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

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

NEW SINGLE RAM BOP CERTIFICATION

Customer:

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: PF79301004

Customer ID#: SR1-104

Key / K2 WO#: R06520

Weight: 2540 LBS

M#: 76049

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 19, 2024

Max Storage: April 19, 2026

In service Date:

Certification Due:

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

Permit to Practice: P08689

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

PROFESSIONAL ENGINEER ALBERTA
PAVEL MAZI

Key / K2 Equipment Supervisor: _____

Date: April 19, 2024

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

Customer:				**Work Order#**	**R06520**
Description:	**5-1/8" 15M MODIFIED CT SINGLE GATE**			**S/N:**	**PF79301004**
TSM Work Order #:	**76049**	**P/O#**	**7905 / E31605**	**C/N:**	**SR1-104**

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	04/19/2024	04/19/2024	04/19/2024	04/19/2024	04/19/2024
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: PF60201013/014**

Test Approved By: Eddie Ellis Date: April 19, 2024

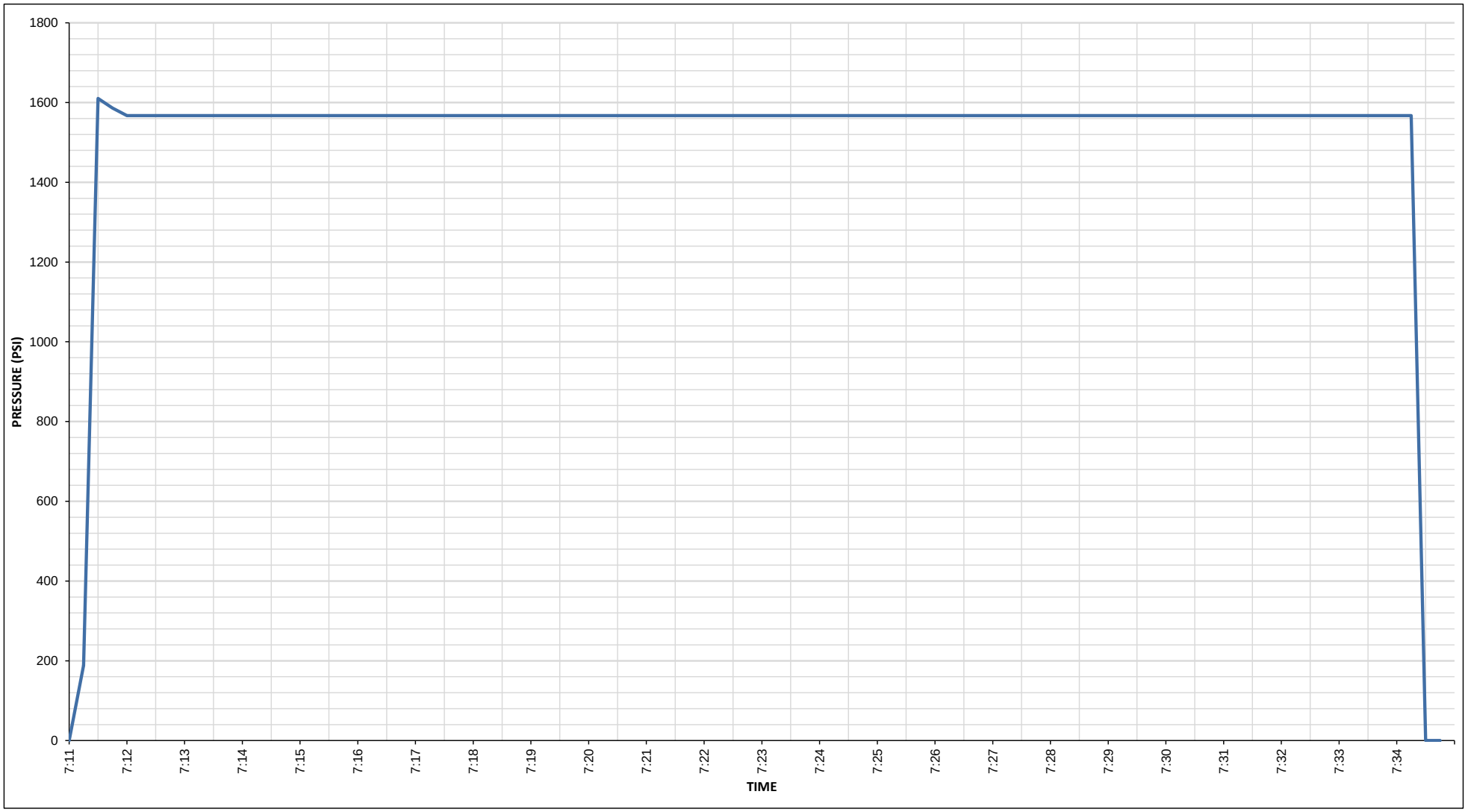
Signature:

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#: R06519 **S/N:** PF79301004 **DESCRIPTION:** 5-1/8" 15M SINGLE GATE **C/N:** SR1-104 **19-Apr-24**



AER | DIR 036

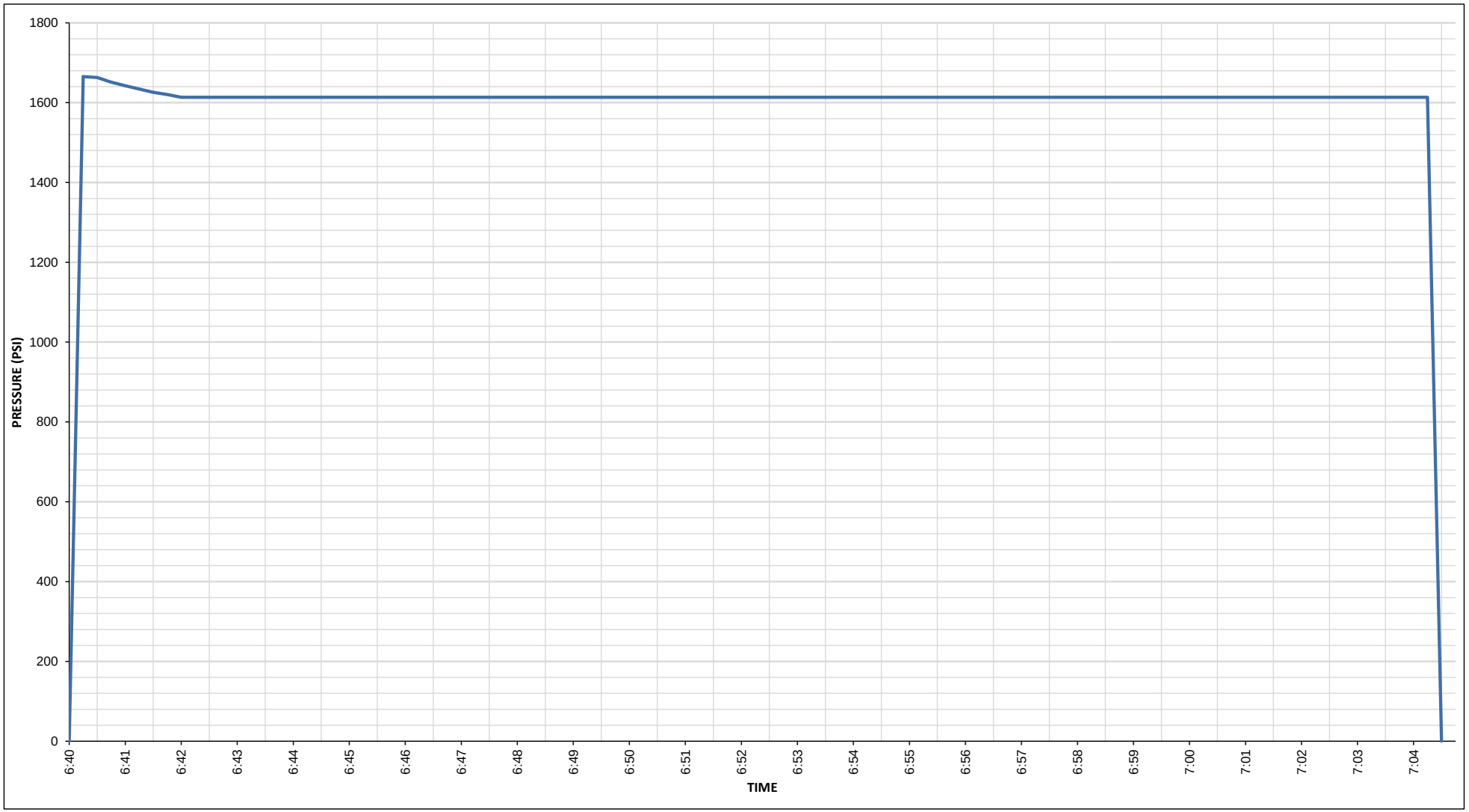
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TSM WORK ORDER	76049
IN SERVICE	JAN 10/2024
DUE DATE	JAN 10/2025
COMMENTS	

