trace D11

Client DEPENDABLE DIVISION, JOSEPH DYSON & SONS, INC.

Attention Mr. L.A. Saley

AXIAL PROOF LOAD (215800 LB)	BRINELL HARDNESS PER PARA. 7.1.5.1	7.1.5.2
Satisfactory	302	269

Meets requirements of ASME-SA 194, Gr. 7. & 2H

00977

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J. O. 12241 P.O. NO. 2BV-20

MARK NO. VCW060-A-2

VENDOR'S NAME Atlantic Steel

HERRON TESTING LABORATORIES, INC.

The above are the actual results obtained by us on the sample submitte

Sworn and subscribed to before me this 3rd day of October 1977.

LORI A. ATKINSON
Notary Public For Cuyahoga County, O.
My Commission Expires Feb. 21, 1982

Inspection Certification

NO. 17170

CUSTOMER JOS. DYSON DEPENDABLE DIV.

Purchase Order No. 16364		S.O. No. 285700	Date 8-22-77
Part No.	Description NUT BLANKS		
Quantity 1863 - 2534	Weight 839# - 2742#		
	Operation HEAT TREATING		

Process Specification	Material Inspection Record		
	Operation	Specification	Inspection
	Heat No.		
4140: HT PER ASME SA194 GR7-1100F	Mat. Type	4140	4140
DRAW-248-352 BHN-RC 24-38-AIR COOL-	Hardness	RC 24-38	RC 33-36
TRACE F-16- TRACE D-11	P.S.I.		
	Case Depth		
6 TEST BARS	Core Hardness		
	% of Inspection		
	Chief Inspector WRS		
	Approved by Wm. Robertson		

HENDERSHOT & SMITH, INC.

Wickliffe Division • 28910 Lakeland Blvd. • Wickliffe, Ohio ☐
Bedford Division • 7160 Krick Industrial Park • Bedford, Ohio ☐
Carolina Commercial Heat Treating, Inc.
Fountain Inn, S.C. Division ☐
Charlotte, N.C. Division ☐
Reidsville, N.C. Division ☐

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O 12741 P.O NO. 2BV-20
MARK NO. VCW060-A-2
VENDOR'S NAME Attwood & Morrill

CUSTOMER ORDER NUMBER AND DATE: #12943 4/17/75

SHIPPED FROM: B FALLS

INVOICE DATE: 22-7107

DATE SHIPPED: 61675

ASSOCIATED TRUCK LINES

2+ 7678-822 | CUSTOMER ABBREVIATION: DEPENABLE DV | p5 | 10454 | 73827 | 034 | 0433 | 3ppo | 2210 | 204182 | 030 80

DEPENDABLE DIV
OF JOS DYSON & SONS INC
P O BOX 4328
CLEVELAND OH 44132

3 2 | 30 1/2 10

15647popo | 208082 710425 22602

DEPENDABLE DIV OF JOS DYSON & SONS INC
33220 LAKELAND BLVD
EASTLAKE, OHIO 44094

Certificate of Tests

("SHIP TO" SAME AS "SOLD TO" UNLESS OTHERWISE INDICATED)

"P" PARTIAL SHIPMENT "C" COMPLETE SHIPMENT

SUPPLIER PRODUCT DESCRIPTION	ITEM NO.	UNITS SHIPPED	
AISI-4140 ANN COLD DRAWN STEEL BARS 2-3/16 IN HEX X 10/12 FT 65 BARS 4 LIFTS 00-6/21	IP	11038#	PO 12943 TRACE D-11

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

CK. G. 1228 P.O. NO. 2BV-20

MARK NO. VCEV060-A-2

VENDOR'S NAME Atlwood + Morrill

I HEREBY CERTIFY THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

W. A. Bischoff

PLANT METALLURGIST
UNION DRAWN DIV.
BEAVER FALLS, PA.

FRT. PPD 40502

ANALYSIS

HEAT NO.	C	MN	P	S	SI	CU	NI	CR	MO	V	OTHER
5772636	.42	.87	.030	.016	.24			1.07	.17		

HEAT NO.	SIZE	YIELD POINT	TENSILE STRENGTH	% ELONG.	% RED AREA	BRINELL OR SCLEROSCOPE	BEND TEST	REMARKS
			A					

JUL 0 3 1

CROBAUGH LABORATORIES

RESEARCH • ANALYSIS • TESTING

3800 PERKINS AVENUE CLEVELAND, OHIO 44114
216 · 881-7320

Dependable Division
33220 Lakeland Boulevard
Eastlake, Ohio 44094

Attention: Mr. Saley

Reporting Date July 1, 1975
Lab. No. F 1068
Date Received June 25, 1975
Material 4140 Steel
Marked 3/4-10" Heavy Hex Nut
P. O. 13117 M-2156-1-2
Heat #577P3238
Specification: ASME SA194 Gr. 7 & 2H
Traceability #D-01

I Proof Load

45,300 pounds Passed

II Heat Treatment 24 hours at 1100°F.

Hardness before - R_C 28

Hardness after R_C 24

The material meets the requirements of the specification.

Respectfully submitted,

CROBAUGH LABORATORIES

Michael R. Gaydos

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O 12241 P.O NO. 28V-20
MARK NO 1 VCW060-A-2
VENDOR'S NAME Attwood + Morrill

81st Year

COPPERWELD SPECIALTY STEEL COMPANY

321174 CHI 2951 103173 1 of 1 MA 5/19/74 68269

NPP

STEEL BARS X

10 DAYS NET 30 DAYS

DIAMETERS CORPORATION
3977 25TH AVENUE
SCHILLER PARK, ILLINOIS 60176

1.46P

PO 12417

TRACE C-89

PIECES	LBS.	SIZE AND SHAPE			
	25,000	1.400" Ø		000 006	CENTERLESS GRINDING

12/10' AIM 12'

HT CD SR SHEAR CUT BOTH ENDS (26)

269/321 BHN

ASTM A 193 GR B7

X

RDI PED

COPPERWELD
SPECIALTY STEEL COMPANY
P.O. BOX 351 / WARREN, OHIO 44482

TEST REPORT

ORDER NUMBER	
CUSTOMER	COPPERWELD
	68269

GRADE 4140/4142 | CODE | SPEC'N / PRODUCT DESCRIPTION | DATE 10/4/74

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Pb	Al		GRAIN SIZE
10760	.41	.84	.011	.024	.23	.	.93	.17					6-8

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	28	32	36
	57	57	57	55	52	52	48	47		42		40		38		37	35	35	35	34	

TENSILE PSI	YIELD PSI	OFFSET %	ELONG. %	R.A. %	HARDNESS*	OTHER DATA
126,000	108,500		25.0	65.9	269	Temper - 1100°
142,500	128,500		20.0	59.8	277	
130,000	114,000		21.0	62.3	269	
141,500	127,000		19.0	51.9	277	

*Surface unless otherwise noted

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

CERTIFICATE NOTARIZED WHEN REQUIRED

I, _____, a Notary Public do hereby certify that this affidavit was subscribed and sworn to before me by a duly authorized representative of Copperweld Specialty Steel Company.

this _____ day of _____

_____

J.O. 12241 P.O. NO. 2BV-20

MARK NO. VCW060-A-2

W.O. VENDOR'S NAME Attwood & Morrill contained in the records of Copperweld Specialty Steel Company.

