



# HEAT / SERIAL NUMBER RECORD

M. A. Stewart & Sons Ltd.  
VALVES AND FITTINGS

(FORM 4.15.4A)

COMPANY;

EMCO / Equipment - KN for ABE mines

PAGE;

1 OF 1

BRANCH;

Rouyn-Noranda, Q.C.

MAS SALES REGISTER;

1436324

ATTN;

Richard Knight

DATE

June 10 / 19

PO#

26/0090 - 00

ITEM	QTY	SIZE	VALVE NO.	BODY	BONNET#/CAP#	ACTUATOR#	SOLENOID#	INDICATOR#
1	3	8"	Beric	HCNNC	HCNNC	DF-01-105-180206-12		
2			103-RF-AH12-H-N	LDRAC	LDRAC	DF-01-306-180901-12		
3				LDRAC	LDRAC	DF-01-305-180901-12		
7								
8	1	8"	Beric	LDRAC	LDRAC	DF-01-250-180901-12		
9			101-RF-AH12-H-N					
10								
11								
12	2	6"	Beric	GDN71	GDN71	DF-01-216-190116-12		
13			101-RF-AH12-H-N	LDRAC	LDRAC	DF-01-247-180901-12		
14								
15								
16	1	6"	Beric	GDN71	GDN71	DF-01-228-190116-12		
17			301-RF-FH12-X-N					
18								
19								
20								
21								
22								
23								
24								
25								

FAX STAMP



(CHEMICAL, PHYSICAL &amp; HYDROSTATIC)

DATE : SEP.1.2018  
ARTICLE : 8 GATE VALVE RF 300 TRIM 12  
FIGURE, NO. : 103-08-RF-AH12-H-N  
SERIAL NO. : DF-01-305-180901-12

PARTS NAME	Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem
MATERIAL	ASTM A352 LCC	A352 LCC	A352 LCC+316	A350 LF2+HF	A182 F316

INSPECTION	DIMENSION INSPECTION					No. of Bolt Hole	Bolt Hole Diameter	PRESSURE TEST (ASME B16.34 & API 598)			VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness			SHELL (PSIG)	SEAT(Air) (PSIG)	BACK SEAT (PSIG)	
STANDARD	419±1.6	381	330	270	42	12	25	1125	80	815	MSS-SP-55
RESULT	※ W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD	GOOD

※ W.T : Within Tolerance

[illegible]

REMARKS : IN ACCORDANCE WITH EN 10204 3.1  
HEAT TREATMENT; LCC QUENCHED; 930°C X 3HR(W.C.)+TEMPERED 700°C X 3HR(A.C)  
TO NACE MR0103

Valve design and construction is in accordance with API 600, ASME B16.34  
Products supplied are in compliance with the requirements of the purchase order

*Jane*  
Manager, Q A Department

*ALEX*  
Witness Inspector





# MATERIAL TEST REPORT

Beric-Davis Companies International, Ltd.  
6059 South Loop East  
Houston, TX 77087  
Phone: 713 673-2073  
Fax: 713 673-4841

(CHEMICAL, PHYSICAL & HYDROSTATIC)



BERIC

DATE : SEP. 1 2018  
ARTICLE : 8 GATE VALVE RF 300 TRIM 12  
FIGURE NO. : 103-08-RF-AH12-H-N  
SERIAL NO. : DF-01-308-180901-12

TAG NO.: 103-08-RF-AH12-H-N  
SIZE: NPS 8 Class Rating: 300 Qty: 1 Pcs

PARTS NAME	Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem
MATERIAL	A352 LCC	A352 LCC	A352 LCC+316	A350 LF2+HF	A182 F316

INSPECTION	DIMENSION INSPECTION						PRESSURE TEST (ASME B16.34 & API 598)				VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole	Bolt Hole Diameter	Shell (PSIG)	Seat (Air) (PSIG)	Back Seat (PSIG)	
STANDARD	419±1.6	381	330	270	42	12	25	1125	80	815	MSS-SP-55
RESULT	W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD	GOOD

※ W.T : Within Tolerance

SERIAL NO. BATCH	PARTS	HEAT NUMBER	CHEMICAL COMPOSITION (%) (ASTM STD.)											TENSION TEST (MIN.) (ASTM)				HARDNESS (HB)	CHARPY
			C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	T.S (MPa)	Y.P (MPa)	EL. %	R.A %			
STANDARD	A352 LCC	Min.	0.250	0.600	1.200	0.040	0.045	0.500	0.200	0.300	0.030		485	275	22.0	35.0	237	Min≥16J Avg≥20J	
		Max.											655						
DF-01-306-180901-12	BODY	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32	
		BONNET	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32	
	WEDGE/DISC	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32	
					</														



(CHEMICAL, PHYSICAL & HYDROSTATIC)

Fax: 713 673-4641

FIGURE NO.: 103-08-RF-AH12-H-N

TAG NO.: 103-08-RF-AH12-H-N

Class Rating:	300
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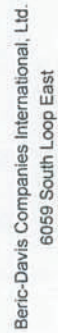
INSPECTION	DIMENSION INSPECTION					No. of Bolt Hole	Bolt Hole Diameter	PRESSURE TEST (ASME B16.34 & API 598)			VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness			SHELL (PSIG)	SEAT(AIR) (PSIG)	BACK SEAT (PSIG)	
STANDARD	419±1.6	381	330	270	42	12	25	1125	80	825	GOOD
RESULT	※ W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD	MSS-SP-55

[illegible]

Witness Inspector

Products supplied are in compliance with the requirements of the purchase order





(CHEMICAL, PHYSICAL & HYDROSTATIC)

6059 South Loop East  
Houston, TX 77087  
Phone: 713 673-2073  
Fax: 713 673-4641



DATE : SEP.1.2018  
ARTICLE : 6 GATE VALVE RF 150 TRIM 12  
FIGURE NO. : 101-06-RF-AH12-H-N  
SERIAL NO. : DF-01-247-180901-12

Valve design and construction is in accordance with API 600, ASME B16.34  
Products supplied are in compliance with the requirements of the purchase order









# MATERIAL TEST REPORT

Beric-Davis Companies International, Ltd.

6059 South Loop East

Houston, TX 77087

Phone: 713 673-2073

Fax: 713 673-4641

(CHEMICAL, PHYSICAL &amp; HYDROSTATIC)

TAG NO.: 301-06-RF-FH12-X-N

NPS 6	Class Rating:
-------	---------------

DATE: JAN.16.2019

ARTICLE: 6 CHECK VALVE RF 150 TRIM 12

FIGURE NO. : 301-06-RF-FH12-X-N

SERIAL NO.: DF-01-228-190116-12

PARTS NAME	Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Pin
MATERIAL	ASTM	A352 LCC	A350 LF2+316	A350 LF2+HF	A182 F316

INSPECTION	DIMENSION INSPECTION					( mm )			PRESSURE TEST (ASME B16.34 & API 598)			VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole	Bolt Hole Diameter	SHELL ( PSIG )	SEAT(Hydro) ( PSIG )	BACK SEAT ( PSIG )	VISUAL	
STANDARD	356±1.6	279	241.5	216	26	8	22	450	320	N/A	MSS-SP-55	
RESULT	※ W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	N/A	GOOD	

※ W.T : Within Tolerance

[illegible]

REMARKS:

IN ACCORDANCE WITH EN 10204.3.1

HEAT TREATMENT; LCC QUENCHED; 930°C X 3HR(W.C.)+TEMPERED 700°C X 3HR(A.C)

TO NACE MR0103

Manager, Q.A. Department

Witness Inspector

/valve design and construction is in accordance with API 594, ASME B16.34

Products supplied are in compliance with the requirements of the purchase order





# HEAT / SERIAL NUMBER RECORD

M. A. Stewart & Sons Ltd.  
VALVES AND FITTINGS

(FORM 4.15.4A)

COMPANY;

Emco / Equipment - Kn / for ABE mines

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Rouyn - Noranda, Q.C.

MAS SALES REGISTER;

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ATTN;

Richard Knight

DATE

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4						
5	1	8" Powell 3003FK	C5CL54	C5CL54	7F19226	
6		86XXX				
7						

19						
20						
21						
22						
23						
24						
25						

FAX STAMP



2503 Spring Grove Ave.  
Cincinnati, OH 45214 U.S.A  
Tel: 513-852-2000  
info@powellvalves.com

## VALVE CERTIFICATION

CERTIFIED MATERIAL TEST REPORT/CERTIFICATE OF CONFORMANCE  
CERTIFIED TO ISO 9001 QUALITY STANDARDS

CERTIFICATE  
NUMBER: **7F19226**  
DATE: 7/15/15

**CUSTOMER:** M. A. STEWART & SONS LTD.  
**CUSTOMER PO #:** 1001802  
**POWELL ORDER:** 904159  
**ITEM NUMBER:** 8.0 3003FK8GXXX

**PRESSURE TEST**  
Standard: API-598

**SHELL** 1125 PASS  
**SEAT (AIR)** 80 PASS  
**SEAT (HYDRO)** N/A N/A  
**BACKSEAT** 825 PASS  
(Values are PSI minimums)

### INSPECTION

**Dimensional:** PASS  
**Operational:** PASS  
**Visual:** PASS

We certify that the valve meets the requirements of one or more of the following industry standards:

API 598 Valve Inspection and Testing  
API 600 Bolted Bonnet Cast Steel Valves  
API 602 Forged Valves  
API 603 Bolted Bonnet Cast Stainless Steel Valves  
API 622/624 Fugitive Emissions  
ASME B16.10 End to End Dimensions  
ASME B16.34 Valves  
MSS SP25 Valve Markings  
MSS SP55 Casting Surface Inspection

### COMPONENT DATA (Chemical Properties)

HEAT NO: C5CL54										MATERIAL: A352LCC		PHYSICAL PROPERTIES			
BODY		SI	MN	P	S	NI	CR	MO	CU	V	Tensile (KSI)	Yield (KSI)	Elong%	Reduct%	HB
C	.19	.432	.86	.019	.011	.214	.047	.015	.031	.001	76.4	53.9	30.0	62.0	152

Normalized 1650°F Min, Liquid Quench, Temper 1100°F Min

BONNET/CAP										HEAT NO: C5CL54					MATERIAL: A352LCC					PHYSICAL PROPERTIES				
C	SI	MN	P	S	NI	CR	MO	CU	V	Tensile (KSI)		Yield (KSI)	Elong%	Reduct%	HB									
.19	.432	.86	.019	.011	.214	.047	.015	.031	.001	76.4	53.9	30.0	62.0	152										

Normalized 1650°F Min, Liquid Quench, Temper 1100°F Min

HEAT NO: C5C680											MATERIAL: A352LCC					PHYSICAL PROPERTIES			
DISC		SI	MN	P	S	NI	CR	MO	CU	V	Tensile (KSI)		Yield (KSI)	Elong%	Reduct%	HB			
C	.197	.446	.915	.022	.009	.274	.058	.007	.026	.006	91.6		66.1	31.0	62.0	159			

Normalized 1650°F Min, Liquid Quench, Temper 1100°F Min

### CHARPY IMPACT RESULT

**BODY** BONNET/CAP DISC  
28.7 28.7 34.6  
28.7 28.7 37.6  
-50 -50 -50  
MIN. OF 1 SPECIMEN (FT-LB)  
AVG OF 3 SPEC., MIN. OF 2 SPEC. (FT-LAB)  
TEST TEMPERATURE (DEGREES F)

SHELL TEST : 10 MIN MINIMUM DURATION

WE CERTIFY THAT THE ABOVE PRODUCT(S) CONFORM TO THE APPLICABLE REQUIREMENTS OF THE PURCHASE ORDER.  
THESE RESULTS ARE IN ACCORDANCE WITH EN 10204 TYPE 3.1. <http://www.powellvalves.com>

CERTIFIED TO ISO 9001 QUALITY STANDARDS



Willard E. Panter Jr.

Quality Manager

THE WM. POWELL COMPANY

Form F.10.6 2/23/11

WE CERTIFY THAT THE ABOVE PRODUCT(S) CONFORM TO THE APPLICABLE REQUIREMENTS OF THE PURCHASE ORDER.  
THESE RESULTS ARE IN ACCORDANCE WITH EN 10204 TYPE 3.1. <http://www.powellvalves.com>

CERTIFIED TO ISO 9001 QUALITY STANDARDS



**Apollo Valves**  
Division of Conbraco Industries  
Conway, SC 29526  
FAX: 843/347-1773  
PHONE: 843/347-4666



MLTS\_6056-18735  
Cert# BV APOLLO

## MATERIAL TEST REPORT

We certify that the below listed components were manufactured, tested, and inspected in accordance with the requirements of the procurement documents as stated.

Model Number: 831  
Size: 2"  
Quantity: 8  
Material Specification: ASTM A352-18 LCC(LCC)

Customer Name: Masdom LTD  
Customer Order Number: 19503  
Valve Part Number: 831-248-24  
User Tag Number: B36652

Heat Code	C	Mn	P	S	Si	Cr	Ni	Mo	Cu	V	Cb	TENSILE		YIELD	%ELO	%RA	HARDNES
												PSI	PSI		2"		S (RB unless noted)
AX	0.1965	1.3639	0.0109	0.0128	0.2577	0.1313	0.0341	0.0134	0.0443	0.0027		81002	54270	54270	25	74	80
BW	0.1901	1.3903	0.0123	0.0138	0.3772	0.064	0.0364	0.0047	0.0433	0.0025		79634	53506	53506	30	65	77
HU	0.197	1.34	0.014	0.008	0.334	0.061	0.038	0.012	0.115	0.003		83872	54730	54730	31	67	81
KW	0.2085	1.314	0.0139	0.0115	0.2952	0.0273	0.0216	0.0052	0.0327	0.0023	0	77629	52937	52937	27	70	79

Charpy Impact Test: Conducted in accordance with ASTM A370 Sections 19 Through 20. Standard full size test specimen.

