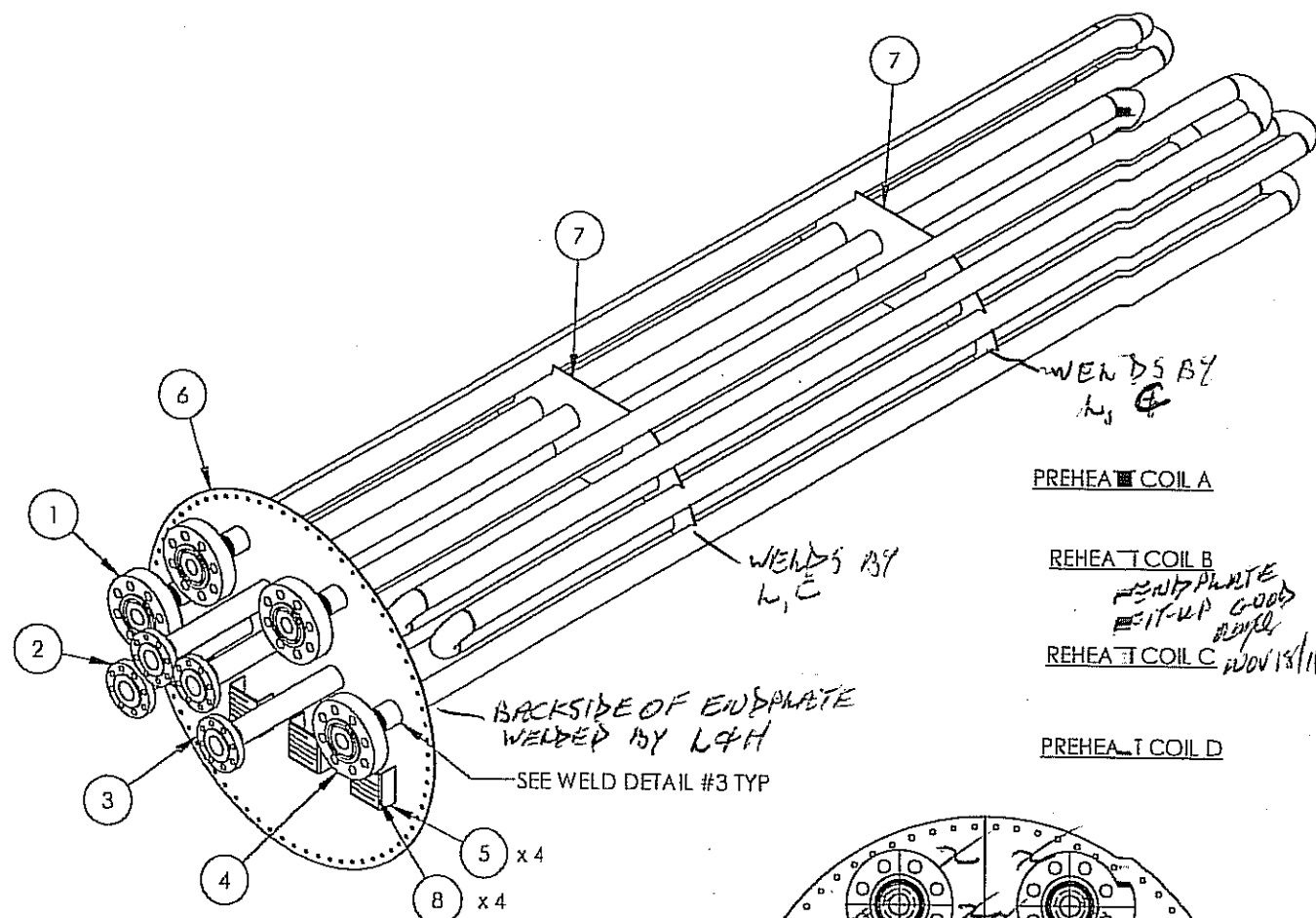
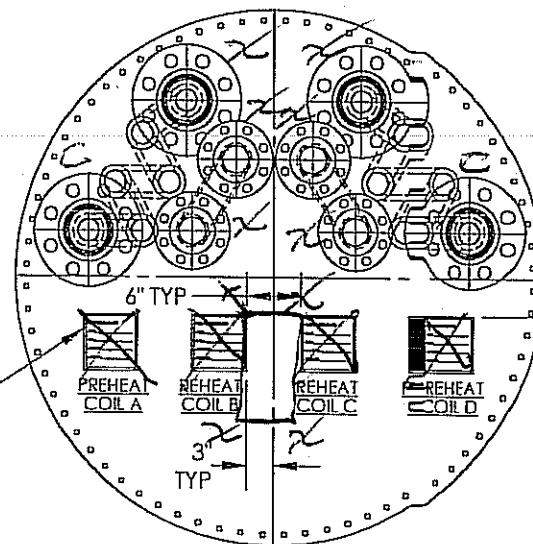