R. [illegible]

HERRON TESTING LABORATORIES, INC.
5405 SCHAAF ROAD · CLEVELAND, OHIO 44131 · 216/524-1450
CONSULTATION AND TESTING SINCE 1911

0106 MECHANICAL TESTS

Purchase Order No. 16863
File No. K 5834
24 February 1978

3/4" Dia. Steel Bar, per ASME-SA193, Gr. B7, Traco No. E97, Item No. M3208-1-2

DEPENDABLE DIVISION; JOSEPH DYSON & SONS, INC.

ORIGINAL DIMENSIONS	AREA	YIELD * POUNDS	YIELD * POUNDS PER SQ. IN.	ULTIMATE STRENGTH POUNDS	ULTIMATE STRENGTH POUNDS PER SQ. IN.	ELONGATION IN 2"	ELONGATION %	REDUCED DIMENSIONS	REDUCED AREA	% REDUCTION	REMARKS
.505	.200	25000	125000	28050	140250	.43	21.5	.309	.0749	62.6	(1)
Meets requirements of ASME-SA193, Gr. B7.											

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2
S & W 12241 P.O. NO. 2BV-20
MARK NO. VCWO60-A-2
VENDOR'S NAME Atlas Steel Co.

(1)

* strength at .2 % offset
nsion under load inches per inch
d to

By Michael R. Taylor

The foregoing is expressly limited to findings based upon material, information, and/or specifications furnished by client and excludes any express or implied warranties as to the fitness of the material and/or process subjected to examination and/or analysis for any particular purpose or use

Inspection Certification

NO. 17566

CUSTOMER JOS. DYSON DEPENDABLE DIVISION

Purchase Order No. 16815 S.O. No. 347180 Date 2/8/78

Part No. | Description BOLTS TRACE E97

Quantity | Weight 1741#

Operation HEAT TREATING

Process Specification	Material Inspection Record		
	Operation	Specification	Inspection
	Heat No.		
4140: HEAT TREAT, QUENCH AND TEMPER	Mat. Type	4140	4140
MINIMUM DRAW 1100 DEGREES F-OIL	Hardness		269-285 BHN
QUENCH PER ASTM A193-87	P.S.I.		
	Case Depth		
	Core Hardness		
	% of Inspection		

Chief Inspector WRS

Approved by Wm. R. Shuler

HENDERSHOT & SMITH, INC.

Wickliffe Division • 28910 Lakeland Blvd. • Wickliffe, Ohio ☒ XXX
Bedford Division • 7160 Krick Industrial Park • Bedford, Ohio ☐
Carolina Commercial Heat Treating, Inc.
Fountain Inn, S.C. Division
Charlotte, N.C. Division
Reidsville, N.C. Division ☐☐☐

DUQUESNE LIGHT CO.
STONE & WEBSTER ENG.
BEAVER VALLEY UNIT 2

J.O. 12241 P.O. NO. 2BV-20

MARK NO VCWOKO-A-2

VENDOR'S NAME Attwood-Morrill

SECTION 14

FORM NPV-1 N CERTIFICATE HOLDERS' DATA REPORT FOR NUCLEAR PUMPS OR VALVES*

As Required by the Provisions of the ASME Code, Section III, Div. 1

1. Manufactured by Nuclear Valve Division of Borg Warner, 7500 Tyrone Ave., Van Nuys, CA
(Name and Address of N Certificate Holder)
2. Manufactured for Duquesne Light Company, P. O. Box 2325, Boston, Mass. 02107
(Name and Address of Purchaser or Owner)
3. Location of Installation Beaver Valley Power Station, Shippingport, Beaver County, PA
(Name and Address)
4. Pump or Valve Feedwater Isolation Nominal Inlet Size 16x10x16 (inch) Outlet Size 16x10x16 (inch)

	(a) Model No., Series No. or Type	(b) N Certificate Holder's Serial No.	(c) Canadian Registration No.	(d) Drawing No.	(e) Class	(f) Nat'l. Bd. No.	(g) Year Built
(1)	900#	62752	N/A	435XAB5-001	2	N/A	1981
(2)							
(3)							
(4)							
(5)							
(6)							
(7)							
(8)							
(9)							
(10)							

5. The valves are designed to handle a fluid media which includes steam, water condensate, borated water, etc., associated with a PWR and BWR. The temperature pressure rating of the media is stated below.
(Brief description of service for which equipment was designed)
6. Design Conditions 2220 (Pressure) 1600 psi 100 (Temperature) 500 °F or Valve Pressure Class N/A (1)
7. Cold Working Pressure 2220 psi at 100°F
8. Pressure Retaining Pieces

Mark No.	Material Spec. No.	Manufacturer	Remarks
(a) Castings			
Gate-Code 3E60	SA 351 CF8M	Pacific Metals	
		DUQUESNE LIGHT COMPANY BEAVER VALLEY POWER STATION UNIT 2 P.O. 237-92 S.O. No. 12221 FEEDWATER ISOLATION TRIP VALVE MFD BY BORG WARNER, 7500 TYRONE AVE VAN NUYS, CA 91409	
(b) Forgings			
Body-Code 3L42	SA 105	Jorgensen Steel	
Bonnet-Code 3M92	SA 105	Compton Forge	
Neck-Code 3W94	SA 105	Compton Forge	
Retainer-Code 2X78	SA 105	Jorgensen Steel	

(1) For manually operated valves only.

* Supplemental sheets in form of lists, sketches or drawings may be used provided (1) size is 8-1/2" x 11", (2) information in items 1, 2 and 5 on this Data Report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded at top of this form.

