PHASE 2 INITIAL BOREHOLE DRILLING AND TESTING, SOUTH BRUCE

WP09 Data Report for Westbay MP55 Multi-Level Groundwater Monitoring System Installation at SB_BH01

APM-REP-01332-0325 **July 2023**

Geofirma Engineering

nwmo
NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

Nuclear Waste Management Organization
22 St. Clair Avenue East, 4th Floor
Toronto, Ontario
M4T 2S3
Canada

Tel: 416-934-9814
Web: www.nwmo.ca

Phase 2 Initial Borehole Drilling and Testing, South Bruce

WP09: Data Report for Westbay MP55 Multi-Level Groundwater Monitoring System Installation at SB_BH01

Revision: 0 (Final)

Prepared for:

Nuclear Waste Management Organization
22 St. Clair Avenue East. 6th Floor
Toronto, ON, M4T 2S3

Prepared by:

GEOFIRMA ENGINEERING
1 Raymond St. Suite 200, Ottawa, Ontario K1R 1A2
613.232.2525 613.232.7149 geofirma.com

Project Number: 20-211-1

Document ID: WP09 Data Report_Westbay MP55 Multi-Level GW Monitoring System Installation for SB_BH01_R0.docx

July 4, 2023

Title:	WP09: Data Report for Westbay MP55 Multi-Level Groundwater Monitoring System Installation at SB_BH01	
Client:	Nuclear Waste Management Organization	
Project Number:	20-211-1	
Document ID:	WP09 Data Report_Westbay MP55 Multi-Level GW Monitoring System Installation for SB_BH01_R0.docx	
Revision Number:	0	Date: July 4, 2023
Prepared by:	Sean Sterling and Morgan de Kroon	
Reviewed by:	Kevin Tateishi	
Approved by:	Sean Sterling, M.Sc, P.Eng., P.Geo. – Project Manager – Principal	

Revision Tracking Table

Revision	Revision Release Date	Description of Modifications/Edits
R0A	June 6, 2023	Initial Release to NWMO for Review
R0B	June 29, 2023	Draft Release following NWMO Comments
R0	July 4, 2023	Final Release

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1 INTRODUCTION

Geofirma Engineering Ltd. (Geofirma) completed the drilling, coring, and monitoring program at SB_BH01 drill site at 1021 Concession Road 8, northwest of Teeswater, Ontario. This report provides a detailed summary of one component of the Geofirma Engineering Ltd. geoscientific investigations as part of the NWMO Phase 2 Initial Borehole Drilling and Testing Program within the South Bruce Site, near Teeswater, Ontario (Figure 1). Specifically, this report describes the activities associated with Geofirma's WP09 Test Plan, to complete the installation of the Westbay MP55 multilevel monitoring system and dedicated MOSDAX pressure probes in borehole SB_BH01.

1.1 Background

Geofirma was retained by the Nuclear Waste Management Organization (NWMO) to complete a drilling and testing program for two deep bedrock boreholes (SB_BH01 and SB_BH02) as part of the NWMO's Phase 2 Geoscientific Preliminary Field Investigations. The full scope of this deep drilling and testing program is described in the Initial Borehole Characterization Plan.

Phase 1 of NWMO's APM plan included preliminary desktop studies using available geoscientific information and a set of key geoscientific characteristics and factors that can be realistically assessed at the desktop phase of the Preliminary Assessment. The Phase 1 Preliminary Assessment of the South Bruce Site identified the Cobourg Formation as the preferred host formation for a deep geological repository for used nuclear fuel. The Initial Borehole Drilling and Testing study is a key component of the Phase 2 Geoscientific Preliminary Field Investigations of the NWMO's APM plan.

Boreholes SB_BH01 and SB_BH02 are located approximately 4 km northwest of the community of Teeswater, Ontario. SB_BH01 was drilled through the entire sedimentary bedrock sequence to approximately 20 m into the Precambrian basement, to a total depth of 880.84 mBGS. The borehole was drilled using PQ3 wireline coring equipment that produces a 123 mm nominal diameter borehole and 83 mm nominal diameter core.

The long-term monitoring system installation described in this report was completed to monitor in-situ groundwater pressures over time and potentially collect groundwater samples from select zones. Supplemental reports have been prepared by Geofirma illustrating other aspects of the geoscientific investigations.

MUNICIPALITY OF BROCKTON

Riversdale

Little Egypt

Greenock Swamp

F012077

Salem

Kinlough

T003553

Westford

BRUCE ROAD 4

TOWNSHIP OF HURON-KINLOSS

MUNICIPALITY OF SOUTH BRUCE

F012068

Holyrood

BRUCE ROAD 1

BRUCE ROAD 6

CONCESSION 8

Kinloss Creek

SB_BH01

Culross

Kinloss

Teeswater

F012062

Lower Langside

T004881

Dickies Creek Wetland Complex

Langside

Teeswater Wetland Complex

Anderson Creek Wetland Complex

LEGEND

- SB_BH01 Drill Site
- Municipality of South Bruce
- Municipality of Brockton
- Township of Huron-Kinloss
- Provincially Significant Wetland
- Wetland
- Waterbody
- Watercourse
- Major Road
- Local / Street
- OGSRL Well Locations

INSET MAP

Figure 1
Location of SB_BH01 Drill Site

Scale 1:60,000

0 500 1,000 2,000 3,000 4,000
Meters

N

Projection: NAD 1983 UTM Zone 17N

Source: NWMO, Ontario GeoBase

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

PROJECT No. 20-211-1

NWMO South Bruce
Drilling and Testing

DESIGN: ADG
CAD/GIS: ADG
CHECK: SNS
REV: 0

DATE: 2021-01-27

Geofirma Engineering Ltd

F:\Data\Project\Bruce\Maps\20-211-1_SouthBruce\20-211-1_Figure1_SB_BH01_TestPlans.mxd

1.2 Geologic Setting

The sequence of rocks encountered in the SB_BH01 borehole consist of Paleozoic-aged strata that were deposited within the Michigan Basin northwest of the Algonquin Arch in Southwestern Ontario. The Michigan Basin is a circular-shaped cratonic basin that is composed primarily of shallow marine carbonates, evaporites, and shales that were deposited while eastern North America was in tropical latitudes during the Paleozoic Era (Armstrong and Carter 2006). West of the Algonquin Arch, strata from the Michigan Basin tend to gradually dip westward into the Michigan Basin. Borehole SB_BH01 was drilled through the entire Paleozoic sequence to approximately 20 m into the Precambrian basement, which is composed of high-grade metamorphic rocks of the Grenville Province.

1.3 Technical Objectives

The primary objective of this work was to design and successfully install a Westbay MP55 multilevel monitoring system that provides isolated intervals to allow measurement of hydraulic pressures and collect isolated groundwater samples. Target intervals were designed to isolate permeable and impermeable zones within the borehole and to isolate intervals representative of stratigraphic formations. These intervals were identified based on borehole geophysical logging (WP05), core logging (WP03) and hydraulic testing (WP06 & WP07) results.

Following the successful installation of the Westbay MP55 multilevel monitoring system and measurement of in-situ vertical pressure profiles within the borehole, a set of 20 dedicated Westbay MOSDAX pressure transducers were installed. These probes were installed in select intervals to allow continuous, long-term data logging of in-situ groundwater pressures.

2 DESCRIPTION OF ACTIVITIES

Geofirma was the Lead Contractor for all activities associated with SB_BH01 WP09, including design, selection of packer locations to isolate specific intervals within the borehole, site management and oversight during the installation of equipment. Geofirma subcontracted Westbay Instruments, based in Burnaby, BC to complete the installation of the Westbay MP55 system and the dedicated MOSDAX pressure probes, with Geofirma staff assisting onsite. The MP55 equipment was lowered into SB_BH01 using a small drilling rig.

The Geofirma site supervisor verified that all activities were completed in accordance with the approved Geofirma WP09 Test Plan and documented all pertinent information associated with WP09.

Geofirma completed the final design and configuration of the Westbay MP55 multilevel system components and provided the final selection of monitoring intervals to NWMO for approval prior to mobilizing to site for installation. Installation activities associated with WP09 at SB_BH01 started on June 6, 2022 and were completed on November 14, 2022. This work was conducted in the following phases:

- Site preparation, layout of Westbay equipment, and QA inspection/testing of individual components over June 6-14 (9 days).
- Assembling and lowering of Westbay MP55 system components in SB_BH01 over June 15-20 (6 days).
- Pre-inflation pressure profile on June 21 (1 day).
- Inflation of 36 packers over June 22-29 (8 days).
- Post-inflation pressure profile on June 29 (1 day).
- Pressure profiles collected on July 21, August 16, August 17, and October 18 (4x-1 day, over an approximate 3-month period to allow early temporal variations following initial packer inflation to be observed).
- Installation of the dedicated MOSDAX pressure probes from October 17 to November 14 (29 days).

2.1 Health, Safety, And Environment

All field activities were completed in accordance with the requirements outlined in Geofirma's project-specific Health, Safety and Environment Plan (HSEP).

Pre-job briefings (PJB) were conducted at the beginning of every shift by the Geofirma Site Supervisor with mandatory attendance of all personnel working onsite that day to discuss the daily work plan, health and safety concerns, and any relevant changes to procedures. If any staff or contractors arrived at site after the initial PJB during the shift, the Geofirma Site Supervisor completed a separate PJB at that time. All staff signed a PJB form to acknowledge the planned scope of work and associated risks.

2.2 Data Quality Assurance and Quality Control

Several data quality assurance and quality control (QA/QC) measures were implemented by Geofirma and Westbay staff during the installation activities and subsequent analysis and reporting. All data acquisition and analysis were reviewed, verified, dated, and signed by a second Geofirma technical staff member who was not directly involved in the work being reviewed. The final Westbay MP55 system design was signed off by multiple personnel, with the final layout being checked by both Westbay and Geofirma staff onsite. The length of Westbay components were verified in the field prior to installation to ensure accurate equipment depths.

All measurement equipment were calibrated prior to use and when required, daily calibration checks were completed and recorded to ensure data accuracy.

3 WESTBAY MULTI-LEVEL MONITORING SYSTEM FOR SB_BH01

A Westbay MP55 multilevel system was designed and successfully installed in SB_BH01 to provide 36 discrete intervals that allow measurements of formation pressure and groundwater chemistry along the entire, approximately, 728m of open cored borehole length between the bottom of steel production casing (152.82 mBGS) to the total depth (880.84 mBGS).

The intervals were chosen to isolate stratigraphic units of interest, as well as isolate permeable horizons within the borehole. Monitoring intervals were isolate using inflatable packers at the top and bottom of the intervals. Measurement ports, pumping ports, and MOSDAX Pressure Transducers were placed according to the final approved design.

The Westbay MP55 multilevel system was manufactured using entirely stainless-steel components instead of PVC found in the smaller MP38 system, due to the higher design strength of the stainless steel components. This design decision was made to accommodate the overall weight of the MP55 system in the borehole during installation as well as potential borehole conditions such as high-pressure differentials between inside of MP55 casing and in-situ formation pressure outside of the MP55 casing. Table 1 summarizes the number of each MP55 component used in the design for SB_BH01.

Table 1: Westbay MP55 System Component Breakdown in SB_BH01

Component	Number used	Description
SS Measurement Ports	36	Coupling that provides access for probes and tools to measure fluid pressure, obtain discrete samples, and carry out hydraulic tests.
SS Hydraulic Pumping Ports	4	Coupling that opens and closes to provide hydraulic connection between the formation interval and the inside of the Westbay MP55 multilevel casing.
~1.5 m GeoPro Packers	36	Westbay 90mm GeoPro Element (nitrile butadiene rubber) packers with stainless steel mandrel.
0.5 m stainless steel lengths	5	Blank stainless-steel casing.
1 m stainless steel lengths	38	Blank stainless-steel casing.
1.5 m stainless steel lengths	39	Blank stainless-steel casing.
3m stainless steel lengths	233	Blank stainless-steel casing.
Magnetic Location Collars	37	The magnetic location collar is used to confirm the location of probes in a Westbay multilevel system well. It is attached to the outside of the casing and is located 0.75m below the top of the measuring port component.
Abrasion Protectors	40	Abrasion protectors act as a protective cover to fit over the packer elements to assist with installation and avoid damage to the packer.
MP55 to 2 7/8” EUE crossover coupling	1	Converts the MP55 stainless steel casing thread to 2 7/8” diameter EUE thread drill tubing at top of completion.
Bottom Plug	1	Lowest MP55 component to seal Westbay casing.

3.1 Westbay MP55 System Design

Pertinent borehole information including drilling conditions (WP02), geology (WP03), geophysics (WP05), and hydraulic parameters (WP06 and WP07) were reviewed by Geofirma and used to assist with the final design. This final design is shown in the Westbay Design Completion Log, included in Appendix A for reference. The final design includes the specific order of the various components to position Westbay packers, monitoring ports, pumping ports, and casing lengths at appropriate depths within the borehole to provide isolated zones over pre-selected intervals.

The rationale for selecting locations for packers and measurement/pumping ports is outlined below.

- Review basic design assumptions developed in budget concerning the number of packer-isolated test intervals in each borehole (i.e., 36 intervals).
- Review borehole data that identifies permeable intervals within each borehole and isolate those intervals with packers with access by measurement ports and pumping ports.
- Review borehole stratigraphy and geophysical surveys to identify sharp formation contacts that may form permeable discontinuities and include these discontinuities in packer-isolated test intervals.
- Set remaining packers to isolate separate stratigraphic units considering thickness of units and number of allowable intervals.
- Modify packer placement locations to avoid zones of increased borehole diameter that may compromise seating and sealing of packers.
- Maximize use of 3 m length casing sections in open borehole conditions.

The proposed casing installation plan for SB_BH01 prepared by Geofirma using the above rational was reviewed and verified by staff of Westbay Instruments. Following review by Westbay Instruments, the proposed casing installation plans were finalized by Geofirma and became the basis for the casing installations as formalized by Westbay in the Casing Installation Logs.

Application of the general design considerations described above resulted in final MP55 casing plan for borehole SB_BH01 with the general features summarized in Table 2.

A measurement port was placed below each packer with a magnetic locating collar so that all intervals are accessible for further studies. All measuring ports were designed below the final production casing depth (152.82mBGS), although the top-most packer was located within the steel casing at 148.8mBGS.

Using Geofirma provided guidelines and proposed packer placement and monitoring intervals, Westbay generated a Westbay Design Completion Log using their Westbay Well Designer Software. This Log was used by the installation crew to layout the proper components used for the SB_BH01 Westbay system. The Geofirma and NWMO WP09 leads approved the proposed Completion Log prior to installation.

Table 2: Summary of Main Design Elements of MP55 Casing Completion in SB_BH01

MP55 Casing Element	*SB_BH01*
Monitored Depth Range (mBGS)	152.82 to 880.84
Distance Above Total Drilled Depth to Bottom of MP55 (m)	10.46
Number of Isolated Monitoring Intervals (measurement ports below steel casing)	36
Average Monitoring Interval Length (m)	18.8
Range of Monitoring Interval Length (m)	8.9 to 31.9
Number of Isolated Monitoring Intervals with Pumping Ports	4

3.2 Preparation and Layout of MP55 Casing Components

The required MP55 casing components (casing, couplings, magnetic location collars, etc.) were laid out onsite and numbered in sequence according to the order indicated on the Completion Log. The length of each section of the MP55 casing was measured to the nearest millimeter to ensure accuracy for final position. Measurement ports were placed below each inflatable packer, typically with a blank 1.5m segment of stainless steel casing (including an abrasion protector) between the packer and measurement port. A magnetic location collar was attached 2.5 ft (0.75 meters) below the top of each measurement port and hydraulic pumping port during layout activities. All packers were stored within the shipping boxes during the preparation and layout activities until they were ready to be installed to avoid any potential damage and sun exposure. Main components longer than 3m were laid out on longer racks whereas the 1m length and 1.5m length pieces were placed on a separate shorter rack to avoid any possible damage and ensure they were properly supported. A place marker was set within the rack layout to mark the packer and steel component locations. Figure 2 shows the layout associated with the SB_BH01 Westbay Install.

This pre-installation layout was completed between June 6, 2022 and June 14, 2022; with installation beginning June 15, 2022. During the pre-installation activities the component layout was checked by both Westbay staff onsite and a Geofirma personnel. All components were inventoried and measured to confirm accurate depth and length calculations.

Figure 2: MP55 Component Layout

3.3 Installation of MP55 System

Installation of the MP55 system was completed by Westbay staff with additional support from Geofirma and Vital staff, as required.

Prior to assembling the Westbay system, the MP55 Joint Test Tool equipment was set up and tested by Westbay. Each connection in the MP55 casing was pressure tested prior to lowering to ensure the system was properly sealed. A minimum test pressure of approximately 1724 kPa (250 psi) and minimum test duration of 1 minute was used for the couplings and ports. A test with a pass criterion of no observable water leakage was met by all couplings before they are lowered into the borehole. Any couplings that did not pass the test were disconnected, refurbished or replaced as necessary, and successfully re-tested. Each section of Westbay casing was also visually inspected to confirm the inside was clear and no damage was evident.

After all components were lowered into the borehole, a leakage test was performed to confirm the hydraulic integrity of the MP casing. The leakage test was performed by measuring the water level inside the MP55 casing for a period of 30min. Over the test period, the water level inside the MP55 casing did not change, therefore the system passed this leakage test.

The final depth of the MP55 system was 870.38 mBGS based on the Westbay design and QA component checks. The system was designed with the bottom of the MP55 system approximately 10.46m above the total depth drilled to allow sufficient room for cuttings to settle prior to installation and to avoid potential damage to the MP55 equipment.

3.3.1 Pre-Inflation Pressure Profile

Following the systematic assembling and lowering of MP55 components, and while hanging freely in the borehole, prior to packer inflation, a pre-inflation pressure profile was carried out using the MOSDAX pressure profile tool to ensure measurement ports and magnetic collars are working and located at the

expected depth. The pressure data from the pre-inflation profile was recorded in the Pressure Profiling data sheet in the DQC Workbook then compiled into the relevant acQuire import template. No issues were reported by Westbay during this pre-inflation profile, therefore the installation of the Westbay system proceeded as planned.

3.3.2 Packer Inflation, Casing De-Stressing and Final Placement

Following confirmation of depth positioning, leak testing of the entire assembled MP55 system, and pre-inflation pressure profiling, the packers were inflated. All packers were inflated by pumping fresh water traced with sodium fluorescein as described in Section 5. The packer inflation tool was set up, tested, and lowered into the well. The packers were inflated starting with the lowermost packer (at ~864m). Injection pressure (packer element pressure) and pumped volume was recorded at intervals as determined by the Westbay operator; this raw data can be seen in the Westbay Completion Report in Appendix B. Final packer inflation pressures were determined based on volume of water used, the type of packer being inflated, and the expected well diameter.

On completion of inflation, the packer valve was closed, and a visual QA field check (stable pressure) was conducted to confirm that the valve had been successfully closed. The final injected volume and pressure was then recorded for each packer.

The Westbay casing was de-stressed at select intervals to decrease tensile loads, this was completed by releasing tension on the hanging Westbay system, between packer inflations. After the last packer had been inflated the Westbay casing top was set to the final configuration and clamped in position.

Finally, a specialized well head, intended to prevent fluid release from annulus around the MP55 casing and from within the MP55 casing, was installed.

3.3.3 Post-Inflation Pressure Profile and QA Documentation

Following successful packer inflation and final positioning, a post-inflation pressure profile was completed by Geofirma on June 29, 2022. The initial measurements of in-situ fluid pressures within each isolated interval were recorded. The data was recorded on the Pressure Profile data sheet in the DQC Workbook and IMP-22. Another pressure profile was completed by Geofirma staff on July 21, 2022 approximately one month after the Westbay installation. The purpose of this pressure profile was to observe any pressure changes since packer inflation and to get an initial interpretation of any large pressure variations between intervals and indication if any zones appear to be over-pressurized or under-pressurized intervals compared to the hydrostatic equilibrium. Additional pressure profiles were completed in August 2022. This final pressure profile was used by Geofirma to select intervals for the installation of dedicated MOSDAX pressure probes for long-term monitoring. All pressure profiles are recorded in the DQC form. Pressure profiles completed following packer installation are visually represented in Figure 3.

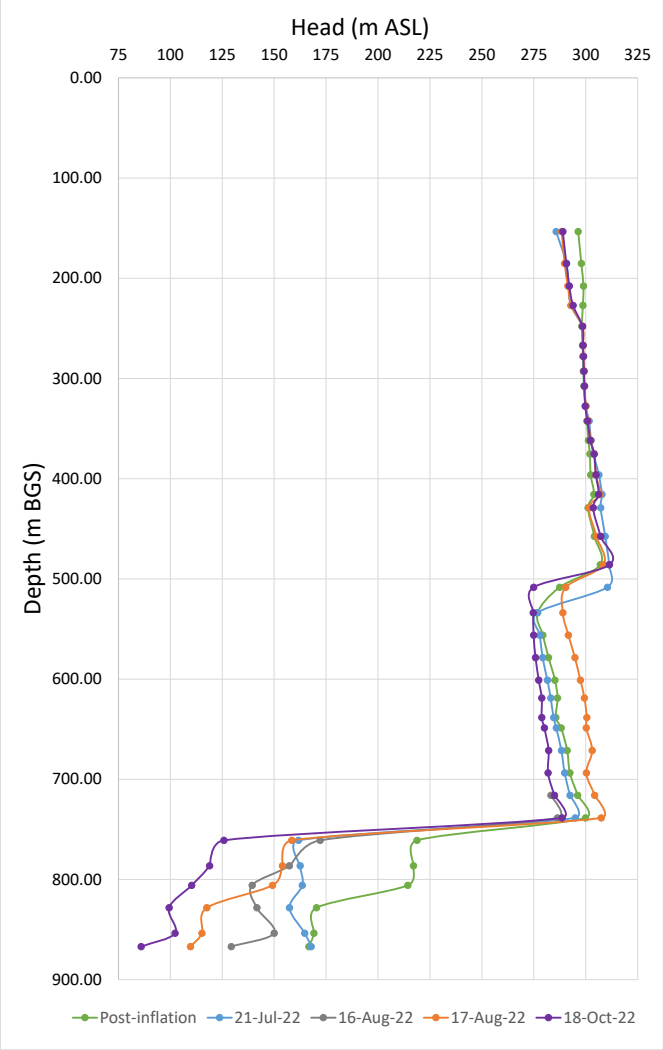
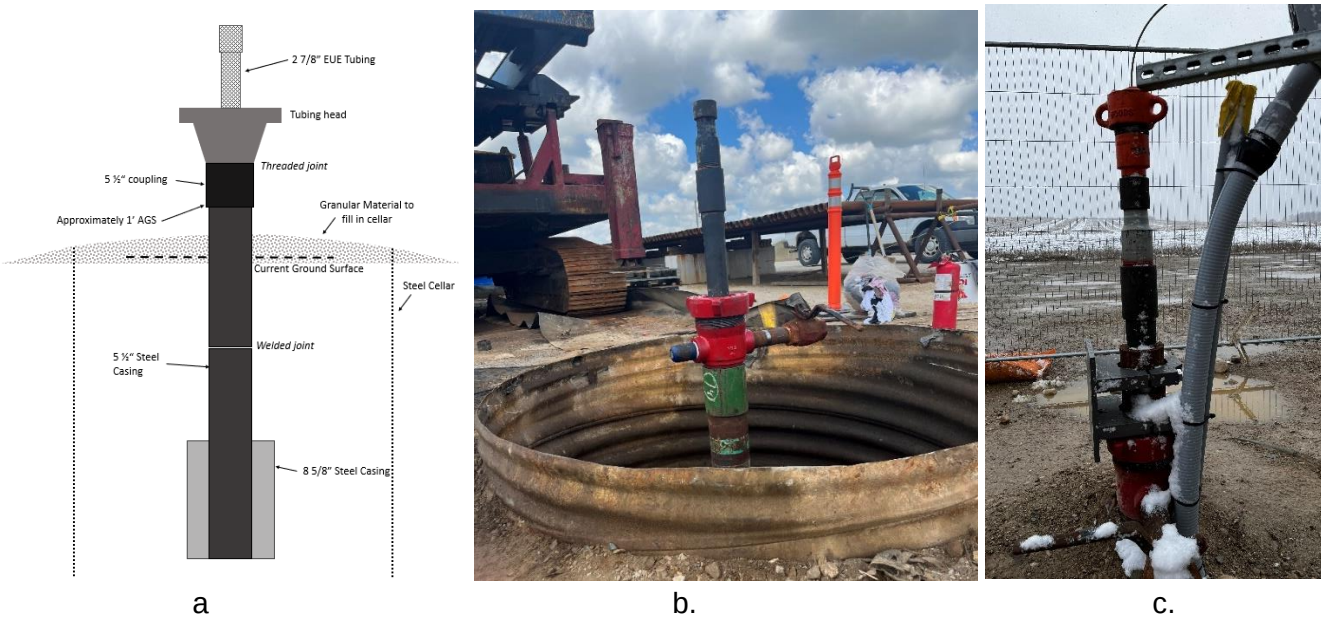


Figure 3: Pressure Profile Comparison

3.4 Wellhead Design and Completion

The final well head was designed to prevent fluid release from the annulus around the MP55 casing and from within the MP55 casing. The wellhead was finished with a tubing head threaded into the 139 mm OD (5 ½") steel casing, with the 73 mm (2 7/8") EUE tubing (which is attached to the Westbay system) extending above the tubing head. A bushing was attached to the 2 7/8" tubing to allow mounting of the Westbay monopod. Figure 4 shows the final set up of the wellhead at SB_BH01.



a b. c.

Figure 4: Well head configuration

a. Wellhead design.
b. Final Wellhead installed, directly after Westbay installation.
c. Wellhead following MOSDAX installation.

Once the wellhead was in place, the cellar was filled to ground surface with granular material, similar to that of the drill pad. This task also included drilling holes in the cement located at the bottom of the culvert to ensure water was not pooling and could properly drain.

3.5 Installation of MOSDAX String for Long-Term Pressure Monitoring

Utilizing pressure profiling and geological data, Geofirma and NWMO selected 20 intervals to install dedicated Westbay pressure transducers (MOSDAX string) for long-term monitoring. Each dedicated pressure probe is connected in series with a specialized Westbay communication cable. While the MOSDAX string is downhole, the borehole becomes inaccessible for other monitoring events. After the dedicated cable lengths were manufactured, the MOSDAX system was installed by Westbay with the assistance of Geofirma field staff. The system was installed from October 17, 2022 to November 14, 2022.

The purpose of this MOSDAX string is to collect long-term continuous pressure data to successfully evaluate the true formation pressures. Long-term pressure monitoring is essential in low permeability formations to allow the system to equilibrate after disruption due to drilling, testing and Westbay MP55

system installation. This long-term monitoring will identify isolated intervals that are over-pressurized or under-pressurized compared to the hydrostatic equilibrium. If large pressure differentials exist in the borehole, individual quarterly pressure measurements would not have allowed the low permeability formations to fully recover to pre-drilling conditions due to the frequent pressure pulses introduced each time the pressure probe opens the port. The dedicated MOSDAX pressure probes also provide the opportunity to monitor and download the pressure readings remotely, with only periodic inspections required.

Table 3 summarizes the location of the 20 dedicated intervals with MOSDAX pressure probes, including the port number, the related MOSDAX probe number, and the probe serial number.

Table 3: Dedicated Monitoring Intervals with MOSDAX Pressure Probes in SB_BH01

Port #	Port Depth (m BGS)	Probe	
		Probe No.	Serial No.
1	867.03	1	5486
2	853.66	2	5487
3	828.23	3	5488
4	805.81	4	5489
6	760.96	5	5490
7	738.54	6	5491
9	693.69	7	5492
10	671.26	8	5493
11	648.84	9	5494
13	618.99	10	5495
14	601.07	11	5496
15	578.64	12	5497
17	533.79	13	5498
18	508.37	14	5499
19	485.95	15	5500
22	415.67	16	5501
24	375.32	17	5502
28	307.69	18	5503
30	277.89	19	5504
36	153.41	20	5505

An enclosure was installed at the ground surface near the wellhead to store and protect the MOSDAX readout and recording equipment (MAGI) and its associated power supply (cables, etc), as illustrated in Figure 5. There are two panels located near the wellhead, the closest one to the wellhead contains a connection to the cable that is installed into the Westbay MP55 system downhole with extra length of cables to extend to the second enclosure. The second, larger panel, located approximately 2 m from the first enclosure, includes the MAGI system, connecting cables, a backup battery and charger, and any required components for the data system. The equipment is powered by a dedicated circuit with

electrical cable buried from the main electrical panel to the wellhead. The power supply is also hooked up to a battery charger with a marine battery used as a back up system to ensure any regional power outages does not affect the Westbay MOSDAX recordings.

Figure 5: Setup of MOSDAX Equipment at Ground Surface

4 BOREHOLE REFERENCE POINT

For the purpose of reporting elevations associated with WP09 and Westbay MP55 equipment, the reference ground surface elevation is 291.49 mASL which was measured on May 29, 2021 prior to drilling activities.

All depths associated with WP09 were measured from a common elevation reference point. For SB_BH01, the reference datum was ground surface, which was surveyed relative to a geodetic benchmark. The drill rig was set at ground surface and had a foot clamp that was used as a temporary reference point for ease, this reference point was compared to the GS elevation and culvert edge elevation for accuracy. The drill rig footing, as seen in Figure 6 was established to be 0.17m above the reference GS elevation resulting in a footing elevation of 291.66m.

Figure 6: Reference Point

5 WATER USAGE

Water required for lowering the Westbay string and pressure testing coupling connections, was delivered from the Kincardine municipal water supply. The Kincardine water supply is sourced from Lake Huron and is the water source that was used during drilling of SB_BH01 (WP02). The water was analyzed in accordance with WP02 requirements and results can be found within the data delivery associated with WP07.

During installation activities, the water/fluid used was housed onsite in a large tank and drawn on as needed. Sodium fluorescein was added to the water, as it was used throughout the drilling and testing program and provides a quick field assessment to determine the percentage of drilling fluid in a water sample. Concentrations were checked by Geofirma personnel using a handheld fluorometer (Turner Designs AquaFluor). A fluorescein concentration of 100 μg/L (100 ppb) ± 10 % was used during relevant Westbay activities.

A minimal amount of water was utilized during the installation activities. The total volume of fluid in the water tank was determined by manually measuring the depth of fluids in the tank and using the tank provided volume according to depth chart.

Appendix A

Westbay Design Completion Log

Westbay Completion Log

Company: Geofirma/NWMO
Well: SB_BH01
Site: South Bruce
Project: NWMO Site Investigation

Job No: WB992
Author: SS/DL

Well Information

Reference Datum: Ground level
Elevation of Datum: 0.00 m.
MP Casing Top: 0.00 m.
MP Casing Length: 870.43 m.

Borehole Depth: 871.74 m.
Borehole Inclination: Vertical
Borehole Diameter: 123.00 mm

Well Description:
SS MP55
Other References:
Approved via email on April 14, 2022

File Information

File Name: SB_BH01.WWD
Report Date: Tue Jun 14 04:57:15 2022

File Date: Jun 14 04:54:50 2022

Comments

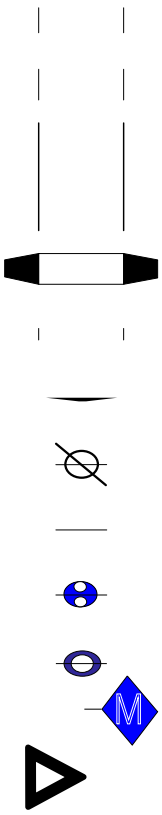
Log Information

Borehole condition confirmed.	(method)_____ Date: _____
MP well design & preparation.	By: _____ Date: _____
MP well design checked.	By: _____ Date: _____
MP well and borehole approved to install.	By: _____ Date: _____

Legend

(Qty) MP Components

(Library - WD Library 03/10/2014)



(38) 040110 - Stainless Steel Tubing 1.0m

(39) 040115 - Stainless Steel Tubing 1.5m

(233) 040130 - Stainless Steel Tubing 3.0m

(36) 041400C6 - MP55 GeoPro Packer 90mm

(5) 040105 - Stainless Steel Tubing 0.5m

(1) 040300C1 - MP55 End Plug

(1) 041500S1 - MP55 to 2-7/8 EUE Pin

(311) 00 -

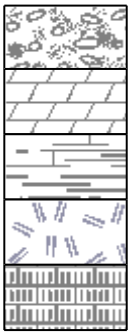
(36) 040500C1 - Measurement Port

(4) 043200C1 - Pumping Port

(37) 040800C1 - MP55 Magnetic Location Collar

(40) 046002C6 - MP55 Abrasion Protector

Geology



Overburden 1

Dolomite

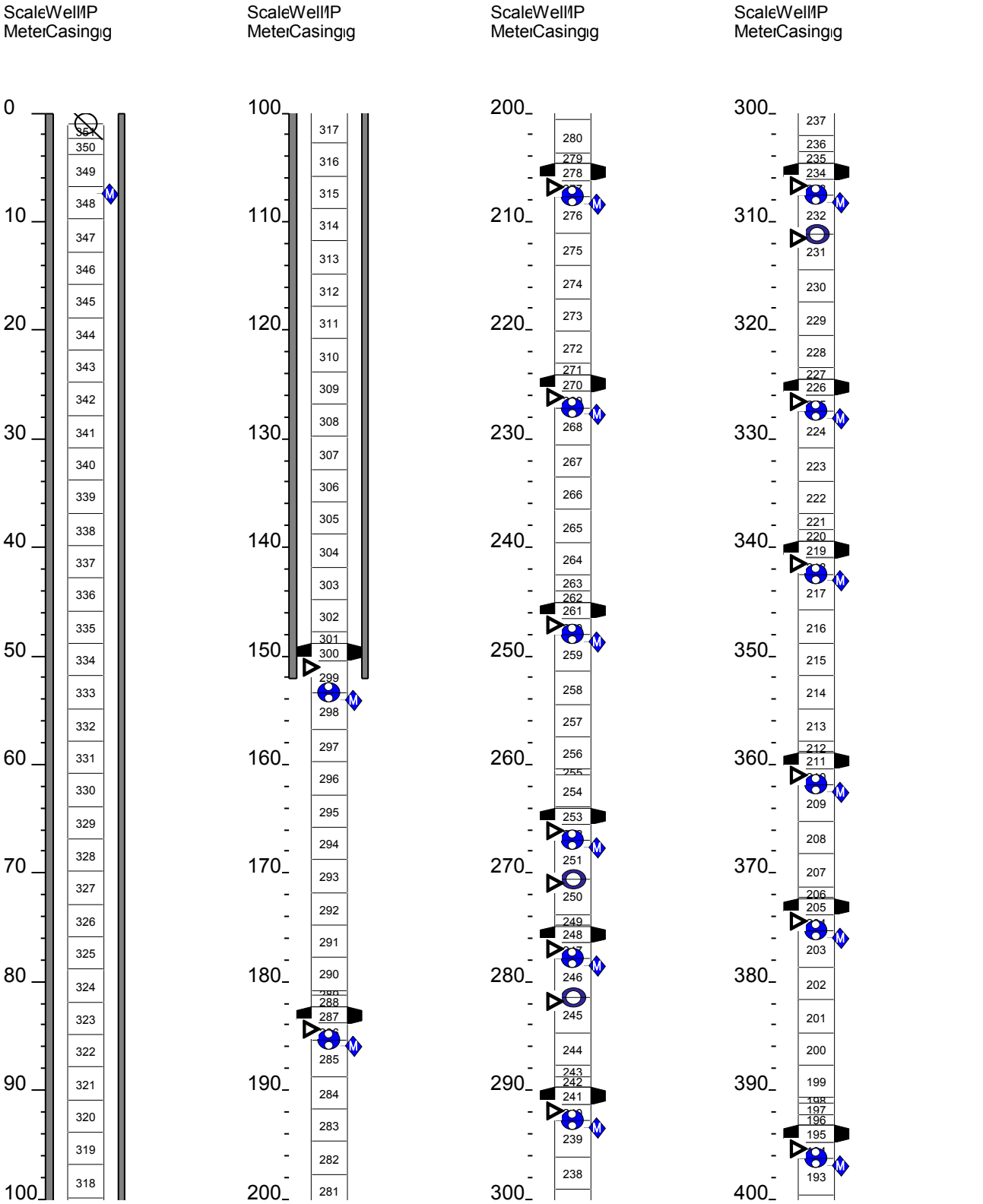
Shale, Calcareous

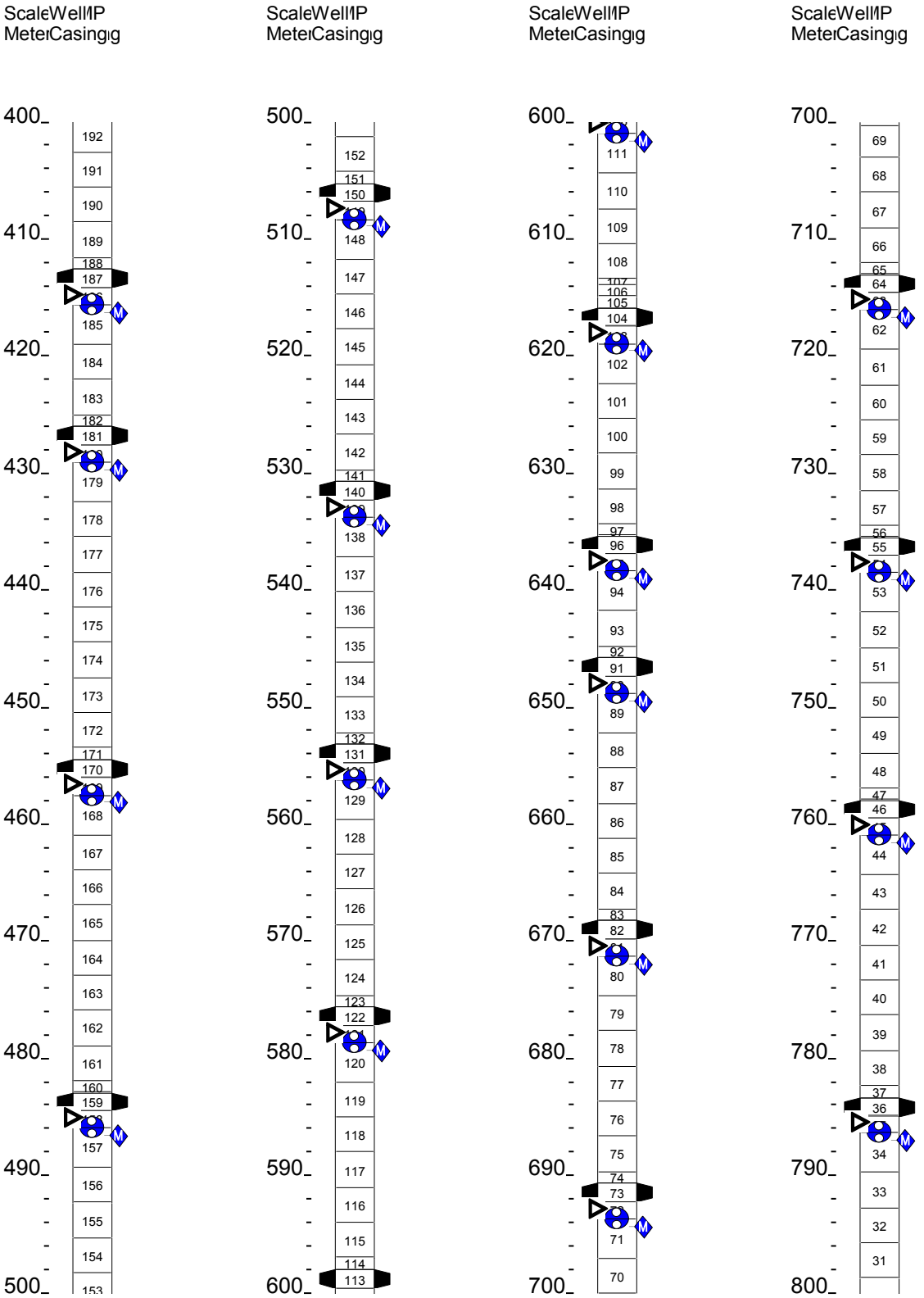
Rock, Porphyritic

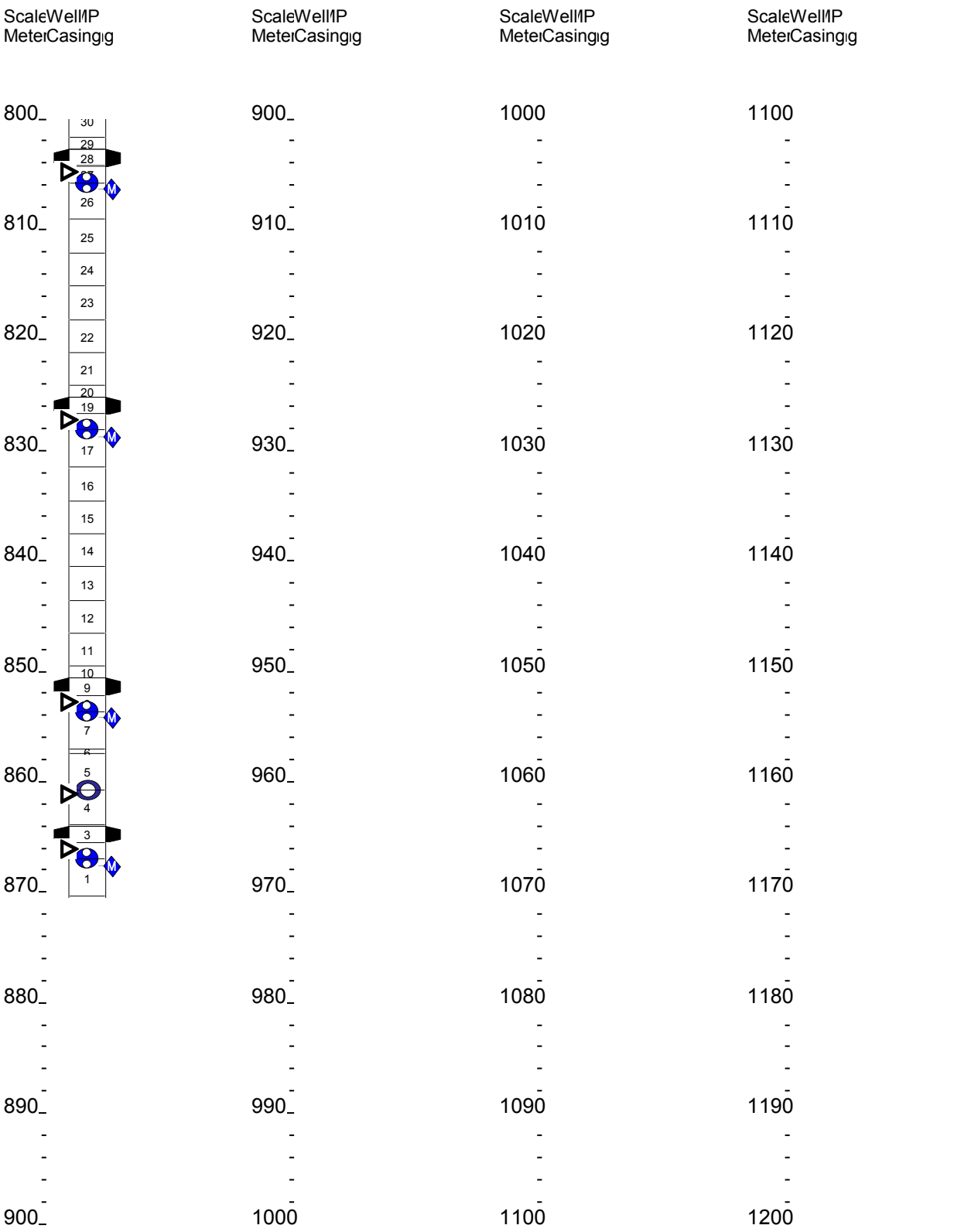
Limestone, Sandy

Backfill/Casing

Mild Steel


Scale
Meter
Well
Casing
P
g
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
360
370
380
390
400
M


Scale
Meter
Well
Casing
P
g
400
410
420
430
440
450
460
470
480
490
500
500
510
520
530
540
550
560
570
580
590
600
600
610
620
630
640
650
660
670
680
690
700
700
710
720
730
740
750
760
770
780
790
800


Scale Well MP
Meter Casing
800
810
820
830
840
850
860
870
880
890
900
900
910
920
930
940
950
960
970
980
990
1000
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
1100
1110
1120
1130
1140
1150
1160
1170
1180
1190
1200
30
29
28
26
25
24
23
22
21
20
19
17
16
15
14
13
12
11
10
9
7
5
4
3
1
M

Appendix B

Westbay Completion Report

Completion Report

Well Name: SB_BH01

February 6, 2023

Completion Report

Well Name: SB_BH01

Project Number: WB992

Prepared for:

Geofirma Engineering Ltd.
1 Raymond St. Suite 200
Ottawa, ON K1R 1A2

Prepared by:

Westbay Instruments
A Division of Nova Metrix Ground Monitoring (Canada) Limited.
8610 Glenlyon Parkway
Unit 134
Burnaby, BC
V5J 0B6

CONTENTS

TABLES

FIGURES

APPENDICES

1. Introduction

This report and the attached Appendix document the technical services carried out by Westbay Instruments (Westbay) under Geofirma Engineering Ltd. (Geofirma) P.O. 202111-008 dated March 23, 2021. A Westbay System completion was installed in borehole SB_BH01 in Teeswater, Ontario, Canada.

