
RE: Murphy replacement coils

From : Phil Dade <pjdade@shaw.ca>
Subject : RE: Murphy replacement coils
To : 'Doug Fenger' <doug.fenger@nwp.ca>

Tue,

Blue Diamond Design Ltd.

1977 Valley View Place
Victoria, BC V9B 6H8
Phone: (250) 391-4612
eMail: dade@shaw.ca

11-07-19

Re: Authorization to use 3" Heater Coil design BDD-300

This letter will authorize the manufacturer to use the attached Blue Diamond Design Ltd. CRN drawing(s) to fabricate heater coils with the following serial num

NWP-08118-001 to NWP-08118-005

The stamped CRN drawing is: BDD-300 Rev 10 CRN: P9407.213
The latest revision to that drawing is: BDD-300 Rev 12

Please let me know if any additional coils will be built and I will issue another 'Letter of Authorization' to cover them.

Sincerely,



Blue Diamond Design Ltd.
per: PJ Dade

-----Original Message-----

From: Doug Fenger [mailto:doug.fenger@nwp.ca]
Sent: July 19, 2011 9:48 AM
To: Phil Dade
Cc: kerry.brown@nwp.ca
Subject: Murphy replacement coils

Phil:

We would like to build 5 coils on WO# 08118-001 to 08118-005 using BDD-300A CRN P9403.213 and BDD-300 CRN P9407.213 SN# of coils will be NWP-08118-005 could you please send documents giving us permission to build, if you have any questions please call Doug @ 403-227-4100. Thanks Doug.



image001.png
2 KB

 **Bdd-300 Rev 12.pdf**
143 KB

 **Bdd-300 CRNs-r1.pdf**
3 MB

From : Phil Dade <pjdade@shaw.ca>
Subject : RE: Murphy replacement coils
To : 'Doug Fenger' <doug.fenger@nwp.ca>

Tue,

Blue Diamond Design Ltd.

1977 Valley View Place
Victoria, BC V9B 6H8

11-07-18



Alberta Boilers Safety Association

#200, 4208 - 97 Street

Edmonton, Alberta, Canada T6E 5Z9

Tel: (780) 437-9100 / Fax: (780) 437-7787

June 17, 2002

Phil Dade
BLUE DIAMOND DESIGN LTD
1977 VALLEY VIEW PLACE
VICTORIA, BC V9B 6H8

Dear Phil Dade,

The drawings, specifications and/or information received on April 24, 2002 are accepted for registration as follows:

CRN :	P9407.2	Drawing No. :	BDD-300 Rev 10 As Noted
Fee :	\$ 284.00		
Add. Prints:	\$ 0	Accepted on :	June 13, 2002
Reg Type :	New Design	Track No. :	2002-02685
Description	Design Pressure	Design Temperature	MDMT
Design Pressure: See Chart	kPa	93°C	-29°C

The registration is conditional on your compliance with the following notes:

Please note that we have accepted the design with the following correction per your email of 13 June '02:

-Revised Note 3 to read, "...WPS qualified to 0.437" thk."

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

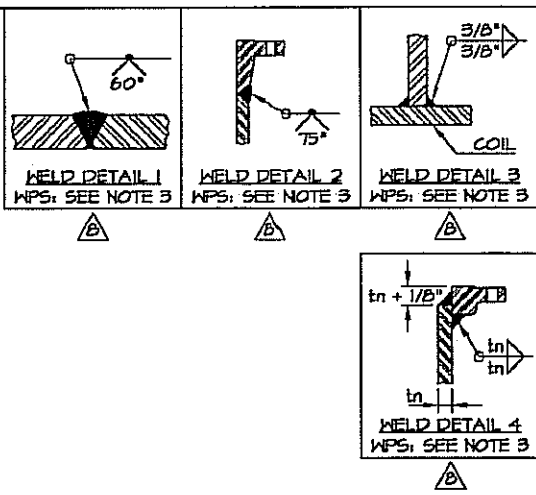
Enclosed are stamped prints for your reference.

Sincerely,

B.C. DESAI, P. Eng.
Design Survey Engineer

PRESSURE (PSIG) Δ

SE	900# FLANGE			1500# FLANGE			2500# FLANGE		
ANCE	CORROSION ALLOWANCE			CORROSION ALLOWANCE			CORROSION ALLOWANCE		
1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"
12	13	14	15	16	17	18	19	20	21
742	2025	1488	742	2257	1488	742	2257	1488	742
1113	3038	2232	1113	3386	2232	1113	3386	2232	1113
350	2025	2025	1622	3191	2345	1622	3191	2345	1622
2025	3038	3038	2433	4187	3543	2433	4787	3543	2433
350	2025	2025	2025	3375	3375	3125	4788	3944	3125
2025	3038	3038	3038	5063	5063	4688	7182	5916	4688



GENERAL NOTES

QUALITY CONTROL PROGRAM NO. REGISTERED WITH ABSA
WELDING PROCEDURE REGISTRATION NO. REGISTERED WITH ABSA
WELDING PROCEDURE SPECIFICATION NUMBER: QUALIFIED TO 0.437" AND -20° F
HEATING SURFACE AREA: 366.4 FT² MAXIMUM
SERVICE: NORMAL FLUID AND CATEGORY M
CAPACITY: PER APPLICATION
SURFACE PREPARATION: HAND TOOL CLEAN
PRIME AND PAINT: PER CLIENT SPECIFICATIONS
ALL BOLT HOLES TO STRADDLE CENTERLINES.
COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.

