Key /K2 BOP Inc.
18 Burnt Bluff Street
Red Deer AB T4P 0J6

Key /K2 BOP Inc.
5705 47 St
Leduc AB T9E 7A1

THREE (3) YEAR SINGLE RAM BOP CERTIFICATION

Customer: [redacted]

Description: 5 1/8" 15,000 psi CT Single Gate

Rams: 2 3/8"

Flanged Description: Stud X Stud (BX-169)

Manufacturer: Lengthon

Model: CT

Bore Size: 5 1/8"

Pressure Class: 15,000 psi

Serial Number: PF79301005

Customer ID#: SR1-105

Key / K2 WO#: R06521

Weight: 2540 LBS

M#: 76050

This document is to certify that the aforementioned equipment has been inspected and pressure tested using industry standard practices and meets or exceeds the requirements as set forth in AER Directive 036, August 2022

The service has been completed and the equipment may be returned to service as specified by the original equipment manufacturer or as noted otherwise.

All repairs performed during this service and replacement parts exposed to well bore fluids meet the requirements of NACE MR0175 for sour service.

Services Performed

Well Bore P-Test :	Low At	250 psi	for	15 min	High At	15,000 psi	for	15 min
Hydraulic P-Test :	Open	1500 psi	for	15 min	Close	1500 psi	for	15 min
Hydraulic Volume:	Open	4.8 L			Close	4.8 L		

Certification Complete: April 15, 2024

Max Storage: April 15, 2026

In service Date:

Certification Due:

Certification Facility: Tri-Service Oilfield Manufacturing Ltd (Edmonton)

File No.: E26-24136

ADDITIONAL COMMENTS:
Length – 71.7" / Width – 18.5" / Height – 18.5"

PERMIT TO PRACTICE
TY ENGINEERING INC.
RM SIGNATURE: [signature]
RM APEGA ID #: 68523
DATE: October 30, 2026
PERMIT NUMBER: P013591
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

PROFESSIONAL ENGINEER ALBERTA
JIM IP
[signature]
October 30, 2026
ID# 68523

Key / K2 Equipment Supervisor: [signature] **Date:** April 18, 2024

K2 BOP	PRESSURE TEST AND DRIFT TEST	F27 REV3
		PAGE 1 OF 1

Customer:				**Work Order#**	**R06521**
Description:	**5-1/8" 15M MODIFIED CT SINGLE GATE**			**S/N:**	**PF79301005**
TSM Work Order #:	**76050**	**P/O#**	**7906 / E31590**	**C/N:**	**SR1-105**

Acceptance Standard	☒ AER Directive 36 ☐ CAOEC RP 6.0 ☐ API16A Latest Edition ☐ API STD 53		☒ AER Directive 36 ☐ CAOEC RP 6.0 ☐ API16A Latest Edition ☐ API STD 53		☒ AER Directive 36 ☐ CAOEC RP 6.0 ☐ API16A Latest Edition ☐ API STD 53
	HYDRAULIC TEST		**HYDROSTATIC TEST**		**SHELL TEST**
	OPEN	**CLOSE**	**LOW**	**HIGH**	**HIGH**
Test Date	04/13/2024	04/13/2024	04/14/2024	04/14/2024	04/15/2024
Test Medium	HYD OIL	HYD OIL	H20	H20	H20
Test Pressure (PSI):	1500	1500	250	15000	15000
Test Duration (min):	20 MIN	20 MIN	20 MIN	20 MIN	20 MIN
Test Pressure (PSI)	N/A	N/A	N/A	N/A	N/A
Test Duration (min):	N/A	N/A	N/A	N/A	N/A
Recording Device:	TD-4	TD-4	TD-1	TD-1	TD-1
Calibration Due	Jan/10/25	Jan/10/25	Feb/16/25	Feb/16/25	Feb/16/25
Tested By:					
DRIFT TEST PASS [☒]					

COMMENTS:

BOP WAS DRESSED AND TESTED WITH 2-3/8" PIPE RAMS **SN: PF60201004/006**

Test Approved By: Eddie Ellis Date: April 15, 2024

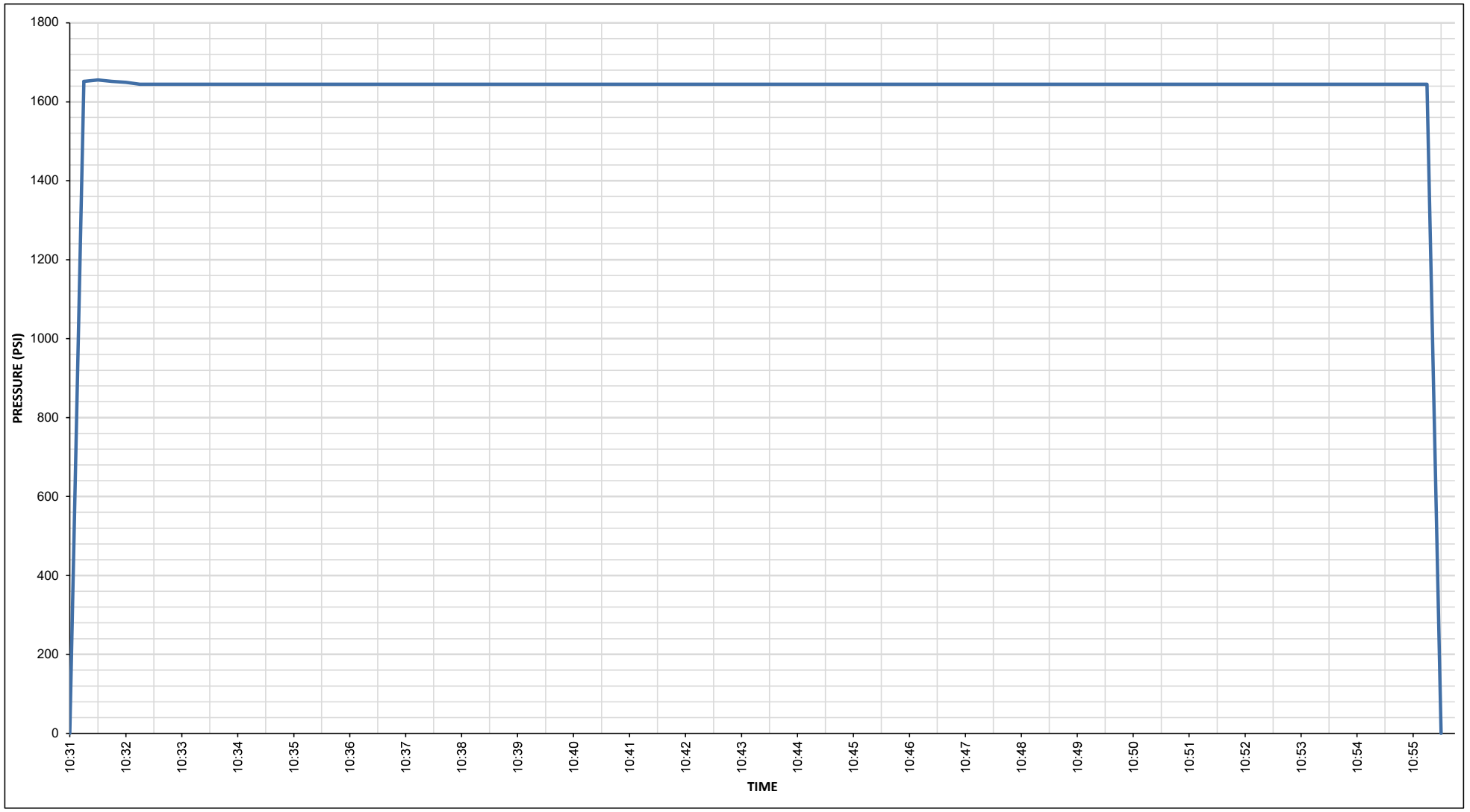
Signature:

REV #	DATE	REVISION DESCRIPTION	CREATED BY	APPROVED BY
3	20OCT2022	CAODC changed to CAOEC	MP	EE
1	26JUN2017	ADDED FOR CAODC	MP	DD
2	04OCT2019	ADDED AER Directive 36 & API STD 53	MP	DD

HYDRAULIC TEST - OPEN

CUSTOMER:

WO#: R06521 **S/N:** PF79301005 **DESCRIPTION:** 5-1/8" 15M SINGLE GATE **C/N:** SR1-105 **13-Apr-24**



AER | DIR 036

TRANSDUCER DATA TD-4	22273A1102003
TSM WORK ORDER	76050
IN SERVICE	JAN 10/2024
DUE DATE	JAN 10/2025
COMMENTS	

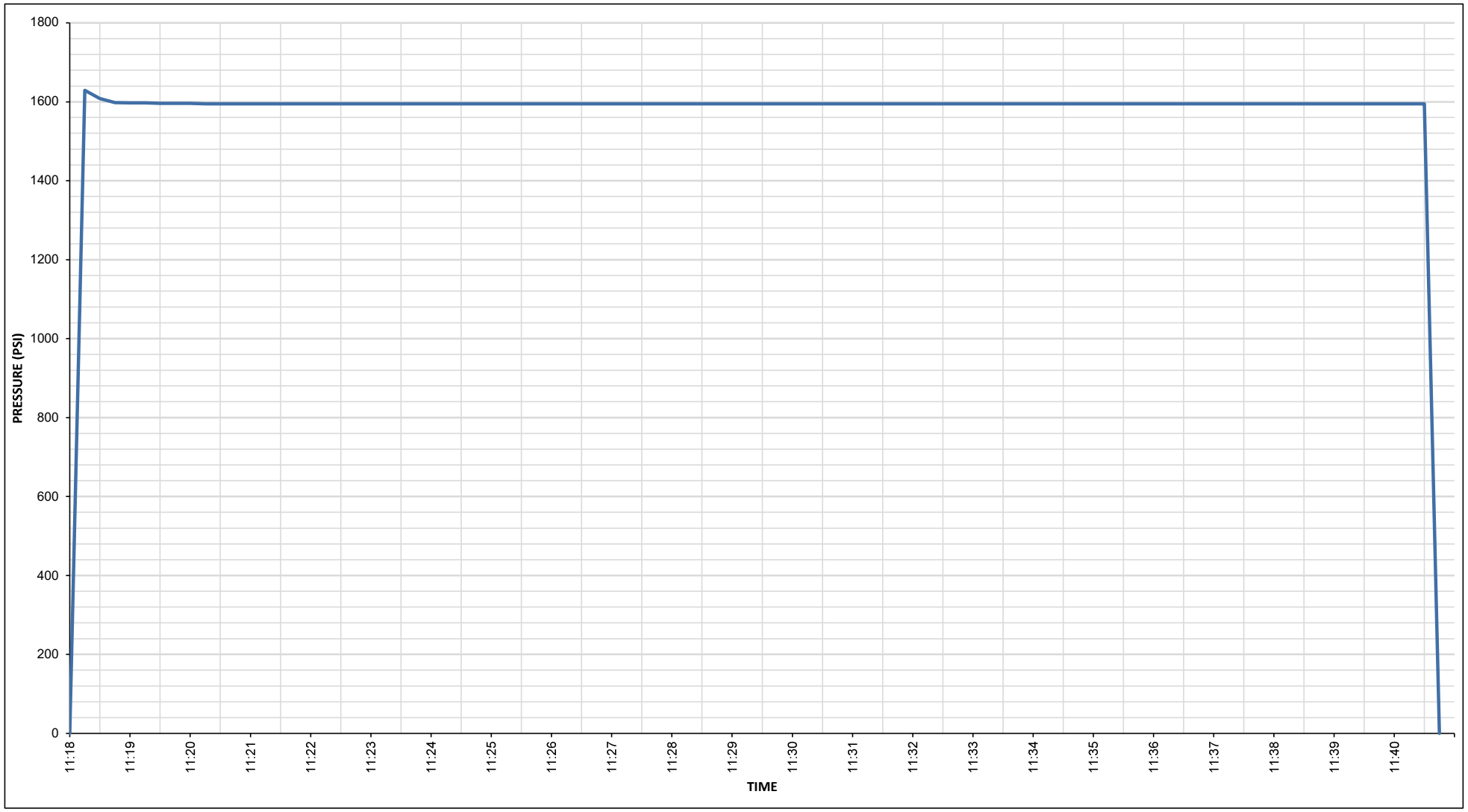
WITTNESSED BY EDDIE ELLIS

CONDUCTED BY CONNOR PERROTT

HYDRAULIC TEST - CLOSED

CUSTOMER:

WO#: R06521 **S/N:** PF79301005 **DESCRIPTION:** 5-1/8" 15M SINGLE GATE **C/N:** SR1-105 **13-Apr-24**



AER | DIR 036

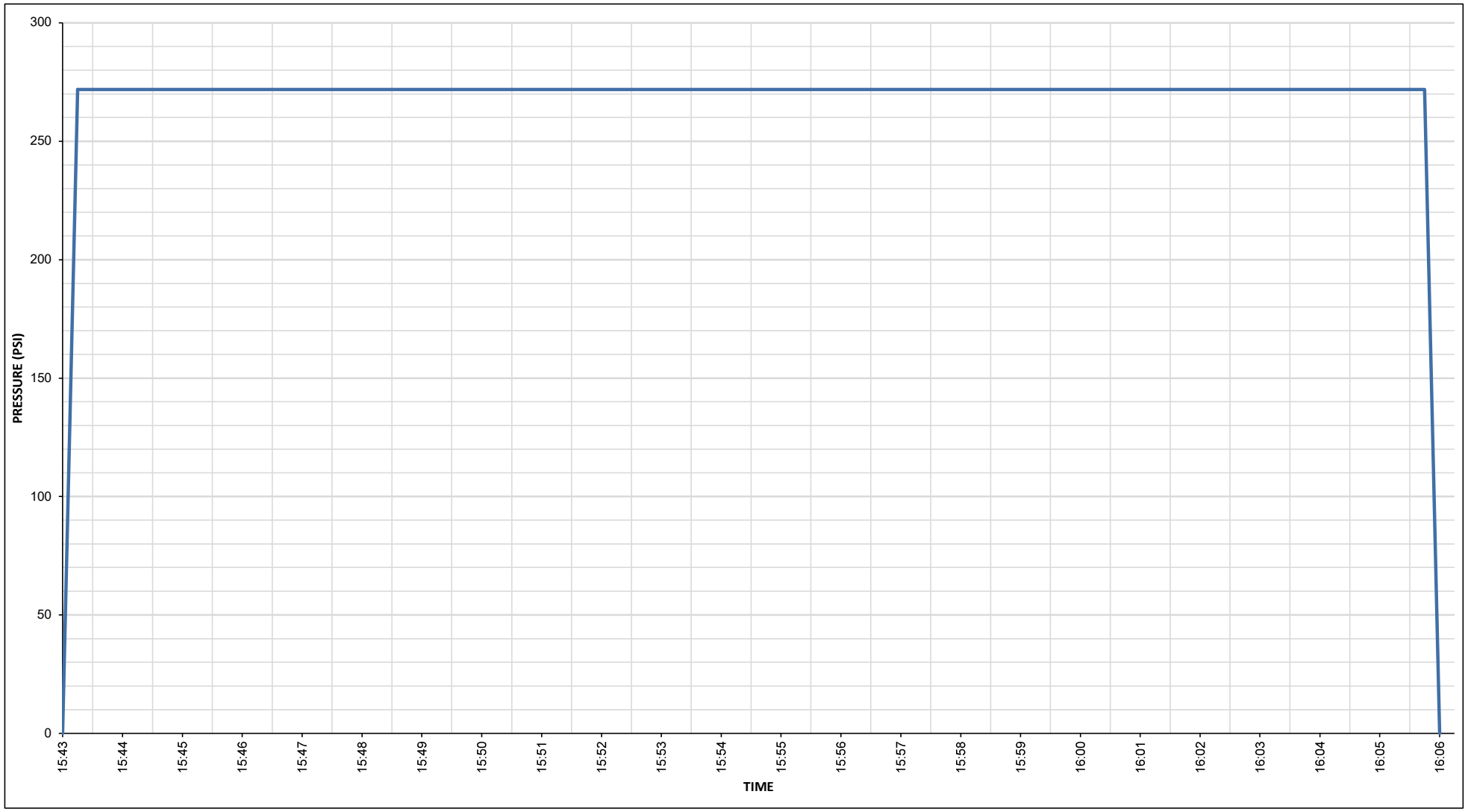
TRANSDUCER DATA TD-4	22273A1102003
TSM WORK ORDER	76050
IN SERVICE	JAN 10/2024
DUE DATE	JAN 10/2025
COMMENTS	

WITTNESSED BY EDDIE ELLIS
CONDUCTED BY CONNOR PERROTT

WELLBORE LOW

CUSTOMER:

WO#: R06521 **S/N:** PF79301005 **DESCRIPTION:** 5-1/8" 15M S/G **C/N:** SR1-105 **14-Apr-24**



AER | DIR 36

TRANSDUCER DATA TD-1	19413224102003
TSM WORK ORDER	76050
IN SERVICE	FEB/16/2024
DUE DATE	FEB/16/2025
COMMENTS	2-3/8" RAMS TESTED IN S/G SN: PF60201004/006