WITTNESSED BY CONNOR PERROTT
CONDUCTED BY CORY SCARFF

HYDRAULIC TEST - CLOSED

CUSTOMER:

WO#: R06519 **S/N:** PF79301004 **DESCRIPTION:** 5-1/8" 15M SINGLE GATE **C/N:** SR1-104 **19-Apr-24**



	AER | DIR 036
TRANSDUCER DATA TD-4	22273A1102003
TSM WORK ORDER	76049
IN SERVICE	JAN 10/2024
DUE DATE	JAN 10/2025
COMMENTS	

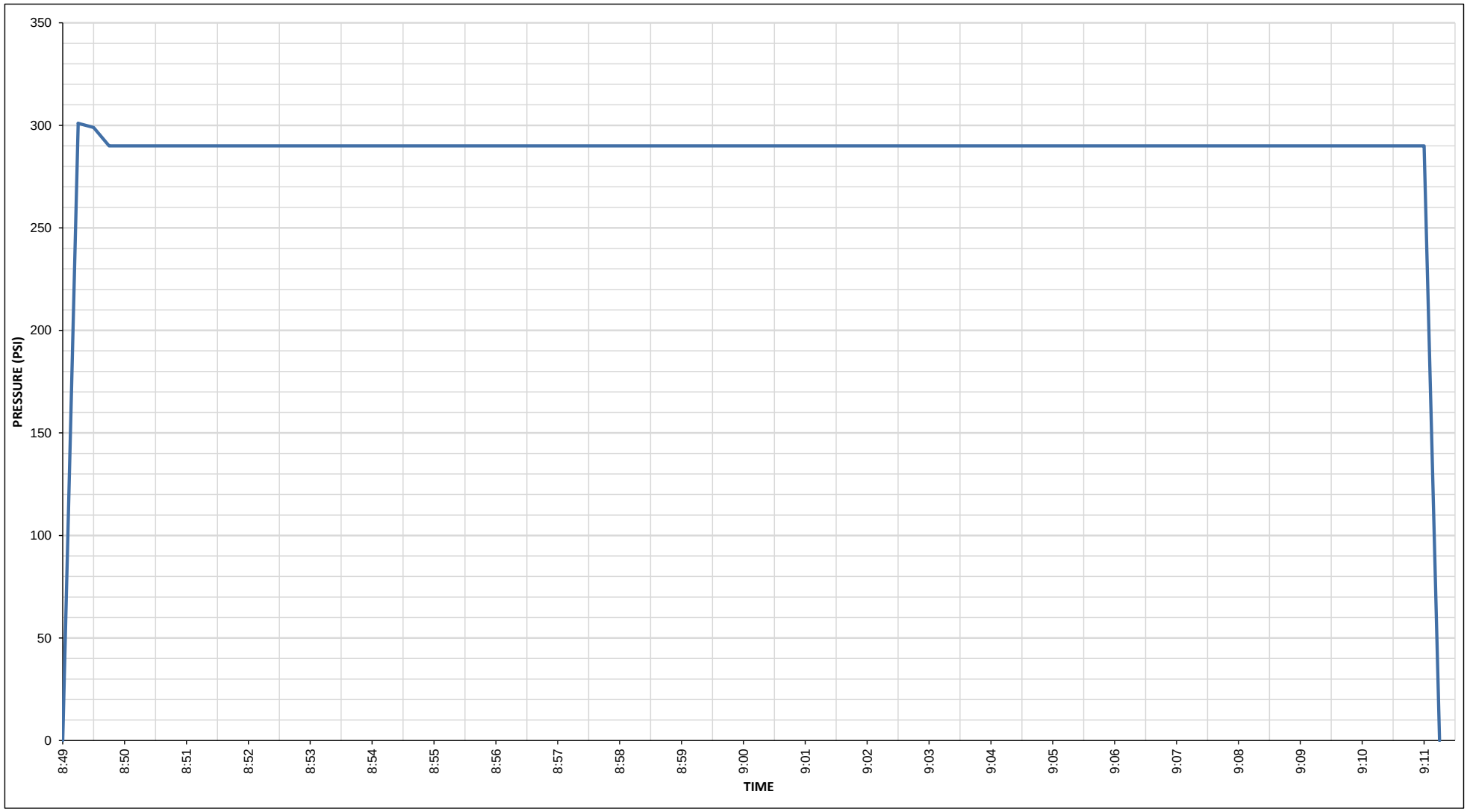
WITTNESSED BY CONNOR PERROTT
CONDUCTED BY CORY SCARFF

WELLBORE LOW

CUSTOMER:

DESCRIPTION: 5-1/8" 15M S/G

WO#: R06520 **S/N:** PF79301004 **C/N:** SR1-104 **19-Apr-24**



AER | DIR 36

TRANSDUCER DATA TD-1 19413224102003

TSM WORK ORDER 76049

IN SERVICE FEB/16/2024

DUE DATE FEB/16/2025

COMMENTS 2-3/8" RAMS DRESSED AND TESTED IN S/G.

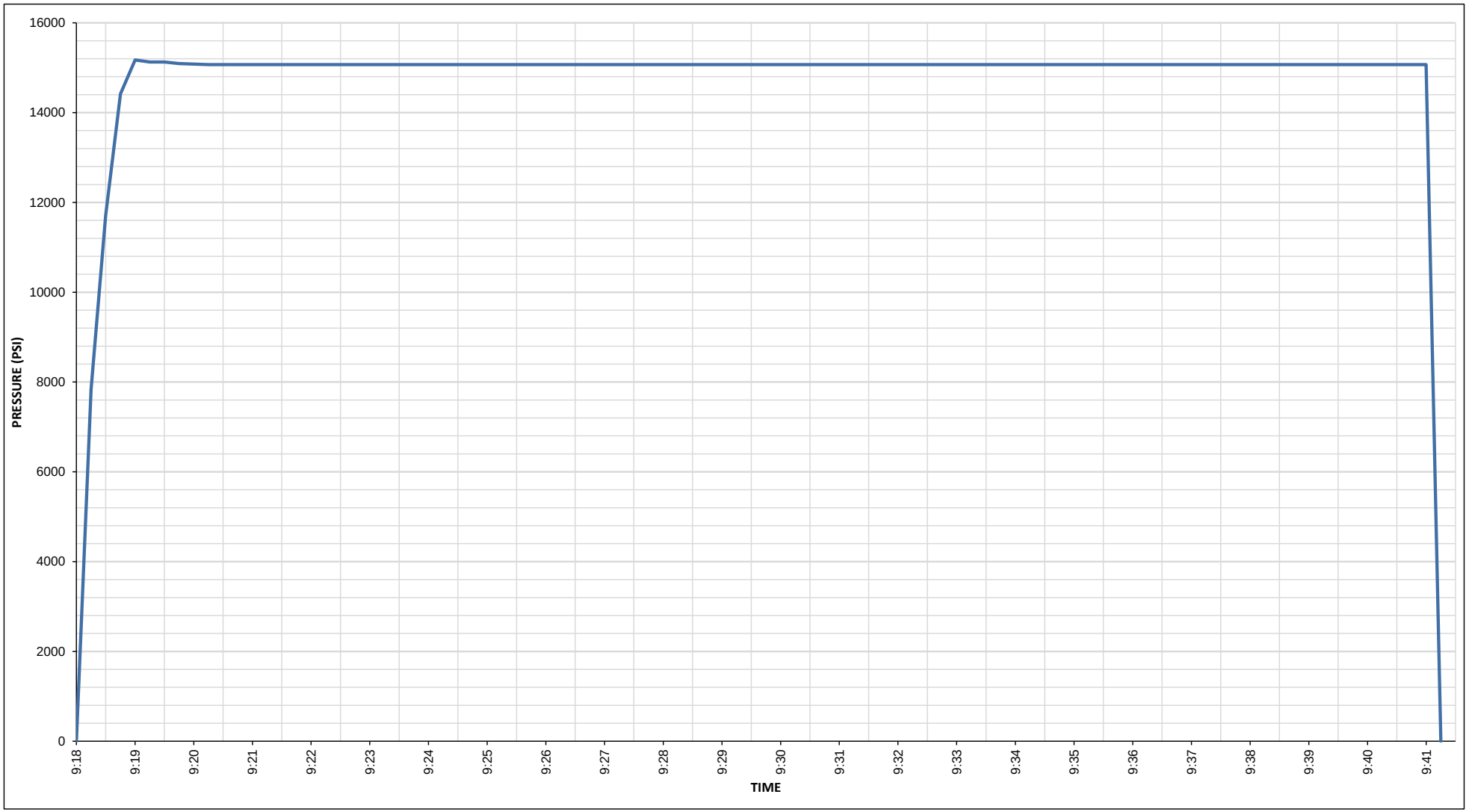
WITNESSED BY CONNOR PERROTT

CONDUCTED BY CORY SCARFF

WELLBORE HIGH

CUSTOMER:

WO#: R06520 **S/N:** PF79301004 **DESCRIPTION:** 5-1/8" 15M S/G **C/N:** SR1-104 **19-Apr-24**



AER | DIR 36

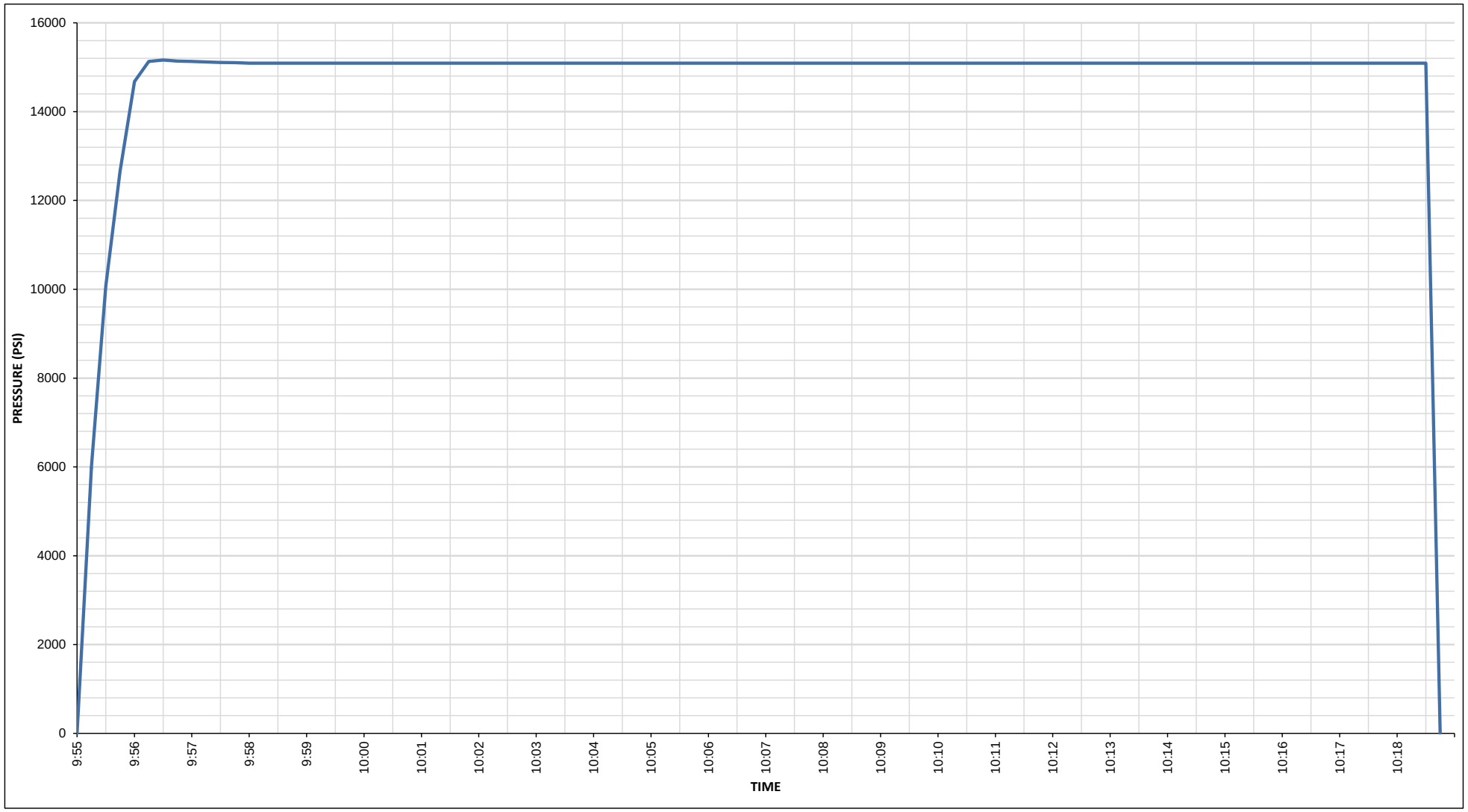
TRANSDUCER DATA TD-1	19413224102003	**WITNESSED BY**	CONNOR PERROTT
TSM WORK ORDER	76049	**CONDUCTED BY**	CORY SCARFF
IN SERVICE	FEB/16/2024		
DUE DATE	FEB/16/2025		
COMMENTS	2-3/8" RAMS DRESSED AND TESTED IN S/G.		

