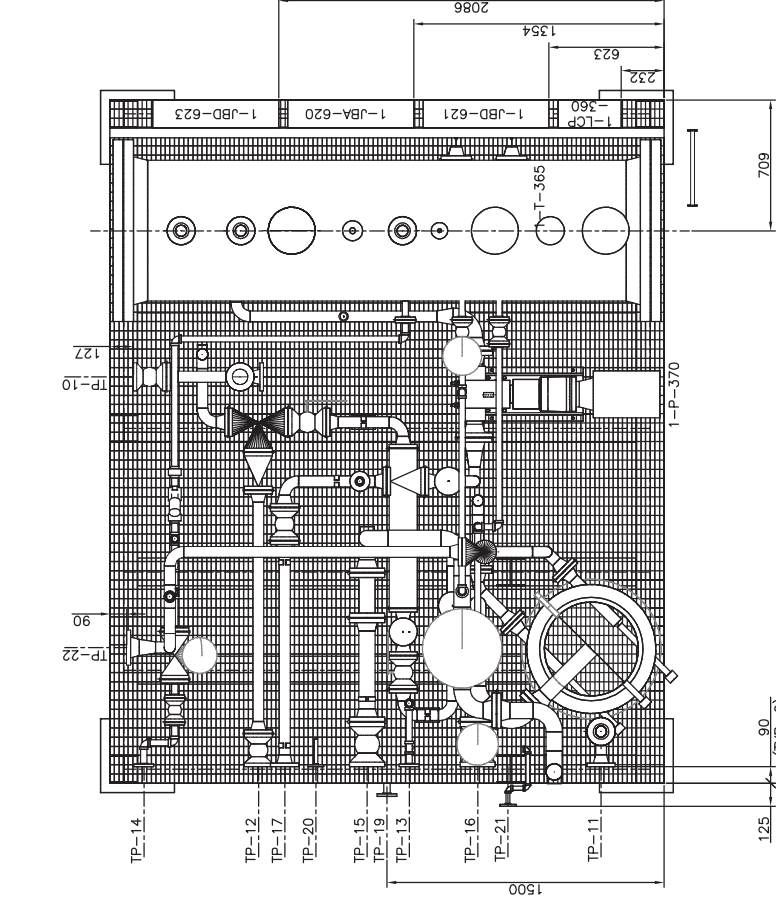
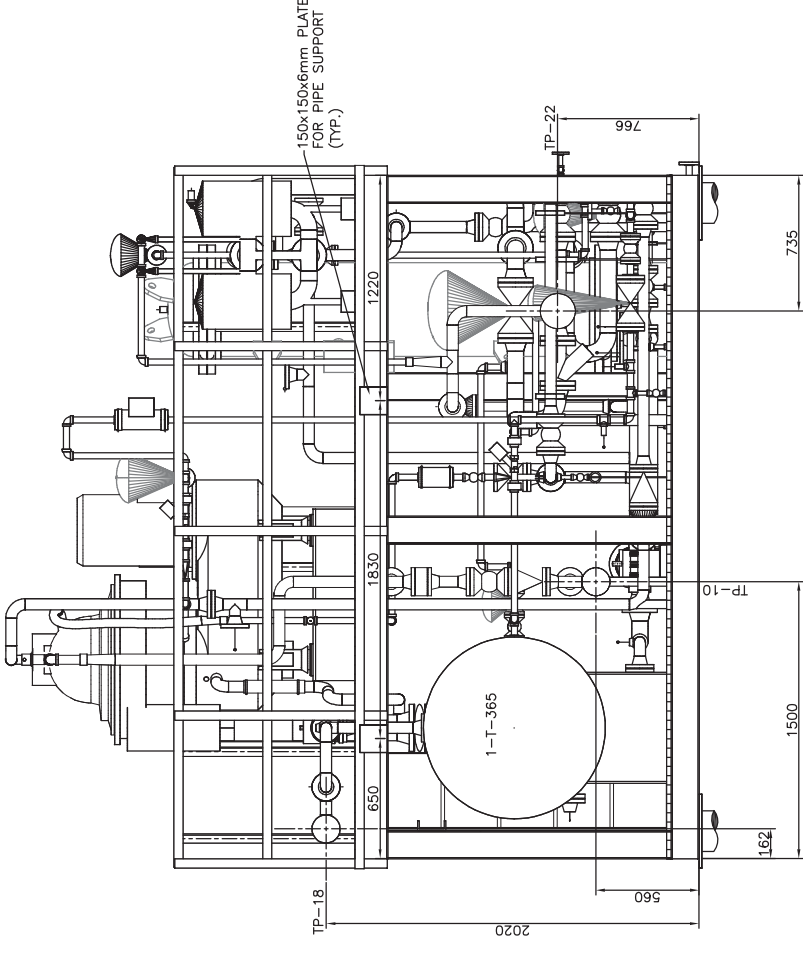