THIS CHART IS APPLICABLE FOR THE FOLLOWING MATERIALS:
PIPE (SEAMLESS): SA-53-B, SA-106-B, SA-333-GR 6
FLANGES (ANSI): SA-105, SA-105N, SA-350-LF2
FITTINGS: SA-234-WPB, SA-420-WPL6

LONG OR SHORT RADIUS FITTINGS (90° ELBOWS, 180° BENDS) MAY BE USED, PROVIDED THE SHORT RADIUS WERE MANUFACTURED TO THE 1944 EDITION OF ASME B16.28 PER TABLE 326.1 NOTE 5. ALL FITTINGS AND FLANGES TO BE SAME SCHEDULE AS THE PIPE.

THIS CHART IS BASED ON THE FOLLOWING EQUATION (304.1.2):
 $P = \frac{2SE}{D - 0.8t}$ WHERE S = ALLOWABLE STRESS, PSI (APPENDIX A, TABLE A-1)
E = 1.0 (TABLE 302.3.4)
t = PIPE WALL THICKNESS, INCHES
D = PIPE OUTSIDE DIAMETER, INCHES

RFWN FLANGES MAY BE INTERCHANGED WITH RFSO FLANGES FOR 150#, 300# AND 600# RATINGS ONLY (SEE WELD DETAIL 4).

POST WELD HEAT TREATMENT MAY BE ADDED PROVIDED A PWHT WELDING PROCEDURE IS USED AND RFSO FLANGES ARE NOT USED.
PWHT: 1150° F ±50° F FOR 1 HOUR MINIMUM (TABLE 331.1.1)

ALBERTA BOILERS SAFETY ASSOCIATION

PROVINCE OF ALBERTA
SAFETY ACT
P-9407.2

REG. No. *P-9407.2*
DWG. No. *BDD-300, Rev. 10 (As Noted)*

Design Press. kPa: *See Chart*
Design Temp. °C: *29/93*

ACCEPTED
JUN 13 2002
Yr. Mo. Day Signed *Desai B.C.*
B.C. Desai, P. Eng.
Design Survey Engineer

CANADIAN REGISTRATION NUMBER			
10	02-05-23	REVISE NOTES 4 & 12, LIMIT LENGTH AND SPECIFY PASSES	P.J.D.
9	02-05-16	REVISE NOTES 13, 14 & 15, ADD HYDROTEST	P.J.D.
8	02-04-23	DELETE 3" SCH 40X OPTION, REVISE NOTES 3, 5, 12 & 16	P.J.D.
7	00-11-21	UPDATED TO 2000 ADDENDA	P.J.D.
6	00-01-01	UPDATED TO 1999 CODE	P.J.D.
5	99-01-01	UPDATED TO 1998 CODE ADDENDA	P.J.D.
4	98-07-01	UPDATED TO 1997 CODE ADDENDA	P.J.D.
3	97-07-01	RE-FORMAT, UPDATED TO 1996 CODE	P.J.D.
2	95-06-15	ADD OPTION COLUMN AND ROW	P.J.D.
1	94-06-02	REVISED WELD DETAIL 1 AND 4	LAD
0	93-10-20	ISSUED FOR REGISTRATION	DDA
NO.	DATE	REVISION	BY APP
BLUE DIAMOND DESIGN LTD.			
1171 VALLEY VIEW PLACE VICTORIA, BC V8B 6H8 TELEPHONE: (250) 391-4612 FAX: (250) 391-4613			
DRAWN BY: DDA	DATE: 93-10-20	BDD NO. BDD-300	
CHECKED BY: P.J.D.	SCALE: NTS	CUST. NO.	
CLIENT: 3" HEATER COIL			
DESIGN DATA AND MAMP CHART Δ			
DWG. NO. BDD-300			REV. 10

DESIGN DATA Δ	
DESIGN & FABRICATE TO:	ASME B31.3, 1999 EDITION, 2001 ADDENDA
DESIGN PRESSURE:	SEE CHART
MAXIMUM DESIGN METAL TEMPERATURE:	200° F
MINIMUM DESIGN METAL TEMPERATURE:	-20° F
IMPACT TESTS:	EXEMPT PER TABLE 323.2.2 - COLUMN A
RADIOGRAPHY:	RANDOM (M34.1b) 20% OF TOTAL WELDS
POST WELD HEAT TREATMENT:	SEE NOTE 15
HYDROSTATIC TEST PRESSURE:	SEE CHART
CORROSION ALLOWANCE:	SEE CHART
PREHEAT:	50° F



APPROVAL AND INVOICE

Thursday, July 04, 2002

Blue Diamond Design Ltd.
1977 Valley View Place
Victoria, B.C.
V9B 6H8

Our File 31361 [0 V]

ATTENTION : Phil Dade

FAXED
7/11/02

With reference to your submission respecting the registration of the item below, for legal use in the province, please note we have surveyed, approved and registered this design as noted.

