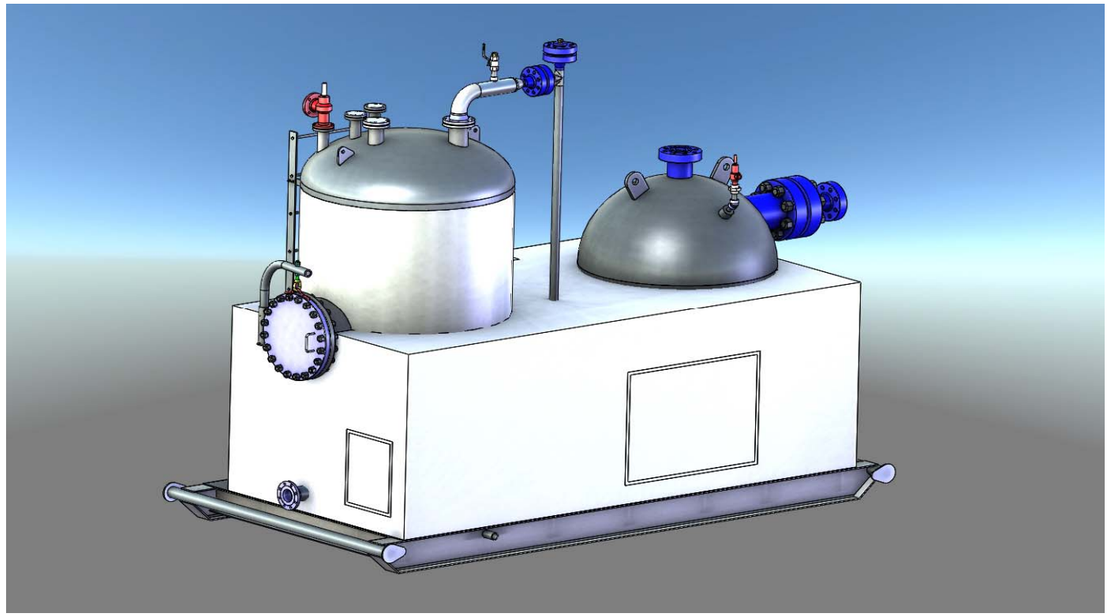
ARGO SALES INC.
SUITE 1300, 717 - 7TH AVENUE, S.W. CALGARY, ALBERTA T2P 0Z3 PHONE (403) 265-6633 FAX (403) 266-2770