Test Temperature: -50F	Heat Code	Average of 3 Test			Test 1		Test 2		Test 3	
		AX	BW	HU	36.52	32.95	29.95	29.95	46.67	46.67
					20.5333	20	20.4	20.4	21.2	21.2
					21.4667	23.2	20.8	20.8	20.4	20.4
					22.8667	22.8	23.6	23.6	22.2	22.2

TESTING PROCEDURE: All Apollo Valves are 100% tested in accordance with their standard of construction. Valves designed to the requirements of ASME B16.34 are tested to meet or exceed the requirements of



We certify that the above listed components meet the requirements of the procurement documents as stated.  
This material certificate complies with EN 10204-2004 Type 3.1 (formerly Type F3.1.B).

The above listed information is certified to be true and accurate to the best of my knowledge and belief.

Date: 08/01/19

Signed:



Steve Causey  
Quality Assurance Manager



# Apollo Valves

Division of Conbraco Industries

Conway, SC 29526

FAX: 843/347-1773

PHONE: 843/347-4666



## MATERIAL TEST REPORT

We certify that the below listed components were manufactured, tested, and inspected in accordance with the requirements of the procurement documents as stated.

Model Number: 831

Size: 1"

Quantity: 8

Material Specification: ASTM A352-18 LCC(LCC)

Customer Name: Masdom LTD

Customer Order Number: 19503

Valve Part Number: 83L-245-24

User Tag Number: B36652

Heat Code	C	Mn	P	S	Si	Cr	Ni	Mo	Cu	V	Cb	TENSILE		YIELD	%ELO	%RA	HARDNES
												PSI	PSI				
AX	0.1965	1.3639	0.0109	0.0128	0.2577	0.1313	0.0341	0.0134	0.0443	0.0027		81002		54270	25	74	80
KW	0.2085	1.314	0.0139	0.0115	0.2952	0.0273	0.0216	0.0052	0.0327	0.0023	0	77629		52937	27	70	79
LW	0.1848	1.3624	0.0111	0.002	0.2961	0.1055	0.0326	0.0114	0.0266	0.0021		77277		50671	27.2	71.7	79

Charpy Impact Test: Conducted in accordance with ASTM A370 Sections 19 Through 20. Standard full size test specimen.	
Test Temperature: -50F	Heat Code
	AX
	KW
	LW
Average of 3 Test	Test 1
36.52	32.95
22.8667	22.8
25.6	20
Test 2	Test 3
29.95	46.67
23.6	22.2
21.1	35.7

Charpy Impact Test: Conducted in accordance with ASTM A370 Sections 19 Through 20. Standard full size test specimen.

Test Temperature: -50F

Heat Code

AX

KW

LW

Average of 3 Test

36.52

22.8667

25.6

Test 1

32.95

22.8

20

Test 2

29.95

23.6

21.1

Test 3

46.67

22.2

35.7

TESTING PROCEDURE: All Apollo Valves are 100% tested in accordance with their standard of construction. Valves designed to the requirements of ASME B16.34 are tested to meet or exceed the requirements of API 598, ASME B16.34, MSS SP-61 and MSS SP-72. Valves designed to the requirements of MSS SP-110, are tested to meet or exceed the requirements of MSS SP-110. Specification sheets are available at [www.apollovalves.com](http://www.apollovalves.com).

We certify that the above listed components meet the requirements of the procurement documents as stated.

This material certificate complies with EN 10204-2004 Type 3.1 (formerly Type F3.1.B).

Date:

08/01/19

Signed:



The above listed information is certified to be true and accurate to the best of my knowledge and belief.

A handwritten signature in black ink, reading "Steve Causey". The signature is written in a cursive, flowing style.

---

Steve Causey  
Quality Assurance Manager

**Certificate of Compliance (QC-02)****FARRIS ENGINEERING  
DIV. OF CURTISS-WRIGHT FCC  
10195 BRECKSVILLE RD  
BRECKSVILLE OH 44141  
UNITED STATES**

Date: 07/10/2019

**MLTS\_6056-18735  
Cert# PRV FARRIS**

Sales Order No.: 1SL047059

Customer:

Customer Order No.: 00026111

CRN No.: CSA-0G11969.5CL

Line	Tag Number	Model Number	Serial Number
1		27EA34-M20	942333-1-KE
1		27EA34-M20	942333-2-KE
1		27EA34-M20	942333-3-KE
1		27EA34-M20	942333-4-KE

We hereby certify that the valve(s) indicated above have been designed, manufactured and tested in accordance with ASME Section VIII, Division 1 by Curtiss-Wright Flow Control Corp.- Farris Engineering in accordance with the company's Quality Control Program. The Brecksville Facility's Quality Control Program is registered to ISO 9001:2015, Certificate Identity No. 10076249. We hereby certify that they were produced in conformance with the contract and Farris Worldwide Quality Manual Revision N, dated 13-Sep-18.

The representative signing the document states that the above information is correct and true.

Anthony Korinek



Certified Individual

Date: 07/10/2019



**Material Test Reports (QC-04)**

FARRIS ENGINEERING  
DIV. OF CURTISS-WRIGHT FCC  
10195 BRECKSVILLE RD  
BRECKSVILLE OH 44141  
UNITED STATES

Sales Order No.: 1SL047059      Line No.: 1      Qty: 4  
Customer:  
Customer Order No.: 00026111  
Model No.: 27EA34-M20  
Serial No.: 942333-1-KE, 942333-2-KE, 942333-3-KE, 942333-4-KE  
Tag No.:

Serial No.	Component	Item Number	Lot Number	Material Description
942333-1-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-1-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-1-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB
942333-2-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-2-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-2-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB
942333-3-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-3-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-3-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB
942333-4-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-4-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-4-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB

Note: Traceability of individual parts to their NDE and special process reports is maintained through Lot Codes created by serializing the lot number shown on the material manufacturer's Material Test Report.

# 产品质量证明书 INSPECTION CERTIFICATE

---EN10204 3.1

TJ8868

江阴市不锈钢材料厂 JIANGYINSHI STAINLESS STEEL MATERIAL FACTORY

地址: 中国江苏省江阴市周庄镇路口桥

Add: Lukouqiao Zhouzhuang Town JiangYin JiangSu China

TEL: (0510) 86236681 FAX: (0510) 86905200

执行标准: ASME SA479 2015 合同号: 7969 编号: 20180901

STANDARDS: CONTRACT NO: Serial number:

收货单位: 成飞机械

SOLD TO: Curtisswright (Tianjin) Flow Control CO., LTD

序号 No	钢号 Grade	规格 Size	冶炼炉号 Heat No.	支数 Bundles	重量 Weight (kg)	化学成分 Chemical Composition (%)					
						C	Si	Mn	P	S	Ni
1	316/316L	φ78	872-0118	9	1120	≤0.030	≤1.00	≤2.00	≤0.045	≤0.030	10.00-14.00
2	316/316L	φ72	872-0117	18	2176	0.03	0.4	1.76	0.034	0.025	10.2
3	316/316L	φ72	872-0117	9	1075	0.026	0.4	1.74	0.034	0.02	10.14
4	316/316L	φ50.8	872-0118	15	1093	0.026	0.4	1.74	0.034	0.02	10.14
5	316/316L	φ50.8	872-0118	9	984	0.03	0.4	1.76	0.034	0.025	10.2

## 机械性能: Mechanical Properties

序号 No	热处理炉号 Heat treatment furnace no.	热处理状态 Heat treatment condition	抗拉强度 Tensile Strength Rm (Mpa) ≥ 515	屈服强度 Yield Strength Rp0.2(Mpa) ≥ 205	伸长率 Elongation A (%) ≥ 30	断面收缩率 Reduction of Area Z (%) ≥ 40	冲击试验 Impact Charpy		硬度 Hardness HB ≤ 189	交货状态 The delivery status
							Individual Kv2(J) ≥ 41 Individual 单个功	Average 平均功		
1	180326-1	固溶处理 Solution treatment	587	310	58	80	APPROVED		161	光亮Bright
2	180326-1		592	311	56	78			163	
3	180315-1		595	314	55	76			164	
4	180407-1		590	312	57	79			162	
5	180407-1		590	312	57	79			162	

说明: 1. 有异议时, 来函请标明钢号、炉号、规格、发货日期、原因, 并将实物保管好。

Notes: (1) When there is any complain, you are kindly requested to mark the Steel Grade, Heat No., Size, Delivery Date, Causes and reserve the materials in the condition

备注: Heat treatment: Solution treatment : 1900°F, 1 hours minimum, rapidly cooled to below 90°F.  
The material supplied meets the requirements of the current versions of NACE MR0103 and MR0175/ISO 15156, 提供的材料符合 NACE MR0103 and MR0175/ISO 15156 标准要求

热处理: 固溶处理: 1040℃ 最少1小时保温, 出炉急冷到32℃以下。

签发日期: 2018/9/10

制单: 卞玉霞

审核: 卞玉霞

examine and verify

Principal

Issued Date

质量检验章

质量检验章

质量检验章



福建省明溪县长虹精密铸钢有限公司  
Fujian Mingxi Changhong Precision  
Steel Casting Co., Ltd.  
Address: Pingpu industrial Park Mingxi  
county, Fujian, China. Tel: 0598-2866208, Fax: 0598-  
2867736

# 材料质量证明书

## Material Inspection

EN 10204 3.1



CHHJZ

Customer: Curtiss-wright Flow Control  
Farris Engineering

Address: No. 3 Quanhui Road, Wuqing Development  
Area, Tianjin China. Tel: 86-22-82166100, Fax: 86-22-  
82166160

证书编号 Cert. No.:

201901085

No.	产品名称 Product	零件号 Part No.	执行标准 Product Std.	材质 Material	数量 Quantity	炉号 Heat No.	订单号 Order No.
1	Bonnet	326076X2-023	ASME SA216-2015	WCB	12	637G	6PR002478
2	Bonnet	326076X2-023	ASME SA216-2015	WCB	10	638G	6PR002478
3	Bonnet	326076X2-023	ASME SA216-2015	WCB	10	639G	6PR002478
4	Bonnet	326076X2-023	ASME SA216-2015	WCB	25	640G	6PR002478
5	Bonnet	326076X2-023	ASME SA216-2015	WCB	22	641G	6PR002478
6	Bonnet	326076X2-023	ASME SA216-2015	WCB	17	642G	6PR002478/2480
7	Bonnet	326076X2-023	ASME SA216-2015	WCB	20	752G	6PR002480

### 化学成分 Chemical Compositions

Spec.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	N
标准值	≤0.3	≤0.6	≤1.0	≤0.04	≤0.045	≤0.5	≤0.5	≤0.2	≤0.3	≤0.03	
637G	0.222	0.197	0.772	0.017	0.007	0.071	0.024	0.004	0.011	0.001	
638G	0.213	0.210	0.703	0.020	0.008	0.071	0.017	0.002	0.010	0.002	
639G	0.215	0.212	0.703	0.020	0.008	0.071	0.017	0.002	0.010	0.001	
640G	0.261	0.204	0.672	0.022	0.008	0.099	0.026	0.003	0.011	0.002	
641G	0.212	0.230	0.675	0.018	0.006	0.096	0.030	0.003	0.011	0.002	
642G	0.212	0.229	0.677	0.019	0.006	0.096	0.029	0.003	0.011	0.002	
752G	0.220	0.218	0.689	0.021	0.006	0.057	0.030	0.004	0.011	0.002	

	抗拉强度	屈服强度	延伸率	断面收缩率	冲击功					硬度
	Tensile	Yield	Elongation	Reduction	Charpy Impact Test ( J )					Hardness
Spec.	Strength	Strength		of Area						
	(MPa)	(MPa)	%	%	Temp. °C	Average	Individual			HB
标准值	485-655	≥250	≥22	≥35	-29	≥27J	≥19J	≥19	≥19	≤237
637G	550	360	37	60						159
638G	553	350	36	62						158
639G	555	363	36	60						157
640G	546	357	38	59						156
641G	549	352	37	61						156
642G	549	348	36	60						153
752G	537	361	35	63						158

### 热处理 Heat Treatment

序号 No.	热处理炉号 Heat Lot.	浇注炉号 Heat No.	入炉时间 Charging time	入炉温度 Charging Temp.	到温时间 Start Time	到温温度 Hold Temp.	出炉时间 Finished Time	出炉温度 Finish Temp.	保温时间 H Soak time (H)	冷却方式 Cooling
1	181030-1	637G	7:25	413	9:20	905	11:20	907	2:00	Air空气
2	181030-1	638G	7:25	413	9:20	905	11:20	907	2:00	Air空气
3	181030-1	639G	7:25	413	9:20	905	11:20	907	2:00	Air空气
4	181108-1	640G	7:16	520	9:00	902	11:00	906	2:00	Air空气
5	181106-1	641G	8:00	368	10:00	901	12:00	905	2:00	Air空气
6	181106-1	642G	8:00	368	10:00	901	12:00	905	2:00	Air空气
7	180830-1	752G	7:25	425	9:20	908	11:20	910	2:00	Air空气

### 其他信息 Other Informations

序号 No.	外观尺寸检查 Visual & Dimension	无损探伤 NDT MT/PT UT RT	交货状态 Delivery Condition
1	OK	OK	正火状态 Normalized

- We hereby certify that the materials described herein have been manufactured, inspected and tested in accordance with the customer's specification(s), and that they satisfy the requirements.
- All of casting visual inspection according to MSS-SP-55.
- The material supplied meets the requirments of the current version of NACE MR0103 and MR0175/ISO 15156.