MANUFACTURER :	Blue Diamond Design Ltd.	
ITEM :	DRAWING NUMBER :	CRN :
3" Heater Coil	BDD-300 Rev10	P9407.23
REGISTRATION FEE: \$190.00 (CANADIAN FUNDS ONLY)		

PLEASE SEND REMITTANCE WITH A COPY OF THIS INVOICE TO: MINISTER OF FINANCE. WE ACCEPT PAYMENT BY CHEQUE/MONEY ORDER OR BANK DRAFT.

We wish to point out that every vessel must be constructed strictly in accordance with the registered design.

In addition to stamping every vessel with the registration number given above and as required in CSA Code B51, a Manufacturer's Data Report must be forwarded to this office immediately at the time a vessel is shipped. Such forms may be obtained upon request.

Sincerely,

Mike Beriault

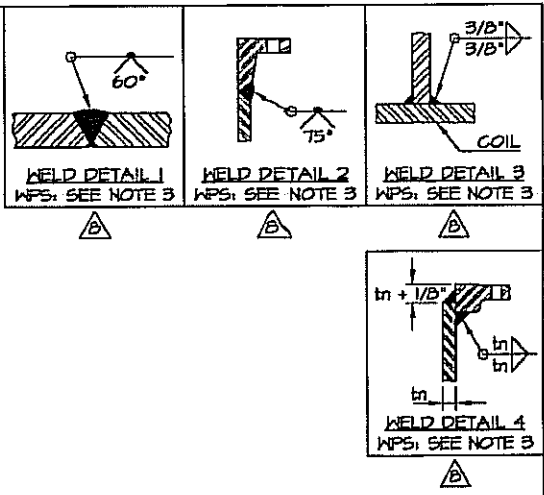
Codes and Standards Compliance

#327 Reg. of Design

REMARKS: CRN registered under reciprocal agreement.

PRESSURE (PSIG) A

GE	900# FLANGE			1500# FLANGE			2500# FLANGE		
ANCE	CORROSION ALLOWANCE			CORROSION ALLOWANCE			CORROSION ALLOWANCE		
1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"
12	13	14	15	16	17	18	19	20	21
742	2025	1488	742	2257	1488	742	2257	1488	742
1113	3038	2232	1113	3386	2232	1113	3386	2232	1113
1350	2025	2025	1622	3191	2395	1622	3191	2395	1622
2025	3038	3038	2433	4181	3543	2433	4181	3543	2433
1350	2025	2025	2025	3375	3375	3125	4788	3944	3125
2025	3038	3038	3038	5063	5063	4688	7182	5916	4688



GENERAL NOTES

- QUALITY CONTROL PROGRAM NO: REGISTERED WITH ABSA
- WELDING PROCEDURE REGISTRATION NO: REGISTERED WITH ABSA
- WELDING PROCEDURE SPECIFICATION NUMBER: QUALIFIED TO 0.436" AND -20" F
- HEATING SURFACE AREA: 366.4 FT2 MAXIMUM
- SERVICE: NORMAL FLUID AND CATEGORY M
- CAPACITY: PER APPLICATION
- SURFACE PREPARATION: HAND TOOL CLEAN
- PRIME AND PAINT: PER CLIENT SPECIFICATIONS
- ALL BOLT HOLES TO STRADDLE CENTERLINES.
- COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
- THIS CHART IS APPLICABLE FOR THE FOLLOWING MATERIALS:
PIPE (SEAMLESS): SA-53-B, SA-106-B, SA-333-GR 6
FLANGES (ANSI): SA-105, SA-105N, SA-350-LF2
FITTINGS: SA-234-WFB, SA-420-WPL6
- LONG OR SHORT RADIUS FITTINGS (90° ELBOWS, 180° BENDS) MAY BE USED, PROVIDED THE SHORT RADIUS WERE MANUFACTURED TO THE 1994 EDITION OF ASME B16.28 PER TABLE 326.1 NOTE 5. ALL FITTINGS AND FLANGES TO BE SAME SCHEDULE AS THE PIPE.
- THIS CHART IS BASED ON THE FOLLOWING EQUATION (304.1.2):
 $P = \frac{2SE}{D-O.D.}$ WHERE S = ALLOWABLE STRESS, PSI (APPENDIX A, TABLE A-1)
E = 1.0 (TABLE 302.3.4)
t = PIPE WALL THICKNESS, INCHES
D = PIPE OUTSIDE DIAMETER, INCHES
- RFWN FLANGES MAY BE INTERCHANGED WITH RFSO FLANGES FOR 150#, 300# AND 600# RATINGS ONLY (SEE WELD DETAIL 4).
- POST WELD HEAT TREATMENT MAY BE ADDED PROVIDED A PWHT WELDING PROCEDURE IS USED AND RFSO FLANGES ARE NOT USED.
PWHT: 1150° F 150° F FOR 1 HOUR MINIMUM (TABLE 331.1)

SASKATCHEWAN
Corrections and Public Safety
Boiler & P.V. Safety
Unit

CRN.....P9407-23
File.....31361.....

REGISTERED
Date.....July 4/02.....

