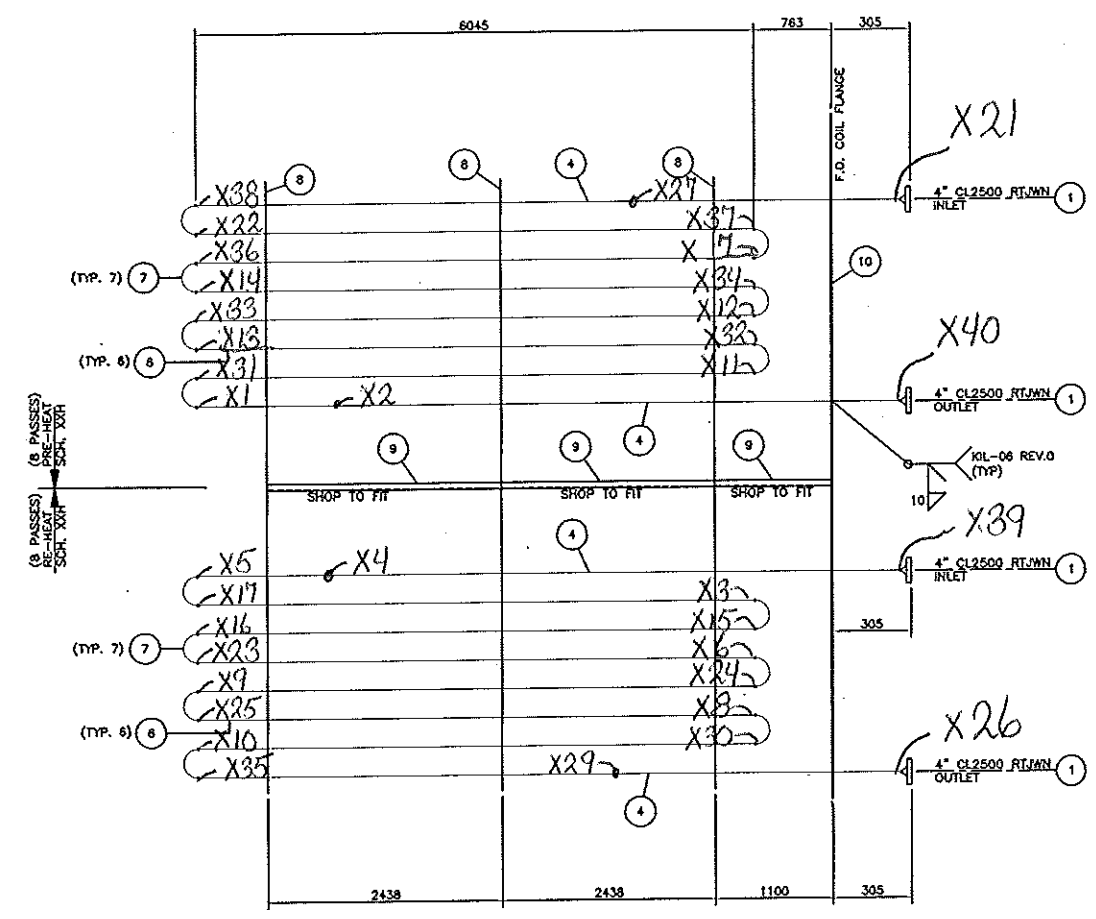
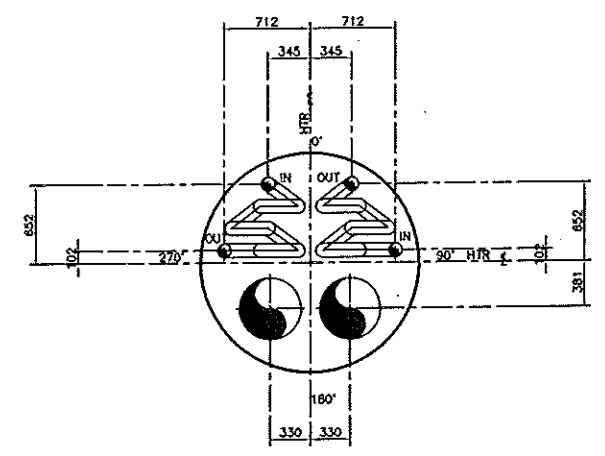