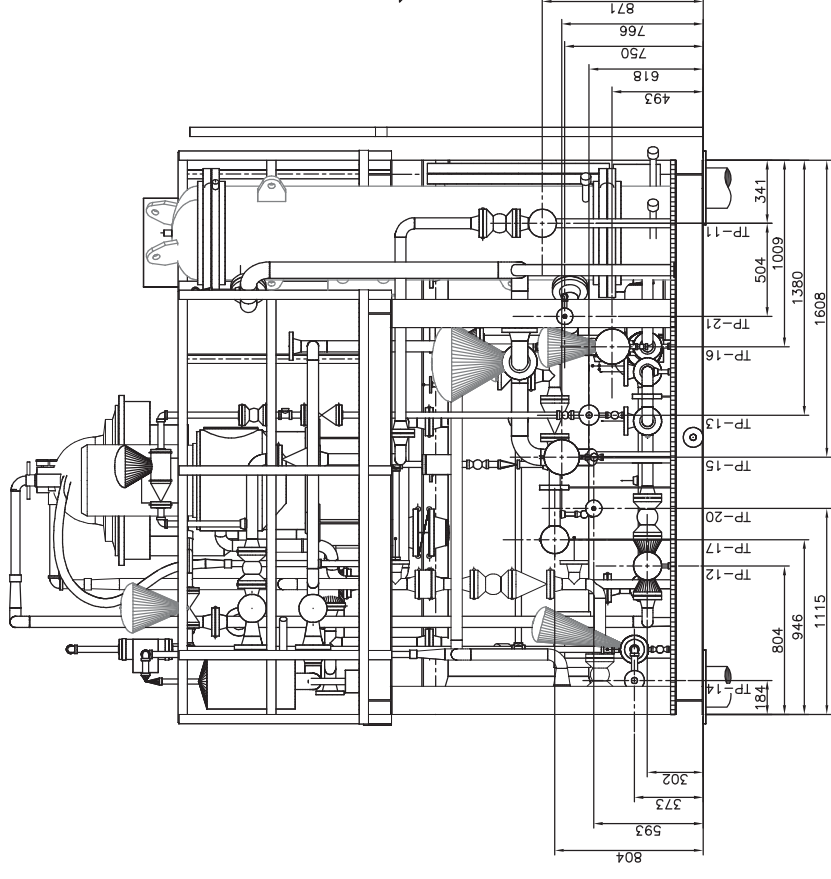
PLAN VIEW



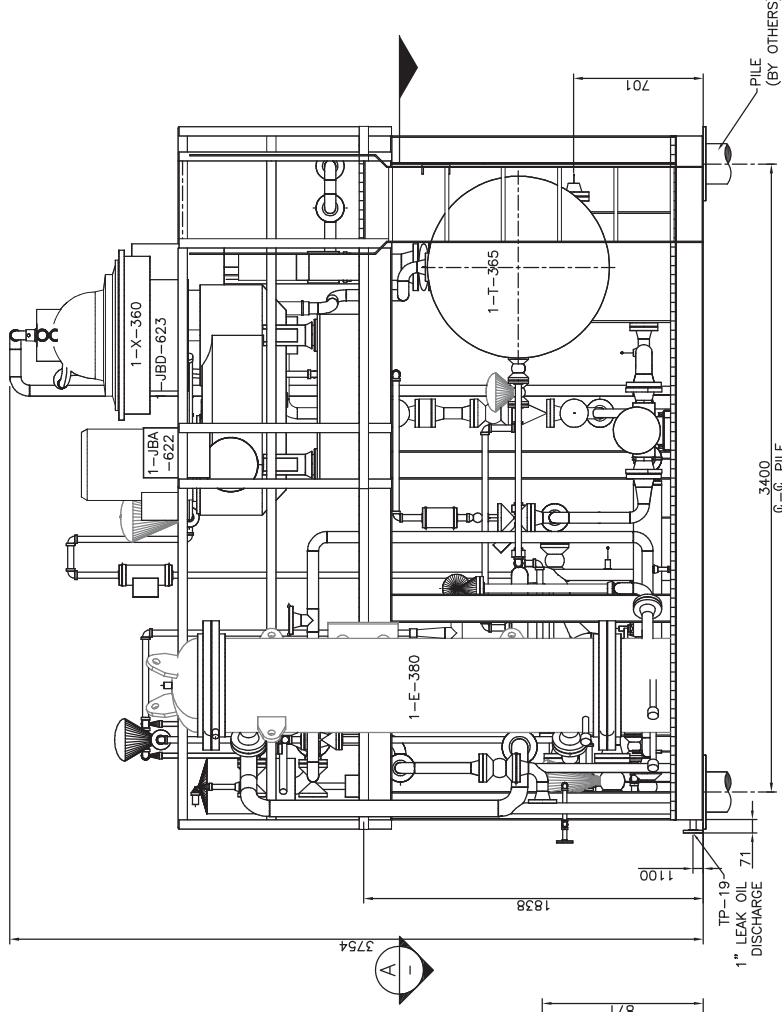
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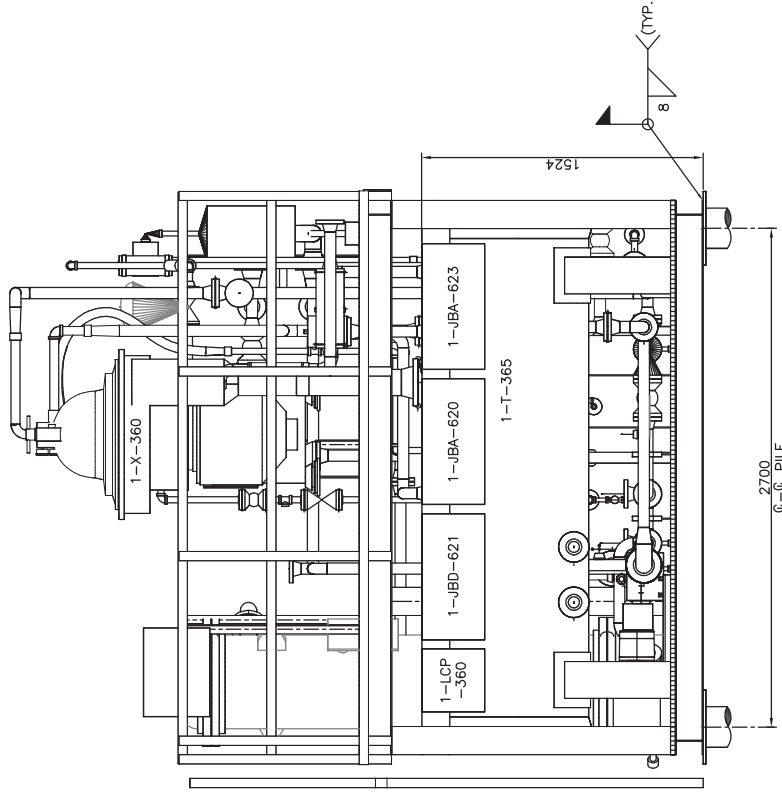
ELEVATION - LOOKING SOUTH