Design Survey Office

CANADIAN REGISTRATION NUMBER			
10	02-05-23	REVISE NOTES 4 & 12, LIMIT LENGTH AND SPECIFY PASSES	P.J.D.
9	02-05-16	REVISE NOTES 13, 14 & 15, ADD HYDROTEST	P.J.D.
8	02-04-23	DELETE 3" SCH XXH OPTION, REVISE NOTES 3, 5, 12 & 16	P.J.D.
7	00-11-21	UPDATED TO 2000 ADDENDA	P.J.D.
6	00-01-01	UPDATED TO 1999 CODE	P.J.D.
5	99-01-01	UPDATED TO 1996 CODE ADDENDA	P.J.D.
4	98-07-01	UPDATED TO 1991 CODE ADDENDA	P.J.D.
3	97-07-01	RE-FORMAT, UPDATED TO 1996 CODE	P.J.D.
2	95-06-13	ADD OPTION COLUMN AND ROH	P.J.D.
1	94-06-02	REVISED WELD DETAIL 1 AND 4	LAD
0	93-10-20	ISSUED FOR REGISTRATION	DDA
NO.	DATE	REVISION	BY

BLUE DIAMOND DESIGN LTD.

1471 VALLEY VIEW PLACE
VICTORIA, BC V8B 6H8
TELEPHONE: (250) 391-4612 FAX: (250) 391-4613

DRAWN BY: DDA	DATE: 93-10-20	BDD NO.:
CHECKED BY: P.J.D.	SCALE: NTS	CUST. NO.:

CLIENT:

3" HEATER COIL

DESIGN DATA
AND MAP CHART A

DWS. NO. BDD-300

REV. 10



TO: BLUE DIAMOND DESIGN LTD

1977 VALLEY VIEW PL
VICTORIA BC
V9B 6H8

Registered: 2002/07/12
Journal #: 29127
Account #: 32255

Attn: PHIL DADE

Re: BLUE DIAMOND DESIGN LTD

DESIGN REGISTRATION

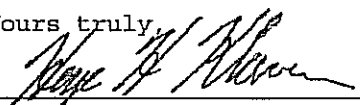
C.R.N. **P9407.21**

Drawings / Documents	Description			
3" HEATER COIL BDD-300 REV 10	MDMT	MAWT	MAWP	EXT PRESS
	-----	-----	-----	-----
	-20 F	200 F		
H.S.: 366.4 ft ² maximum				
REGISTERED	Shell:	3.5" O.D.		
	Length per Pass:	20'-0" maximum		
	No. of Passes:	20 maximum		
	Pressure Rating:	See Chart for MAWP		
	Code:	ASME B31.3, 1999 Edition, 2001 Addenda.		

Remarks: This design has been registered as noted above. An invoice for survey will follow in the amount of \$ 60.00

dc

Yours truly,


H. KLAVER
Design Surveyor

Date: 11-07-19
 Client: Blue Diamond Design Ltd.
 Drawing Number: BDD-300
 Description: 3" Heater Coil

Rev: 14

Design in accordance with ASME B31.3, 2010 Edition

Heater Coil Design Calculations

Calculation Revision No.	14	11-07-19	Updated to 2010 Code	PJD...
Calculation Revision No.	13	11-01-03	Updated to 2008 Code	PJD...
Calculation Revision No.	12	05-11-29	Updated to 2004 Code	PJD...
Calculation Revision No.	11	05-02-02	Updated to 2002 Code	PJD...
Calculation Revision No.	10	03-01-27	Issued For Registration	PJD...

Design Drawing No.	Drawing Rev No.	Design Calculation No.	Comments
BDD-300	10	14	Calculations created based on design information provided.

Engineering Manager: _____

Date: _____

Quality Control Manager: _____

Date: _____

Authorized Inspector: _____

Date: _____

Approved by Designer:  _____

Date: 11-07-19

Blue Diamond Design Ltd.

1977 Valley View Place

Victoria, BC V9B 6H8

Phone: (250) 391-4612

eMail: dade@shaw.ca

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

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		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

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		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
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		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
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		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

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		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

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		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

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		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

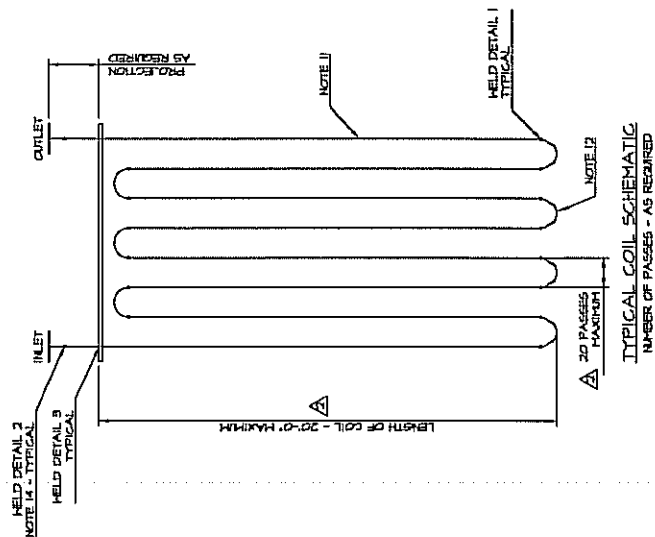
OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940	5940	1013	1013	1019	2025	2025	2025	2025	3036	3036	3036	5063	5063	5063	8436	8436