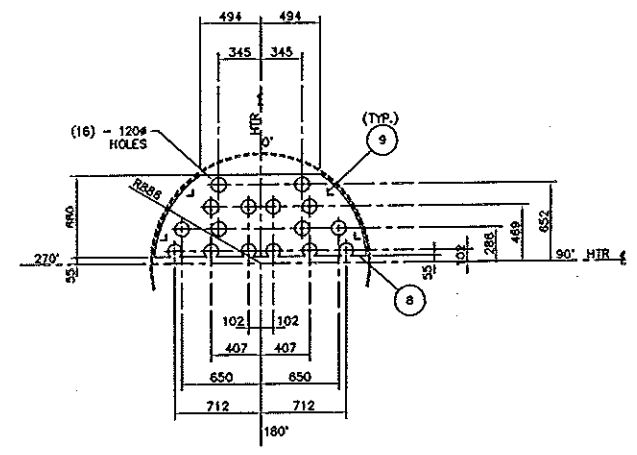
BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MAT'L
1	4	FLANGE - 4" CL2500 RTJWN SCH. XXH BORE	SA-350-LF2 CL.1
2	---	---	---
3	1	NAME PLATE C/W BRACKET	SS/SA-36
4	4 PCS	PIPE - 4" SCH. XXH SMLS 6917 mm (22'-8 3/8" LG)	SA-333-6
5	---	---	---
6	12 PCS	PIPE - 4" SCH. XXH SMLS 6045 mm (19'-10" LG)	SA-333-6
7	14	RETURN BEND - 4" SCH. XXH x 180° LR	SA-420-WPL6
8	3 PCS	TUBE SHEET - 3/8" PL (CUT PER DWG DET'L)	SA-36
9	12 PCS	L2" x 2" x 1/4" THK (CTS)	44W
10	1	COIL FLANGE - 1/2" PL (CUT PER DWG DET'L)	SA-36



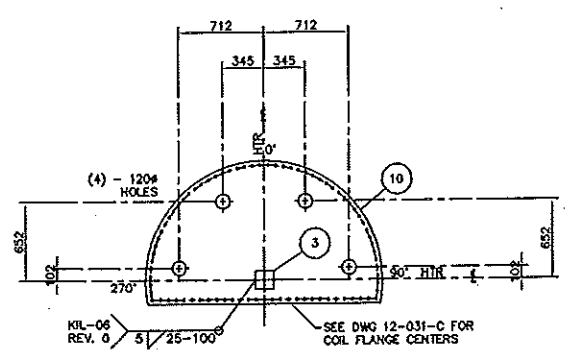
**COIL BUNDLE**  
**(NOT TRUE ORIENTATION)**  
(N.T.S.)



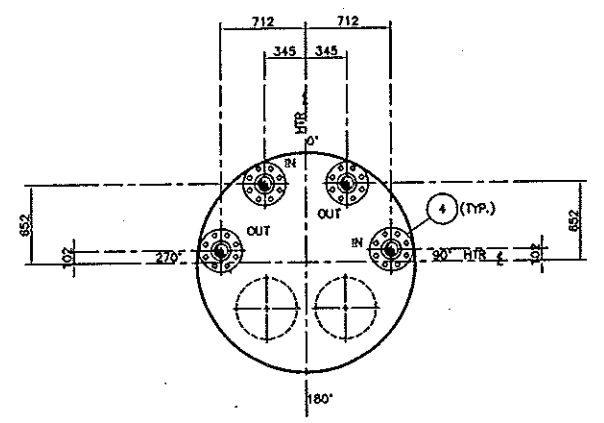
**COIL LAYOUT**



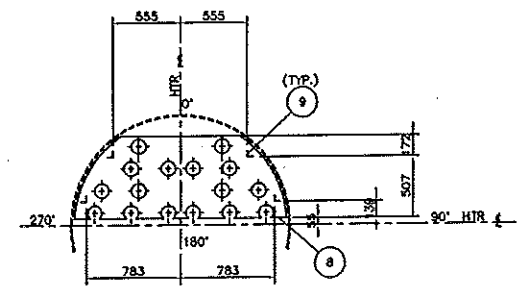
**TUBE SHEET DET'L**  
(3) REQ'D



**COIL FLANGE DET'L**  
(1) REQ'D



**FRONT VIEW**



**ITEM #9 LOCATION DET'L**

**GENERAL SPECIFICATIONS:**

MATERIALS:	PRE-HEAT COIL (4" SCH. XXH)	RE-HEAT COIL (4" SCH. XXH)
PIPE	SA-333-6 SMLS	SA-333-6 SMLS
RETURN BEND	SA-420-WPL6	SA-420-WPL6
FLANGE / THRODLET	SA-350-LF2 CL.1	SA-350-LF2 CL.1
HEATING SURFACE	193.8 SQ.FT.	193.8 SQ.FT.
VOLUME	6.65 CU.FT.	6.65 CU.FT.