Westbay technical services representatives Mr. Mark Lessard and Mr. Tony Kim were on site for installation of the Westbay System from June 6 to July 1, 2022. Geofirma representatives Ms. Morgan de Kroon and Ms. Chrystyn Skinner were on-site to supervise the installation of the Westbay System.

This report documents the installation tasks and related QA checks.

Installation of a MOSDAX probe string in the Westbay completion was done as a separate activity as documented in Section 6 of this report.

2. Pre-Installation Activities

According to information provided by Geofirma, the borehole was drilled to a reported depth of 880.84 meters. Open hole geophysical logging and hydraulic testing with a straddle packer apparatus were carried out by Geofirma Engineering Ltd. and others prior to the installation. The borehole was completed with a steel conductor casing (406.4mm OD) placed to 23.45m, a 298.5 mm OD surface casing placed to approximately 36.25 m, a 219 mm OD casing at 66.38 m, a 139.7 mm OD casing to approximately 152.83 m, and a final open hole section from 152.83 to 880.84 m with an OD of 123 mm; a summary of the construction details of the borehole based on information provided by Geofirma is on Table 1 below.

Table 1: Reported Borehole Construction Details

Well Name.	Drilled Depth(m)	123mm Open Hole(m)	139.7mm Casing to (mBGS)	219mm Casing to (mBGS)	298.5mm Casing to (mBGS)	406.4mm Casing to (mBGS)
SB_BH01	**880.84**	**880.84**	**152.82**	**66.38**	**36.25**	**23.45**

The datum for all measurements and Westbay component positioning was from the ground surface.

3. Installation

Westbay Instruments technical services representatives Mr. Lessard and Mr. Kim, and Ms. Kroon and Ms. Skinner of Geofirma were on site to install the Stainless Steel Westbay MP55 System (the Westbay System) in SB_BH01 as indicated below in Table 2.

Table 2: Summary of Westbay System Installation

Well Name.	Field Installation Dates	Total Depth (m)	MP55 Tubing Length (m)	2 7/8 Tubing (m)
SB_BH01	June 6 to July 1, 2022	880.84	870.43	~ 2.14

The Westbay System in SB_BH01 was installed according to the procedure described below.

3.1 Preparation of Westbay System Design

Packer depths for the Westbay completion were provided to Westbay by Mr. Sean Sterling of Geofirma. A well design was created based on these depths. The well design was used to prepare a Westbay Completion Log, which specifies the location of the Westbay System components in the well. This log was reviewed and approved in the field in an email (dated 06/14/2022) by Mr. Sterling prior to installation of the Westbay System. The Westbay Completion Log as approved was used as an installation guide in the field. A field copy of the log is in the Appendix.

A measurement port coupling was included in each monitoring zone to provide the capability to measure fluid pressures and collect fluid samples. The ports were positioned to permit operation of squeeze relief venting capabilities of the Westbay Model No. 6080 inflation tool equipment. Model No. 0432 Hydraulic Pumping Port couplings were included in four selected intervals. Mr. Sterling requested that optional synthetic (PET) filters were to be installed over the measurement port couplings.

The top part of the riser pipe was 2-7/8 tubing supplied by the client. The cross-over between the Westbay casing and the 2-7/8 tubing is at a nominal depth of 1.14 m.

A summary of the installed Westbay System components is shown on Table 3 below and in the Summary Completion Log Legend in the Appendix.

Table 3: Summary of Installed Westbay System Components

Well Name	Packers (0414)	Measurement Ports (0405)	Pumping Ports (0432)
SB_BH01	36	36	4

3.2 Layout of Westbay System Tubing Components

Prior to the installation, the Westbay System components were set out on racks at the borehole according to the sequence indicated on the Westbay Completion Log. Each casing length was numbered beginning with the lowermost as an aid to confirming the proper sequence of components. Magnetic location collars were attached 0.75 m below the top of the measurement port couplings in the monitoring intervals.

Abrasion protectors were used to protect the packers and pumping ports from damage during deployment inside the guide tube and lower section of the open borehole. The abrasion protectors are clamped to the outside of the Westbay tubing at specified positions. There is one abrasion protector per packer and one abrasion protector per pumping port. Locations of key components are listed in Tables 6 and 7 in the Appendix.

Each component was visually inspected. Serial numbers for each packer, pumping port, and measurement port coupling were recorded on the Westbay Completion Log. The component layout was confirmed with the log before the components were lowered into the borehole.

All Westbay System packers were de-aired on surface prior to lowering. This activity consisted of opening the packer valve, injecting a small amount of water into the packer, releasing any entrained air and then closing the packer valve.

3.3 Lowering of Westbay System Components

Steel PQ drill rods (temporary guide tube) were lowered into the borehole to a depth of 749.34 meters to provide protection from materials dislodged from the borehole wall during installation of the Westbay tubing string. The Westbay System components were lowered into the guide tube with a hoist on the rig. Lowering of components started on June 15 and completed on June 20, 2022. Each joint was tested with a minimum internal hydraulic pressure of 250-psi for one minute to confirm hydraulic seals. A record of each successful joint test and the placement of each component are noted by check marks on the Westbay Completion Log. Water supplied by Geofirma was added to the Westbay System when necessary to counter buoyancy effects while components were lowered into the borehole and was used for as a secondary test of joint seals during lowering.

3.4 Hydraulic Integrity Testing

After the Westbay System string was lowered into the borehole, the water level inside the Westbay System completion was monitored at a depth different from the open borehole water level for a minimum period of thirty minutes to confirm the hydraulic integrity of the completion. The data from the hydraulic integrity test are shown on page 3 of the Westbay Completion Log in the Appendix and Table 4 below.

Table 4: Hydraulic Integrity Test

Well Name	June 20, 2022	Fluid Levels	
	Time	Inside Tubing (from top of component # 350)	Outside Tubing(Before lowering from the ground surface on June 15, 2022)
SB_BH01	11:50	119.825 m	10.49 m
	12:20	119.765 m	
	12:50	119.760 m	
	13:20	119.756 m	
	13:50	119.750 m	
	14:00	119.749 m	
	14:10	119.747 m	
	14:20	119.747 m	
	14:30	119.747 m	
	14:40	119.747 m	

3.5 Positioning of Westbay System Completion

After the Westbay System components were lowered into the well, the Westbay System was positioned as illustrated on the Westbay Completion Log. This position was achieved by hanging the Westbay tubing string with a tubing clamp (attached to the top 2-7/8 tubing section) at the wellhead. The Westbay System was supported in this position while packer inflation was carried out. Positioning of the Westbay System

components is based on the "nominal" lengths of Westbay System components. The positioning calculations do not include allowances for borehole temperature or deviation effects.

The attached figure titled "MOSDAX Transducer Position" provides information to correlate the position of the MOSDAX transducer sensor to the reference position at the top of the measurement port. The Summary Completion Log, which shows the final "as-built" locations of the components in the well, is included in the Appendix.

3.6 Pre-inflation Profile

A pre-inflation pressure profile was carried out at the well prior to inflating the packers to confirm the proper position and operation of measurement ports and magnetic collars. The ports operated properly and were positioned correctly in the well. A plot of the Pre-inflation Piezometric Levels in all zones is shown on Figure 2 in the Appendix. The equivalent piezometric levels were calculated based on an assumed fresh water fluid density. As expected, the plotted data indicate the presence of denser briny water in the annulus. The calculated fluid levels were not adjusted for formation fluid density.

3.7 Inflation of Westbay System Packers

The Westbay System packers were inflated sequentially beginning at the bottom of the well using water provided by Geofirma. The packer inflation was coordinated with removal of the temporary guide tube. The guide tube was initially positioned to a depth of 749.34 meters below ground level, allowing the lower six packers to be exposed in the open borehole. The second stage of the guide tube was pulled to a depth of 650.32 meters below ground level allowing four packers to be exposed for inflation. In the last stage, all the remaining guide tube was removed, and all the remaining packers were inflated.

The Westbay Model No. 6080 inflation tool was used for packer inflation. A Model 2532 MOSDAX Sampler Probe was attached for squeeze relief venting of the borehole annulus during inflation. All the packers appear to have inflated normally. The squeeze relief pressure data were inspected to confirm that only a very small quantity of borehole fluid entered the Westbay casing during the inflation process. Therefore, the Westbay casing fluid should have remained largely the same as the water originally added during lowering.

The data for inflation of each packer is provided on the Westbay Packer Inflation Records included in the Appendix.

4. Fluid Pressure Measurements

After packer inflation was completed, fluid pressures were measured at each measurement port. At that time, the in-situ formation pressures may not have recovered from the pre-installation activities and potential groundwater pressure changes in monitoring zones that may result from packer inflation. This latter effect may be more likely to occur in monitoring zones located in low-permeability geological formations. Longer term monitoring may be required to establish representative fluid pressures.

A plot of the Post-Inflation Piezometric levels in all zones in the well is shown on Figure 3 in the Appendix. The equivalent piezometric levels were calculated based on assumed fresh water fluid density. The calculated fluid levels were not adjusted for actual formation fluid density. The data were examined to confirm proper operation of the measurement ports and as a check on the presence of annulus seals between monitoring zones. The calculation sheets for all pressure profiles of the Westbay System are also enclosed in the Appendix.

Later pressure profile measurements conducted by Geofirma were used in the process to decide the target ports for the planned installation of a MOSDAX probe string as described in Section 6 of this report.

5. Westbay Operator Training

The training was provided to Michael Olaya Rengifo and Kevin Tateishi of Geofirma. The training covered the following areas:

- Operation and maintenance of Model 2532 Sampler Probe and MAGI controller in pressure profiling.
- Cable reheading, maintenance, and troubleshooting.
- Hydraulic Pumping Port Operations were demonstrated on the surface for operator familiarization. Training in downhole operations was not covered.

Mr. Rengifo and Mr. Tateishi are considered certified for independent field operation and field maintenance of the Model 2532 Sampler Probe and MAGI Controller for pressure profiling.

6. MOSDAX String Installation

A MOSDAX transducer string was installed in Westbay System well SB_BH01 under Geofirma P.O. 202111-008 dated January 25, 2022. Westbay technical services representative Mr. Tony Kim was on site for the installation from October 17 to November 14, 2022.

Attachments related to this work are included in Appendix 2.

6.1 Pre-Installation Profile

A pre-installation pressure profile was carried out prior to lowering the MOSDAX transducers to obtain current pressure readings to assist in the installation of the MOSDAX String. The data for the Pre-MX installation profile is located in Appendix 2 (Figure 4) and on the Field Data and Calculation Sheet.

6.2 Installation

The MOSDAX String was successfully installed in borehole SB_BH01. The string consists of twenty M/N 2526SP pressure probes (EM 5486 to EM 5505) and one data logger M/N 2547 (MAGI 5482). The SP MX pressure probes were located at Measurement Ports as requested by Geofirma. A summary of the MOSDAX probe installation data is shown on the MOSDAX Probe String Installation Field Record sheet in the Appendix. The MOSDAX cable fabrication assembly record is also in the Appendix.

In the course of attempting to install the MX probe string, it was discovered that some of the MX Probes were not able to land in the target Measurement Ports. The string was retrieved twice to investigate the landing issues. After inspections in the field, it was determined that the Nylon location arm of several MX Probes had been deformed during the process of landing in a port. The

deformation led to interference with the correct operation of the arm, causing the observed difficulty to land in the port.

This finding was reported to Westbay and Geofirma. To mitigate the issue, Westbay provided a stronger brass location arm and a modified face plate for each probe. The new parts were installed on each probe, and the MX string was successfully installed.

The MX string installation is summarized in Table 5 below.

Table 5: MOSDAX STRING SUMMARY

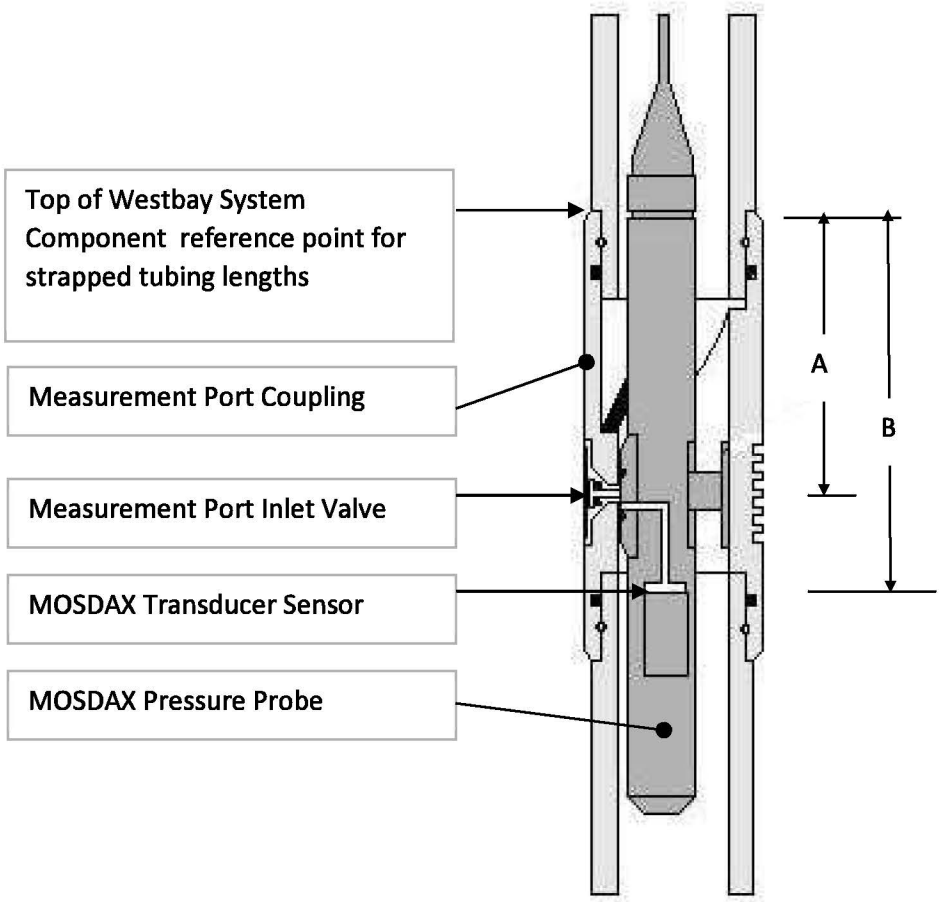
Logical Probe Number(LPN) (in MAGI)	Probe Description (in MAGI)	Port Number	Transducer Range (psi)	Serial Number	Depth (m)
0	MGI	0	30	5482	Surface
1	EM Strong	1	2000	5486	867.0
2	EM Strong	2	2000	5487	853.7
3	EM Strong	3	2000	5488	828.2
4	EM Strong	4	2000	5489	805.8
5	EM Strong	6	2000	5490	761.0
6	EM Strong	7	2000	5491	738.5
7	EM Strong	9	2000	5492	693.7
8	EM Strong	10	2000	5493	671.3
9	EM Strong	11	2000	5494	648.8
10	EM Strong	13	2000	5495	619.0
11	EM Strong	14	2000	5496	601.1
12	EM Strong	15	2000	5497	578.6
13	EM Strong	17	2000	5498	533.8
14	EM Strong	18	2000	5499	508.4
15	EM Strong	19	2000	5500	486.0
16	EM Strong	22	2000	5501	415.7
17	EM Strong	24	2000	5502	375.3
18	EM Strong	28	2000	5503	307.7
19	EM Strong	30	2000	5504	277.9
20	EM Strong	36	2000	5505	153.4

After the string was installed, data were collected overnight with a rapid data-logging schedule for QA checking purposes. The collected data were provided to Geofirma in the field. A graph showing the collected data is included in the Appendix. After verifying the functionality of the probe string, the MAGI Data logger was changed to record data on the hour for the long term.

Figure 1:

MOSDAX Transducer Position

In an Westbay System Measurement Port Coupling



System	Measurement Port	A	B
MP55	0405	5.63". (143.0 mm)	7.63 ". (193.8 mm)

APPENDIX 1: MONITORING WELL: SB_BH01

As-Built Packer and Port Summary (Table 6)	- 1 page
As-Built Tubing Summary (Table 7)	- 8 pages
Summary Completion Log	- 5 pages
Pre-Inflation Piezometric Pressure/ Levels	
Field Data and Calculation Sheet (June 21)	- 4 pages
Figure 2, Pre-Inflation Profile	- 1 page
Post- Inflation Piezometric Pressure/Levels	
Field Data and Calculation Sheet (June 28)	- 4 pages
Figure 3, Post-Inflation Profile	- 1 page
Westbay Completion Log (field copy)	- 20 pages
Westbay System Packer Inflation Records	- 91 pages

TABLE 6
As-Built Packer and Port Summary

Port Number	Measurement Port Depth (m)	Pumping Port Depth (m)	Magnetic Collar Depth (m)	Top of Zone (m)	Bottom of Zone (m)	Comments
1	867.0	860.5	867.8	865.3	880.8	
2	853.7		854.4	851.9	864.4	
3	828.2		829.0	826.5	851.0	
4	805.8		806.6	804.1	825.6	
5	786.4		787.1	784.6	803.1	
6	761.0		761.7	759.2	783.7	
7	738.5		739.3	736.8	758.3	
8	716.1		716.9	714.4	735.9	
9	693.7		694.4	691.9	713.4	
10	671.3		672.0	669.5	691.0	
11	648.8		649.6	647.1	668.6	
12	638.4		639.2	636.7	646.2	
13	619.0		619.7	617.2	635.7	
14	601.1		601.8	599.3	616.3	
15	578.6		579.4	576.9	598.4	
16	556.2		557.0	554.5	576.0	
17	533.8		534.5	532.1	553.5	
18	508.4		509.1	506.6	531.1	
19	486.0		486.7	484.2	505.7	
20	457.5		458.3	455.8	483.3	
21	429.1		429.9	427.4	454.8	
22	415.7		416.4	413.9	426.4	
23	396.3		397.0	394.5	413.0	
24	375.3		376.1	373.6	393.6	
25	361.9		362.7	360.2	372.7	
26	342.5		343.2	340.7	359.2	
27	327.6		328.3	325.8	339.8	
28	307.7	311.0	308.4	305.9	324.9	
29	292.8		293.5	291.0	305.0	
30	277.9	281.3	278.6	276.2	290.1	
31	267.0	270.4	267.8	265.3	275.2	
32	248.1		248.9	246.4	264.4	
33	227.2		227.9	225.4	245.4	
34	207.8		208.5	206.0	224.5	
35	185.3		186.1	183.6	205.1	
36	153.4		154.2	150.2	182.7	

1 All depth measurements in meters below ground level.
2 All depth measurements use 'Nominal' casing lengths.
3 Not corrected for borehole deviation or borehole temperature effects.
4 All depth measurements to upper edge of Westbay System coupling item.

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
353	2 7/8			2 7/8 Tubing				-0.82
352	2 7/8			2 7/8 Tubing				-0.10
351	040110		041500S1					1.15
350	040115		00					2.34
349	040130		00					3.84
348	040130		00			040800C1	7.59	6.84
347	040130		00					9.84
346	040130		00					12.84
345	040130		00					15.84
344	040130		00					18.84
343	040130		00					21.84
342	040130		00					24.84
341	040130		00					27.84
340	040130		00					30.84
339	040130		00					33.84
338	040130		00					36.84
337	040130		00					39.84
336	040130		00					42.84
335	040130		00					45.84
334	040130		00					48.84
333	040130		00					51.84
332	040130		00					54.84
331	040130		00					57.84
330	040130		00					60.84
329	040130		00					63.84
328	040130		00					66.84
327	040130		00					69.84
326	040130		00					72.84
325	040130		00					75.84
324	040130		00					78.84
323	040130		00					81.84
322	040130		00					84.84
321	040130		00					87.84
320	040130		00					90.84
319	040130		00					93.84
318	040130		00					96.84
317	040130		00					99.84
316	040130		00					102.84
315	040130		00					105.84
314	040130		00					108.84
313	040130		00					111.84
312	040130		00					114.84
311	040130		00					117.84
310	040130		00					120.84
309	040130		00					123.84
308	040130		00					126.84
307	040130		00					129.84
306	040130		00					132.84
305	040130		00					135.84

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
304	040130		00					138.84
303	040130		00					141.84
302	040130		00					144.84
301	040110		00					147.84
300	041400C6	072	00	Packer				148.84
299	040130		00			046002C6		150.41
298	040130		040500C1	Measurement Port	129	040800C1	154.16	153.41
297	040130		00					156.76
296	040130		00					159.76
295	040130		00					162.76
294	040130		00					165.76
293	040130		00					168.76
292	040130		00					171.76
291	040130		00					174.76
290	040130		00					177.76
289	040105		00					180.76
288	040110		00					181.26
287	041400C6	056	00	Packer				182.26
286	040115		00			046002C6		183.83
285	040130		040500C1	Measurement Port	128	040800C1	186.08	185.33
284	040130		00					188.69
283	040130		00					191.69
282	040130		00					194.69
281	040130		00					197.69
280	040130		00					200.69
279	040110		00					203.69
278	041400C6	040	00	Packer				204.69
277	040115		00			046002C6		206.25
276	040130		040500C1	Measurement Port	127	040800C1	208.50	207.75
275	040130		00					211.11
274	040130		00					214.11
273	040130		00					217.11
272	040130		00					220.11
271	040110		00					223.11
270	041400C6	058	00	Packer				224.11
269	040115		00			046002C6		225.68
268	040130		040500C1	Measurement Port	126	040800C1	227.93	227.18
267	040130		00					230.53
266	040130		00					233.53
265	040130		00					236.53
264	040130		00					239.53
263	040115		00					242.53
262	040110		00					244.03
261	041400C6	042	00	Packer				245.03
260	040115		00			046002C6		246.60
259	040130		040500C1	Measurement Port	125	040800C1	248.85	248.10
258	040130		00					251.46
257	040130		00					254.46
256	040130		00					257.46
255	040105		00					260.46

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
254	040130		00					260.96
253	041400C6	055	00	Packer				263.96
252	040115		00			046002C6		265.53
251	040130		040500C1	Measurement Port	124	040800C1	267.78	267.03
250	040130		043200C1	Pumping Port	303	046002C6		270.38
249	040110		00					273.83
248	041400C6	059	00	Packer				274.83
247	040115		00			046002C6		276.39
246	040130		040500C1	Measurement Port	123	040800C1	278.64	277.89
245	040130		043200C1	Pumping Port	302	046002C6		281.25
244	040130		00					284.69
243	040110		00					287.69
242	040110		00					288.69
241	041400C6	063	00	Packer				289.69
240	040115		00			046002C6		291.26
239	040130		040500C1	Measurement Port	122	040800C1	293.51	292.76
238	040130		00					296.12
237	040130		00					299.12
236	040115		00					302.12
235	040110		00					303.62
234	041400C6	073	00	Packer				304.62
233	040115		00			046002C6		306.19
232	040130		040500C1	Measurement Port	121	040800C1	308.44	307.69
231	040130		043200C1	Pumping Port	301	046002C6		311.04
230	040130		00					314.48
229	040130		00					317.48
228	040130		00					320.48
227	040110		00					323.48
226	041400C6	057	00	Packer				324.48
225	040115		00			046002C6		326.05
224	040130		040500C1	Measurement Port	120	040800C1	328.30	327.55
223	040130		00					330.91
222	040130		00					333.91
221	040115		00					336.91
220	040110		00					338.41
219	041400C6	065	00	Packer				339.41
218	040115		00			046002C6		340.98
217	040130		040500C1	Measurement Port	119	040800C1	343.23	342.48
216	040130		00					345.83
215	040130		00					348.83
214	040130		00					351.83
213	040130		00					354.83
212	040110		00					357.83
211	041400C6	061	00	Packer				358.83
210	040115		00			046002C6		360.40
209	040130		040500C1	Measurement Port	118	040800C1	362.65	361.90
208	040130		00					365.26
207	040130		00					368.26
206	040110		00					371.26
205	041400C6	068	00	Packer				372.26

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
204	040115		00			046002C6		373.82
203	040130		040500C1	Measurement Port	117	040800C1	376.07	375.32
202	040130		00					378.68
201	040130		00					381.68
200	040130		00					384.68
199	040130		00					387.68
198	040105		00					390.68
197	040110		00					391.18
196	040110		00					392.18
195	041400C6	053	00	Packer				393.18
194	040115		00			046002C6		394.75
193	040130		040500C1	Measurement Port	116	040800C1	397.00	396.25
192	040130		00					399.60
191	040130		00					402.60
190	040130		00					405.60
189	040130		00					408.60
188	040110		00					411.60
187	041400C6	047	00	Packer				412.60
186	040115		00			046002C6		414.17
185	040130		040500C1	Measurement Port	115	040800C1	416.42	415.67
184	040130		00					419.03
183	040130		00					422.03
182	040110		00					425.03
181	041400C6	067	00	Packer				426.03
180	040115		00			046002C6		427.60
179	040130		040500C1	Measurement Port	114	040800C1	429.85	429.10
178	040130		00					432.45
177	040130		00					435.45
176	040130		00					438.45
175	040130		00					441.45
174	040130		00					444.45
173	040130		00					447.45
172	040130		00					450.45
171	040110		00					453.45
170	041400C6	039	00	Packer				454.45
169	040115		00			046002C6		456.02
168	040130		040500C1	Measurement Port	113	040800C1		457.52
167	040130		00					460.88
166	040130		00					463.88
165	040130		00					466.88
164	040130		00					469.88
163	040130		00					472.88
162	040130		00					475.88
161	040130		00					478.88
160	040110		00					481.88
159	041400C6	069	00	Packer				482.88
158	040115		00			046002C6		484.45
157	040130		040500C1	Measurement Port	112	040800C1	486.70	485.95
156	040130		00					489.30
155	040130		00					492.30

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
154	040130		00					495.30
153	040130		00					498.30
152	040130		00					501.30
151	040110		00					504.30
150	041400C6	044	00	Packer				505.30
149	040115		00			046002C6		506.87
148	040130		040500C1	Measurement Port	111	040800C1	509.12	508.37
147	040130		00					511.73
146	040130		00					514.73
145	040130		00					517.73
144	040130		00					520.73
143	040130		00					523.73
142	040130		00					526.73
141	040110		00					529.73
140	041400C6	048	00	Packer				530.73
139	040115		00			046002C6		532.29
138	040130		040500C1	Measurement Port	110	040800C1	534.54	533.79
137	040130		00					537.15
136	040130		00					540.15
135	040130		00					543.15
134	040130		00					546.15
133	040130		00					549.15
132	040110		00					552.15
131	041400C6	037	00	Packer				553.15
130	040115		00			046002C6		554.72
129	040130		040500C1	Measurement Port	109	040800C1	556.97	556.22
128	040130		00					559.57
127	040130		00					562.57
126	040130		00					565.57
125	040130		00					568.57
124	040130		00					571.57
123	040110		00					574.57
122	041400C6	041	00	Packer				575.57
121	040115		00			046002C6		577.14
120	040130		040500C1	Measurement Port	108	040800C1	579.39	578.64
119	040130		00					582.00
118	040130		00					585.00
117	040130		00					588.00
116	040130		00					591.00
115	040130		00					594.00
114	040110		00					597.00
113	041400C6	070	00	Packer				598.00
112	040115		00			046002C6		599.57
111	040130		040500C1	Measurement Port	107	040800C1	601.82	601.07
110	040130		00					604.42
109	040130		00					607.42
108	040130		00					610.42
107	040105		00					613.42
106	040110		00					613.92
105	040110		00					614.92

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
104	041400C6	071	00	Packer				615.92
103	040115		00			046002C6		617.49
102	040130		040500C1	Measurement Port	106	040800C1	619.74	618.99
101	040130		00					622.35
100	040130		00					625.35
99	040130		00					628.35
98	040130		00					631.35
97	040110		00					634.35
96	041400C6	051	00	Packer				635.35
95	040115		00			046002C6		636.92
94	040130		040500C1	Measurement Port	105	040800C1	639.17	638.42
93	040130		00					641.77
92	040110		00					644.77
91	041400C6	045	00	Packer				645.77
90	040115		00			046002C6		647.34
89	040130		040500C1	Measurement Port	104	040800C1	649.59	648.84
88	040130		00					652.20
87	040130		00					655.20
86	040130		00					658.20
85	040130		00					661.20
84	040130		00					664.20
83	040110		00					667.20
82	041400C6	049	00	Packer				668.20
81	040115		00			046002C6		669.76
80	040130		040500C1	Measurement Port	103	040800C1	672.01	671.26
79	040130		00					674.62
78	040130		00					677.62
77	040130		00					680.62
76	040130		00					683.62
75	040130		00					686.62
74	040110		00					689.62
73	041400C6	038	00	Packer				690.62
72	040115		00			046002C6		692.19
71	040130		040500C1	Measurement Port	102	040800C1	694.44	693.69
70	040130		00					697.04
69	040130		00					700.04
68	040130		00					703.04
67	040130		00					706.04
66	040130		00					709.04
65	040110		00					712.04
64	041400C6	043	00	Packer				713.04
63	040115		00			046002C6		714.61
62	040130		040500C1	Measurement Port	101	040800C1	716.86	716.11
61	040130		00					719.47
60	040130		00					722.47
59	040130		00					725.47
58	040130		00					728.47
57	040130		00					731.47
56	040110		00					734.47
55	041400C6	062	00	Packer				735.47

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
54	040115		00			046002C6		737.04
53	040130		040500C1	Measurement Port	100	040800C1	739.29	738.54
52	040130		00					741.89
51	040130		00					744.89
50	040130		00					747.89
49	040130		00					750.89
48	040130		00					753.89
47	040110		00					756.89
46	041400C6	052	00	Packer				757.89
45	040115		00			046002C6		759.46
44	040130		040500C1	Measurement Port	099	040800C1	761.71	760.96
43	040130		00					764.32
42	040130		00					767.32
41	040130		00					770.32
40	040130		00					773.32
39	040130		00					776.32
38	040130		00					779.32
37	040110		00					782.32
36	041400C6	046	00	Packer				783.32
35	040115		00			046002C6		784.89
34	040130		040500C1	Measurement Port	098	040800C1	787.14	786.39
33	040130		00					789.74
32	040130		00					792.74
31	040130		00					795.74
30	040130		00					798.74
29	040110		00					801.74
28	041400C6	054	00	Packer				802.74
27	040115		00			046002C6		804.31
26	040130		040500C1	Measurement Port	097	040800C1	806.56	805.81
25	040130		00					809.17
24	040130		00					812.17
23	040130		00					815.17
22	040130		00					818.17
21	040130		00					821.17
20	040110		00					824.17
19	041400C6	050	00	Packer				825.17
18	040115		00			046002C6		826.73
17	040130		040500C1	Measurement Port	092	040800C1	828.98	828.23
16	040130		00					831.59
15	040130		00					834.59
14	040130		00					837.59
13	040130		00					840.59
12	040130		00					843.59
11	040130		00					846.59
10	040110		00					849.59
9	041400C6	036	00	Packer				850.59
8	040115		00			046002C6		852.16
7	040130		040500C1	Measurement Port	130	040800C1	854.41	853.66
6	040105		00					857.01
5	040130		00					857.51

Item No.	Component Part Number	Component S/N	Coupling P/N	Component Discription	Coupling S/N	Accessory P/N	Accessory Depth (m)	Final Depth (m) *
4	040130		043200C1	Pumping Port	300	046002C6		860.51
3	041400C6	066	00	Packer				863.96
2	040115		00			046002C6		865.53
1	040130		040500C1	Measurement Port	131	040800C1	867.78	867.03
0	040300C1		00					870.38

* Depths are with respect to ground surface
* Component positions are referenced to the top of the subject Westbay System coupling.
* Packer positions are referenced to the top Westbay System coupling on the packer.

The position of a MOSDAX Transducer in a Measurement Port is illustrated in the attached "MOSDAX Transducer Position". This information may be used in calculating piezometric levels.

Summary Completion Log

Company: Geofirma/NWMO
Well: SB_BH01
Site: South Bruce
Project: NWMO Site Investigation

Job No: WB992
Author: SS/DL

Well Information

Reference Datum: Ground level
Elevation of Datum: 0.00 m.
MP Casing Top: 0.00 m.
MP Casing Length: 870.43 m.

Borehole Depth: 880.84 m.
Borehole Inclination: Vertical
Borehole Diameter: 123.00 mm

Well Description:
SS MP55
Other References:
Approved via email on June 14, 2022

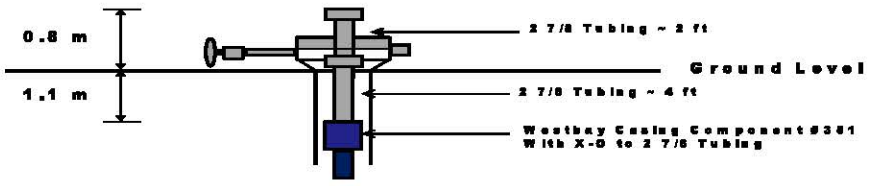
File Information

File Name: SB_BH01.WWD
Report Date: Wed Feb 01 08:14:04 2023

File Date: Jun 14 05:20:06 2022

Sketch of Wellhead Completion

SB_BH01 Completion Sketch

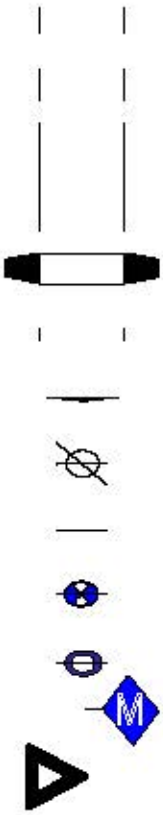


nts

Legend

(Qty) MP Components

(Library - WD Library 03/10/2014)



(36) 040110 - Stainless Steel Tubing 1.0m

(39) 040115 - Stainless Steel Tubing 1.5m

(233) 040130 - Stainless Steel Tubing 3.0m

(36) 041400C6 - MP55 GeoPro Packer 90mm

(5) 040105 - Stainless Steel Tubing 0.5m

(1) 040300C1 - MP55 End Plug

(1) 041500S1 - MP55 to 2-7/8 EUE Pin

(311) 00 -

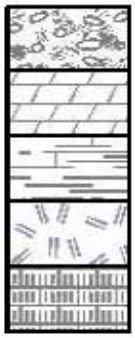
(36) 040500C1 - Measurement Port

(4) 043200C1 - Pumping Port

(37) 040800C1 - MP55 Magnetic Location Collar

(40) 048002C6 - MP55 Abrasion Protector

Geology



Overburden 1

Dolomite

Shale, Calcareous

Rock, Porphyritic

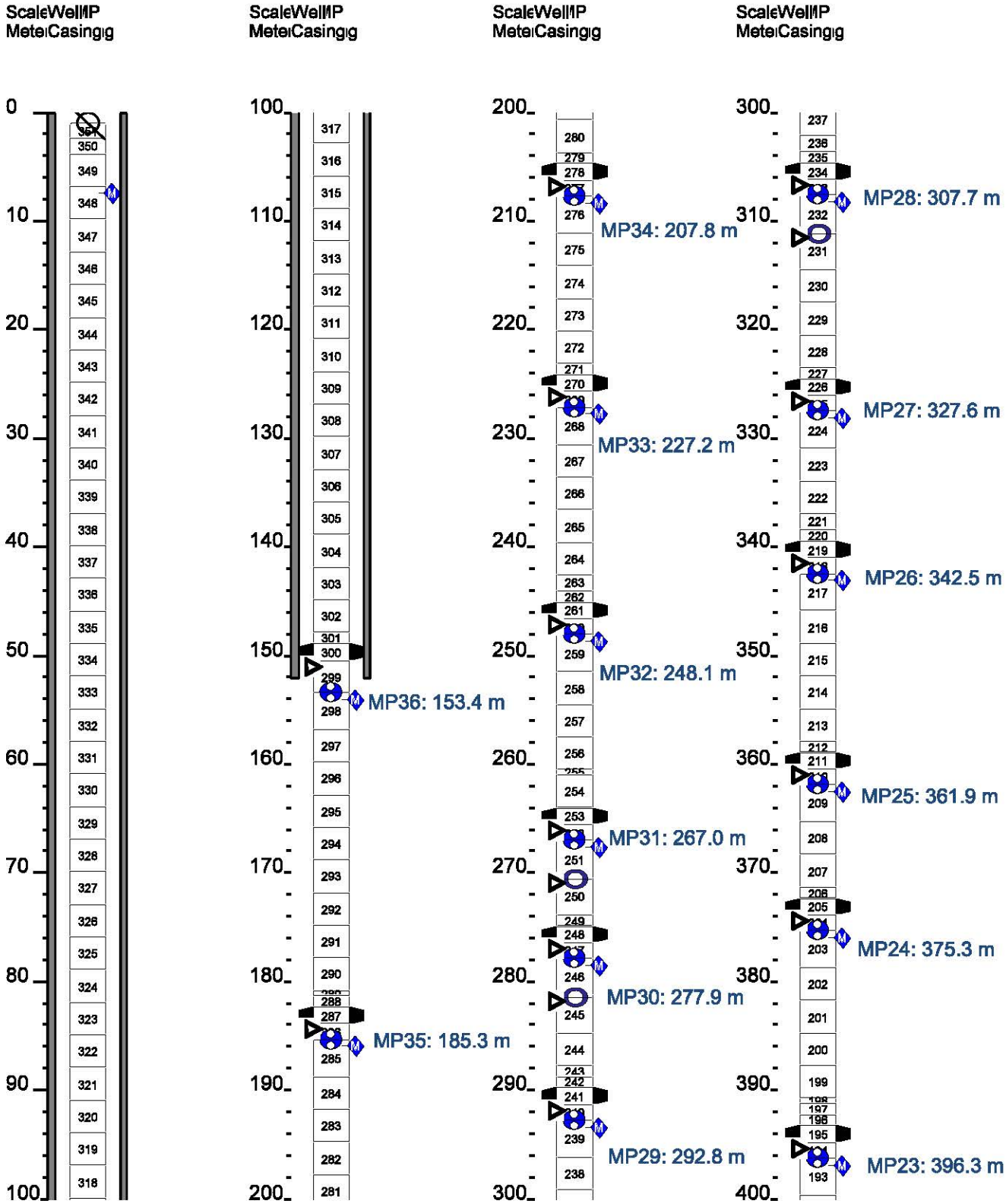
Limestone, Sandy

Backfill/Casing

Mild Steel

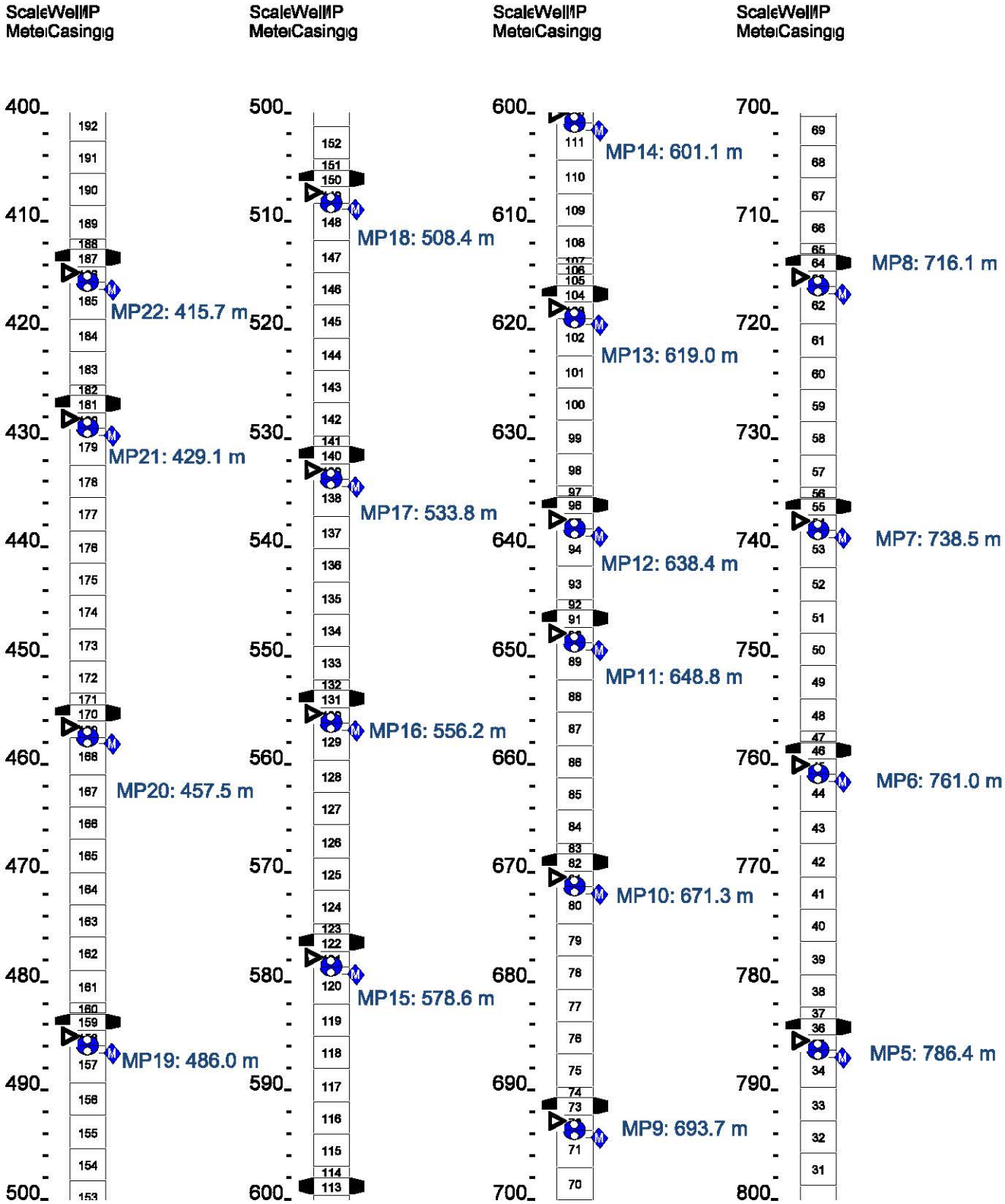
Summary Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



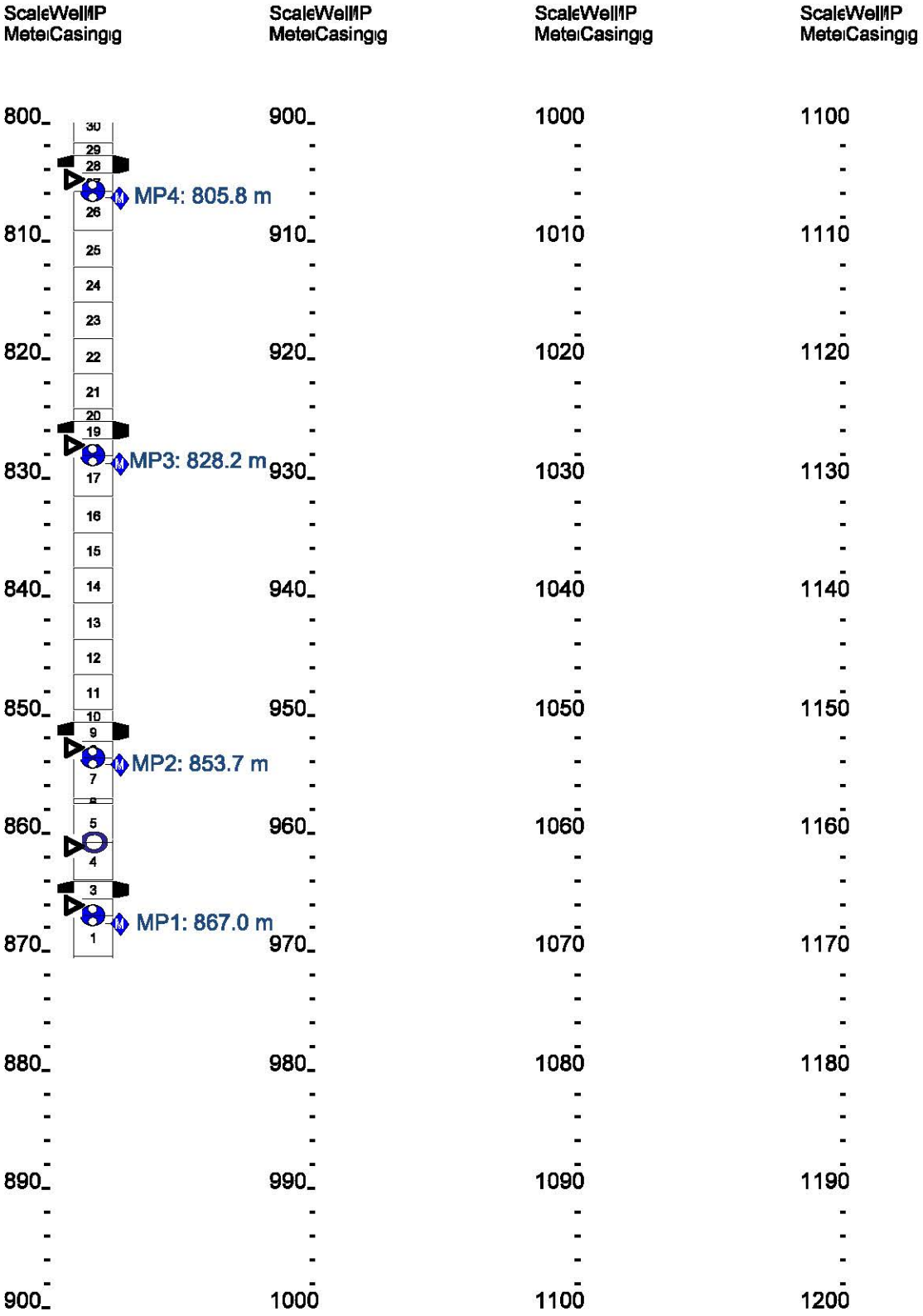
Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



Westbay Instruments

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Pre-Inflation Profile. 1/4

Well No.: SB-BH01
Datum: G.S
Elev. G.S.: N/A
Height of Westbay above G.S.: "
Elev. top of Westbay Casing: "
Reference Elevation: "
Borehole angle: 90°

Probe Type: Samples
Serial No.: EMS4954
Probe Range: 2K
Westbay Casing Type: MP55 (S.S)
Sampler Valve Position: Closed

Date: June 21 / 2022
Client: Geofirma / NWMO
Job No.: WB992
Location: Teeswater, ON
Weather: Sun
Operator: ML / TK.