ARGO STANDARD SINGLE SPHERE

SAND SEPARATOR PACKAGE

PAGE	DESCRIPTIONS
1 OF 5	COVER PAGE
2 OF 5	P&ID
3 OF 5	GENERAL LAYOUT
4 OF 5	SAND SEPARATOR
5 OF 5	BLOWDOWN VESSEL

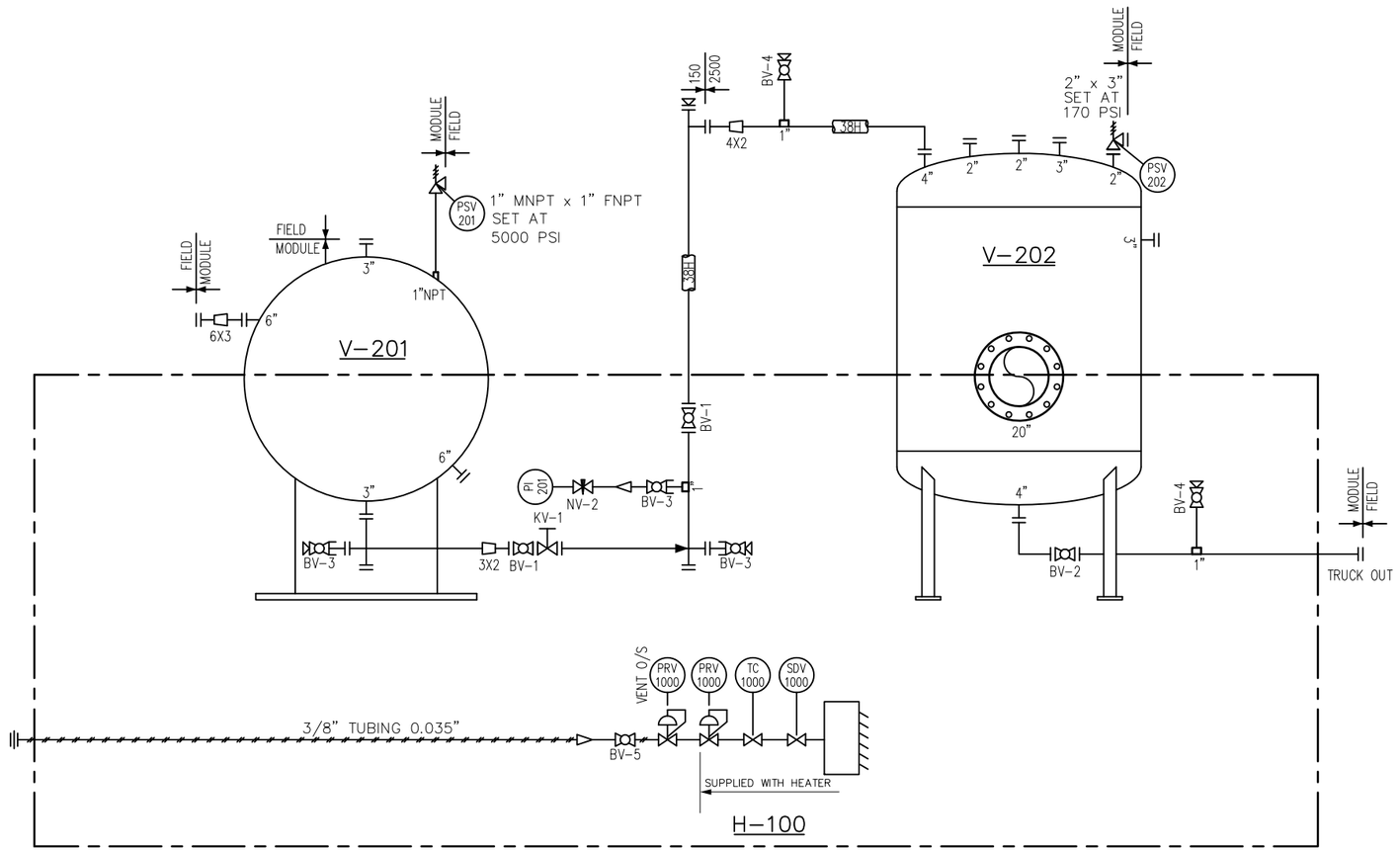
QUALITY, VALUE, PERFORMANCE

ARGO

655 - 30th Ave.
Nisku, Alberta, T9E 0R4
Phone (780) 955 - 8660
Fax (780)955-9422
Toll Free: (866)95508660

BROMLEY MECHANICAL SERVICES
A DIVISION OF ARGO SALES INC.

925 23 Street S.W.
Medicine Hat, Alberta, T1A 8R1
Phone (403)526-3142
Fax (403)526-1061
Toll Free: (800)215-9806



NOTES:
ALL TUBING TO BE ASTM A269 TP316/316L, FULLY ANNEALED
PROCESS/SENSING: 1/2" X 0.049" W.T. 316SS SMLS TUBING
INSTRUMENT LINES: 3/8" X 0.035" W.T. 316SS SMLS TUBING
ALL TUBE FITTINGS TO BE SWAGELOK 316SS
VENT ALL INSTRUMENTS OUTSIDE

REV. No.	DATE MM	DD	YY	DESCRIPTION	BY	CHK'D	APP'D
0	02	28	18	ISSUED FOR REVIEW	SG	SG	.

INSTRUMENT LIST

TAG No.	DESCRIPTION
H-100	CCI HEATER, WKII 24" X 24" 12VDC C/W GRILL, REGULATOR, TEMP CONTROL, VENT HOOD
	30' STARTER CABLES
V-201	48"ID X 5000 PSI SPHERICAL SEPARATOR, SOUR, NOV/ARGO STANDARD DESIGN
V-202	60" OD X 5'-0" S/S X 170 PSI @ 300F, 1/8" C.A. BLOWDOWN VESSEL, SOUR
PSV 201	FARRIS 1" NPT X 1 NPT" 'D' ORIFICE, MODEL 27DA33H-M20/S7 SET AT 5000PSI
PSV 202	TAYLOR 2" 150 ANSI X 3" 150 ANSI SET AT 170 PSI, MODEL 83J681134140600
PI 201	WIKA, 4-1/2", 8000 PSI, SS, BTM, 1/2", LF

VALVE LIST

ITEM	QTY.	DESCRIPTION
BV-1	2	KF BV 2" 2500 ANSI RTJ, FP, TRUNNION MOUNT, NACE
BV-2	1	KF BV, 4" 150 ANSI, RF, RP, NACE, WCC BODY, MODEL B100-CS2-42-S2 WR
BV-3	3	NUTRON BV 1" SW X NPT 6000PSI RP BV, LOW TEMP, NACE
BV-4	2	WKM BV 1" NPT 3000PSI RP BV, A105N BODY, NACE
BV-5	1	WKM BV 1/4" NPT 3000PSI FP BV, A105N BODY, NACE
NV-1	1	NEEDLE VALVE 1/2" NPT 6000# MXF, SST
KV-1	1	WILLIS 2" 2500 ANSI RTJ CHOKE VALVE 2-5/8" TRIM, TUNGSTEN CARBIDE WEAR SLEAVE

BROMLEY MECHANICAL SERVICES
925 – 23rd Street S.W., Medicine Hat, Alberta, Canada, T1A 8R1 (403) 526-3142