DESIGN DATA:	PRE-HEAT COIL	RE-HEAT COIL
DESIGN PRESSURE	5020 PSIG	5020 PSIG
DESIGN TEMPERATURE	-20/200°F	-20/200°F
JOINT EFFICIENCY	100%	100%
STRESS RELIEVED	60 MINUTES @ 1150°F ±25°F	60 MINUTES @ 1150°F ±25°F
RADIOGRAPHY (NORMAL)	100% PER B31.3 TOTAL WELD	100% PER B31.3 TOTAL WELD
CORROSION ALLOWANCE	0.076"	0.076"
HYDROTEST PRESSURE	7975 PSIG	7975 PSIG
CRH NO.:	---	---

DESIGN AND CONSTRUCTED IN ACCORDANCE WITH THE 2010 EDITION OF THE ASME CODE FOR PROCESS PIPING SECTION ASME B31.3 PARA 304.1.2.  
KOOTENAY WELDING PROCEDURE No.: WP-2940.2  
AQP No.: 1479  
IMPACT TESTING NOT REQ'D PER B31.3 PARA 323.2.2  
COILS TO BE REGISTERED FOR ALBERTA SERVICE.

- FABRICATION NOTES:**
1. JOINT PREP. AND FIT-UP AS PER KOOTENAY ENGR. SPEC. KIL-003.
  2. ALL ATTACHMENTS TO BE CONTINUOUSLY WELDED.
  3. NOT TO BE USED IN A PRESSURE VESSEL.

**ESTIMATE WEIGHT:**  
11,750 LBS

QUALITY CONTROL  
*10/16/12*  
ISSUED FOR CONSTRUCTION

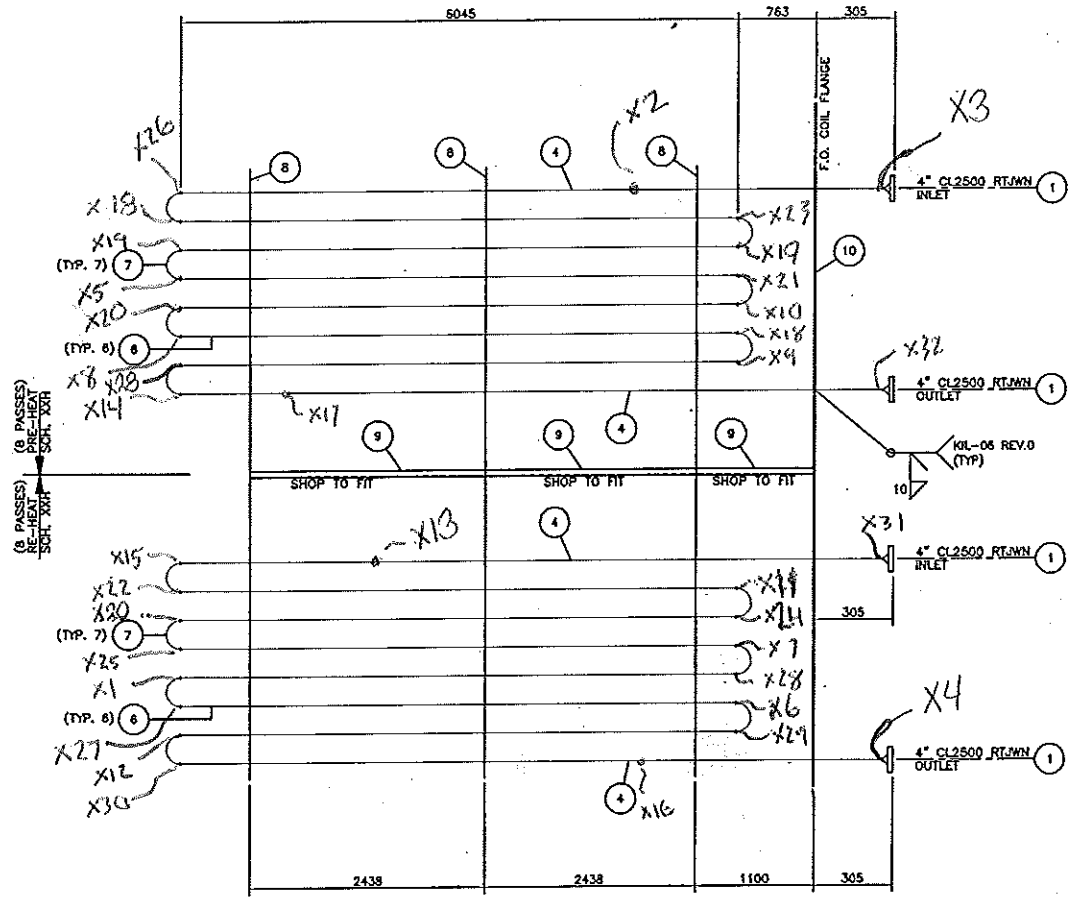
Job# 12-031-CB  
KOOTENAY INDUSTRIES LTD.  
CALGARY, ALBERTA  
DRAWN BY: KS  
CHECKED BY: KT  
S/N: 12-031-033.CB  
DATE: 12-10-02  
SCALE: 1:30