FORM NPV-1 N CERTIFICATE HOLDERS' DATA REPORT FOR NUCLEAR PUMPS OR VALVES*

As Required by the Provisions of the ASME Code, Section III, Div. 1

1. Manufactured by Nuclear Valve Division of Borg Warner, 7500 Tyrone Ave., Van Nuys, CA
(Name and Address of N Certificate Holder)
2. Manufactured for Duquesne Light Company, P.O. Box 2325, Boston, Mass. 02107
(Name and Address of Purchaser or Owner)
3. Location of Installation Beaver Valley Power Station, Shippingport, Beaver County, PA
(Name and Address)
4. Pump or Valve Feedwater Isolation Nominal Inlet Size 16x10x16 (inch) Outlet Size 16x10x16 (inch)

	(a) Model No., Series No. or Type	(b) N Certificate Holder's Serial No.	(c) Canadian Registration No.	(d) Drawing No.	(e) Class	(f) Nat'l. Bd. No.	(g) Year Built
(1)	900#	63081	N/A	435XAB5-001	2	N/A	1981
(2)							
(3)							
(4)							
(5)							
(6)							
(7)							
(8)							
(9)							
(10)							

5. The valves are designed to handle a fluid media which includes steam, water condensate, borated water, etc., associated with a PWR and BWR. The temperature pressure rating of the media is stated below.
(Brief description of service for which equipment was designed)
6. Design Conditions 2220 / 1600 (Pressure) psi 100 / 500 (Temperature) °F or Valve Pressure Class N/A (1)
7. Cold Working Pressure 2220 psi at 100°F
8. Pressure Retaining Pieces

Mark No.	Material Spec. No.	Manufacturer	Remarks
(a) Castings			
Gate-Code 3E59	SA 351 CF8M	Pacific Metals	
		DUQUESNE LIGHT COMPANY BEAVER VALLEY POWER STATION UNIT 2 P.O. 23V-92 S.O. No. 7221 FEEDWATER ISOLATION TRIP VALVE MFD BY BORG WARNER, 7500 TYRONE AVE VAN NUYS, CA 91409	
(b) Forgings			
Body-Code 3L42	SA 105	Jorgensen Steel	
Bonnet-Code 3M92	SA 105	Compton Forge	
Neck-Code 3W94	SA 105	Compton Forge	
Retainer-Code 2W21	SA 105	Jorgensen Steel	

(1) For manually operated valves only.

* Supplemental sheets in form of lists, sketches or drawings may be used provided (1) size is 8-1/2" x 11", (2) information in items 1, 2 and 5 on this Data Report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded at top of this form.

FORM NPV-1 N CERTIFICATE HOLDERS' DATA REPORT FOR NUCLEAR PUMPS OR VALVES*

As Required by the Provisions of the ASME Code, Section III, Div. 1

1. Manufactured by Nuclear Valve Division of Borg Warner,7500 Tyrone Ave.,Van Nuys,CA
(Name and Address of N Certificate Holder)
2. Manufactured for Ducuesne Light Company, P.O. Box 2325, Boston, Mass. 02107
(Name and Address of Purchaser or Owner)
3. Location of Installation Beaver Valley Power Station, Shippingport, Beaver County, PA
(Name and Address)
4. Pump or Valve Feedwater Isolation Nominal Inlet Size 16x10x16 (inch) Outlet Size 16x10x16 (inch)

	(a) Model No., Series No. or Type	(b) N Certificate Holder's Serial No.	(c) Canadian Registration No.	(d) Drawing No.	(e) Class	(f) Nat'l. Bd. No.	(g) Year Built
(1)	900##	63080	N/A	435XAB5-001	2	N/A	1981
(2)							
(3)							
(4)							
(5)							
(6)							
(7)							
(8)							
(9)							
(10)							

5. The valves are designed to handle a fluid media which includes steam, water condensate, borated water, etc., associated with a PWR and BWR. The temperature pressure rating of the media is stated below.
(Brief description of service for which equipment was designed)

6. Design Conditions 2220 (Pressure) / 1600 psi 100 (Temperature) / 500 °F or Valve Pressure Class N/A (1)
7. Cold Working Pressure 2220 psi at 100°F
8. Pressure Retaining Pieces

Mark No.	Material Spec. No.	Manufacturer	Remarks
(a) Castings			
Gate-Code 3E64	SA 351 CF8M	Pacific Metals	
		DUQUESNE LIGHT COMPANY BEAVER VALLEY POWER STATION UNIT 2 P.O. 2BV-92 S.O. No. FEEDWATER ISOLATION TRIP VALVE NVD OF BORG WARNER,7500 TYRONE AVE VAN NUYS, CA 91409	
(b) Forgings			
Body-Code 3L42	SA 105	Jorgensen Steel	
Bonnet-Code 3M92	SA 105	Compton Forge	
Neck-Code 3W94	SA 105	Compton Forge	
Retainer-Code 2X78	SA 105	Jorgensen Steel	

(1) For manually operated valves only.

* Supplemental sheets in form of lists, sketches or drawings may be used provided (1) size is 8-1/2" x 11", (2) information in items 1, 2 and 5 on this Data Report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded at top of this form.

This form (S00037) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

EARLE M. JORGENSEN CO.
STEEL

FORGE DIVISION

8531 E. MARGINAL WAY SOUTH • PHONE 762-1100 (AREA 206)
MAILING ADDRESS: P. O. BOX 24026
SEATTLE, WASHINGTON 98124

CERTIFIED MATERIAL TEST REPORT

CUSTOMER:

NUCLEAR VALVE DIVISION
BORG WARNER CORP
P O BOX 2185
VAN NUYS, CALIF 91405

Date 6-24-78
Customer's Order No. 84234
Our Invoice No. 2398 FS
Contract No.

HEAT NO.	MATERIAL	DESCRIPTION	SPECS.
21155	SA105	8 ROUGH TURNED ROUNDS 22-1/2" DIA +1/4 -0 X 32" +1/2 -0 LG "ALL REQUIREMENTS OF SA105 HAVE BEEN MET"	ASME SA105

CHEMICAL ANALYSIS

HEAT NO.	MATERIAL	C	MN	P	S	SI	NI	CR	MO	V	CU	SN			G/S
21155	SA105	.23	1.00	.014	.018	.29									

HARDENABILITY – ROCKWELL

HEAT NO.	MATERIAL	1	2	3	4	5	6	8	10

N

HEAT NO. 21155
N CODE NO. 3442
S/O
P.O. 84234
QTY. 8
INSP DATE 8/8/78
VENDOR JORGENSEN STEEL

.2% OFFSET MECHANICAL PROPERTIES

TEST NO.	HEAT NO.	MATERIAL	YIELD KSI/PSI IN.	TENSILE KSI/PSI IN.	ELONG. % IN.	RED. OF AREA %	FRACTURE	BEND	MACRO	IMPACT
LMR	21155	SA105	53,000	73,000	35.5	62.3	CUP			

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 23V-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

REMARKS:
"THIS IS TO CERTIFY THAT THE MATERIAL SUPPLIED ON THIS ORDER WAS MADE BY THE BASIC ELECTRIC FURNACE, DOUBLE SLAG METHOD AND IS FREE FROM MERCURY AND/OR ALPHA SOURCE CONTAMINATION".