OPTION	3 1/2" OD PIPE	HEATER COIL DESIGN PRESSURE (PSIG) Δ																				PIPE SCHEDULE		OPTION
		BARE PIPE		CLASS 150 FLG		CLASS 300 FLG		CLASS 600 FLG		CLASS 900 FLG		CLASS 1500 FLG		CLASS 2500 FLG		CORROSION ALLOWANCE		CORROSION ALLOWANCE						
		O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"	O"	1/16"					
D	HYDROSTATIC TEST PRESSURE	XXH	6618	5910	5031	260	260	260	260	615	615	615	1350	1350	1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
		PS16	107271	8665	7541	5940	5940	5940																



GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. REGISTERED WITH ASMA
2. WELDING PROCEDURE REGISTRATION NO. REGISTERED WITH ASMA
3. WELDING PROCEDURE SPECIFICATION NUMBER, QUALIFIED TO 0.436" AND -30° F
4. HEATING SURFACE AREA 366.4 FT² MAXIMUM
5. WELDING PROCESS CATEGORY H
6. CAPACITY, PER APPLICATION
7. SURFACE PREPARATION, HAND TOOL CLEAN
8. PRIME AND PAINT, PER CLIENT SPECIFICATIONS
9. COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
10. COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
11. THIS CHART IS APPLICABLE FOR THE FOLLOWING MATERIALS:
PIPE (SEAMLESS 160SL01), SA-333-6H 6
FITTINGS (160SL01), SA-333-6H 6
FITTINGS (160SL01), SA-333-6H 6
12. LONG OR SHORT RADIUS FITTINGS (NOT ELBOWS, 180° BENDS) MAY BE USED, PROVIDED THE SHORT RADIUS FITTINGS ARE MANUFACTURED TO THE 1914 EDITION OF ASME B16.25 PER TABLE 3.4.61 NOTE 3. THE FITTINGS AND FLANGES TO BE SAFE SOLELY AS THE PIPE.
13. THIS CHART IS BASED ON THE FOLLOWING EQUATION (ASME 1.4.21):
$$P = \frac{2SE}{D} \quad \text{WHERE } S = \text{ALLOWABLE STRESS, PSI (ACCORDING A, TABLE A-1)}$$
$$E = 10 \text{ (TABLE 3.023.4)}$$
$$S = \text{SEAMLESS PIPE STRESS, PSI (ACCORDING A, TABLE A-1)}$$
$$D = \text{PIPE OUTSIDE DIAMETER, INCHES}$$

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED
DATE 11-14-2013 BY 60322 UCBAW

ALL POST HEAT TREATMENT MAY BE ADDED PROVIDED

A PANT WELDING PROCEDURE IS USED.

A

DESIGN DATA A

DESIGN & FABRICATE TO: ASME B31.3, 2010 EDITION

[illegible]

MAXIMUM DESIGN METAL TEMPERATURE	200 F
MINIMUM DESIGN METAL TEMPERATURE	-20° F

IMPACT TESTS: _____ **EXEMPT PER TABLE 5**

POST WELD HEAT TREATMENT: _____ NOTE IS _____
 RAD/DEGRADATION: _____

HYDROSTATIC TEST PRESSURE: SEE CHART

PREPARE: _____
50° F _____
CONVECTION REFRIGERATION: _____

E-MAIL: datadash@co.com

ACCEPTED.

DATE _____

BLUE DIAMOND DESIGN LTD, 1977 VALLEY VIEW PLACE, VICTORIA, BC V8B 6H8 TELEPHONE: (250) 391-4612 eMAIL: dardeshah.ca

CRN: P9403.2|3

CANADIAN REGISTRATION NUMBER

[illegible]

LIFE DIAMOND DESIGN LTD.

NTM VALLEY VIEW PLACE
VICTORIA BC V8M 1A1

TELEPHONE: (202) 341-1617	WWW.DCINSTRUMENTS.COM
P.O. BOX 1234	DATE: 12-04-25
	PG 12

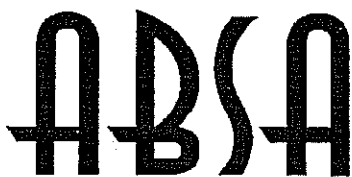
SCALE, 100	CLST, MD,
CLIENT,	

3" HEATER COIL

DESIGN DATA

Count	NO	AND PLAYED CHART
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Part No. 1000	BDD-300A
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Alberta Boilers Safety Association

#200, 4208 - 97 Street

Edmonton, Alberta, Canada T6E 5Z9

Tel: (780) 437-9100 / Fax: (780) 437-7787

June 17, 2002

Phil Dade
BLUE DIAMOND DESIGN LTD
1977 VALLEY VIEW PLACE
VICTORIA, BC V9B 6H8

Dear Phil Dade,

The drawings, specifications and/or information received on April 24, 2002 are accepted for registration as follows:

CRN : P9403.2

Drawing No. : BDD-300A Rev 2 As Noted

Fee : \$ 284.00

Add. Prints: \$ 0

Accepted on : June 13, 2002

Reg Type : New Design

Track No. : 2002-02684

Description

Design Pressure

Design Temperature

MDMT

Design Pressure: See Chart

kPa

93°C

-29°C

The registration is conditional on your compliance with the following notes:

Please note that we have accepted the design with the following correction per your email of 13

June '02:

-Revised Note 3 to read, "...WPS qualified to 0.6" thk."