APPROVE

编制 Prepared By:  
谢海荣 2019-1-25

审批 Approved By: 2019-01-30  
易娟 2019-1-25 FARRIS ENGINEERING  
QUALITY CONTROL  
BY QC 03



## MILL TEST CERTIFICATE

Basauri Plant

ISO 9001; ISO-TS 16949; ISO 14001 Y OHSAS 18001



Product Made in Spain

CUSTOMER:MAGELLAN CORPORATION	WORKS REFERENCE:1910594
REFERENCE:211222	SALES ORDER:299090-2
PRODUCT NR:	HEAT NUMBER:900758
	ROLLED:04.01.2017
	MASTER REFERENCE:215719

REQUIRED PRODUCT			
AISI316/316L ROUND BARS TURNED SOLUTION ANNEALED 0.8750" SPECIFICATION'S TOLERANCE 12'-12'2" NORMAL			
EXPEDITION	DELIVERY:0080571873	WEIGHT (KG):4.614	BUNDLES:6
			UNITS:400

MADE ACCORDING TO	
AISI STAINLESS STEELS - 01.03.1999; ASME SA182-SA182M SECTION II, PART A - . . . .2015	
ASME SA193-SA193M/SECTION II, PART A - . . . .2015; ASME SA320-SA320M/SECTION II, PART A 2013 . . . .2013	
ASME SA479-SA479M SECTION II, PART A - . . . .2015; ASTM A182-A182M 2015 01.06.2015	
ASTM A193-A193M 2015 01.06.2015; ASTM A276/A276M 15 01.01.2015; ASTM A314 2015 15.07.2015	
ASTM A320-A320M 2015 01.05.2015; ASTM A370 2014 15.05.2014; ASTM A473 13 01.11.2013	
ASTM A479-A479M 2015 15.07.2015; ASTM A484-A484M 15 01.03.2015; ASTM A751 2014 01.03.2014	
EN 10204 :2004 OCT. 2004 3.1; MAGELLAN MIC 1751 AMD12.3 21.12.2016	
MAGELLAN MIC 1751 SUPP AISI316/AISI316L - 24.06.2015; NACE MR0103-2005 - 2005	
NACE MR0175/ISO 15156-1 3* EDICION 23.11.2015; NACE MR0175/ISO 15156-3 3* EDICION 23.11.2015	
SAE AMS 5648 L . .09.2012; SAE AMS 5653 H . .11.2012; SAE AMS-QQ-S-763 D 03.2015	

CHEMICAL ANALYSIS OF HEAT									U:% HEAT NUMBER:900758		
	C	Mn	Si	P	S	Cr	Ni	Mo	V	W	Co
Min.		1,250			0,020	16,500	10,000	2,000			
Max.	0,030	2,000	0,750	0,040	0,030	18,000	13,000	2,500	0,100	0,100	0,3000
cer.	0,015	1,490	0,488	0,026	0,025	16,700	10,120	2,030	0,060	0,082	0,2280
	Cu	Al	Ti	Nb	N						
Min.											
Max.	0,750	0,100	0,1000	0,1000	0,1000						
cer.	0,337	0,006	0,0050	0,0160	0,0730						

INCLUSIONS (MICROINCLUSIONS)	
Standard(ASTM E45 2013 . . . .2013); Type/method(A); A(t):2,5; A(h):1; B(t):0,5; B(h):0,5; C(t):1,5	
C(h):1; D(t):0,5; D(h):0,5	

MECHANICAL PROPERTIES AS SUPPLIED (TEST)	
Sample:Supply section (bar prolongation); Specimen Test location:Nucleus	
Standard(1) (ASTM A370 2014 15.05.2014); Standard(2) (ASTM E8/E8M 2015A 15.05.2015)	
Tensile direction:Longitudinal; Tensile test Temp.(Room temperature):Room temperature	
Ts(83.000/120.000PSI):88.605PSI; Ys(0,2% >=30.000PSI):0,2% 44.089PSI; El.(2" >=40%):2" 57,2%	
Z(>=50%):74,9%; Standard(ASTM E23 07-AE1 2007)	
Notch impact direction:Longitudinal; Notch Impact sample type(CHARPY-V):CHARPY-V	
Notch Impact Temp.(68°F):68°F; K(1):203Ft.Lb; K(2):206Ft.Lb; K(3):205Ft.Lb; K (average):204,67	
K (single)(>=75Ft.Lb):203Ft.Lb; Hardness Standard(1) (ASTM A370 2014 15.05.2014)	
Hardness Standard(2) (ASTM E10 2015 01.05.2015)	
Surface hardness(of the bar 140/223HB):of the bar 208HB	
Hardness at(at 1/2 radius of the bar 140/223HB):at 1/2 radius of the bar 162HB	

ADDITIONAL TESTS	
Standard(ASTM A262 - 01.07.2014); Type / Method(Practice E):Practice E	
Standard(ASTM E112 2013 01.10.2013); Grain size:Austenitic 6; Standard(ASTM E381 2001 R2006)	
macroetching(1):S 1; macroetching(2):R 1; macroetching(3):C 1; Intercrystalline Corrosion:0.K.	

APPROVED  
PARRIS ENGINEERING - QUALITY CONTROL

NOV. 14 2018

BY N° 1005557

JH 7722

TECHNOLOGY &amp; QUALITY CERTIFIES THAT THE PRODUCT FULL FILLS THE ORDER'S SPECIFICATION

APPROVED BY:ALBERTO CUBERO ZABALA

SIGN:

DATE:21.02.2017

Page 1 of 2

REF.:1002484420000

Analyst of Quality certificates





## MILL TEST CERTIFICATE

Basauri Plant

ISO 9001; ISO-TS 16949; ISO 14001 Y OHSAS 18001



Product Made in Spain

CUSTOMER: MAGELLAN CORPORATION	WORKS REFERENCE: 1910594
REFERENCE: 211222	SALES ORDER: 299090-2
PRODUCT NR:	HEAT NUMBER: 900758
MASTER REFERENCE: 215719	ROLLED: 04.01.2017

## NON DESTRUCTIVE TESTS

U.T. standard(1) (ASTM A388-A388M 2015 15.07.2015); U.T. type/method(1) (FBH)  
 U.T. standard(2) (API SPEC 6A 20<sup>th</sup> ED.+ER1&2+AD12.3 . .03.2013); U.T. type/method(2) (PSL3)  
 U.T. standard(3) (ISO 10423 4<sup>th</sup> ED.2009 15.12.2009); U.T. type/method(3) (PSL3)  
 ULTRASONIC INSPECTION 100% : O.K. (1) =<1,5 mm.(according to Suplem.1 ASTM A388)  
 ULTRASONIC INSPECTION 100% : O.K. (2) according to: API 6A/ISO-10423 "PSL3"  
 ULTRASONIC INSPECTION 100% : O.K. (3); CRACKS CONTROL 100% : O.K.

## ADDITIONAL INFORMATION

Reduction ratio: 49,7; "Macrostructure: Satisfactory"  
 Ultrasonic Inspection Results ("ASTM A388: Satisfactory"); DFARS Compliant  
 HEAT MELTED AT OUTOKUMPU (UK) AND PROCESSED AT SIDENOR (SPAIN); RoHS Compliant  
 Material Cold Finished, Peeled and Reeled; CONTINUOUS CASTING 150 X 150 mm.  
 SOLUTION ANNEALED at 1922°F - IN AIR; .; .

Material manufactured through the Electric Arc Furnace and AOD.

Steel not exposed to Mercury, or to any other metal alloy that is liquid, at ambient temperatures during processing or while in Sidenor's possession.

Steel is free from Uranium or any other harmful radioactive contamination.

Steel products were not repaired by welding.

100% anti mix test: performed by spectrometry.

**APPROVED**  
 FARRIS ENGINEERING - QUALITY CONTROL

NOV 14 2018

BY NO 1005557

JH7722

TECHNOLOGY &amp; QUALITY CERTIFIES THAT THE PRODUCT FULL FILLS THE ORDER'S SPECIFICATIONS

APPROVED BY: ALBERTO CUBERO ZABALA

SIGN:

DATE: 21.02.2017

Page 2 of 2

REF.: 100243420000

Analyst of Quality Certificates





M.A. Stewart & Sons Ltd.

# PICK TICKET

**MAS Edmonton Branch**  
**1315473**

SOLD TO  
EMCO LTD WESTLUND (261) ROUYN-NORANDA  
PO BOX 5300 STN A  
WESTLUND  
LONDON, ON N6A 4N7  
CANADA

Ordered By: Chantal Gregoire

EX EDM  
MTL

PICK DATE	PICK TICKET	ORDER NUMBER
8/20/2019	1315473	1452662
SHIP TO NO	CUSTOMER NO	PAGE
103449	103449	1 of 1
PICKED BY:	CHECKED BY:	

MTR'S WHEN APPLICABLE

SHIP TO  
ABF MINES CANADA INC. (2985080)  
1310 AVE DAVY  
ROUYN-NORANDA, QC J9Y 0A8  
CANADA

ORDER DATE	CUSTOMER PO / ORDER NUMBER	CARRIER	TAKER
8/20/2019	DO2610173-00	Purolator	ANDREN
Delivery / Quick Notes		QTY	Item
		Box ID	Skid ID

Delivery Instructions: EX: EDMONTON / PUROLATOR # 7334590

18 FF

4  
EA

014-53208 MAS LSSF3-HDFS-N  
1 3000WOG FP LCC IP 3PC FS NACE BALL

18 FF 18 SF

1  
EA

014-53214 MAS LSSF3-HDFS-N  
2 2000WOG FP LCC IP 3PC FS NACE BALL

Total Lines: 2  
Total Pieces: 5  
Total Weight: 32.891

Total Skids / Boxes:

Shipment Weight:

MLTS\_6056-18953  
Cert# BV MAS



# JY VALVE & MFG. CO., LTD.

(Qianguo Village, Huangtang Town) Chengxi Taiwanese Business Base  
Huian County, Quanzhou, Fujian, China 362101  
TEL : (0595) 2730-1335 FAX : (0595) 2730-1336

MESSRS.: M. A. STEWART & SONS LTD.

DELIVER TO: VANCOUVER

SHEET NO.: LSSF3HDFS-N-F181206-1

P.O. NO. #1011686

DATE : DEC. 26, 2018

## CERTIFICATE OF COMPLIANCE

WE, JY VALVE & MFG. CO., LTD. HEREBY CERTIFY THAT OUR  
PRODUCTS AS SHOWN ON DRAWINGS OF OUR MODEL LSSF3-HDFS-N ARE  
MANUFACTURED, INSPECTED AND TESTED FULLY IN ACCORDANCE WITH THE  
FOLLOWING STANDARDS:

PRESSURE-TEMPERATURE RATING	1/4" TO 1"	3000 PSIG @100°F
	1-1/4" TO 2"	2000 PSIG @100°F
	2-1/2" TO 3"	1000 PSIG @100°F
BODY & CAP	ASTM A352-LCC	
SEAT MATERIAL	R-PTFE	
VALVE TESTING	API 598 ※	
FIRE TEST STANDARD	API 607 5TH EDITION	
END CONNECTION	NPT THREADS TO ANSI B1.20.1	

※ HIGH PRESSURE SHELL TEST AND LOW PRESSURE SEAT TEST ARE  
PERFORMED 100%.

- NACE MR-0175-2002 AND MR-0103 COMPLIANCE

JY VALVE & MFG. CO., LTD.



CHARLES CHAN, PRESIDENT

(Qianguo Village, Huangtang Town) Chengxi Taiwanese Business Base Huian County, Quanzhou, Fujian, China 362101  
Tel: 86-595-27301335 Fax: 86-595-27301336

MESSRS.: M. A. STEWART & SONS LTD.  
T O : VANCOUVER  
P.O. NO.: #1011686  
SHEET NO. : LSSF3HDFSN-F181206-2  
EXPORT NO. : F181206  
DATE : DEC. 26, 2018

JASON HUANG, QC MANAGER

[illegible]

# MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.  
 TO : VANCOUVER  
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F181206-3  
 EXPORT NO : F181206  
 DATE : DEC. 26, 2018

VALVE MODEL : LSSF3-HDFS-N  
 3000/2000/1000 WOG BALL VALVE  
 REVIEWED BY : QUAN ZHOU JING YING VALVE CO., LTD.

SIZE : 1"  
 MATERIAL: ASTM-A352 GRADE LCC

  
 JASON HUANG, QC MANAGER  
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)											
ELEMENT		C	Si	Mn	P	S	Ni	Cr	Mo	V	
SPEC (MAX.)		0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.030	
Production No	Parts Name	B For each reduction of 0.01% below the specified maximum carbon content, an increase of 0.04% Mn above the specified maximum will be permitted up to a maximum of 1.28%									
18FF	BODY & CAP	0.2010	0.4400	0.6900	0.0150	0.0048	0.3230	0.4000	0.0740	0.0120	
TENSILE REQUIREMENTS		Tensile Stength (MPa)	Yield Strength (MPa)	Elongation (%)	Reduction of area (%)	Hardness (HB)	Charpy V-Notch Energy value				
Production No	Parts Name	485 - 655	Min. 275	Min. 22	Min. 35	Max. 187	Min. 20				
18FF	BODY & CAP	524	288	36	45	160	52				
Heat treatment	NORMALIZED @890 DEGREE C - 1H AIR COOLING AND TEMPERED										

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.



# MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.  
 TO : VANCOUVER  
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F181206-4  
 EXPORT NO : F181206  
 DATE : DEC. 26, 2018

*Jason Huang*

VALVE MODEL : LSSF3-HDFS-N SIZE : 1"  
 3000/2000/1000 WOG BALL VALVE MATERIAL: ASTM-A351 GRADE CF8M  
 REVIEWED BY : FUZHOU SHI GANG VALVE MANUFACTURE CO.,LTD

JASON HUANG, QC MANAGER  
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)											
ELEMENT		C	Mn	Si	S	P	Cr	Ni	Mo		
SPEC (MAX.)											
Production No	Parts Name										
B-1118	BALL	0.0510	0.7900	0.5090	0.0083	0.0383	18.0900	9.0400	2.0700		
TENSILE REQUIREMENTS		Tensile Strength (MPa)		Yield Strength (MPa)		Elongation (%)		Hardness (HB)			
Production No	Parts Name	Min.485		Min. 205		Min. 30		Max. 187			
B-1118	BALL	515		225		35		165			
Heat treatment	SOLUTION TREATMENT: @1080 DEGREE C - 1H WATER QUENCHING										

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.

MESSRS. : M. A. STEWART & SONS LTD.  
TO : VANCOUVER  
P.O. NO. : #1011686  
SHEET NO. : LSSF3HDFSN-F181206-5  
EXPORT NO : F181206  
DATE : DEC. 26, 2018

VALVE MODEL : LSSF3-HDFS-N

3000/2000/1000 WOG BALL VALVE

REVIEWED BY : GAOYOU WEI DA STAINLESS STEEL CO., LTD.