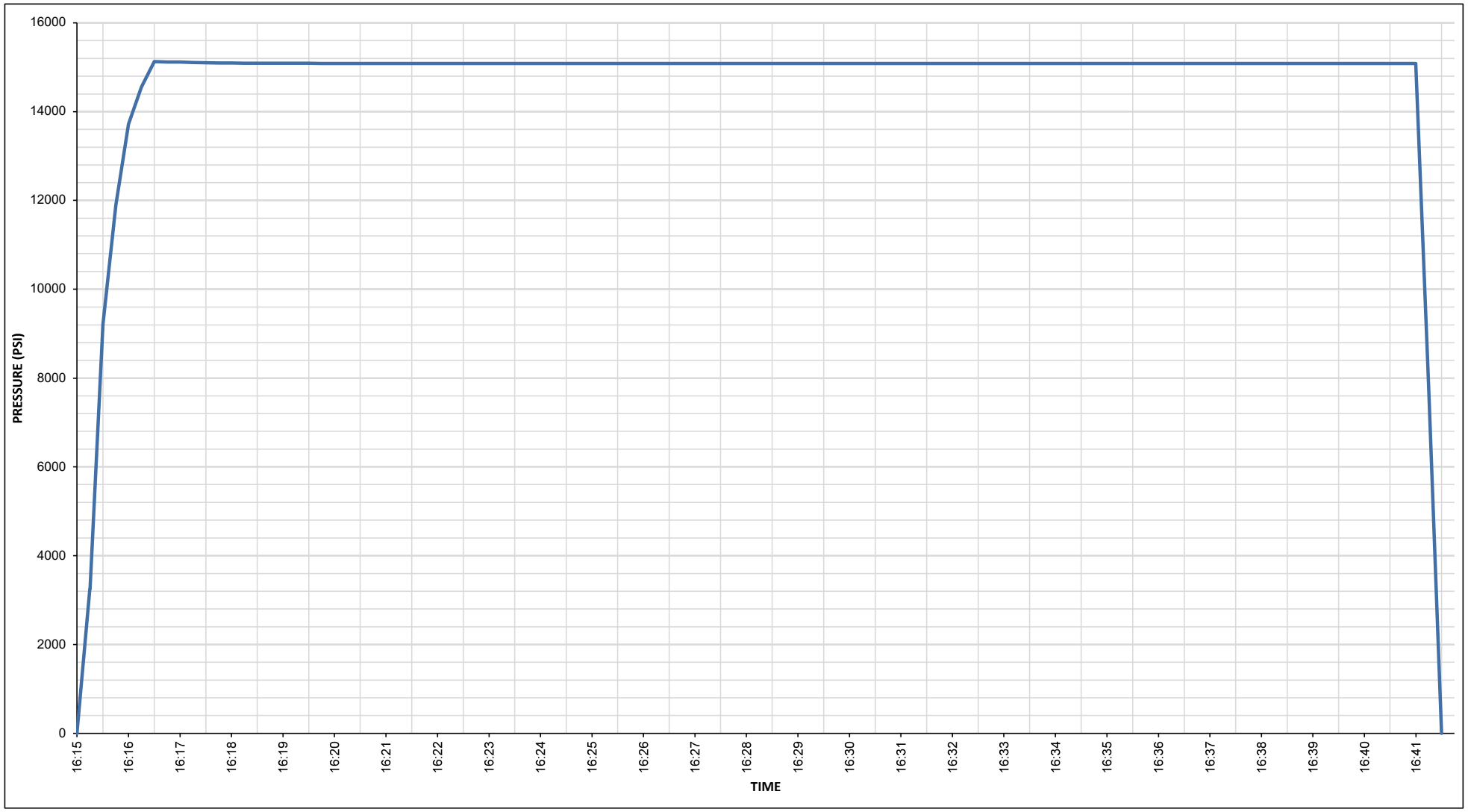
WITNESSED BY CONNOR PERROTT
CONDUCTED BY CORY SCARFF

WELLBORE HIGH

CUSTOMER:
WO#: R06521

DESCRIPTION: 5-1/8" 15M S/G
S/N: PF79301005
C/N: SR1-105

14-Apr-24



AER | DIR 36

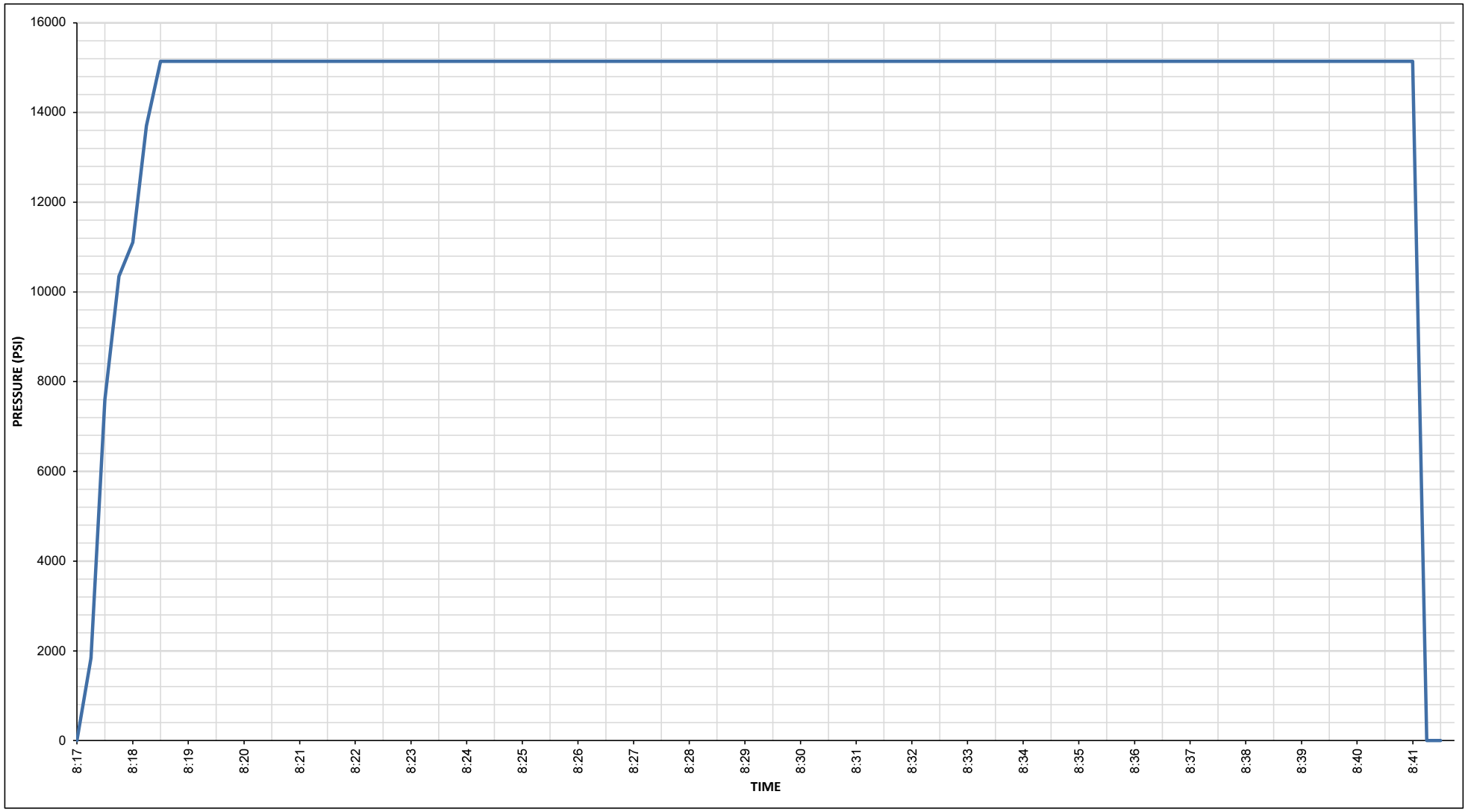
TRANSDUCER DATA TD-1 19413224102003
TSM WORK ORDER 76050
IN SERVICE FEB/16/2024
DUE DATE FEB/16/2025
COMMENTS 2-3/8" RAMS TESTED IN S/G
SN: PF60201004/006