ELEVATION - LOOKING EAST



ELEVATION - LOOKING NORTH



ELEVATION - LOOKING WEST

NOTES:

ENGINEERING STAMPS

REFERENCE DRAWINGS

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.
H	2012/04/02	I.F.R. (REVISED TP-21)		
G	2012/03/16	I.F.R. (REVISED AS PER CLIENT)		
F	2012/03/12	I.F.R. (REVISED TANK NOZZLE AS PER CLIENT)		
E	2012/03/02	ISSUED FOR REVIEW (UPDATED)		
D	2012/02/27	ISSUED FOR REVIEW (UPDATED)		
C	2012/02/21	ISSUED FOR REVIEW (UPDATED)		
B	2012/02/21	ISSUED FOR REVIEW (UPDATED)		
A	09/29/11	ISSUED FOR PRELIMINARY REVIEW		

ENGINEERING RECORD	DATE	BY
DRAWN	2017/09/28	CMF
DESIGNED		
CHK'D		
ENGINEER		
CLIENT APP'D		
JOB NO.	HT11057	
APP.		

TITLE

SKID LAYOUT GENERAL VIEWS
SLOP OIL CENTRIFUGE PACKAGE
CENTRIFUGE ODA-80-01-537
KIRBY IN-SITU OIL SANDS



PREPARED BY

SCALE

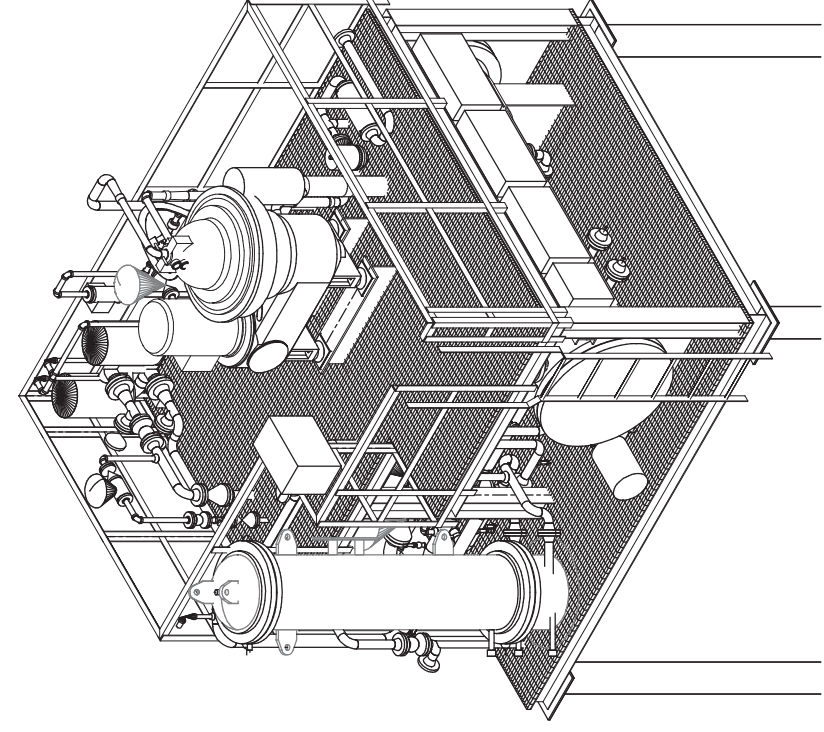
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DWG. NO.