SIZE : 1"

MATERIAL: ASTM-A276 TYPE 316

JASON HUANG, QC MANAGER  
JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)										
ELEMENT		C	Mn	P	S	Si	Cr	Ni	Mo	
SPEC (MAX.)										
Production No	Parts Name									
S-1118	STEM	0.0780	0.9800	0.0020	0.0210	0.6500	16.6200	10.8000	2.0800	
TENSILE REQUIREMENTS		Tensile Strength (MPa)		Yield Strength (MPa)		Elongation (%)		Reduction of area (%)		Hardness (HB)
Production No	Parts Name	Min. 515	Min. 205	Min. 40		Min. 50		Max. 187		
S-1118	STEM	518	218	48		53		166		
Heat treatment	HOT-FINISHED									

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.



# JY VALVE & MFG. CO., LTD.

(Qianguo Village,Huangtang Town)Chengxi Taiwanese Business Base

Huian County,Quanzhou,Fujian,China 362101

TEL : (0595) 2730-1335 FAX : (0595) 2730-1336

MESSRS.: M. A. STEWART & SONS LTD.

DELIVER TO: VANCOUVER

SHEET NO.: LSSF3HDFS-N-F190403-1

P.O. NO. #1011686

DATE : APR. 24, 2019

## CERTIFICATE OF COMPLIANCE

WE, JY VALVE & MFG. CO., LTD. HEREBY CERTIFY THAT OUR  
PRODUCTS AS SHOWN ON DRAWINGS OF OUR MODEL LSSF3-HDFS-N ARE  
MANUFACTURED, INSPECTED AND TESTED FULLY IN ACCORDANCE WITH THE  
FOLLOWING STANDARDS:

PRESSURE-TEMPERATURE RATING	1/4" TO 1"	3000 PSIG @100°F
	1-1/4" TO 2"	2000 PSIG @100°F
	2-1/2" TO 3"	1000 PSIG @100°F
BODY & CAP	ASTM A352-LCC	
SEAT MATERIAL	R-PTFE	
VALVE TESTING	API 598 ※	
FIRE TEST STANDARD	API 607 5TH EDITION	
END CONNECTION	NPT THREADS TO ANSI B1.20.1	

※ HIGH PRESSURE SHELL TEST AND LOW PRESSURE SEAT TEST ARE  
PERFORMED 100%.

- NACE MR-0175-2002 AND MR-0103 COMPLIANCE

JY VALVE & MFG. CO., LTD.



CHARLES CHAN, PRESIDENT





# MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.  
 TO : VANCOUVER  
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F190403-3  
 EXPORT NO : F190403  
 DATE : APR. 24, 2019

VALVE MODEL : LSSF3-HDFS-N  
3000/2000/1000 WOG BALL VALVE  
 REVIEWED BY : QUAN ZHOU JING YING VALVE CO., LTD.

SIZE : 2"

MATERIAL: ASTM-A352 GRADE LCC

*Jason Huang*

JASON HUANG, QC MANAGER  
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)												
ELEMENT		C	Si	Mn	P	S	Ni	Cr	Mo	V		
SPEC (MAX.)		0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.030		
Production No	Parts Name	B For each reduction of 0.01% below the specified maximum carbon content, an increase of 0.04% Mn above the specified maximum will be permitted up to a maximum of 1.25%										
18FF	BODY	0.2010	0.4400	0.6900	0.0150	0.0048	0.3230	0.4000	0.0740	0.0120		
18JF	CAP	0.2010	0.4400	0.6900	0.0150	0.0048	0.3230	0.4000	0.0740	0.0120		
TENSILE REQUIREMENTS		Tensile Stength (MPa)	Yield Strength (MPa)		Elongation (%)		Reduction of area (%)		Hardness (HB)		Charpy V-Notch Energy value	
Production No	Parts Name	485 - 655	Min. 275		Min. 22		Min. 35		Max. 187		Min. 20	
18FF	BODY	524	288		36		45		160		52	
18JF	CAP	524	288		36		45		160		52	
Heat treatment	NORMALIZED @890 DEGREE C - 1H AIR COOLING AND TEMPERED											

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.

# MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.  
 TO : VANCOUVER  
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFS-N-F190403-4  
 EXPORT NO : F190403  
 DATE : APR. 24, 2019

VALVE MODEL : LSSF3-HDFS-N  
3000/2000/1000 WOG BALL VALVE

SIZE : 2"

MATERIAL: ASTM-A351 GRADE CF8M

REVIEWED BY : FUZHOU SHI GANG VALVE MANUFACTURE CO.,LTD

JASON HUANG, QC MANAGER  
 JY VALVE & MFG. CO., LTD.

*Jason Huang*

CHEMICAL REQUIREMENT (%)										
ELEMENT		C	Mn	Si	S	P	Cr	Ni	Mo	
SPEC (MAX.)		0.080	1.500	1.500	0.040	0.040	18.0-21.0	9.0-12.0	2.0-3.0	
Production No	Parts Name									
B-0319	BALL	0.0503	0.6880	0.4740	0.0065	0.0378	18.3200	9.1600	2.0500	
TENSILE REQUIREMENTS		Tensile Strength (MPa)		Yield Strength (MPa)		Elongation (%)		Hardness (HB)		
Production No	Parts Name	Min.485		Min. 205		Min. 30		Max. 187		
B-0319	BALL	545		245		47		140		
Heat treatment										
		SOLUTION TREATMENT: @1080 DEGREE C - 1H WATER QUENCHING								

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.



# MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.  
 TO : VANCOUVER  
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFS-N-F190403-5  
 EXPORT NO : F190403  
 DATE : APR. 24, 2019

VALVE MODEL : LSSF3-HDFS-N  
3000/2000/1000 WOG BALL VALVE

SIZE : 2"

MATERIAL: ASTM-A276 TYPE 316

REVIEWED BY : GAOYOU WEI DA STAINLESS STEEL CO., LTD.

JASON HUANG, QC MANAGER  
 JY VALVE & MFG. CO., LTD.

*Jason Huang*

CHEMICAL REQUIREMENT (%)											
ELEMENT		C	Mn	P	S	Si	Cr	Ni	Mo		
SPEC (MAX.)		0.080	2.000	0.045	0.030	1.000	16.0-18.0	10.0-14.0	2.00-3.00		
Production No	Parts Name										
S-0319	STEM	0.0700	0.9600	0.0020	0.0230	0.7500	16.8200	10.6000	2.2500		
TENSILE REQUIREMENTS		Tensile Strength (MPa)		Yield Strength (MPa)		Elongation (%)		Reduction of area (%)		Hardness (HB)	
Production No	Parts Name	Min. 515		Min. 205		Min. 40		Min. 50		Max. 187	
S-0319	STEM	518		218		48		53		166	
Heat treatment	HOT-FINISHED										

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.



NEWCO® | OIC® | DOUGLAS CHERO™

13127 Trinity Dr., Stafford, TX 77477  
Tel: 281-302-4900 Fax: 281-302-4801

# Material Test Report

Cameron Newco is a 9001 certified registered company  
CRN: OC7998.5C - EN 10204-3.1

09/09/19

Cert No: 1101809

Item No: B1060015FHLCCW27RF\*\*GZA  
Size/Type: 6" / Gate  
Quantity: 1  
Country of Origin: China  
FigNo: 11F-LCC4/2-NC

Inspection  
Dimension: Passed  
Visual: Passed

Valve Materials meet  
the requirements for  
NACE MR0103 and NACE  
MR0175

## Pressure Test Result

Item	Test Pressure (Mpa)	(PSI)	Duration (sec)	Test Result
Shell	3.103	450	60	Passed
Backseat	2.241	325	60	Passed
Seat Hydro	-	-	-	Passed
Seat Air	0.552	80	60	Passed

Standard: API 598 / ASME B16.34

## Part: Body Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Material Code: A352 LCC

Notes:

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Chem Comp (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Max:	0.180	0.063	0.018	1.070	0.007	0.016	0.027	0.008	0.440	0.004
Val:	0.180	0.063	0.018	1.070	0.007	0.016	0.027	0.008	0.440	0.004

## Part: Bonnet/Cap Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Material Code: A352 LCC

Notes:

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Chem Comp (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Max:	0.180	0.063	0.018	1.070	0.007	0.016	0.027	0.008	0.440	0.004
Val:	0.180	0.063	0.018	1.070	0.007	0.016	0.027	0.008	0.440	0.004

Heat No: N86718

Physical Props
----------------

Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	1b/ft
70.0	39.9	22.0	35.0	100.0	# 1: 45	# 1: 45
95.0	999.9	100.0	100.0	225.0	# 2: 58	# 2: 58
80.5	53.7	30.0	65.0	174.0	# 3: 33	# 3: 33
					AVG: 45	AVG: 45

Heat No: N86718

Physical Props
----------------

Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	1b/ft
70.0	39.9	22.0	35.0	100.0	# 1: 45	# 1: 45
95.0	999.9	100.0	100.0	225.0	# 2: 58	# 2: 58
80.5	53.7	30.0	65.0	174.0	# 3: 33	# 3: 33
					AVG: 45	AVG: 45

Comments: Cameron declares that the parts above are in accordance with applicable material specification and purchase order requirements.  
No Asbestos is contained in this product. Packing: Flexible Graphite | Gasket: Corrugated (316) W/ Graftol  
Valves covered in this certificate are in full compliance with purchase order requirements and specifications.

MTR created by: DR

Signature

09/09/19



NEWCO® | OIC® | DOUGLAS CHERO™

13127 Trinity Dr., Stafford, TX 77477  
Tel: 281-302-4900 Fax: 281-302-4801

Item No: B1060015FHLCCW27RF\*\*GZA  
Size/Type: 6" / Gate  
Quantity: 1  
Country of Origin: China  
FigNo: 11P-LCC4/2-NC

# Material Test Report

Cameron Newco is a 9001 certified registered company  
CRN: OC7998.5C - EN 10204-3.1

09/09/19

Cert No: 1101813

Customer: EMCO  
Customer Number: 32043  
Customer PO: 2610191-00  
Cameron SO: QRC SO# 1010576  
Project Name:  
Valve Serial No:  
Description: 150# RF A352-LCC (TRIM 12) OS&Y BB GATE  
NACE  
Customer Tag No:

MLTS\_6056-18971  
Cert# 1101813

## Pressure Test Result

Item	Test Pressure (Psi)	Duration (sec)	Test Result
Shell	3,103	450	Passed
Backseat	2,241	325	Passed
Seat Hydro	-	-	Passed
Seat Air	0.552	80	Passed

Inspection  
Dimension: Passed  
Visual: Passed  
Valve Materials meet the requirements for NACE MR0103 and NACE MR0175

Standard: API 598 / ASME B16.34

## Part: Body Type 3.1

Heat Treatment: QUENCHING+TEMPERING

## Material Code: A352 LCC

Notes:

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Chem Comp (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Max:	0.190	0.034	0.017	1.030	0.002	0.017	0.033	0.012	0.520	0.004

## Part: Bonnet/Cap Type 3.1

Heat Treatment: QUENCHING+TEMPERING

## Material Code: A352 LCC

Notes:

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Chem Comp (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Max:	0.190	0.052	0.018	1.120	0.006	0.016	0.029	0.007	0.490	0.004

## Heat No: N86708

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	lb/ft
	70.0	39.9	22.0	35.0	100.0		# 1: 22
	95.0	999.9	100.0	100.0	225.0		# 2: 30
	80.5	52.9	28.0	55.0	181.0		# 3: 19
							Avg: 24

## Heat No: N86707

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	lb/ft
	70.0	39.9	22.0	35.0	100.0		# 1: 31
	95.0	999.9	100.0	100.0	225.0		# 2: 46
	80.5	56.6	29.0	60.0	172.0		# 3: 31
							Avg: 36

Comments: Cameron declares that the parts above are in accordance with applicable material specification and purchase order requirements.  
No Asbestos is contained in this product. Packing: Flexible Graphite | Gasket: Corrugated (316) W/ Grafol  
Valves covered in this certificate are in full compliance with purchase order requirements and specifications.

MTR created by: DR

Signature

09/09/19



## **Appendix A6**

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### **Construction Summary Report: Baker Lake Fuel Storage Tank 8 (2021)**

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# Construction Summary Report

Baker Lake Fuel Storage Tank #8

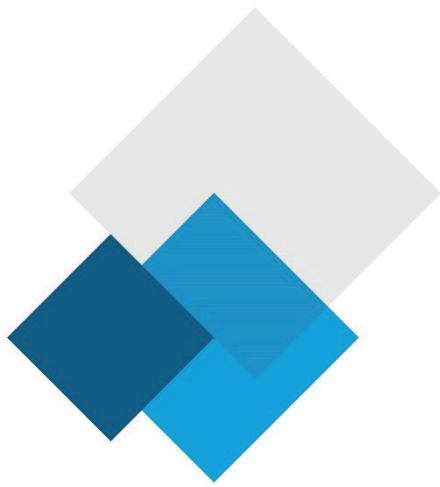
Agnico Eagle Mines Ltd



Engineering, Design and Project Management

07 | 12 | 2021

report  
Internal ref. 681783-0000-40ER-0001\_R0



## CONSTRUCTION SUMMARY REPORT Baker Lake Fuel Storage Tank #8

Agnico Eagle Mines Ltd

Report

6129-740-132-REP-001

December 7, 2021

Authorized Signatory:



2021-12-07  
**Israël Gagnon, P.Eng., MBA**  
Mechanical engineer



# EXECUTIVE SUMMARY

---

SNC Lavalin Inc. was retained by Agnico Eagle Mines Limited to prepare a construction summary (as built) report for the fuel storage tank #8 facilities of the Meadowbank Gold Project, Nunavut. SNC Lavalin Inc. previously prepared the construction drawings and specifications for the fuel storage tank facilities.

SNC Lavalin Inc. wasn't involved in the construction of the fuel storage tank, the information presented in this report was provided in part by Agnico Eagle.

The construction of the fuel storage tank facilities was completed in October 2021. The construction monitoring and quality assurance was managed by Agnico Eagle.

This report summarizes the construction as-built information for the fuel storage tank #8 facilities.