WITNESSED BY CONNOR PERROTT
CONDUCTED BY CORY SCARFF

SHELL TEST

CUSTOMER:

WO#: R06521 **S/N:** PF79301005 **DESCRIPTION:** 5-1/8" 15M S/G **C/N:** SR1-105 **15-Apr-24**



AER | DIR 36

TRANSDUCER DATA TD-1	19413224102003
TSM WORK ORDER	76050
IN SERVICE	FEB/16/2024
DUE DATE	FEB/16/2025
COMMENTS	

WITNESSED BY CONNOR PERROTT
CONDUCTED BY CORY SCARFF

K2 BOP	WASHOUT AND REPAIR ROUTER SINGLE/ DOUBLE GATE	F101 REV4
		PAGE 1 OF 2

CUSTOMER:	**K2 BOP Inc.**	**W/O #**	**R06521**
DESCRIPTION:	**5-1/8" 15M MODIFIED CT SINGLE GATE**	**DATE:**	**02/08/2023**
APPROVED BY:	**Connor Perrott**	**S/N #**	**PF79301005**
WORK INSTRUCTION:	**WI02**	**COMPANY#**	**SR1-105**

[x] **SINGLE GATE**	[ ] **DOUBLE GATE**	
[ ] **WASHOUT**	[ ] **REPAIR**	[x] **3 YR CERTIFICATION**

Special Note:	C/W NO FITTINGS, NO STUDS	EMPLOYEE INITIAL
☑ Stamp Work Order on the equipment and parts *(Use low stress stamps on body, doors, cylinders, end caps, shafts. Use "A" and "B" to define sides, use "C" and "D" for double gates)*		GP
☑ Wash exterior – Including studs and ring grooves *(remove all dirt and debris)*		GP
☑ Open Doors – Wash all Interior areas *(remove all dirt and debris)*		GP
☑ Inspect all parts to ensure all rust and debris have been removed		GP
☑ Do Visual Inspection of all sealing areas/components *(check for dents or damage)*		GP
☑ Report any damage or defects to Manager immediately and record in comments		GP
☑ Apply Primer on all bare metal areas (*Use P103 Red Oxide Primer, ensure all parts are evenly covered)*		GP
☐ Replace Ram Rubbers (if applicable, *inspect for damage, cracks or wear and record batch and lot # in comments)*		
☑ Grease Ram cavities, Door seals (use UNOBA or REDTAC #2 grease, evenly cover all parts)		GP
☑ Close Doors and tighten Door bolts *(tighten bolts to appropriate spec)*		GP
☑ All bolts tightened to required torqued *Door Bolts (If applicable): Torque:* 730 *Ft-Lb* *Flange Bolts(If applicable): Torque:* N/A *Ft-Lb*		GP
☑ Pressure Test : *F27 Pressure and Drift Test, F34 BOP Pressure Test Table OR,* *For Customer Specific pressure Test requirements, List testing parameter:* **N/A** Hydraulic Test Open: 500 PSI , Time: 20 Min, Hydraulic Test Close: 1500 PSI , Time: 20 Min Low Pressure Test: 250 PSI , Time: 20 Min, High Pressure Test: 15000 PSI, Time: 20 Min Shell Test: 15000 PSI, Time: 20 Min,		GP
☑ Drift Test : *F27 Drift Test, As per CAODC RP 6.0 requirements*		GP
☑ Paint, *if required, use P103 Red Oxide paint and must be evenly covered OR* *Specify Customer Specific requirement:* **SILVER**		GP
☑ Final Inspection		EE