PIPE TO FITTING	TOL./CPLG/WOL	WELDNECK FLANGE	SOL./SW FLANGE
1.) KIL-5 REVO KIL-6 REVO	2.) KIL-5 REVO KIL-6 REVO	3.) KIL-5 REVO KIL-6 REVO	4.) KIL-5 REVO KIL-6 REVO

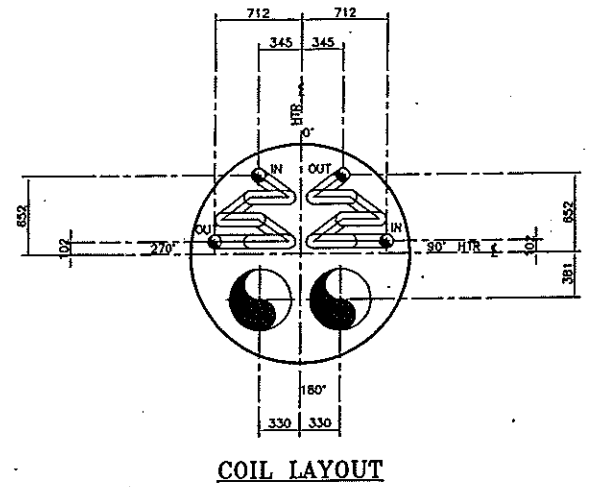
(3) REQ'D  
TIME CARD  
12-031-033-CB

REV.	DESCRIPTION	APP'D	DATE	BY	DATE
1	ISSUED FOR CONSTRUCTION	KS	12-10-02		

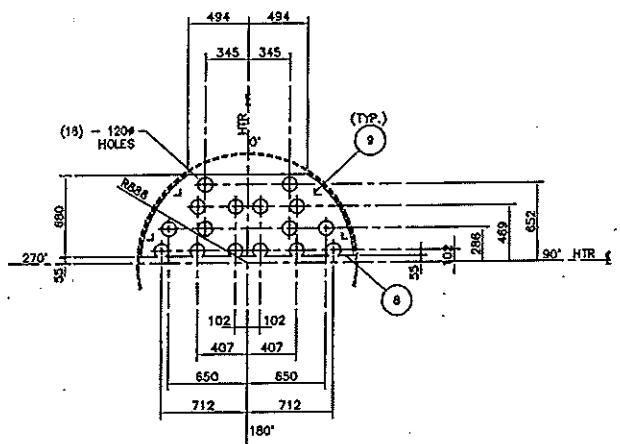
HEATING COIL: 8 PASSES PRE-HEAT,  
8 PASSES RE-HEAT (SOUR SERVICE)  
DAYLIGHT ENERGY LTD. 12-031-B



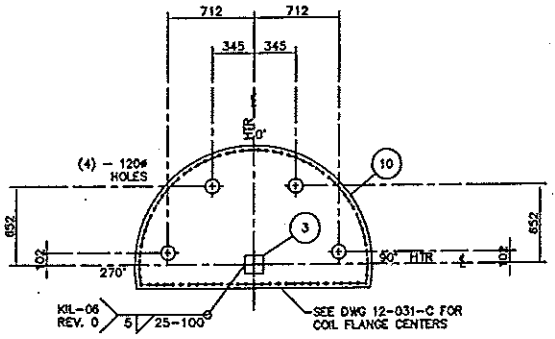
**COIL BUNDLE**  
(NOT TRUE ORIENTATION)  
(N.T.S.)