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### Appendices

Appendix A	Final Construction drawings
Appendix B	As built drawings
Appendix C	Photographs
Appendix D	Fuel tank handover package

## 1. Introduction

This document presents the fuel storage tank 8 facilities construction summary report required by the Water Licence 2AM-MEA1530 Part D Item 14 and Part G Item 4. As required by Water Licence Schedule D, this report contains the final design and construction drawings, a summary of construction activities including pictures recorded before, during and after construction. The as-built drawings, detailed explanation of field decision to reflect any deviations from the original construction drawings/plans and how such deviations may affect performance of engineered structures, a discussion of the mitigation measures implemented during construction and its effectiveness are also presented.

## 2. Construction Summary

### 2.1 Site location plan

Agnico Eagle is developing the Whale Tail Project in the Kivalliq Region of Nunavut (65°24'25" N, 96°41'50" W). The 99,878-hectare Amaruq property is located on Inuit-owned and federal crown land, approximately 55 km north of the Meadowbank mine. The Meadowbank mine is accessible from Baker Lake, located 70 kilometers to the south. The Baker Lake Bulk Fuel Storage Tank Facility is located east of the hamlet of Baker Lake, on the north shore of Baker Lake.



Figure 1 – Baker Lake Fuel Farm Site Overview (tank #7 and #8)



## 2.2 Fuel tank size

Baker Lake fuel farm now includes eight (8) 10M liter fuel storage tank. This report is based on tank #8 construction, built in summer/fall 2021.

The Table 1 below presents the tank main dimensions.

Table 1 – Description of the fuel farm

Fuel farm Description	Baker Lake fuel tank 8
Product	Diesel
Volume (liter)	10 M
Diameter (m)	33.5
Height (m)	12.2

The detailed design drawings of the tank 8 are presented in Appendix A.

## 2.3 Tank Foundations Design

The tank foundation pad is built 2 meters lower than the surrounding ground with a minimum total thickness of 800 mm of compacted material which includes the liner system. A 3 m shoulder surround the tank with a slope of 1V:2H away from the tank. The embankments of the foundation pad are no steeper than 1V:2H.

The Table 2 below presents the design parameters for the tank foundations.

Table 2 – Design parameters for the tank foundations

Tank Foundation Pad	
Tank Diameter (m)	33.5
Tank foundation pad top (m)	2x 18.0 x 18.0
Tank foundation pad average thickness, above surrounding ground (m)	1.2
Slope on shoulder	1V:2H
Embankment slope	1V:2H

## 2.4 Berms Design

The storage tank is enclosed inside berms to contain accidental spillage of fuel product. The berms are made of granular material and are made impervious with a geomembrane. For more detail regarding containment, consult document 653281-0004-40ER-0005\_0 Baker Lake Fuel Storage Tank #7 and Containment Facilities construction summary report.

## 2.5 Secondary Containment Capacity

The required capacity of the fuel farms section was calculated based on the following codes and regulations:

- › National Fire Code of Canada (NFCC);
- › National Fire Protection Association (NFPA); and
- › Design Rationale for Fuel Storage and Distribution Facility (DRFS).

As per the latest edition of NFCC, art. 4.3.7.3, the required secondary containment capacity for a fuel farm must have a volumetric capacity of not less than the sum of:

- › A) The capacity of the largest storage tank located in the contained space, and;
- › B) 10% of the greater of:
  - i. The capacity specified in Clause (A), or;
  - ii. The aggregate capacity of all other storage Tanks located in the contained space.

The volume occupied by the Tank foundation is considered in the total secondary containment capacity. The height of the secondary containment capacity is 300 mm lower than the berms' maximum elevation. Based on the above-mentioned, the secondary containment capacity requirements and the available capacity for fuel farms are summarized in the Table 3.

Table 3 – Fuel farm containment capacity

New section	
Volume (liter)	20 M (2X 10M)
Required Containment Capacity (liter)	12 M
Available Containment Capacity (liter)	20M

## 2.6 Drawings and photographs

Fuel farm tank final design and construction drawings are available in the Appendix A, construction pictures are available in Appendix C.

## 2.7 Timeline

The baker lake fuel storage tank # 8 was built in 2021. Earth work started on July 2021, followed by tank and piping fabrication in August and September 2021. Tank #8 construction ended September 8th, 2021, Piping installation work were finalised on October 12th, 2021.

## 3. Field decisions

### 3.1 Equipment and controls

Fuel tank #8 was built as in Document 6120-C-260-001-REP-001 Fuel Tank Storage and Containment Facilities Design Report and Drawings. This document presents the rational and decisions that led to its construction. No modifications were performed, and the Fuel storage tank is operational as it was designed.

### 3.2 Piping

Piping between filling line and the fuel tank respect the point-to-point design. The piping can be seen on photos in Appendix C and respect the P&ID. Red mark drawings can be consulted in Appendix B. Modifications made to the piping won't affect the construction performance in any ways.

## 4. Mitigation measure

No Quarrying activities where required to build tank #8. No blast were done on the construction site. During the fuel storage tank construction, no sediments were released in water from construction areas and no water was used to manage dust emissions from construction activity.

## 5. Construction monitoring and inspection test plan

### 5.1 Tank weld

During the tank construction, a testing protocol was followed by the construction team. To meet API Standard 650, companies building tank are required to monitor their work trough an inspection program. In this program, the contractor registers welder's qualifications, confirm construction material quality and outlines its testing protocol. The results from weld tests are also registered there. All that information is required by API 650 standard. Testing on welds took place during the whole construction process. To attest welds quality, inspector relied on visual inspection, magnetic particulate tests and high penetration oil tests. To review those tests results, the materials quality and weld inspection results can be consulted in Appendix D.

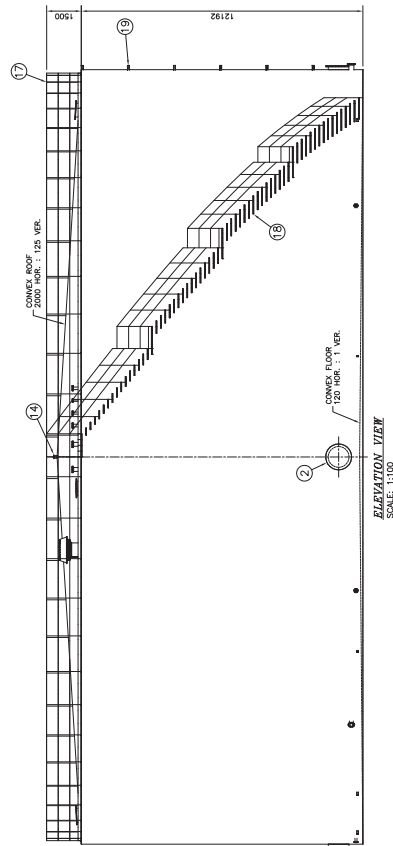
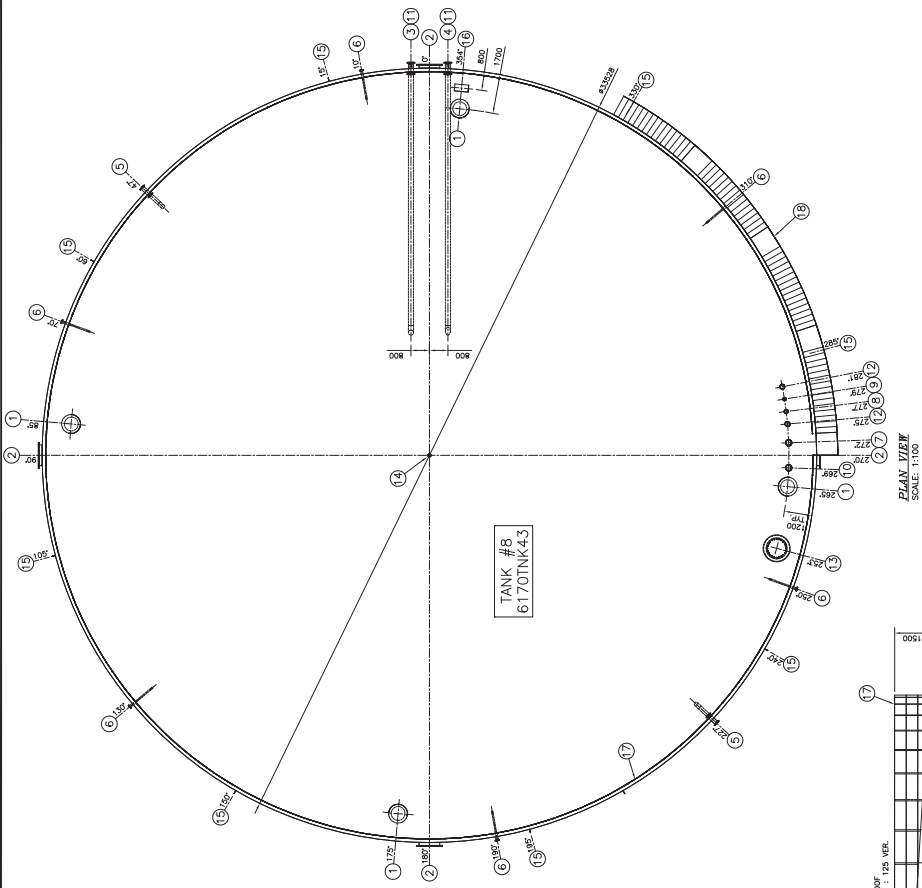


# Appendix A

Final construction drawing



SPECIFICATIONS:		TANK #6 - 0703043 - DIESEL				4-1358mm TO BE CONFIRMED BY MANUFACTURER TANK HEIGHT (METERS) 10,780.00 LITERS	
1	1200	1	600	600	ROOF MANHOLE	TOAP 600 S STANDARD	TOAP 600 S STANDARD
2	4	600	SHELL MANHOLE			TOAP 600 S STANDARD	TOAP 600 S STANDARD
3	1	200	FIXED PIPIT - TANK DRAINING 17.76 L/G			TOAP 600 S STANDARD	TOAP 600 S STANDARD
4	1	150	ROOF DRAIN - 1000 L/G			TOAP 600 S STANDARD	TOAP 600 S STANDARD
5	2	150	PUMPING LOW LEVEL			TOAP 600 S STANDARD	TOAP 600 S STANDARD
6	8	80	WATER DRAIN OFF			TOAP 600 S STANDARD	TOAP 600 S STANDARD
7	1	150	ROOF DRAIN			TOAP 600 S STANDARD	TOAP 600 S STANDARD
8	1	80	OVERALL PROTECTION			TOAP 600 S STANDARD	TOAP 600 S STANDARD
9	1	50	TEMPERATURE & WATER DETECTION			TOAP 600 S STANDARD	TOAP 600 S STANDARD
10	1	150	RAZAR - LEVEL DETECTION			TOAP 600 S STANDARD	TOAP 600 S STANDARD
11	2	50	HAZ FLOW DETECTION			TOAP 600 S STANDARD	TOAP 600 S STANDARD
12	2	100	SPARE			TOAP 600 S STANDARD	TOAP 600 S STANDARD
13	-	600	VENT OPENING			TOAP 600 S STANDARD	TOAP 600 S STANDARD
14	1	100	POWER CORD/CABLE SUPPORT			TOAP 600 S STANDARD	TOAP 600 S STANDARD
15	8	1	GROUNDING LAPS			TOAP 600 S STANDARD	TOAP 600 S STANDARD
16	1	1	ROOF INSPECTION FRAME			TOAP 600 S STANDARD	TOAP 600 S STANDARD
17	1	-	ROOF DRAINAGE			TOAP 600 S STANDARD	TOAP 600 S STANDARD
18	1	1	OVERALL PROTECTION			TOAP 600 S STANDARD	TOAP 600 S STANDARD
19	12	-	BRAZED CATHODIC PROTECT			TOAP 600 S STANDARD	TOAP 600 S STANDARD



REV.	DATE	DESCRIPTION	PREP'D BY	CHECK'D BY
2	2021-02-23	ISSUED FOR CONSTRUCTION	STANIS ALOE	N.A.M.H.N.
1	2018-03-12	ISSUED FOR TENDER	BLENN M.H.N.	N.A.M.H.N.
0	2018-12-10	ISSUED FOR TENDER	BLENN M.H.N.	N.A.M.H.N.

**REVISIONS**

<p>REVISIONS</p>	
------------------	--

TIME / TITLE  
AGNICO EAGLE - MEADOWBANK DIVISION  
740 BAKER LAKE AREA  
PLATEWORK  
PLAN & ELEVATION  
10M LITERS DIESEL TANK

TANK #B - 6170TNK43		DATE
DESIGNED FOR DRAWN BY	B.LDMEUX, Tech.	2018/11/16
VERIFIED FOR CHECKED BY	R. LAVOIE, Jr. Eng.	2018/11/16
APPROVED FOR APPROVED BY	M. HONNALT, P. Eng.	2018/11/16

CONV. SCALE	INDICATED	DATE	2018/11/16
NO. DESIGN DRAWING NO.			
61-740-260-201			
NO. PROJECT PROJECT NO.		REVISION	FEEDBACK / SET 1 /

**NOTES GÉNÉRALES / GENERAL NOTES**

GENERAL ARRANGEMENT ONLY. TANK SHALL BE DESIGNED AS PER API 650 AND FABRICATION DRAWING APPROVED BY PROFESSIONAL ENGINEER OF NUNAVUT (NAPEQ). REFER TO DOCUMENT NUMBER: 6120-C-260-001--SOW-001.

POUR CONSTRUCTION  
FOR CONSTRUCTION  
2021-02-23

**SNC-LAVALIN**  
  
 SNC-Lavalin Services Inc.  
 110, rue Gamble Ouest  
 Royce-Havard (Québec) J8K 2S7  
 Tél. : (514) 704-8381 Fax : (514) 704-4028  
[www.snc-lavalin.com](http://www.snc-lavalin.com)

Project #: 671087-0000  
 CONTRACTOR'S DESIGN OF THE PROJECT IS BASED ON THE DATA AND INFORMATION PROVIDED BY THE CLIENT. THE CONTRACTOR ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS IN THE DESIGN OR FOR ANY CONSEQUENCES OF ANY SUCH ERRORS OR OMISSIONS.  
 THE CONTRACTOR'S DESIGN IS THE PROPERTY OF THE CONTRACTOR AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. NO PART OF THE DESIGN SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE CONTRACTOR.  
 © 2000 CONTRACTOR'S DESIGN.