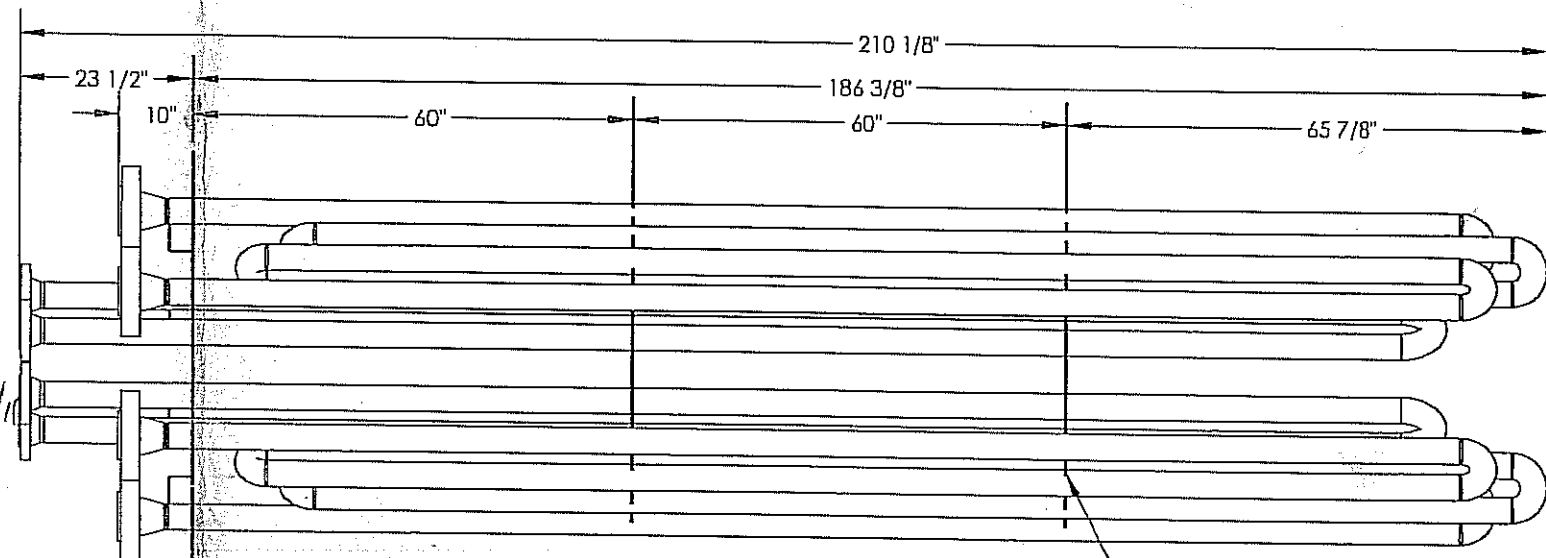
ITEM	PART #	DESCRIPTION	MTR #	LENGTH	QTY.
1	-	PREHEAT COIL A - SEE SHEET 2			1
2	-	REHEAT COIL B - SEE SHEET 3			1
3	-	REHEAT COIL C - SEE SHEET 4			1
4	-	PREHEAT COIL D - SEE SHEET 5			1
5	BRACKET-NAME-1	TANK/VESSEL NAME PLATE BRACKET	691656		4
6	PLAB60120A	STEEL PLATE - 1/4" x 60" x 120" SA36/44W	4510L	.5	1
7	PLAB60120A	STEEL PLATE - 1/4" x 60" x 120" SA-36/44W	4510L	.2	2
8	VES-NAMEPLATE-1	VESSEL NAME PLATE BLACK/SILVER DEEP ETCHED			4



ISOMETRIC VIEW
SCALE: 1:25



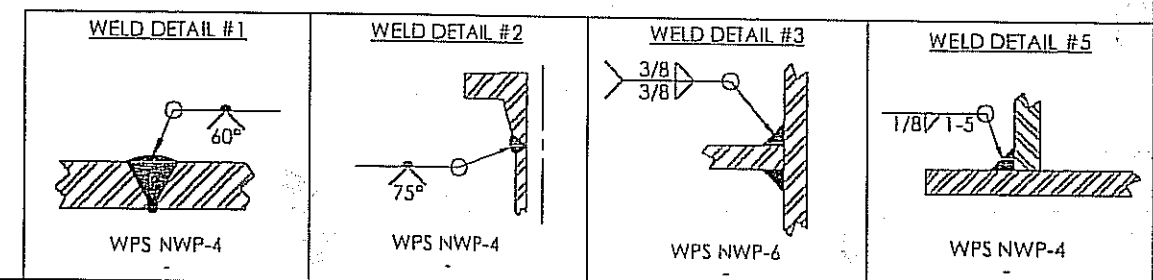
SIDE VIEW
SCALE: 1:20



PLAN VIEW
SCALE: 1:25

ISSUED FOR CONSTRUCTION
S/N NWP-08118-003
ORIGINAL

- NOTES
- ALL DIMENSIONS SHALL HAVE A TOLERANCE OF $\pm 1/8$ " UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS INCLUDE $1/8$ " ROOT GAP.
 - ALL BOLT HOLES STRADDLE COMMON CENTER LINE.
 - CUT LENGTHS FOR PIPE ARE FOR REFERENCE ONLY.
 - COIL TO BE CLEANED WITH ALL OPENINGS PLUGGED BEFORE SHIPMENT.
 - USE WELD PROCEDURE NWP-4 OR NWP-6 FOR ALL TACK WELDS.
 - APPROXIMATE WEIGHT: 4800LBS.