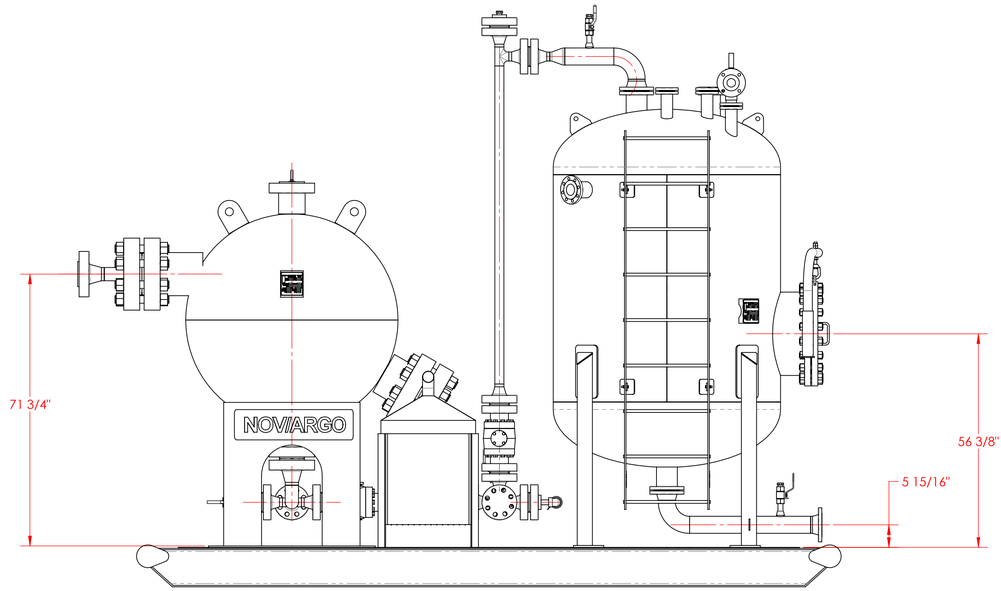
CLIENT: ARGO PROJECT

PROJECT: 48"ID X 5000PSI SPHERICAL SADN SEPARATOR PACKAGE

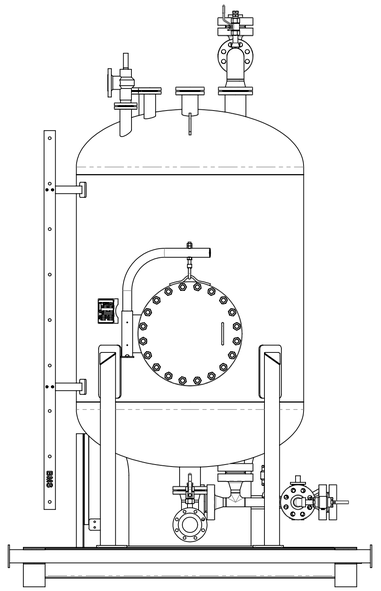
TITLE: P&ID

Wo No.: ARGO STOCK DESIGN

DRAWN BY: S.GAO	REV. No.: 0	DATE: MM/DD/YY 02/28/18
DATE: MM/DD/YY 02/20/18	SCALE: N.T.S.	CAD No.: Y5847-P&ID



BUILDING IS REMOVED FOR CLARIFICATIONS



BUILDING IS REMOVED FOR CLARIFICATIONS

CERTIFIED BY: BROMLEY MECHANICAL SERVICES — Medicine Hat Alberta (800) 215-6606 (403) 526-3142

M.A.W.P.	5000	PSI AT	200	F
M.D.M.T.	-40	F AT	5000	PSI

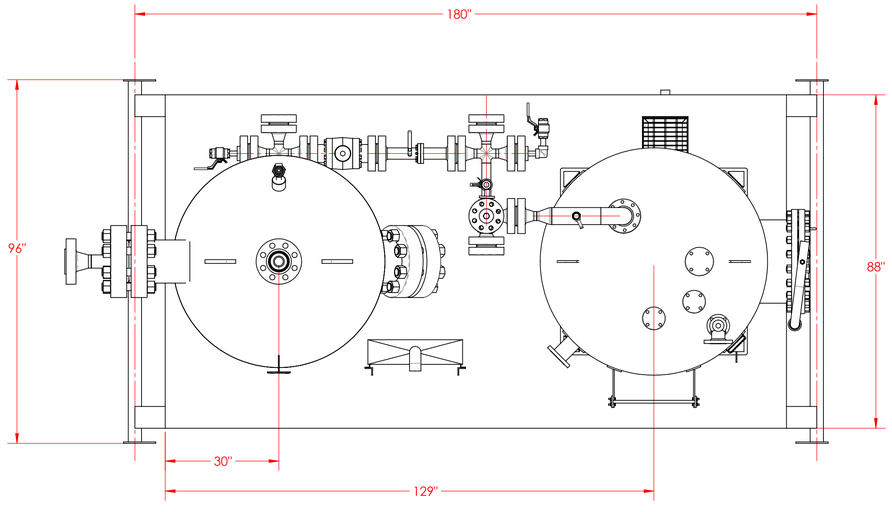
MFR'S SER. NO.	YR. BUILT
VESSEL TYPE	SPHERE
TAG	SAND TRAP
M.A.W.P.	KPA AT C
SHELL.NOM	MATERIAL
HEAD MIN.	MATERIAL
C.A.	CRN

CERTIFIED BY: BROMLEY MECHANICAL SERVICES — Medicine Hat Alberta (800) 215-6606 (403) 526-3142

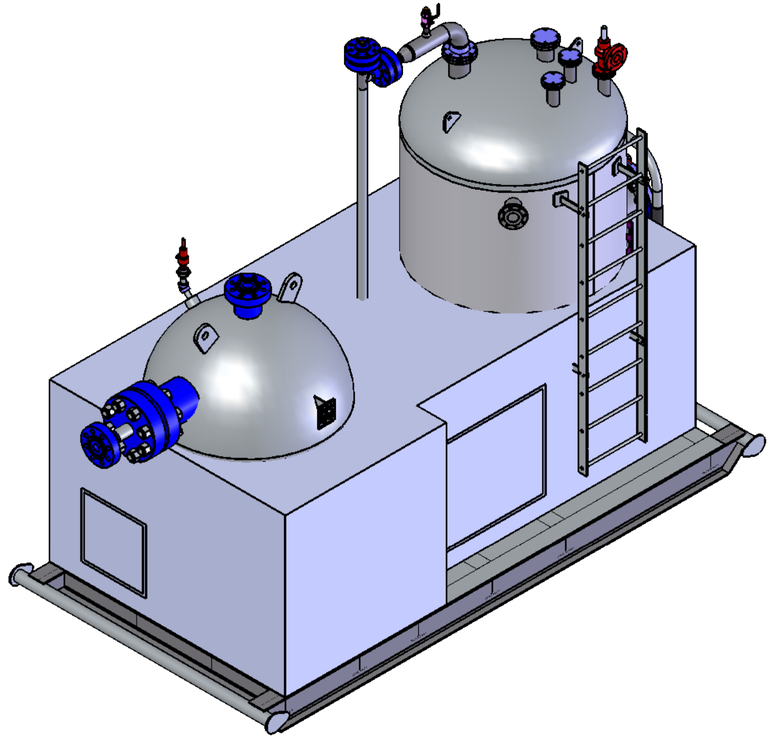
M.A.W.P.	170	PSI AT	300	F
M.D.M.T.	-40	F AT	170	PSI