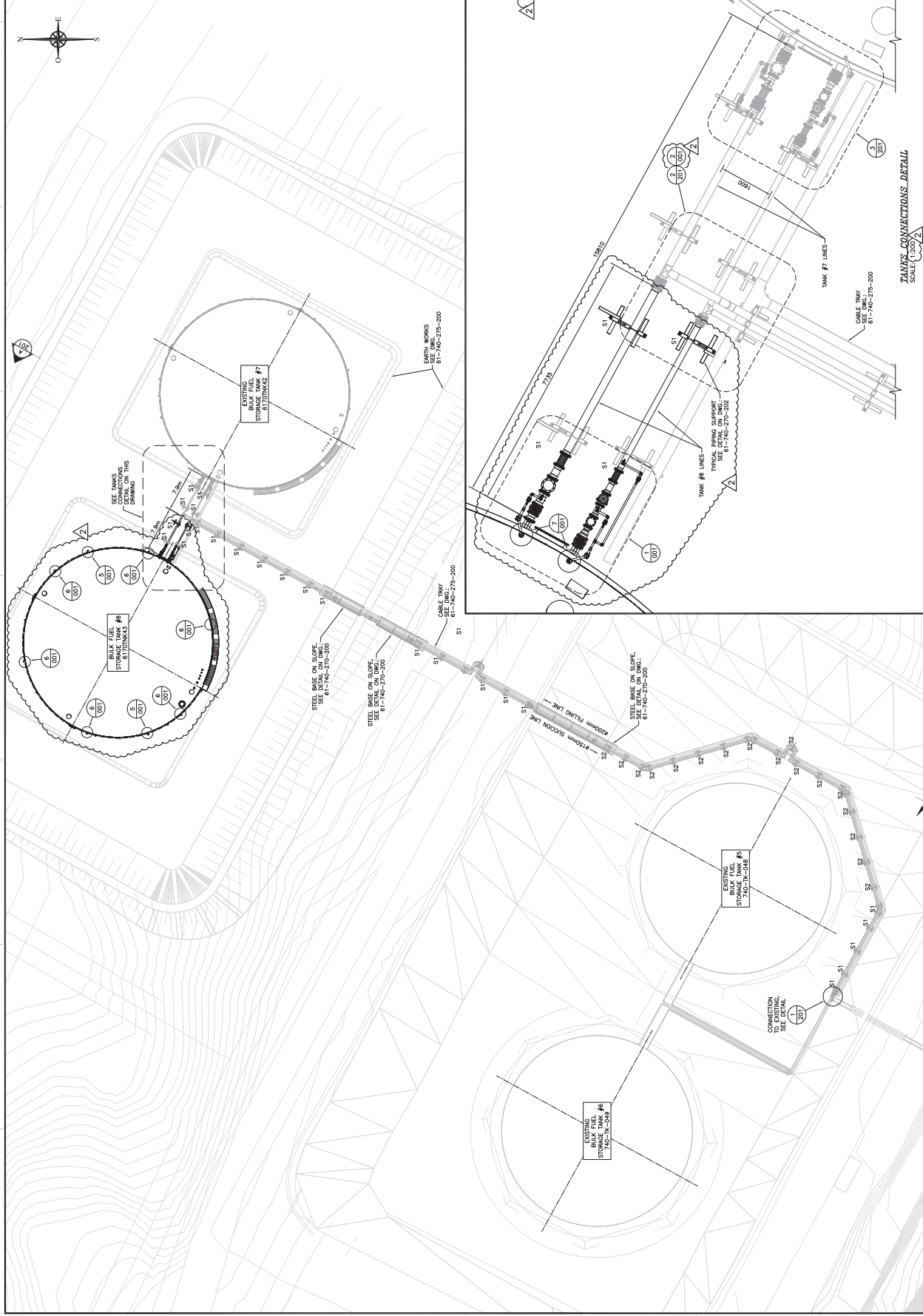
TITLE / TITLE	# DWG
TANK #8 - FRINGE	61-740-270-001
TANK #7 & #8 - LOCATION PLAN	61-740-210-201
TANK #7 & #8 - DETAILS	61-740-260-202
TANK #7 - PLAN & ELEVATION	61-740-260-200

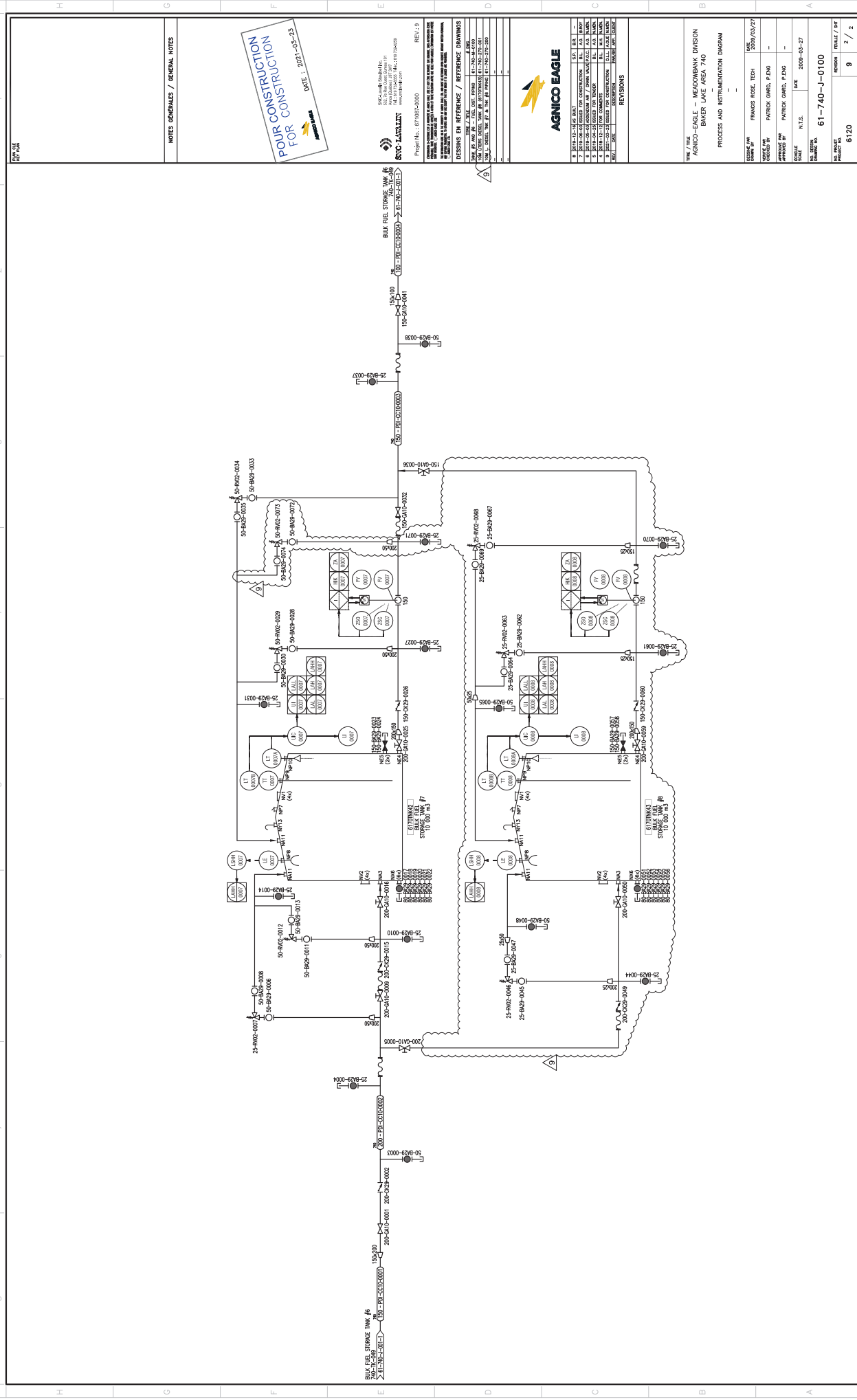








[illegible]





# Appendix B

As built drawing



Panel Ident.: 6174-DP-06

Power source:	120 208	Volts
Feeder :	6174-TX-04	
Mount:	Surface	
Localisation:	BAKER LAKE SEA CAN	
Type:	Schneider OO Series	
Encl. Type :	NEMA 1	
Main breaker:	N/A	
Nb. of circuit:	42	
Bars (Amps):	225A	
Cap. rupt. (kA) 10		


Local and description										Local and description									
TYPE		QTY		WATTS		DISJ.		C		DISJ.		QTY		WATTS		TYPE			
REF		REF		AMP	#	AMP	#	T	#	AMP	#	REF		REF		AMP	#		
D	15	1	2	15		15	1	2	15		15	1	2	E					
317174-PLC-02 Power																		Sea Can Lighting	
M	15	3	B	4	15									P					
317174-XV-01 - Elect. Actuator valve																		Sea Can Receptacle	
M	15	5	C	6	15														
317174-XV-02 - Elect. actuator valve																		Spare breaker	
M	15	7	A	8	15														
317174-XV-03 - Elect. actuator valve																		Spare breaker	
M	15	9	B	10	15														
317174-XV-04 - Elect. actuator valve																		Spare breaker	
M	15	11	C	12	15														
317174-XV-05 - Elect. actuator valve																		Spare breaker	
M	15	13	A	14	15														
317174-XV-06 - Elect. actuator valve																		Spare breaker	
D	15	15	B	16	15														
317174-IOP-003 power																		Spare breaker	
	15	17	C	18	30														
Spare breaker																		Spare breaker	
	15	19	A	20															
317174-XV-07																		6174-HEA-07	
M	15	21	B	22	15									C					
Res. #7 Valve Actuator																		Res. #7 Valve Heating	
317174-XV-08																		6174-HEA-08	
M	15	23	A	24										C					
Res. #8 Valve Actuator																		Res. #8 Valve Heating	
	15	25	B	26	15														
	27	B	28																
Space																		Space	
	29	C	30																
Space																		Space	
	31	A	32																
Space																		Space	
	33	B	34																
Space																		Space	
	35	C	36																
Space																		Space	
	37	A	38																
Space																		Space	
	39	B	40																
Space																		Space	
	41	C	42																
Space																		Space	

	(W) total	Qty	TYPE (REF)	TYPE (REF)	Qty (ref)	Watts	Amp
(E) Lighting	0	0	(L) Spare		0	0.00	Phase A
(P) Parking plug	0	0	(S) Space		0	0.00	Phase B
(C) Heating	0	0				0.00	Phase C
(M) Motor	0	0				0.00	Total R

TYPE (REF)	Qty (ref)
(L) Spare	0
(S) Space	0

TYPE (REF)	(W) total	Qty
(E) Lighting	0	0
(P) Parking plug	0	0
(C) Heating	0	0
(M) Motor	0	0
(W) Water heater	0	0
(D) Other	0	0
		0

AUCTION	2021-03-10	J.BOU
	2020-01-24	S.MAR
AUCTION	2019-06-03	P.LEM.
	2019-05-03	P.LEM.
AS 6174-E-002	JUNE/16	M.B.
SCRIPTION	DATE	PAR FY



**SNC-LAVALIN**  
150, rue Gamble Ouest  
Rouyn-Noranda (Québec) J0X 2R7  
Tél. : (819) 764-5181 Fax : (819) 757-1158  
www.sncdavalin.com

**Project # :** 665334-0000  
**REV:** 1

**Project :** AGNICO EAGLE — MEADOWCREEK DIVISION  
BAKER LAKE AREA 740  
285 — SERVICE ELECTRICAL — LIGHT AND DISTRIBUTION  
6174-DP-06 PANEL SCHEDULE  
BAKER LAKE SEA CAN — DISTRIBUTION PANEL 120/208VAC

**DATE :** MAY/16

**DATE :** JUNE/16

**DATE :** JUNE/16

**REV :** MV

**REV :** ST

**REV :** ST

**APPROVED BY :**

**APPROVED BY :**

**APPROVED BY :**

**DATE :** JUNE/16

**DATE :** JUNE/16

**DATE :** JUNE/16

**REV :** 6120

**REV :** 6120

**REV :** 6120

**APPROVED BY :**

**APPROVED BY :**

**APPROVED BY :**

**DATE :** JUNE/16

**DATE :** JUNE/16

**DATE :** JUNE/16

**REV :** 6120

**REV :** 6120

**REV :** 6120

**APPROVED BY :**

**APPROVED BY :**

**APPROVED BY :**

**61-740-285-200**

NO. DRESSING  
COVERING NO.