REV.#	DATE	REVISION DESCRIPTION	PREPARED BY:	APPROVED BY
4	12JUN2017	WI Box added, Final Inspection Added	ISL	DD
2	05OCT2016	ADDED 3 YEAR CERT	MP	DD
3	21NOV2016	Bolts Torque Added and re-formatted	MP	DD

PARTS	RECORD VISUAL INSPECTION FOR DAMAGE/ DEFICIENCIES
CYLINDERS	
DOORS	
RAM SHAFTS	
PISTONS	
BODY	
RAMS	
FLUID BLOCKS	
HYDRAULIC BLOCKS	
STUDS & NUTS	

Service/Part/Material List:

DESCRIPTION OF PARTS	PO#	VENDOR	DATE	COST
OIL REQUIRED: □ YES □ NO				

Review of 3rd Party Inspection Documents (If Applicable):

COMPANY:	TYPE OF DOCUMENT:	VERIFIED BY:	DATE:

Comment / Extra Parts:

MAGNETIC PARTICLE TESTING REPORT

CUSTOMER:	K2	**DATE:**	APR 02/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76050
TYPE OF EXAMINATION:	MAGNETIC PARTICLES	**P/O#:**	7906
TEST PROCEDURE:	P28 Rev 2 (MT-1)	**S/N:**	PF79301005
ACCEPTANCE STANDARD:	API 16A 4th EDITION	**C/N:**	
STAGE OF TEST:	☒ INITIAL INSPECTION ☐ FINAL INSPECTION	**TEST METHOD:**	ASTM E709

Magnetizing Equipment and Material

Magnetizing Equipment: Yoke **Current:** ☒ AC ☐ DC **Method:** ☒ Continuous ☐ Residual **Manufacture:** Magna-flux **Model:** Contour Probe **Type:** Y-2 **Serial #** N3573 (TSM157) **Calibration Due on:** April 20, 2024 **Lifting Force:** ☒ OK	**Light meter S/N:** 1943490/91 (TSM165) **Make & Model:** Spectroline / XRP3000 **Calibration Due:** April 20, 2024 **Light Source S/N: 70510** (TSM245) **Make & Model:** Labino/UVG3 2.0 Midlight **Calibration Due:** Daily **UV-A Light Intensity** Prior to use: 7632 **µw/cm²** After use: 7630 **µw/cm²**	**Magnetizing Particles:** ☐ Dry ☒ Wet **Particles:** ☐ Visible ☒ Fluorescent **Make:** Magnaflux **Brand Name:** 20B **Batch No.: 22D052** **Batch Concentration: 0. 25 %** **Surface Contrast:** NA **Color:** NA

Material Grade: Various, Surface Temperature: 20 ° ~ 22 ° C

Surface Condition: ☒ Sandblasted (P38R0) ☐ Machined ☐ Bare Metal ☐ Painted ☐ As Welded

QTY.	ITEM EXAMINED	CONFORMITY		REMARKS
		ACCEPT	REJECT	
1	5 1/18"-15000 CT SINGLE	☒	☐	
2	DOORS	☒	☐	
2	RAMSHAFTS	☒	☐	
2	5 1/18"-15000 x 2 3/8" RAMBLOCKSs/n#PF60201004 / PF60201006	☒	☐	
2	BONNETS	☒	☐	
2	CYLINDERS	☒	☐	
4	RAM CHANGE CYLINDERS	☒	☐	
4	RAM CHANGE RODS	☒	☐	
1	EQUALIZER BLOCK	☒	☐	
		☐	☐	
		☐	☐	

Test Results and Comment:

No relevant indications at time of inspection

Inspected By:

Print Name: Allan Radke Signature: Qualification: CGSB Level-II NRCan Certificate#: 7694

REV #	DATE	REVISION DESCRIPTION	PREPARED BY	APPROVED BY
4	27AUG 2021	FORMAT REVISED	MP	BG
3	09AUG2017	FORMAT REVISED	MP	BG
2	11MAR2016	TECHNIQUE DETAIL #1 CHANGED	MP	BG

POSITIVE MATERIAL IDENTIFICATION REPORT

CUSTOMER:	K2	**DATE:**	APR 02/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76050
TYPE OF EXAMINATION:	X-RAY FLUORESCENCE & HARDNESS TEST	**P/O#:**	7906
TEST PROCEDURE:	P29 Rev0 (XRF-1) , P32 Rev2	**S/N:**	PF79301005
ACCEPTANCE STANDARD:	NACE MR 0175 -2015 & API 16A 4th EDITION	**C/N:**	
STAGE OF TEST:	☒ INITIAL INSPECTION ☐ FINAL INSPECTION	**TEST METHOD:**	ASTM E1257, ASTM A370: A956

TECHNIQUE DETAILS

XRF Equipment:

Manufacture: Sci-Aps **Type:** X-550 Serial # 00150 (TSM249) ***Prior to Use Calibration Verification Completed:** ☒

Manufacture: MI TECH **Type:** ☒ HL200, Serial #HL0118013102 (TSM194) **Calibration Due on:** August 14, 2024

Surface Condition: ☒ Sandblasted ☐ Machined ☐ Bare Metal ☐ Ground ☐ As Welded

*Note: If results of Calibration Verification are not acceptable, please do not use equipment and inform Supervisor immediately.