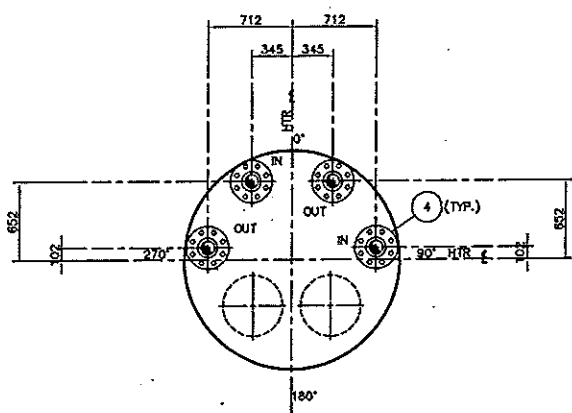
**COIL LAYOUT**



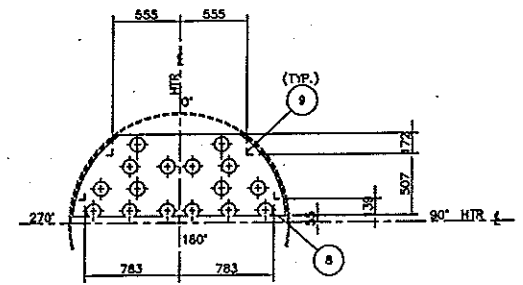
**TUBE SHEET DET'L**  
(3) REQ'D



**COIL FLANGE DET'L**  
(1) REQ'D



**FRONT VIEW**



**ITEM #9 LOCATION DET'L**

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MAT'L
1	4	FLANGE - 4" CL2500 RTJWN SCH. XXH BORE	SA-350-LF2 CL.1
2	---	---	---
3	1	NAME PLATE C/W BRACKET	SS/SA-36
4	4 PCS	PIPE - 4" SCH. XXH SMLS 6917 mm (22"-8 3/8" LG)	SA-333-6
5	---	---	---
6	12 PCS	PIPE - 4" SCH. XXH SMLS 6945 mm (19'-10" LG)	SA-333-6
7	14	RETURN BEND - 4" SCH. XXH x 180° LR	SA-420-WPL6
8	3 PCS	TUBE SHEET - 3/8" PL (CUT PER DWG DET'L)	SA-36
9	12 PCS	L2" x 2" x 1/4" THK (CTS)	44W
10	1	COIL FLANGE - 1/2" PL (CUT PER DWG DET'L)	SA-36

**GENERAL SPECIFICATIONS:**

MATERIALS:	PRE-HEAT COIL (4" SCH. XXH)	RE-HEAT COIL (4" SCH. XXH)
PIPE	SA-333-6 SMLS	SA-333-6 SMLS
RETURN BEND	SA-420-WPL6	SA-420-WPL6
FLANGE / THRODLET	SA-350-LF2 CL.1	SA-350-LF2 CL.1
HEATING SURFACE	193.8 SQ.FT.	193.8 SQ.FT.
VOLUME	6.65 CU.FT.	6.65 CU.FT.

**DESIGN DATA:**

DESIGN PRESSURE	5020 PSIG	5020 PSIG
DESIGN TEMPERATURE	-20/200°F	-20/200°F
JOINT EFFICIENCY	100%	100%
STRESS RELIEVED	60 MINUTES @ 1150°F ±25°F	60 MINUTES @ 1150°F ±25°F
RADIOGRAPHY (NORMAL)	100% PER B31.3 TOTAL WELD	100% PER B31.3 TOTAL WELD
CORROSION ALLOWANCE	0.076"	0.076"
HYDROTEST PRESSURE	7975 PSIG	7975 PSIG
CRN NO.:	---	---

DESIGN AND CONSTRUCTED IN ACCORDANCE WITH THE 2010 EDITION OF THE ASME CODE FOR PROCESS PIPING SECTION ASME B31.3 PARA 304.1.2. KOOTENAY WELDING PROCEDURE No.: WP-2940.2 AQP No.: 1479 IMPACT TESTING NOT REQ'D PER B31.3 PARA 323.2.2 COILS TO BE REGISTERED FOR ALBERTA SERVICE.