REVISION **4**

FULLY/ZHT  
**1 / 1**

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AE-CART-ANSI B  
\\Users\pellid4\Desktop\Projet\Agnico\671087\61-740-285-200\_R4.dwg-2013-02-19 14:03:29

**POUR CONSTRUCTION**  
**FOR CONSTRUCTION**

 **AGNICO EAGLE**

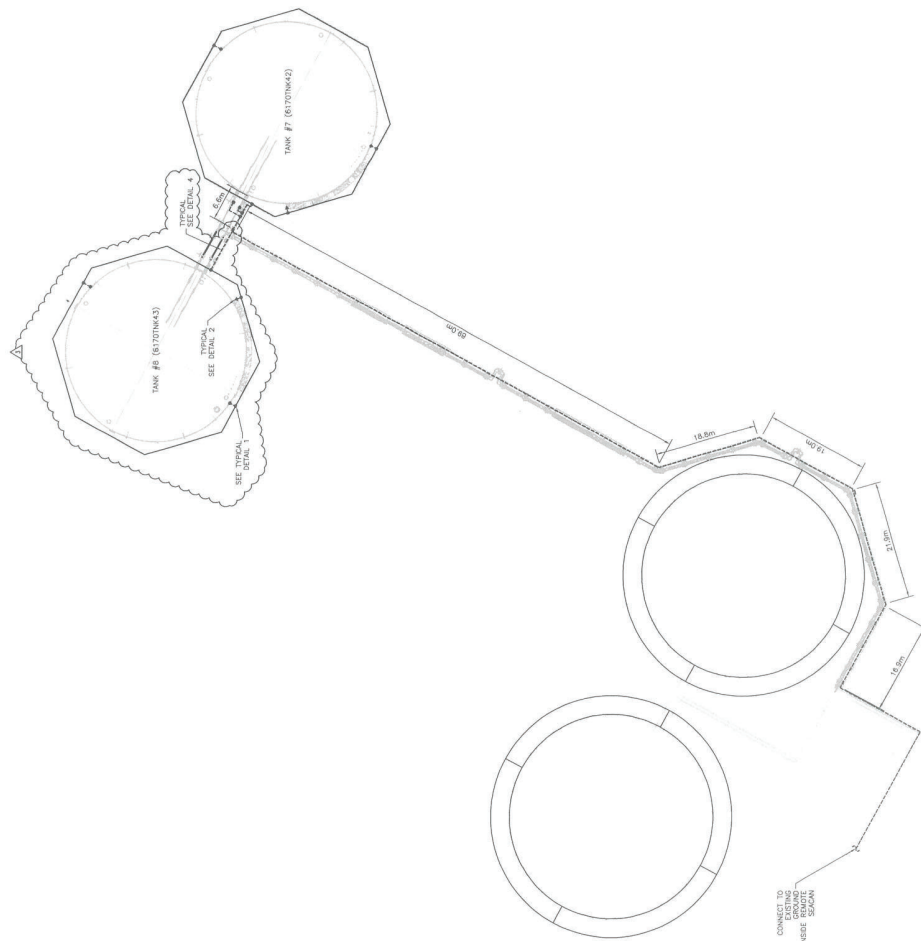
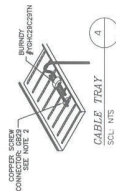
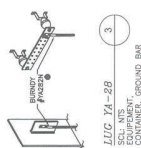
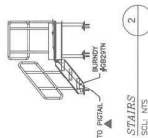
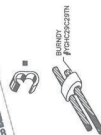
DATE : 2021-03-10

**PERMIT TO PRACTICE**  
**SNC - LAVALIN STAVIBEL INC.**  
Signature *Paul Bouchard*  
Date 2021-03-17  
**PERMIT NUMBER: P 718**  
NTNU Association of Professional  
Engineers and Geoscientists



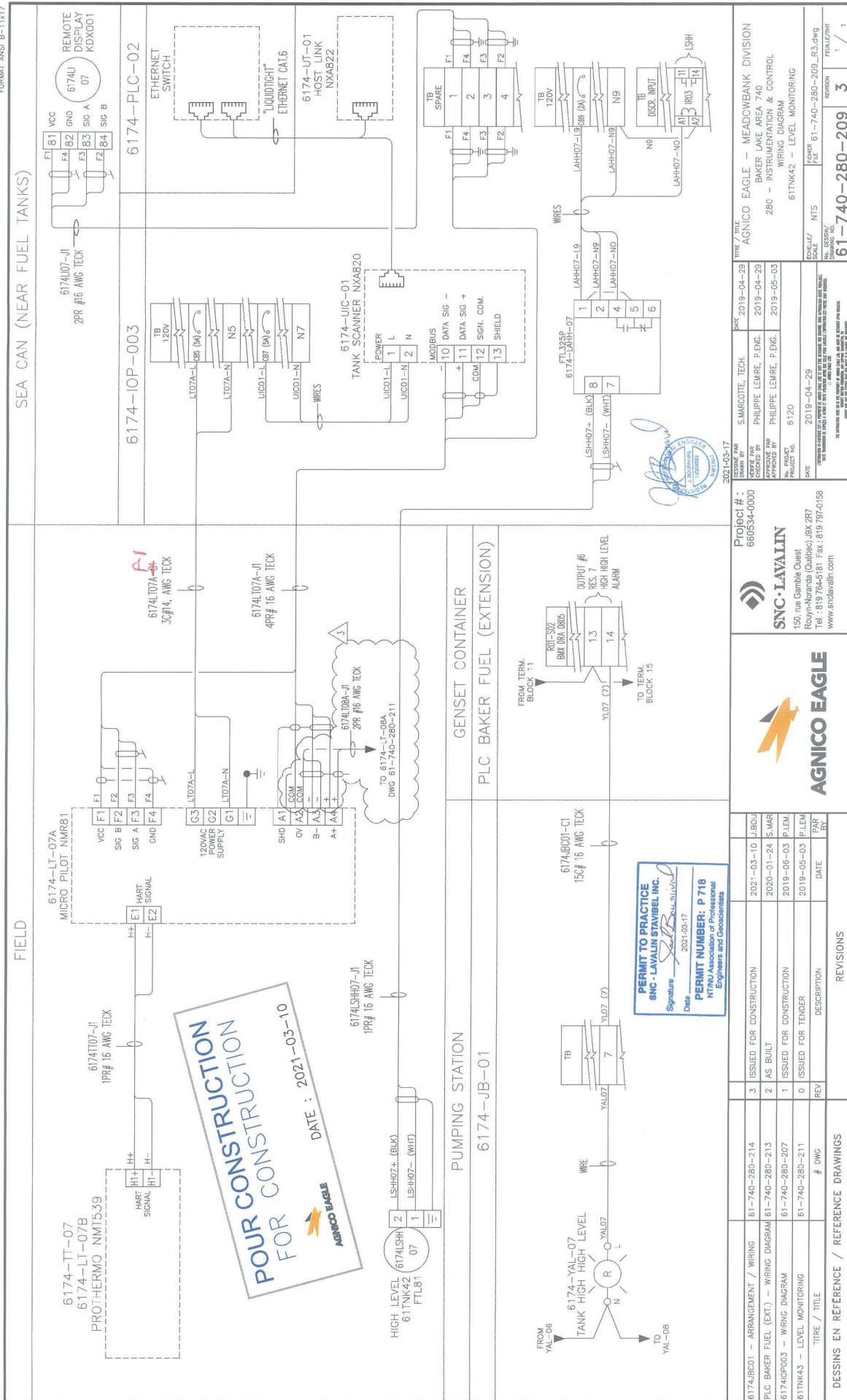
Professional Engineer  
J. JOURNAL  
LICENSEE  
STATE OF