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure 14.15 / Temp 25.69 / Time 8:17
Finish: ____

P_{atm} 14.15 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (ft) H = (P2-Patm)/w	Piez. Level Outside Port (ft) Dz = Dp - H	Comments (M: Mag. Collar R: Rotation.)
1	867.03			1078.16	1315.76	8:50	21.34		915.34	-48.31	M: 864.2 R:15
					1317.12	8:53		1078.11	916.29	-49.26	
TK ~~2~~	~~853.66~~			~~1178.09~~	TK						TK: ~~M:~~ Add water to WB to be ~ 1180psi.
				1178.07	1323.66	9:54	23.32	1178.18	920.89	-53.86	R= 14
2	853.66			1159.23	1294.83	9:54	23.32	1159.29	900.62	-46.96	M=850.9 R:13
3	828.23			1123.22	1266.88	10:04	23.11	1123.24	880.96	-52.73	M=825.6 R= 14
2	853.66			1159.63	1295.21	10:19	22.79	1160.54	900.89	-47.23	M=850.9. R= 15
1	867.03			1180.04	1323.29	10:35	23.13	1180.09	920.63	-53.60	M=864.2. R= 15
2	853.66			1161.12	1293.68	10:40	23.25	1161.18	899.81	-46.15	M=850.9 R= 15.
3	828.23			1124.88	1266.88	10:46	23.07	1124.74	880.96	-52.73	M=825.6 R= 15
4	805.81			1092.97	1232.35	10:53	22.81	1092.96	856.68	-50.87	M=803.3 R= 15.
5	786.39			1065.25	1202.40	11:03	22.29	1065.28	835.62	-49.23	M=784.0 R= 15.
6	760.96			1028.83	1163.12	11:09	22.03	1028.85	807.99	-47.04	M=758.7 R= 15.
7	738.54			996.58	1128.41	11:17	21.63	996.60	783.59	-45.05	M=736.4 R= 15.
8	716.11			964.77	1093.31	11:21	21.25	964.79	758.90	-42.79	M=714.1 R= 15

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O | Dz = piezometric level in zone | Patm = atmospheric pressure | H = pressure head of water in zone | Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Pre-Inflation Profile 3/4

Well No.: SB-BH01
Datum: GS
Elev. G.S.: N/A
Height of Westbay above G.S.: 0
Elev. top of Westbay Casing: 0
Reference Elevation: 0
Borehole angle: 90°

Probe Type: Simplex
Serial No.: 3443954
Probe Range: 2k
Westbay Casing Type: MP55 (S.S)
Sampler Valve Position: Closed

Date: June 21 / 22
Client: Geofirma / NWMO
Job No.: WB992
Location: Teeswater, ON
Weather: Sun
Operator: ML/TK

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure _____ Finish: _____
Temp _____ _____
Time _____ _____

P_{atm} 14.15 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (ft) H = (P2-Patm)/w	Piez. Level Outside Port (ft) Dz = Dp - H	Comments	
9	693.69			932.76	1052.72	11:26	20.77	932.78	730.36	-36.67	M=691.8	R=14
10	671.26			900.80	1022.56	11:33	20.40	900.98	709.15	-37.90	M=669.4	R=15
9	693.69			932.76	1058.07	11:38	19.97	932.82	734.12	-40.43	M=691.8	R=15
10	671.26			900.30	1022.55	11:43	19.98	900.64	709.14	-37.88	M=669.4	R=15
11	648.84			868.92	986.95	11:47	19.80	868.95	684.11	-35.27	M=647.1	R=15
12	638.42			853.90	970.32	11:50	19.50	853.81	672.41	-33.99	M=636.8	R=15
13	618.99			826.36	939.61	11:54	19.31	826.34	650.82	-31.83	M=617.4	R=15
14	601.07			800.67	911.98	11:57	18.71	800.60	631.39	-30.32	M=599.6	R=15
15	578.64			768.23	878.13	12:02	18.18	768.21	607.58	-28.94	M=577.2	R=15
16	556.22			736.33	844.92	12:05	17.54	736.21	584.09	-27.87	M=554.9	R=15
17	533.79			704.84	811.16	12:08	16.94	704.77	560.49	-26.70	M=532.6	R=15
18	508.37			668.12	773.54	12:12	16.29	668.11	534.03	-25.66	M=507.3	R=15
19	485.95			636.21	740.61	12:15	15.57	636.15	510.87	-24.92	M=485.0	R=15
20	457.52			595.72	698.93	12:19	15.08	595.77	481.56	-24.04	M=456.7	R=15
21	429.10			555.25	657.21	12:23	14.32	555.13	452.22	-23.12	M=428.4	R=15

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Pre-Inflation Profile 3/4

Well No.: JB BH01
Datum: G.S
Elev. G.S.: N/A
Height of Westbay above G.S.: 4
Elev. top of Westbay Casing: 4
Reference Elevation: 4
Borehole angle: 90°

Probe Type: Simplex
Serial No.: EMS 4954
Probe Range: 2K
Westbay Casing Type: MP55 (S.S)
Sampler Valve Position: closed

Date: June 21/22
Client: Geofirma / NWMO
Job No.: WB993
Location: Teeswater, ON
Weather: Sun
Operator: ML / TK

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure ____ Finish: 14.18
Temp ____ 9.53
Time ____ 12:17

P_{atm} 14.15 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (ft) H = (P2-Patm)/w	Piez. Level Outside Port (ft) Dz = Dp - H	Comments
22	415.67			536.12	687.57	12:26	13.63	536.09	438.41	-22.74	M=415.0 R=15
23	396.25			508.38	608.77	12:29	13.17	508.36	418.16	-21.91	M=395.7 R=15
24	375.32			478.40	577.84	12:33	12.72	478.38	396.41	-21.09	M=374.8 R=15
25	361.90			459.21	557.91	12:36	12.37	459.36	382.39	-20.49	M=361.5 R=16
26	342.48			431.42	528.92	12:39	11.99	431.51	362.00	-19.52	M=342.2 R=15
27	327.55			410.14	506.59	12:43	11.73	410.25	346.30	-18.61	M=327.4 R=15
28	307.69			381.94	476.90	12:46	11.54	381.89	325.42	-17.73	M=307.6 R=15
29	292.76			360.68	454.48	12:49	11.39	360.65	309.66	-16.89	M=292.7 R=15
30	277.89			339.39	432.12	12:52	11.20	339.37	293.93	-16.04	M=277.8 R=15
31	267.03			324.08	415.71	12:56	10.967	324.10	282.39	-15.36	M=267.0 R=15
32	248.01			297.12	387.19	12:58	10.82	297.03	262.33	-14.32	M=248.3 R=15
33	227.18			269.14	355.60	13:01	10.64	269.17	240.12	-12.94	M=227.4 R=15
34	207.75			239.32	326.12	13:04	10.41	239.40	219.39	-11.64	M=208.1 R=15
35	185.33			207.39	292.07	13:07	10.18	207.46	195.44	-10.11	M=185.7 R=15
36	153.41			161.96	243.59	13:10	9.96	161.98	161.35	-7.94	M=153.9 R=15

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Pre-Inflation Profile 4/4

* checking Port 1 & Port 2. with different samples

Well No.: SB_BH01

Datum: G.S

Elev. G.S.: N/A

Height of Westbay above G.S.: 4

Elev. top of Westbay Casing: 4

Reference Elevation: 4

Borehole angle: 90°

Probe Type: Sample2

Serial No.: EMS ~~4954~~ 2652

Probe Range: 2k

Westbay Casing Type: MP55 (5.5)

Sampler Valve Position: Closed.

Date: June 21 / 22

Client: Geofirma / NWMO

Job No.: WB992

Location: Teeswater ON

Weather: Sun

Operator: ML / TK

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

P_{atm} 14.25 ~~14.15~~ psi

Ambient Reading (P_{atm}) (pressure, temperature, time)

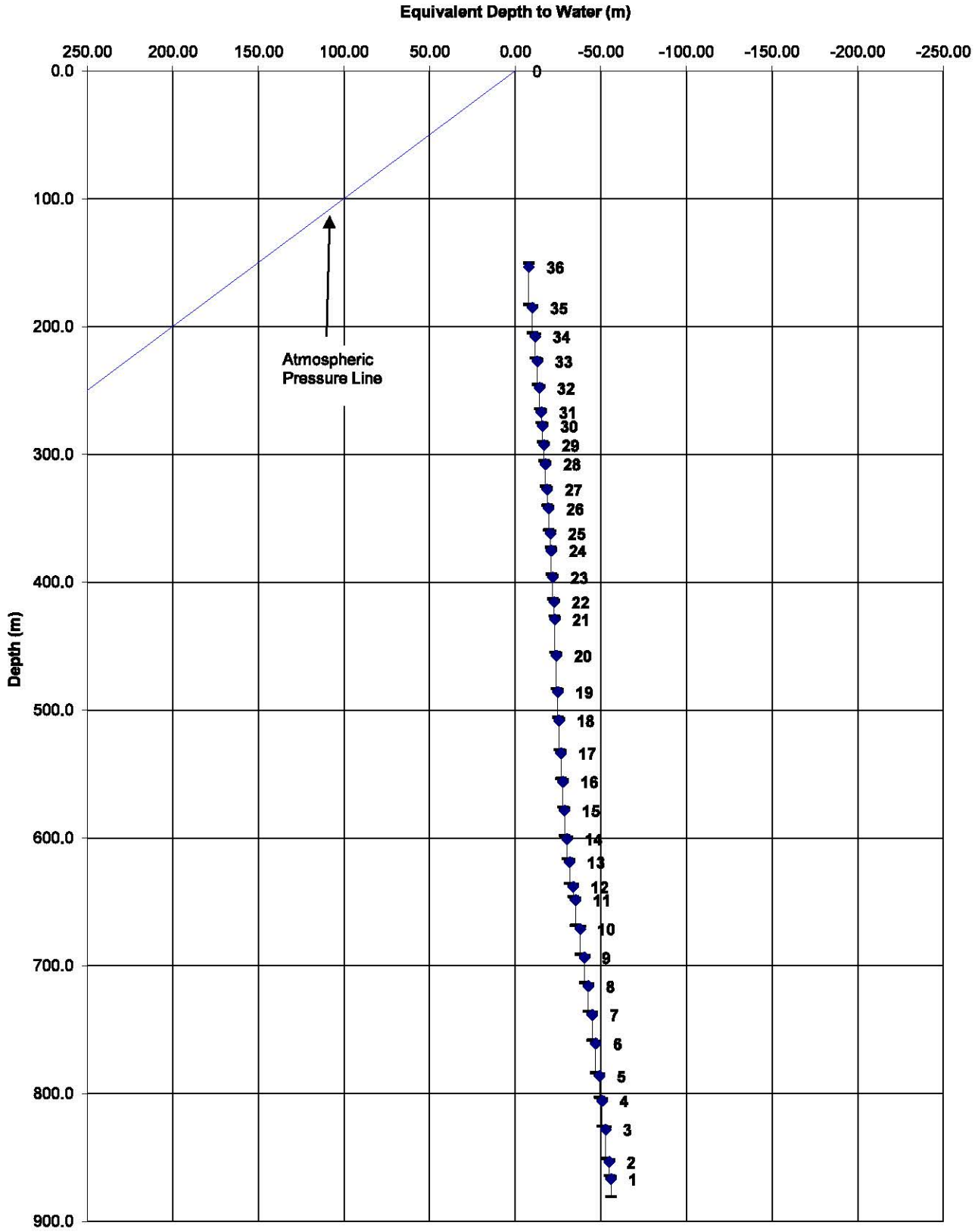
Start: Pressure	14.25	Finish:	14.37
Temp	25.08		9.84
Time	14:25		14:54

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (ft) H = (P2-Patm)/w	Piez. Level Outside Port (ft) Dz = Dp - H	Comments	
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)				
1	867.03			1181.10	1326.84	13:54	21.87	1181.13	923.06	-56.03	M=864.3	R=15
2	853.66			1161.84	1306.17	13:59	22.63	1161.79	908.52	-54.86	M=851.0	R=15
3	828.23			1125.57	1266.87	14:04	22.86	1125.56	880.89	-52.66	M=825.7	R=15
4	805.81			1093.52	1232.32	14:07	22.55	1093.57	856.59	-50.78	M=803.4	R=15
5	786.39			1065.55	1202.37	14:23	22.23	1065.51	835.53	-49.14	M=784.0	R=14

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Piezometric Profile
Monitoring Well:SB_BH01

Profile Date:June 21,2022
Comments:Pre-Inflaton Profile



Client:Geofirma/NWMO
Site:Teeswater, ON
Datum:Ground Surface

Figure 2

Plote By:____Date:____
Checked By:____Date:____
Westbay Project: WB 992

Westbay Piezometric Pressures/Levels

Field Data and Calculat on Sheet

Doc QA20210325-003

Post - Inflation Profile. 1/4

Well No.: SB-BH01
Datum: G.L
Elev. G.S.: N/A
Height of Westbay above G.S.: "
Elev. top of Westbay Casing: "
Reference Elevation: "
Borehole angle: 90°

Probe Type: Simplex O/C
Serial No.: ~~2653~~ 2652
Probe Range: 2K
Westbay Casing Type: MP55 (S.S)
Sampler Valve Position: Close.

Date: June 28/22
Client: Geofirma / RWMO
Job No.: WB992
Location: Teeswater
Weather: Overcast.
Operator: ML / TK

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure 14.40 Finish:
Temp 23-15
Time 12=55

P_{atm} 14.40 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (ft)	Piez. Level Outside Port (ft)	Comments	
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	H = (P2-Patm)/w	Dz = Dp - H		
1	867.03			1215.98	1069.25	13:33	22.66	1215.99	741.81	125.22	869.4	R = 15
2	853.66			1196.73	1054.81	13:41	22.99				851.1	R = 15
					1053.66	13:44	23.10	1196.71	730.84	122.82		
3	828.23			1160.44	1023.72	13=49	22.96		709.79	118.44	825.8	R = 15.
					1022.26	13=51	22.89					
					1020.83	13=52	22.78					
					1019.81	13=54	22.78					
					1019.22	13=55	22.78	1160.41	706.62	121.61	P4 : water fr 5km.	
4	805.81			1128.23	1049.99	14=00	22.54				M= 803.4.	R= 15.
					1049.95	14=03	22.54					
					1049.95	14=05	22.45	1128.26	728.23	77.58		
5	786.39			1100.54	1026.38	14=08	22.22				M= 784.1.	R= 15.
					1026.28	14=10	22.14					
					1026.17	14=13	22.14	1100.50	711.51	94.88		
6	760.96			1063.98	992.53	14=16	21.91				M=758.8	R= 15.

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Post-Inflation Profile. 2/4

Well No.: SB-BH01
Datum: G.L.
Elev. G.S.: N/A
Height of Westbay above G.S.: "
Elev. top of Westbay Casing: "
Reference Elevation: "
Borehole angle: 90°

Probe Type: O/C Sampler
Serial No.: 2652
Probe Range: 2k
Westbay Casing Type: MP55 (S.S)
Sampler Valve Position: Close.

Date: June 28/22
Client: Geofirma / NWMO
Job No.: WB 992
Location: Tobermory
Weather: overcast
Operator: ML / TK

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure ____ Finish: ____
Temp ____ ____
Time ____ ____

P_{atm} 14.40 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (ft) H = (P2-Patm)/w	Piez. Level Outside Port (ft) Dz = Dp - H	Comments
6	760.96				992.37	14:18	21.82	1013.89	687.74	73.22	
7	738.54			1031.95	1074.52	14:24	21.49				M=736.6 R=15
					1075.38	14:25	21.37				
					1075.85	14:27	21.38	1031.95	746.45	-7.91	*
8	716.11			1000.02	1038.50	14:33	20.96				M=714.2 R=15
					1038.68	14:34	20.84	1000.05	720.31	-4.20	
9	693.69			967.85	1000.76	14:36	20.75		693.64		M=691.9 R=15
					1001.35	14:38	20.42	967.83	694.06	-0.37	
10	671.26			935.86	967.62	14:41	20.22	935.81	670.34	0.9	M=669.5 R=15
11	648.84			903.76	931.61	14:45	19.79	903.77	645.01	3.83	M=647.2 R=15
12	638.42			888.92	913.12	14:48	19.38	888.95	632.01	6.41	M=636.9 R=15
13	618.99			861.08	886.65	14:53	19.04	861.06	613.40	5.59	M=617.6 R=15
14	601.07			835.64	859.38	14:57	18.51	835.62	594.22	6.85	M=599.6 R=15
15	578.64			803.66	823.10	15:00	17.86	803.65	568.71	9.93	M=577.3 R=15
16	556.22			771.51	787.29	15:04	17.32	771.49	543.52	12.69	M=555.0 R=15

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measuremert port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Post Inflation Profile 3/4

Well No.: SB-BH01
Datum: G.L
Elev. G.S.: N/A
Height of Westbay above G.S.: "
Elev. top of Westbay Casing: "
Reference Elevation: "
Borehole angle: 90°

Probe Type: O/C sampler
Serial No.: 2526
Probe Range: 2k
Westbay Casing Type: MP55 (S.S)
Sampler Valve Position: close

Date: June 28/22
Client: Geofirma / NWMO
Job No.: WB902
Location: Teeswater
Weather: Overcast
Operator: ML/TG

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure ____ Finish: ____
Temp ____ ____
Time ____ ____

P_{atm} 14.40 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (ft)	Piez. Level Outside Port (ft)	Comments	
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	H = (P2-Patm)/w	Dz = Dp - H		
17	533.	79		739.43	751.77	15=08	16.68	739.47	518.54	15.25	M=532.7	R=15
18	508.37			703.09	730.68	15=11	16.03	703.07	503.71	4.66	M=507.4	R=15
19	485.95			671.03	726.65	15=15	15.16	671.01	500.88	-14.93	M=485.1	R=15
20	457.52			630.49	682.14	15=20	14.40	630.41	469.58	-12.06	M=456.8	R=15
21	429.10			589.94	637.42	15=24	13.97	589.96	438.13	-9.03	M=428.5	R=15
22	415.67			570.68	622.26	15=27	13.31	570.59	427.47	-11.80	M=415.2	R=15
23	396.25			543.00	592.45	15=31	12.77	543.04	408.61	-12.36	M=395.8	R=15
24	375.32			513.18	562.10	15=36	12.22	513.14	385.16	-9.84	M=375.0	R=15
25	361.90			493.96	541.96	15=40	12.00	493.98	370.99	-9.10	M=361.7	R=15
26	342.48			466.17	513.35	15=43	11.79	466.14	352.29	-9.81	M=342.3	R=15
27	327.05			444.95	491.17	15=47	11.46	444.96	335.28	-7.73	M=327.5	R=15
28	307.69			416.60	461.83	15=50	11.46	416.58	314.65	-6.96	M=307.7	R=15
29	292.76			395.29	440.18	15=52	11.35	395.28	299.42	-6.66	M=292.9	R=15
30	277.89			374.14	418.67	16=05	10.92	374.10	284.30	-6.41	M=278.0	R=15
31	267.03			358.67	402.02	16=07	10.81	358.69	273.29	-6.26	M=267.3	R=15

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Doc QA20210325-003

Post Installation Profile 4/4

Well No.: SB-BH01
Datum: G.L
Elev. G.S.: N/A
Height of Westbay above G.S.: "
Elev. top of Westbay Casing: "
Reference Elevation: "
Borehole angle: 90

Probe Type: O/C sampler
Serial No.: 2526
Probe Range: 2k
Westbay Casing Type: MP55 (5.5)
Sampler Valve Position: Close

Date: June 28/22
Client: Geofirma / NWMO
Job No.: WR902
Location: Teeswater
Weather: Overcast
Operator: ML / TK

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure
Temp
Time

Finish: 14.36 / 9.18 / 16:30

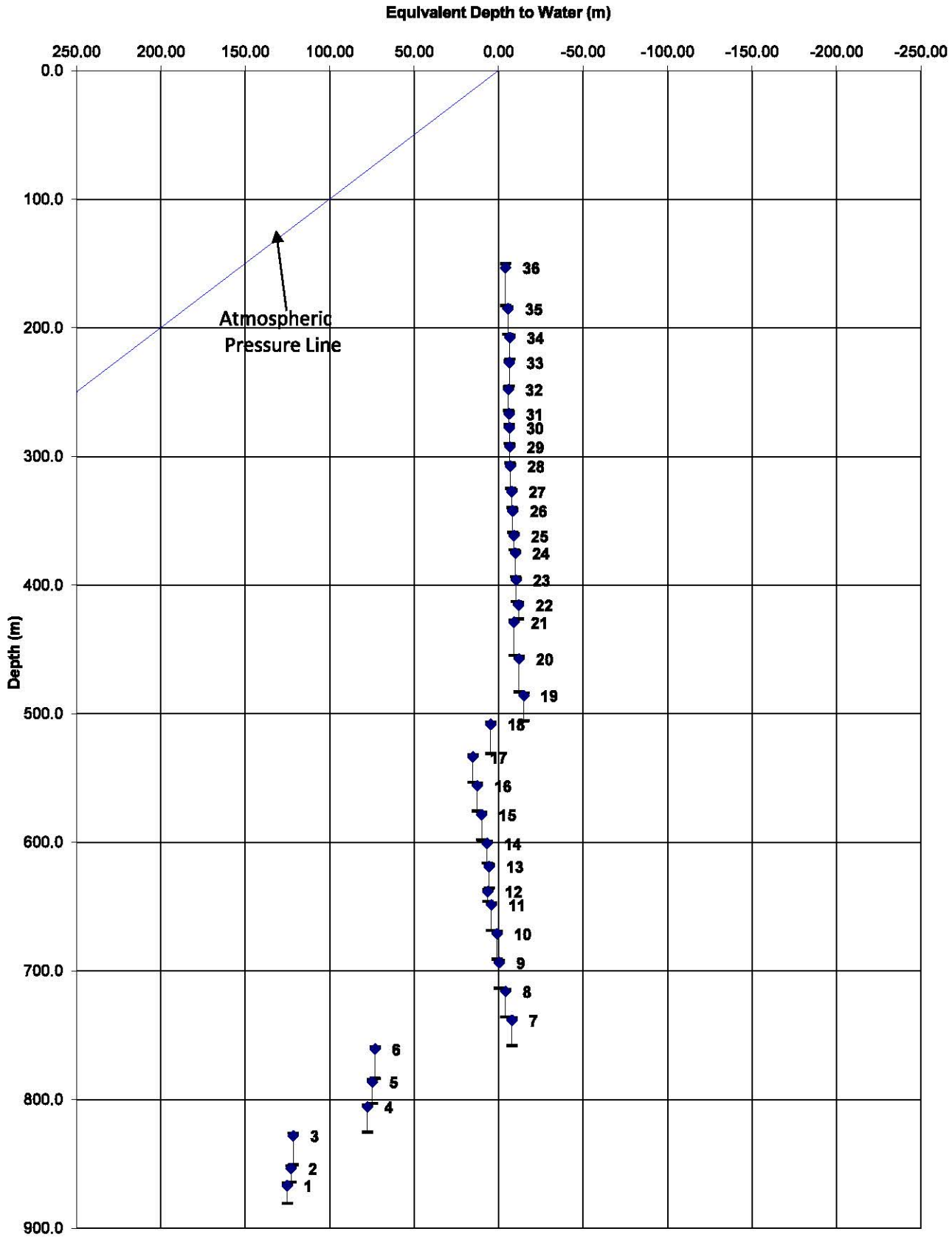
P_{atm} 14.40 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (ft) H = (P2-Patm)/w	Piez. Level Outside Port (ft) Dz = Dp - H	Comments
32	248.01			331.65	875.42	16:10	10.59	331.67	253.88	-5.87	M=248.5 R=15
33	227.18			301.81	346.54	16:12	10.59	301.87	283.57	-6.39	M=227.6 R=15
34	207.75			274.08	319.35	16:15	10.26	274.10	214.38	-6.63	M=208.3 R=15
35	185.33			242.09	285.91	16:20	10.05	242.11	190.94	-5.11	M=186.0 R=15
36	153.41			196.62	238.35	16:24	9.60	196.66	157.49	-4.08	M=154.2 R=15

Notes: w = 0.4335 psi/ft (1.422psi/m) of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Piezometric Profile
Monitoring Well:SB_BH01

Profile Date:June 28, 2022
Comments:Post-Inflation Profile



Client:Geofirma/NWMO
Site:Teeswater, ON
Datum:Ground Surface

Figure 3

Plot By:____Date:_____
Checked By:____Date:_____
Westbay Project:WB992

Westbay Completion Log

Company: Geofirma/NWMO
Well: SB_BH01
Site: South Bruce
Project: NWMO Site Investigation

Job No: WB992
Author: SS/DL

Well Information

Reference Datum: Ground level
Elevation of Datum: 0.00 m.
MP Casing Top: 0.00 m.
MP Casing Length: 870.43 m.

Borehole Depth: 871.74 m. 880.84
Borehole Inclination: Vertical
Borehole Diameter: 123.00 mm

Well Description:
SS MP55
Other References:
Approved via email on April 14, 2022
June

File Information

File Name: SB_BH01.WWD
Report Date: Tue Jun 14 04:57:15 2022

File Date: Jun 14 04:54:50 2022

Comments

zero reference is ground surface.
Filter socks to be used on measurement ports.
Borehole water level is 10.49 m BGS.
Guide tube depth is 749.34m BGS.

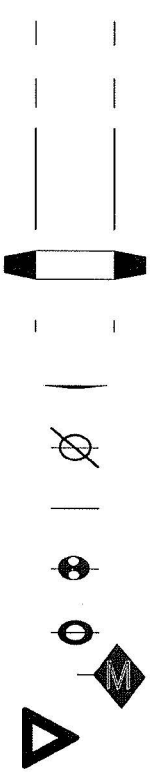
Log Information

Borehole condition confirmed.	(method)	PQ/Geophysic log / Geo	Date: June 4/22
MP well design & preparation.	By:	Geofirma / WB	Date: June 14/22
MP well design checked.	By:	WB/TK	Date: June 14/22
MP well and borehole approved to install.	By:	CRS/Geofirma	Date: June 15/22

Legend

(Qty) MP Components

(Library - WD Library 03/10/2014)



(38) 040110 - Stainless Steel Tubing 1.0m

(39) 040115 - Stainless Steel Tubing 1.5m

(233) 040130 - Stainless Steel Tubing 3.0m

(36) 041400C6 - MP55 GeoPro Packer 90mm

(5) 040105 - Stainless Steel Tubing 0.5m

(1) 040300C1 - MP55 End Plug

(1) 041500S1 - MP55 to 2-7/8 EUE Pin

(311) 00 -

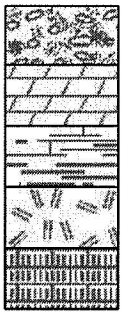
(36) 040500C1 - Measurement Port

(4) 043200C1 - Pumping Port

(37) 040800C1 - MP55 Magnetic Location Collar

(40) 046002C6 - MP55 Abrasion Protector

Geology



Overburden 1

Dolomite

Shale, Calcareous

Rock, Porphyritic

Limestone, Sandy

Backfill/Casing

Mild Steel

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

WB wt. at #350 ~7620 lb (DTW WB ~

wt of WB + 1.29 + 1.35
2 1/8 2 1/8
= ~7760 lbs

16:05 finish lowering 2.

Hydraulic Integrity Test (#350 @ the well)

11:50	119.825
12:00	119.778
12:20	119.771
12:30	119.765
12:40	119.763
12:50	119.760
13:00	119.759
13:10	119.758
13:20	119.756
13:30	119.754
13:40	119.753
13:50	119.750
14:00	119.749
14:10	119.747
14:20	119.747
14:30	119.747
14:40	119.747 m

WB is water-tight.
ML/TK June 20/22

(c) Westbay Instruments Inc. 2000

Tue Jun 14 04:59:54 2022

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

Scale Meters	Westbay Casing	QA Tested OK	MP Casing Description
50	334	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	333	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	332	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
60	331	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	330	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	329	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	328	✓	040130 - Stainless Steel Tubing 3.0m
70		✓ ✓ ✓	00 -
	327	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	326	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	325	✓	040130 - Stainless Steel Tubing 3.0m
80		✓ ✓ ✓	00 -
	324	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	323	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	322	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
90	321	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	320	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	319	✓	040130 - Stainless Steel Tubing 3.0m
		✓ ✓ ✓	00 -
	318	✓	040130 - Stainless Steel Tubing 3.0m
100		✓ ✓ ✓	00 -

Serial Numbers

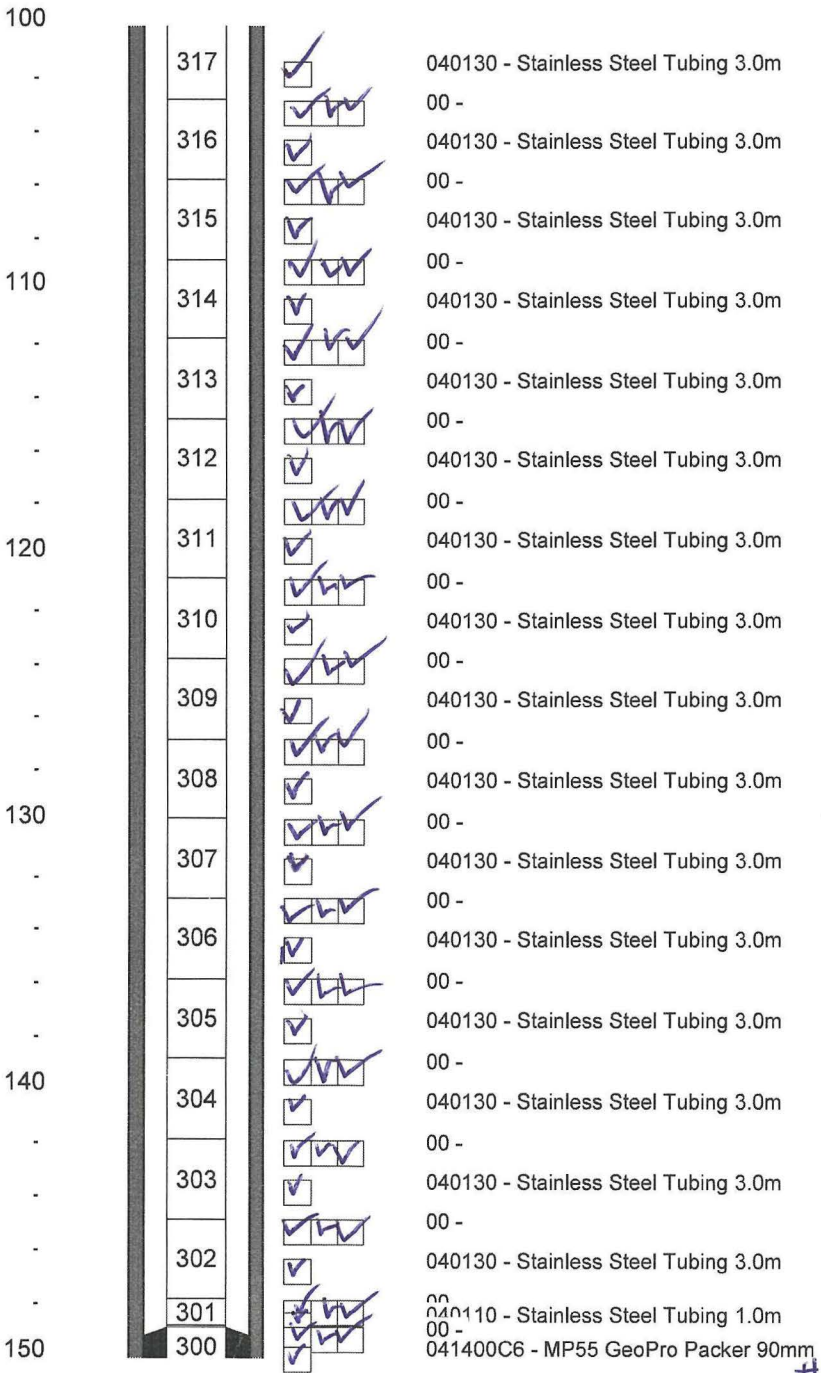
Add water #333 (~55L)
DTW WB: 72.60 m
wt. ~17600

(c) Westbay Instruments Inc. 2000

Tue Jun 14 04:59:54 2022

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



Add water at #317. (~110L)
New WB = 52.3m
wt = ~9400

#307 resume Time 20/22
7=35

#306 at the well
Time 18/22. 16=35
~6800 lb.

#72

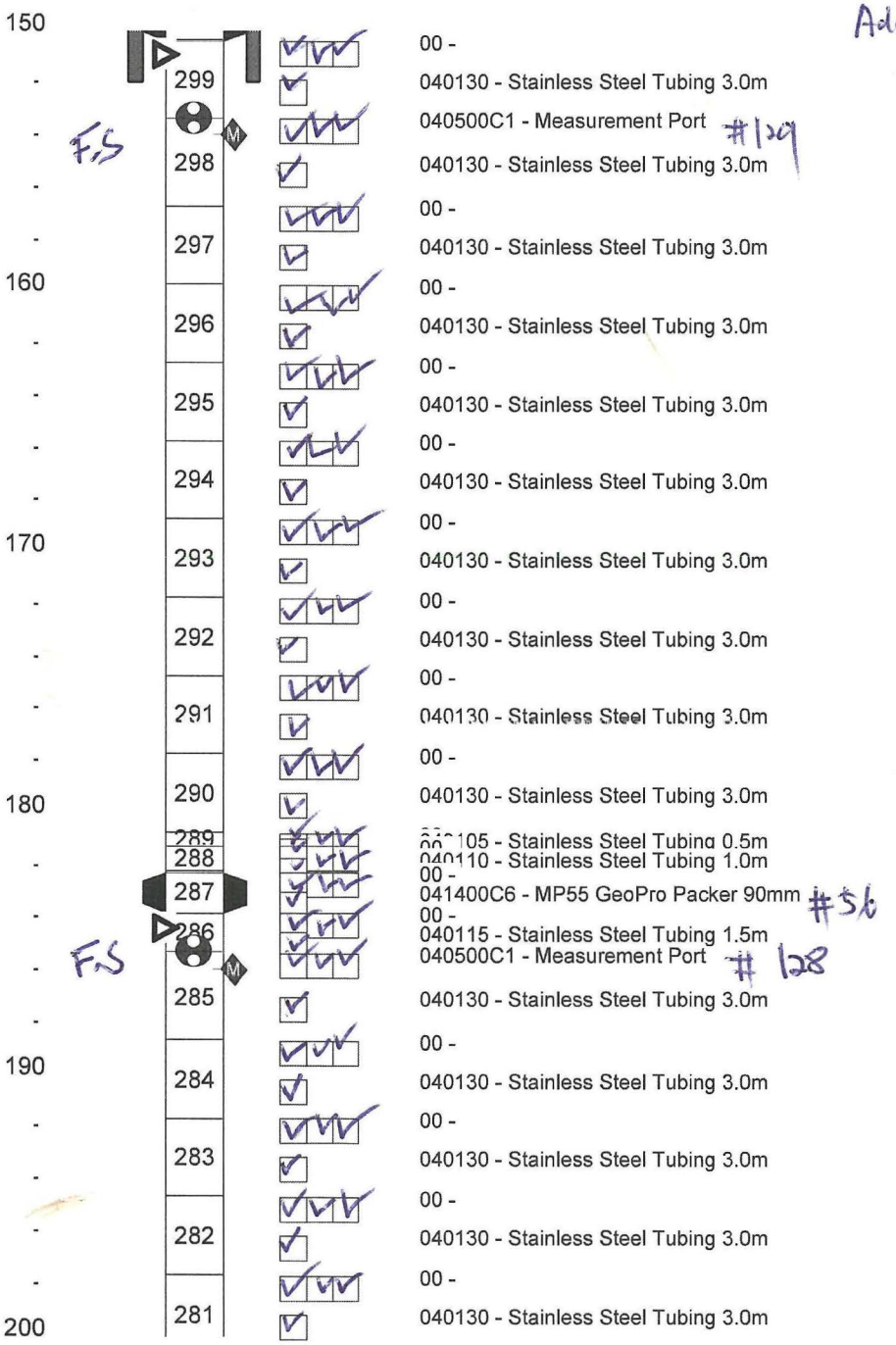
(c) Westbay Instruments Inc. 2000

Tue Jun 14 04:59:54 2022

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

Add water @ #329 (~110L)
DTW WB = 51.2m.
~ 7000 kPa

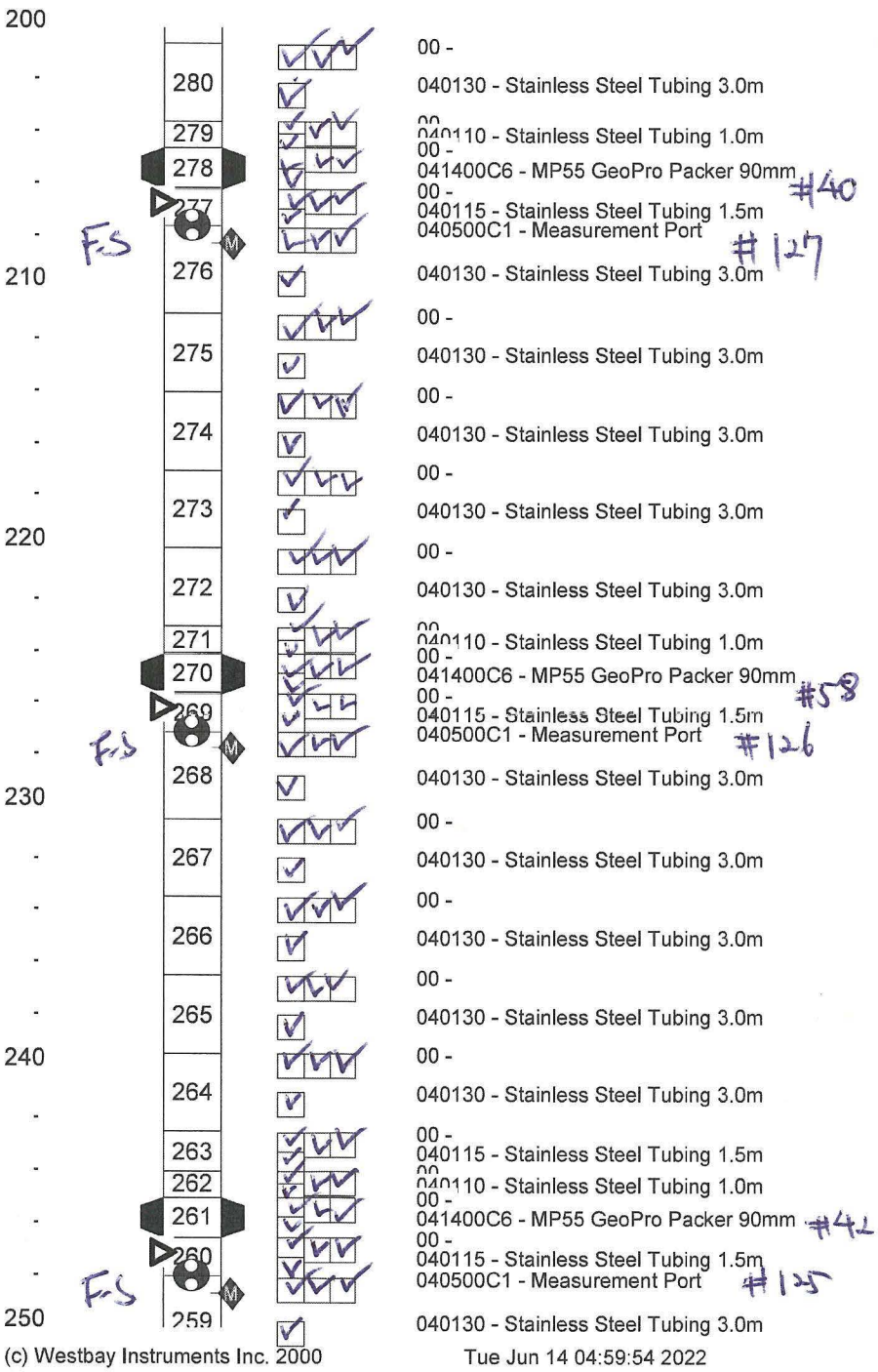


(c) Westbay Instruments Inc. 2000

Tue Jun 14 04:59:54 2022

Westbay Completion Log
Geofirma/NWMO

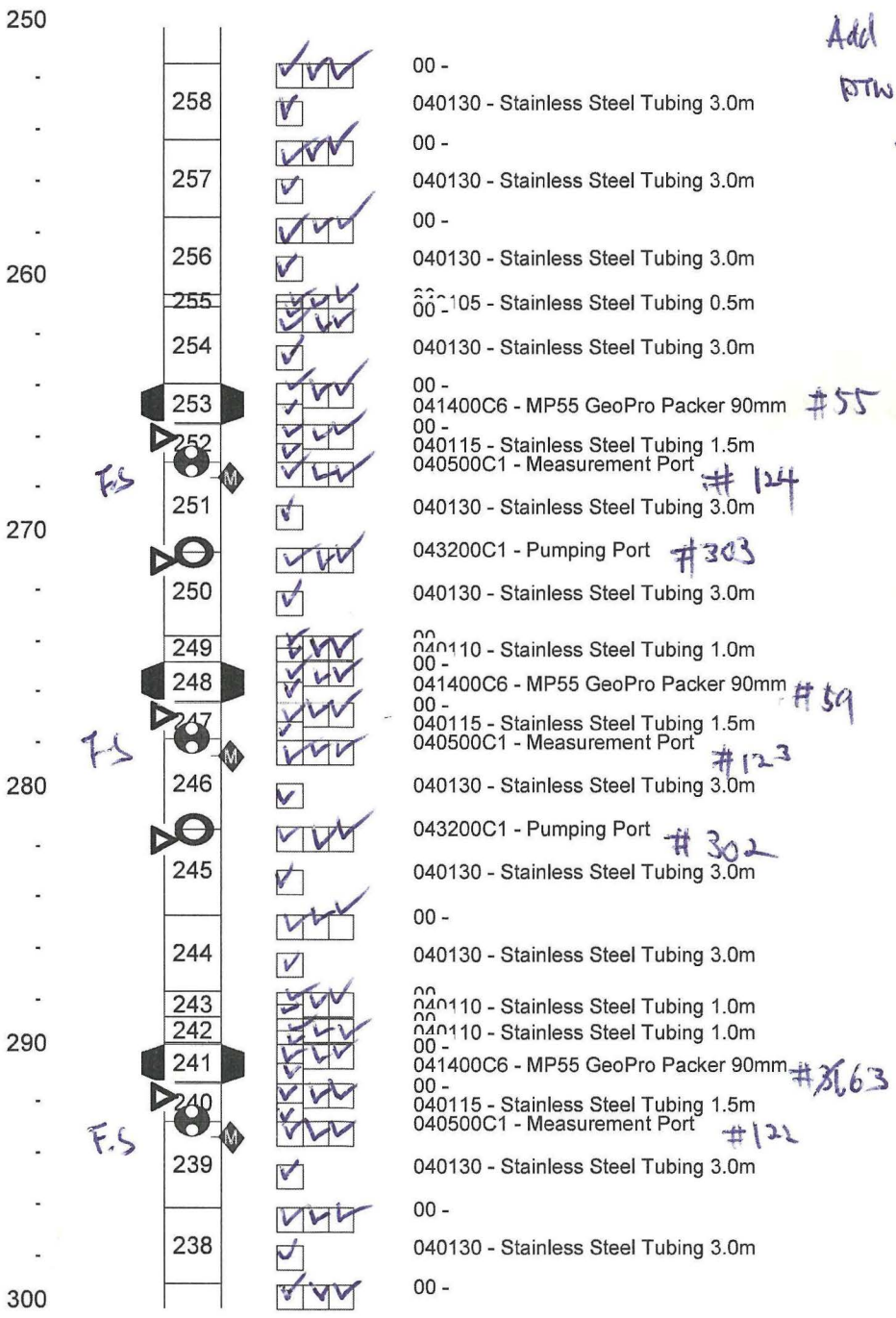
Job No: WB992
Well: SB_BH01



Add water #280 (~110 l)
DTW WB = 49.46m
~ 6500 lb

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



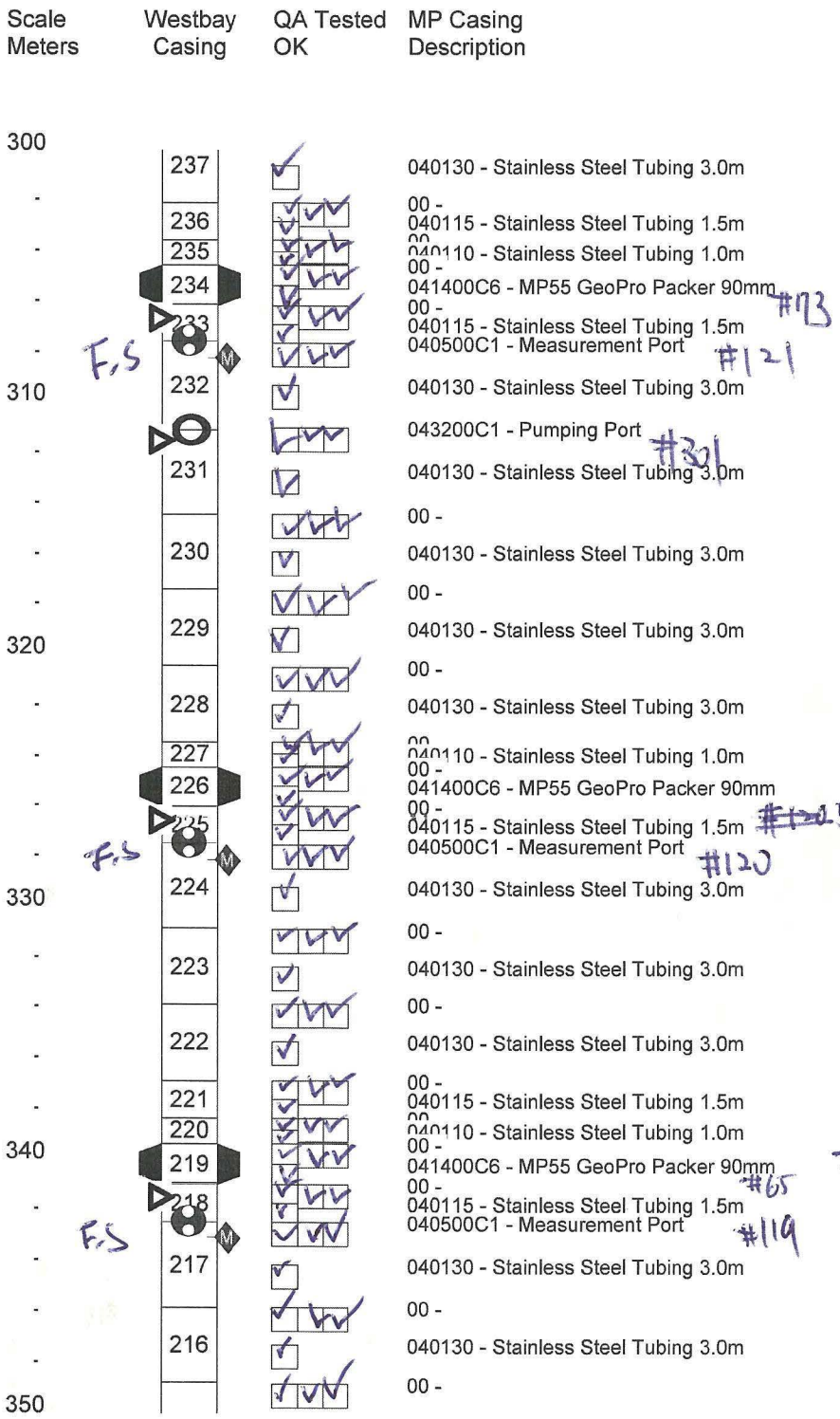
Add water #258 (~110L)
BTW WB 48.9m
~5900 lb