NORMALIZE 1650°F 24 HRS

INSPECTOR

REVIEWED BY AUTHORIZED INSPECTOR

DATE 8/21/78

SWORN TO BEFORE ME

THIS _____ DAY OF _____ 19____

_____
NOTARY PUBLIC—SEATTLE

WE CERTIFY THAT THE MATERIAL COVERED BY THIS REPORT HAS BEEN INSPECTED & TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS DESCRIBED HEREIN. AND TEST REPORTS ARE ON FILE SUBJECT TO EXAMINATION.

EARLE M. JORGENSEN CO.

BY R L Kinsman

FORM 31 FS-1 F&H 10M 10-77

EARLE M. JORGENSEN CO.
STEEL
FORGE DIVISION

SEATTLE, WASHINGTON 98124

PHONE (206) 762-3000
TELEX 3-0290

October 21, 1981

6531 EAST MARGINAL WAY SOUTH
MAILING ADDRESS: BOX 84099

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

Mr Warren Wheaton
Nuclear Value Division
Borg-Warner Corporation
P.O. Box 2185
Van Nuys, California 91405

Dear Mr Wheaton:

The material furnished to NVD on the following orders were produced in accordance with ASME SA 105, ASME Boiler and Pressure Vessel Code Section III Division 1 Class 1.

NVD P.O.	EMJ ORDER	HEAT NUMBER
11316	9111 FS	20403
84008	7534 FS	18245
84234	2398 FS	21155 ✓

Should you require any additional information please call or write.

Sincerely

David E. Weather/ap.

Manager Quality Assurance

DEWERSTLER:pc

RECEIVED
. . . . 1981.
ENGINEERING

HEAT NO. 21155
N CODE NO. 3L42
S/O
P.O. 84234
QTY. 8
INSP DATE 10/27/81
VENDOR JORGENSEN

REVIEWED BY AUTHORIZED INSPECTOR

DATE 10/28/81

METALS TECHNOLOGY, INC.

METALLURGICAL ENGINEERING CONSULTING & SERVICE
ENGINEERING REPRESENTATIVES
8955 QUARTZ AVENUE NORTHRIDGE, CALIF. 91324
PHONES: (213) 882-0414 (213) 873-7144

№ 1597

CERTIFIED TEST REPORT

DATE 2-16-82

CUSTOMER: NUCLEAR VALVE DIVISION

YOUR P.O.: 68576-1

JOB NO.: Shipper #50698

MATERIAL: C/S

HEAT NO.: 21155
N-Code: 3142

PART NO.:

S/N: See Below

SPECIFICATION: NPS 71864
NB2332A-1
~~ASME SA 105~~

TENSILE TEST

SPECIMEN NO.	SIZE (IN)	AREA (IN^2)	YIELD* LOAD (LBS)	YIELD* (KSI)	ULTIMATE LOAD (LBS)	ULTIMATE (KSI)	ELON. GATION** (%)	RED. AREA (%)	

HEAT NO. 21155
N CODE NO. 3142
S/N 50698
P.O. 68576-1
QTY. Test Pc
INSP DATE 2-16-82
VENDOR m.t.i. Test

Requirements:

*Yield at _____ % Offset
**In _____ Inch Gage Length
.005 in/in./min./S.R.

CHARPY IMPACT TEST

SAMPLE NO	TEST TEMP (°F)	ENERGY (FT-LBS)	% SHEAR	LAT. EXP. IN	REMARKS
#4	40°F	40	30%	.036	
#5	40°F	45	50%	.026	
#6	40°F	60	50%	.040	

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 23V-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

Requirements: .025 Min.

MEETS SPECIFICATION REQUIREMENTS

Respectfully Submitted

S.J. Block
Vice-President of Operations
Metals Technology, Inc.

COMPTON FORGE, INC.

REPORT OF CHEMICAL AND PHYSICAL TESTS

No. 8105

SOLD TO:	SHIPPED TO:
NUCLEAR VALVE DIVISION P.O. BOX 2185 VAN NUYS, CALIF. 91409	7500 TYRONE AVE. VAN NUYS, CALIF. 91409

CUST. ORDER NO.	SHIPPER NO.	SPECIFICATION NO.
84028	8105	NORMALIZED PER MIL-H 6875F AND ASME SA-105, MAG. INSP. PER ASME B&PV CD. SEC. III, SUBSEC. NB 2545 & NBS 5004 H.G.

ITEM NO.	DESCRIPTION			
1	8 PCS. P/N: T1207-000 C 1 TEST BAR	HEAT: 6025105	W/O: 1647-	

NUCLEAR CODE 3M92

REVIEWED BY AUTHORIZED INSPECTOR

DATE 12/4/78

NUCLEAR

SOURCE INSPECTED BY DIV 134 DATE NOV 1-8 1978

MAT'L ASME SA105 1029 SIZE 8. 8.25/10 RND MILL REPUBLIC

MECHANICAL PROPERTIES

HEAT NO.	YIELD POINT P.S.I.	TENSILE STRENGTH P.S.I.	% ELONG 2"	% RED. AREA	BRINELL	ROCK WEL
6025105	41,800 Dan	73,900 Dan	30.5 Dan	61.4 Dan		

N

HEAT NO. 6025105
N CODE NO. 3M92V
S/O
P.O. 84028
QTY. 8
INSP
DATE DEC 1 1978
VENDOR Compton Forge

COMPTON FORGE, INC. CERTIFIES THAT THE ABOVE FORGINGS WERE MANUFACTURED AND PROCESSED IN ACCORDANCE WITH AND MEET THE REQUIREMENTS OF: NMS 7047D NUCLEAR VALVE P.O. 84028

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

11-10-78
Date

CHEMICALS

HEAT NO.	% C	% MN	% P	% S	% SI	% NI	% CR	% CU	% AL	% MO	% TI	%	%
6025105	.28	.85	.006	.032	.22								

SUBSCRIBED AND SWORN TO BEFORE ME THIS 31 DAY OF OCTOBER 1978

BY

I CERTIFY THAT THESE ARE CORRECT COPIES OF REPORTS NOW ON FILE AT COMPTON FORGE, INC.