MFR'S SER. NO.	YR. BUILT
VESSEL TYPE	VERTICAL VESSEL
TAG	BLOWDOWN VESSEL
M.A.W.P.	KPA AT C
SHELL.NOM	MATERIAL
HEAD MIN.	MATERIAL
C.A.	CRN

SKID SPECIFICATIONS
1. BUILT TO CSA W59 LATEST EDITION.
2. W10 X 22 MAIN RUNNERS
3. W8 X 18 STRINGERS
4. 1/4" CHECKER FLOOR
5. 3" SCH 80 PULLING BARS
6. 2" FIRE RETARDANT INSULATION UNDERNEATH.



BUILDING IS REMOVED FOR CLARIFICATIONS



BUILDING SPECIFICATIONS
1. GALVALUNE THERMO PANEL (R12)
2. ALUMINUM ANLGE FOR CORNER JOINTS
3. ALUMINUM FRAME FOR REMOVABLE PANELS.
4. C.S. HINGES AND LOCK HARDWARS
5. FLOOR MOUNTED CATADYNE HEATER.

REV.	DATE (MM DD YY)	DESCRIPTION	BY	CHK'D	APP'D
0	02 26 18	ISSUED FOR REVIEW	SG	SG	SG

ASME B31.3 2016 ED. (NORMAL SERVICE)

AQP: 1009(BMS)/1176(NISKU) REGISTERED WELD PROCEDURE 505.2
FOR PIPING TOLERANCES, SEE WELDER HANDBOOK
FLUID TYPE: WATER, GAS, OIL
M.A.W.P.: 5000 PSIG (34475 KPa) AT -40°F(-40°C) TO +200°F (+93°C)
P.W.H.T.: OPTIONAL
RADIOGRAPHY: 100% BW OTHER NDE: 100%MPI TOL&SOL
HARDNESS SURVEY: OPTIONAL INT. COATING: N/A
CORROSION ALLOWANCE:1/8" EXT. SURFACE: WARM GREY
HYDROSTATIC TEST: 7500 PSIG (51713 KPa)

CLIENT: ARGO STOCK

BROMLEY MECHANICAL SERVICES — 525 23 Street SW, Medicine Hat Alberta, T1A 8R1, PH: (403) 526-3142, Fax: (403) 526-1061, Toll Free (800) 215-6606

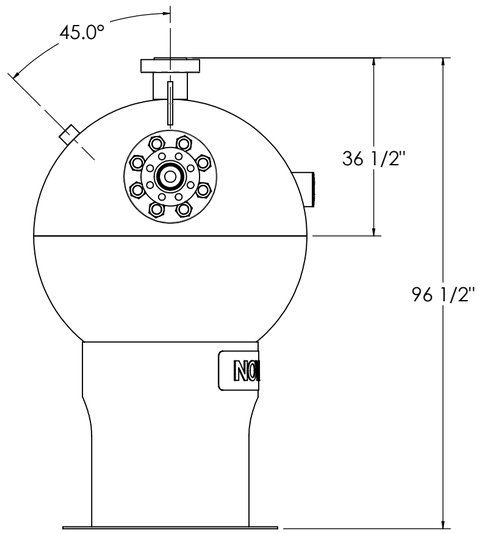
ARGO — 655 30th Avenue, Nisku, Alberta, T9E 0R4, PH: (780) 955-9550, Fax: (780) 955-9422, Toll Free (866) 955-8660

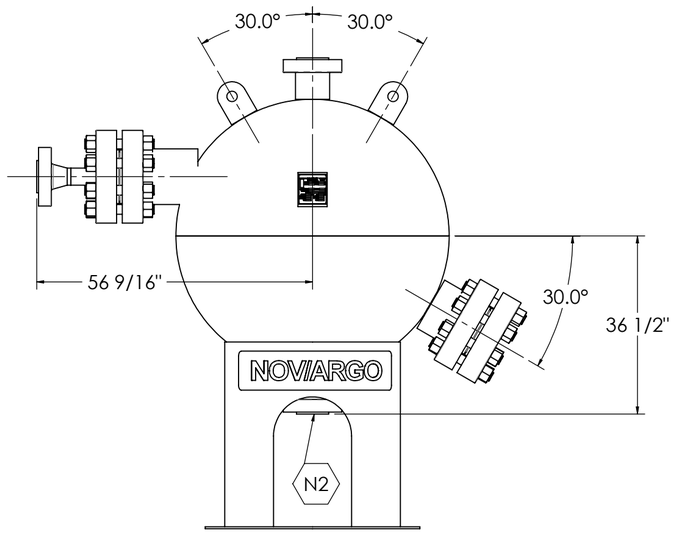
PROJECT: 5000PSI SAND SEPARATOR UNIT C/W BLOWDOWN VESSEL