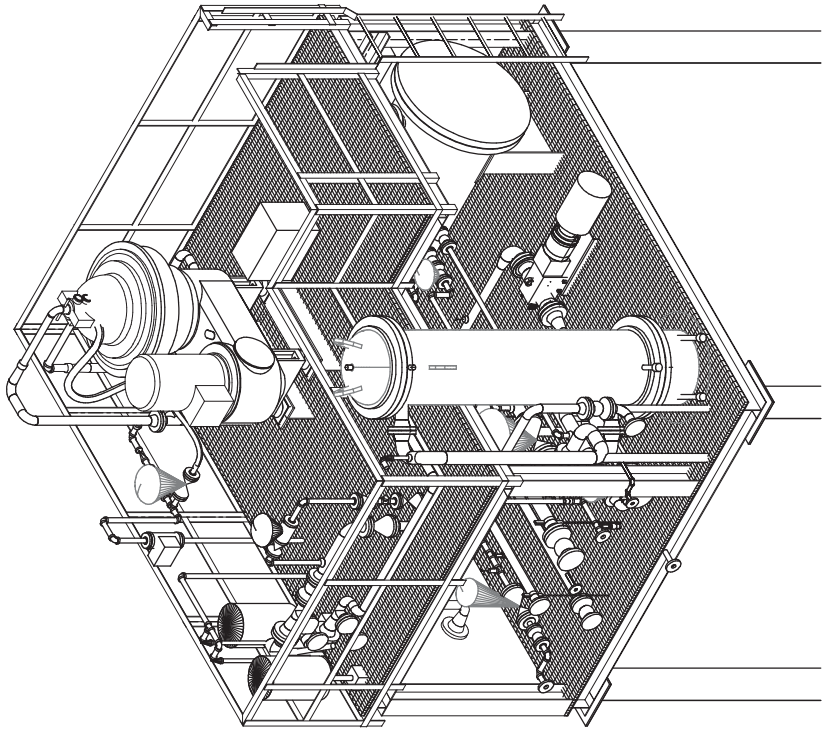
HT11057-PIP-001_SHT.2

REV.

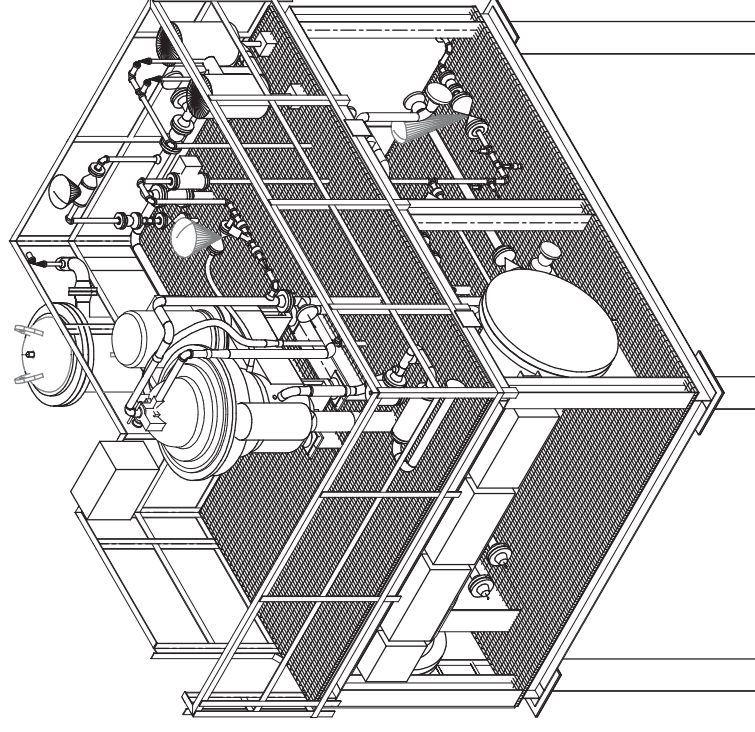
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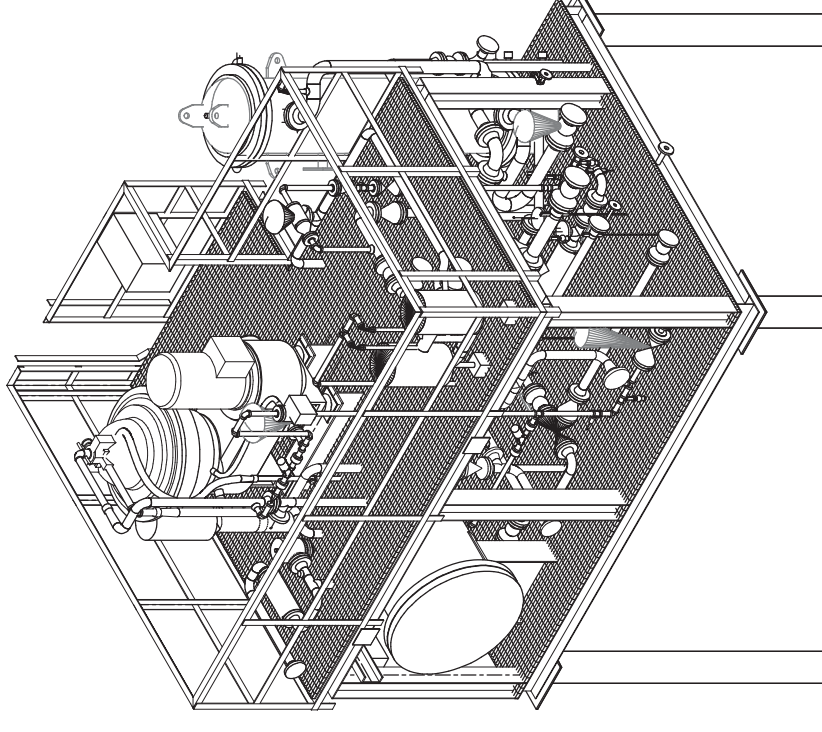
SOUTH EAST VIEW



SOUTH WEST VIEW



NORTH EAST VIEW



NORTH WEST VIEW

NOTES:

ENGINEERING STAMPS

REFERENCE DRAWINGS

REVISIONS

ENGINEERING RECORD

TITLE

SKID LAYOUT ISOMETRIC VIEWS
SLOP OIL CENTRIFUGE PACKAGE
CENTRIFUGE ODA 80-01-537
KIRBY IN-SITU OIL SANDS



PREPARED BY

266, 150 CANTON RD
SHERWOOD PARK, AB
CANADA T8A 6G2

SCALE

NIS

DWG. NO.