BY

QUALITY ANALYST

CERTIFICATION OF HEAT TREATMENT

HALL HEAT TREATING

DIVISION OF CERTIFIED ALLOY PRODUCTS, INC.
16623 ILLINOIS AVENUE • 531-7862
PARAMOUNT, CALIFORNIA 90723

NO. 65697

DATE 9-28-78

CUSTOMER'S ORDER NO. Nuc Valve PO#84028 / 1647-1

OUR SHIPPER NO. R/C 75833 / 21515 / HT# 6025105

CUSTOMER'S NAME Compton Forge Inc.

PART NAME Forgings Nuc Code #3M92

PART NO. P/N 71207-000 C

MATERIAL ASME SA-105 1029

NO. PCS. 9

YOUR SPECIFICATION Normalize per MIL-H 6875F & ASME SA-105

TENSILE P.S.I. _____ ROCKWELL _____ BRINELL record

OPERATION	TEMPERATURE	TIME AT TEMP	FURNACE COOL	AIR COOL	OIL COOL	WATER COOL
NORMALIZE Furnace# 13	1650	1 hr		X		
STRESS RELIEVE						
SUB-CRITICAL ANNEAL						
ANNEAL						
PRE HEAT						
QUENCH						
TEMPER						
HOMOGENIZE						
TRANSFORMATION						
SOLUTION ANNEAL						
AGE						
STRESS EQUALIZE						
SUB-ZERO						

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

QA SOURCE 134 INSPECTED BY [illegible] DATE NOV 4 [illegible]

Rejected Item

N

HEAT NO. 6025105
N CODE NO. 3M92
S/O
P.O. 84028
QTY. 8
INSP [illegible] DATE DEC 1 1978
VENDOR Compton Forge

CERTIFICATION

We certify that the above listed parts have been heat treated in accordance with Military Specification MIL-H 6875 and XX ASME SA-105

WE CERTIFY NO MERCURY CONTAMINATION

We further certify that the above statement is true and correct and that temperatures and test results were obtained with standard approved methods. Hardness certified on parts in present state of completion.

FINAL HARDNESS: ROCKWELL _____ BRINELL (BHN) 149 TENSILE _____ PERCENTAGE OF PARTS TESTED 100 %

Subscribed and sworn to before me this

_____ day of _____, 19__

_____ Notary Public
in and for the county of Los Angeles, State of California

My Commission Expires _____

HALL HEAT TREATING
Division of Certified Alloy Products, Inc.

D. Schmaltz
Q.C. AUTHORIZED SIGNATURE

ORIGINAL

DICKSON TESTING CO., INC.

11120 PALMER
SOUTH GATE, CALIF. 90280

PHONE (213) 773-5212

HEAT NO. 6025105
N CODE NO. 3M92
S/O
P.O. 84028
QTY. 8
INSP
DATE DEC 1 1978
VENDOR Compton Forge

TO: Compton Forge, Inc
P. O. Box 4819
1721 No. Alameda
Compton, California 90224

N

DATE	PURCHASE ORDER NO.	YOUR JOB NO.	MATERIAL
11/3/78	1647-1		1029 Carbon Steel

SPECIFICATION	DESCRIPTION
ASME-SA-105	71207-000 C P/N , Nuclear Code #3M92, Nuclear Valve P. O. #84028, H/N #6025105

CERTIFIED REPORT OF PHYSICAL TEST

NUCLEAR

Identification #	Stressed Dimension	Stressed Area	Yield Strength: Actual Load Lbs.	Yield Strength: Pounds Per sq. in.	Tensile Strength: Actual Load Lbs.	Tensile Strength: Pounds Per sq. in.	Elongation: in 2 in.	Elongation: Percent	Reduction of Area: Reduced Dimension	Reduction of Area: Percent	Code	Lab N.
TT												P126-21
Long.	.504	.1995	8340	41,800	14,750	73,900	.61	30.5	.313	61.4		
Charpy V-Notch Impact Strength at + 40°F.												
		Ft.-Lbs.			Lateral Expansion				% Shear Fracture			
1.		36				.035				40		
2.		44				.044				50		
3.		38				.036				50		
Note: While being tested at Dickson Testing Co., Inc. this material was not in contact with any Mercury or Halogen bearing materials.												
Min [illegible] Requirements				36,000		70,000		22		30		
Minimum Requirements		Charpy			20 Mils, Lateral Expansion							

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE.
VAN NUYS, CA 91409

Yield Strength Determined By:
0.2% Offset
Strain Pace .005 in/in/min to yield

Fracture Code:
(F) Indicates Flaw.
(G) Indicates Broke Outside Gage Marks.
(g) Indicates Broke thru Gage Mark or within specimen width of Gage Marks.
(*)

Remarks:
ITS SPECIFICATON REQUIREMENTS.

SOURCE INSPECTED
BY
DATE NOV 16 '78

DICKSON TESTING CO., INC.
James P. Scannell
Lab Superintendent
AUTHORIZED SIGNATURE

OK

PACIFIC METALS CO., LTD.

MESSRS Nuclear Valve Division
BORG - WARNER CORPORATION

HEAD OFFICE No1, 6. 1 Chome Otemachi Chiyoda ku Tokyo Japan.
NAOETSU WORKS Minato-Cho Joetsu Niigata Pref, Japan.

Date Apr. 22, 1970.

NAME OF ARTICLES Gate Valve Body

DRAWING No.

SPECIFICATION ASME SA351 Gr.CF8M

INSPECTION CERTIFICATE

Inspection No 70 - 86

Order No.