(c) Westbay Instruments Inc. 2000

Tue Jun 14 05:00:46 2022

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

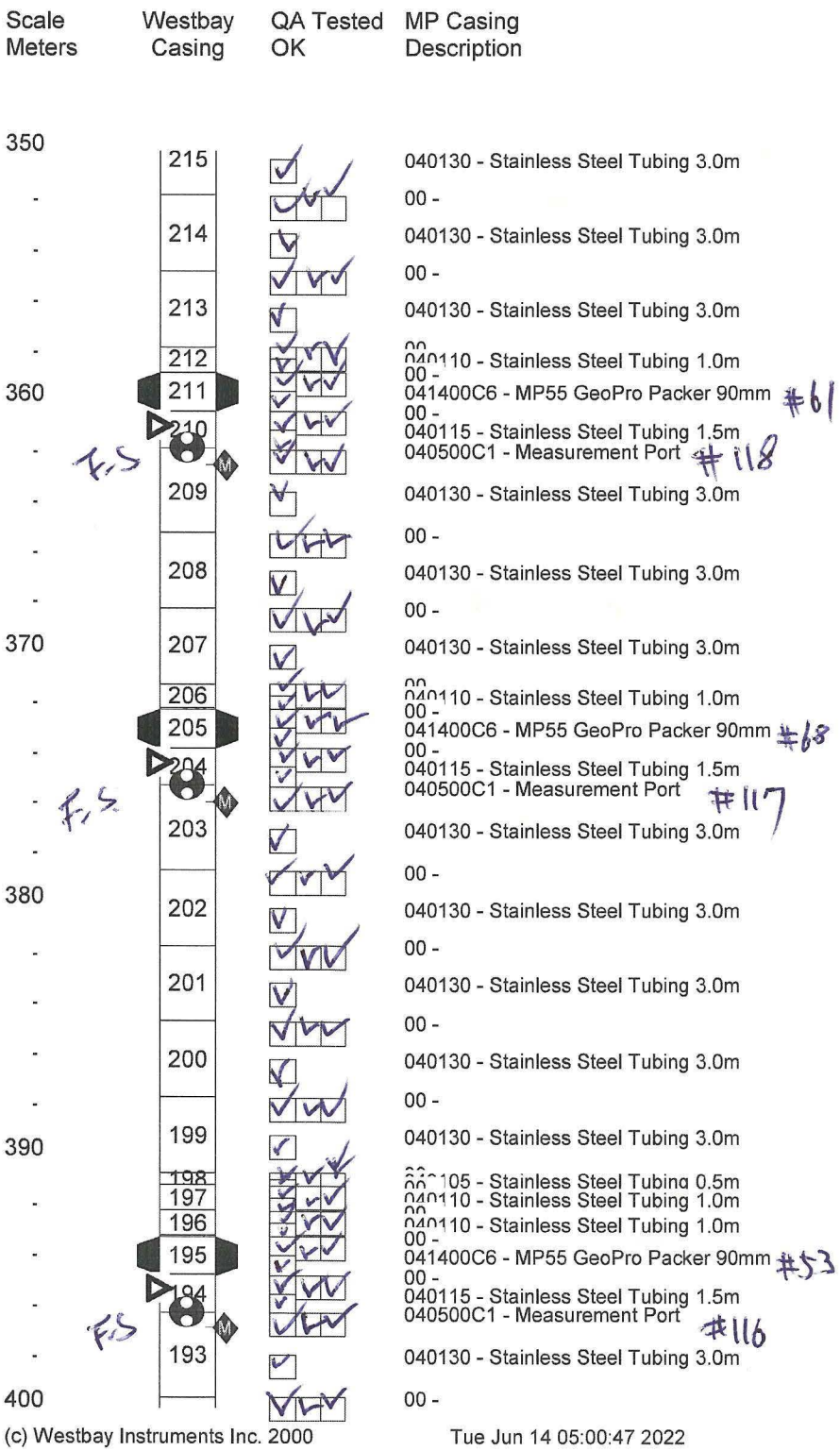


Add water # 237 (~1100)
DTW WB = 52.63 m
~ 5500 lb

June 18/22
T=40 resume with # 219
~4850 lb

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



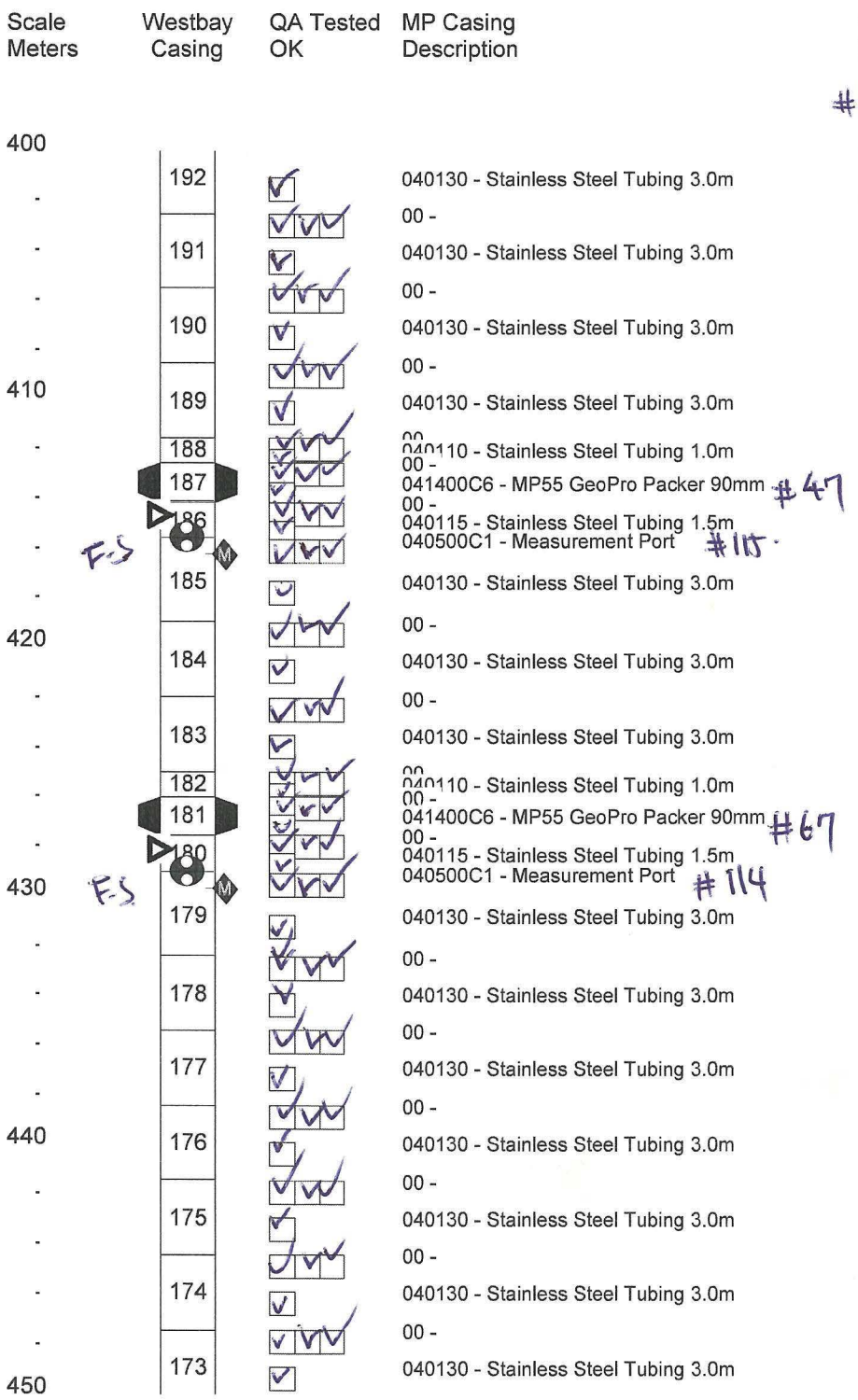
Add water at #215
~110L.
DTW WB= 53.6m.
~4850 lb.

(c) Westbay Instruments Inc. 2000

Tue Jun 14 05:00:47 2022

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

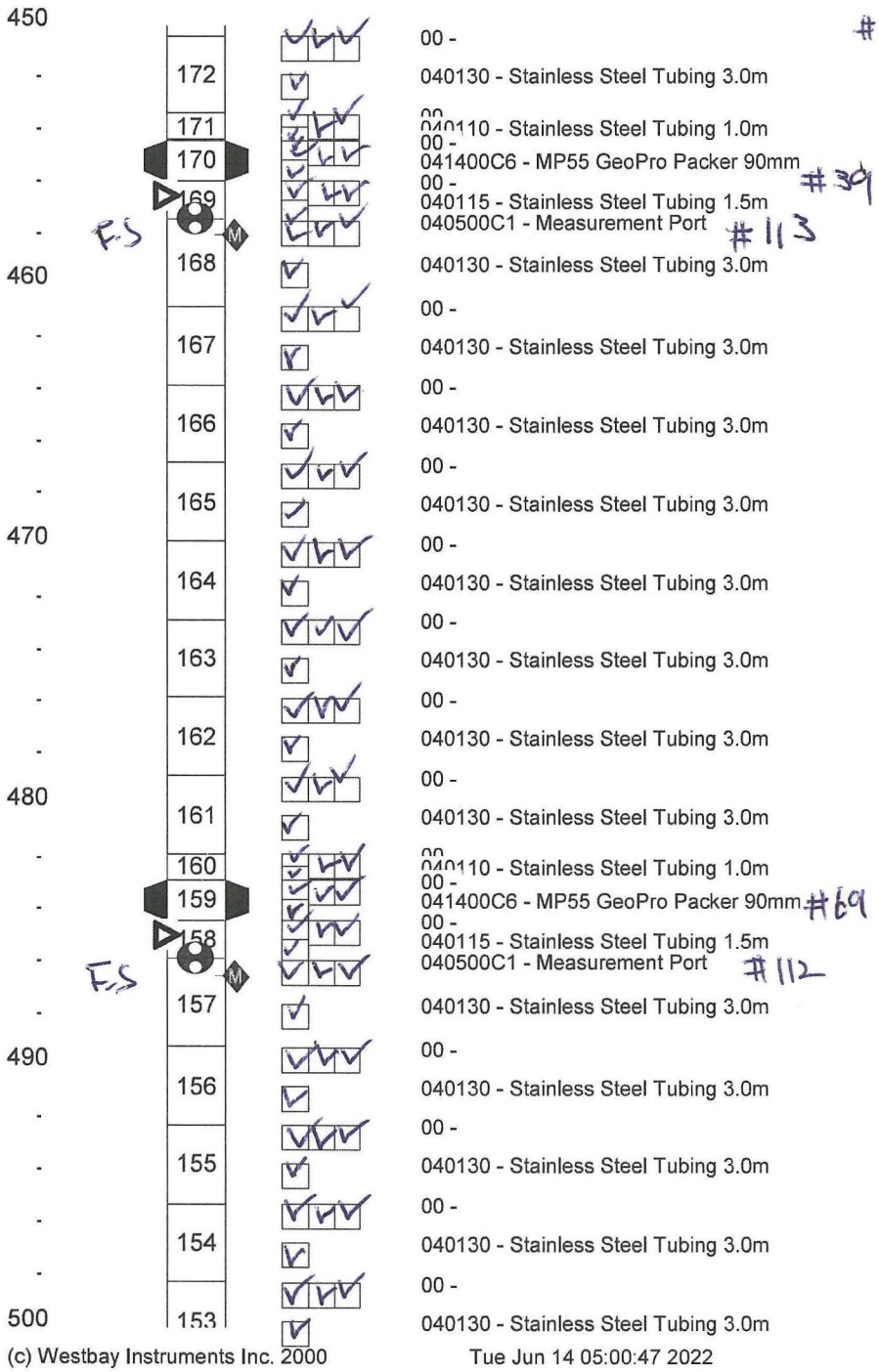


(c) Westbay Instruments Inc. 2000

Tue Jun 14 05:00:47 2022

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



#172 adding marker.
~120 l.
DTW WB = 34m
~3850 lb

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

Scale Meters	Westbay Casing	QA Tested OK	MP Casing Description	Serial Numbers
500				
		✓✓✓	00 -	
	152	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	151	✓	040110 - Stainless Steel Tubing 1.0m	
		✓✓✓	00 -	
	150	✓	041400C6 - MP55 GeoPro Packer 90mm	#44
		✓✓✓	00 -	
	149	✓	040115 - Stainless Steel Tubing 1.5m	
510 (F.S)		✓✓✓	040500C1 - Measurement Port	#111
	148	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	147	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	146	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
520	145	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	144	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	143	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	142	✓	040130 - Stainless Steel Tubing 3.0m	
530		✓✓✓	00 -	
	141	✓	040110 - Stainless Steel Tubing 1.0m	
		✓✓✓	00 -	
	140	✓	041400C6 - MP55 GeoPro Packer 90mm	#48
		✓✓✓	00 -	
	139	✓	040115 - Stainless Steel Tubing 1.5m	
(F.S)		✓✓✓	040500C1 - Measurement Port	#110
	138	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	137	✓	040130 - Stainless Steel Tubing 3.0m	
540		✓✓✓	00 -	
	136	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	135	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
	134	✓	040130 - Stainless Steel Tubing 3.0m	
550		✓✓✓	00 -	

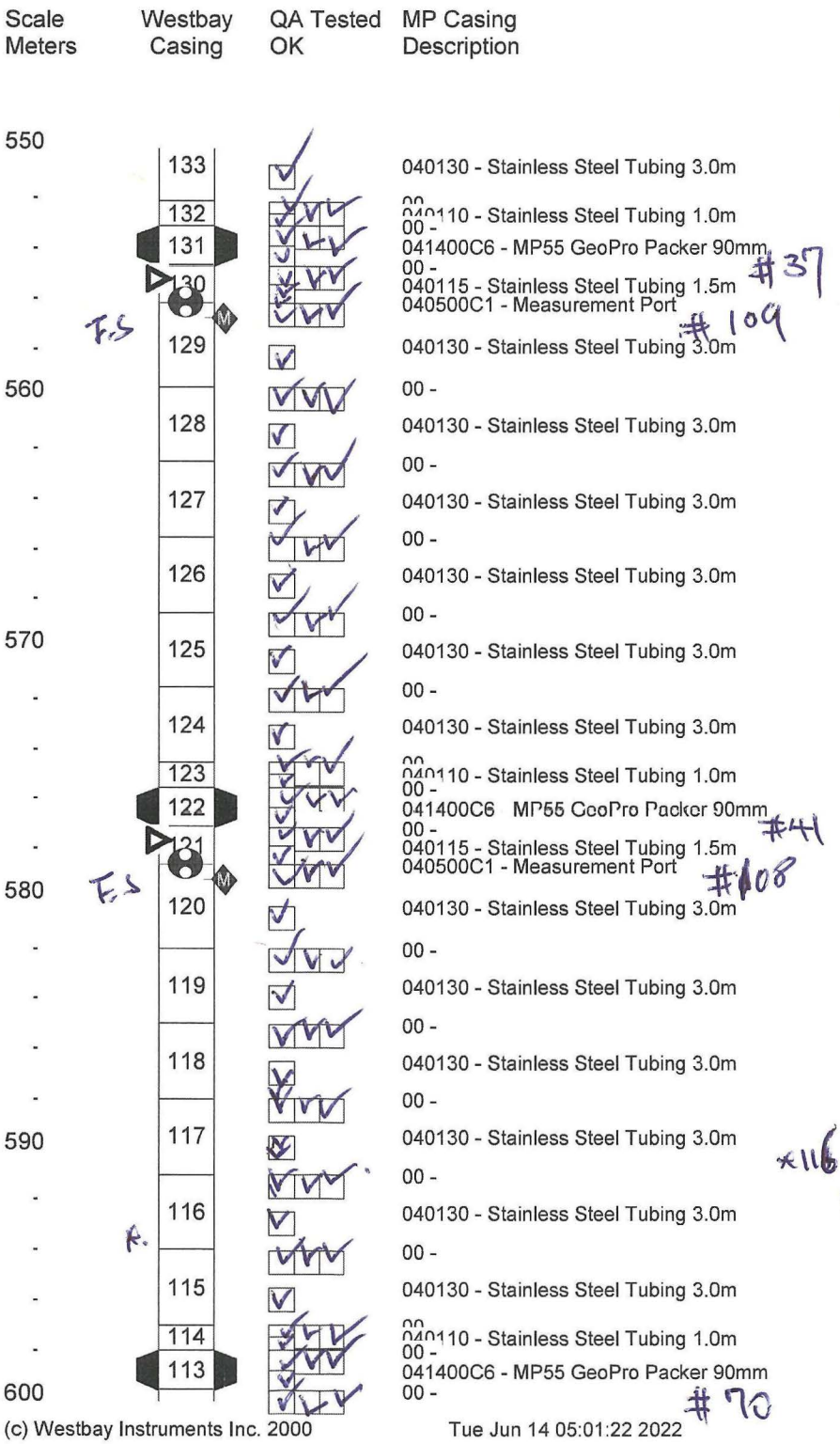
start with additional water at #144
~125 l DTW WB = 18.6 m

#145 resumed on ~~07:30 June 17/22~~
08:00 June 17/22

#144 at the well
~3150 lbs
June 16/22 16:50
stopped.

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



Adding water at #133
~125 L
DTW WB = 29.4 m

#116 ~~heat~~ thread. Replaced with new. back/damaged

Westbay Completion Log
Geofirma/NWMO

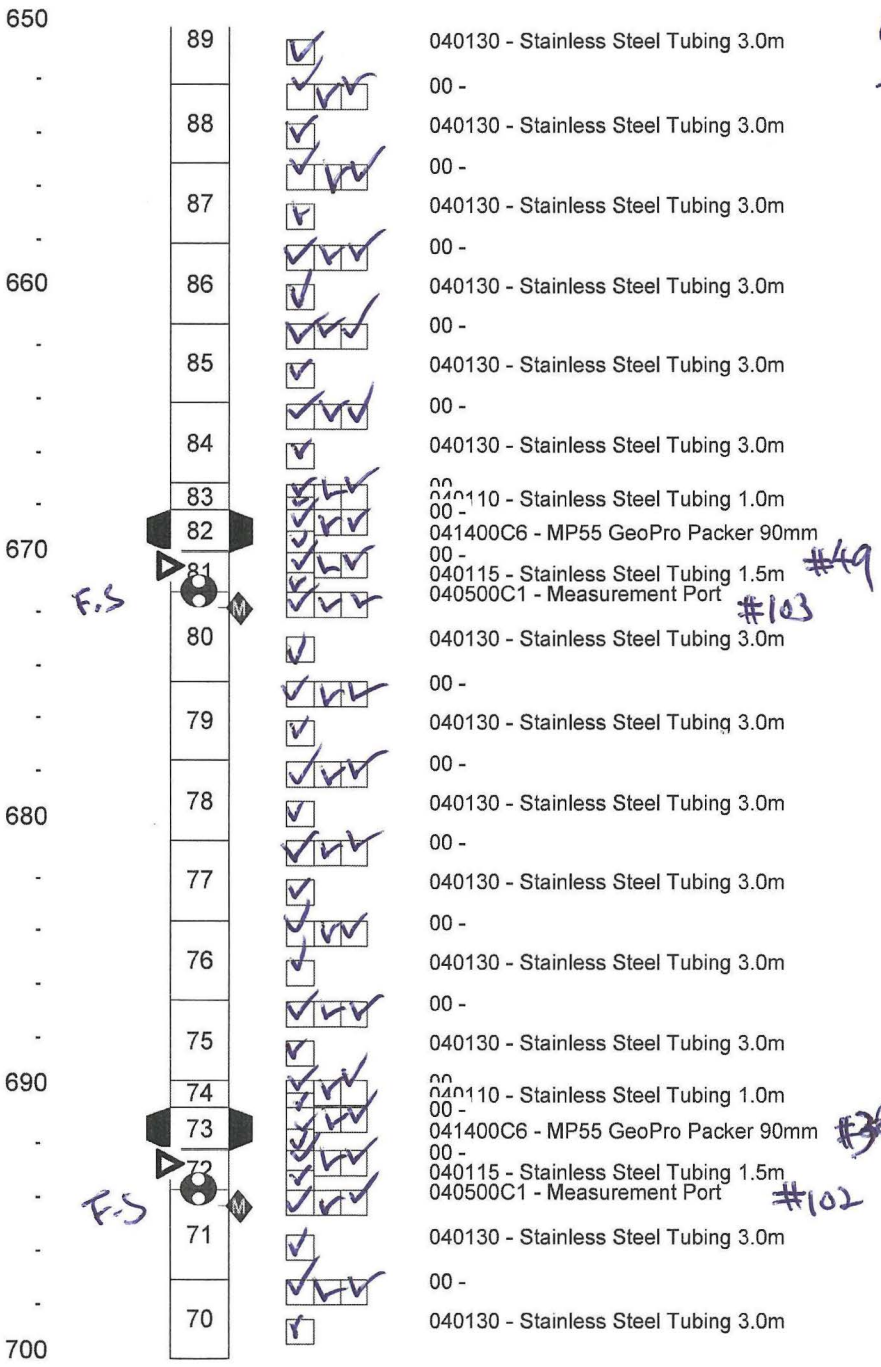
Job No: WB992
Well: SB_BH01

Scale Meters	Westbay Casing	QA Tested OK	MP Casing Description	Serial Numbers
600	112	✓	040115 - Stainless Steel Tubing 1.5m	
F.S		✓✓✓	040500C1 - Measurement Port	#107
-	111	✓	040130 - Stainless Steel Tubing 3.0m	
-	*	✓✓✓	00 -	
-	110	✓	040130 - Stainless Steel Tubing 3.0m	
-	*	✓✓✓	00 -	
610	109	✓	040130 - Stainless Steel Tubing 3.0m	
		✓✓✓	00 -	
-	108	✓	040130 - Stainless Steel Tubing 3.0m	
-	107	✓✓✓	00 - 040105 - Stainless Steel Tubing 0.5m	
	106	✓✓✓	00 - 040110 - Stainless Steel Tubing 1.0m	
-	105	✓✓✓	00 - 040110 - Stainless Steel Tubing 1.0m	
-	104	✓✓✓	00 - 041400C6 - MP55 GeoPro Packer 90mm	#71
-	103	✓✓✓	00 - 040115 - Stainless Steel Tubing 1.5m	
620 F.S		✓✓✓	040500C1 - Measurement Port	#106
	102	✓	040130 - Stainless Steel Tubing 3.0m	
-		✓✓✓	00 -	
-	101	✓	040130 - Stainless Steel Tubing 3.0m	
-		✓✓✓	00 -	
-	100	✓	040130 - Stainless Steel Tubing 3.0m	
-		✓✓✓	00 -	
630	99	✓	040130 - Stainless Steel Tubing 3.0m	
-		✓✓✓	00 -	
-	98	✓	040130 - Stainless Steel Tubing 3.0m	
-	97	✓✓✓	00 - 040110 - Stainless Steel Tubing 1.0m	
-	96	✓✓✓	00 - 041400C6 - MP55 GeoPro Packer 90mm	#51
-	95	✓✓✓	00 - 040115 - Stainless Steel Tubing 1.5m	
640 F.S		✓✓✓	040500C1 - Measurement Port	#105
	94	✓	040130 - Stainless Steel Tubing 3.0m	
-		✓✓✓	00 -	
-	93	✓	040130 - Stainless Steel Tubing 3.0m	
-	92	✓✓✓	00 - 040110 - Stainless Steel Tubing 1.0m	
-	91	✓✓✓	00 - 041400C6 - MP55 GeoPro Packer 90mm	#45
-	90	✓✓✓	00 - 040115 - Stainless Steel Tubing 1.5m	
650 F.S		✓✓✓	040500C1 - Measurement Port	#104

Add water at #~~110~~ 109.
~ 150 L. DTW=WB
19.5m
#110 galled at the ... replaced with new

Westbay Completion Log
Geofirma/NWMO

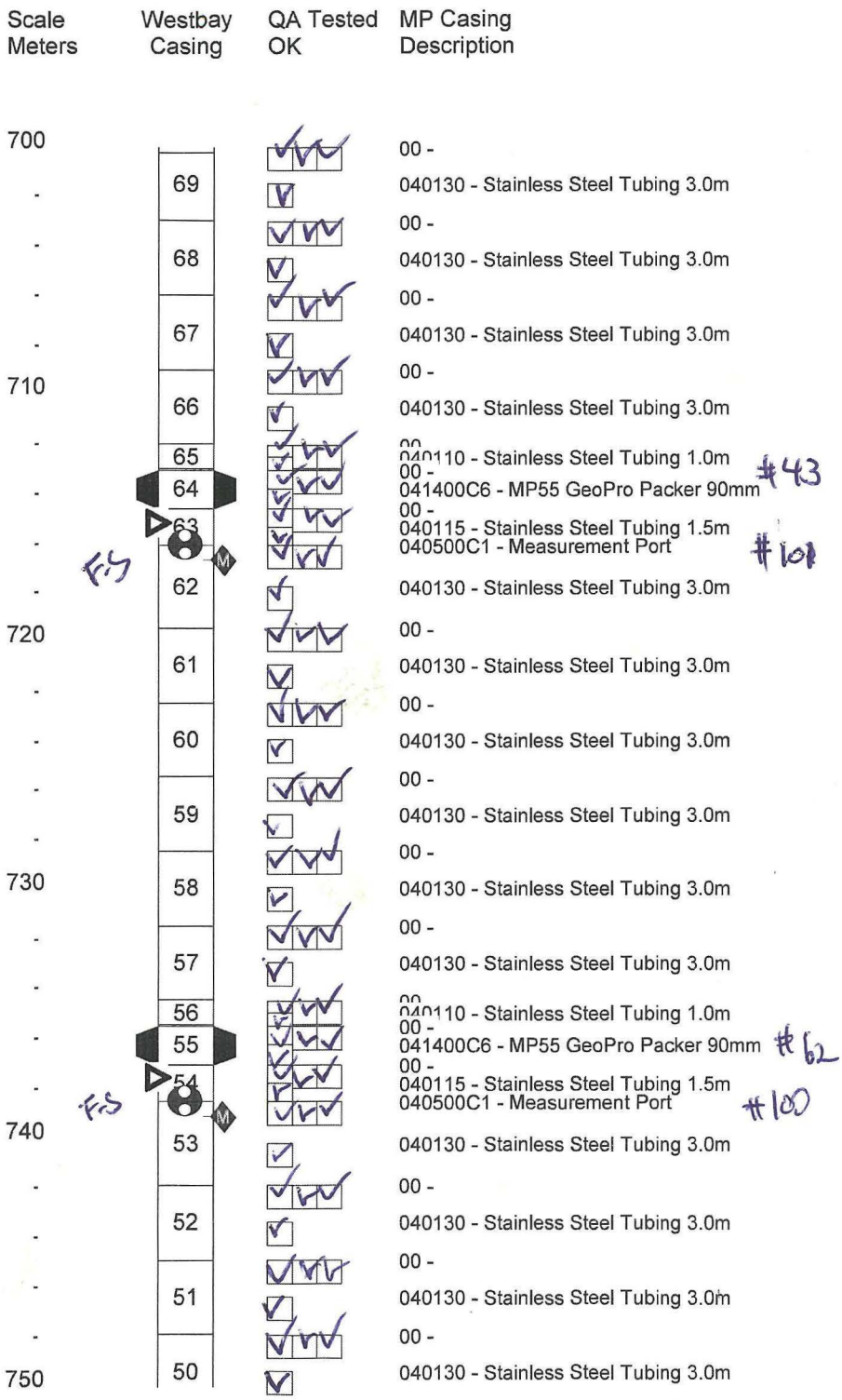
Job No: WB992
Well: SB_BH01



Add water at #88
~ 175 L
DTW WB: 32.8 m

Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



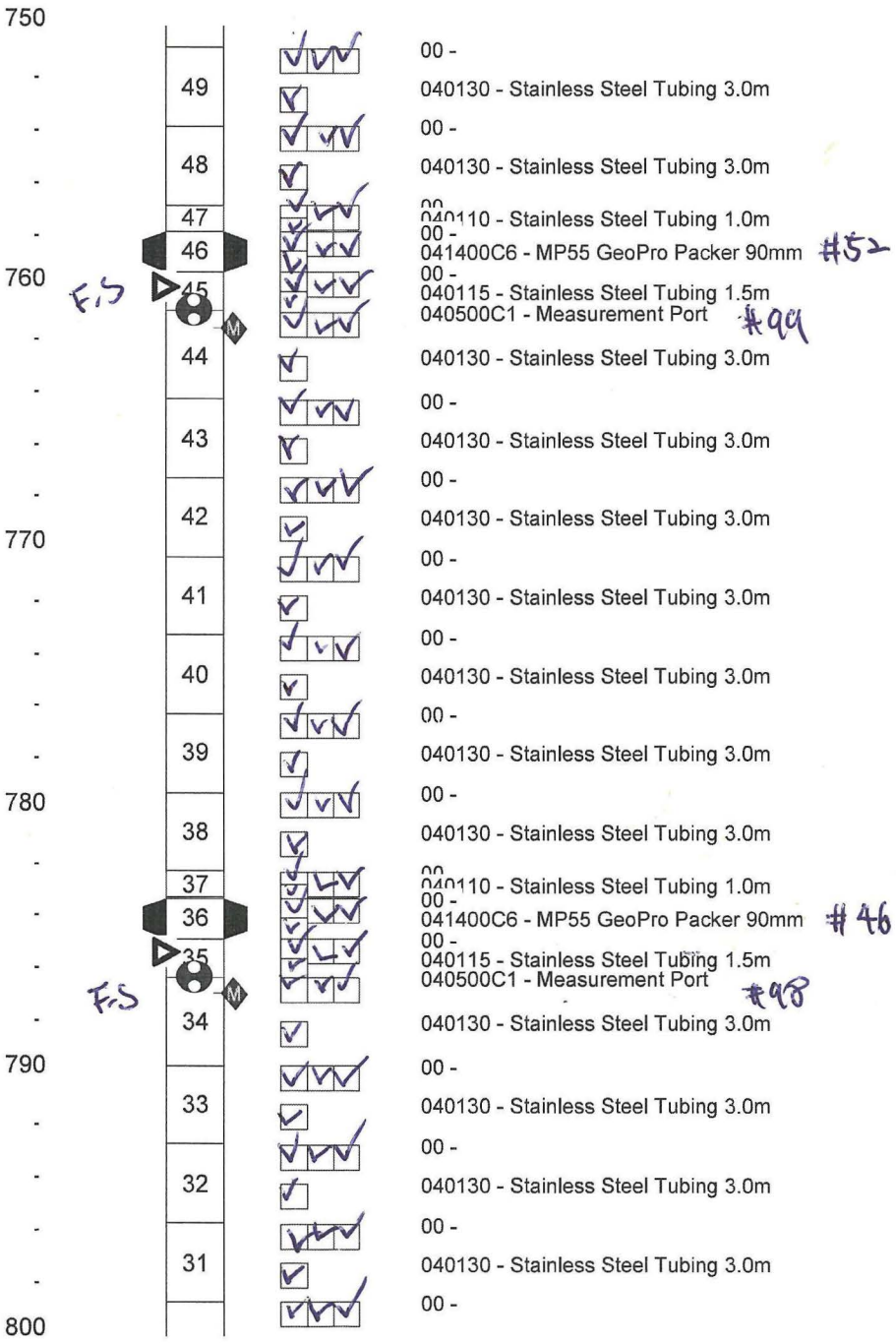
Adding water
~ 125 L.
DTW WB - 33.0 m

June 16/22
7:50 Resume with #64 comp.
#63 in the well.
June 15/2022 17:00

Westbay Completion Log
Geofirma/NWMO

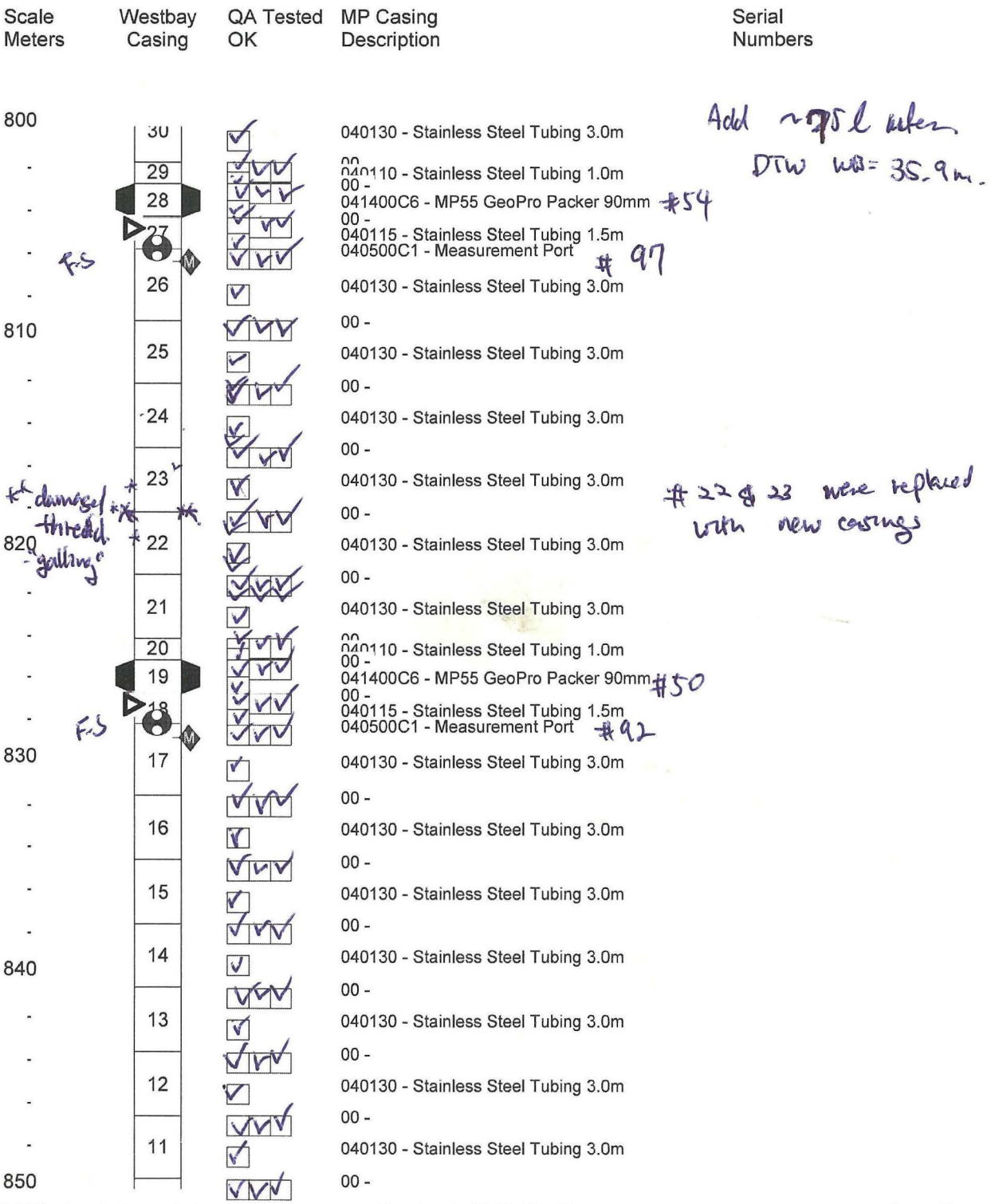
Job No: WB992
Well: SB_BH01

Add water ~ 175 L.
DTW WB = 22.4m



Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01



Westbay Completion Log
Geofirma/NWMO

Job No: WB992
Well: SB_BH01

Scale Meters	Westbay Casing	QA Tested OK	MP Casing Description	Serial Numbers
850			040110 - Stainless Steel Tubing 1.0m	
	9		00 - 041400C6 - MP55 GeoPro Packer 90mm	#36
	8		00 - 040115 - Stainless Steel Tubing 1.5m	
	F.S. M		040500C1 - Measurement Port	#130
	7		040130 - Stainless Steel Tubing 3.0m	
	6		00 - 040105 - Stainless Steel Tubing 0.5m	
	5		040130 - Stainless Steel Tubing 3.0m	
860			043200C1 - Pumping Port	# 300
	4		040130 - Stainless Steel Tubing 3.0m	
	3		00 - 041400C6 - MP55 GeoPro Packer 90mm	#66
	2		00 - 040115 - Stainless Steel Tubing 1.5m	
	F.S M		040500C1 - Measurement Port	131
	1		040130 - Stainless Steel Tubing 3.0m	
870			040300C1 - MP55 End Plug	

June 15, 2022

8:35 . Start lowering.

PTW = 10.49 m BGS

Joint test tool = 260 psi.