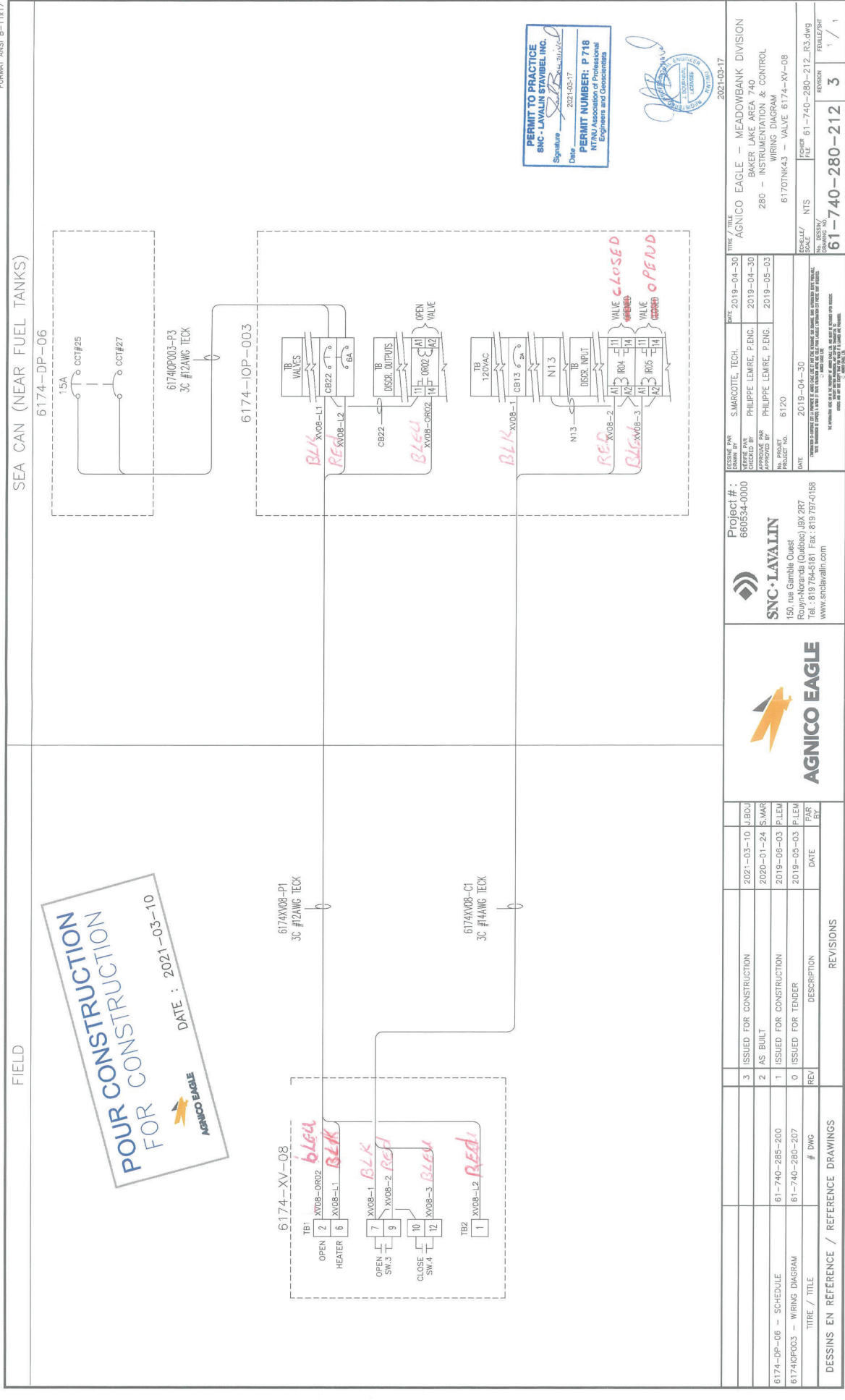




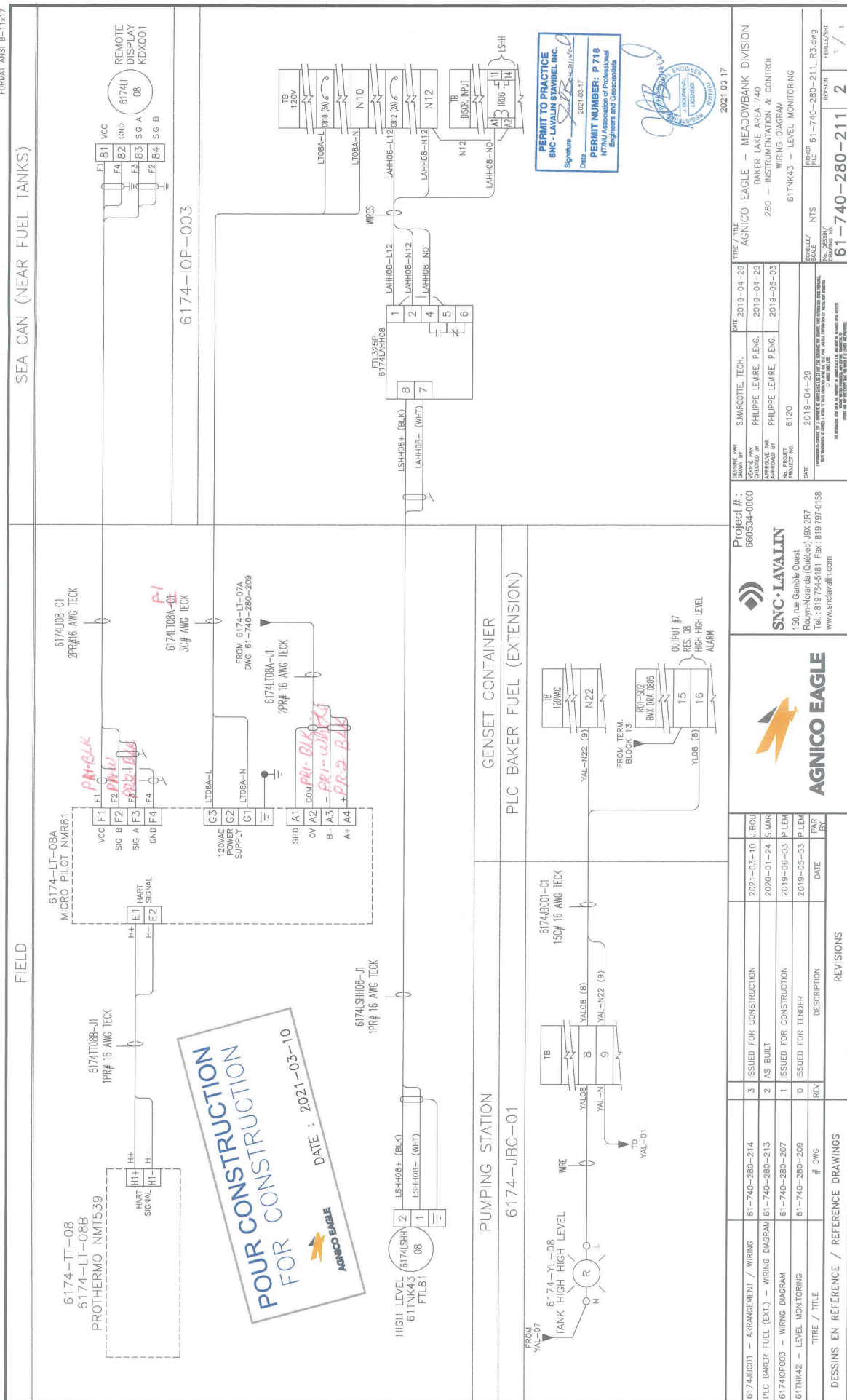
PLAN VIEW  
SCALE: 1:400

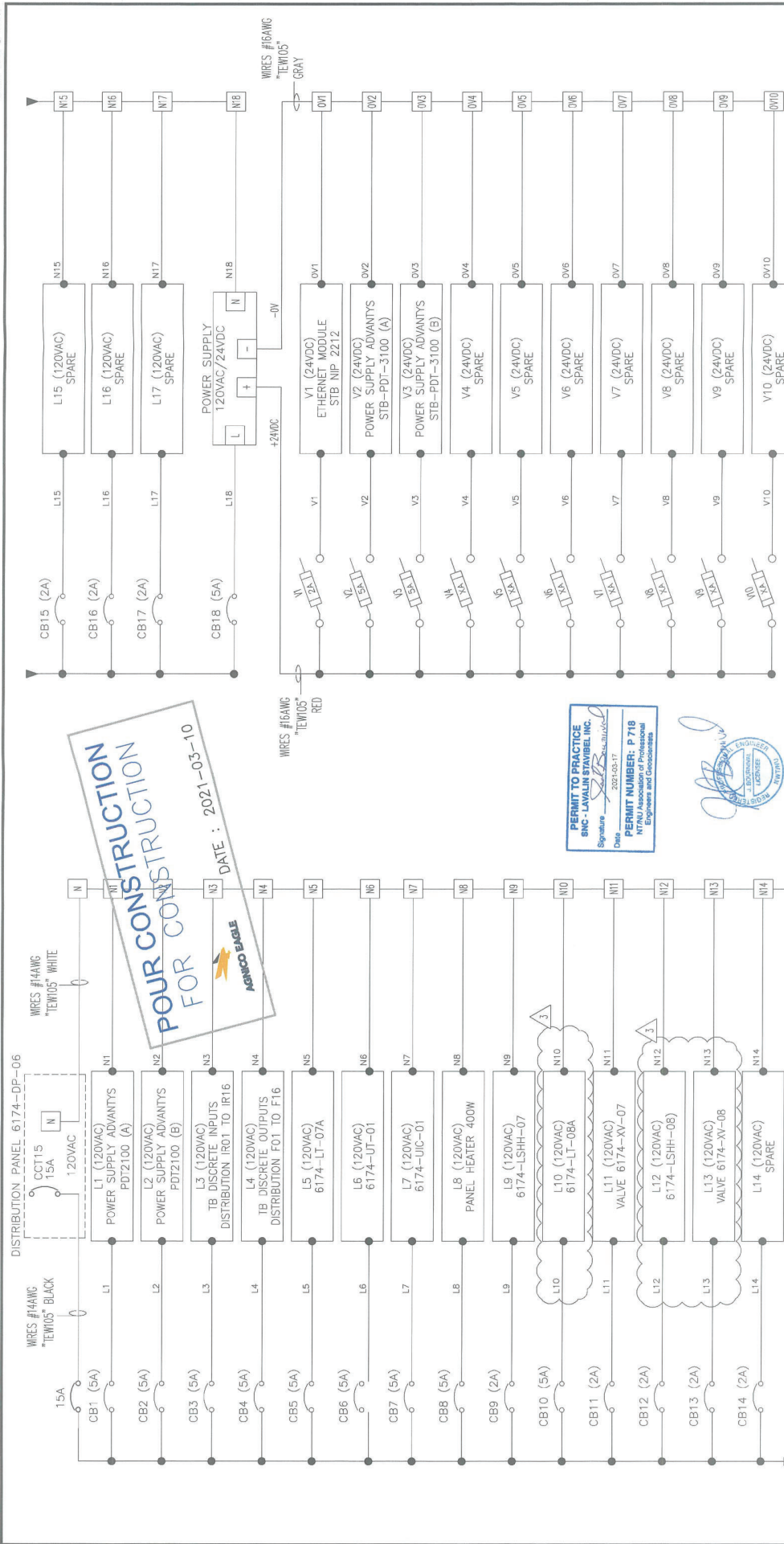
[illegible]












**POUR CONSTRUCTION**  
**FOR CONSTRUCTION**

DATE : 2021-03-10

 **AGRICO EAGLE**

PERMIT TO PRACTICE  
SNC - LAYALIN STAVIBEL INC.  
Signature *L. Stavibel* 2021-03-17  
Date

PERMIT NUMBER: P 718  
NTNU Association of Professional  
Engineers and Geoscientists

A circular blue ink stamp. The outer ring contains the text "PROFESSIONAL ENGINEER" at the top and "REGISTERED" at the bottom. The inner circle contains the text "J. BOURNIVAL" and "LICENSEE". There are some handwritten scribbles over the stamp.[illegible]

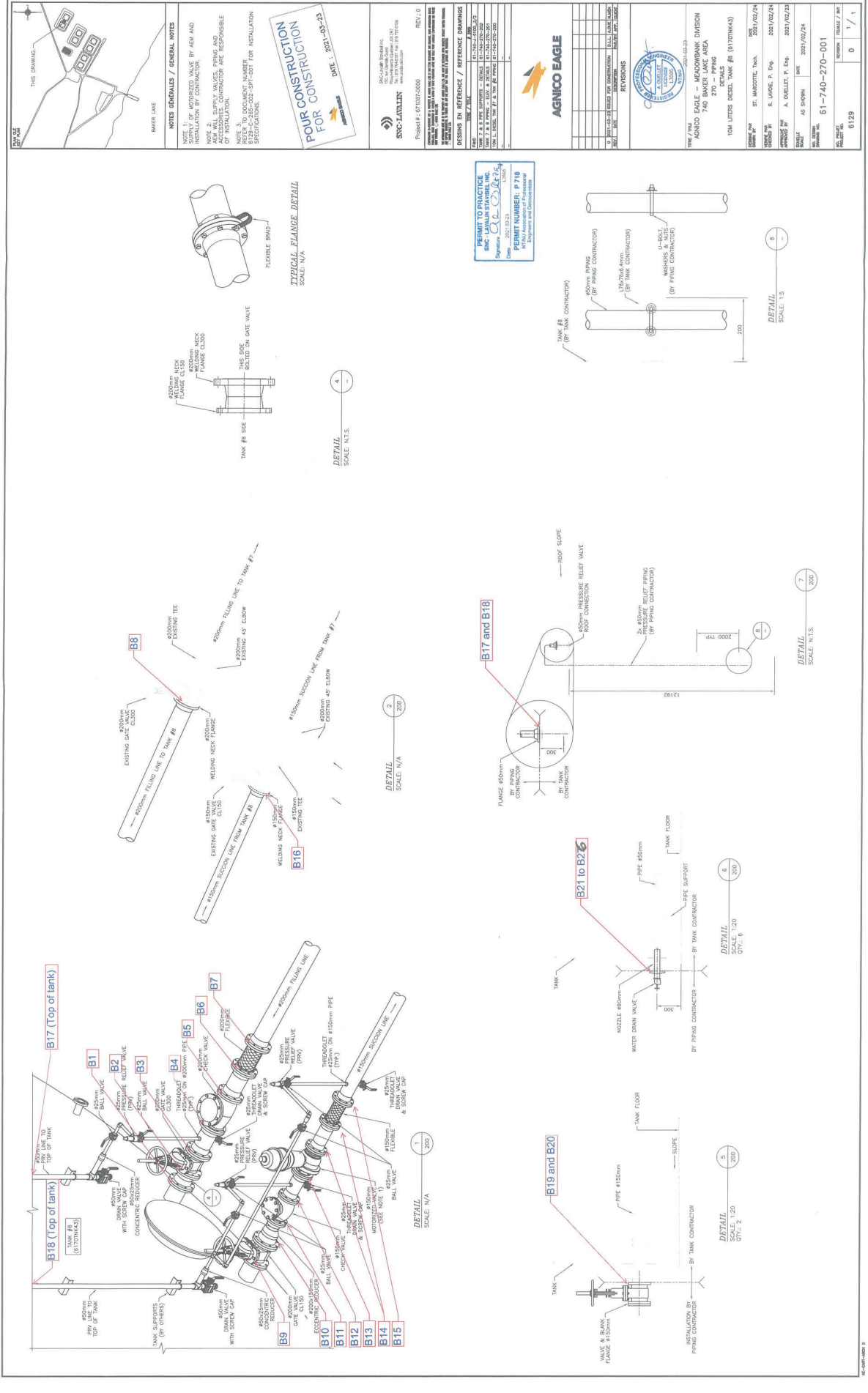
SNC • LAVALIN	OWNER	Agnico Eagle Mines	BY:	Nathan Bison	AGNICO EAGLE									
	PROJECT NAME:	Baker Lake Fuel Farm	APPROVED:	Roxanne Lavoria, P. Eng. (OIQ) / (Gagnon P. Eng.										
	PROJECT NO:	6120-S-265-020	REV	0 - For Tender										
	DOC NO:	6120-S-265-020-MTO-002	REV DATE:	2021-06-30										
	MTO Piping - Baker Lake Fuel Farm				MATERIAL TAKE OFF									
	Drawing number: 61-740-270-003				Description									
Rev. Date	Qty <sup>1</sup>	Unit	Description	ND	STANDARD	SCH./PN	PACKAGE #	MTO #	MATERIAL	MANUFACTURER	MODEL	REMARKS		
PIPING AND FITTING TABLE														
2021-06-30	260	m	STEEL PIPING									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	20	UNIT	WELDING NECK FLANGE									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	2	UNIT	BLIND FLANGE									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	19	UNIT	45° ELBOW BUTT WELD									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	4	UNIT	90° LONG RADIUS ELBOW BUTT WELD									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	5	UNIT	STRAIGHT TEE BUTT WELD									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	1	UNIT	WELDED 45° LATERAL BUTT WELD									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	2	UNIT	FLEXIBLE HOSE, 350 mm I.d.									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	1	UNIT	FLEXIBLE HOSE, 450 mm I.d.									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	6	UNIT	ECCENTRIC REDUCER BUTT WELD									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	6	UNIT	BLIND FLANGE									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	10	UNIT	WELDING NECK FLANGE									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	3	UNIT	THREADEDLET FOR Ø150mm PIPE									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	2	m	PIPING									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	3	UNIT	SCREW CAP									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
2021-06-30	22	UNIT	FLEXIBLE BRAID									SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW		
PIPING AND SUPPORT TABLE														
2021-06-30	12	UNIT	TYPE 1 PREFAB PIPING SUPPORT ON DRAWING 61-740-270-XXX									SHOP PAINTED AS PER 60-000-245-GGD-001, GREY		
2021-06-30	43	UNIT	TYPE 2 PREFAB PIPING SUPPORT ON DRAWING 61-740-270-XXX									SHOP PAINTED AS PER 60-000-245-GGD-001, GREY		
2021-06-30	4	UNIT	TYPE 3 PREFAB PIPING SUPPORT ON DRAWING 61-740-270-XXX									SHOP PAINTED AS PER 60-000-245-GGD-001, GREY		
2021-06-30	15	UNIT	EXTRA GREY PAINT GALLONS									FOR PAINT TOUCH-UP ON SITE		
2021-06-30	10	UNIT	EXTRA YELLOW PAINT GALLON									FOR PAINT TOUCH-UP ON SITE		
VALVE TABLE														
2021-06-30	7	UNIT	GATE VALVE									API 600, LCC BODY		
2021-06-30	3	UNIT	BALL VALVE API 607									8BL-240-24 SERIES		

<sup>1</sup> No contingency was planned on material take off list and no material was planned for field adjustment.

*Roxanne Lavore*  
 2021-06-30  
 L3940







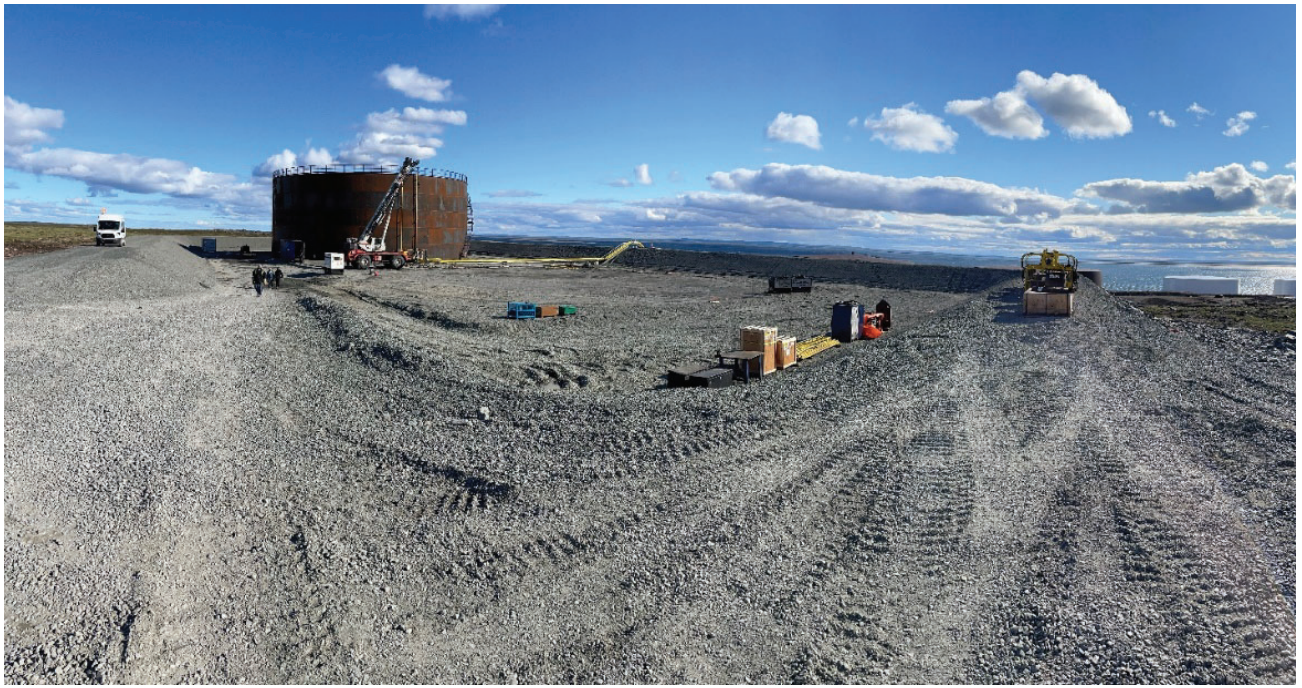






# Appendix C

Photographs



***Tank #8 pad before construction***



***Tank floor construction***





*Weld testing with vacuum*



*Tank wall welding*





***Tank wall third ring installation***



***Tank general view***



*Tank roof structure*



*Tank roof plate welding*





*Control cable tray and over pressure valve piping*