DOCUMENT NO.	DESCRIPTION	REV	DATE	BY	CHK	APP	DRAWING REVISIONS
		1	2011.08.02	DJ			REVISED AS PER RF-DC #00562
		0	2011.07.08	DJ	KB	DF	ISSUED FOR CONSTRUCTION
		A	2011.06.20	DJ	-	-	ISSUED FOR APPROVAL

ISSUED FOR CONSTRUCTION

SIGNED: *[Signature]*
DATE: AUG 2 2011

W.O.: 08118-003

S.O.: -

ALL DIMENSIONS IN INCHES



P.O. BOX 6280, INNISFAIL, AB T4G 1S9
PH: (403) 227-4100 FAX: (403) 227-4102

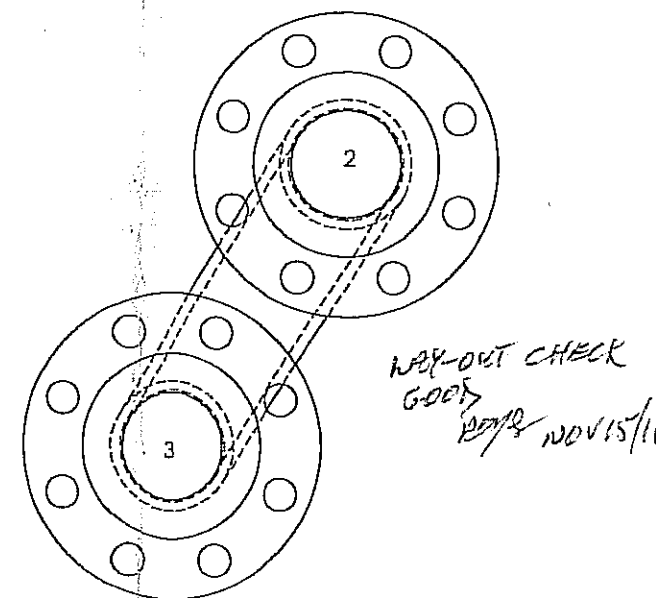
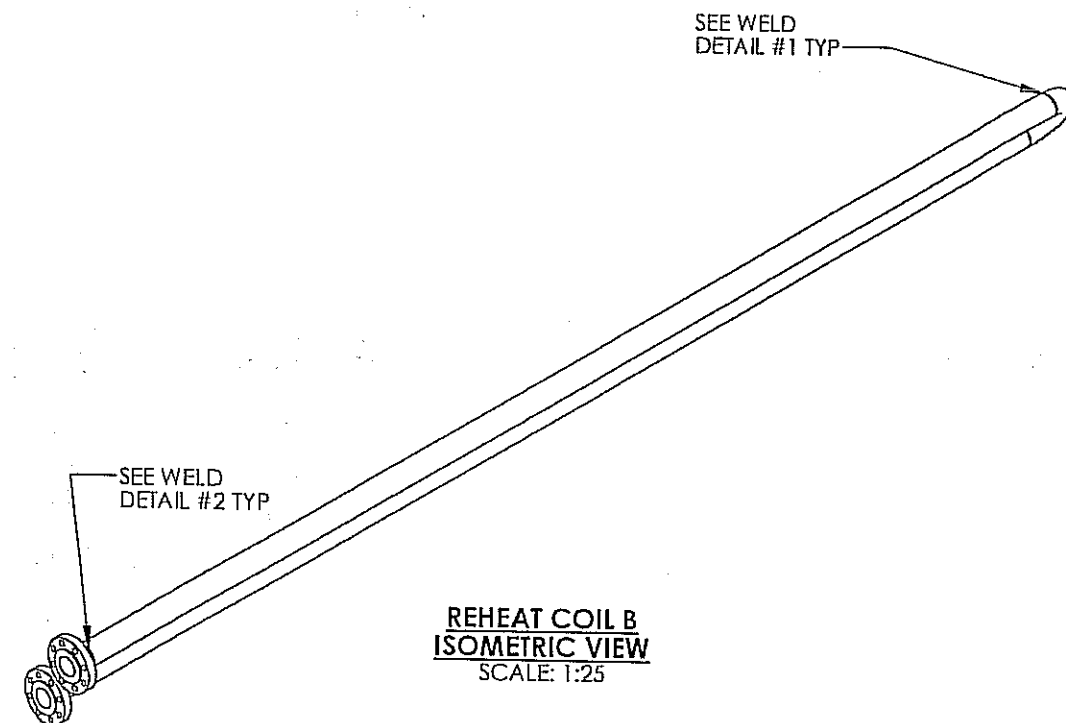
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MURPHY OIL COMPANY LTD.
48"OD x 16'LG LINEHEATER