QTY.	PART NAME	MATERIAL	HARDNESS (HBW)		Ni	CONFORMITY	
			BASE	WELD		ACCEPT	REJECT
1	5 1/18"-15000 CT SINGLE	LA_8630	219	N/A	.731	☒	☐
2	DOORS	LA_8630	227 / 212	N/A	.721 / .653	☒	☐
2	RAMSHAFTS	LA_4130	223 / 221	N/A	.204 / .214	☒	☐
2	5 1/18"-15000 x 2 3/8" RAMBLOCKSs/n#PF60201004 / PF60201006	LA_4130	201 / 219	N/A	.203 / .231	☒	☐
						☐	☐
						☐	☐
						☐	☐

Comments:

Inspected By:
Print Name: Allan Radke Signature: Qualification: CGSB-II Cert# NRC 7694

REV #	DATE	REVISION DESCRIPTION	PREPARED BY	APPROVED BY
4	20JUL2017	ADDED MATERIAL	MP	BG
5	30APR2021	Added Stage of Test	MP	BG
3	11MAR2016	REFORMATED AND TECHNIQUE DETAIL MODIFIED	MP	BG

HARDNESS TESTING REPORT

CUSTOMER:	K2	**DATE:**	APR 02/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76050
TYPE OF EXAMINATION:	HARDNESS TEST	**P/O#:**	7906
TEST PROCEDURE:	P32 Rev2	**S/N:**	PF79301005
ACCEPTANCE STANDARD:	API 16A 4th EDITION	**C/N:**	
STAGE OF TEST:	☒ INITIAL INSPECTION ☐ FINAL INSPECTION	**TEST METHOD:**	ASTM A370: A956

TECHNIQUE DETAILS

Manufacture: MI TECH **Type:** ☒ HL200, Serial #HL0118013102 (TSM194) **Calibration Due on:** Aug. 14, 2024

Surface Condition: ☒ Sandblasted ☐ Machined ☐ Bare Metal ☐ Ground ☐ As Welded

QTY.	PART NAME	MATERIAL (If requested by Customer)	HARDNESS (HBW)		Remarks
			BASE	WELD	
2	5 1/8"-15000 CT BONNETS		221 / 209	N/A	
2	CYLINDERS		291 / 278	N/A	
4	RAM CHANGE CYLINDERS		260 / 313 / 310 / 329	N/A	
4	RAM CHANGE RODS		366 / 349 / 344 / 384	N/A	
1	EQUALIZER BLOCK		329	N/A	

Comments:

Inspected By:
Print Name: Allan Radke Signature: Qualification: CGSB-II Cert# NRC 7694

REV #	DATE	REVISION DESCRIPTION	PREPARED BY	APPROVED BY
0	30DEC2016	Form Released	MP	BG
1	21JUL2017	ADDED MATERIAL	MP	BG
2	30APR2021	Added Stage of Test	MP	BG

LIQUID PENETRANT TESTING REPORT

CUSTOMER:	K2	**DATE:**	APR 02/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76050
TYPE OF EXAMINATION:	VISIBLE LIQUID PENETRANT	**P/O#:**	7906
TEST PROCEDURE:	P27 Rev2 (PT-2)	**S/N:**	PF79301005
ACCEPTANCE STANDARD:	API 16A 4th EDITION	**C/N:**	
STAGE OF TEST:	☒ INITIAL INSPECTION ☐ FINAL INSPECTION	**TEST METHOD:**	ASTM E165

TECHNIQUE DETAILS:

1. **Material Manufacture:**
   Penetrant: Magnaflux **Type:** SKL-WP2 **Developer:** Magnaflux **Type:** SKD-S2
   Cleaner/Remover: Magnaflux **Type:** SKC-S
2. **Surface Condition:** ☒ Sandblasted ☐ Machined ☐ Bare Metal ☐ Painted ☐ As Welded

QTY.	ITEM EXAMINED	CONFORMITY		REMARKS
		ACCEPT	REJECT	
2	5 1/8"-15000 CT RAMSHAFTS	☒	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Test Results and Comment:
No relevant indications at time of inspection

Inspected By:
Print Name: Allan Radke Signature: Qualification: CGSB-II Cert# NRC 7694

REV #	DATE	REVISION DESCRIPTION	PREPARED BY	APPROVED BY
1	10OCT2017	DOCUMENT RELEASED	MP	BG