880

890

900

1726

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: Geofirma By: ML/TK Date: June 22/22 Location: South Bruce

Well No. BH01 Borehole Dia: Computer Data File: .WD3

Packer No: 1 Depth:

Inf Tool No: OCI 4536 Vent Tool No: EMS 2652

H-B Valve (P_H): n/a Offset (P_V): 4 psi

Vent Tool Pressure (Shoe Out,(P_O)): 1326

Target Infl P: (PO + PM): 1726

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1246	1247	1251	11:30		X			X		Start recording, EMS shoe out
0	0	1246	1247	1326	11:32		X			X		OCI shoe out ROT. 15
		1551	1471	"			X			X		Pump to 900 psi
1.2	750	1513	1445	"			X					OCI I
1.2		1456	1246	"	11:35			X		X		start pumping
2	250	1363	1247	1327	11:37			X			X	2L
3	250	1368	1246	1327	11:40			X			X	3L
4	250	1370	"	"	11:41			X			X	4L
5	250	1372	"	"	11:44			X			X	stop pumping, fill reservoir
5	100	1350	"	"	11:44			X		X		restart pumping
				1331								EMS valve open - motor error
5.8	280	1383	"	1386								
				1514								open
		1696										Pump off
6.5		1794	"	1250								OCI O
6.5	550	1777	"	1250	11:49							OCI O - vent off - EMS U-C
6.5	550	1771	"	1259	11:50							OCI O - vent off - vent line
6	0	1760	"	1261	11:51							OCI - C
		1281	"									OCI - O
6	0	1348	1348	1326	11:52							

1726

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. 8H01

Packer No: 1 Date:

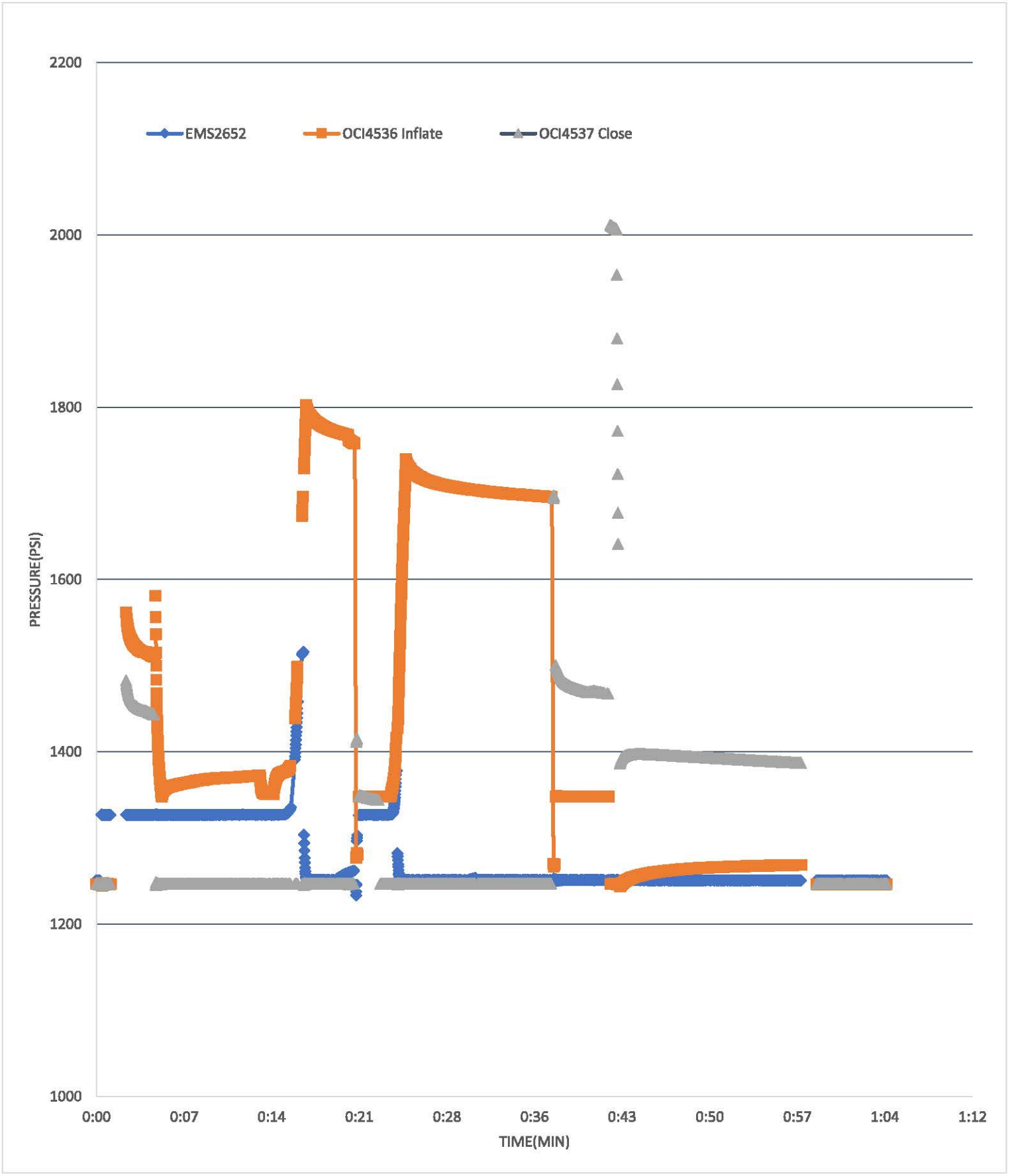
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
5.8	0	1348	1344	1327	11:53		X			X		OCI I
		"	1246	"				X		X		~~OCI~~ start pumping
6		1359	"	1331								EMS V-O
6.5		1486	"	1257								
		1727										OCI-O No
6.5	500	1729	1247	1251	11:56			X		X		OCI-O No
6.6	470	1709	1247	1250.93	11:59			X		X		OCI will no go to off. EMS close valve
"	"	1704	"	1252				X		X		EMS shoe in
"	460	1703	1247	1250.99	12:02			X		X		
"	460	169648	1246.77	1250.93	12:07			X		X		OCI-C then OCI-O
		1348	1696	1251					X			OCI-O
"	"	1348	1485	1250.93	12:09		X			X		Pump to 900 psi
7.0	800	"	1470	1250.93	12:12							OCI-C / vent / OCI-O
		1246	2007									vent / OCI-O
6.25	0	1248	1395	1250.79	12:14		X			X		5 min OA
		1266	1393	1250.75	12:21		X			X		+7 min
6.2	0	1268	1387	1250.76	12:28							OCI shoe In Rot-15
6.2		1246	1247	1250.75	12:30							CYCLE OCI valves / stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, On
Description: Packer 1
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 066
Packer Depth:863.96 m



Packer #1 Well SB_BH01

Plot by:TK 2022-07-15

1730

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML/TK Date: June 22/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 2 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): _____

Target Infl P: (PO + PM): 1306 + 430 = 1736

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1226	1227	1230.78	1:42							Start recording - EMS shoe out
				1306								OCI shoe out ROT: 15
		1637	1505	1306								Pump to ~800 psi
0.8	750	1584	1480	1306								OCI - I
	200	1659	1225	"	1:47			X				start pumping
1	260	1346	1227	"							X	1L
2	300	1354	1227	"								Slow down pumping
3	250	1347	"	"	1:51							3L
4	250	1349	"	"								4L
5	260	1351	"	1306	1:55							5L
5.75				1311								EMS valve open
6	260	1362	"	1235	1:58							6L
6.4	540	1752	"	1231	1:59					X		EMS valve close - shoe in - pump off
"	510	1738	"	1231.11	2:00							1o min @ A
"	500	1722	"	1231.06	2:05							5 min
"	500	1718	"	1231.[illegible]	2:11							OCI C/vent/OCI-O
5.9	0	1326	1356.31	1231.07	2:11							Pump to 800 psi
6.75	800	1326	1354	1231.35								OCI C/vent/OCI O
5.9	0	1228	1453	1231.11	2:15							5 min @ A
												next page

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Project No. WB 992 Well No. BH01

Page No: 2

Packer No: 2 Date: June 22/22

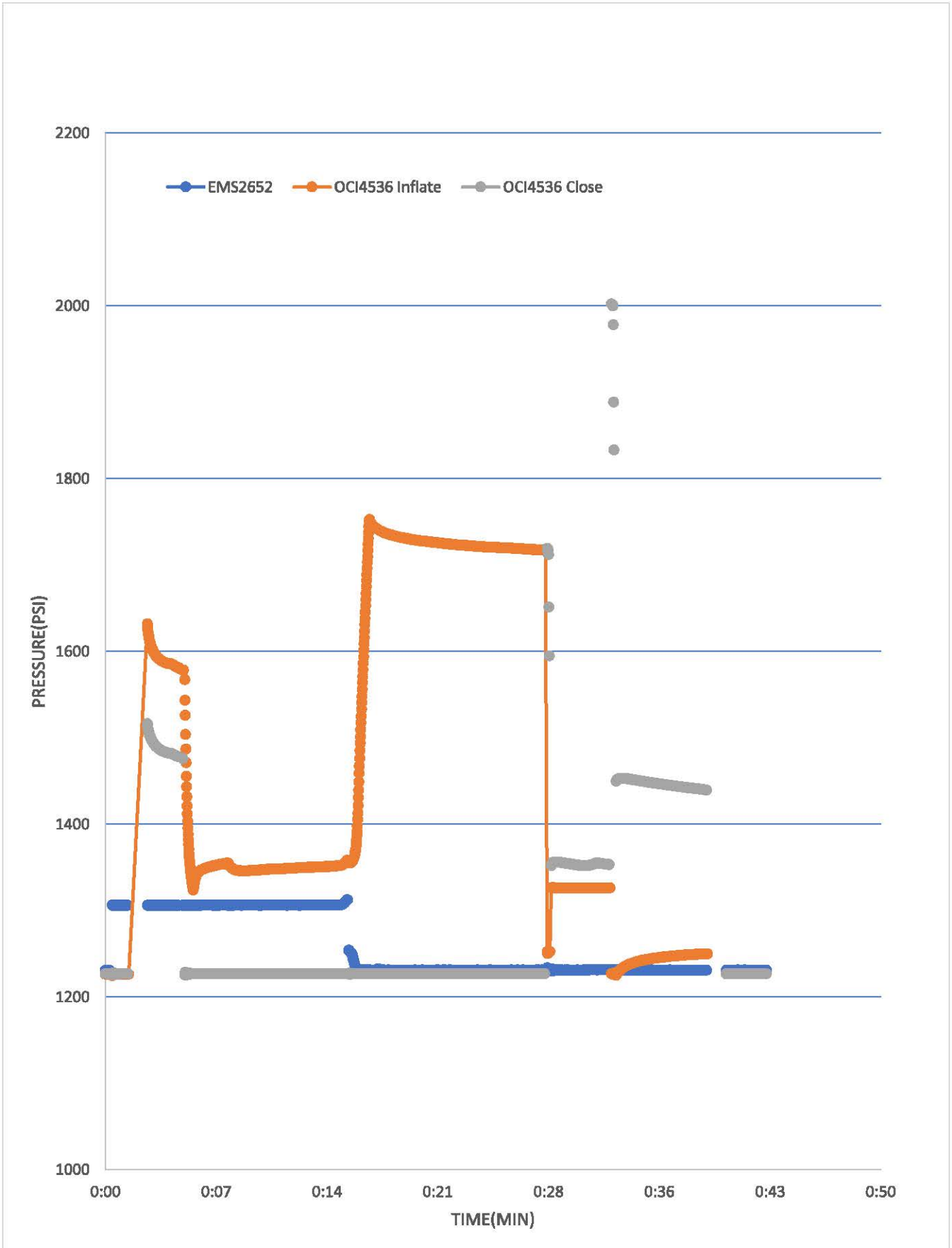
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
5.9	0	1242	1450	1231.11	2:16		X			X		+ 1 min
"	"	1249	1441	1231.09	2:20							OCI shoe in Rot: 15
"	"	1227	1227	1231.11	2:22							2 min QA
"	"	1227	1227	1231.09	2:24							Stop recording/save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 2
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 036
Packer Depth:850.59 m



Packer #2 Well SB_BH01

Plot by:TK 2023-01-27

1700

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML/TK Date: June 22/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 3 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 1267

Target Infl P: (PO + PM): 1267 + 430 = 1700

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi) Line	Inf Tool	Close Tool	Vent Tool 1193.55	Clock	Tag	Inf Valve O	I	C	Pump Off	On	Comments
0	0	1189	1190	~~1267.09~~	2:36							Start recording. EMS shoe out @ 15 rot
"	"	"	"	1267	2:37							OCI shoe out Rot: 15
"	"	1549	1436	"	2:40							Pump to 750 psi
0.8	750	1497	1412	1266.93								OCI I
"	200	1394	1190	"	2:42			X				start pumping
1	240	1297	1190	"							X	1L
2	260	1305	~~1267~~	1267	2:45							2L
3	260	1310	1190	1267	2:47							3L
4	280	1312	1190	1267	2:49							4L
5	290	1314	1190	1267	2:51							5L
5.75	300	1328	"	1272	2:53							EMS valve open
6.5	550	1716	"	1194	2:54							Pump off / EMS UC-SI
"	520	1704	"	1194	2:55					X		10 mm QA
"	510	1697	"	1193.90	2:56							+1 min
6.25	500	1682	"	1193.9	3:07							OCI close / vent / OCI OFF
5.8	0	1202	1321		3:09		X					Pump to 800 psi
6.7	800	1224	1321	1194.0	3:10							OCI c / vent / OCI OFF
5.8	0	1188	1320	1193.9	3:12		X					5 mm QA
5.75	0	1199	1320	1193.9	3:13							+1 min
												next page

Westbay System MP55 Packer Inflation Field Record

Westbay Instruments

Doc No. QA20210325-007

Project No. WB 992 Well No. B4 01 Page No: 2

Packer No: 3 Date:

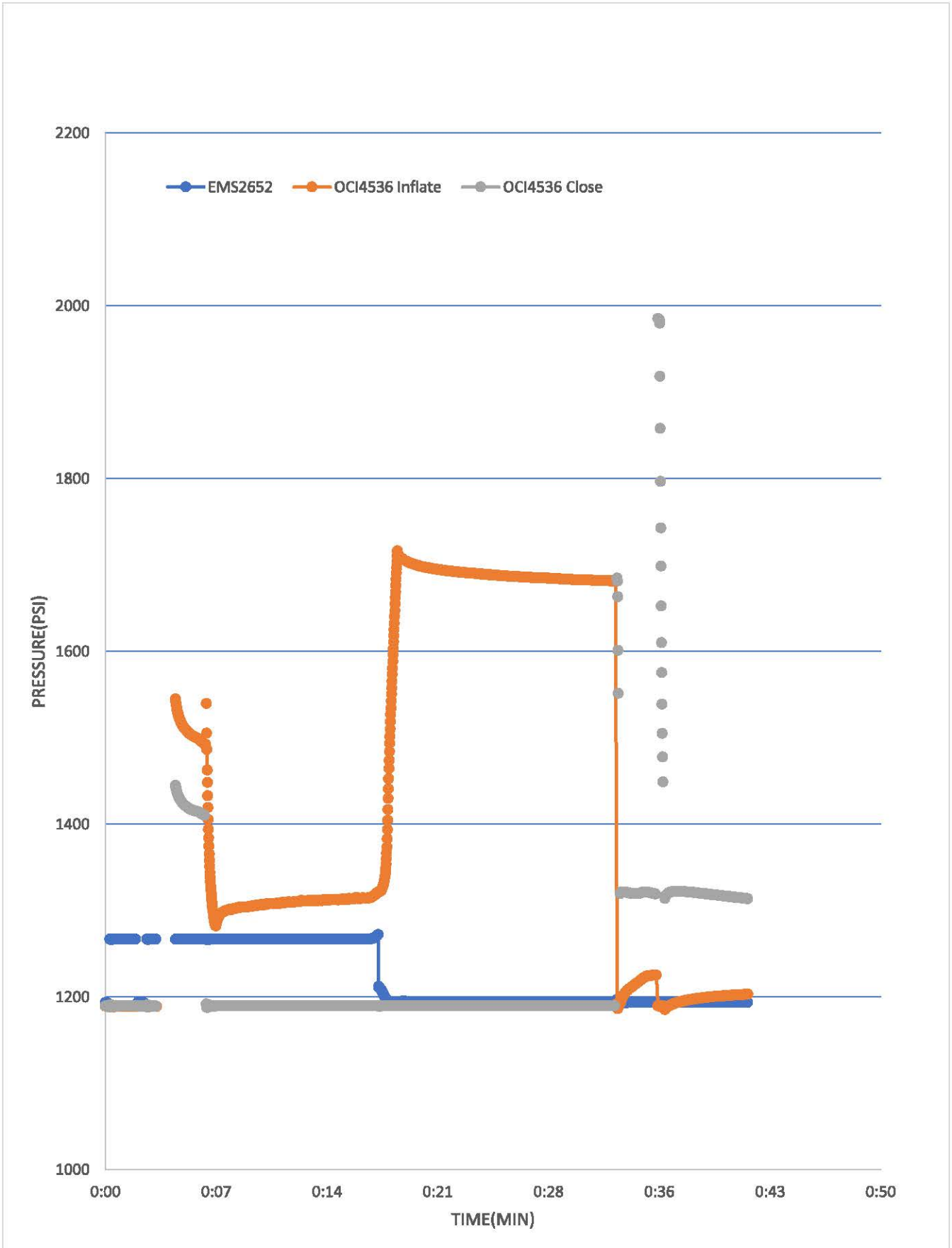
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
5.75	0	1202	1316	1193.8	3:16		X			X		+4 min
"	"	1203	1313	1193.8	3:17							OCI shoe in Rot: 15
"	"	1190	1190	1193.84	3:19							2 min QA
"	"	1190	1190	1193.84	3:21							Stop recording - save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 3
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 050
Packer Depth:825.17 m



Packer #3 Well SB_BH01

Plot by:TK 2023-01-27

1660

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 492 Client: _____ By: MC/TK Date: June 22/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 4 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 1232

Target Infl P: (PO + PM): 1232 +430 = 1662

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1156.43	1156.74	1160.76	3:29							Start recording. EMS shoe out. 15 RoT
"	"	1156	1157	1232.45	3:31							OCI shoe out
"	"	1423	1338	1233	3:33							Pump to 750 psi
0.7	750	1371	1309	1233	3.35							OCI-I
0.6	200	1549	1156	1233	3:36			X				Start pumping
1	260	1263	1157	1233	3:37						X	1L
2	300	1273	1157	1233	3:39							2L
3	310	1276	1157	1233	3:40							3L
4	330	1277	1157	1233	3:42							4L
5	350	1279	1157	1233	3:44							5L
5.7	400	1285	1157	1249								EMS valve open
5.9		1290	1157	1168	3:46							Cont pumping
6.2		1665	"	1160								Pump off / EMS VCE - SI
"	500	1661	"	1161.03	3:47					X		10 min @A
6.2	500	1654	1157	1161	3:49							+2 min
"	"	1648	1157	1161	3:52							+5 mm
"	"	1643	1157	1161.03	3:57							OCI Close/vent/OCI OFF
5.9	0	1252	1279	1161	3:57							Pump to 800 psi
6.5	800	1253	1278	1161	3:59		M		X			OCI close/vent/OCI OFF
5.7	0	1158	1364	1161	4:00							5 min @A

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 4 Date: June 22/22

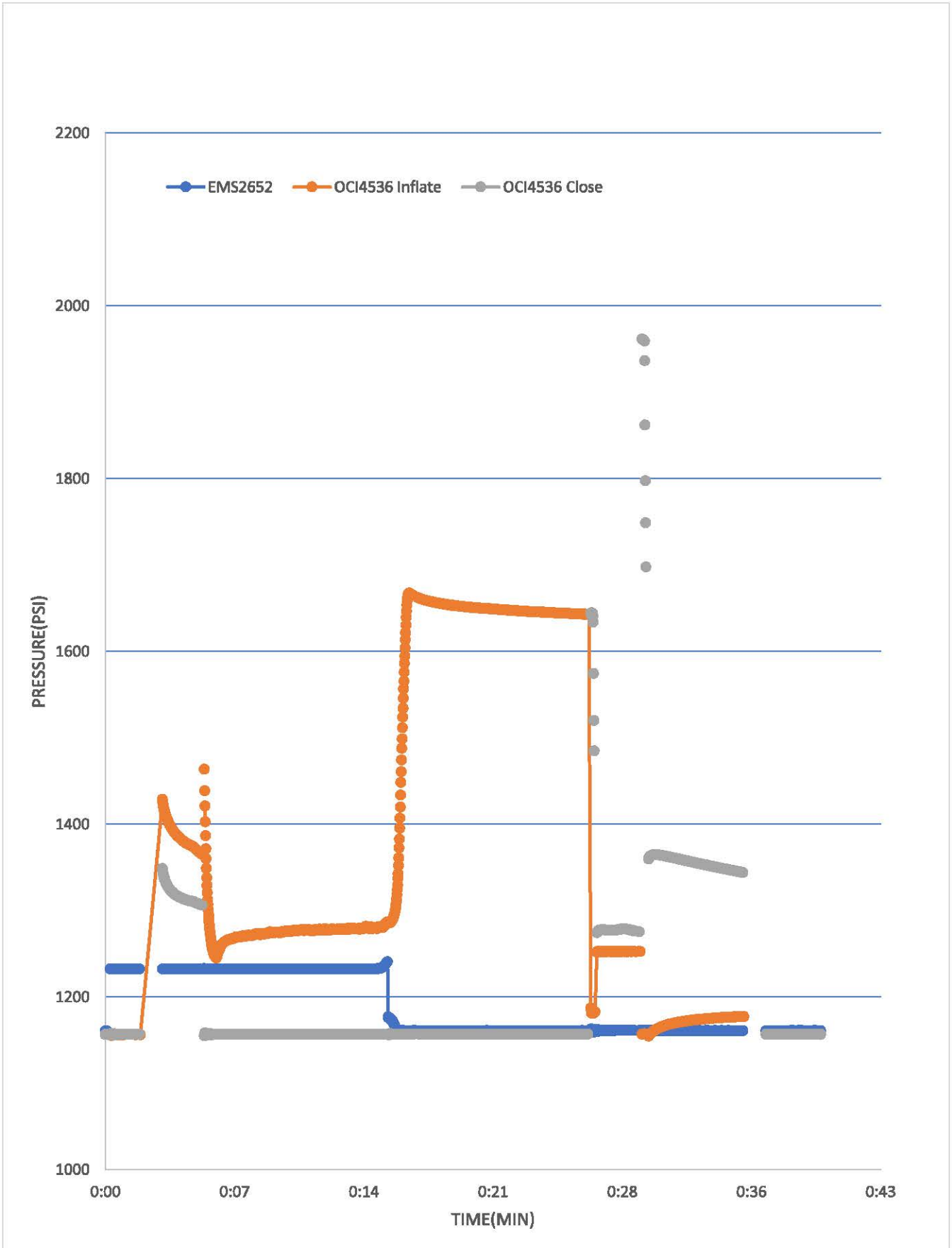
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
5.65	0	1169	1361	1161	4:02		X			X		+2 min
"	"	1175	1353	1161	4:03							+3 min
"	"	1177	1347	1161.05	4:05							~~EMS~~ 0.5 shoe in ROT: 15
5.6	0	1157	1157	1161.05	4:07							2 min QA
"	"	1157	1157	1161.05	4:16							stop recording/save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 4
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 054
Packer Depth:802.74 m



Packer #4 Well SB_BH01

Plot by:TK 2023-01-27

1630

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB Client: By: NL/TK Date: June 22/22 Location:

Well No. BH9 Borehole Dia: Computer Data File: .WD3

Packer No: 5 Depth:

Inf Tool No: Vent Tool No:

H-B Valve (P_H): Offset (P_V):

Vent Tool Pressure (Shoe Out,(P_O)): 1202

Target Infl P: (PO + PM): 1202+430 = 1630

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1128.08	1128.38	1132.42	4:19							Start recording. EMS shoe out 14 Rot
"	"	"	"	1202.63	4:20							OCI shoe out
"	"	1444	1358	1203	4:22							Pump to 750 psi:
0.75	750	1393	1328	"	4:24							OCI I
"	220	1529	1130	1203	4:24							Start pumping
1.0	250	1234	1129	1203	4:25							1L
20	310	1237	1128	1203	4:27							2L
3.0	340	1241	1128	1203	4:30							3L
4.0	400	1245	"	1203	4:32							4L
5.0	420	1249	"	1203	4:35							5L
5.75	420	1259	"	1207								EMS valve open
6	430	1273	"	1145	4:37							Pump off / EMS VC - SI
		1656										
6.25	520	1658	1128	1133	4:38							10 min QA
6.25	510	1645	1129	1132.68	4:39							+1 min
"	500	1637	1129	1132.69	4:43							+5 mn
"	"	1633	1129	1132	4:48							OCI close / vent / OCI OFF
5.75	0	1223	1264	1132.72	4:49							Pump to 800 psi
6.6	800	1223	1261	1132.8	4:50							OCI close / vent / OCI OFF
5.8	0	1132	1312	1132.8	4:51							5 min QA

Westbay System MP55 Packer Inflation Field Record

Westbay Instruments

Doc No. QA20210325-007

Page No: 1

Project No. WB 992 Well No. BH01 Packer No: 5 Date:

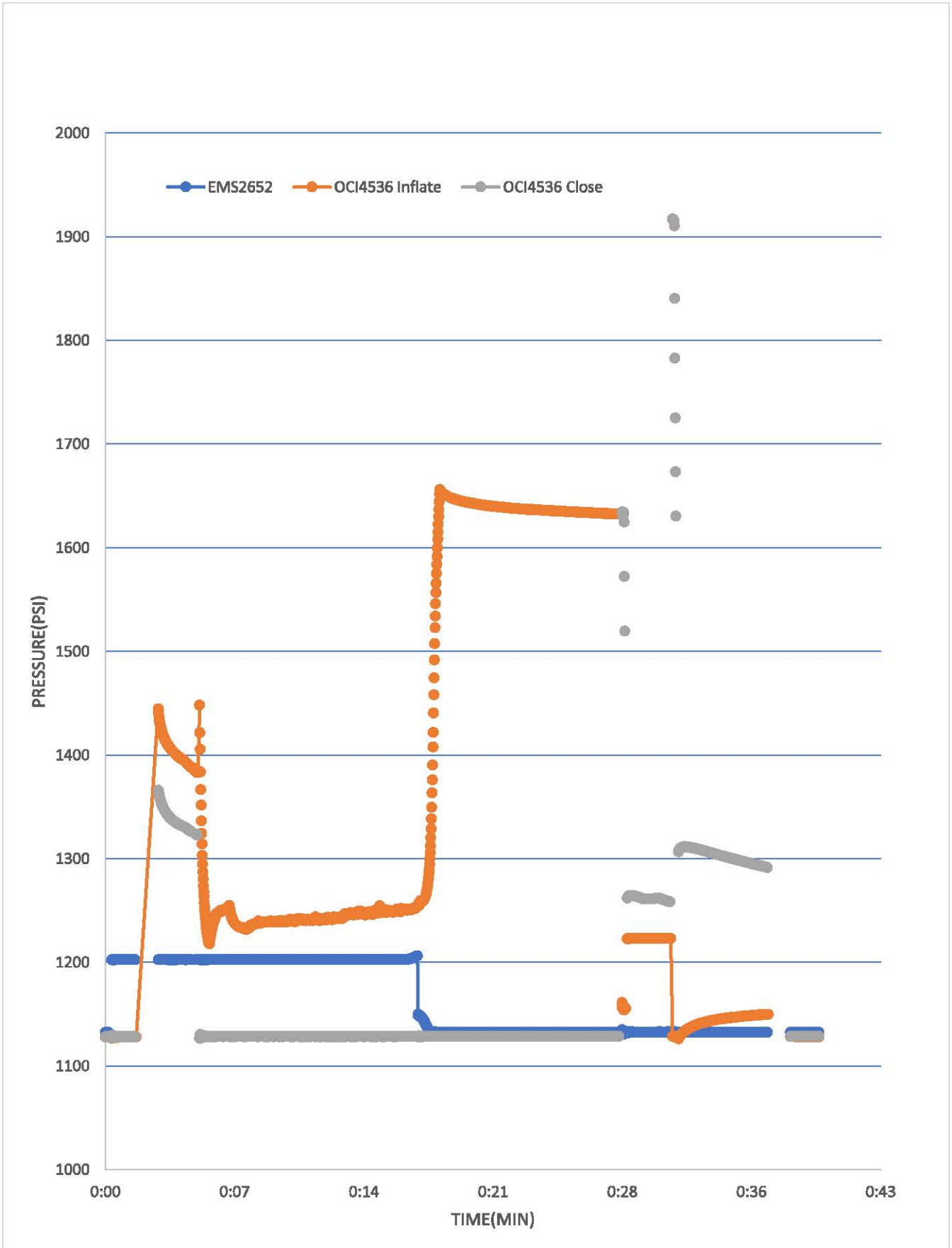
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
5.75	0	1141	1308	1132.7	4:52							+ 1 min
"	"	1150	1292	1132.7	4:56							OCI shoe in 15 RDT
"	"	1128	1129	1132.7	4:57							2 min QA
"	"	1129	1129	1132.7	5:00							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 5
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 046
Packer Depth:783.32 m



Packer #5 Well SB_BH01

Plot by:TK 2023-01-27

1580

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: MC/TK Date: June 22/22 Location: _____

Well No. BH07 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 6 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 1163

Target Infl P: (PO + PM): 1163+420 ~ 1580

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1090.84	1091.18	1095.17	5:08							Start recording. EMS shoe out
0	0	1091	1091	1163.47	5:10							OCI shoe out. Rot: 15
0	0	1403	1326	1163	5:14							Pump to 750 psi:
0.8	750	1346	1290	1163	5:16							OCI I
0.8	300	1472	1090	1163	5:17							Start pumping
1.0	350	1188	1091	1163	5:17							1L
2.0	410	1201	1091	1163	5:19							2L
3.0	450	1208	1091	1163	5:21							3L
4.0	450	1208	1091	1163	5:24							4L
5.0	460	1208	1091	1163	5:26							5L
												~~EMS valve open~~
6.0	490	1211	1091	1163	5:28							6L
6.75	500	1214	1091	1167	5:30							open EMS valve
7	510	1222	1091	1104	5:31							7L pump off (EM valve off - shoe M)
7.05	560	1695	1091	1095	5:3.							~~EMS~~
7.25	550	1638	1091	1095	5:33							10 min OA
"	"	1635	1091	1095.66	5:34							+1 min
"	"	1631	1092	1095.66	5:37							+4 min
"	"	1628	1092	1095.66	5:39							+6 min
												other page

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 6 Date: June 22/22

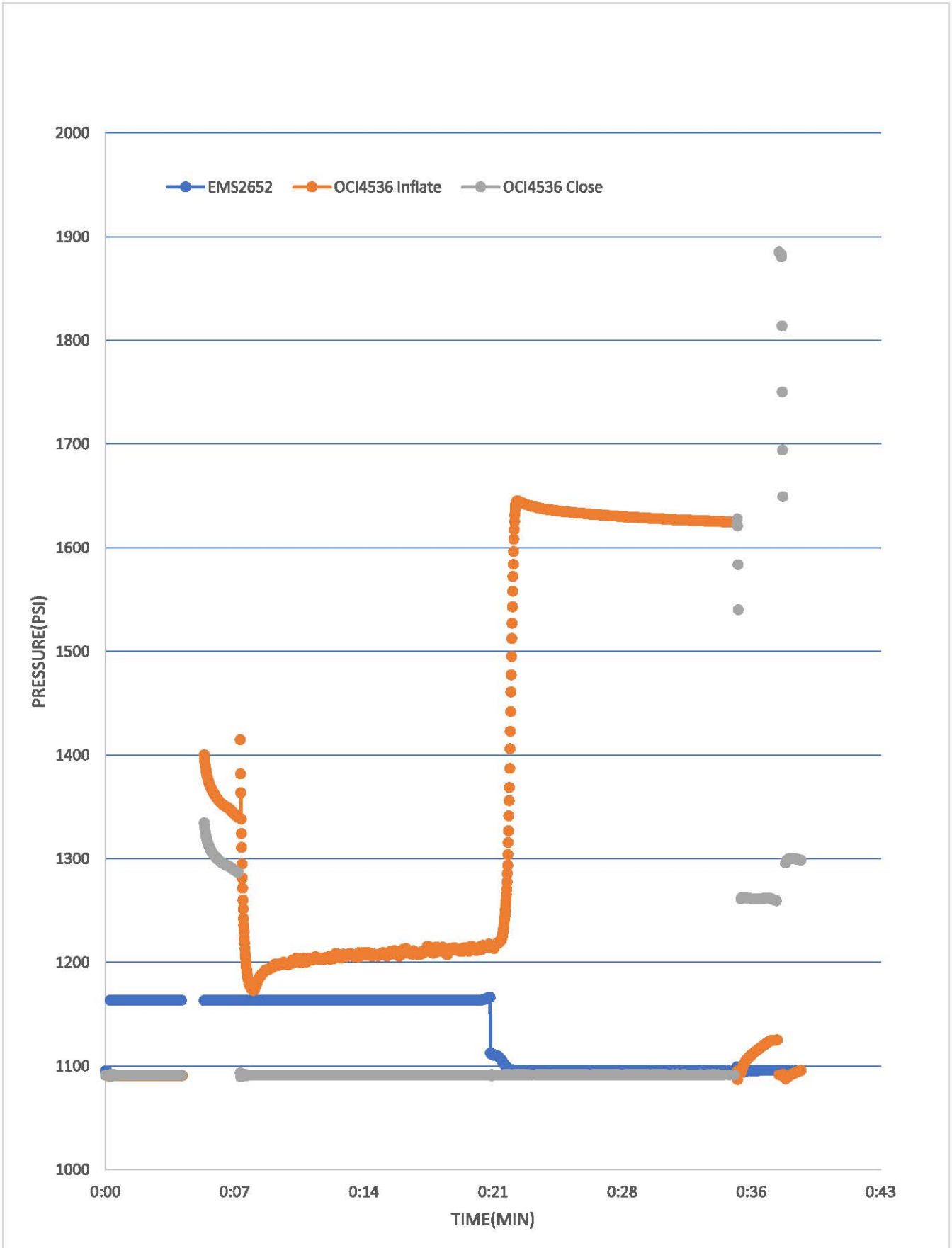
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.25	550	1627	1092	1095.7	5:40							+7 min
"	"	1626	1092	1095.7	5:43							OCI close / vent / OCI off
6.75	0	1098	1263	1095.5	5:44							Pump to 800 psi
7.5	800	1124	1261	1095.7	5:46							OCI close / vent / OCI OFF
6.7	0	1089	1299	1095.5	5:47							5 min QA
"	"	1100	1292	1095.5	5:48							1 min
"	"	1105	1277	1095.5	5:52							OCI shoe in ROT: 15
"	"	1091	1091	1095.57	5:53							2 min QA
"	"	1091	1091	1095.54	5:55							stop recording, save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 6
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 052
Packer Depth:757.89 m



Packer #6 Well SB_BH01

Plot by:TK 2023-01-27

1530

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML/TK Date: June 23/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 7 Depth: _____

Inf Tool No: OCI 4536 Vent Tool No: EMS 2652

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 1126

Target Infl P: (PO + PM): 1126 + 400 ~ 1530

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1056.97	1057.23	1061.58	1:54							start recording. EMS shoe out 15 sat
0	0	1057	1057	1126.25	1:55							OCI shoe out 15 sat
0	0	1280	1291	1126	1:57							Pump to 750 psi
1.0	750	1227	1244	1126	1:58							OCI - I
		1556	1056									
1.0	150	1213	1057	1126	1:59							start pumping
2.0	250	1171	1057	1126	2:02							2L
3.0	250	1174	1057	1126	2:04							3L
4.0	260	1177	1057	1126	2:06							4L
5.0	260	1179	"	1126	2:08							5L
6.0	260	1180	"	1126	2:10							6L
				1129								EMS valve open
7.0	270	1189	"	1072	2:12							7L
7.7	500	1542	"									Pump off / EMS vent / SI
7.7	490	1533	"	1062	2:15							10 min QA Vent 1061.90 psi
"	470	1522	"	1061.90	2:17							+2 min
"	460	1515	"	1061.90	2:21							+6 min
"	"	1514	"	1061.90	2:23							+8 min
"	"	1513	"	1061.89	2:24							+9 min
												next page

Westbay System MP55 Packer Inflation Field Record

Westbay Instruments

Doc No. QA20210325-007

Project No. WB 992 Well No. BH 01 Page No: 2

Packer No: 7 Date: June 23/22

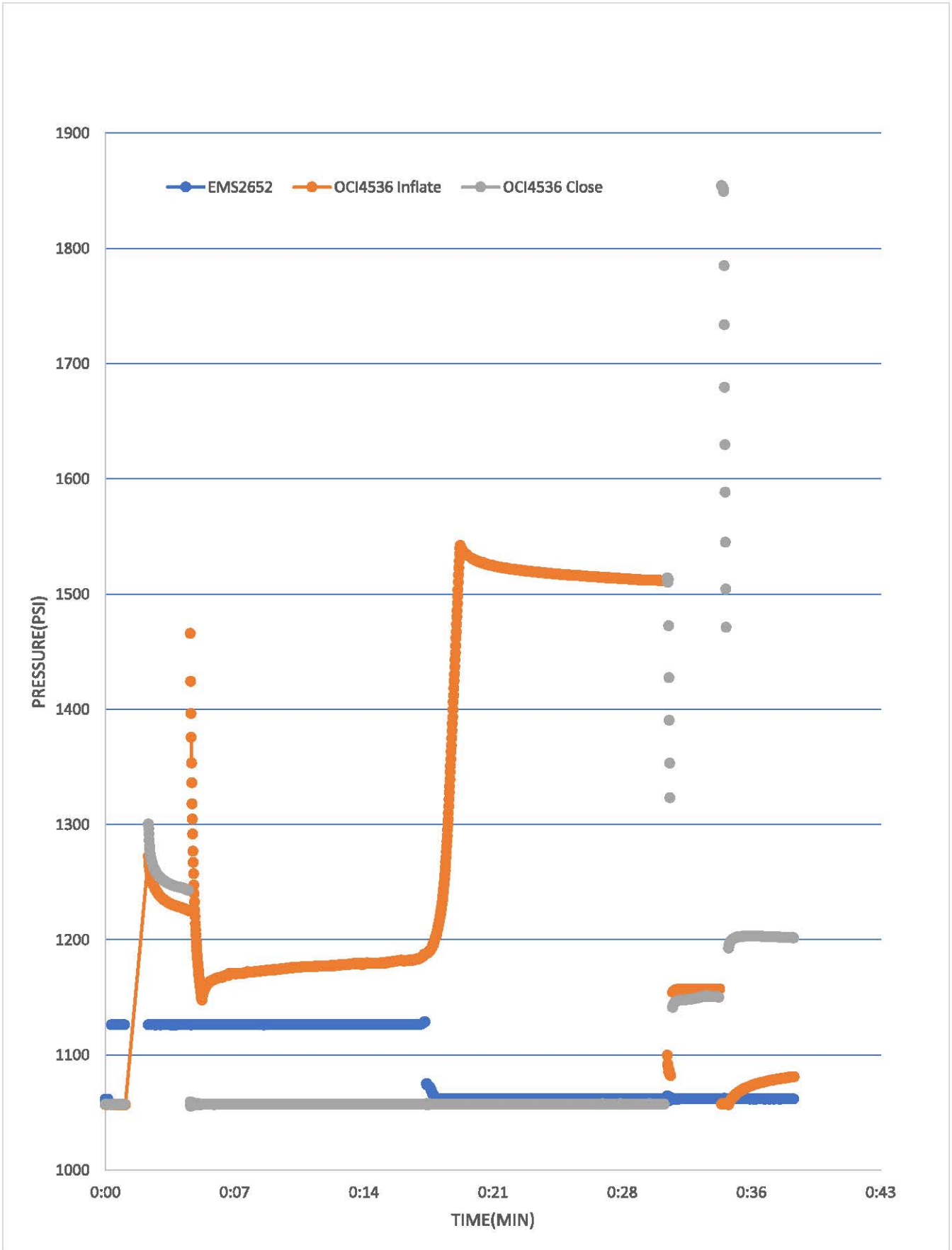
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.7	460	1512	1058	1061.89	2:25							OCI close / vent pump / OCI off
7.25	0	1156	1146	1061.89	2:26							Pump to 800 psi
8	800	1157	1151	1062.02	2:28							OCI close / vent / OCI OFF
7.3	0	1061	1199	"	2:29							5 min QA
7.2	0	1177	1203	1061.90	2:31							+2 min
"	"	1083	1201	1061.90	2:34							OCI shoe in 15 ROT
"	"	1057	1058	1061.89	2:35							2 min QA
"	"	1057.30	1057.60	1061.90	2:37							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 7
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 062
Packer Depth:735.47 m



Packer #7 Well SB_BH01

Plot by:TK 2023-01-27

1500

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: _____ Date: June 23/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 8 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 1091

Target Infl P: (PO + PM): 1091 + 400 = ~1500

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	1024.18	1024.42	1028.73	2:47							Start recording. EMS shoe out 15 rot
"	"	"	"	1091.43	2:48							OCI shoe out 15 Rot
"	"	1344	1245	1091	2:50							Pump to 750 psi
0.75	750	1311	1212	1091	2:51							OCI I
"	200	1488	1026	1091	2:52							Start pumping
1.0	250	1133	1025	1091	2:53							1L
2.0	250	1138	"	1091	2:55							2L
3.0	250	1142	"	1092	2:57							3L
4.0	260	1145	"	1092	2:59							4L
5.0	260	1147	"	1092	3:01							5L
6.0	260	1149	"	1092	3:03							6L
7.0	256	1151	"	1092	3:05							7L
7.3	"	1164	"	1098	3:06							EMS valve open
7.9	500	1501	"	1029	3:08							Pump off / EMS VC - 57
7.9	470	1488	"	1028.86	3:08							40 mm @ A
"	460	1478	"	1028.87	3:11							+ 3 min
"	"	1475	"	1028.87	3:12							+ 4 min
"	"	1473	"	1028.86	3:13							+ 5 min
"	"	1471	"	1028.86	3:16							+ 8 min
												next page

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 8 Date: June 23/22

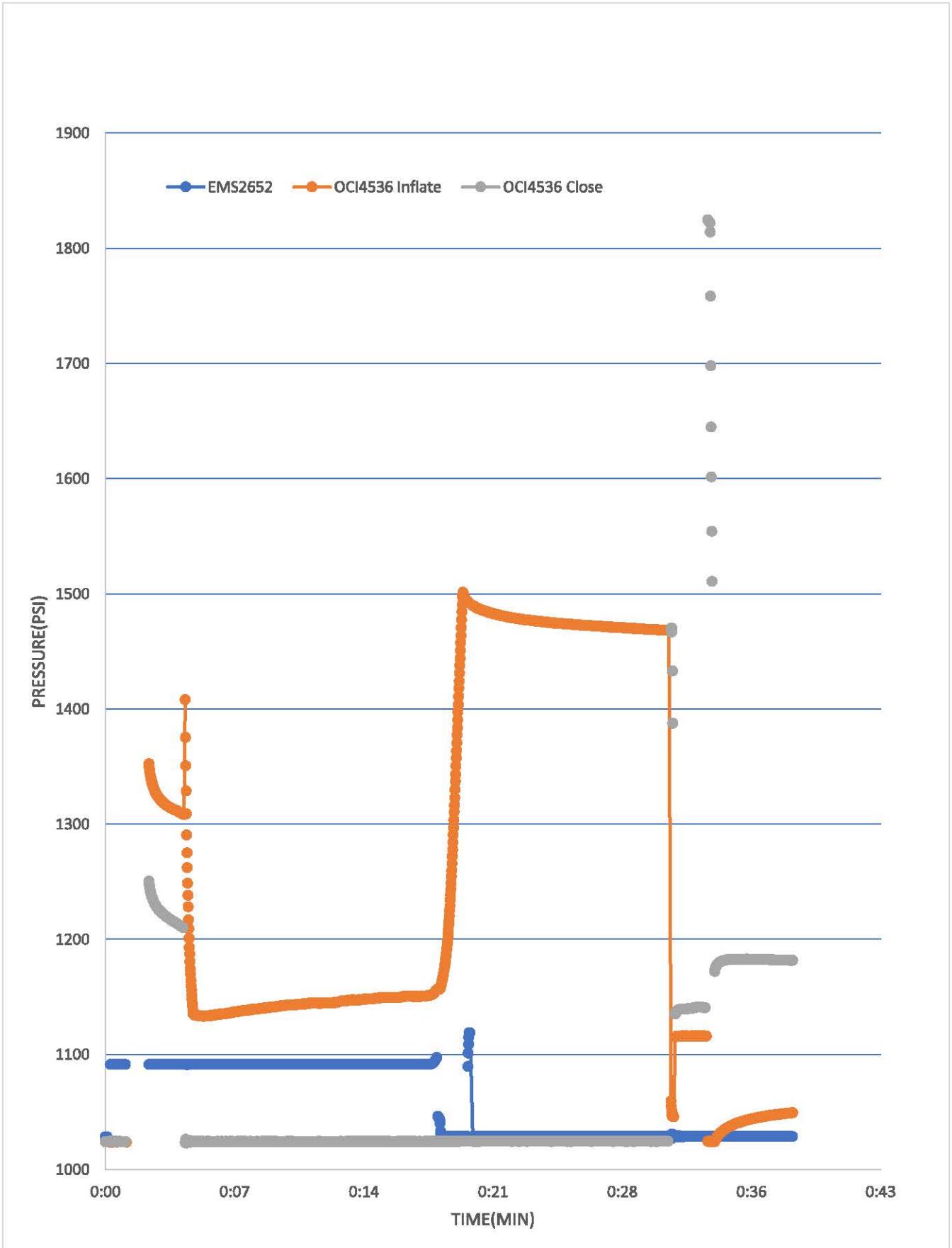
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.9	5450	1469	1025	1028.87	3:18							OCI close / vent / OCI OFF
7.5	0	1116	1139	1029	3:19							Pump to 800 psi
8.25	800	1116	1141	1029	3:21							OCI close / vent / OCI OFF
7.4	0	1028	1178	1029	3:21							5 min QA
7.4	0	1050	1181	1029	3:26							OCI shoe in 15 ROT
"	"	1024	1025	1028.86	3:28							2 min QA
"	"	1024.37	1024.76	1028.97	3:30							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 8
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 043
Packer Depth:713.04 m



Packer #8 Well SB_BH01

Plot by:TK 2023-01-27

1460

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: MB/TK Date: June 23/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 9 Depth: _____

Inf Tool No: 4536 Vent Tool No: 2652

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 1056

Target Infl P: (PO + PM): 1056 +400 : ~ 1460

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	991.21	991.54	995.68	3:36							Start recording - EMS shoe out 15 ROT
"	"	991	991	1056.43	3:37							OCI shoe out 15 ROT
"	"	1387	1215	1056	3:39							
"	"	1339	1201	1056	3:39							~~Start~~ pumping to 750 psi
0.75	750	1322	1190	1056	3:41							OCI I
		1449										
0.75	200	1098	992	1056	3:42							start pumping
1.0	250	1092	991	1056	3:43							1L
2.0	250	1099	992	1056	3:45							2L
3.0	250	1102	992	1056	3:47							3L
4.0	250	1104	992	1056	3:49							4L
5.0	250	1105	992	1057	3:51							stop pump fill / reservoir
"	80	1081	"	1057	3:52							cont pumping
6.0	260	1111	"	1057	3:54							6L
7.0	260	1115	"	1057	3:55							7L
7.25	260			1060								EMS valve open
	500	1460										Pump off / EMS vc - SI
8.0	460	1453	992	996	3:58							40 mm QA EMS 995.99 psi
"	450	1441	"	996.01	@ 4:00							±2 mm
												next page

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No: WB 992 Client: _____ By: MC / TK Date: June 23/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 9 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): _____

Target Infl P: (PO + PM): _____

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

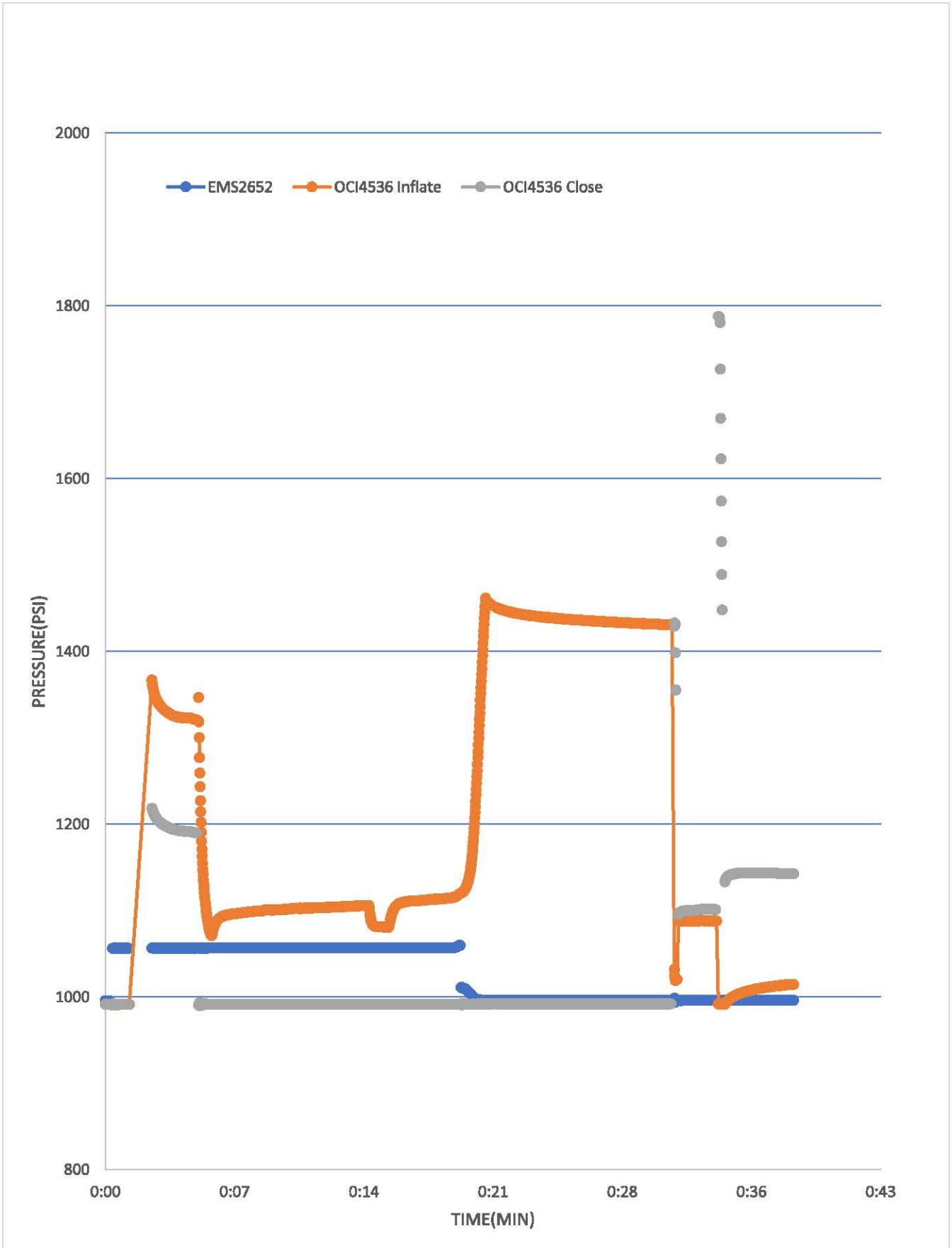
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
8.0	450	1438	992	996.01	4:01							+3 min
"	"	1433	"	996.01	4:05							+7 min
"	450	1431	"	996.01	4:08							OCI C / vent / OCI OFF
7.6	0	1088	1099	"	4:08							Pump to 800 psi
8.4	800	1088	1102	"	4:10							OCI C/ vent / OCI OFF
7.5	0	996	1140	996	4:11							5 min QA
"	"	1009	1144	996	4:17							+1 min
"	"	1016	1142	996.05	4:16							OCI shoe in 15 ROT
"	"	992	992	996.03	4:17							2 min QA
"	"	991.64	991.93	996.05	4:19							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 9
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 038
Packer Depth:690.62 m