**FABRICATION NOTES:**

1. JOINT PREP. AND FIT-UP AS PER KOOTENAY ENGR. SPEC. KIL-003.
2. ALL ATTACHMENTS TO BE CONTINUOUSLY WELDED.
3. NOT TO BE USED IN A PRESSURE VESSEL.

**ESTIMATE WEIGHT:**

11,750 LBS

QUALITY CONTROL  
10/16/12  
ISSUED FOR CONSTRUCTION

Job # 12-032-CB

KOOTENAY INDUSTRIES LTD.  
CALGARY, ALBERTA

DATE: 12-10-02  
SCALE: 1:30  
S/N: 12-031-033-CB

PIPE TO FITTING	TOL/CPLG/WOL	WELDNECK FLANGE	SOL/SW FLANGE
1.) KIL-5 REVO KIL-6 REVO	2.) KIL-5 REVO KIL-6 REVO	3.) KIL-5 REVO KIL-6 REVO	4.) KIL-5 REVO KIL-6 REVO

(3) REQ'D

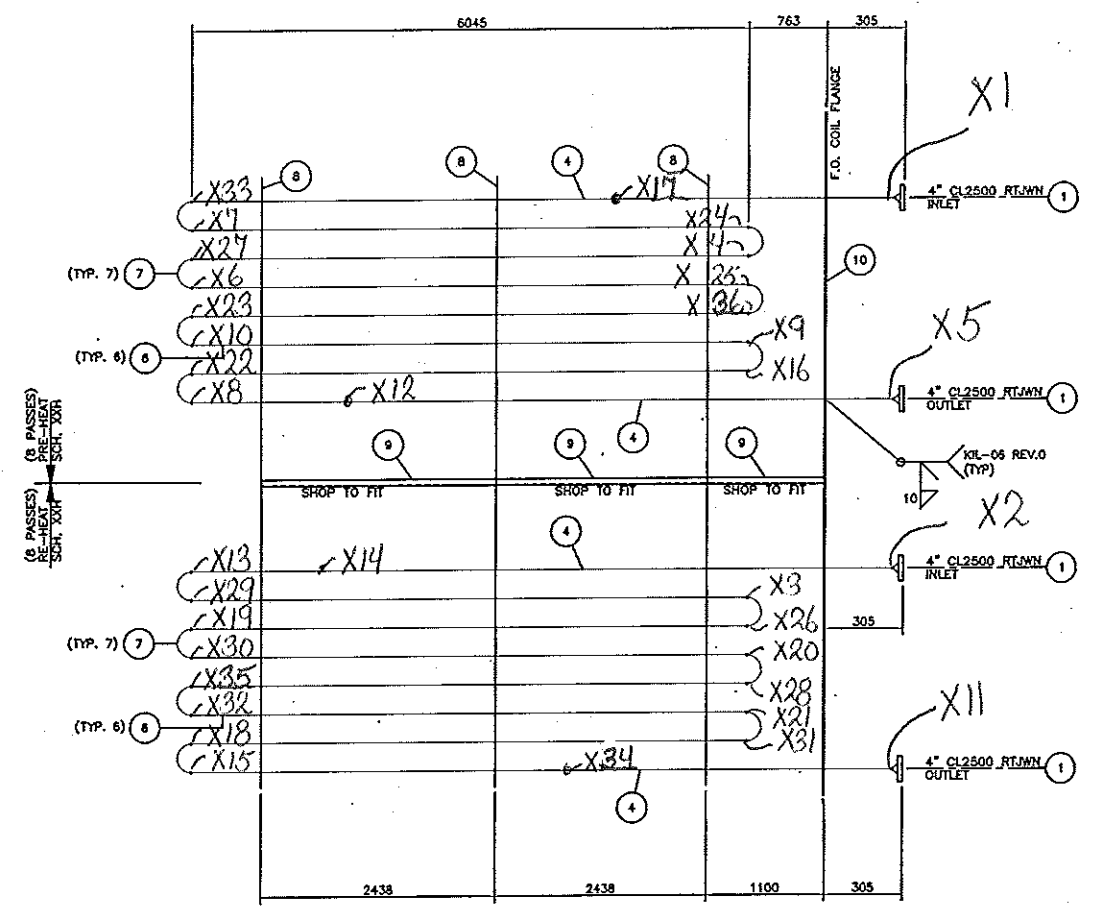
TIME CARD  
12-031-033-CB

REV.	DESCRIPTION	APP'D	DATE	BY	DATE
1	ISSUED FOR CONSTRUCTION	KS	12-10-02		

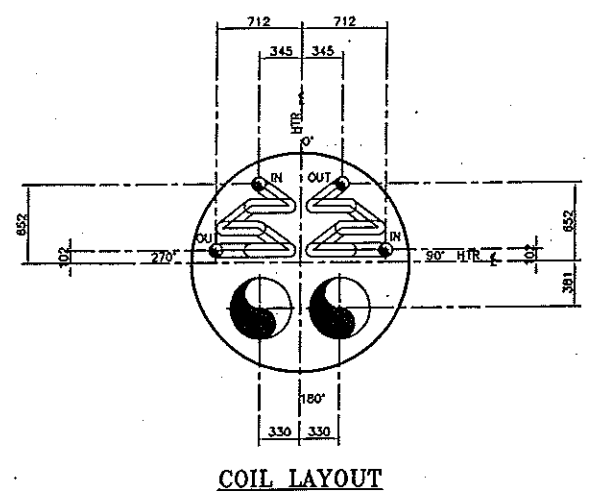