Heat Charge No	Quantity Number	Quantity weight in kgs	Tensile Test Yield Strength kg/mm² psi	Tensile Test Tensile Strength kg/mm² psi	Tensile Test Elongation %	Tensile Test Reduction %	Hardness Test HB	Bend Test	Impact Test Charpy kgm/cm² (Notch)	Chemical Compositions in % C	Si	Mn	P	S	Ni	Cr	Mo	Decision Ferrite content (%)
Standard			min. 30,000	min. 70,000	min. 30					max. 0.08	max. 1.20	max. 1.50	max. 0.040	max. 0.040	9.0 -12.0	18.0 -21.0	2.0 -3.0	8 -35
85042	(1)		42,810	76,090	52.0		153			0.063	0.87	1.34	0.037	0.007	9.72	19.71	2.22	16.0
85055	(2)		42,810	76,950	58.0		154			0.068	0.92	1.35	0.030	0.011	9.61	18.35	2.05	11.0

REVIEWED BY AUTHORIZED INSPECTOR
DATE 8-8-70

Remarks

	HT.No.	Part. No.	Article
(1)	028-76	76684	12"×300lb Gate Valve Body No.14
(2)	018-77	76684	12"×300lb Gate Valve Body No.15,16,17,18,19
(2)	018-77	72316-11	10"×1500lb Gate Casting No.1,2,3,4,5,6,7,8,9,10,11,12

gate

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE.
VAN NUYS, CA 91409

Surveyor

HEAT NO. 85055-1 thru 85055-12
N CODE NO. 3E57 thru 3E68
S/O
P.O. 14104
QTY. 12
INSP (NV 134) DATE JUN 8 1970
VENDOR Hasegawa Chiang

PACIFIC METALS CO., LTD. NAOETSU WORKS.

K. Nishiyama

Chief of Inspection Section

COMPTON FORGE, INC.

No. W/O 4652

REPORT OF CHEMICAL AND PHYSICAL TESTS

SOLD TO: NUCLEAR VALVE DIVISION
P.O. BOX 2195
VAN NUYS, CALIF. 91409

SHIPPED TO:
7500 TYRONE AVE.
VAN NUYS, CALIF. 91409

CUST. ORDER NO.	SHIPPER NO.	SPECIFICATION NO.
84850	W/O 4652	ASME SA 105 1029 CARBON NORMALIZE, CLEAN, PENETRANT INSPECT, MAG. INSPECT, MACHINE

ITEM NO.	DESCRIPTION
1	3 PCS. SIZE: 20" OD X 10" ID X 11.635" LG. HEAT NO.: 0151

NECK

NUCLEAR

MAT'L ASME SA 105 1029 SIZE 13.5" RND MILL

MECHANICAL PROPERTIES from Dickson Testing Co.

HEAT NO.	YIELD POINT P.S.I.	TENSILE STRENGTH P.S.I.	% ELONG 2"	% RED. AREA	BRINELL	ROCK-WELL	BEND TEST	MACRO	CHARPY-MENT	IZOD IMPACT	GRAIN SIZE
0151	37,100	70,400	29	47.8							

COMPTON FORGE, INC. CERTIFIES THAT THE ABOVE FORGINGS WERE MANUFACTURED AND PROCESSED IN ACCORDANCE WITH AND MEET THE REQUIREMENTS OF: NUCLEAR VALVE P/O: 84850 N. CODE: 3W94, NMS 1078 AND ASME SECTION III (NA 3700)

REVIEWED BY AUTHORIZED INSPECTOR

Dave Mather — DAVE MATHER — 6-4-79 Date

DATE

CHEMICALS

HEAT NO.	% C	% MN	% P	% S	% SI	% NI	% CR
0151	.25	.65	.030	.029	.17		

N

HEAT NO. 0151
N CODE NO. 3W94
S/O
P.O. 84950
QTY. 3.0
INSP DATE NOV 14 1979
VENDOR Compton Forge

SUBSCRIBED AND SWORN TO BEFORE ME THIS 1 DAY OF JUNE 19 79

I CERTIFY THAT THESE ARE CORRECT COPIES OF REPORTS NOW ON FILE AT COMPTON FORGE, INC.

BY _____ QUALITY ANALYST

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

HALL HEAT TREATING

DIVISION OF CERTIFIED ALLOY PRODUCTS, INC.
16623 ILLINOIS AVENUE • 531-7882
PARAMOUNT, CALIFORNIA 90723

NO. _____
DATE 4-30-79
CUSTOMER P.O. NO. 4652 0143
CUSTOMER P.O. NO. (Nuclear) #84350
R/C NO. 80579
SHIPPER 25780
P/N _____
NO. PCS. 3 & 1 test
HT#0151

CUSTOMER'S NAME Compton Forge Inc.
PART NAME Rings 20 1/2" OD x 9 1/2" ID
test-1" x 1" x 12" Nuclear Code#3W94
MATERIAL ASME SA-105
YOUR SPECIFICATION Normalize per ASME SA-105 & MIL-H 6875F
TENSILE P.S.I. _____ ROCKWELL _____ BRINELL record

OPERATION	FURN. NO.	TEMPERATURE	TIME AT TEMP.	FURANCE COOL	AIR COOL	OIL COOL	WATER COOL
STRESS RELIEVE		DUQUESNE LIGHT COMPANY BEAVER VALLEY POWER STATION UNIT 2 P.O. 2BV-92 J.O. No. 12241 FEEDWATER ISOLATION TRIP VALVE NVD OF BORG WARNER, 7500 TYRONE AVE VAN NUYS, CA 91409					
ANNEAL							
SUB CRIT-ANNEAL							
PRE-HEAT	—						
NORMALIZE	18	1650	1 hr		X		
QUENCH							
TEMPER							
HOMOGENIZE							
SOLUTION ANNEAL							
STABILIZE							
AGE							
SUB-ZERO							

NUCLEAR

N

HEAT NO. 0151
N CODE NO. 3W94
S/O
P.C. 84350
QTY. 3 J
INSP (QA) DATE NOV 1 ....
VENDOR

REVIEWED BY
AUTHORIZED INSPECTOR
DATE

CERTIFICATION

We certify that the above listed parts have been heat treated in accordance with ASME SA-105 & MIL-H 6875F.

We further certify that the above statement is true and correct and that temperatures and test results were obtained with standard approved methods. Hardness certified on parts in present state of completion.

FINAL HARDNESS
ROCKWELL _____
BRINELL 137
NUMBER TESTED 1 pc

HALL HEAT TREATING
Division of Certified Alloy Products, Inc.

D. Schmalried
Q.A./Q.C. AUTHORIZED SIGNATURE

DUPLICATE

METALS TECHNOLOGY, INC.