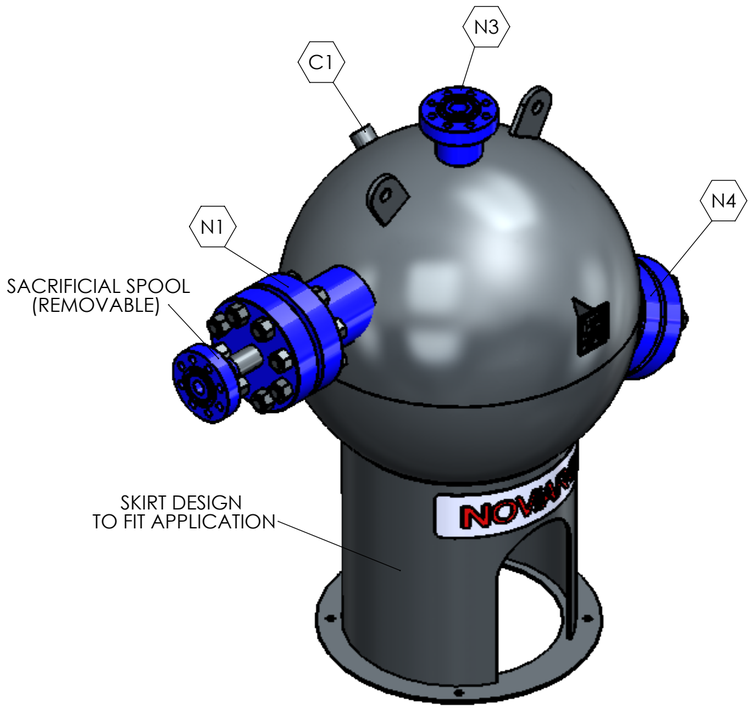
TITLE: ASSY, SINGLE SPHERE LAYOUT

WO. No.	TBD	CAD. No.	Y5847-SGLAYOUT	SIZE
DRAWN BY:	S.GAO	REV. No.	0	D
DATE: MM/DD/YY	02/22/18	SCALE:	1:24	SHEET 1 OF 1

DATE: MM/DD/YY 02/26/18







ITEM NO.	PART NUMBER	QTY.	Description
1	Y5847-HEMI1	1	HEMI HEAD, 48"ID X 4"NOM, SA516-70N, TOP
2	Y5847-HEMI2	1	HEMI HEAD, 48"ID X 4"NOM, SA516-70N, BOT
3	Y5847-BASE	1	SKIRT WELDMENT, 36"OD SKIRT, 44"OD BASE
4	SFG02031	1	RTJHBWN, 6" CL2500X2.81NOMX11"OAL, SA350 LF2 CL1
5	SFG02032	2	RTJHBWN, 3" CL2500X2.05NOMX8 1/2"OAL, SA350 LF2 CL1
6	SFG02021	1	RTJHBWN, 6" CL2500X2.81NOMX16"OAL, SA350 LF2 CL1
7	Y5847-CPLG	1	COUPLING, 1"NPT, 3 1/2"OD X 2 1/2"H, SA516-70N
8	Y5847-LUG	2	PLATE, 1"TK X 6" X 8", SA516-70N
9	Y5847-DEFL	1	DEFLECTOR PLATE, 1"TK X 43 5/8"OD, A36/44W
10	Y5847-NPHOLD	1	WELDMT, NP HOLDER, 1/4"TK PLATE
11	SFG02033	1	RTJB, 6" CL2500, SA350 LF2 CL1
12	Y5847-VESSP	1	SPOOL, SACRIFICIAL, 3"/6"-2500RTJ, SCH XXH
13	GAS1023	2	R47 RING GASKET 316SS
14	SSN90013	16	B7M STUD, 2" X 14", SA193-B7M
15	SSN90014	32	2HM NUT, 2", SA194-2HM

NOTES:

1. NOZZLE WELDS SHALL BE UT
2. MPI ROOT AND CAP OF CIRC SEAM AND NOZZLE ATTACHMENT WELDS
3. GRIND ALL NOZZLE FILLET WELDS TO OBTAIN SMOOTH TRANSITION TO BASE METAL
4. MPI THE CAP OF CIRC WELD BEFORE AND AFTER PWHT
5. ALL PRESSURE CONTAINING MATERIALS TO NACE MR0175
6. STUD LENGTHS GIVEN ARE THREAD TO THREAD
7. MTR'S REQUIRED FOR ALL PRESSURE RETAINING COMPONENTS
8. NON-CORROSIVE SERVICE UNDER REMARKS IN U-1A REPORT

IMPACT TESTING NOTES

COMPONENT	COMMENT
HEMI HEAD	AVERAGE 18 ft-lb AND MIN. 12 ft-lb@ TEMP. -40°F
CAT.A WELDS	AVERAGE 18 ft-lb AND MIN. 12 ft-lb PRODUCTION WELD @ TEMP. -40°F

ALL THE IMPACT TEST TO BE DONE TO UG-84

IMPACT TEST SHALL BE DONE WITH SAME HEAT NUMBER AND HEAT TREATMENT AS VESSEL.