Packer #9 Well SB_BH01

Plot by:TK 2023-01-27

1420

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML/TK Date: June 23/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 0 Depth: _____

Inf Tool No: 4536 Vent Tool No: 2652

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 1022

Target Infl P: (PO + PM): 1022 + 430 = ~1420

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	958.54	958.86	962.91	4:30							start recording. EMS shoe out 15 Rot
0	0	959	959	1021.57	4:32							OCI shoe out 15 Rot
0	0	1235	1197	1022	4:34							Pump to 750 psi
0.75	750	1039	1101	1022	4:36							OCI I
		1473										
0.75	200	1078	959	1022	4:37							start pumping
2.0	310	1088	959	1022	4:39							2L
3.0	320	1092	959	1022	4:41							~~3~~ 3L
4.0	320	1094	959	1022	4:42							4L
5.0	320	1096	959	1022	4:44							stop pumping / fill reservoir
5.0	100	1047	959	1022	4:45							Continue pumping
6.0	260	1087	959	1022	4:47							6L
7.0	260	1089	959	1022	4:49							7L
7.25	270			1028								EMS valve open
7.5	280	1118	959	965	4:50							7.5L
7.9	500	1430	"	963	4:51							pump off EMS UC/SI
7.9	460	1418	"	963.09	4:51							10 min QA
"	"	1414	"	"	4:52							+1 min
"	"	1407	"	963.09	4:56							+5 min
												other page

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 10 Date: June 23/22

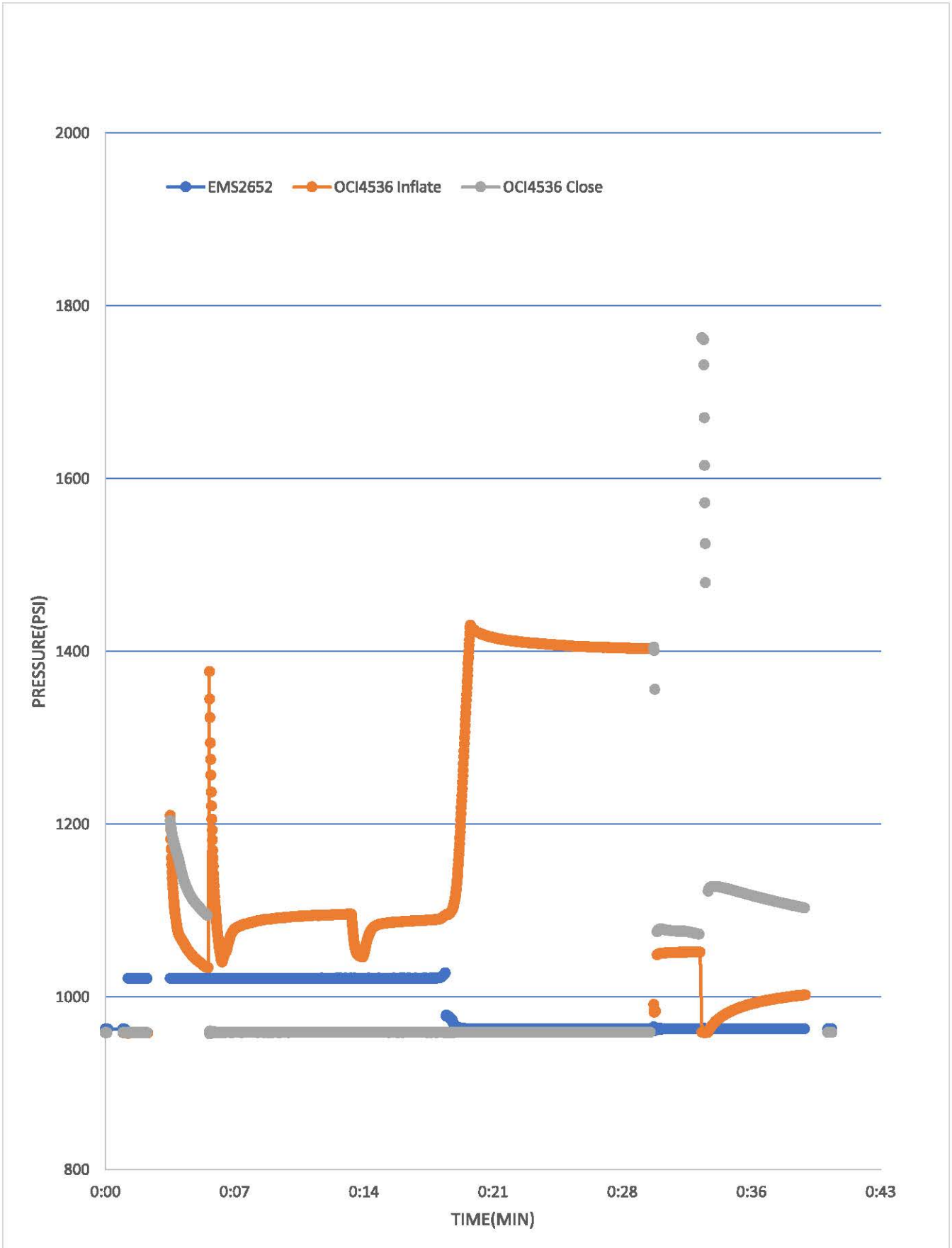
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.9	450	1405	959	963.11	4:57							+6 min
7.9	450	1403	959	963	5:01							OCI close / vent pump / OCI OFF
7.5	0	1050	1078	963	5:02							Pump to 800 psi
8.25	800	1052	1074	963	5:03							OCI close / vent pump / OCI OFF
7.6	0	966	1128	963	5:04							5 min QA
7.4	0	999	1108	963.10	5:08							+4 min
7.4	0	1001	1105	963.09	5:09							OCI stop in 15 Rot
"	"	959	959	963.09	5:11							2 min QA
"	"	958.85	959.15	963.09	5:15							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 10
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 049
Packer Depth:668.20 m



Packer #10 Well SB_BH01

Plot by:TK 2023-01-27

1380

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: _____ Date: June 25/22 Location: _____

Well No. DH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 11 Depth: _____

Inf Tool No: 4536 Vent Tool No: 2652

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 977

Target Infl P: (PO + PM): 977+400 = ~1380

Confirm Venting (Vent Tool Data): (Yes) / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	925.36	925.50	929.85	1:07							start recording. EMS shoe out. 15 ROT
0	0	925	925	976.58	1:14							Oct shoe out 15 ROT
0	0	1145	970	977	1:17							Pump to 750 psi
0.75	750	1090	964	977	1:18							Oct I
		1354	927									
0.75	100	992	926	977	1:19							start pumping
2.0	200	1030	926	977	1:22							2L
3.0	200	1033	926	977	1:23							3L
4.0	230	1036	926	977	1:25							4L
5.0	230	1037	926	977	1:27							5L
6.0	240	1038	"	977	1:28							6L
6.7	250	1055	"	981	1:29							EMS valve open
7.0	260	1089	"	932								
7.25	480	1399	"	930	1:31							Pump off / EMS valve close - shoe in
"	450	1366	"	930.06	1:31							10 min @A
"	440	1350	"	930	1:33							+2 min
"	430	1344	"	930	1:36							+5 min
"	420	1342	"	930	1:37							+6 min
"	420	1339	"	930	1:39							+8 min
												next page

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 11 Date: June 25/22

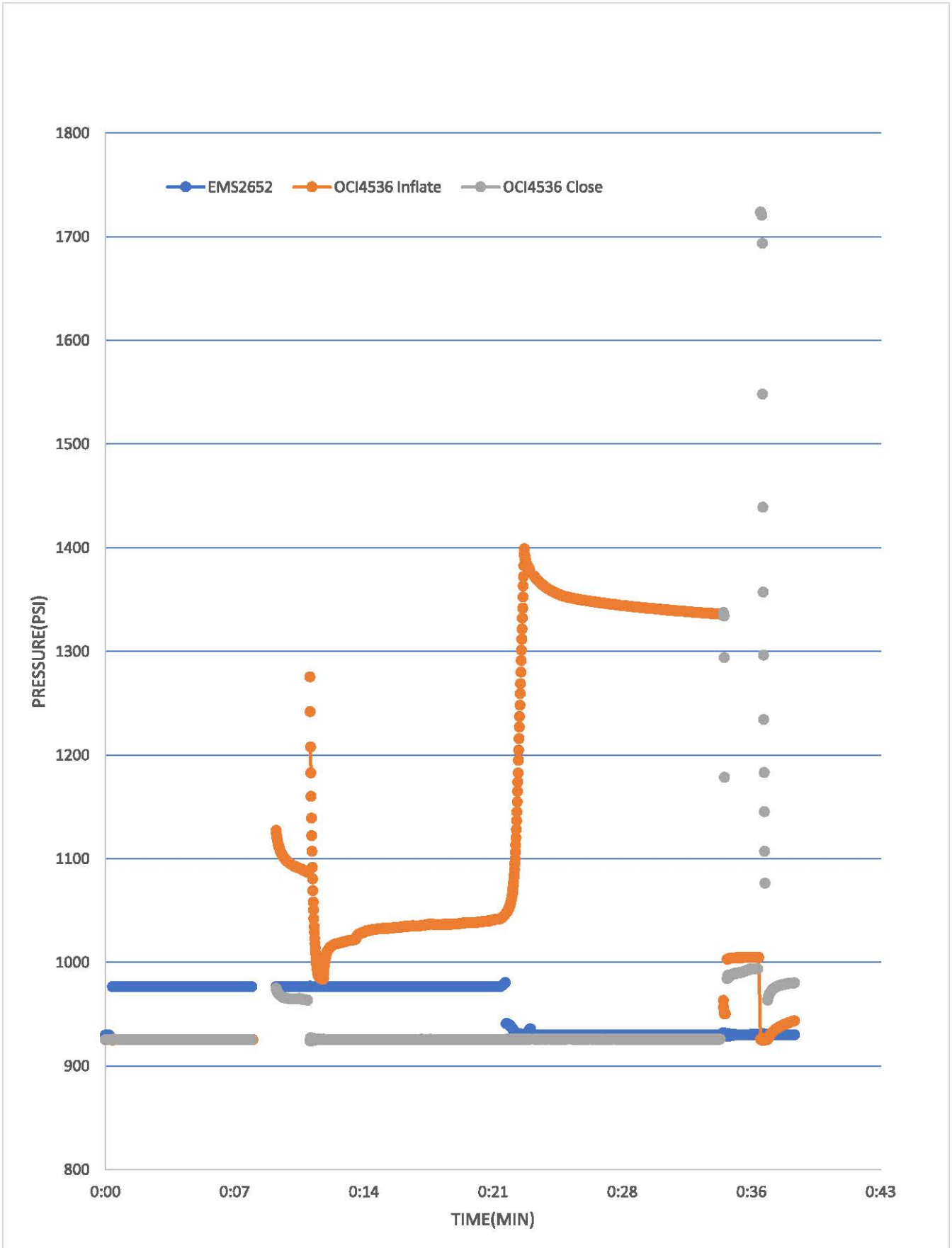
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.25	920	1337	926	930	1:41							OCI close / vent pump / OCI OFF
6.9	0	1004	988	930.18	1:42							Pump to 800 psi
7.5	800	1005	994	930	1:43							OCI close / vent pump / OCI OFF
6.9	0	932	974	930.12	1:44							5 min QA
11	11	947	981	930.12	1:46							+ 2 min
11	11	952	982	930.11	1:49							OCI shoe in 15 ROT
11	11	925	926	930.12	1:50							2 min QA
11	11	925.75	925.98	930.12	1:53							Stop recording / Save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 11
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 045
Packer Depth:645.77 m



Packer #11 Well SB_BH01

Plot by:TK 2023-01-27

1360

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 25/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 12 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 960

Target Infl P: (PO + PM): 960 + 400 = ~1360

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O		C	Off	On	
0	0	910.23	910.49	914.64	2:03							Start recording. EMS shoe out - 15 Rot
0	0	910	910	960.24	2:04							OCI shoe out - 15 Rot
0	0	1325	1115	960	2:06							Pump to 750 psi
0.65	750	1281	1081	960	2:07							OCI I
		1360	1079									
0.65	60	971	911	960	2:08							start pumping
1.0	200	1017	"	"	2:09							1L
2.0	230	1018	"	960	2:11							2L
3.0	240	1022	"	960	2:12							3L
4.0	240	1024	"	960	2:14							4L
5.0	250	1026	"	960	2:15							5L
6.0	250	1028	"	960	2:17							6L
7.0	250	1031	"	962	2:19							EMS valve open
7.25	260	1041	"	922	2:19							
7.8	500	1384	—	—	2:20							Pump off / EMS valve closed - shoe in (motor error)
"	460	1365	911	915	2:21							10 min QA
"	"	1359	911	915	2:22							+1 min
"	450	1351	911	915	2:26							+5 min
"	450	1349	911	915	2:29							+8 min
												next page

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 12 Date: June 25/22

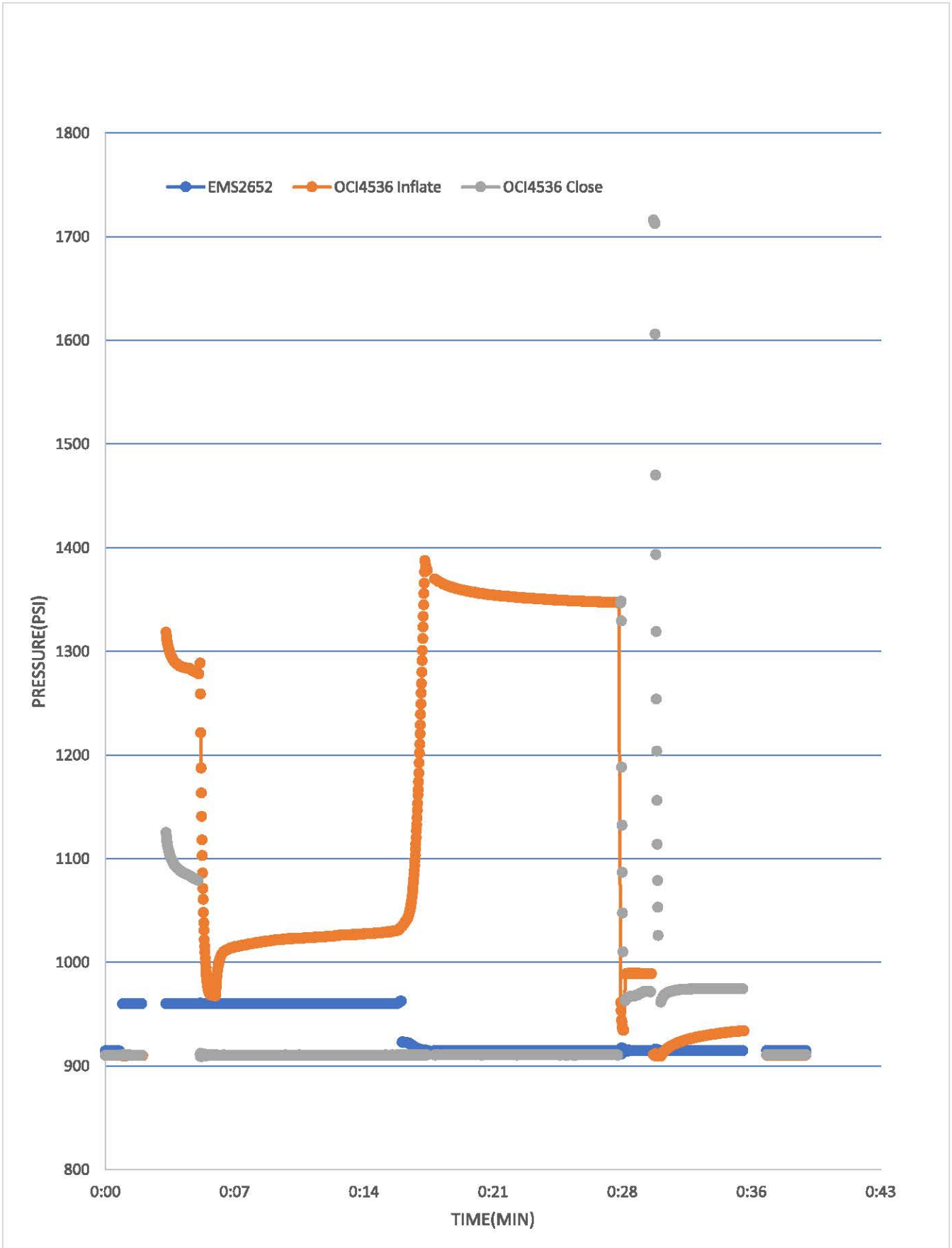
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.8	450	1347	911	914.87	2:31							OCI CLOSE / VENT PUMP / OCI OFF
7.5	0	989	966	914.89	2:31							PUMP TO 800 PSI
8.1	800	989	972	915	2:33							OCI CLOSE / VENT PUMP / OCI OFF
7.5	0	912	966	915	2:33							5 MIN QA
"	"	927	974	915	2:35							+2 min
"	"	933	975	914.94	2:38							OCI SHOE IN
"	"	911	911	914.94	2:39							2 MIN QA IS ROT
"	"	910.57	910.88	914.94	2:41							STOP RECORDING / SAVE FILE

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 12
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 051
Packer Depth:635.35 m



Packer #12 Well SB_BH01

Plot by:TK 2023-01-27

1330

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 25/21 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 13 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 930

Target Infl P: (PO + PM): 930 + 400 = ~1330

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	881.75	882.14	886.23	2:49							START RECORDING / EMS SHOE OUT
0	0	882	882	929.98	2:50							OCI SHOE OUT 15 ROT
0	0	1269	1083	930	2:51							PUMP TO 750 PSI
0.6	750	1225	1050	930	2:52							OCI I
		1314	882	930								
0.6	60	939	882	930	2:54							START PUMPING
1.0	240	990	882	930	2:54							1L
2.0	260	999	882	930	2:56							2L
3.0	260	1002	882	930	2:57							3L
4.0	290	1005	882	930	2:59							4L
5.0	300	1006	882	930	3:00							5L STOP PUMPING - FILL RESEVOIR
5.0	60	954	882	930	3:01							CONT PUMPING
6.0	250	996	882	930	3:03							6L
7.0	250	998	"	930	3:04							7L
7.8	260	1007	"	935	3106							EMS VALVE OPEN
8.55	500	1355	"	887	3:07							PUMP OFF / EMS VALVE CLOSE - SHOE IN
11	450	1331	"	887	3:09							10 MIN QA
"	"	1326	"	886	3:10							+1 MIN
"	440	1320	"	886	3:13							+4 MIN
												NEXT PAGE

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-0C7

Page No: 2

Project No: WB 992 Client: _____ By: ML Date: June 25/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 13 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): _____

Target Infl P: (PO + PM): _____

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

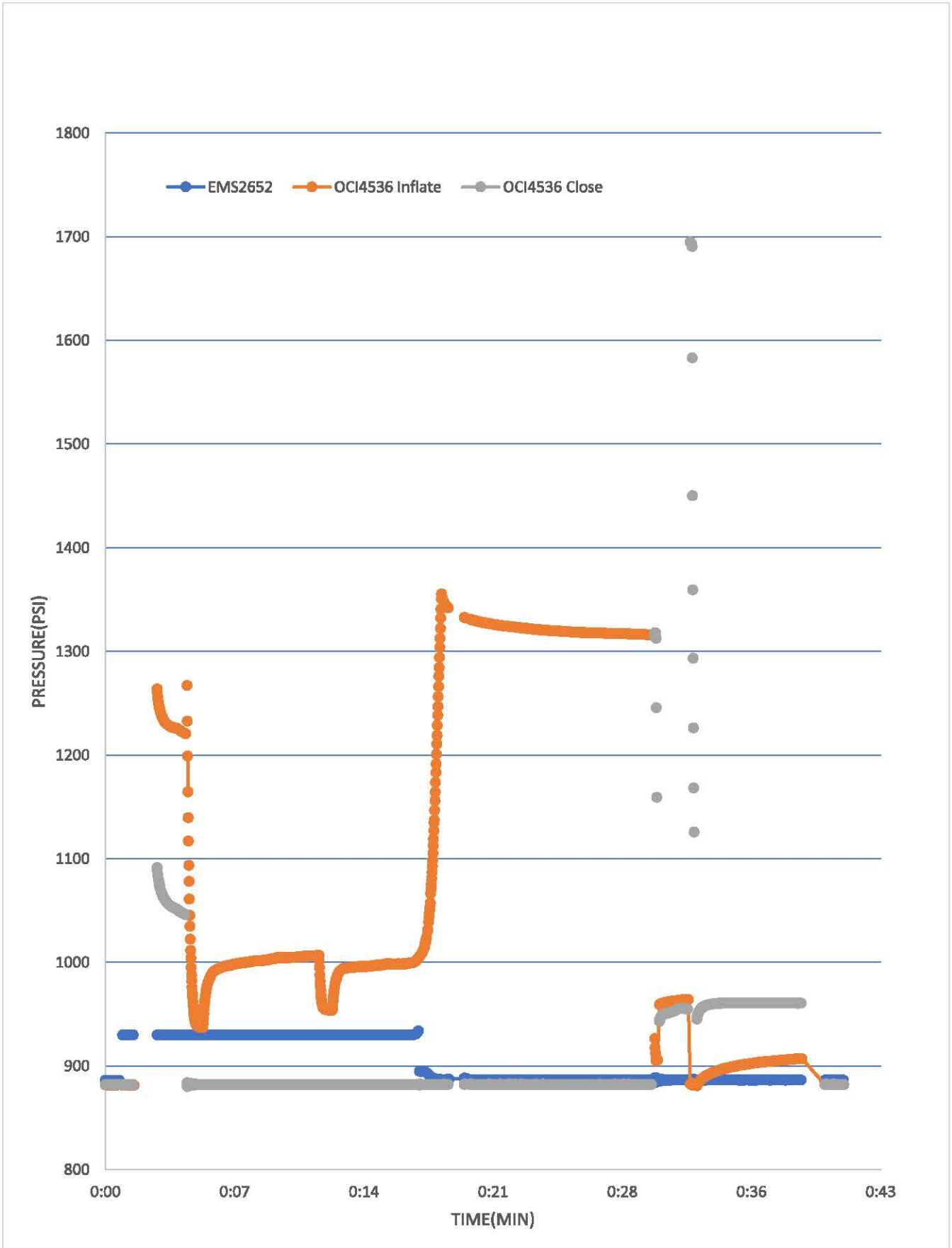
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
8.55	440	1318	882	886	3:16							+7 MIN
"	"	1316	882	886	3:19							OCI CLOSE / VENT PUMP / OCI OFF
8.25	0	961	950	887	3:20							PUMP TO 900 PSI
8.8	900	964	955	887	3:21							OCI CLOSE / VENT PUMP / OCI OFF
8.3	0	885	955	886	3:22							5 MIN QA
"	"	904	961	886	3:25							+3 MIN
8.25	4	906.62	960.54	886.44	3:27							OCI SHOE IN 15 ROT
"	"	882.19	882.43	886.44	3:29							8 MIN QA
"	"	882.18	882.43	886.44	3:31							STOP RECORDING / SAVE FILE

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 13
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 071
Packer Depth:615.92 m



Packer #13 Well SB_BH01

Plot by:TK 2023-01-27

1300

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 27/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 14 Depth: _____

Inf Tool No: ~~495~~ 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 903

Target Infl P: (PO + PM): 903 + 400 = ~1300

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	855.20	855.31	859.59	9:02							Start recording. ENS shoe out - 15 ROT
0	0	855	855	903.12	9:04							OCI Shoe out - 15 ROT
0	0	1091	1078	903	9:06							Pump to 750 psi
0.7	750	1027	1036	903	9:07							OCI I
"	60	1288	856	903	9:08							start pumping
1.0	250	966	855	903	9:09							1L
2.0	260	974	855	903	9:10							2L
3.0	280	979	"	903	9:12							3L
4.0	290	983	"	903	9:13							4L
5.0	300	985	"	903	9:15							5L stop pumping fill reservoir
5.0	60	926	"	903	9:15							Cont pumping
6.0	260	975	"	903	9:17							6L
7.0	260	976	"	903	9:19							7L
8.0	260	978	"	903	9:20							8L
~~8.4~~ 8.4	~~8.4~~	~~500~~	~~1324~~	~~"~~	909	9:22						ENS Valve open
9.0	8.4	500	1324		860	9:23						stop pumping / ENS valve close - shoe in
9.0	450	1305	"	860	9:23							10 min QA
9.0	450	1297	856	859.92	9:26							+3 min
9.0	450	1289	856	859.92	9:30							+7 min
												Next page

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. B H01

Packer No: 14 Date: June 27/22

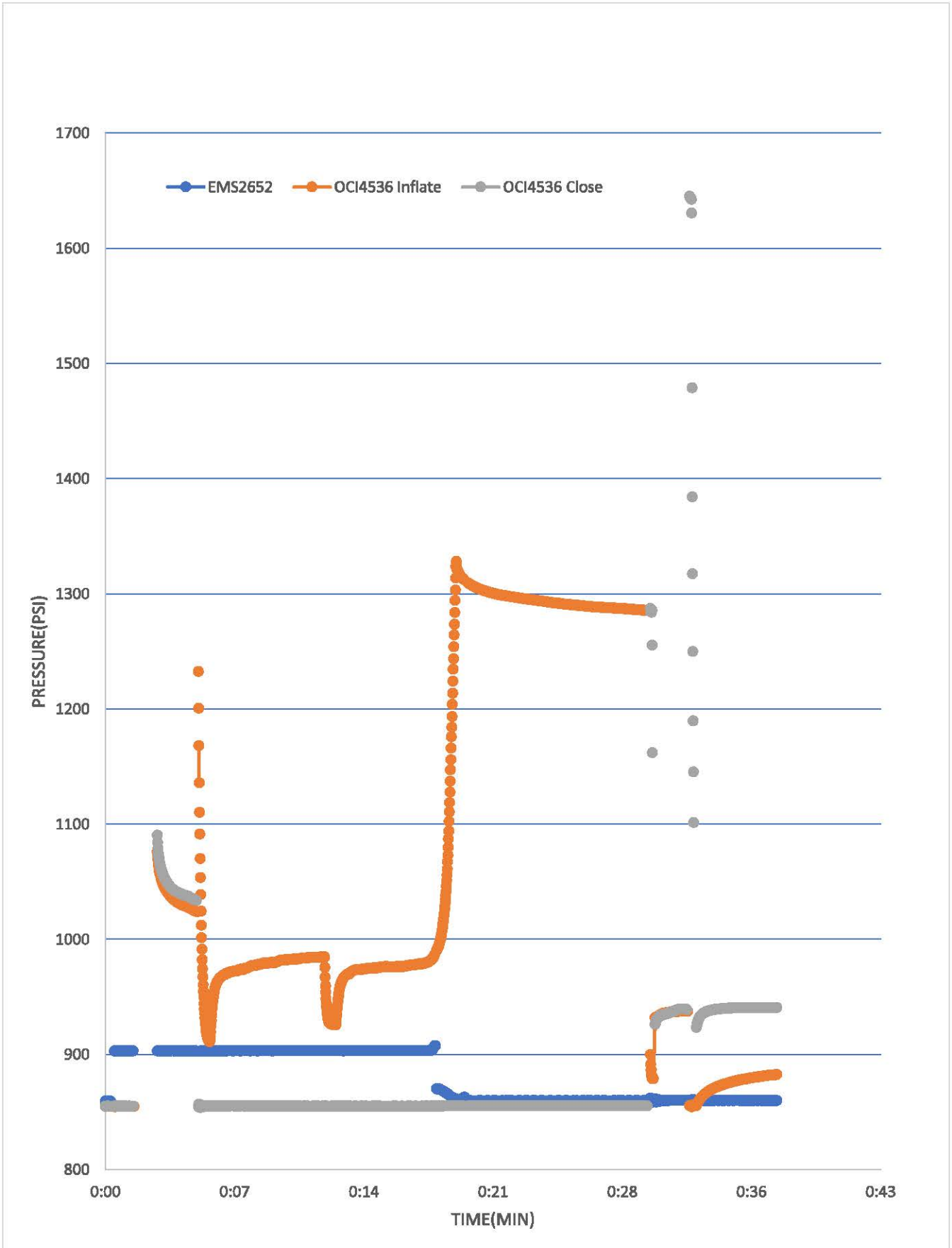
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
9.0	440	1286	956	859.93	9:33							OCI C / vent pump / OCI O
8.7	0	933	932	860	9:33							Pump to 800 psi
9.3	800	937	939	860	9:35							OCI C / vent pump / OCI O
8.6	0	859	937	860	9:36							5 min QA
8.7	0	884	941	860	9:41							OCI shoe in - 15 ROT
11	11	855.48	855.58	859.98	9:43							2 min QA
4	11	855.46	855.58	859.98	9:45							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 14
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 070
Packer Depth:598.00 m



Packer #14 Well SB_BH01

Plot by:TK 2023-01-27

1270

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: By: ML Date: June 27/22 Location:

Well No. BH01 Borehole Dia: Computer Data File: .WD3

Packer No: 5 Depth:

Inf Tool No: Vent Tool No:

H-B Valve (P_H): Offset (P_V):

Vent Tool Pressure (Shoe Out,(P_O)): 869

Target Infl P: (PO + PM): 869 + 400 = ~1270

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	822.37	822.46	826.80	9:52							Start recording. EMS shoe o.t. 15 rot.
0	0	822	822	868.85	9:53							OCI shoe o.t - 15 rot
0	0	1105	1021	869	9:55							Pump to 750psi
0.65	750	1053	998	869	9:57							O-I I
11	100	1293	〃	869	9:57							Start pumping
1.0	250	931	822	869	9:58							1L
2.0	250	938	〃	869	10:00							2L
3.0	250	941	〃	869	10:01							3L
4.0	260	944	〃	869	10:03							4L
5.0	260	946	〃	869	10:05							5L
5.75	260	958	〃	874	10:06							EMS valve open
	500	1301	〃	837	10:07							Stop pump / EMS valve closed - shoe in
6.25	470	1283	822	838	10:08							10 mm QA motor error - shoe in
11	460	1273										motor error / comms
11	460	1267	823	827	10:10							10 mm QA
11	450	1265	823	827	10:14							+1 mm
11	11	1261	823	827	10:14							+4 mm
11	11	1257	823	827	10:16							+6 mm
11	11	1256	823	827	10:17							+7 mm
												next page

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 992 Well No. BH01

Packer No: 15 Date: June 27/22

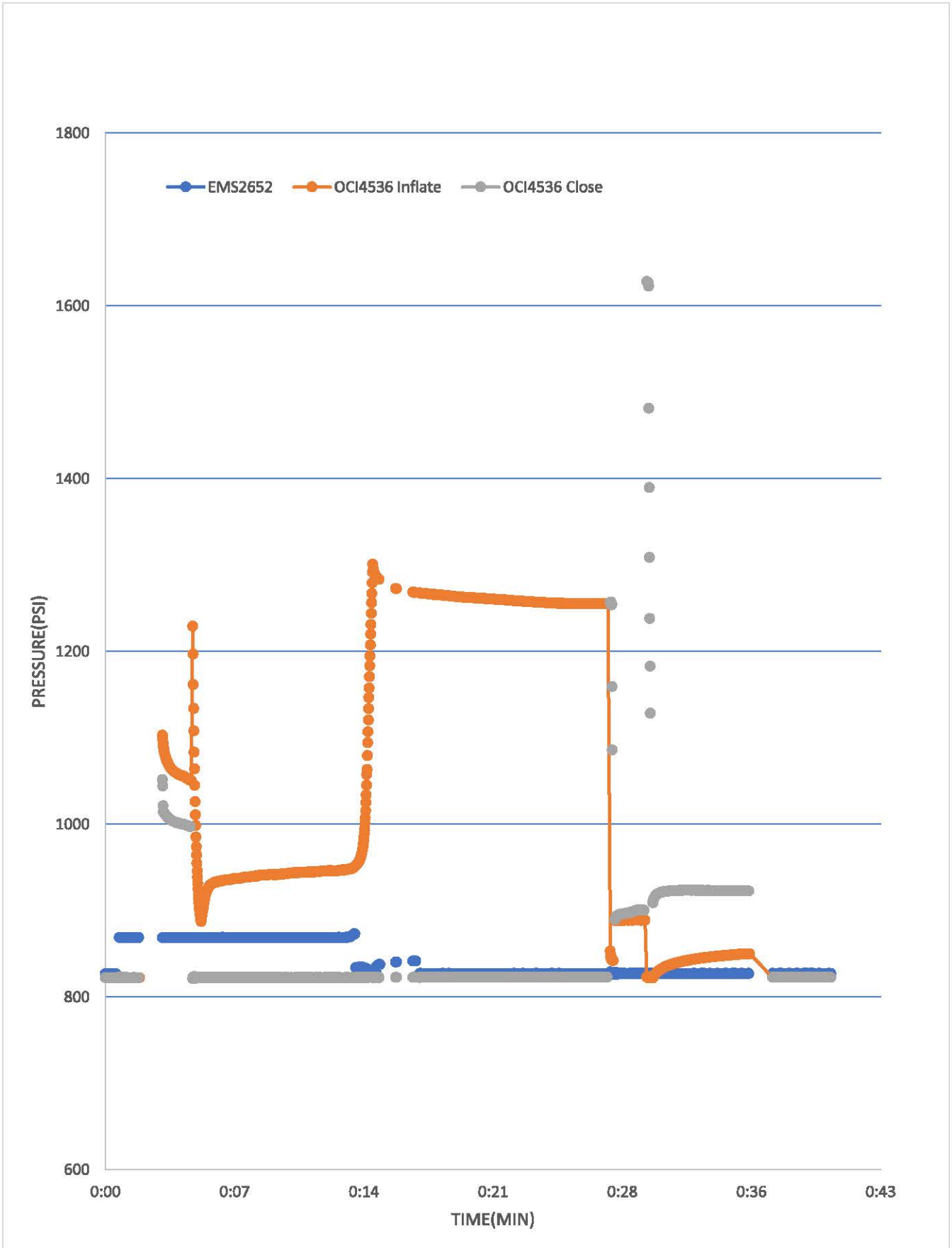
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
6.25	440	1255	823	827	10:20							OCI C / vent pump / OCI OFF
6	0	888	896	827	10:21							Pump to 800 psi
6.6	800	889	901	827	10:22							OCI C / vent pump / OCI OFF
6	0	825	917	827	10:23							5 min QA
"	"	842	923	827	10:24							1 min
"	"	850	923	827	10:28							OCI shoe in - 15 rot
"	"	822.75	820.85	827.15	10:30							2 min QA
"	"	822.74	822.84	827.14	10:32							Stop recording / Save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 15
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 041
Packer Depth:575.57 m



Packer #15 Well SB_BH01

Plot by:TK 2023-01-27

1235

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB_____ Client:_____ By: NL Date: June 27/22 Location:_____

Well No. B1601 Borehole Dia:_____ Computer Data File:_____.WD3

Packer No: 16 Depth:_____

Inf Tool No:_____ Vent Tool No:_____

H-B Valve (P_H):_____ Offset (P_V):_____

Vent Tool Pressure (Shoe Out,(P_O)): 835

Target Infl P: (PO + PM): 835 + 400 = ~1235

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L):_____ Volume Returned (L):_____ Final Inf'n Vol (L):_____

Calc'd Element Pressure (PF +PV- PO):_____ Confirm Pkr Valve Closed: (Yes / No)

Comments:_____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	789.53	789.68	794.14	10:38							start recording, EMS shoe out - 12 rot
0	0	789	790	804.	10:42							EMS shoe in - 12 rot
0	0	789	790	794.13	10:44							EMS shoe out - 12 rot
0	0	789	790	802.29	10:45							EMS shoe in - 12 rot
0	0	789	790	794.14	10:46							Reload tools
0	0	789.68	789.79	799.03	10:49							EMS shoe at - 15 rot
0	0	790	790	834.69	~~10:58~~							OCI shoe out
0	0	1178	1020	835	~~10:58~~							Pump to 750 psi
0.5	750	1115	994	835	10:53							OCI I
"	120	1224	789	835	10:54							start pumping
1.0	250	900	790	835	10:56							1L
2.0	260	912	"	835	10:57							2L
3.0	280	916	"	835	10:58							3L
4.0	280	919	"	835	11:06							4L
5.0	290	923	"	835	11:01							5L
5.7	300	—	—	843	11:02							EMS valve open
6.2	505	1266	"	796	11:03							pump off / EMS valve close - shoe in
6.2	460	1243	"	794	11:04							10 min QA
6.2	450	1231	"	794	11:06							+2 min
												next page

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Project No. WB 992 Well No. BH01

Page No 2

Packer No: 16 Date: June 27/28

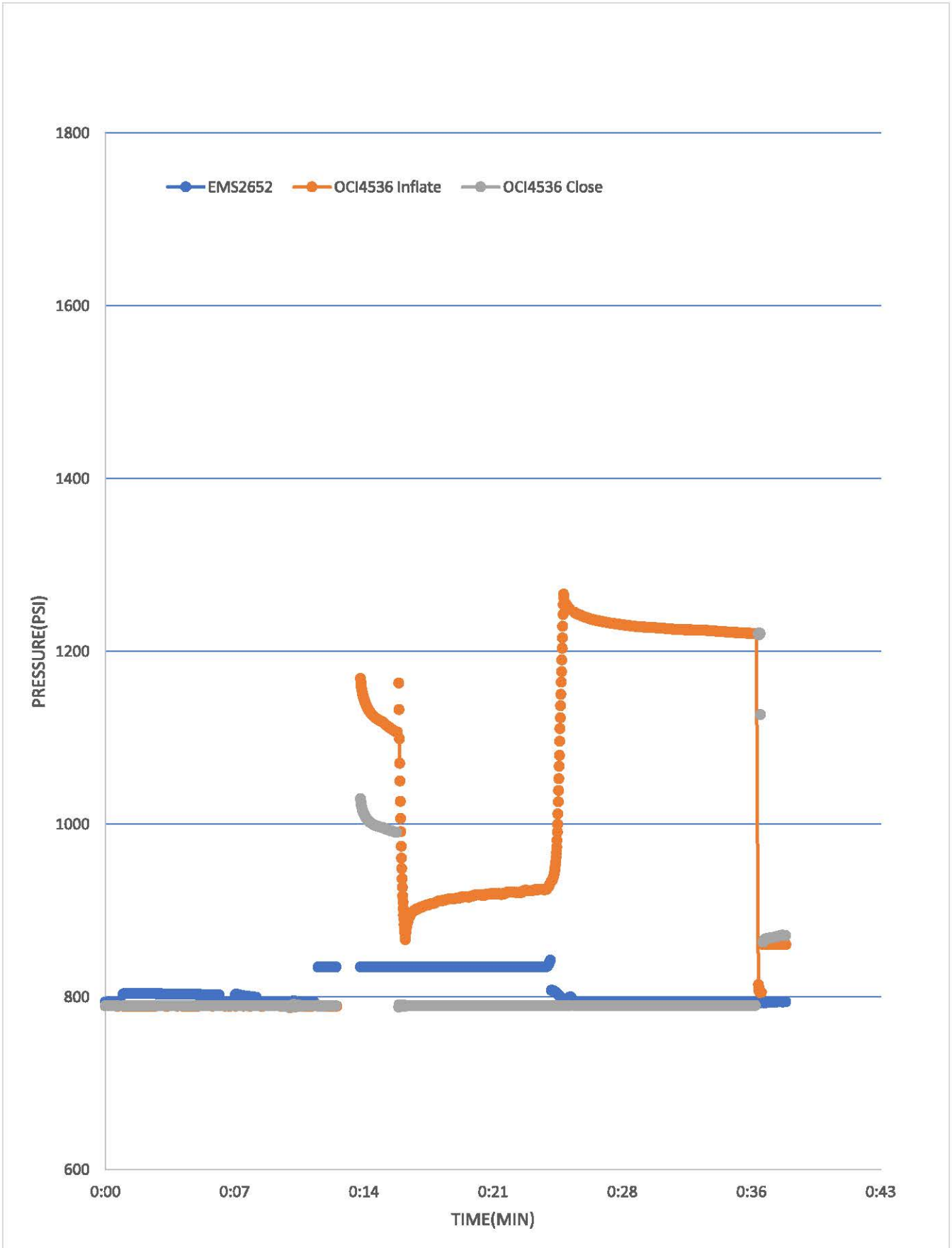
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
6.2	440	1221	790	794	11:14							OCI C / vent pump / OCI O
5.8	0	861	867	794	11:14							Pump to 800 psi
6.4	800	861	871	794	11:16							OCI C / vent pump / OCI O
5.9	0	795	871	794	11:17							5 min QA
5.8	0	806	876	794	11:18							1/min
"	"	817	877	794	11:22							OCI shoe in - 15 psi
"	"	789.82	790.06	794.26	11:23							2 min QA
"	~	789.82	790.06	794.26	11:25							Stop recording / save hole

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 16
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 037
Packer Depth:553.15 m



Packer #16 Well SB_BH01

Plot by:TK 2023-01-27

1200

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 942 Client: _____ By: ML Date: June 27/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 17 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 800

Target Infl P: (PO + PM): 800+400 = 1200

Confirm Venting (Vent Tool Data): (Yes) / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	756.52	756.71	760.78	1:22							Start recording. EMS shoe out. 15 Rot
0	0	757	757	800.62	1:23							OCI shoe out - 15 Rot
0	0	999	979	801	1:25							Pump to 750 psi
0.7	750	943	939	801	1:26							OCI I
0.7	80	1207	757	801	1:27							start pumping
1.0	230	851	757	801	1:27							1L
5.0	280	971	757	801	1:33							5L
5.9	"	-	"	907	1:35							EMS valve open
6.5	500	1232	"	762	1:36							Pump off / EMS valve close - shoe in
"	460	1215	"	761	1:37							10 min QA
"	450	1194	"	761	1:43							+6 min
"	440	1189	"	761	1:47							OCI C / vent pump / OCI O
6.1	0	770	810	761	1:49							Pump to 800 psi
6.75	800	784	817	761	1:50							OCI C / vent pump / OCI O
6.1	0	757	830	761	1:51							5 min QA
6.1	0	774	838	761	1:54							+3 min
6.1	0	778	838	761	1:56							OCI shoe in
6.1	0	756.74	756.90	761.07	1:57							2 min QA
6.1	0	756.73	756.90	761.07	2:00							Stop recording / Save file

1200

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 27/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 17 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): 800

Target Infl P: (PO + PM): 800 + 400 = 1200

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

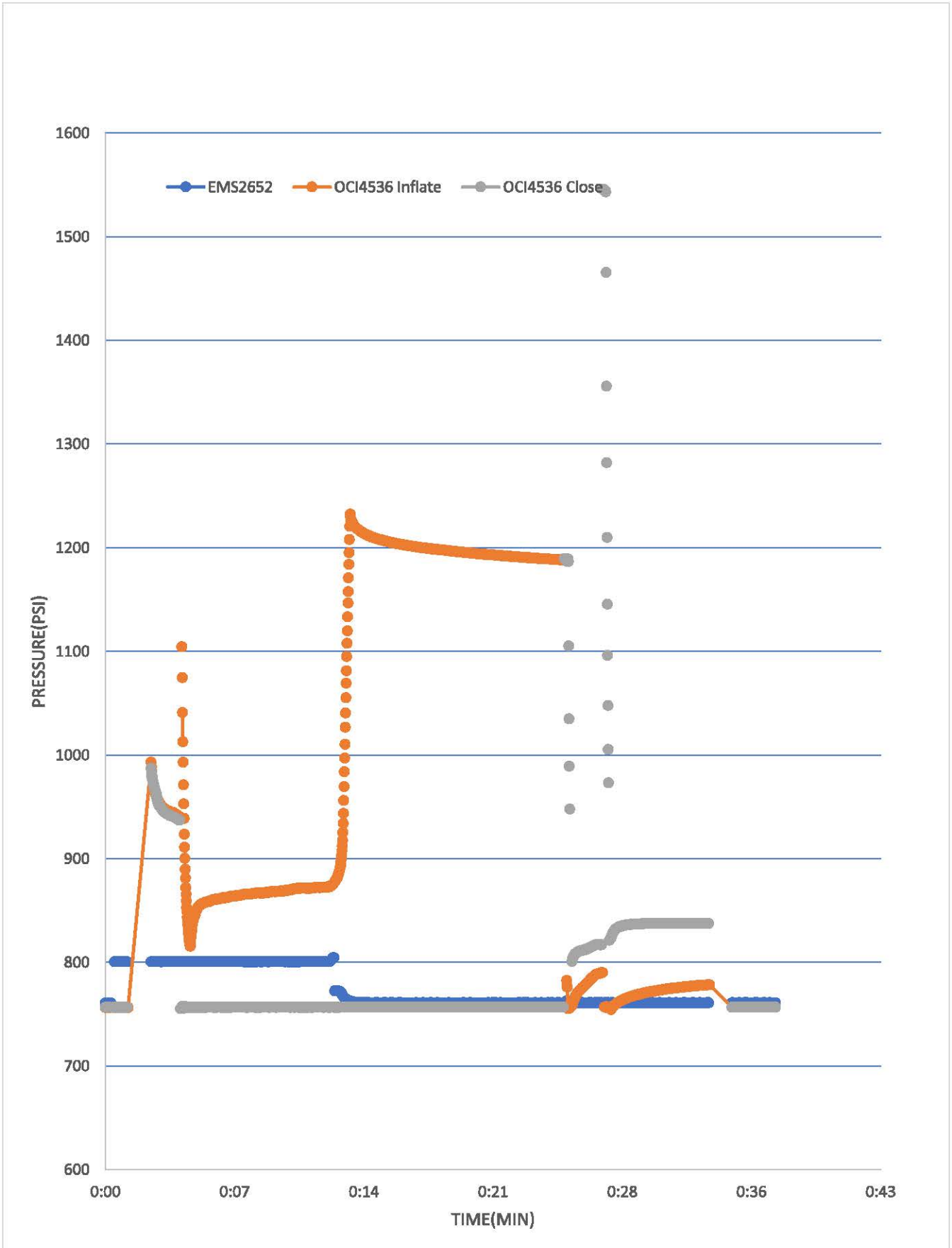
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	756.62	756.80	761.06	11:33							start recording, EMS shoe out.
0	0	757	757	800.66	11:34							OCI shoe out -23 rot
0	0	757	757	800.68	11:36							OCI shoe in / EMS shoe in
0	0	757	757	761	11:40							OCI shoe out - 23 rot Bring tool up.