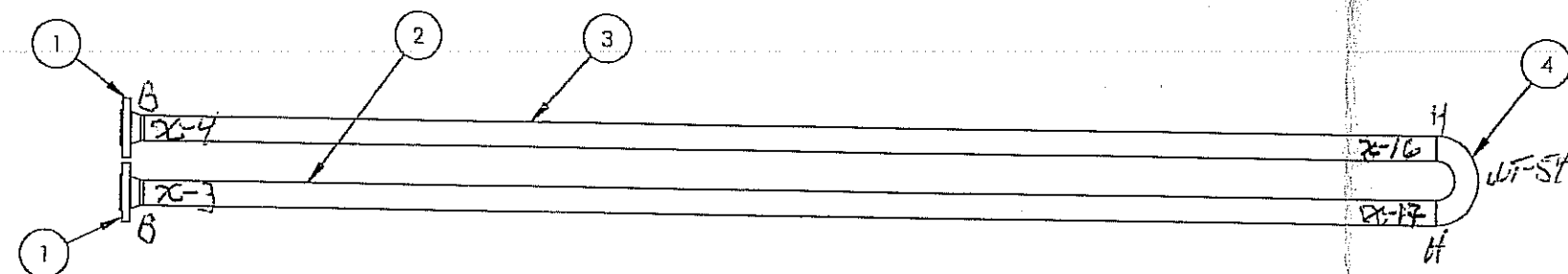
REPLACEMENT COIL ASSEMBLY

DWN: DJ	CHK: KB	APP: DF
DATE: 2011.06.17	DATE: 2011.07.02	DATE: 2011.07.08
SCALE: 1:25	DWG: 08118	REV: 1
SHEET: 1 OF 6		

ITEM	PART #	DESCRIPTION	MTR #	LENGTH	QTY.
1	FLA3C80AF	FLANGE 3" 600 ANSI SCH XH/80 RFWN SA350-LF2-CL1	10/33119		2
2	PIP380B	PIPE 3" SCH.80 SA333-GR6 216044		187 3/8"	1
3	PIP380B	PIPE 3" SCH. 80 SA333-GR6 216044		187 3/8"	1
4	RET3L80GD	RETURN 180 DEG 3" SCH XH/80 LR BW SA420-WPL6	04001029		1



ISSUED FOR CONSTRUCTION

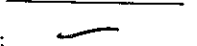


REHEAT COIL B DESIGN DATA	
DESIGN AND FABRICATE TO:	ANSI/ASME B31.3 NPS 2008 EDITION
CLIENT SPECIFICATION:	-
DESIGN PRESSURE:	1350 PSIG
MAX. DESIGN METAL TEMPERATURE:	200 °F
MIN. DESIGN METAL TEMPERATURE:	-20 °F
IMPACT TEST:	EXEMPT PER TABLE 323.2.2 COLUMN A
RADIOGRAPHY:	100%
OTHER NDE:	-
POST WELD HEAT TREATMENT:	1150 °F ± 50 °F FOR 1 HOUR MIN
HYDROSTATIC TEST PRESSURE:	2025 PSIG
CORROSION ALLOWANCE:	1/8"
PRE-HEAT:	50 °F
WEIGHT EMPTY:	385 LBS
WEIGHT FULL:	485 LBS
CAPACITY:	1.59 CU FT
SURFACE AREA:	31.9 SQ FT
QUALITY CONTROL PROGRAM:	AQP-1253
WELDING PROCEDURE REGISTRATION NO.:	1604.2 REV 4
WELD PROCEDURES:	NWP-4, NWP-6 REV 2 RMP
SERVICE:	HYDROCARBONS
CRN NO.:	P-9407.213
DESIGN REGISTRATION DRAWINGS:	BDD-300 REV10
REFERENCE CALCULATIONS:	BDD-300 REV13

ORIGINAL

DOCUMENT NO.	DESCRIPTION	REV	DATE	BY	CHK	APP	DRAWING REVISIONS
		1	2011.08.02	DJ	MB	DF	REVISED AS PER RFDC #00562
		0	2011.07.08	DJ	KB	DF	ISSUED FOR CONSTRUCTION
		A	2011.06.20	DJ	-	-	ISSUED FOR APPROVAL

ISSUED FOR CONSTRUCTION

SIGNED: 
DATE: AUG - 2 2011
W.O.: 08118-003
S.O.: 



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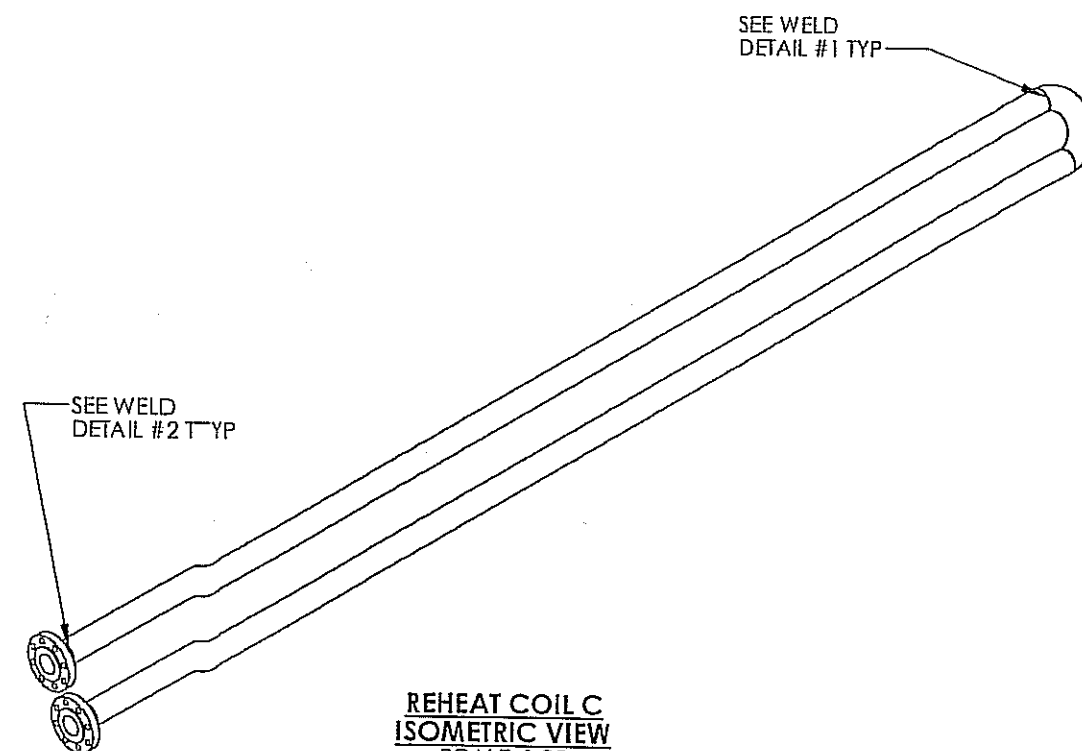
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MURPHY OIL COMPANY LTD.
48"OD x 16'LG LINEHEATER