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

Enclosed are stamped prints for your reference.

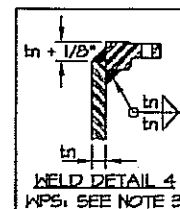
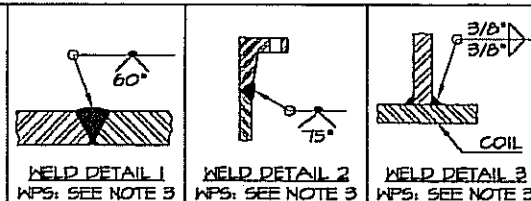
Sincerely,

B.C. DESAI, P. Eng.

Design Survey Engineer

PRESSURE (PSIG) Δ

SIZE	900# FLANGE			1500# FLANGE			2500# FLANGE		
RATING	CORROSION ALLOWANCE			CORROSION ALLOWANCE			CORROSION ALLOWANCE		
1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"
12	13	14	15	16	17	18	19	20	21
350	2025	2025	2025	3375	3375	3375	5625	5625	5031
2025	3038	3038	3038	5063	5063	5063	8438	8438	7547



GENERAL NOTES

QUALITY CONTROL PROGRAM NO: REGISTERED WITH ABSA
 WELDING PROCEDURE REGISTRATION NO: REGISTERED WITH ABSA
 WELDING PROCEDURE SPECIFICATION NUMBER: QUALIFIED TO 0.436" AND -20° F
 HEATING SURFACE AREA: 366.4 FT² MAXIMUM
 SERVICE: NORMAL FLUID AND CATEGORY M
 CAPACITY: PER APPLICATION
 SURFACE PREPARATION: HAND TOOL CLEAN
 PRIME AND PAINT: PER CLIENT SPECIFICATIONS
 ALL BOLT HOLES TO STRADDLE CENTERLINES.
 COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.

THIS CHART IS APPLICABLE FOR THE FOLLOWING MATERIALS:

PIPE (SEAMLESS): SA-333-GR 6

FLANGES (ANSI): SA-350-LF2

FITTINGS: SA-420-WPL6

LONG OR SHORT RADIUS FITTINGS (90° ELBOWS, 180° BENDS) MAY BE USED, PROVIDED THE SHORT RADIUS WERE MANUFACTURED TO THE 1994 EDITION OF ASME B16.28 PER TABLE 326.1 NOTE 5. THE FITTINGS AND FLANGES TO BE SAME SCHEDULE AS THE PIPE.

THIS CHART IS BASED ON THE FOLLOWING EQUATION (304.1.2):

$P = \frac{2SE}{D-O.D.}$ WHERE S = ALLOWABLE STRESS, PSI (APPENDIX A, TABLE A-1)
 E = 1.0 (TABLE 302.3.4)

t = PIPE WALL THICKNESS, INCHES

D = PIPE OUTSIDE DIAMETER, INCHES

RFWN FLANGES MAY BE INTERCHANGED WITH RFSO FLANGES FOR 150#, 300# AND 600# RATINGS ONLY (SEE WELD DETAIL 4).

POST WELD HEAT TREATMENT MAY BE ADDED PROVIDED A PWHT WELDING PROCEDURE IS USED AND RFSO FLANGES ARE NOT USED.
 PWHT: 1150° F 50° F FOR 1 HOUR MINIMUM (TABLE 331.1.1)

ALBERTA BOILERS SAFETY ASSOCIATION
 PROVINCE OF ALBERTA
 SAFETY CODES ACT
 REG. No. **P-9403.2**
 DWG. No. **BDD-300A, Rev. 2 (As Noted)**
 Design Press. MPa: **Per Chart - 2.9**
 Design Temp. °C: **193**
 ACCEPTED
 JUN 13 2002
 Yr. Mo. Day Signed **Desai B.C.**
 B.C. Desai, P. Eng.
 Design Survey Engineer

CANADIAN REGISTRATION NUMBER

2	02-05-23	REVISE NOTES 4 & 12, LIMIT LENGTH AND SPECIFY PASSES	P.J.D.	
1	02-05-16	REVISE NOTES 13, 14 & 15, ADD HYDROTEST	P.J.D.	
0	02-04-23	ISSUED FOR REGISTRATION	P.J.D.	
NO.	DATE	REVISION	BY	APP

DESIGN DATA Δ

DESIGN & FABRICATE TO: ASME B31.3, 1999 EDITION, 2001 ADDENDA
 DESIGN PRESSURE: SEE CHART
 MAXIMUM DESIGN METAL TEMPERATURE: 200° F
 MINIMUM DESIGN METAL TEMPERATURE: -20° F
 IMPACT TESTS: EXEMPT PER TABLE 323.2.2 - COLUMN A
 RADIOGRAPHY: RANDOM (M341.4b) 20% OF TOTAL WELDS
 POST WELD HEAT TREATMENT: SEE NOTE 15
 HYDROSTATIC TEST PRESSURE: SEE CHART
 CORROSION ALLOWANCE: SEE CHART
 PREHEAT: 50° F

BLUE DIAMOND DESIGN LTD.