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 17
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 048
Packer Depth:530.73 m



Packer #17 Well SB_BH01

Plot by:TK 2023-01-27

1160

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB Client: By: ML Date: June 27/22 Location:

Well No. BH07 Borehole Dia: Computer Data File: .WD3

Packer No: 18 Depth:

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 762

Target Infl P: (PO + PM): 762+400= ~1160

Confirm Venting (Vent Tool Data): (Yes) / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

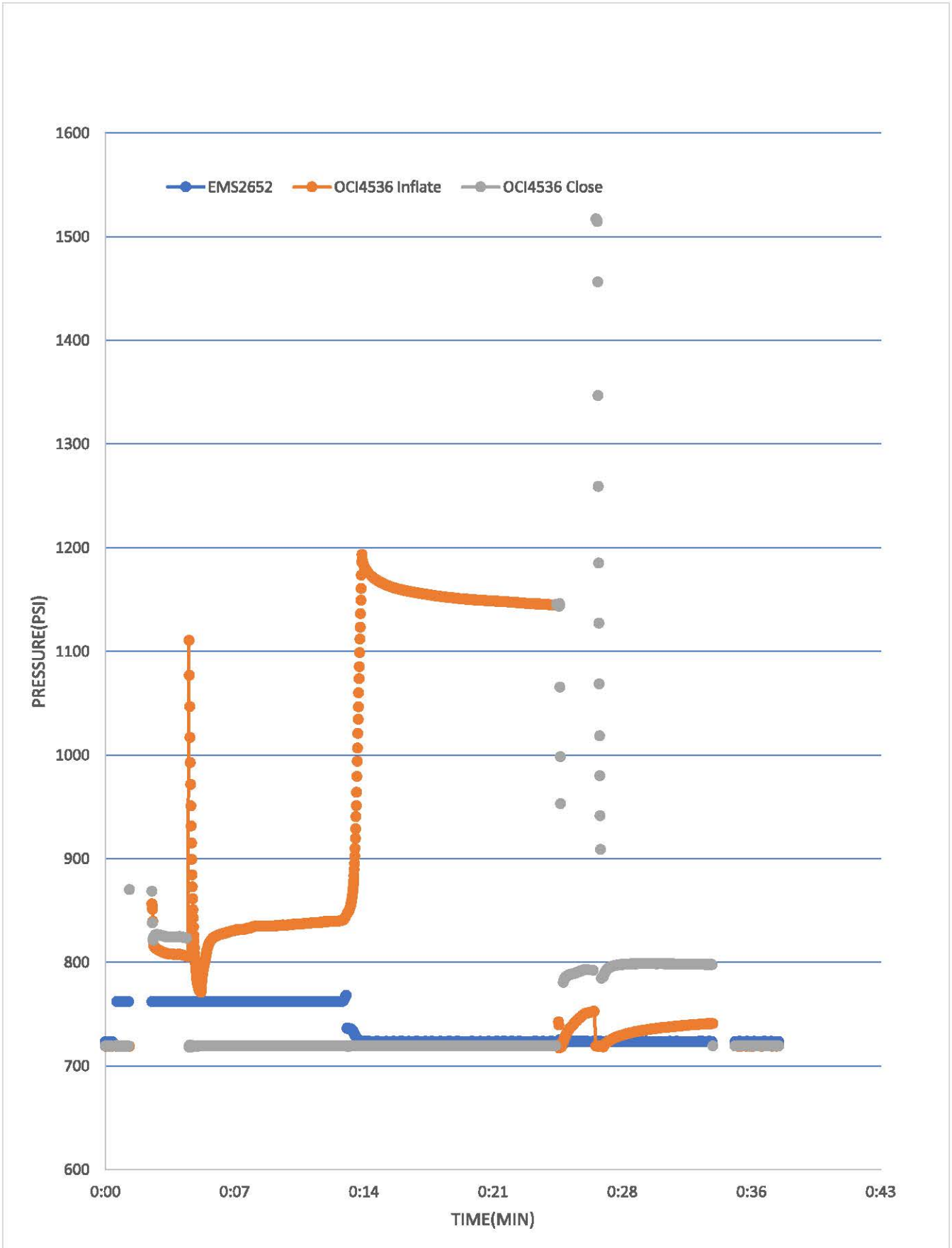
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	719.08	719.26	723.34	2:06							Start recording EMS shoe out - 15 rot
0	0	719	719	762.21	2:07							OCI shoe out - 15 rot
0	0	856	837	762	2:08							Start pumping to 750 psi
0.6	750	807	824	762	2:10							OCI I
0.6	70	1193	823.79	762	2:10							Start pumping
1.0	250	820	719	762	2:12							1L
5.0	280	839	719	762	2:18							5L
5.9	290	-	"	769	2:19							EMS valve open
6.4	500	1193	"	724	2:20							Pump off / EMS valve close - shoe in
6.4	460	1169	"	724	2:21							10 min QA
6.4	440	1150	"	724	2:26							+5 min
6.4	430	1145	"	724	2:31							OCI C / vent pump / OCI O
6.1	0	730	786	724	2:31							Pump to 800 psi
6.7	800	750	793	724	2:32							OCI C / vent pump / OCI O
6.1	0	721	791	724	2:34							5 min QA
6.1	0	737	799	724	2:37							+3 min
6.1	0	740.46	797.94	723.58	2:39							OCI shoe in - 15 rot
6.1	0	719.32	719.49	723.57	2:41							2 min QA
6.1	0	719.32	719.48	723.58	2:43							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 18
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 044
Packer Depth:505.30 m



Packer #18 Well SB_BH01

Plot by:TK 2023-01-27

1130

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB _____ Client: _____ By: ML Date: June 27/22 Location: _____

Well No. BH 91 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 19 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 728

Target Infl P: (PO + PM): 728+400 = ~1130

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

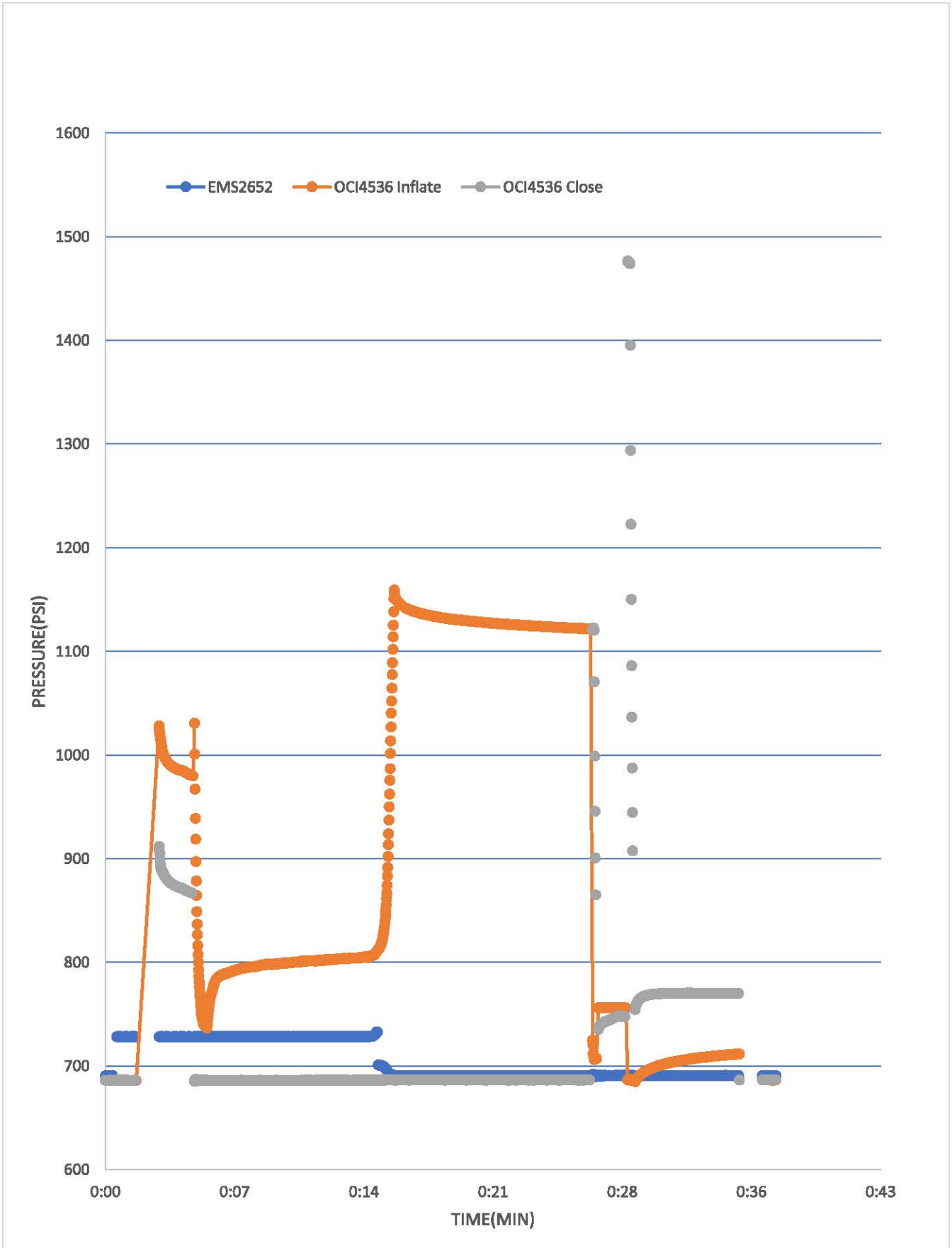
Pumping Information

Vol (L)	Pressure (psi) Line	Inf Tool	Close Tool	Vent Tool	Clock	Tag	Inf Valve O	I	C	Pump Off	On	Comments
0	0	686.19	686.28	690.43	2:50							start recording. EMS shoe at
0	0	686	686	728.36	2:51							OCI shoe at - 15 rot
0	0	1029	905	728	2:53							Pump to 750 psi
0.7	750	984	870	728	2:55							OCI I
0.7	60	1098	686	728	2:55							start pumping
1.0	240	782	686	728	2:56							1L
6.0	290	804	"	728	3:03							6L
7.0	290	814	"	734	3:05							EMS valve open
7.7	500	1159	"	691	3:06							Pump off / EMS valve close - shoe in
"	460	1136	"	691	3:07							10 min QA
"	440	1123	"	691	3:15							+8 min
"	440	1122	"	691	3:17							OCI C / vent pump / OCI O
7.3	0	756	741	690	3:18							Pump to 800 psi
7.9	800	756	748	691	3:19							OCI C / vent pump / OCI O
7.3	0	689	763	691	3:20							5 min QA
7.3	0	707	770	691	3:23							+3 min
7.3	0	711	770	690.76	3:25							OCI shoe in - 15 rot
7.3	0	686.50	686.61	690.75	3:27							2 min QA
7.3	0	686.50	686.60	690.76	3:30							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 19
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 069
Packer Depth:482.88 m



Packer #19 Well SB_BH01

Plot by:TK 2023-01-27

1085

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: NL Date: June 27/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 20 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 685

Target Infl P: (PO + PM): 685+400 = 1085

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

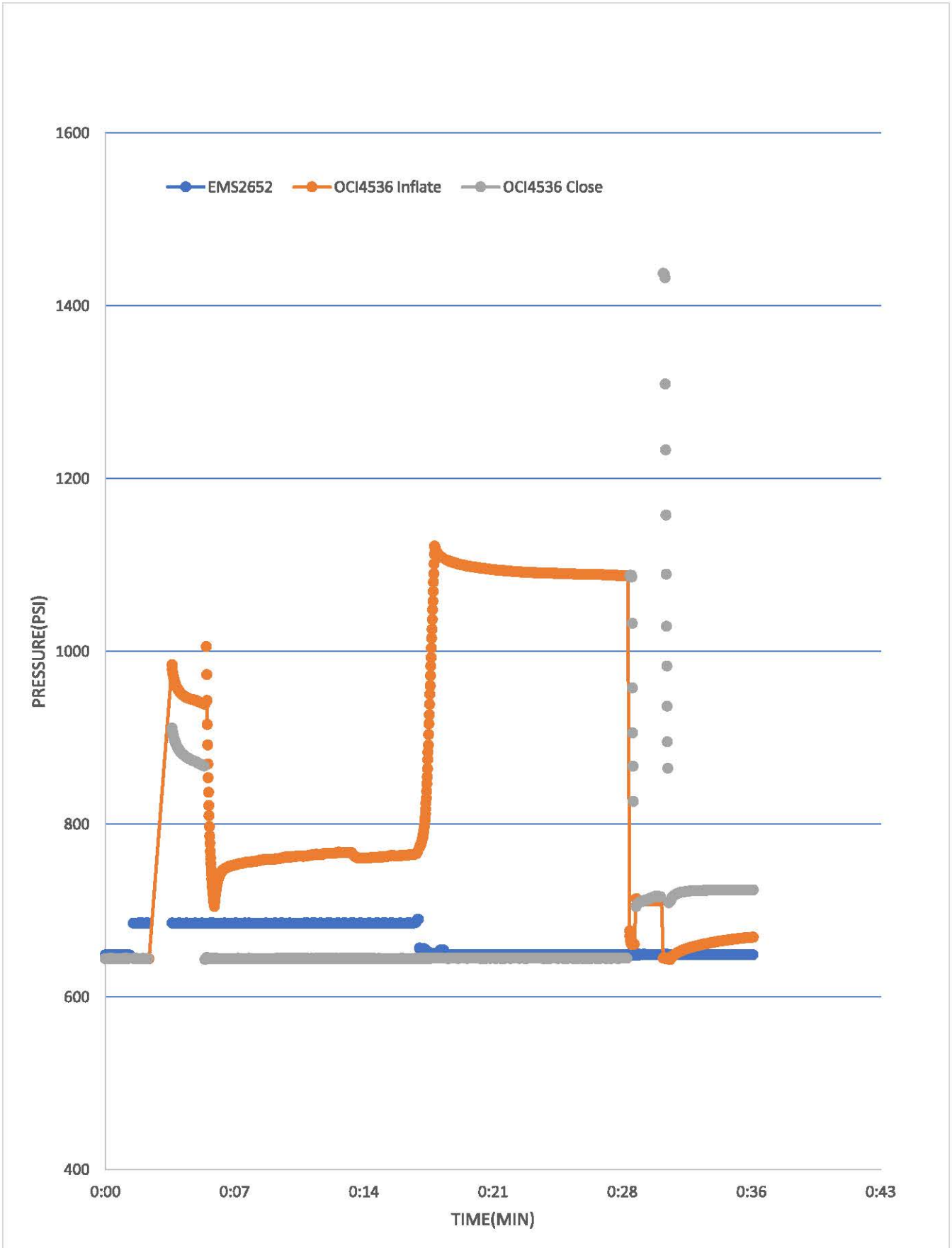
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	644.31	644.51	648.59	3:36							Start recording EMS shoe out - 15 rot
0	0	644	644	685.35	3:38							OCI shoe out
0	0	990	904	685	3:40							Pump to 750 psi
0.6	750	942	871	685	3:41							OCI I
0.6	90	1101	867	685	3:41							start pumping
1.0	250	748	645	685	3:43							1L
7.0	260	764	"	685	3:52							7L
7.75	280	768	"	693	3:53							EMS valve open
8.25	520	1121	"	649	3:54							pump off/ EMS valve close - shoe in
8.25	460	1105	"	649	3:55							10 min @A
8.25	450	1091	"	649	4:00							+5 min
8.25	450	1087	"	649	4:05							OCI c / vent pump / OCI o
8.0	0	712	709	649	4:06							Pump to 800 psi
8.5	800	711	716	649	4:07							OCI c / vent pump / OCI o
8.0	0	647	717	649	4:07							5 min @A
8.0	0	666	724	649	4:10							+3 min
8.0	0	669	724	649	4:12							OCI shoe in - 15 rot
8.0	0	644.70	644.87	649.04	4:14							2 min @A
8.0	0	644.69	644.87	649.04	4:16							Stop recording / Save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 20
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 039
Packer Depth:454.45 m



Packer #20 Well SB_BH01

Plot by:TK 2023-01-27

1040

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 27/22 Location: _____

Well No. BH 01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 21 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 642

Target Infl P: (PO + PM): 642 + 400 = 1040

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi) Line	Inf Tool	Close Tool	Vent Tool	Clock	Tag	Inf Valve O	I	C	Pump Off	On	Comments
0	0	602.78	602.82	606.96	4:24							start recording, EMS shoe at -15 mbt
0	0	603	603	642.65	4:25							~~EMS~~ OCI shoe out
0	0	782	807	643	4:27							pump to 750 psi
0.6	750	837	778	643	4:28							OCI I
0.6	100	1007	774	643	4:28							start pumping
1.0	260	704	603	643	4:29							1L
4.0	310	719	"	643	4:33							4L
5.0	320	721	"	643	4:35							5L stop pumping - refill reservoir
5.0	60	667	603	643	4:35							cont pumping
6.0	260	712	"	643	4:37							6L
7.0	270	715	"	643	4:39							7L
7.75	290	731	"	649	4:40							EMS value open
~~8.4~~	510	1067	"	608	4:41							pump off / EMS valve close - shoe .4
8.4	440	1038	"	607	4:42							10 min QA
"	430	1029	"	607	4:43							+1 min
"	410	1016	"	607	4:47							+5 min
"	410	1014	"	607	4:49							+7 min
"	410	1013	"	607	4:50							+8 min
"	410	1012	"	607	4:51							+9 min
												next page

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No: WB 942 Client: _____ By: ML Date: June 27/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 21 Depth: _____

Inf Tool No: _____ Vent Tool No: _____

H-B Valve (P_H): _____ Offset (P_V): _____

Vent Tool Pressure (Shoe Out,(P_O)): _____

Target Infl P: (PO + PM): _____

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

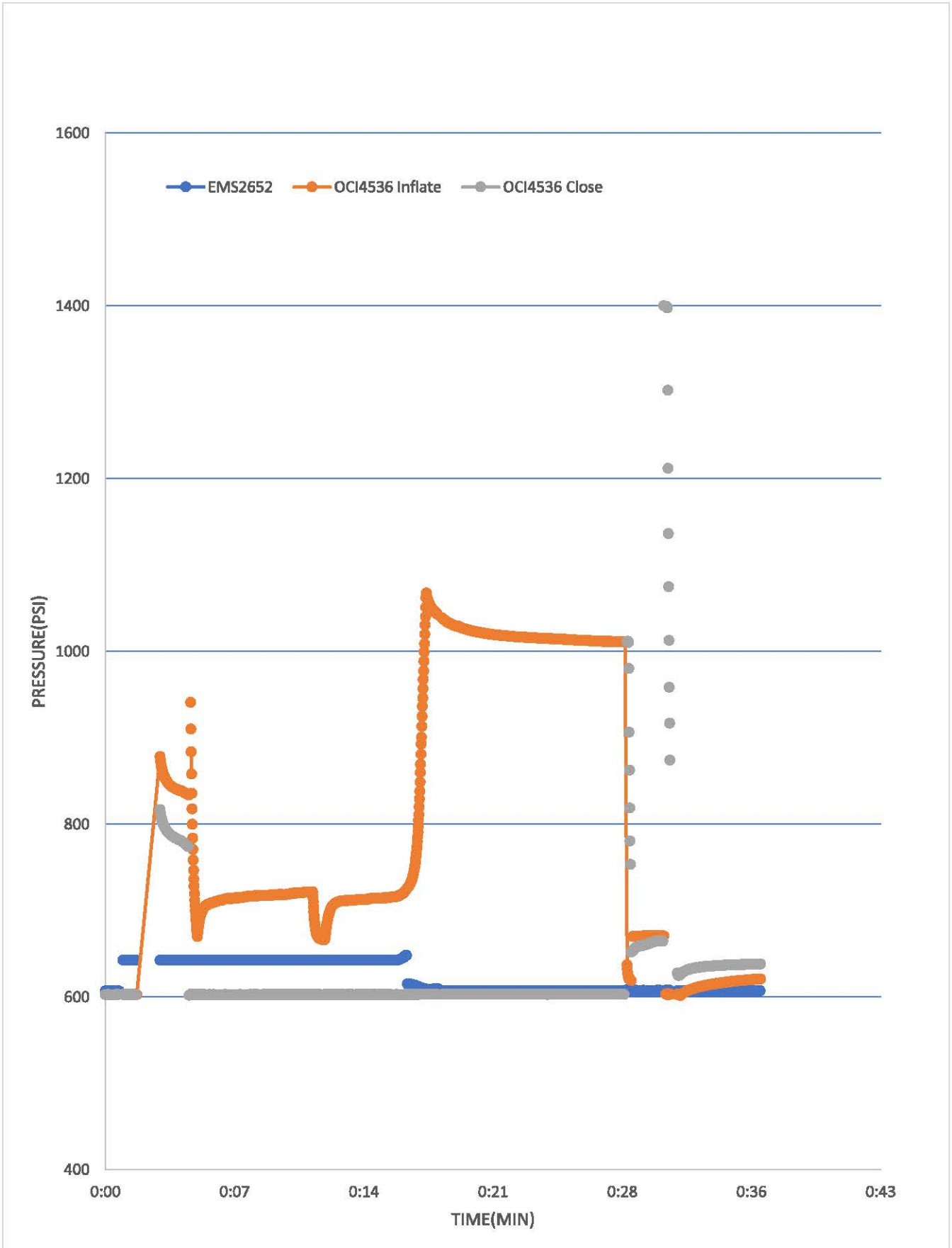
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
8.4	410	1011	603	607	4:52							OCI c / vent pump / OCI O
8.1	0	670	658	607	4:53							Pump to 800 psi
8.7	800	671	665	607	4:54							OCI c / vent pump / OCI O
8.1	0	604	629	607	4:56							5 min QA
8.1	0	619	638	607	4:59							+ 3 min
8.1	0	622	638	607	5:01							OCI shoe in - 15 rot
8.1	0	603.06	603.21	607.33	5:03							2 min QA
8.1	0	603.05	603.21	607.33	5:05							Stop recording/save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 21
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 067
Packer Depth:426.03 m



Packer #21 Well SB_BH01

Plot by:TK 2023-01-27

1020

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 22 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 623

Target Infl P: (PO + PM): 623+400 = 1020

Confirm Venting (Vent Tool Data): (Yes) / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	582.87	582.98	587.51	8:26							Start recording. EMS shoe out
0	0	583	583	594	dropping							not in port. shoe in - reland
0	0	583	583	587.42	8:30							EMS shoe out - 12 rot
				611	dropping							EMS shoe in - reland
0	0	583	583	587.35	8:33							EMS shoe out - 15 rot
0	0	583	583	622.87	8:34							OCI shoe out
0	0	764	817	623	8:36							Pump to 750 psi
0.75	750	732	774	623	8:38							OCI I
0.75	100	1013	782	623	8:38							Start pumping
1.0	240	667	583	623	8:39							1L
3.0	260	685	"	623	8:42							3L
5.0	260	690	"	623	8:45							5L
6.0	260	692	"	623	8:47							6L
6.7	280	705	"	631	8:48							EMS valve open
7.3	500	1054	"	589	8:49							stop pump / EMS valve close - shoe in
"	458	1034	"	588	8:50							10 min QA
"	440	1021	"	588	8:53							+3 min
"	440	1017	"	588	8:56							+6 min
"	440	1015	"	588	8:59							+9 min
												Next page

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 2

Project No. WB 942 Well No. BH01

Packer No: 22 Date: June 28/22

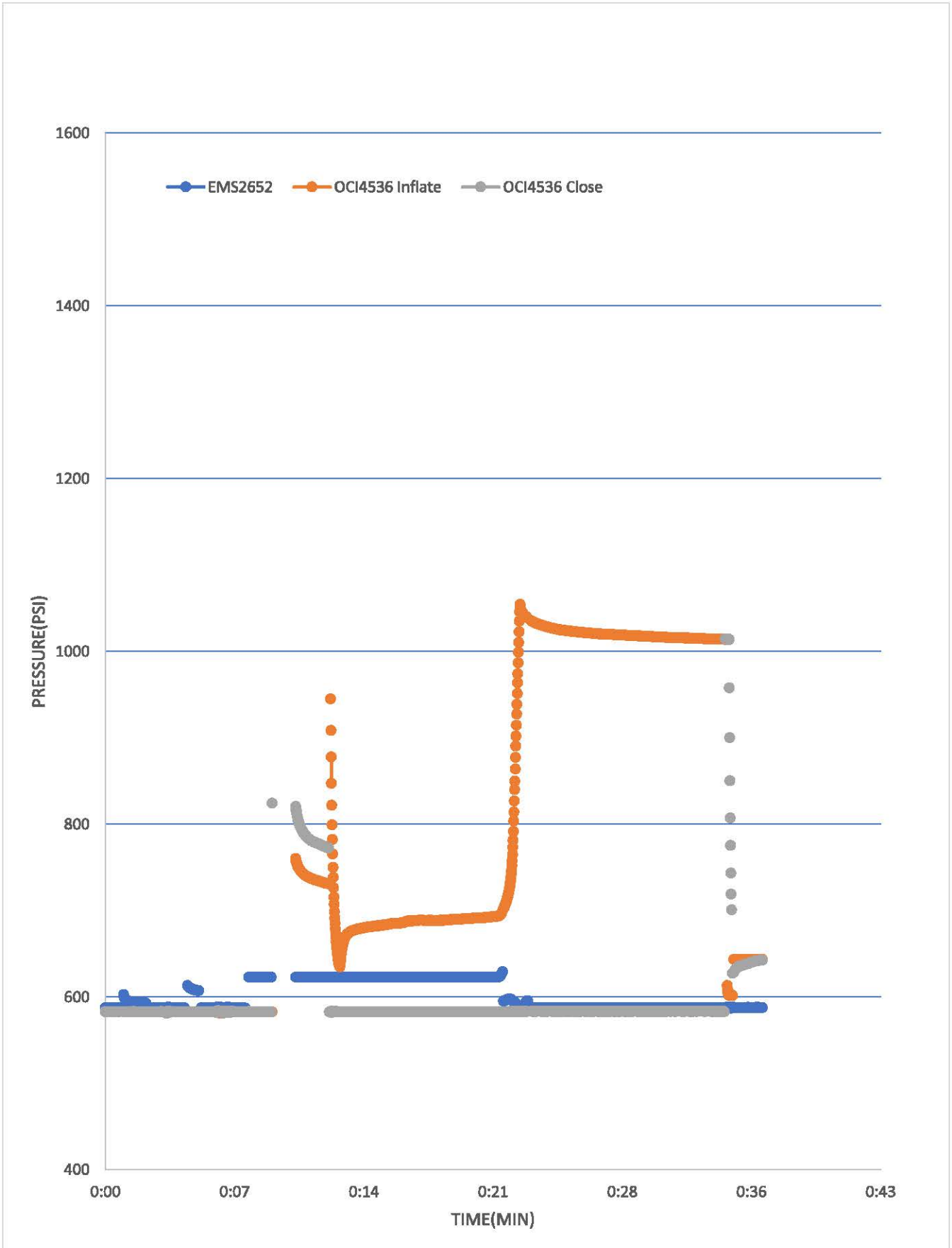
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
7.3	440	1014	593	588	9:00							OCI C / vent pump / OCI O
6.9	0	643	635	588	9:01							Pump to 800 psi
7.6	800	643	642	588	9:02							OCI C / vent pump / OCI O
6.9	0	597	653	588	9:03							5 min QA
"	"	603	659	588	9:06							+ 3 mm
"	"	608	659	587.66	9:08							OCI shoe in - 15 rot
"	"	583.21	583.32	587.66	9:10							2 min QA
"	"	583.21	583.32	587.66	9:12							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 22
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 047
Packer Depth:412.60 m



Packer #22 Well SB_BH01

Plot by:TK 2023-01-27

1000

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 23 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 594

Target Infl P: (PO + PM): 594 + 400 = ~ 1000

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

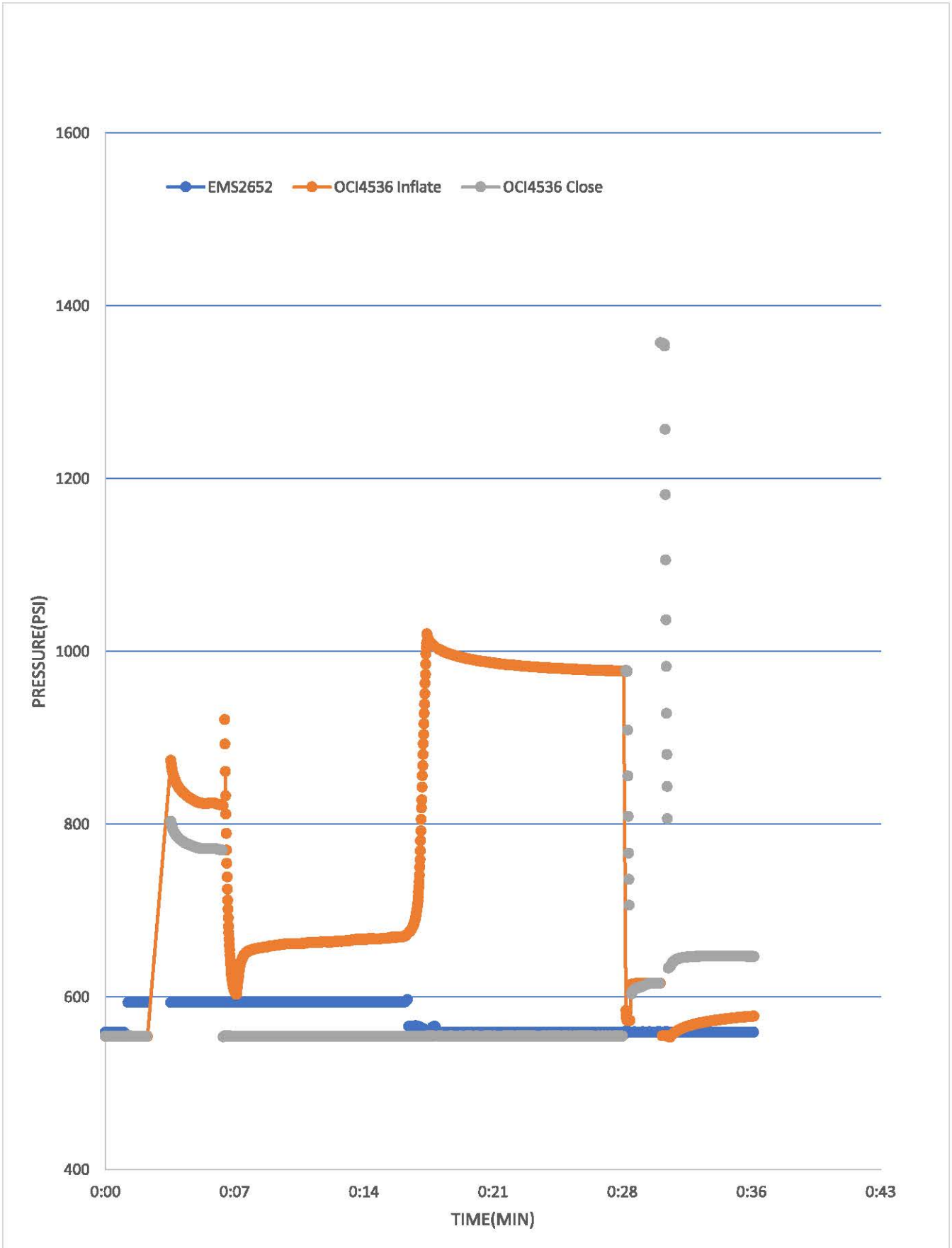
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	554.53	554.60	558.95	9:20							start recording, EMS shoe out - 15 rot
0	0	555	555	593.76	9:21							OCI shoe out - 15 rot
0	0	879	799	594	9:23							Pump to 750 psi
0.6	750	823	771	594	9:25							OCI I
0.6	60	1010	555	594	9:26							start pumping
1.0	240	650	555	594	9:27							1L
6.0	290	668	"	594	9:35							6L
6.75	290	678	"	597	9:36							EMS valve open
7.4	500	1020	"	561	9:37							pump off / EMS valve close - shoe in
"	450	1001	"	559	9:38							10 min QA
"	430	983	"	559	9:42							+4 min
"	420	977	"	559	9:48							OCI C / vent pump / OCI O
7.0	0	615	609	559	9:49							Pump to 800 psi
7.7	800	616	616	559	9:50							OCI C / vent pump / OCI O
7.1	550	550	642	559	9:51							5 min QA
7.1	0	575	647	559	9:54							+3 min
"	"	579	647	559	9:56							OCI shoe in - 15 rot
"	"	555.00	555.07	559.33	9:58							2 min QA
"	"	555.00	555.06	559.37	10:00							stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 23
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 053
Packer Depth:393.18 m



Packer #23 Well SB_BH01

Plot by:TK 2023-01-27

960

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB _____ Client: _____ By: NL Date: June 28/22 Location: _____

Well No. bh01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 24 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): nla Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 562

Target Infl P: (PO + PM): 562 + 400 = ~960

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

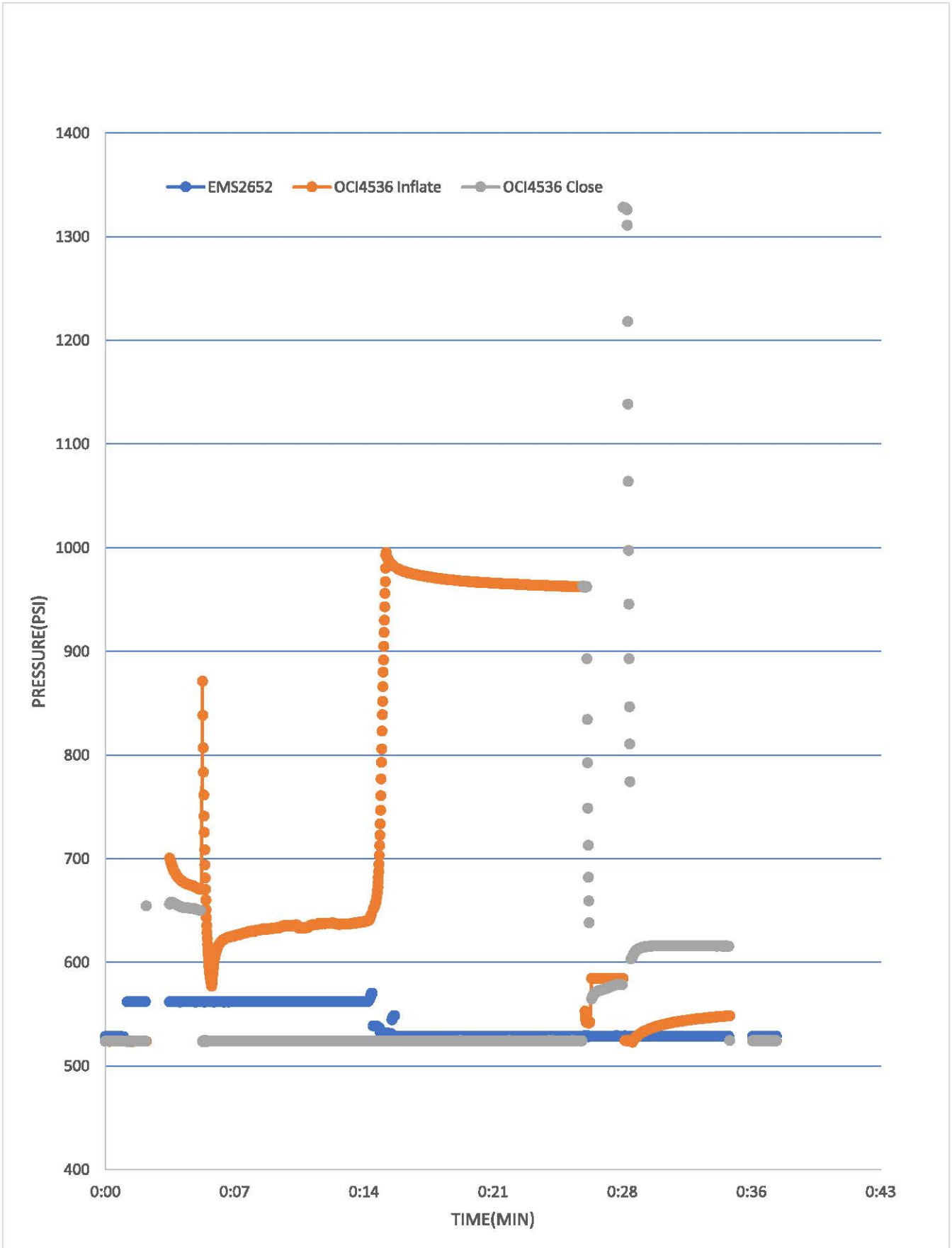
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	523.88	524.03	528.36	10:08							Start recording / Ems shoe out - 15 rot
0	0	524	524	561.89	10:09							OCI shoe out
0	0	698	657	561.90	10:11							Pump to 750 psi
0.7	750	673	651	562	10:12							OCI I
0.7	70	928	524	562	10:13							Start pumping
1.0	250	615	529	562	10:14							IC
6.75	360	656	"	575	10:22							Ems valve open
7.25	510	995	"	531	10:27							Pump off / Ems valve close - Shoe in
"	460	982	"	529	10:24							10 min QA
"	440	966	"	529	10:29							+5 min
"	440	963	"	529	10:34							OCI C / vent pump / OCI O
6.9	0	584	572	529	10:35							Pump to 800 psi
7.5	800	599	578	529	10:36							OCI C / vent pump / OCI O
6.9	0	526	611	529	10:37							5 min QA
"	"	546	616	529	10:40							+3 min
"	"	548	616	529	10:42							OCI Shoe in - 15 rot
"	"	524.32	524.45	528.72	10:44							2 min QA
"	"	524.31	524.45	529.72	10:46							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 24
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 068
Packer Depth:372.26 m



Packer #24 Well SB_BH01

Plot by:TK 2023-01-27

940

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB _____ Client: _____ By: NL Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 25 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): N/A Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 542

Target Infl P: (PO + PM): 542 + 400 = ~ 940

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

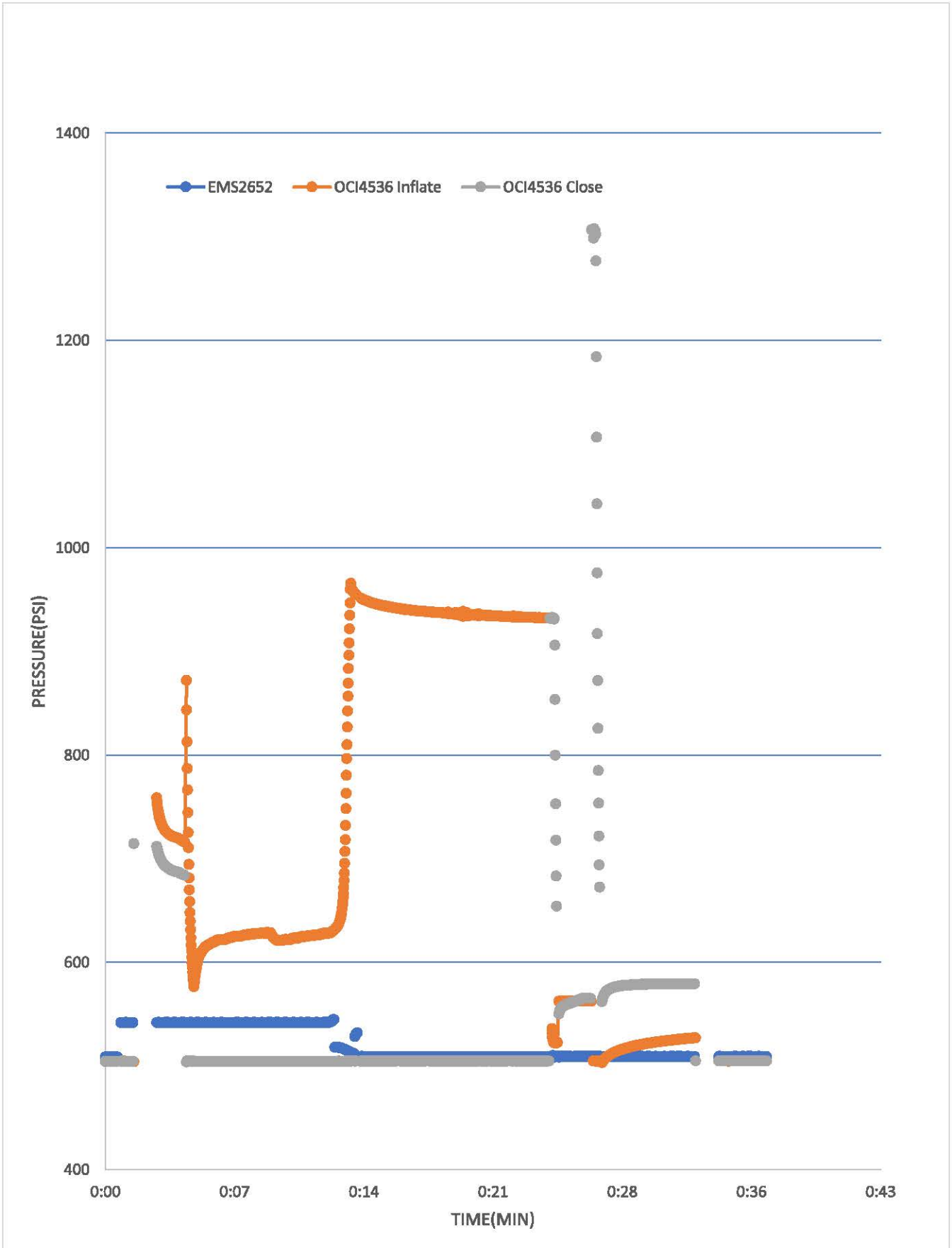
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
@	0	504.51	504.48	508.41	10:54							Start recording, EMS shoe out - 15 rot
0	0	504	505	541.99	10:55							OCI shoe out -
0	0	759	710	542	10:57							Pump to 750 psi
0.6	750	719	686	542	10:58							OCI
0.6	120	944	505	542	10:59							start pumping
1.0	270	612	505	542	11:00							1L
5.0	310	626	11	542	11:06							5L
5.75	320	632	11	546	11:07							EMS valve open
6.3	500	965	11	—	11:08							Stop pump / EMS valve close - shoe in
6.3	450	950	11	510	11:09							1 min QA
6.3	436	936	11	509	11:14							+6 min
6.3	420	932	11	509	11:19							OCI C / vent pump / OCI O
6.0	0	563	558	509	11:20							Pump to 800 psi
6.7	800	563	565	509	11:21							OCI C / vent pump / OCI O
6.0	0	506	570	509	11:22							5 min QA
6.0	0	523	579	509	11:25							+3 min
11	4	527	579	509	11:27							OCI shoe in - 15 rot
11	11	509.91	505.09	509.21	11:29							2 min QA
11	11	509.91	505.09	509.21	11:31							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 25
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 061
Packer Depth:358.83 m



Packer #25 Well SB_BH01

Plot by:TK 2023-01-27

910

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 06 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): N/A Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 513