HEATING COIL: 8 PASSES PRE-HEAT,  
8 PASSES RE-HEAT (SOUR SERVICE)

DAYLIGHT ENERGY LTD. 12-031-B

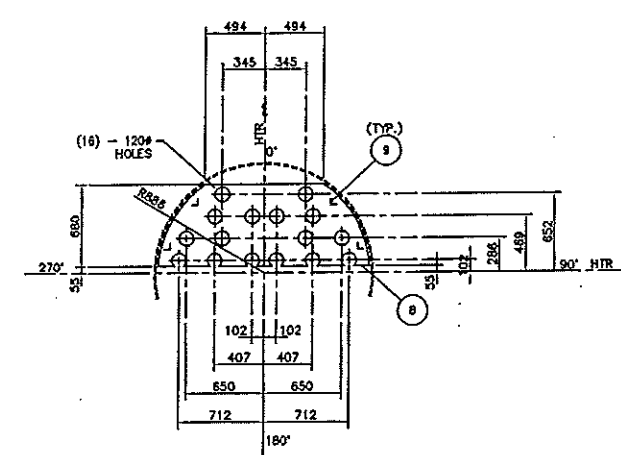
BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MAT'L
1	4	FLANGE - 4" CL2500 RTJWN SCH. XXH BORE	SA-350-LF2 CL.1
2	-	----	----
3	1	NAME PLATE C/W BRACKET	SS/SA-36
4	4 PCS	PIPE - 4" SCH. XXH SMLS 6917 mm (22"-8 3/8" LG)	SA-333-6
5	-	----	----
6	12 PCS	PIPE - 4" SCH. XXH SMLS 6045 mm (19'-10" LG)	SA-333-6
7	14	RETURN BEND - 4" SCH. XXH x 180° LR	SA-420-WPL6
8	3 PCS	TUBE SHEET - 3/8" PL (CUT PER DWG DET'L)	SA-36
9	12 PCS	L2" x 2" x 1/4" THK (CTS)	44W
10	1	COIL FLANGE - 1/2" PL (CUT PER DWG DET'L)	SA-36



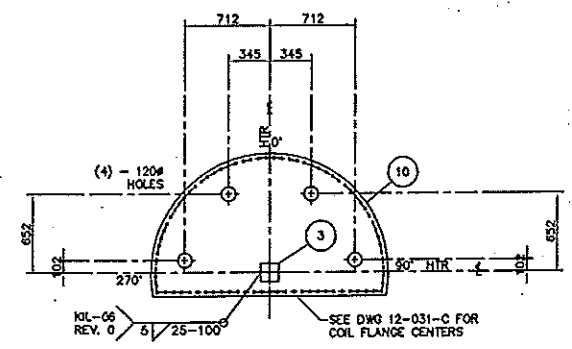
**COIL BUNDLE**  
**(NOT TRUE ORIENTATION)**  
(N.T.S.)