1417 VALLEY VIEW PLACE
 VICTORIA, BC V8B 6H8
 TELEPHONE: (250) 341-4612 FAX: (250) 341-1615

DRAWN BY: P.J.D. DATE: 02-04-23 BDD NO.:
 CHECKED BY: SCALE: NTS CUST. NO.:
 CLIENT: **3" HEATER COIL**
 DESIGN DATA
 AND MAWP CHART
 DWG. NO. **BDD-300A** REV. **2**

Corrections and
Public Safety

Licensing and Inspections

Boiler & Pressure Vessel Safety
330, 1855 Victoria Avenue
REGINA, SK S4P 3V7
PH : (306)787-4522
FAX : (306)787-9273

APPROVAL AND INVOICE

Thursday, July 04, 2002

Blue Diamond Design Ltd.
1977 Valley View Place
Victoria, B.C.
V9B 6H8

Our File 31260 [0 V]

ATTENTION : Phil Dade

FAXED
7/11/02

With reference to your submission respecting the registration of the item below, for legal use in the province, please note we have surveyed, approved and registered this design as noted.

MANUFACTURER :	Blue Diamond Design Ltd.	
ITEM :	DRAWING NUMBER :	CRN :
3" Heater Coil	BDD-300A Rev2	P9403.23
REGISTRATION FEE: \$190.00 (CANADIAN FUNDS ONLY)		

PLEASE SEND REMITTANCE WITH A COPY OF THIS INVOICE TO: MINISTER OF FINANCE. WE ACCEPT PAYMENT BY CHEQUE/MONEY ORDER OR BANK DRAFT.

We wish to point out that every vessel must be constructed strictly in accordance with the registered design.

In addition to stamping every vessel with the registration number given above and as required in CSA Code B51, a Manufacturer's Data Report must be forwarded to this office immediately at the time a vessel is shipped. Such forms may be obtained upon request.

Sincerely,

Mike Beriault

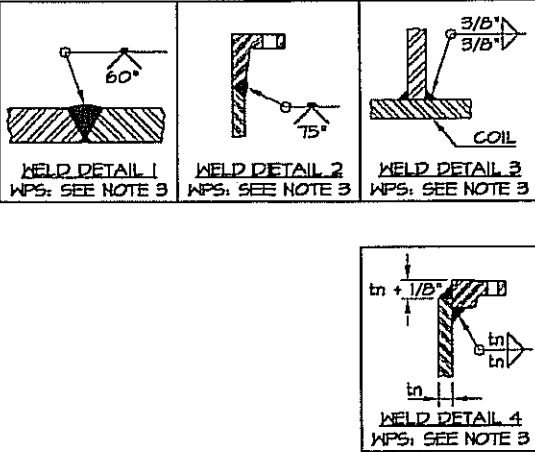
Codes and Standards Compliance

#327 Reg. of Design

REMARKS: CRN registered under reciprocal agreement.

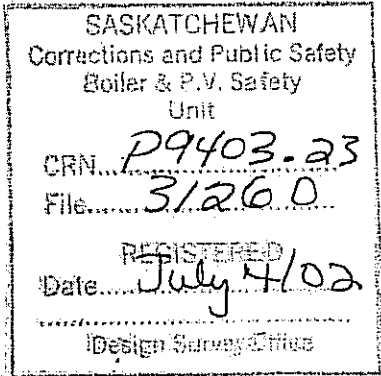
PRESSURE (PSIG) Δ

16E	900# FLANGE			1500# FLANGE			2500# FLANGE		
WANCE	CORROSION ALLOWANCE			CORROSION ALLOWANCE			CORROSION ALLOWANCE		
1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"	0"	1/16"	1/8"
12	13	14	15	16	17	18	19	20	21
1350	2025	2025	2025	3375	3375	3375	5625	5625	5031
2025	303B	303B	303B	5063	5063	5063	843B	843B	7547



GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. REGISTERED WITH ABSA
 - WELDING PROCEDURE REGISTRATION NO. REGISTERED WITH ABSA
 - WELDING PROCEDURE SPECIFICATION NUMBER: QUALIFIED TO 0.436" AND -20° F
 - HEATING SURFACE AREA: 366.4 FT² MAXIMUM
 - SERVICE: NORMAL FLUID AND CATEGORY M
 - CAPACITY: PER APPLICATION
 - SURFACE PREPARATION: HAND TOOL CLEAN
 - PRIME AND PAINT: PER CLIENT SPECIFICATIONS
 - ALL BOLT HOLES TO STRADDLE CENTERLINES.
 - COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
1. THIS CHART IS APPLICABLE FOR THE FOLLOWING MATERIALS:
PIPE (SEAMLESS): SA-333-GR 6
FLANGES (ANSI): SA-350-LF2
FITTINGS: SA-420-WPL6
2. LONG OR SHORT RADIUS FITTINGS (90° ELBOWS, 180° BENDS) MAY BE USED, PROVIDED THE SHORT RADIUS WERE MANUFACTURED TO THE 1994 EDITION OF ASME B16.28 PER TABLE 326.1 NOTE 5. THE FITTINGS AND FLANGES TO BE SAME SCHEDULE AS THE PIPE.
3. THIS CHART IS BASED ON THE FOLLOWING EQUATION (304.1.2):
 $P = \frac{2SEt}{D-O.D.}$ WHERE S = ALLOWABLE STRESS, PSI (APPENDIX A, TABLE A-1)
E = 1.0 (TABLE 302.3.4)
t = PIPE WALL THICKNESS, INCHES
D = PIPE OUTSIDE DIAMETER, INCHES
4. RFWN FLANGES MAY BE INTERCHANGED WITH RFSO FLANGES FOR 150#, 300# AND 600# RATINGS ONLY (SEE WELD DETAIL 4).
5. POST WELD HEAT TREATMENT MAY BE ADDED PROVIDED A PWHT WELDING PROCEDURE IS USED AND RFSO FLANGES ARE NOT USED.
PWHT: 1150° F 150° F FOR 1 HOUR MINIMUM (TABLE 331.1.1)



CANADIAN REGISTRATION NUMBER

2	02-05-23	REVISE NOTES 4 & 12, LIMIT LENGTH AND SPECIFY PASSES	P.D.
1	02-05-16	REVISE NOTES 13, 14 & 15, ADD HYDROTEST	P.D.
0	02-04-23	ISSUED FOR REGISTRATION	P.D.
NO.	DATE	REVISION	BY

DESIGN DATA Δ

DESIGN & FABRICATE TO:	ASME B31.3, 1999 EDITION, 2001 ADDENDA
DESIGN PRESSURE:	SEE CHART
MAXIMUM DESIGN METAL TEMPERATURE:	200° F
MINIMUM DESIGN METAL TEMPERATURE:	-20° F
IMPACT TESTS:	EXEMPT PER TABLE 323.2.2 - COLUMN A
RADIOGRAPHY:	RANDOM (M341.4b) 20% OF TOTAL WELDS
POST WELD HEAT TREATMENT:	SEE NOTE 15
HYDROSTATIC TEST PRESSURE:	SEE CHART
CORROSION ALLOWANCE:	SEE CHART
PREHEAT:	50° F

BLUE DIAMOND DESIGN LTD.

1771 VALLEY VIEW PLACE VICTORIA, BC V8B 6H8 TELEPHONE: (250) 341-4612 FAX: (250) 341-4613			
DRAWN BY:	P.D.	DATE:	02-04-23
CHECKED BY:		SCALE:	NTS
		BDD NO.:	
		CUST. NO.:	
		CLIENT:	3" HEATER COIL
		DESIGN DATA AND MAWP CHART	
		DHS. NO.	BDD-300A
		REV.	2



TO: BLUE DIAMOND DESIGN LTD
1977 VALLEY VIEW PL
VICTORIA BC
V9B 6H8

Registered: 2002/07/12
Journal #: 29128
Account #: 32255

Attn: PHIL DADE

Re: BLUE DIAMOND DESIGN LTD

DESIGN REGISTRATION

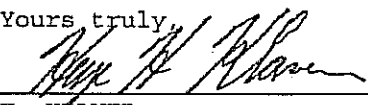
C.R.N. **P9403.21**

Drawings / Documents	Description			
3" HEATER COIL BDD-300A REV 2	MDMT ----- -20 F	MAWT ----- 200 F	MAWP -----	EXT PRESS -----
H.S.: 366.4 ft^2 maximum				
REGISTERED	Shell:	3.5" O.D.		
	Length per Pass:	20'-0" maximum		
	No. of Passes:	20 maximum		
	Pressure Rating:	See Chart for MAWP		
	Code:	ASME B31.3, 1999 Edition, 2001 Addenda.		

Remarks: This design has been registered as noted above. An invoice for survey will follow in the amount of \$ 60.00

dc

Yours truly,


H. KLAVER

Design Surveyor

Date: 11-07-19
Client: Blue Diamond Design Ltd.
Drawing Number: BDD-300A
Description: 3" Heater Coil

Rev: 6

Design in accordance with ASME B31.3, 2010 Edition

Heater Coil Design Calculations

Calculation Revision No.	6	11-07-19	Updated to 2010 Code	PJD...
Calculation Revision No.	5	11-01-03	Updated to 2008 Code	PJD...
Calculation Revision No.	4	05-11-29	Updated to 2004 Code	PJD...
Calculation Revision No.	3	05-02-02	Updated to 2002 Code	PJD...
Calculation Revision No.	2	02-05-23	Issued For Registration	PJD...

Design Drawing No.	Drawing Rev No.	Design Calculation No.	Comments
BDD-300A	2	6	Calculations created based on design information provided.

Engineering Manager: _____

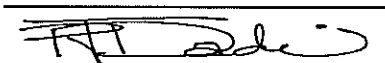
Date: _____

Quality Control Manager: _____

Date: _____

Authorized Inspector: _____

Date: _____

Approved by Designer:  _____

Date: 11-07-19

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