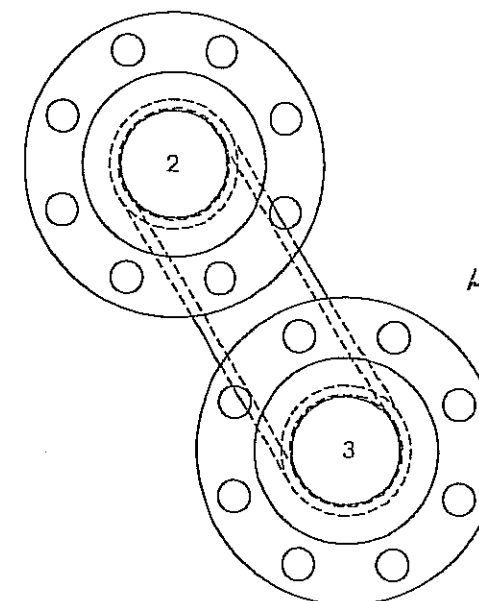
REPLACEMENT COIL ASSEMBLY

DWN: DJ	CHK: KB	APP: DF
DATE: 2011.06.17	DATE: 2011.07.02	DATE: 2011.07.08
SCALE: 1:25	DWG: 08118	REV: 1
SHEET: 3 OF 6		

ITEM	PART #	DESCRIPTION	MTR #	LENGTH	QTY.
1	FLA3C80AF	FLANGE 3" 600 ANSI SCH XH/80 RFWN SA350-LF2-CL1	10/33119		2
2	PIP380B	PIPE 3" SCH.80 SA333-GR6 21C044		187 3/8"	1
3	PIP380B	PIPE 3" SCH. 80 SA333-GR6 21C044		187 3/8"	1
4	RET3L80GD	RETURN 180 DEG 3" SCH XH/80 LR BW SA420-WPL6	04001029		1