METALLURGICAL ENGINEERING CONSULTING & SERVICE
ENGINEERING REPRESENTATIVES
8955 QUARTZ AVENUE NORTHRIDGE, CALIF. 91324
PHONES: (213) 882-0414 (213) 873-7144

NO. 1598

CERTIFIED TEST REPORT

DATE: 2-16-82

CUSTOMER: NUCLEAR VALVE DIVISION

YOUR P.O.: 68576-1

JOB NO.: Shipper #50698

MATERIAL: C/S

HEAT NO.: 0151
N-Code: 3W94

PART NO.:

S/N: See Below

SPECIFICATION: NPS 71864
NB2332A-1
ASME-SA-105

TENSILE TEST

SPECIMEN NO.	SIZE (IN)	AREA (IN^2)	YIELD* LOAD (LBS)	YIELD* (KSI)	ULTIMATE LOAD (LBS)	ULTIMATE (KSI)	ELON-GATION** (%)	RED. AREA (%)

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

N

HEAT NO. 0151
N CODE NO. 3W94
S/N 50698
P.O. 68576-1
QTY. Test Ring
INSP DATE 2-16-82
VENDOR m.t.i.

Requirements:

*Yield at _____ % Offset
**In _____ Inch Gage Length
.005 in/in./min./S.R.

CHARPY IMPACT TEST

SAMPLE NO	TEST TEMP (°F)	ENERGY (FT-LBS)	% SHEAR	LAT-EXP (IN)	REMARKS
#1	40°F	54	60%	.031	
#2	40°F	48	40%	.039	
#3	40°F	80	75%	.087	

Requirements: .025 Min.

MEETS SPECIFICATION REQUIREMENTS

Respectfully Submitted

S.J. Block
Vice-President of Operations
Metals Technology, Inc.

EARLE M. JORGENSEN CO.

STEEL

FORGE DIVISION

8531 E. MARGINAL WAY SOUTH • PHONE 762-1100 (AREA 206)
MAILING ADDRESS: P. O. BOX 24025
SEATTLE, WASHINGTON 98124

CERTIFIED MATERIAL TEST REPORT

CUSTOMER

NUCLEAR VALVE DIVISION
BORG WARNER CORP
P O BOX 2185
VAN NUYS, CALIF 91409

RECEIVED
1978

Date 4-17-78
Customer's Order No. 84016
Our Invoice No. 7518 FS
Contract No.

HEAT NO.	MATERIAL	DESCRIPTION	SPECS.
21048	SA105	2 ROUGH TURNED ROUNDS 13" DIA +1/8 -0 X 12 FT R/L 1 TEST REM N# 2X78 / RETAINER	ASME SA105

CHEMICAL ANALYSIS

HEAT NO.	MATERIAL	C	MN	P	S	SI	NI	CR	MO	V	CU	SN			G/S
21048	SA105	.26	1.00	.023	.019	.26									

HEAT NO. 21048 /
N CODE NO. 2X78 /
S/O
P.O. 84016
QTY. 25.4
INSP (BV 12) DATE 6/16/78
VENDOR JORGENSEN STEEL

HARDENABILITY – ROCKWELL

HEAT NO.	MATERIAL	1	2	3	4	5	6	8	12

MECHANICAL PROPERTIES

TEST NO.	HEAT NO.	MATERIAL	YIELD LBS./SQ. IN.	TENSILE LBS./SQ. IN.	ELONG. % IN.	RED. OF AREA %	FRACTURE	BEND	MACRO	IMPACT
LMR	21048	SA105	60,000 ✓	80,000 ✓	30.0 ✓	51.1 ✓	CUP			

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 23V-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

REMARKS: NORMALIZE 1700°F ✓ 32 HRS (AIR COOLED)

INSPECTOR

REVIEWED BY
AUTHORIZED INSPECTOR
DATE 6/19/78

WE CERTIFY THAT THE MATERIAL COVERED BY THIS REPORT HAS BEEN INSPECTED & TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS DESCRIBED HEREIN, AND TEST REPORTS ARE ON FILE SUBJECT TO EXAMINATION.

EARLE M. JORGENSEN CO.
BY

SUBSCRIBED AND SWORN TO BEFORE ME
THIS _____ DAY OF _____ 19____
NOTARY PUBLIC—SEATTLE

FORM 91 FS-1 F&H 10M 10-77

EARLE M. JORGENSEN CO.

STEEL

FORGE DIVISION

8531 E. MARGINAL WAY SOUTH • PHONE 762-1100 (AREA 206)
MAILING ADDRESS: P. O. BOX 24025
SEATTLE, WASHINGTON 98124

CERTIFIED MATERIAL TEST REPORT

CR

CUSTOMER

NUCLEAR VALVE DIVISION
BORG WARNER CORP
P O BOX 2185
VAN NUYS, CALIF 91405

RECEIVED
MAY 1978

Date 4-17-78
Customer's Order No. 84016
Our Invoice No. 7520 FS
Contract No.

HEAT NO.	MATERIAL	DESCRIPTION	SPECS.
21048	SA105	2 ROUGH TURNED ROUNDS 13" DIA +1/8 -0 X 12 FT R/L № 2X78	ASME SA105

CHEMICAL ANALYSIS

HEAT NO.	MATERIAL	C	MN	P	S	SI	NI	CR	MO	V	CU	SN			G/S
21048	SA105	.26	1.00	.023	.019	.26									

N

HEAT NO. 21048
N CODE NO. 2378
S/O
P.O. 84016
QTY. 25 FT.
INSP BV 122 DATE 6/16/78
VENDOR JORGENSEN STEEL

HARDENABILITY – ROCKWELL "

HEAT NO.	MATERIAL	1	2	3	4	5	6	8	10

MECHANICAL PROPERTIES

TEST NO.	HEAT NO.	MATERIAL	YIELD LBS./SQ. IN.	TENSILE LBS./SQ. IN.	%ELONG. IN. 2"	RED. OF AREA %	FRACTURE	BEND	MACRO	IMPACT
LMR	21048	SA105	60,000	80,000	30.0	51.1	CUP			

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 23V-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

REMARKS:

NORMALIZE 1700°F 32 HRS (AIR COOLED)

INSPECTOR

REVIEWED BY AUTHORIZED INSPECTOR

DATE 6/19/78

WE CERTIFY THAT THE MATERIAL COVERED BY THIS REPORT HAS BEEN INSPECTED & TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS DESCRIBED HEREIN. AND TEST REPORTS ARE ON FILE SUBJECT TO EXAMINATION.

EARLE M. JORGENSEN CO.

BY

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____ 19____

NOTARY PUBLIC—SEATTLE

FORM 91 FS-1 FQH 10M 10-77

EARLE M. JORGENSEN CO.

STEEL

FORGE DIVISION

8531 E. MARGINAL WAY SOUTH • PHONE 762-1100 (AREA 206)
MAILING ADDRESS: P. O. BOX 24026
SEATTLE, WASHINGTON 98124

CERTIFIED MATERIAL TEST REPORT

CUSTOMER

NUCLEAR VALVE DIVISION
BORG WARNER CORP
P O BOX 2185
VAN NUYS, CALIF 91409

NVD-QA

Date 4-17-78
Customer's Order No. 84016
Our Invoice No. 7519 FS
Contract No.