EXTERNAL SURFACE PREPARATION AND PAINTING

PREPARATION: MECHANICAL CLEAN
PRIMER: ONE (1) COAT INDUSTRIAL PRIMER
FINISH: ONE (1) COAT MARINE ENAMEL - NOV TAN

NOZZLE NO.	NO. REQ'D	SIZE REQ'D	RATING	TYPE OF SERVICE	OD OF NOZ NECK	OUTSIDE PROJECTION	INSIDE	O.D. X THICKNESS REIF PAD	DETAIL WELD	FILLET WELD SIZE A	B	C	BILL OF MAT'L ITEM No.	REMARKS
C1	1	1"	CALC.	PSV	3.50"	2.50"	-	NA	6	1/2"	-	-	5	-
N4	1	6"	2500	INSPECTION	11.38"	14.25"	-	NA	6	1.00"	-	-	3	INSPECTION
N2	1	3"	2500	OUTLET	7.00"	8.50"	-	NA	6	3/4"	-	-	4	-
N2	1	3"	2500	DRAIN	7.00"	8.50"	-	NA	6	3/4"	-	-	4	-
N1	1	6"	2500	INLET	11.38"	14.25"	-	NA	6	1 5/8"	-	-	3	INSPECTION

INSIDE & OUTSIDE OF NOZZLE BE ROUNDED PER UG-76 (C)

WELD DETAIL 1	WELD DETAIL 2	WELD DETAIL 3	WELD DETAIL 4	WELD DETAIL 5	WELD DETAIL 6	WELD DETAIL 7	WELD DETAIL 8	WELD DETAIL 9	WELD DETAIL 10	WELD DETAIL 11	WELD DETAIL 12	WELD DETAIL 13	WELD DETAIL 14	WELD DETAIL 15
ROOT: F&C:	ROOT: BA-6 (GTAW) F&C: BA-6	ROOT: F&C:	ROOT: F&C:	ROOT: F&C:	ROOT: BA-2 OR BM-19 OR BA-6 F&C: BA-2 OR BM-19	ROOT: F&C:	ROOT: F&C:	ROOT: F&C:	ROOT: F&C:	ROOT: F&C:	ROOT: F&C:	ROOT: BA-2 OR BM-19 F&C: BA-2 OR BM-19	ROOT: BA-2 OR BM-19 F&C: BA-2 OR BM-19	ROOT: F&C:
WITHOUT BACKING R=1/8" (±1/8") a=60° (±15°) h=1/16" (±1/16")	WITHOUT BACKING R=1/8" (±1/8") a=60° (±15°) h=1/16" (±1/16")	3:1 TRANSITION R=1/8" (±1/8") a=60° (±15°) h=1/16" (±1/16")	R=1/8" (±1/8") a=75° (±15°)	R=1/8" (±1/8") a=40° (±15°) h=1/8" (±1/16")	R=1/8" (±1/8") a=40° (±15°) h=1/16" (±1/16")	R=1/8" (±1/8") BOTH a=40° (±15°) BOTH h=1/8" (±1/16") BOTH	R=1/8" (±1/8") BOTH a=40° (±15°) BOTH h=1/16" (±1/16") BOTH	R=1/8" (±1/8") a=40° (±15°) h=1/16" (±1/16")	R=1/8" (±1/8") a=MIN. 30° h=1/16" (±1/16")			TYPICAL NON PRESSURE ATTACHMENT WELD	TYPICAL NON PRESSURE WELD (LUGS, DAVIT ARMS)	

REVISION	DATE YY/MM/DD	DESCRIPTION	CALC. NO.	BY	CHK'D	SIGN'D
0	2018/02/20	ISSUED FOR CONSTRUCTION		SG	SG	SG

ASME 2015 ED. CODE SEC. VIII DIV 1

BMS AQP (S) 1009	REGISTERED WELD PROCEDURE 505.2
FOR VESSEL TOLERANCES, SEE WELDER HANDBOOK	
VESSEL TYPE:	SPHERICAL
M.A.W.P.:	5000 PSIG (34475kPa) AT 200°F (93°C)
M.D.M.T.:	-40°F (-40°C) AT 5000 PSI (34475kPa)
IMPACT TESTING:	SEE IMPACT TEST NOTES
P.W.H.T.:	1150°F FOR 165 MIN.
RADIOGRAPHY: RT-1	CIRC: PHASE-ARRAY LONG: N/A UT: PHASE-ARRAY
JOINT EFFICIENCY:	HEADS: 1.0 SHELL: 1.0
CORROSION ALLOWANCE:	1/8" (3.2mm)
HYDROSTATIC TEST:	7500 PSIG (51713kPa)
VOLUME:	33.5 cu.ft (0.95 cu.meter)
WEIGHT (DRY):	13000 LBS (5897kg) WEIGHT (FLOODED): 15100 LBS (6850kg)

CLIENT

NOV/ARGO STANDARD DESIGN

BROMLEY MECHANICAL SERVICES
925 - 23 STREET S.W.,
MEDICINE HAT, AB. T1A 8R1
TEL: (403)526-3142
FAX: (403)526-1061
TOLL: (800)215-9806

ARGO ALBERTA
655 - 30th Avenue,
Nisku, AB. T9E 0R4
TEL: (780)955-8660
FAX: (780)955-9422
TOLL:(866)955-8660