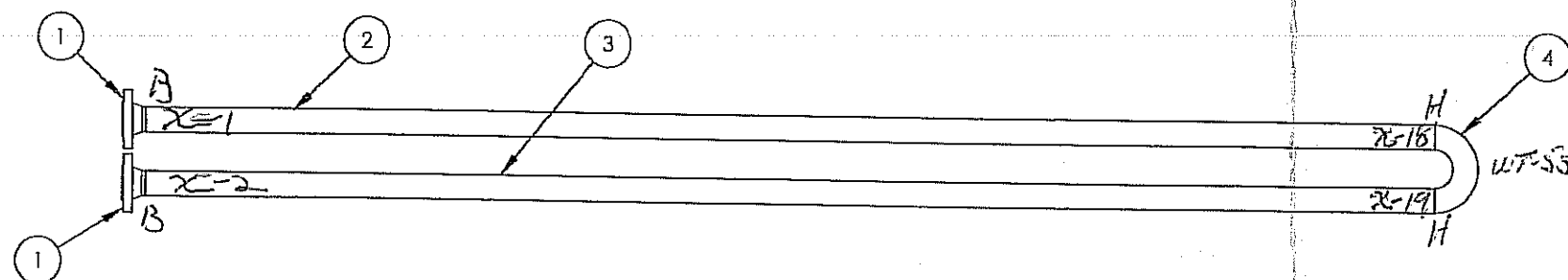


REHEAT COIL C
ISOMETRIC VIEW
SCALE: 1:25



REHEAT COIL C
ORIENTATION VIEW
SCALE: 1:5

LOD-DWT CHECK
GOOD RDR
REV 15/11



REHEAT COIL C
FLAT VIEW
SCALE: 1:25

ORIGINAL

REHEAT COIL C DESIGN DATA	
DESIGN AND FABRICATE TO:	ANSI/ASME B31.3 NFS 2008 EDITION
CLIENT SPECIFICATION:	-
DESIGN PRESSURE:	1350 PSIG
MAX. DESIGN METAL TEMPERATURE:	200°F
MIN. DESIGN METAL TEMPERATURE:	-20°F
IMPACT TEST:	EXEMPT PER TABLE 323.2.2 COLUMN A
RADIOGRAPHY:	100%
OTHER NDE:	-
POST WELD HEAT TREATMENT:	1150°F±50°F FOR 1 HOUR MIN
HYDROSTATIC TEST PRESSURE:	2025 PSIG
CORROSION ALLOWANCE:	1/8"
PRE-HEAT:	50°F
WEIGHT EMPTY:	385 LBS
WEIGHT FULL:	485 LBS
CAPACITY:	1.59 CU FT
SURFACE AREA:	31.9 SQ FT
QUALITY CONTROL PROGRAM:	AQP-1253
WELDING PROCEDURE REGISTRATION NO.:	1604.2 REV4
WELD PROCEDURES:	NWP-4, NWP-6 REV2 RDR
SERVICE:	HYDROCARBONS
CRN NO.:	P-9407.213
DESIGN REGISTRATION DRAWINGS:	BDD-300 REV10
REFERENCE CALCULATIONS:	BDD-300 REV13

DOCUMENT NO.	DESCRIPTION	REV	DATE	BY	CHK	APP	
		1	2011.08.02	DJ	KB	DF	REVISED AS PER RFDC #00562
		0	2011.07.08	DJ	KB	DF	ISSUED FOR CONSTRUCTION
		A	2011.06.20	DJ	-	-	ISSUED FOR APPROVAL
REFERENCE DRAWINGS		DRAWING REVISIONS					

ISSUED FOR
CONSTRUCTION

SIGNED: *[Signature]*
DATE: AUG 2 2011

W.O.: 08118-003

S.O.: _____

ALL DIMENSIONS IN INCHES



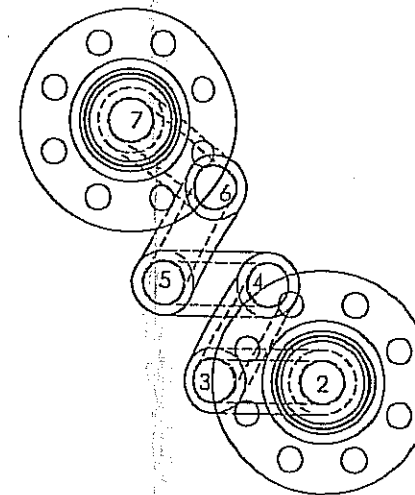
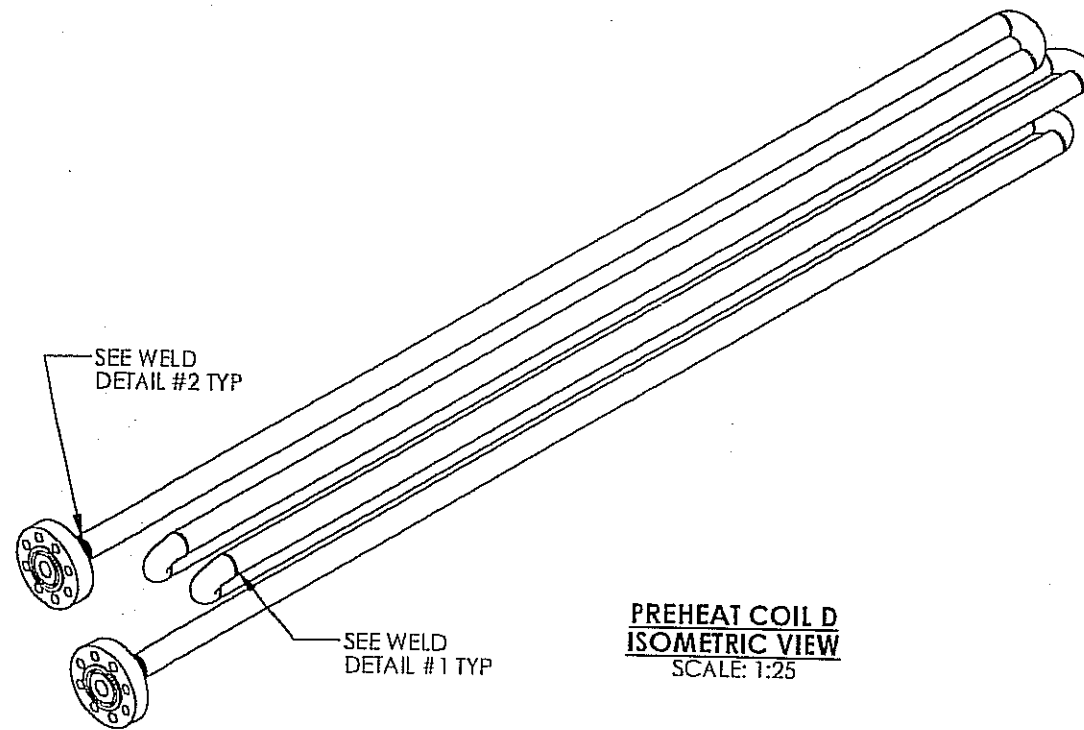
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MURPHY OIL COMPANY LTD.
48"OD x 16'LG LINEHEATER