HT11057

REV.

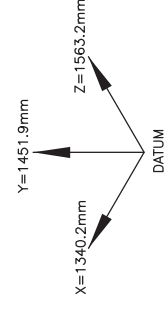
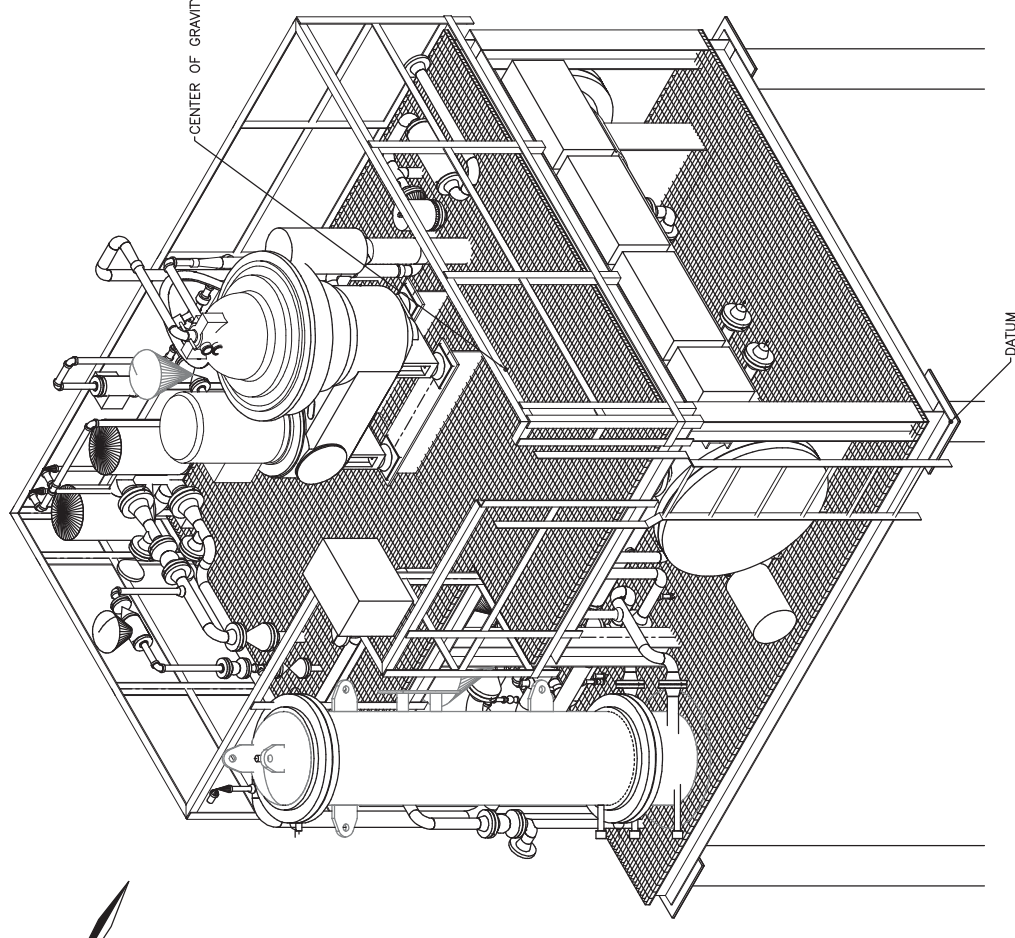
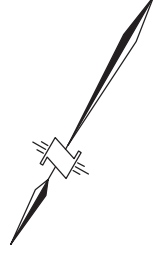
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REV.	DATE	DESCRIPTION	BY	CHKD.	APP.	DWG. NO.
E	2012/04/02	I.F.R. (REVISED TP--21)	ON	KS		
D	2012/03/16	I.F.R. (REVISED AS PER CLIENT)	ON	KS		
C	2012/03/12	I.F.R. (REVISED TANK NOZZLE AS PER CLIENT)	ON	KS		
B	2012/02/21	ISSUED FOR REVIEW	ON	KS		
A	09/29/11	ISSUED FOR PRELIMINARY REVIEW	CMF	RN		

DATE	BY	DESCRIPTION
2017/09/28	CMF	

Table 1 - Nozzle Schedule

Tie-Point	Size/Rating	Rating (#)	Description
TP-10	2"	150	Treated DILBIT
TP-11	2"	150	Slop Oil
TP-12	2"	150	Untreated Slop Return
TP-13	1"	150	Hot Process Water
TP-14	1"	150	Water Supply
TP-15	3"	150	Glycol Supply
TP-16	3"	150	Glycol Return
TP-17	2"	150	Produced Water/Sludge Discharge
TP-18	2"	150	Vent Gas (to VRU inlet coolers)
TP-19	1"	150	Leak Oil Discharge
TP-20	1/2"	150	Instrument Air
TP-21	1/2"	150	Nitrogen
TP-22	3"	150	PSV discharge to Header