HEAT NO.	MATERIAL	DESCRIPTION	SPECS.
21048	SA105	2 ROUGH TURNED ROUNDS 13" DIA +1/8 -0 X12FT R/L N# 2X78	ASME SA105

CHEMICAL ANALYSIS

HEAT NO.	MATERIAL	C	MN	P	S	SI	NI	CR	MO	V	CU	SN			G/S
21048	SA105	.26	1.00	.023	.019	.26									

N

HEAT NO. 21048
N CODE NO. 2X78
S/O
P.O. 84016
QTY. 24.5 FT.
INSP BV 122 DATE 6/16/79
VENDOR JORGENSEN

HARDENABILITY – ROCKWELL

HEAT NO.	MATERIAL	1	2	3	4	5	6	8	10

MECHANICAL PROPERTIES

TEST NO.	HEAT NO.	MATERIAL	YIELD KSI/SQ. IN.	TENSILE KSI/SQ. IN.	ELONG. %	RED. OF AREA %	FRACTURE	BEND	MACRO	IMPACT
LMR	21048	SA105	60,000	80,000	30.0	51.1	CUP			

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE.
VAN NUYS, CA 91409

REMARKS:

NORMALIZE 1700°F 32 HRS (AIR COOLED)

INSPECTOR

AUTHORIZED INSPECTOR

DATE 6/19/79

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____ 19____

NOTARY PUBLIC—SEATTLE

WE CERTIFY THAT THE MATERIAL COVERED BY THIS REPORT HAS BEEN INSPECTED & TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS DESCRIBED HEREIN AND TEST REPORTS ARE ON FILE SUBJECT TO EXAMINATION.

EARLE M. JORGENSEN CO.

BY _____

FORM 31 FS/FSH (DM 10-77

METALS TECHNOLOGY, INC.

METALLURGICAL ENGINEERING CONSULTING & SERVICE
ENGINEERING REPRESENTATIVES
8961 QUARTZ AVENUE NORTHRIDGE, CALIF. 91324
PHONES: (213) 882-0414 (213) 875-7144

No. 45774

CERTIFIED TEST REPORT

DATE: 2-28-79

CUSTOMER: NUCLEAR VALVE DIVISION

YOUR P.O.: 68576-1

JOB NO.: Shipper #26154

MATERIAL:

HEAT NO.: 21048
N-Code 2X78

PART NO.:

S/N:

SPECIFICATION: ASME-SA-105
NPS 71864

☐ Metallography ☐ Hardness ☐ Chemistry ☐ _____

CHARPY IMPACT TESTS

Sample No.	Test Temp.	Ft.-Lbs.	% Shear	Lat.-Exp.
1	+40°	27	80	.028
2	+40°	24	80	.027
3	+40°	27	80	.025

Requirements: .020 Lat.-Exp. Min.

MEETS SPECIFICATION REQUIREMENTS

HEAT NO. 21048
N CODE NO. 2X78
S/O
P.C. 68576-1
QTY. TEST PC.
INSP [illegible] DATE 3-13-79
VENDOR M.T.I.

REVIEWED BY AUTHORIZED INSPECTOR

DATE 2/[illegible]

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7300 TYRONE AVE.
VAN NUYS, CA 91409

Respectfully Submitted,

S. J. Block
Vice-Pres. of Operations
Metals Technology, Inc.

EARLE M. JORGENSEN CO.

STEEL

FORGE DIVISION

8531 E. MARGINAL WAY SOUTH • PHONE 762-1100 (AREA 206)
MAILING ADDRESS: P. O. BOX 24025
SEATTLE, WASHINGTON 98124

CERTIFIED MATERIAL TEST REPORT

CUSTOMER

NUCLEAR VALVE DIVISION
BORG WARNER CORP
P O BOX 2185
VAN NUYS, CALIF 91409

Date 4-17-78
Customer's Order No. 84010
Our Invoice No. 7510 FS
Contract No.

HEAT NO.	MATERIAL	DESCRIPTION	SPEC.
21029	SA105	1 ROUGH TURNED ROUND 13" DIA +1/8 -0 X 8 FT R/L 1 TEST REM N# 2W21 RETAINER	ASME SA105 HEAT TREATED

CHEMICAL ANALYSIS

HEAT NO.	MATERIAL	C	MN	P	S	SI	NI	CR	MO	V	CU	SN		G/S
21029	SA105	.26	.87	.009	.013	.25								

HEAT NO. 21029
N CODE NO. 2W21
S/O
P.O. 84010
QTY. 8.4 FT.
INSP (NV 12) DATE 6/16/78
VENDOR JORGENSEN STEEL

HARDENABILITY - ROCKWELL "

HEAT NO.	MATERIAL	1	2	3	4	5	6	9	10

MECHANICAL PROPERTIES

CHARPY V @ -40°F

TEST NO.	HEAT NO.	MATERIAL	YIELD 0.2% PSI/MM IN.	TENSILE PSI/MM IN.	ELONG. % IN	RED OF AREA %	FRACTURE	BEND	MACRO	IMPACT
LMR	21029	SA105	58,500	79,500	32.0	68.6	CUP			28-28-24 ft-lb 29-28-26 25-25-20

LAT EXP IN MILS.....
%SHEAR FRACTURE.....

DUQUESNE LIGHT COMPANY
BEAVER VALLEY POWER STATION UNIT 2
P.O. 2BV-92 J.O. No. 12241
FEEDWATER ISOLATION TRIP VALVE
NVD OF BORG WARNER, 7500 TYRONE AVE
VAN NUYS, CA 91409

REMARKS: NORMALIZED 1700°F 16 HRS (AIR COOLED)

INSPECTOR REVIEWED BY AUTHORIZED INSPECTOR

DATE 6/19/78

RECEIVED
MAY 03 1978
ACCOUNTS PAYABLE

SCRIBED AND SWORN TO BEFORE ME

_____ DAY OF _____ 19____

NOTARY PUBLIC—SEATTLE

WE CERTIFY THAT THE MATERIAL COVERED BY THIS REPORT HAS BEEN INSPECTED & TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS DESCRIBED HEREIN. AND TEST REPORTS ARE ON FILE SUBJECT TO EXAMINATION.

EARLE M. JORGENSEN CO.

BY R L Kenwin

FORM 81 FS-1 FSH 10M 10-77