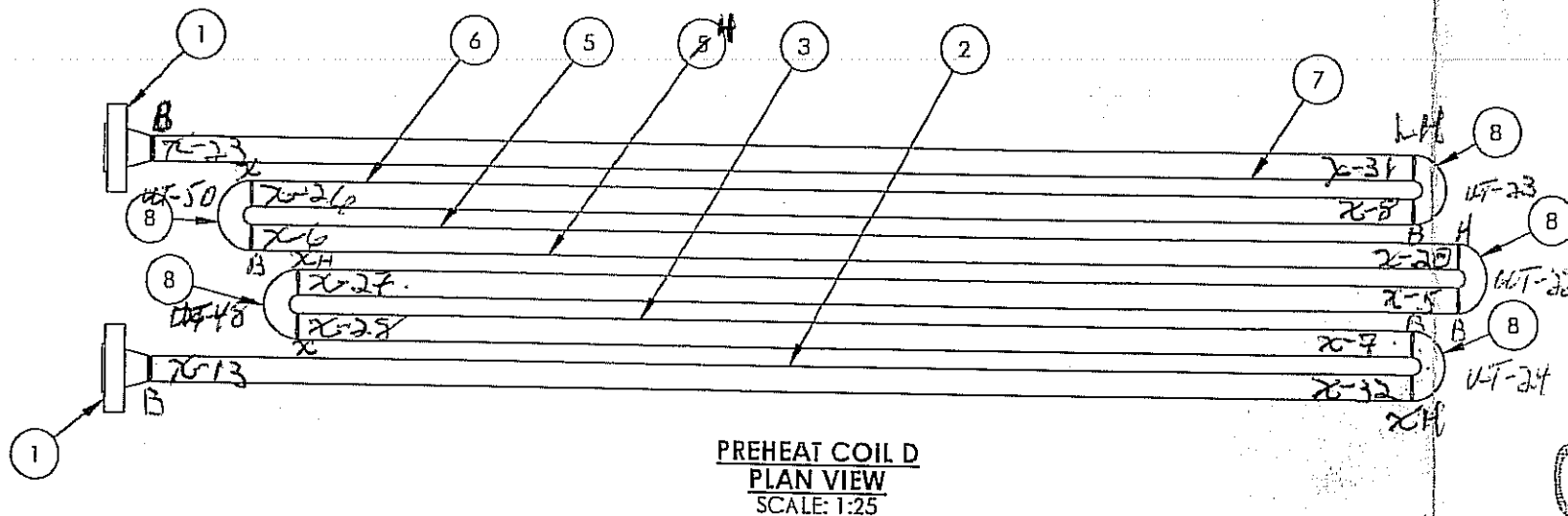
REPLACEMENT COIL ASSEMBLY

DWN: DJ	CHK: KB	APP: DF
DATE: 2011.06.17	DATE: 2011.07.02	DATE: 2011.07.08
SCALE: 1:25	DWG: 08118	REV: 1
SHEET: 4 OF 6		



ISSUED FOR CONSTRUCTION

LAY-OUT CHECK
GOOD RMB NOV 15/11



ORIGINAL

ITEM	PART #	DESCRIPTION	MTR #	LENGTH	QTY.
1	FLA3FXXHBF	FLANGE 3" 2500 ANSI SCH XXH RTJ SA350-LF2-CL1	93100		2
2	PIP3XXHB	PIPE 3" SCH. XXH SA333-GR6	10608805	178 3/8"	1
3	PIP3XXHB	PIPE 3" SCH. XXH SA333-GR6	10608805	157 7/8"	1
4	PIP3XXHB	PIPE 3" SCH. XXH SA333-GR6	10608805	164 3/8"	1
5	PIP3XXHB	PIPE 3" SCH. XXH SA333-GR6	10608805	170 7/8"	1
6	PIP3XXHB	PIPE 3" SCH. XXH SA333-GR6	10608805	164 3/8"	1
7	PIP3XXHB	PIPE 3" SCH. XXH SA333-GR6	10608805	178 3/8"	1
8	RET3RXXHGD	RETURN 180 DEG 3" SCH XXH SR BW SA420-WPL6	4103		5