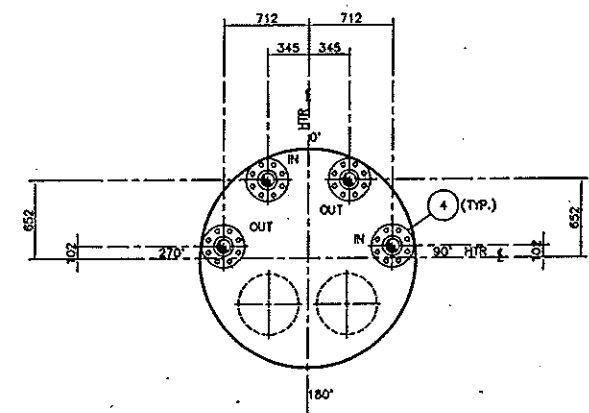
**COIL LAYOUT**



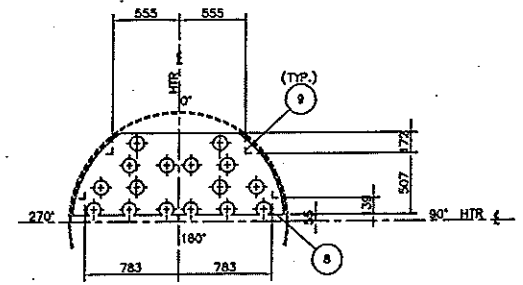
**TUBE SHEET DET'L**  
(3) REQ'D



**COIL FLANGE DET'L**  
(1) REQ'D



**FRONT VIEW**



**ITEM #9 LOCATION DET'L**

**GENERAL SPECIFICATIONS:**

MATERIALS:	PRE-HEAT COIL (4" SCH. XXH)	RE-HEAT COIL (4" SCH. XXH)
PIPE	SA-333-6 SMLS	SA-333-6 SMLS
RETURN BEND	SA-420-WPL6	SA-420-WPL6
FLANGE / THRODLEET	SA-350-LF2 CL.1	SA-350-LF2 CL.1
HEATING SURFACE	193.8 SQ.FT.	193.8 SQ.FT.
VOLUME	6.65 CU.FT.	6.65 CU.FT.

DESIGN DATA:	PRE-HEAT COIL (4" SCH. XXH)	RE-HEAT COIL (4" SCH. XXH)
DESIGN PRESSURE	5020 PSIG	5020 PSIG
DESIGN TEMPERATURE	-20/200°F	-20/200°F
JOINT EFFICIENCY	100%	100%
STRESS RELIEVED	60 MINUTES @ 1150°F ±25°F	60 MINUTES @ 1150°F ±25°F
RADIOGRAPHY (NORMAL)	100% PER B31.3 TOTAL WELD	100% PER B31.3 TOTAL WELD
CORROSION ALLOWANCE	0.076"	0.076"
HYDROTEST PRESSURE	7975 PSIG	7975 PSIG
CRN NO.:	----	----

DESIGN AND CONSTRUCTED IN ACCORDANCE WITH THE 2010 EDITION OF THE ASME CODE FOR PROCESS PIPING SECTION ASME B31.3 PARA 304.1.2. KOOTENAY WELDING PROCEDURE No.: WP-2940.2 AQP No.: 1479 IMPACT TESTING NOT REQ'D PER B31.3 PARA 323.2.2 COILS TO BE REGISTERED FOR ALBERTA SERVICE.

**FABRICATION NOTES:**

1. JOINT PREP. AND FIT-UP AS PER KOOTENAY ENGR. SPEC. KIL-003.
2. ALL ATTACHMENTS TO BE CONTINUOUSLY WELDED.
3. NOT TO BE USED IN A PRESSURE VESSEL.

**ESTIMATE WEIGHT:**  
11,750 LBS

QUALITY CONTROL  
*10/16/12*  
ISSUED FOR CONSTRUCTION

Job # 12-033-CB

KOOTENAY INDUSTRIES LTD.		
CALGARY, ALBERTA		
DRAWN BY: KS	S/N: 12-031-033.CB	DATE: 12-10-02
CHECKED BY: KT		SCALE: 1:30

PIPE TO FITTING	TOL/CPLG/WOL	WELDNECK FLANGE	SOL/SW FLANGE
1.) KIL-5 REVO	2.) KIL-5 REVO	3.) KIL-5 REVO	4.) KIL-5 REVO
KIL-6 REVO	KIL-6 REVO	KIL-6 REVO	KIL-6 REVO

(3) REQ'D  
**TIME CARD**  
12-031-033-CB

ISSUED FOR CONSTRUCTION	KS	12-10-02
REV. DESCRIPTION	APP'D	DATE
PROJECT CO-ORDINATOR CHECKED: DATE:	BY:	

HEATING COIL: 8 PASSES PRE-HEAT, 8 PASSES RE-HEAT (SOUR SERVICE)	
DAYLIGHT ENERGY LTD.	12-031-B