CENTER OF GRAVITY

NOTES:

ENGINEERING STAMPS

REFERENCE DRAWINGS

REVISIONS

ENGINEERING RECORD

DRAWN		DATE	BY
DESIGNED		2012/03/02	ON
CHK'D			
ENGINEER			
CLIENT APP'D			
JOB NO.		HT11057	
BY		CHK.	APP.
DESCRIPTION			
DWG. NO.			
REV.		DATE	
DESCRIPTION			
DWG. NO.			
REV.		DATE	
DESCRIPTION			

255, 150 CANTON RD.
SHERWOOD PARK, AB
CANADA T8A 6K2

SPS INDUSTRIAL

HOOD

PREPARED BY

SCALE: NIS
DWG. NO: HT11057-PIP-001_SHT.4
REV: C

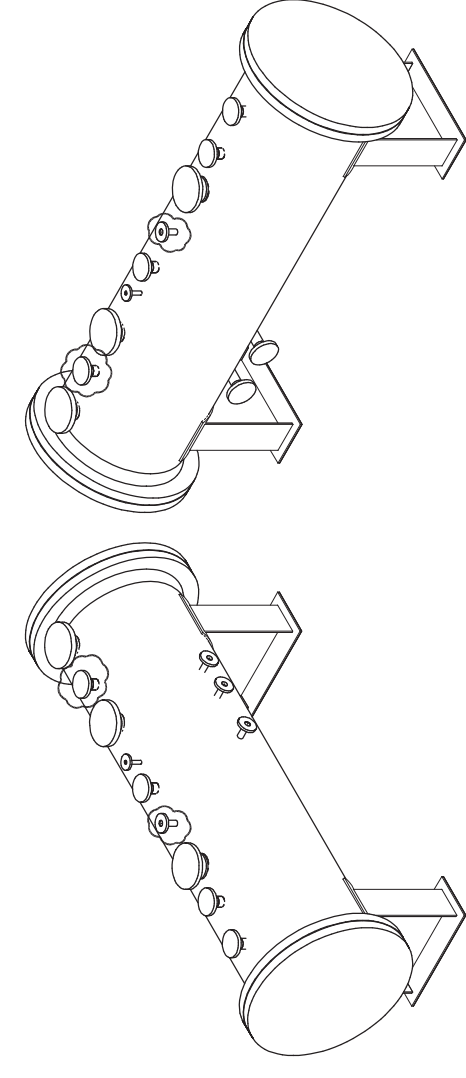
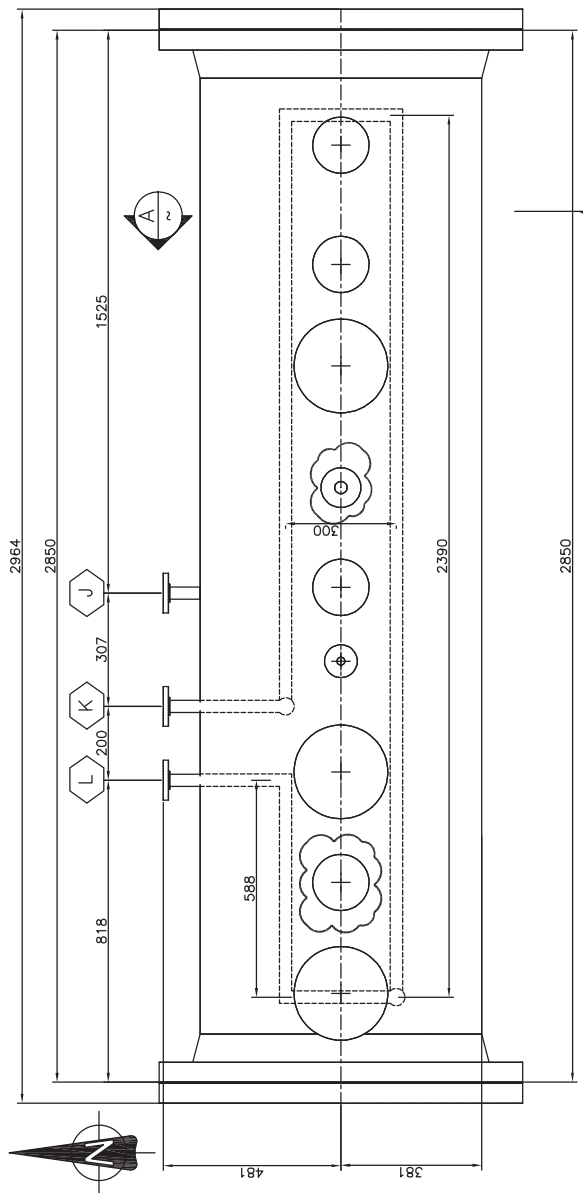
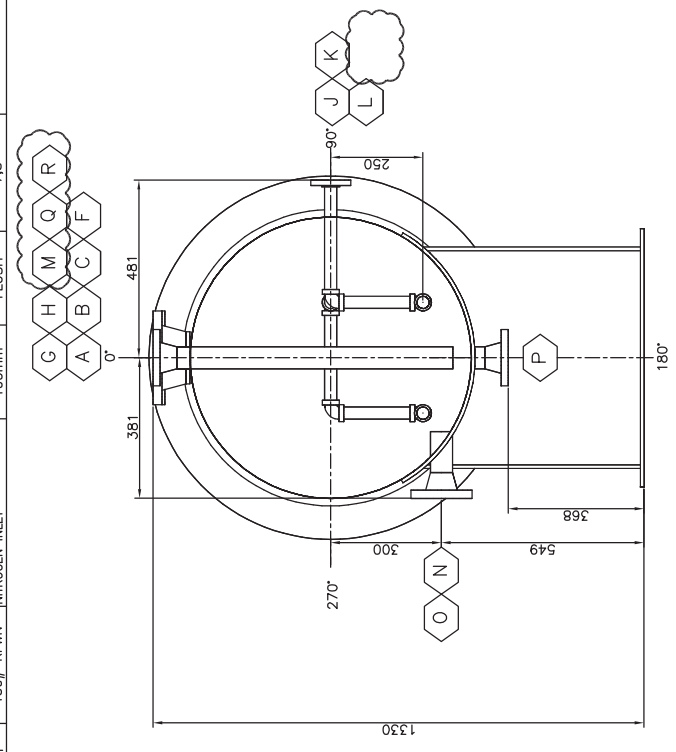
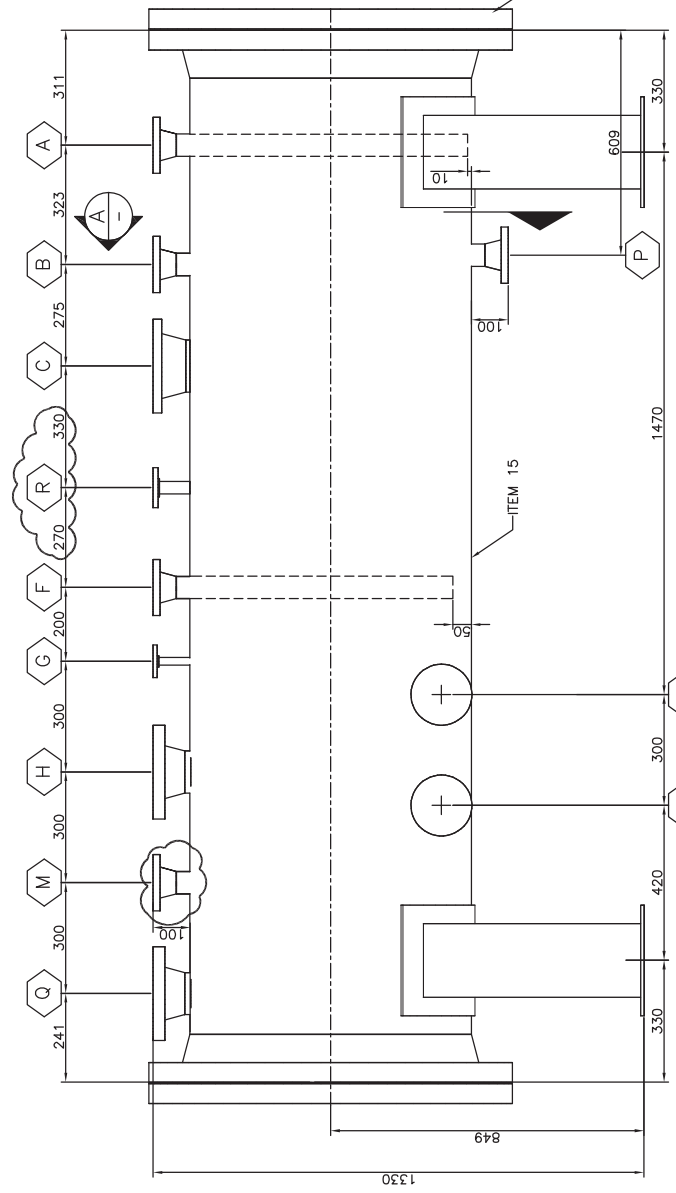
TITLE: SKID LAYOUT NOZZLE SCHEDULE
SLOP OIL CENTRIFUGE PACKAGE
CENTRIFUGE ODA 80-01-537
KIRBY IN-SITU OIL SANDS