SHELL TEST

CUSTOMER:

DESCRIPTION: 5-1/8" 15M S/G

WO#: R06520 **S/N:** PF79301004 **C/N:** SR1-104 **19-Apr-24**



AER | DIR 36

TRANSDUCER DATA TD-1 19413224102003 **WITNESSED BY** CONNOR PERROTT

TSM WORK ORDER 76049 **CONDUCTED BY** CORY SCARFF

IN SERVICE FEB/16/2024

DUE DATE FEB/16/2025

COMMENTS 2-3/8" RAMS DRESSED AND TESTED IN S/G.

MAGNETIC PARTICLE TESTING REPORT

CUSTOMER:	K2	**DATE:**	APR 01/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76049
TYPE OF EXAMINATION:	MAGNETIC PARTICLES	**P/O#:**	7905
TEST PROCEDURE:	P28 Rev 2 (MT-1)	**S/N:**	PF79301004
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 1/8"-15000 CT SINGLE	☐	☒	Cracked on I.D. by wellbore / as per pic
2	DOORS	☒	☐	
2	RAMSHAFTS	☒	☐	
2	5 1/8"-15000 x 2 3/8" RAMBLOCKSs/n#PF60201013 / PF60201014	☒	☐	
2	BONNETS	☒	☐	
2	CYLINDERS	☒	☐	
4	RAM CHANGE CYLINDERS	☒	☐	
4	RAM CHANGE RODS	☒	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Test Results and Comment:

Single cracked on I.D. by wellbore / as per pic. Everything else 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 01/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76049
TYPE OF EXAMINATION:	X-RAY FLUORESCENCE & HARDNESS TEST	**P/O#:**	7905
TEST PROCEDURE:	P29 Rev0 (XRF-1) , P32 Rev2	**S/N:**	PF79301004
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 1/8"-15000 CT SINGLE	LA-8630	229	N/A	.708	☒	☐
2	DOORS	LA_8630	211 / 209	N/A	.672 / .420	☒	☐
2	RAMSHAFTS	LA_4130	228 / 221	N/A	.203 / .237	☒	☐
2	5 1/8"-15000 x 2 3/8" RAMBLOCKSs/n#PF60201013 / PF60201014	LA_4130	224 / 209	N/A	.253 / .234	☒	☐
						☐	☐
						☐	☐
						☐	☐

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 01/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76049
TYPE OF EXAMINATION:	HARDNESS TEST	**P/O#:**	7905
TEST PROCEDURE:	P32 Rev2	**S/N:**	PF79301004
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		198 / 194	N/A	
2	CYLINDERS		277 / 243	N/A	
4	RAM CHANGE CYLINDERS		334 / 327 / 344 / 315	N/A	
4	RAM CHANGE RODS		353 / 362 / 329 / 348	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 01/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76049
TYPE OF EXAMINATION:	VISIBLE LIQUID PENETRANT	**P/O#:**	7905
TEST PROCEDURE:	P27 Rev2 (PT-2)	**S/N:**	PF79301004
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 1/18"-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

MAGNETIC PARTICLE TESTING REPORT

CUSTOMER:	K2	**DATE:**	APR 06/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76049
TYPE OF EXAMINATION:	MAGNETIC PARTICLES	**P/O#:**	7905
TEST PROCEDURE:	P28 Rev 2 (MT-1)	**S/N:**	PF79301004
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:** Oct 19, 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 1/8"-15000 CT SINGLE	☒	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

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

HARDNESS TESTING REPORT

F57 REV2

CUSTOMER:	K2	**DATE:**	APR 06/2024
LOCATION:	9545 – 58th Ave NW, Edmonton, AB	**W/O#**	76049
TYPE OF EXAMINATION:	HARDNESS TEST	**P/O#:**	7905
TEST PROCEDURE:	P32 Rev2	**S/N:**	PF79301004
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	
1	5 1/8"-15000 CT SINGLE		228	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