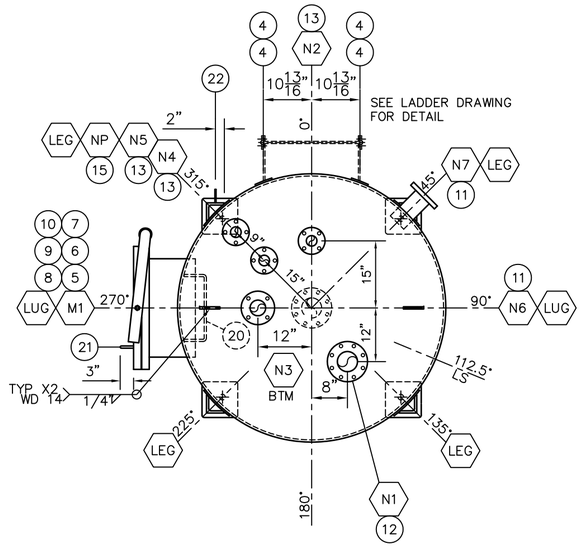
PROJECT

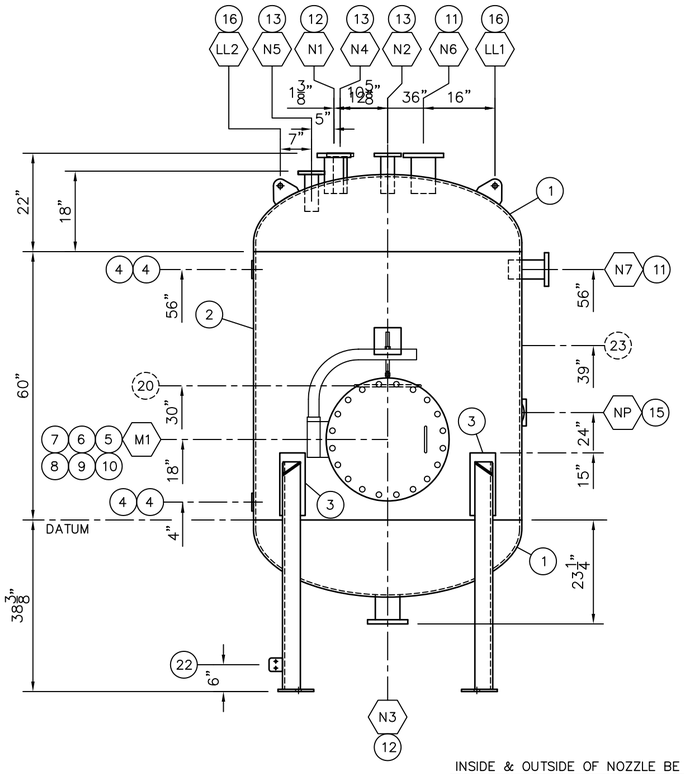
48"ID X 5000PSI SAND TRAPS

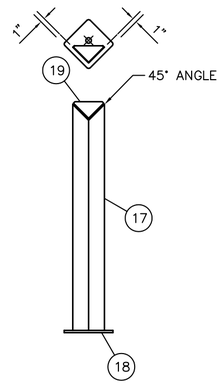
TITLE

SAND TRAP, 48"ID X 5000PSI

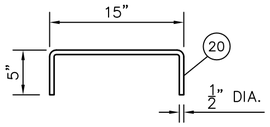
WO No.: ARGO STOCK	CRN No.: Y5847.2	SERIAL No.: TBA	
DRAWN BY: S.GAO	REV No.: 0	SHEET 1 OF 1	SCALE 1:24
DATE YY/MM/DD 2018/02/20	DRAWING No.: Y5847-VESSEL		SIZE C





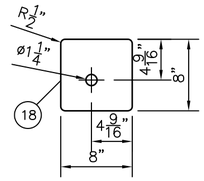


SUPPORT LEG



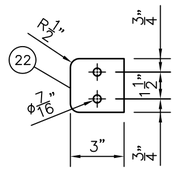
GRAB HANDLE

N.T.S.



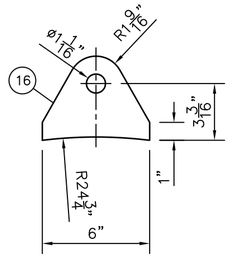
BASE PLATE

N.T.S.



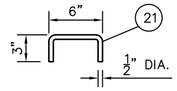
GROUNDING LUG

N.T.S.



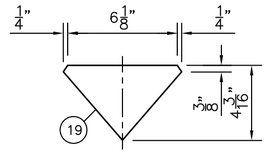
LIFTING LUG

N.T.S.



MANWAY HANDLE

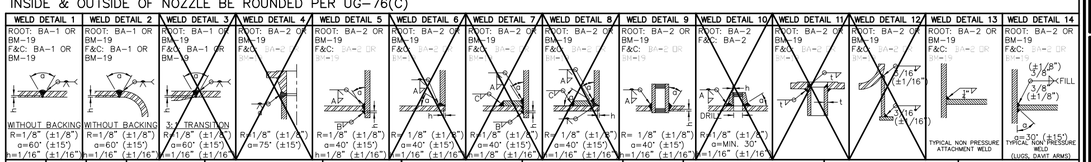
N.T.S.



LEG CAP

N.T.S.

INSIDE & OUTSIDE OF NOZZLE BE ROUNDED PER UG-76(C)



NOZ NO.	NO. REQ'D	SIZE REQ'D	RATING	TYPE OF SERVICE	OD OF NOZ NECK	PROJECTION OUTSIDE	PROJECTION INSIDE	REIF PAD OD x THK	WELD DETAIL	FILLET WELD SIZE A	FILLET WELD SIZE B	FILLET WELD SIZE C	BILL OF MAT'L ITEM No.	REMARKS
M1	1	20"	150	MANWAY	22.00"	8"	1" MIN.	·	5	3/8"	1/8"	·	5,6,7,8,9,10	INSPECTION
N1	1	4"	150	INLET	5.500"	SEE DWG	MIN.	·	5	3/8"	1/8"	·	12	·
N2	1	2"	150	PSV	3.060"	SEE DWG	MIN.	·	5	3/8"	1/8"	·	13	·
N3	1	4"	150	DRAIN	5.500"	6"	FLUSH	·	5	3/8"	·	·	12	·
N4	1	2"	150	PI	3.060"	SEE DWG	MIN.	·	5	3/8"	1/8"	·	13	·
N5	1	2"	150	INSPECTION	3.060"	SEE DWG	MIN.	·	5	3/8"	1/8"	·	13	·
N6	1	3"	150	GAS OUTLET	4.250"	SEE DWG	MIN.	·	5	3/8"	1/8"	·	11	·
N7	1	3"	150	LSH	4.250"	6"	MIN.	·	5	3/8"	1/8"	·	11	·