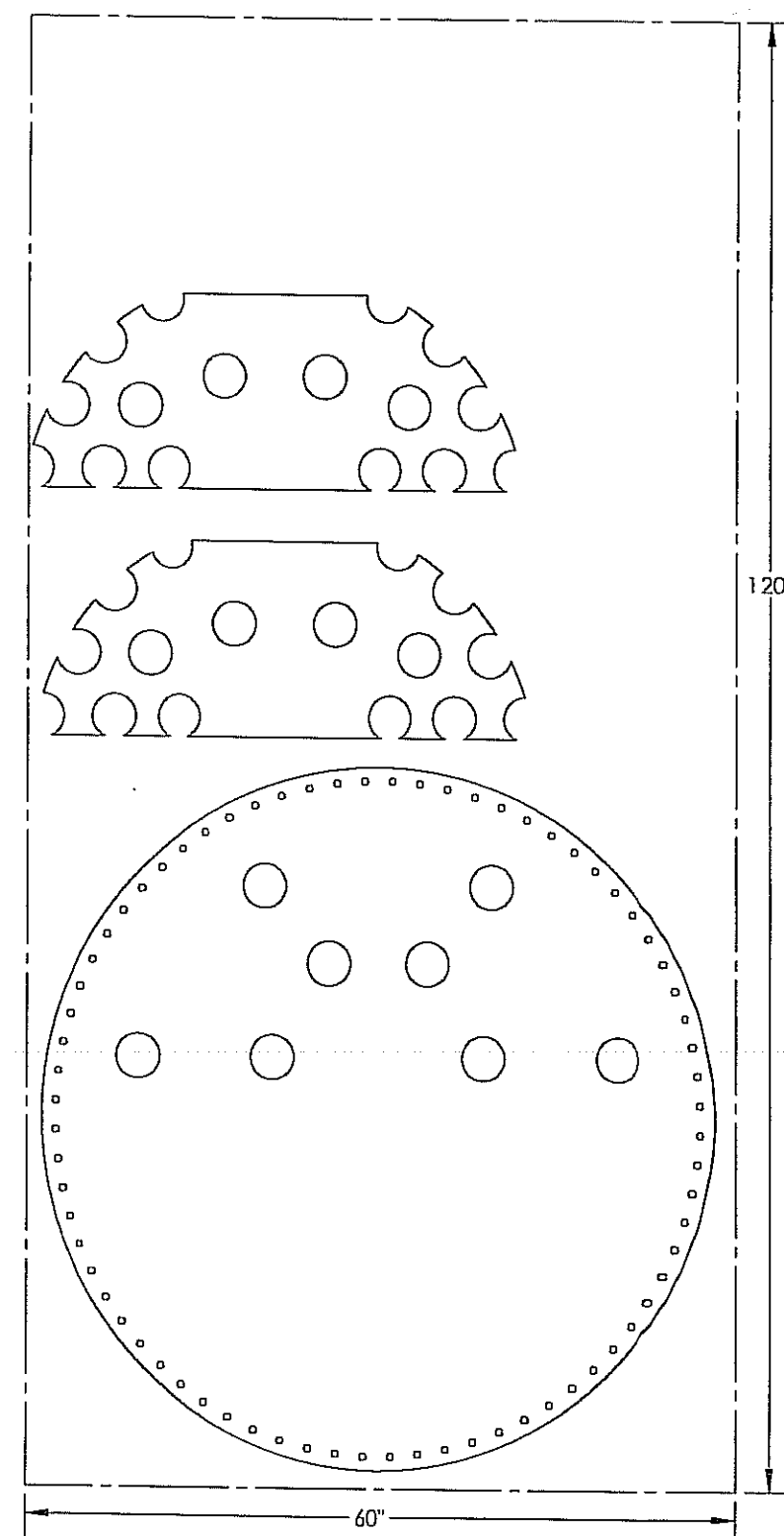
PREHEAT COIL D DESIGN DATA	
DESIGN AND FABRICATE TO:	ANSI/ASME B31.3 NFS 2008 EDITION
CLIENT SPECIFICATION:	-
DESIGN PRESSURE:	5031 PSIG
MAX. DESIGN METAL TEMPERATURE:	200 °F
MIN. DESIGN METAL TEMPERATURE:	-20 °F
IMPACT TEST:	EXEMPT PER TABLE 323.2.2 COLUMN A
RADIOGRAPHY:	100%
OTHER NDE:	-
POST WELD HEAT TREATMENT:	1150 °F ± 50 °F FOR 1 HOUR MIN
HYDROSTATIC TEST PRESSURE:	7547 PSIG
CORROSION ALLOWANCE:	1/8"
PRE-HEAT:	50 °F
WEIGHT EMPTY:	1835 LBS
WEIGHT FULL:	2000 LBS
CAPACITY:	2.64 CU FT
SURFACE AREA:	83.8 SQ FT
QUALITY CONTROL PROGRAM:	AQP-1253
WELDING PROCEDURE REGISTRATION NO.:	1604.2
WELD PROCEDURES:	NWP-4, NWP-6
SERVICE:	HYDROCARBONS
CRN NO.:	P-9403.213
DESIGN REGISTRATION DRAWINGS:	BDD-300A REV2
REFERENCE CALCULATIONS:	BDD-300A REV5

DOCUMENT NO.	DESCRIPTION	REV	DATE	BY	CHK	APP	DRAWING REVISIONS
		1	2011.08.02	DJ			REVISED AS PER RFDC #00562
		0	2011.07.08	DJ	KB	DF	ISSUED FOR CONSTRUCTION
		A	2011.06.20	DJ	-	-	ISSUED FOR APPROVAL

ISSUED FOR CONSTRUCTION
SIGNED:
DATE: AUG - 2 2011
W.O.: 08118-003
S.O.:
ALL DIMENSIONS IN INCHES

NWP INDUSTRIES INC.
Total oilfield supply.
P.O. BOX 6280, INNISFAIL, AB T4G 1S9
PH: (403) 227-4100 FAX: (403) 227-4102
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MURPHY OIL COMPANY LTD.
48"OD x 16'LG LINEHEATER
REPLACEMENT COIL ASSEMBLY
DWN: DJ CHK: KB APP: DF
DATE: 2011.06.17 DATE: 2011.07.02 DATE: 2011.07.08
SCALE: 1:25 DWG: 08118 REV: 1
SHEET: 5 OF 6



ORG

08118-2
SCALE: 1:12

08118-QTY OF PARTS PER 1/4" SHEET
SCALE: 1:2

[illegible]