NOZZLE SCHEDULE

BILL OF MATERIALS

MARK	REQ'D SIZE	ASME RATING AND TYPE	SERVICE	PROJECTION		B.O.M. ITEMS	REMARKS	ORIENT X	TOP BOTTOM "R"	ITEM No.	QTY.	DESCRIPTION	MATERIAL
				OUTSIDE	INSIDE								
A	1 2"	150# RFWN	PRV-3650 DISCHARGE RETN	100mm	FLUSH	1,2	-	0"	-	1	2	2" FLG. RFWN 150LB S/XS BORE. B16.5	ASTM A105-N
B	1 2"	150# RFWN	PRV-3650	100mm	FLUSH	1,2	-	0"	-	2	2	2" PIPE. B36.10M S/XS SMLS CS.	ASTM A106 GR.B
C	1 5"	150# RFWN	SLUDGE DISCHARGE OUTLET	100mm	FLUSH	3,4	-	0"	-	3	1	5" FLG. RFWN 150LB S/STD BORE. B16.5	ASTM A105-N
F	1 2"	150# RFWN	FRAME DRAIN	100mm	712mm	9,10	-	0"	-	4	1	5" PIPE. B36.10M S/STD SMLS CS.	ASTM A106 GR.B
G	1 1/2"	150# RFSW	CONDENSATE DRAIN	100mm	FLUSH	5,6	-	0"	-	5	1	1/2" FLG. RFSW 150LB. B16.5	ASTM A105-N
H	1 4"	300# RFWN	1L1-3650	100mm	FLUSH	11,12	-	0"	-	6	1	1/2" FLG. RFSW. B36.10M S/XS SMLS CS.	ASTM A106 GR.B
J	1 1"	150# RFSW	PW SLURRY TANK JETTING	100mm	FLUSH	7,8	-	90"	-	7	4	1" FLG. RFSW 150LB. B16.5	ASTM A105-N
K	1 1"	150# RFSW	HOT GLYCOL INLET	100mm	SEE DWG	7,8	-	90"	-	8	4	1" FLG. RFWN 150LB S/STD BORE. B16.5	ASTM A105-N
L	1 1"	150# RFSW	GLYCOL RETURN	100mm	SEE DWG	7,8	-	90"	-	9	2	2" FLG. RFWN 150LB S/STD BORE. B16.5	ASTM A105-N
M	1 2"	300# RFSW	1PT-3651	100mm	FLUSH	10,20	-	90"	-	10	5	2" FLG. RFWN 150LB S/STD SMLS CS.	ASTM A105-N
N	1 2"	300# RFWN	1L1-3650B	100mm	FLUSH	10,20	-	90"	-	11	2	4" FLG. RFWN 300LB S/STD BORE. B16.5	ASTM A105-N
O	1 2"	300# RFWN	1L1-3650A	100mm	FLUSH	10,20	-	270"	-	12	2	4" FLG. RFWN 300LB S/STD SMLS CS.	ASTM A105-N
P	1 2"	150# RFWN	PW SLUDGE DISCHARGE OUTLET	100mm	FLUSH	9,10	-	180"	-	13	1	3/4" FLG. RFSW. 300LB. B16.5	ASTM A105-N
Q	1 4"	300# RFWN	1L1-3651	100mm	FLUSH	11,12	-	180"	-	14	1	3/4" PIPE. B36.10M S/XS SMLS CS.	ASTM A105-N
R	1 1"	150# RFWN	NITROGEN INLET	100mm	FLUSH	7,8	-	180"	-	15	1	30" FLG. RFWN 150LB S/STD BORE. B16.47	ASTM A105-N
										16	2	30" GASCKET SPWD, 1/8" THK, 150LB, 516 SS, WINDINGS W/FLEX GRAPHITE	
										17	2	FILLER, B16.20 RF, B16.5 CARBON STEEL OUTER RING	
										18	2	30" FLG. RF BLIND 150LB. ASTM. B16.47	ASTM A105-N
										19	2	2 SETS 1-1/4" X 8 LG (28) STUD BOLTS B16.21 A193 GR B7/ HWY HEX NUTS A194 GR 2H	
										20	3	2" FLG. RFWN 300LB S/STD BORE. B16.5	ASTM A105-N
										21	-	-	-
										22	-	-	-
										23	-	-	-
										24	-	-	-
										25	-	-	-
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ITEM 16,17,18,19
TYP. BOTH SIDES



DESIGN DATA:
SERVICE: SLOP OIL
DESIGN PRESSURE: 103 kPa @ 100°C
OPERATING PRESSURE: 20 kPa @ 100°C
MINIMUM DESIGN METAL TEMPERATURE: -29°C @ 100°C
WAMP PLASTIC TEST PRESSURE: 103 kPa @ 100°C
CORROSION ALLOWANCE: 103 kPa
RADIOGRAPHY: -
PWHT: -
JOINT EFFICIENCY: -
VOLUME WEIGHT (EMPTY): - cu.ft
VESSEL WEIGHT (FULL OF WATER): - lbs
INSULATION: NONE

DESIGN NOTES:
1. -

NOTES:

REFERENCE DRAWINGS

ENGINEERING STAMPS

REVISIONS

DATE	BY	DESCRIPTION
2011/09/18	CMF	

ENGINEERING RECORD	DATE	BY
DRAWN	2011/09/18	CMF
DESIGNED		
CHK'D		
ENGINEER		
CLIENT APP'D		

REV.	DATE	DESCRIPTION	BY	CHK.	APP.
E	2012/03/21	ISSUED FOR REVIEW (REVISED AS PER CLIENT REQUEST)	ON	KS	
D	2012/03/19	IFR (UPDATED SELECTED NOZZLES 150# TO 300#)	ON	KS	
C	2012/03/12	ISSUED FOR REVIEW (UPDATE AS PER CLIENT REQUEST)	ON	KS	
B	2012/02/21	ISSUED FOR REVIEW	ON	KS	
A	AUG.18/2011	ISSUED FOR PRELIMINARY REVIEW	CMF	RN	

NO.	DATE	DESCRIPTION
1	HT11057	

PREPARED BY: **STPS INDUSTRIAL**

HOOD

245, 150 CARRINGTON RD
SHERWOOD PARK, AB
CANADA T8B 6Z2

SCALE: 1:10

BWR. NO. HT11057-TANK-001

TITLE: 1-1-365 SLOP OIL CENTRIFUGE PACKAGE CENTRIFUGE ODA 80-01-537 KIRBY IN-SITU OIL SANDS