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION
1	2	S.E. HEAD, 60"OD X 0.5" NOM (0.4375" MIN), SA516-70N (HOT FORMED)
2	1	SHELL, 60"OD X 0.5" NOM. X 5'-0" LONG, SA516-70N
3	4	ROLLED REPAD, 3/8"TK X 8" WD X 14" LG, ROLLED TO 60"ID, SA516-70N
4	4	ROLLED REPAD, 3/8"TK X 4" WD X 4" LG, ROLLED TO 60"ID, SA516-70N
5	1	RFLWN, 20" 150 ANSI X 12" OAL, SA350LF2 CL.1 (1.000" W.T.)
6	1	RFB, 20" 150 ANSI, SA350 LF2 CL1
7	1	304/FG FLEX CG GASKET, 20" 150 ANSI
8	20	B7M STUDS, 1-1/8" X 6 1/4", SA193-B7M
9	40	2HM HEX NUTS, 1-1/8", SA194-2HM
10	1	DAVIT ARM, 20" 150 ANSI, SEE DAVIT DRAWING
11	2	RFLWN, 3" 150 ANSI X 9" OAL, SA105N (0.620" W.T.)
12	2	RFLWN, 4" 150 ANSI X 9" OAL, SA105N (0.750" W.T.)
13	3	RFLWN, 2" 150 ANSI X 9" OAL, SA105N (0.530" W.T.)
14		
15	1	NAME PLATE HOLDER, SA36 & VESSEL ID PLATE, ALUM.
16	2	LIFT LUG - PLATE, 1/2", SA516-70N (SEE DETAIL)
17	4	ANGLE, 4" X 4" X 1/2" X 50 7/8" LONG, SA300W
18	4	BASE PLATE, PLATE, 1/2" THICK, SA36 (SEE DETAIL)
19	4	LEG CAP, PLATE, 1/4" THICK, SA36 (SEE DETAIL)
20	1	GRAB HANDLE, HR ROUND BAR, 1/2" DIA,, SA36 (SEE DETAIL)
21	1	MANWAY HANDLE, HR ROUND BAR, 1/2" DIA,, SA36 (SEE DETAIL)
22	1	GROUNDING LUG, PLATE, 1/4" THICK, SA36 (SEE DETAIL)

NOTES:
STUD LENGTHS GIVEN ARE THREAD TO THREAD
ALL REPADS TO HAVE 1/4" WEEP HOLES
MTR'S REQUIRED FOR ALL PRESSURE RETAINING COMPONENTS

EXTERNAL SURFACE PREPARATION AND PAINTING
PREPARATION: MECHANICAL CLEAN
PRIMER: ONE (1) COAT INDUSTRIAL PRIMER
FINISH: ONE (1) COAT MARINE ENAMEL - WARM GRAY

REV.	MM	DD	YY	DESCRIPTION	BY	CHK'D	APP'D
0	02	26	18	ISSUED FOR REVIEW	DM	SG	·

ASME 2015 ED. CODE SECT. VIII DIV. 1

BMS AQP (S) 1009	REGISTERED WELD PROCEDURE 505.2
FOR VESSEL TOLERANCES, SEE WELDER HANDBOOK	
VESSEL TYPE: VERTICAL	
M.A.W.P.: 170 PSIG (1172 kPag) AT +300°F (+149°C)	
M.D.M.T.: -40°F (-40°C) AT 170 PSIG (1172 kPag)	
NOZZLE IMPACT TESTING EXEMPT PER UCS66(a)(b)	
P.W.H.T.: 1150°F FOR 60 MIN.	
RADIOGRAPHY: RT-1	CIRC.: FULL LONG: FULL
JOINT EFFICIENCY:	HEADS: 1.00 SHELL: 1.00
CORROSION ALLOWANCE: 1/8"	
HYDROSTATIC TEST: 212 PSIG (1262 kPag)	
VOLUME: 126.05ft³ (3.57 m³)	
WEIGHT (DRY): 4200 lb. (3833 kg)	

CLIENT:
ARGO STANDARD DESIGN

BROMLEY MECHANICAL SERVICES
A DIVISION OF ARGO SALES INC.
925 23 Street SW, Medicine Hat, Alberta, Canada T1A 8R1
Ph: (403) 526-3142 Fax: (403) 526-1061
Toll Free (800) 215-9806

PROJECT:
ARGO STANDARD SAND SEPARATOR PACKAGE

TITLE:
60" X 5' X 170 PSI BLOWDOWN VESSEL, SOUR

CRN No.:	Y2809.21	Wo No.:	ARGO STOCK	SERIAL No.:	TBA
DRAWN BY:	D.MYTTON	REV. No.:	0	DATE: MM/DD/YY	02/26/18
DATE: MM/DD/YY	10/31/17	SCALE:	1/2"=1'-0"	CAD No.:	Y5847-BDVES