Target Infl P: (PO + PM): 513 + 400 = ~ 910

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

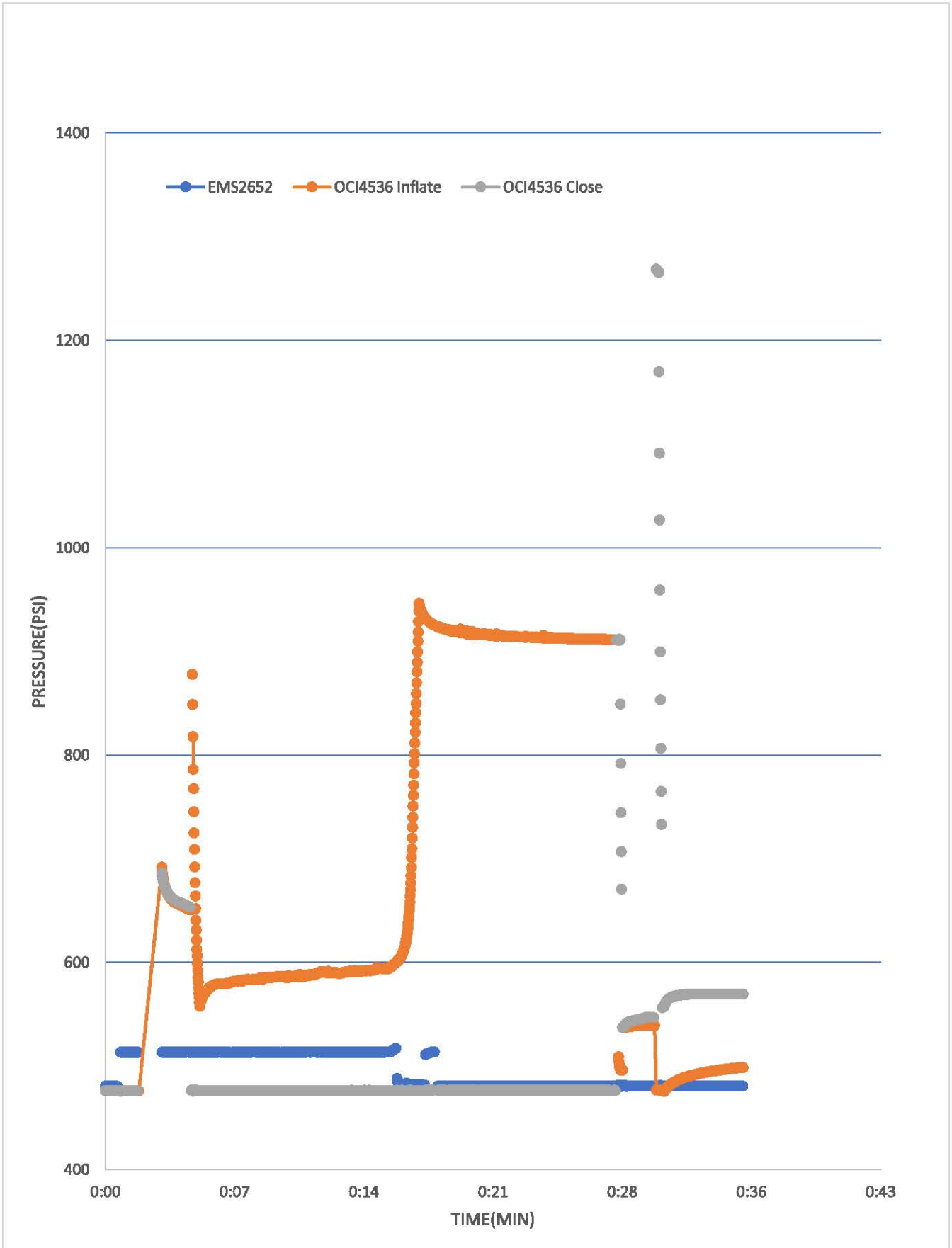
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	476.26	476.33	480.49	11:37							Start recording - EMS shoe out - 15 rot
0	0	476	476	513.24	11:38							OCI shoe out
0	0	696	680	513	11:40							Pump to 750 psi
0.6	750	654	655	513	11:41							OCI I
"	150	929	476	513	11:41							Start pumping
1.0	240	574	"	513	11:42							1L
5.0	270	591	"	513	11:50							5L
6.0	280	594	"	513	11:51							6L
6.5	280	599	"	517	11:53							EMS valve open
7.25	500	946	"	482	11 59							Pump off / EMS valve close - shoe in
"	440	926	"	481	11:55							10 min QA
"	430	914	"	481	12:00							+5 min
"	420	911	"	481	12:05							OCIC / vent pump / OCI O
6.9	0	538	543	481	12:06							Pump to 800 psi
7.5	800	539	547	481	12:07							OCIC / vent pump / OCI O
6.9	0	477	563	481	12:08							5 min QA
"	"	497	569	481	12:11							+3 min
"	"	500	569	481	12:13							OCI shoe in - 15 rot
"	"	476.69	476.79	480.78	12:15							2 min QA
"	"	476.69	476.74	480.79	12:17							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 26
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 065
Packer Depth:339.41 m



Packer #26 Well SB_BH01

Plot by:TK 2023-01-27

890

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 27 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 491

Target Infl P: (PO + PM): 491+400 = ~890

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

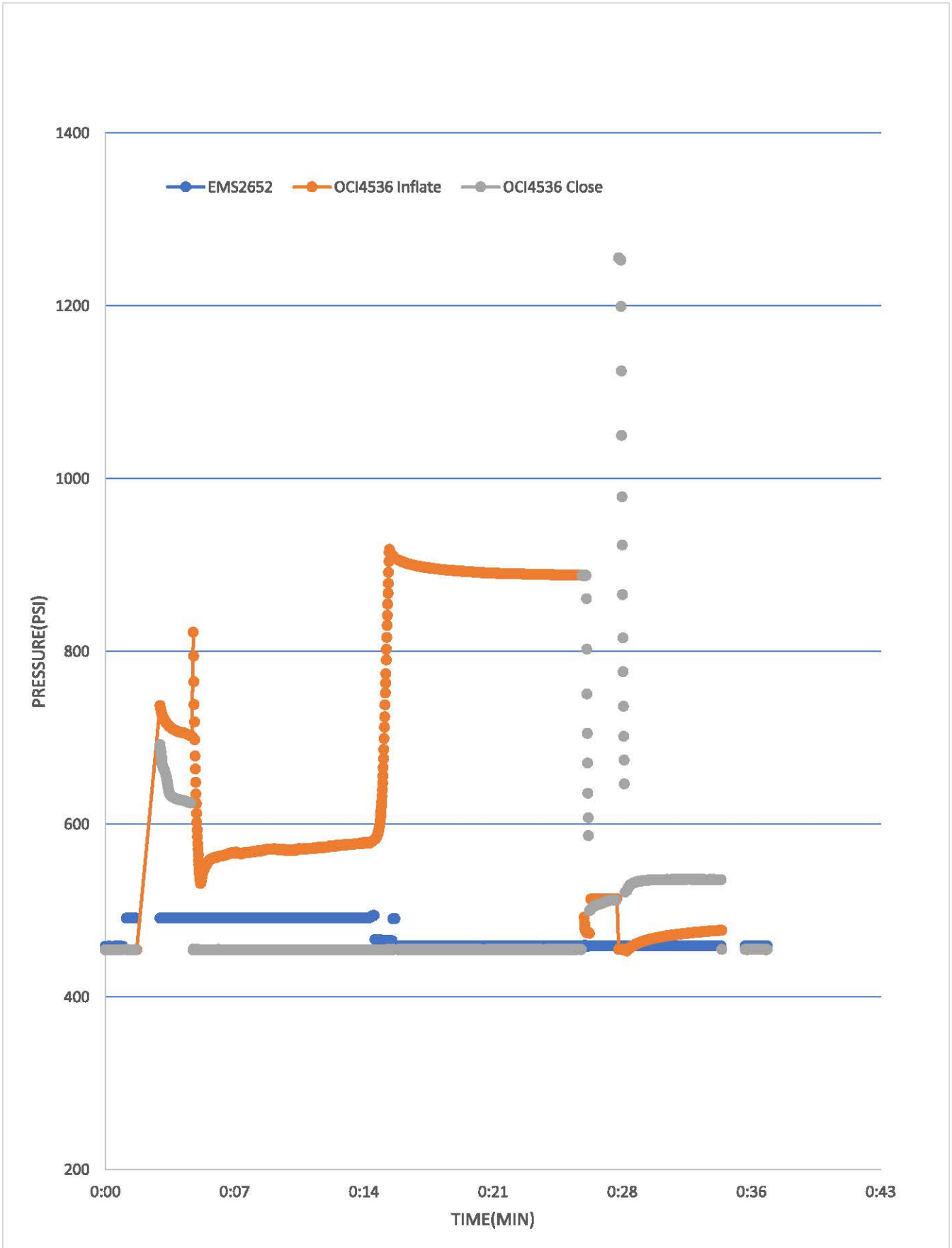
Pumping Information

Vol (L)	Pressure (psi) Line	Inf Tool	Close Tool	Vent Tool	Clock	Tag	Inf Valve O	I	C	Pump Off	On	Comments
0	0	454.58	454.69	458.78	12:23							Start recording. EMS shoe at -15 rot
0	0	454	455	491.30	12:24							OCI shoe out - 15 rot
0	0	728	683	491	12:26							Pump to 750 psi
0.6	750	705	626	491	12:27							OCI I
0.6	130	903	454	491	12:28							start pumping
1.0	250	557	455	491	12:28							1L
6.0	360	577	"	491	12:36							6L
6.8	320	582	"	494	12:38							EMS valve open
7.4	500	918	"	458	12:39							Pump off / EMS valve closed - shoe in
11	450	905	"	459	12:39							10 min QA
11	440	891	"	459	12:44							+5 min
11	430	888	"	459	12:49							OCI C / vent pump / OCI O
7.0	0	513	505	459	12:50							Pump to 800 psi
7.7	800	514	512	459	12:51							OCI C / vent pump / OCI O
7.1	0	455	529	459	12:52							5 min QA
7.0	0	473	536	459	12:55							+3 min
4	"	477	536	459	12:57							OCI shoe in - 15 rot
"	"	454.96	454.96	459.07	12:59							2 min QA
"	"	454.86	454.96	459.08	1:00							Stop recording / Save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 27
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 057
Packer Depth:324.48 m



Packer #27 Well SB_BH01

Plot by:TK 2023-01-27

860

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 492 Client: _____ By: ML Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 28 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 462

Target Infl P: (PO + PM): 462 + 400 = ~860

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

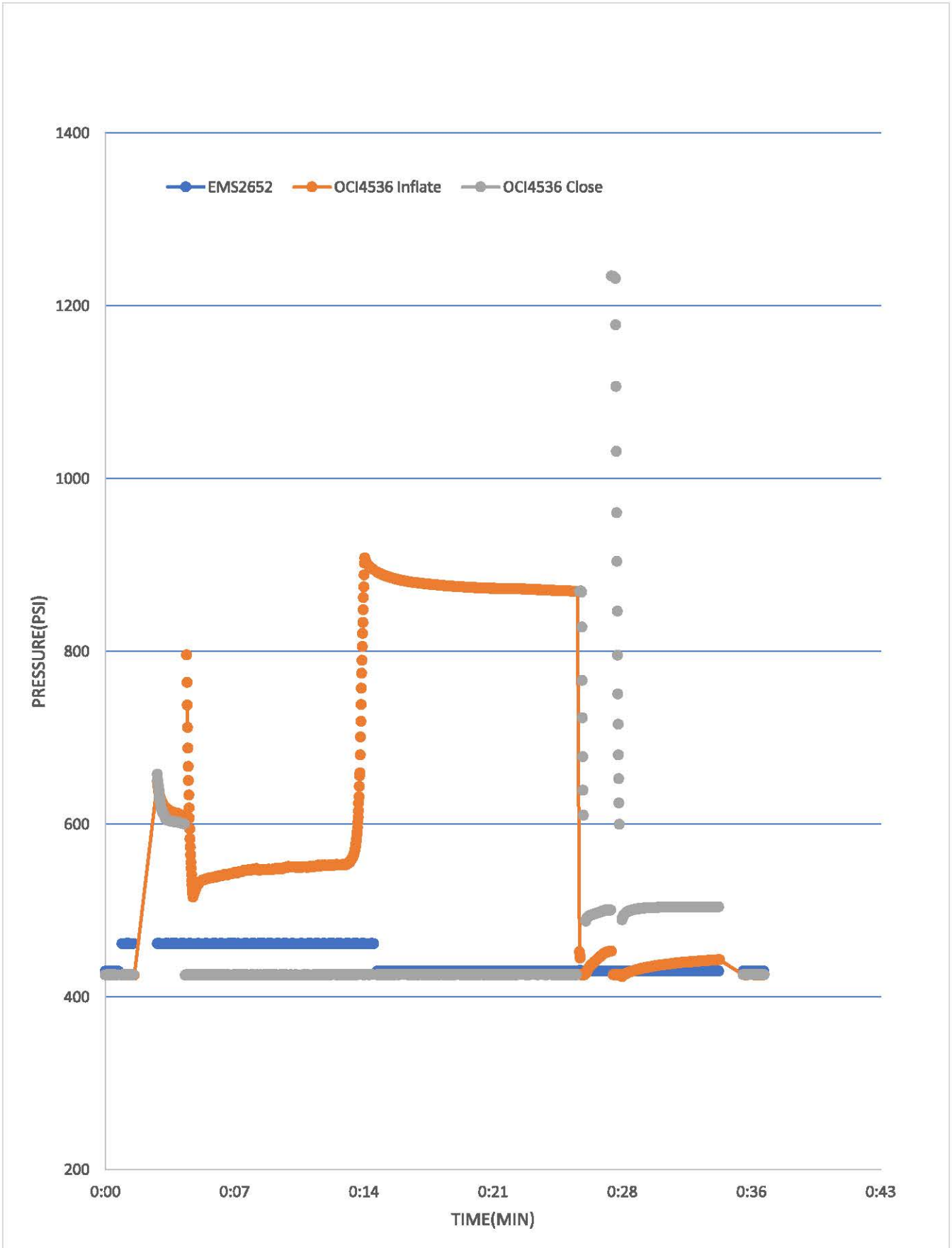
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	425.53	425.66	429.80	1:07							start recording / EMS shoe out - 15 rot
0	0	425	426	461.88	1:08							OCI shoe out
0	0	651	645	462	1:10							Pump to 750 psi
0.6	750	611	601	462	1:11							OCI I
0.6	160	877	426	462	1:11							start pumping
1.0	300	535	"	462	1:12							1L
6.0	350	553	"	462	1:19							6L
7.0	360	700	"	462	1:20							7L
7.2	520	908	"	462	1:21							stop pump / EMS shoe in
7.2	450	890	426	430	1:22							10 min QA
"	440	874	426	430	1:27							+5 min
"	440	870	426	430	1:33							OCI C / vent pump / OCI O
6.8	0	432	494	430	1:34							Pump to 800 psi
7.4	800	952	501	430	1:35							OCI C / vent pump / OCI O
6.8	0	425	496	430	1:36							5 min QA
6.8	0	439	504	430	1:39							+3 min
"	"	443	504	430	1:41							OCI shoe in - 15 rot
"	"	425.73	425.87	429.92	1:43							2 min QA
"	"	425.72	425.86	429.97	1:45							stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 28
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 073
Packer Depth:304.62 m



Packer #28 Well SB_BH01

Plot by:TK 2023-01-27

840

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: By: MC Date: June 28/22 Location:

Well No. BH01 Borehole Dia: Computer Data File: .WD3

Packer No: 29 Depth:

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): ~~440~~ 440

Target Infl P: (PO + PM): ~~408+440 = ~848~~ 840

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

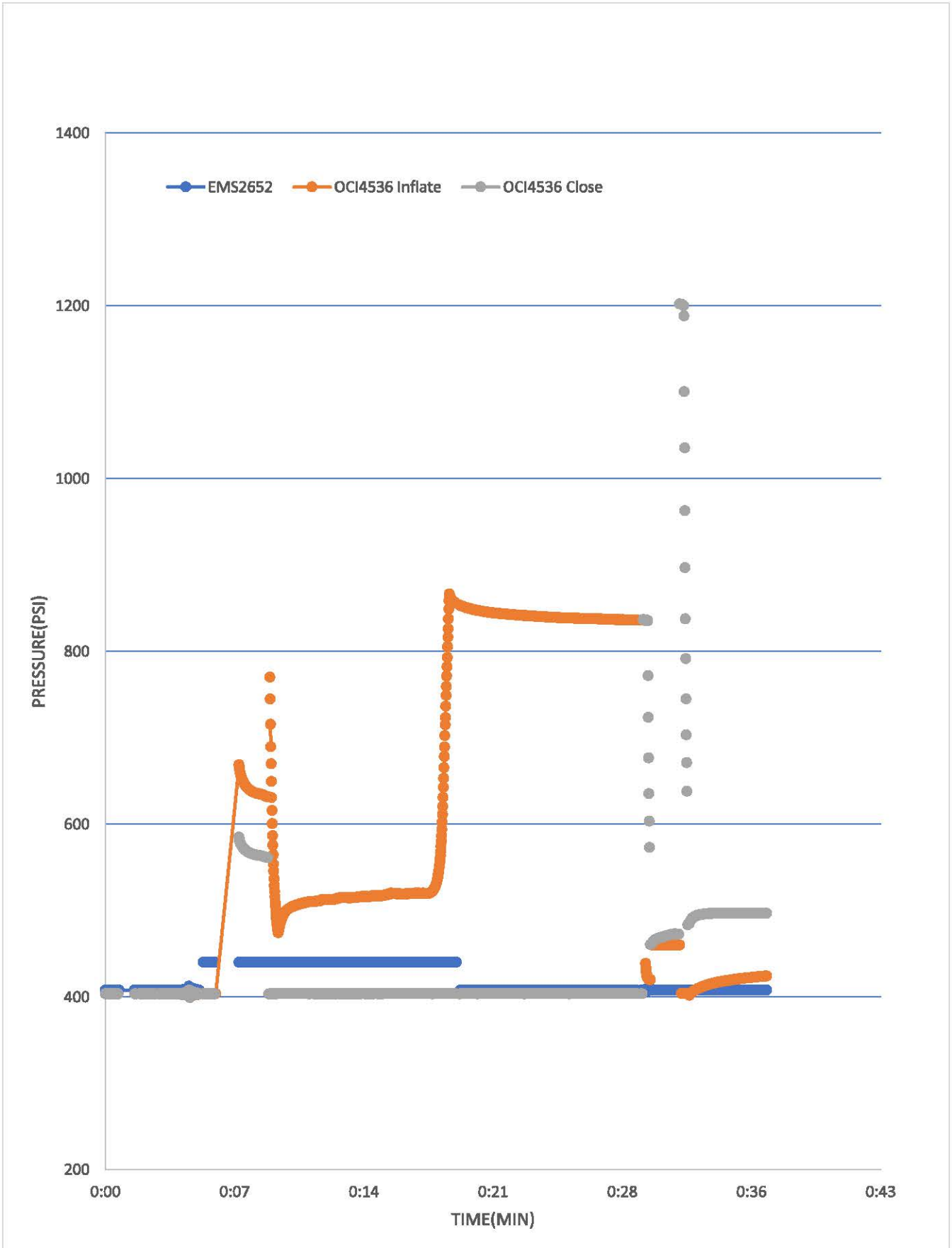
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	403.69	403.75	407.95	1:52							Start recordng. EMS shoe out - 13 rot
0	0	404	404	408	1:54							~~Reload~~ EMS shoe in
0	0	404	404	408	1:55							Reland tools - EMS shoe out - 15 rot
0	0	404	404	440.25	1:58							OCI shoe out - 15 rot
0	0	673	581	440	2:00							Pump to 750 psi
0.7	750	634	562	440	2:01							OCI I
0.7	170	832	404	440	2:01							Start pumping
1.0	250	500	"	440	2:02							1L
5.0	300	520	"	440	2:09							5L
6.0	300	544	"	440	2:11							6L
6.25	500	866	"	~~440~~	2:11							Stop pump / EMS shoe in
11	450	857	404	408	2:12							10 min QA
"	430	840	404	408	2:17							+5 min
"	430	836	404	408	2:22							OCI C / vent pump / OCI O
6.0	0	460	466	408	2:23							Pump to 800 psi
6.6	800	460	473	408	2:24							OCI C / vent pump / OCI O
6.0	0	405	492	408	2:25							5mm QA
5.9	"	426	497	408	2:30							OCI shoe In - 15 rot
"	"	403.89	403.94	407.98	2:32							2 min QA
"	"	403.89	403.93	407.98	2:34							Stop recording / Save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 29
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 063
Packer Depth:289.69 m



Packer #29 Well SB_BH01

Plot by:TK 2023-01-27

820

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: By: ML Date: June 28/22 Location:

Well No. BH01 Borehole Dia: Computer Data File: .WD3

Packer No: 30 Depth:

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 419

Target Infl P: (PO + PM): 419+400 = ~ 820

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

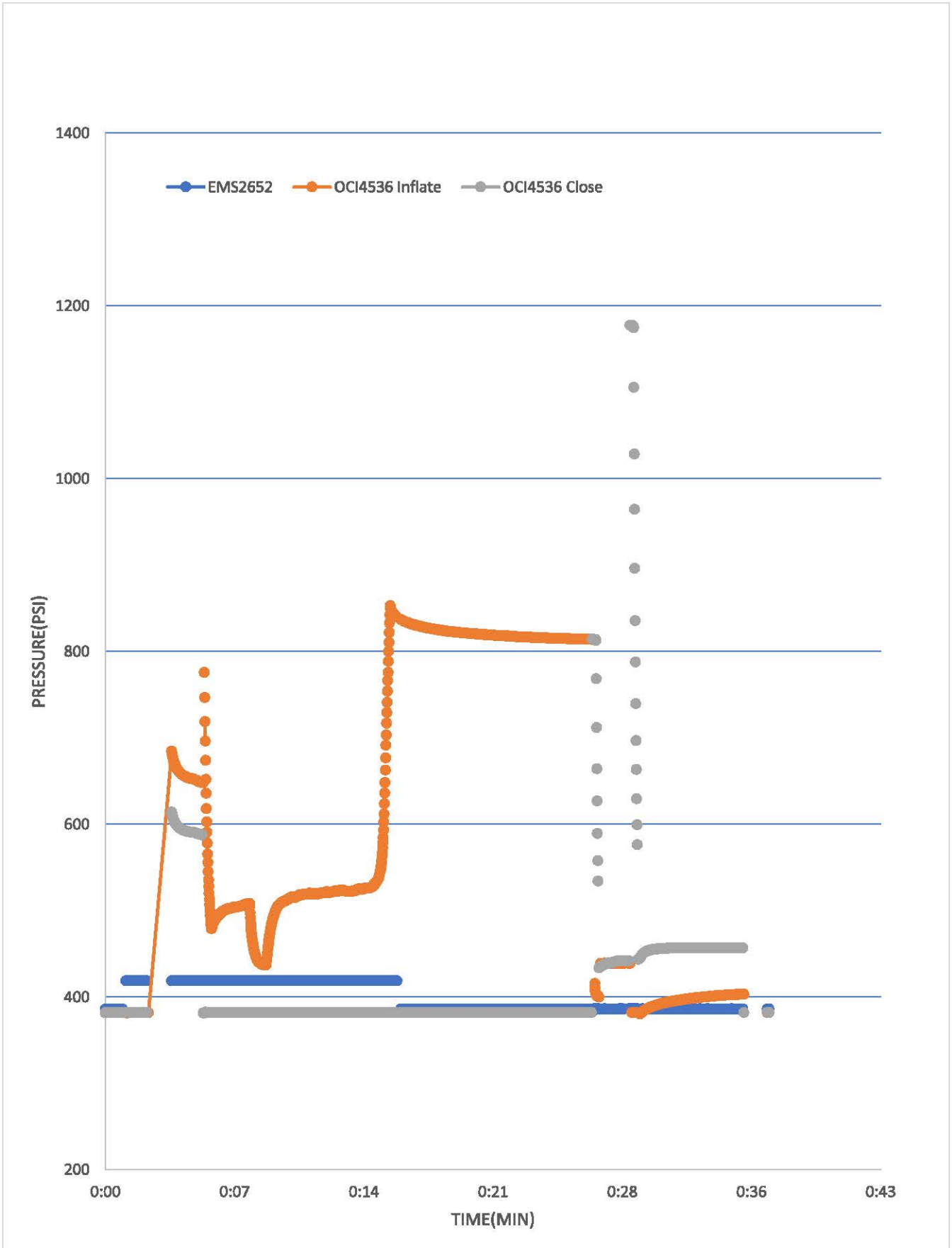
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	381.83	381.93	386.00	2:43							start recording. EMS shoe out - 15 rot
0	0	382	382	418.72	2:44							OCI shoe out
0	0	690	610	419	2:47							Pump to 700 psi
0.6	750	651	589	419	2:48							OCI I
0.6	160	824	382	419	2:49							start pumping
1.0	260	498	382	419	2:49							IC (pumping was paused & restarted)
6.0	—	691	—	—	—							6L
6.1	500	852	382	419	2:59							stop pump / EMS shoe in
6.1	450	835	382	386	3:00							10 min QA
6.1	440	819	382	386	3:05							+5 min
6.1	430	814	382	386	3:10							OCI-C / vent pump / OCI-O
5.75	0	439	437	386	3:11							Pump to 800 psi
6.9	800	439	442	386	3:12							OCI-C / vent pump / OCI-O
5.75	0	382	450	386	3:13							5 min QA
5.7	0	397	457	386	3:15							+2 min
11	11	403	457	386	3:18							OCI shoe in - 15 rot
11	11	382.11	382.19	386.23	3:20							2 min QA
11	11	382.11	382.18	386.18	3:22							stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 30
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 059
Packer Depth:274.83 m



Packer #30 Well SB_BH01

Plot by:TK 2023-01-27

Westbay Instruments

800

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 28/22 Location: _____

Well No. B4a Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 3 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 403

Target Infl P: (PO + PM): 403+400 = 800

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

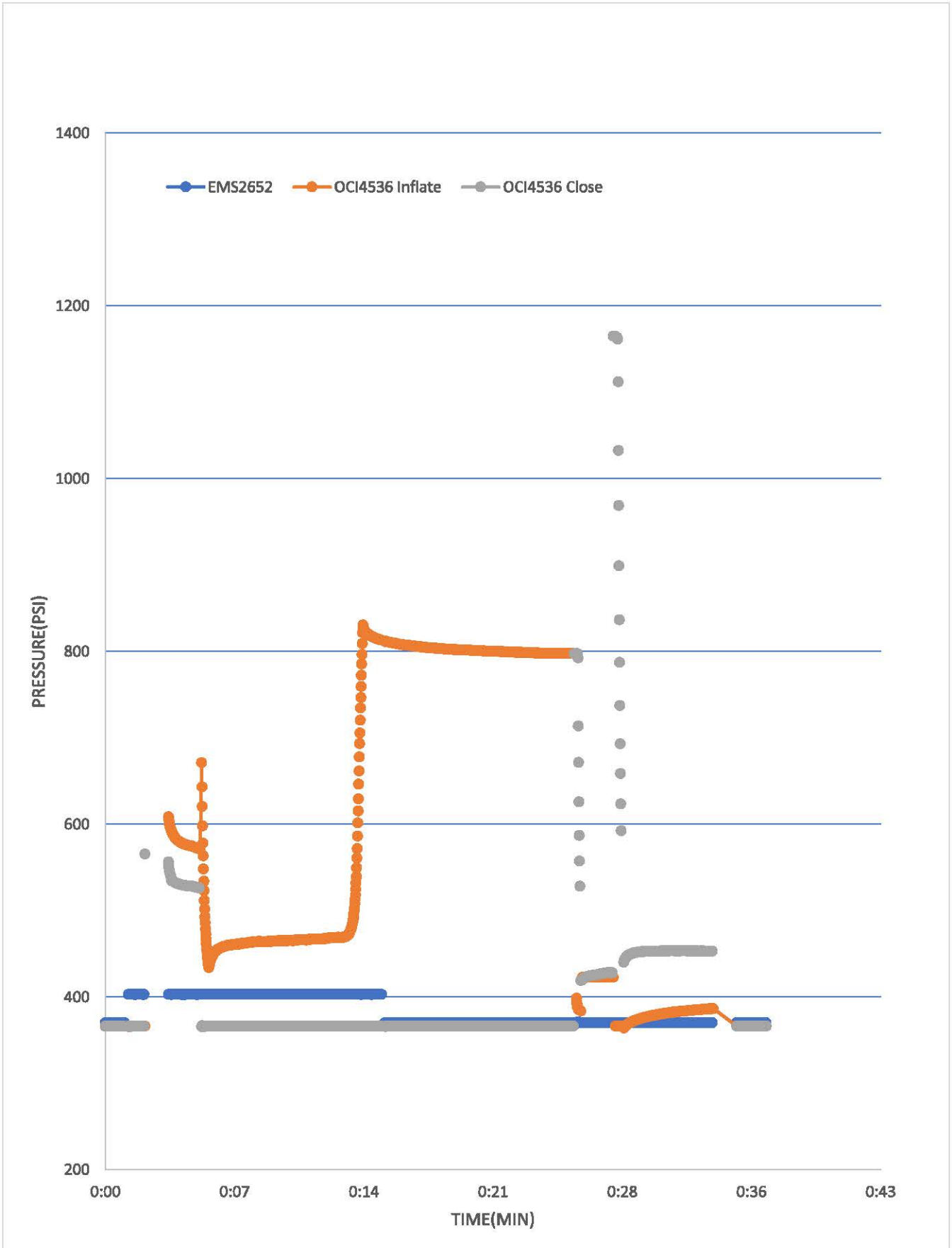
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	366.05	366.17	370.12	3:28							Start recording. EMS shoe out - 15 rot.
0	0	366	366	402.90	3:29							OCI shoe out - 15 rot.
0	0	608	548	403	3:31							Pump to 750 psi.
0.7	750	574	527	403	3:32							OCI I
0.7	120	760	366	403	3:33							Start pumping
1.0	250	453	"	403	3:34							1L
5.75	320	484	"	403	3:41							Spike started
6.0	—	571	"	403	3:41							6L
6.2	500	828	"	403	3:42							Stop pump
6.2	450	815	"	403	3:42							EMS shoe in
6.2	440	810	"	370	3:43							10 mm OA
6.2	430	801	"	370	3:48							+5 mm
6.2	420	798	"	370	3:53							OCI-C / vent pump / OCI-O
5.9	0	423	423	370	3:54							Pump to 800 psi
6.5	800	423	428	370	3:55							OCI-C / vent pump / OCI-O
5.8	0	366	445	370	3:56							5 mm OA
5.75	0	381	453	370	3:58							+2 mm
"	"	386	453	370	4:01							OCI shoe in - 15 rot
"	"	366.24	366.35	370.30	4:03							2 mm QC
"	"	366.24	366.35	370.30	4:05							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 31
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 055
Packer Depth:263.96 m



Packer #31 Well SB_BH01

Plot by:TK 2023-01-27

775

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: M Date: June 28/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 32 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): nla Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 375

Target Infl P: (PO + PM): 375+400 = 775

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

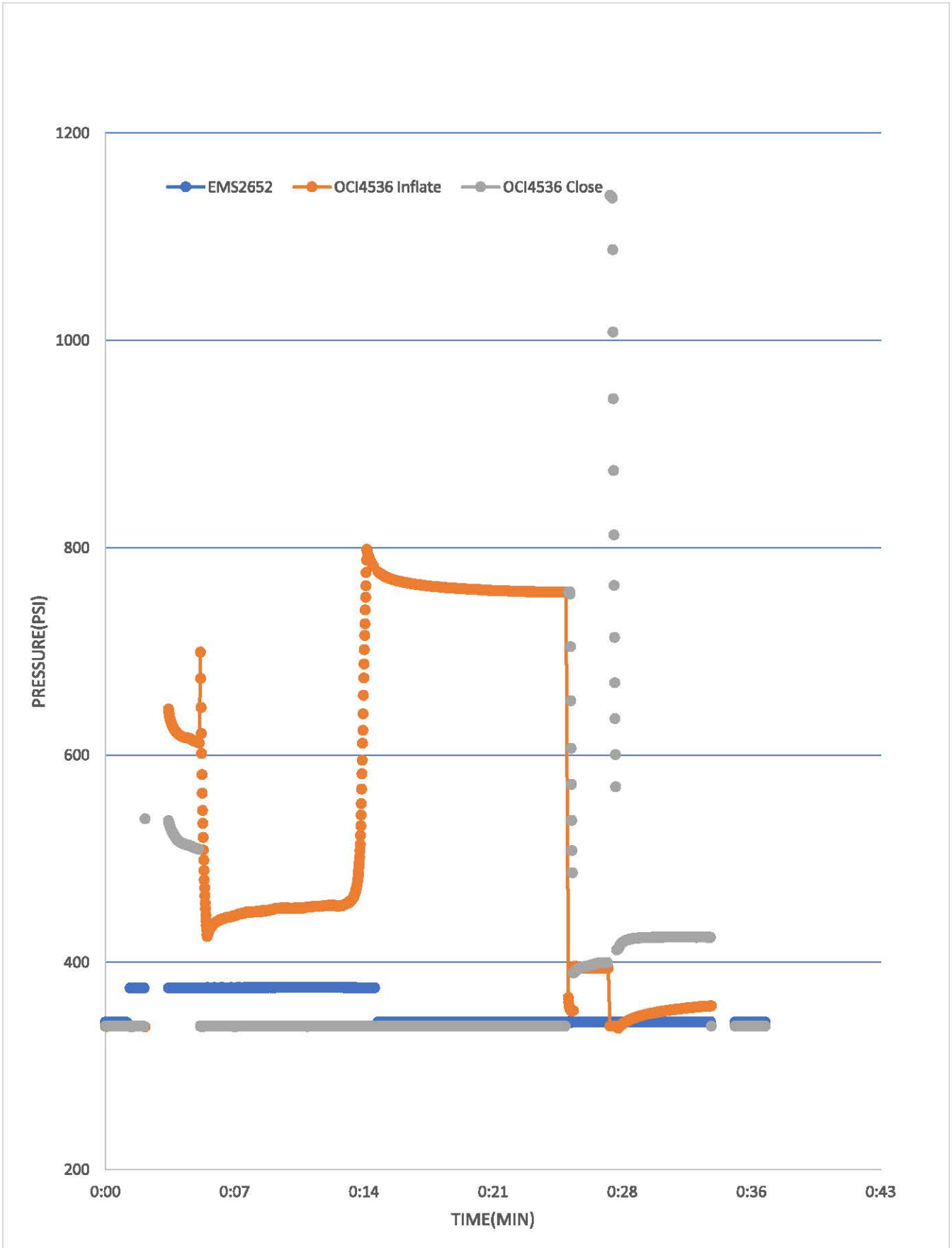
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	338.33	338.42	342.33	4:13							Start recording. ENS shoe out - 15 rot
0	0	338	338	375.38	4:14							OCI shoe out - 15 rot
0	0	647	534	375	4:17							Pump to 750 psi
0.5	750	615	511	375	4:18							OCI I
0.5	150	767	339	375	4:19							start pumping
1.0	280	438	"	375	4:20							1L
5.0	310	455	338	375	4:26							5L
5.6	320	458	"	375	4:27							Spike started
6.2	500	798	338	375	4:28							Pump off / ENS shoe in
6.2	440	775	338	342	4:29							10 min QA
6.2	410	760	338	342	4:34							+5 min
6.2	410	757	338	342	4:39							OCI C / vent pump / OCI O
5.75	0	394	395	342	4:40							Pump to 800 psi
6.5	800	394	400	343	4:41							OCI C / vent pump / OCI O
5.75	0	340	420	343	4:42							5 min QA
"	"	351	424	343	4:44							+2 min
"	"	358	424	343	4:47							OCI shoe in - 15 rot
"	"	338.52	338.58	342.51	4:49							2 min QC
"	"	338.52	338.58	342.51	4:51							Stop recording. Save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 32
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 042
Packer Depth:245.03 m



Packer #32 Well SB_BH01

Plot by:TK 2023-01-27

750

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 29/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 33 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 345

Target Infl P: (PO + PM): 345+400 = ~ 750

Confirm Venting (Vent Tool Data): (Yes) / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

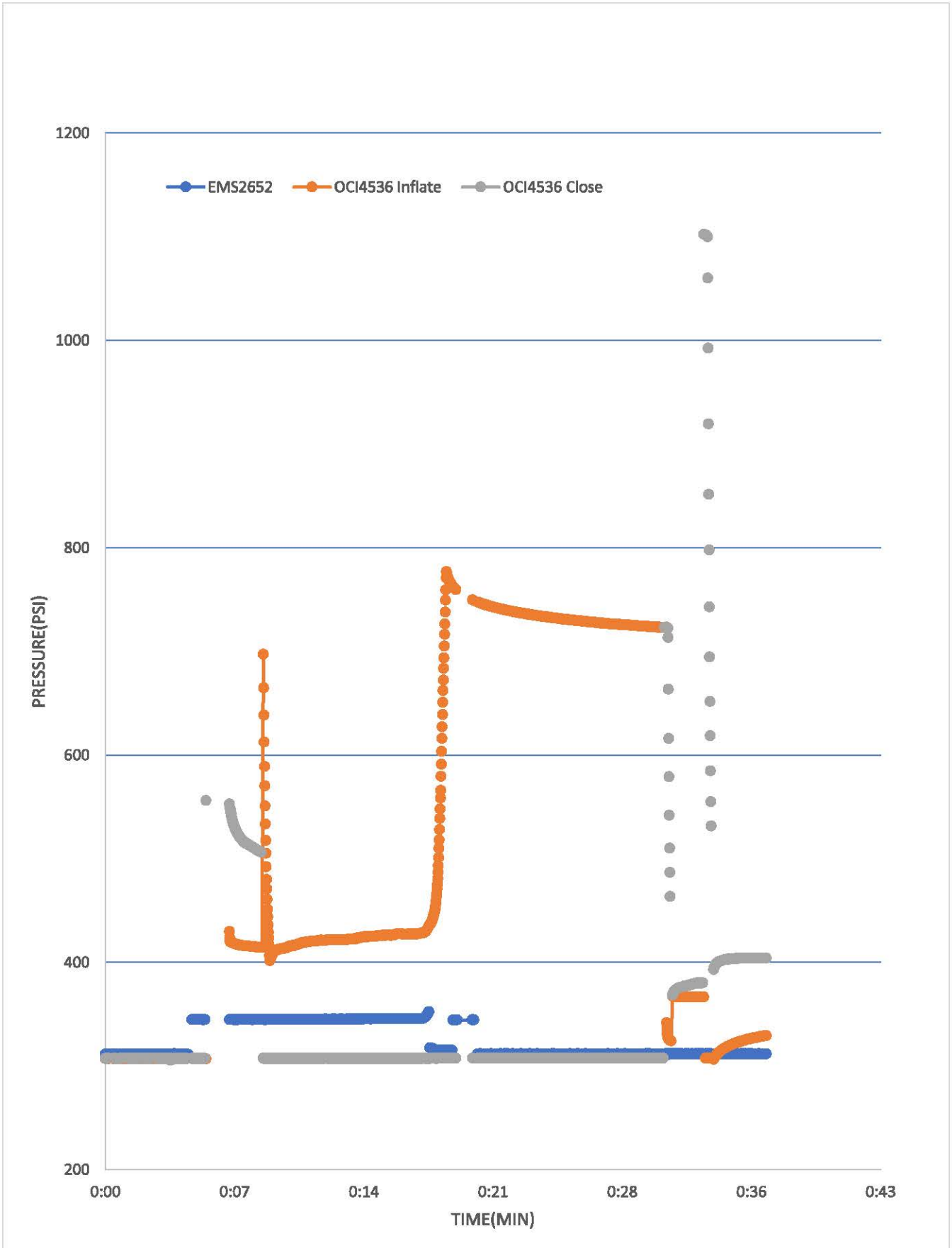
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	307.18	307.38	311.65	8:35							Start recording. EMS shoe out - 12 rot Roland - 15 ROT
0	0	307	307	344.84	8:41							OCI shoe out - 15 rot
0	0	431	545	345	8:43							Pump to 750 psi
0.6	750	485	509	345	8:44							OCI I
0.6	150	757	308	345	8:45							start pumping
1.0	260	413	307	345	8:46							1L
5.0	290	427	"	346	8:52							5L
6.0	300	429	"	346	-							6L
6.2	300	-	"	353	8.54							EMS valve open
6.7	500	777	"	316	8:55							Pump off / EMS valve close - shoe in - motor shoe out
6.7	440	747	"	312	8:57							10 min QA
6.7	420	730	308	312	9:02							+5 min
6.7	410	723	308	312	9:07							OCI C / vent pump / OCI O
6.3	0	367	374	312	9:08							Pump to 800 psi
7.0	800	367	380	312	9:09							OCIC / vent pump / OCIO
6.25	0	309	398	312	9:10							5mm QA
6.25	0	326	404	312	9:12							+2 min
"	"	334	404	312	9:15							OCI shoe in - 15 rot
"	"	307.57	307.87	311.88	9:16							2 min QA
"	"	307.57	307.87	311.88	9:18							stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 33
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 058
Packer Depth:224.11 m



Packer #33 Well SB_BH01

Plot by:TK 2023-01-27

720

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB Client: By: M Date: June 29/22 Location:

Well No. BH01 Borehole Dia: Computer Data File: .WD3

Packer No: 34 Depth:

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 318

Target Infl P: (PO + PM): 318 + 400 = 720

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): Volume Returned (L): Final Inf'n Vol (L):

Calc'd Element Pressure (PF +PV- PO): Confirm Pkr Valve Closed: (Yes / No)

Comments:

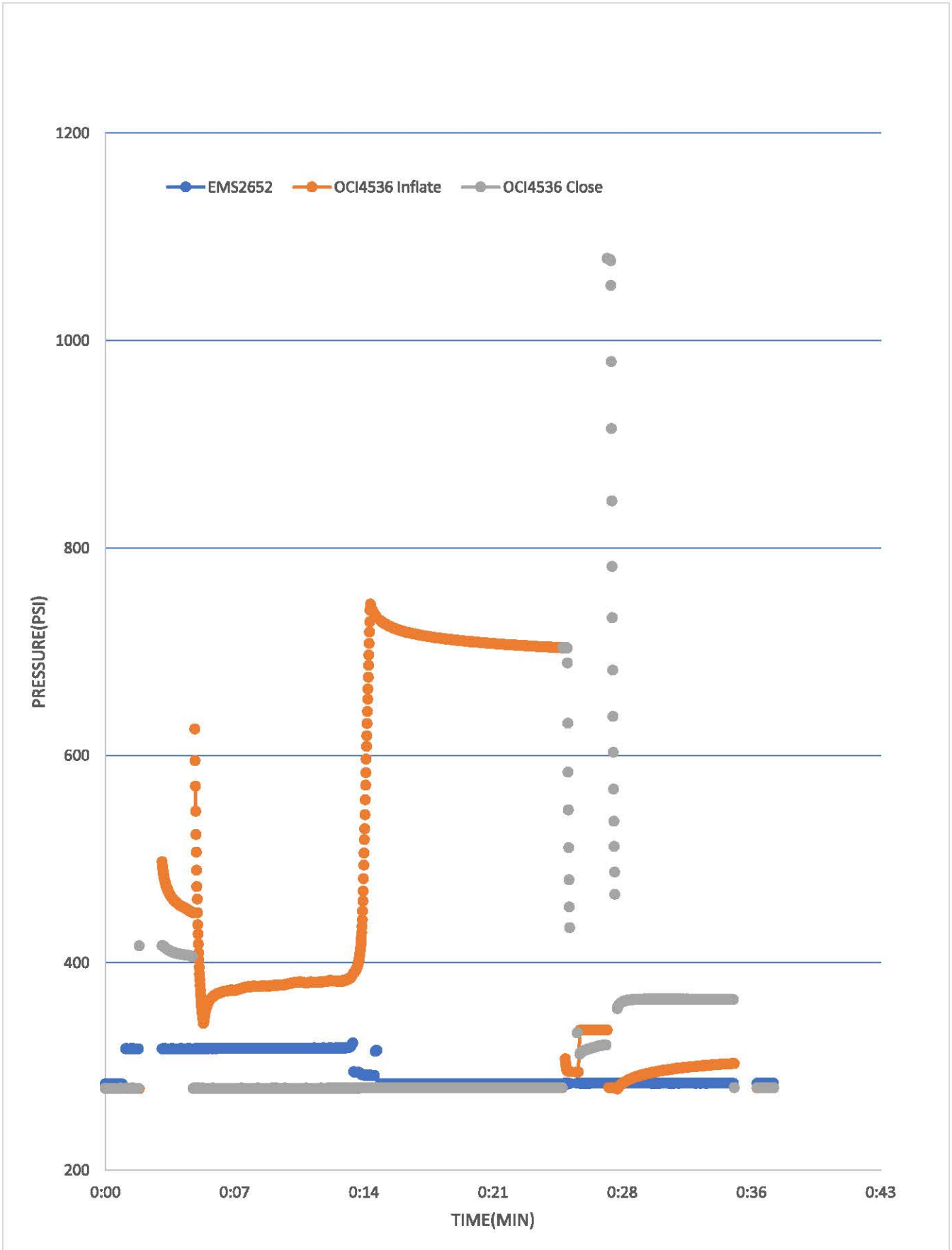
Pumping Information

Vol (L)	Pressure (psi)				Clock	Tag	Inf Valve			Pump		Comments
	Line	Inf Tool	Close Tool	Vent Tool			O	I	C	Off	On	
0	0	278.82	279.13	283.27	9:26							Start recording EMS shoe out - 15 rot
0	0	279	279	317.18	9:27							DCI shoe out - 15 rot
0	0	504	416	317	9:29							Pump to 750 psi
0.6	750	451	407	317	9:30							DCI I
0.6	80	706	279	317	9:30							Start pumping
1.0	240	370	"	317	9:31							1L
5.0	260	383	"	317	9:38							5L
5.5	300	391	"	324	9:39							EMS valve open
6.1	500	745	"	291	9:40							pump off / EMS valve close - shoe in - 15 rot
6.1	440	728	"	283	9:41							10 min QA
6.1	430	710	"	283	9:46							+ 5 min
6.1	420	704	"	283	9:51							DCI C / vent pump / DCI O
5.75	0	335	315	284	9:52							Pump to 800 psi
6.4	800	335	321	284	9:53							DCI C / vent pump / DCI O
5.75	0	281	361	284	9:54							5 min QA
5.7	0	294	365	284	9:56							+ 2 min
"	"	302	365	284	10:00							DCI shoe in - 15 rot
"	"	279.40	279.68	283.85	10:02							2 min QA
"	"	279.40	279.67	283.84	10:04							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 34
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 040
Packer Depth:204.69 m



Packer #34 Well SB_BH01

Plot by:TK 2023-01-27

680

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: ML Date: June 29/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 35 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 285

Target Infl P: (PO + PM): 285+400 = 685

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

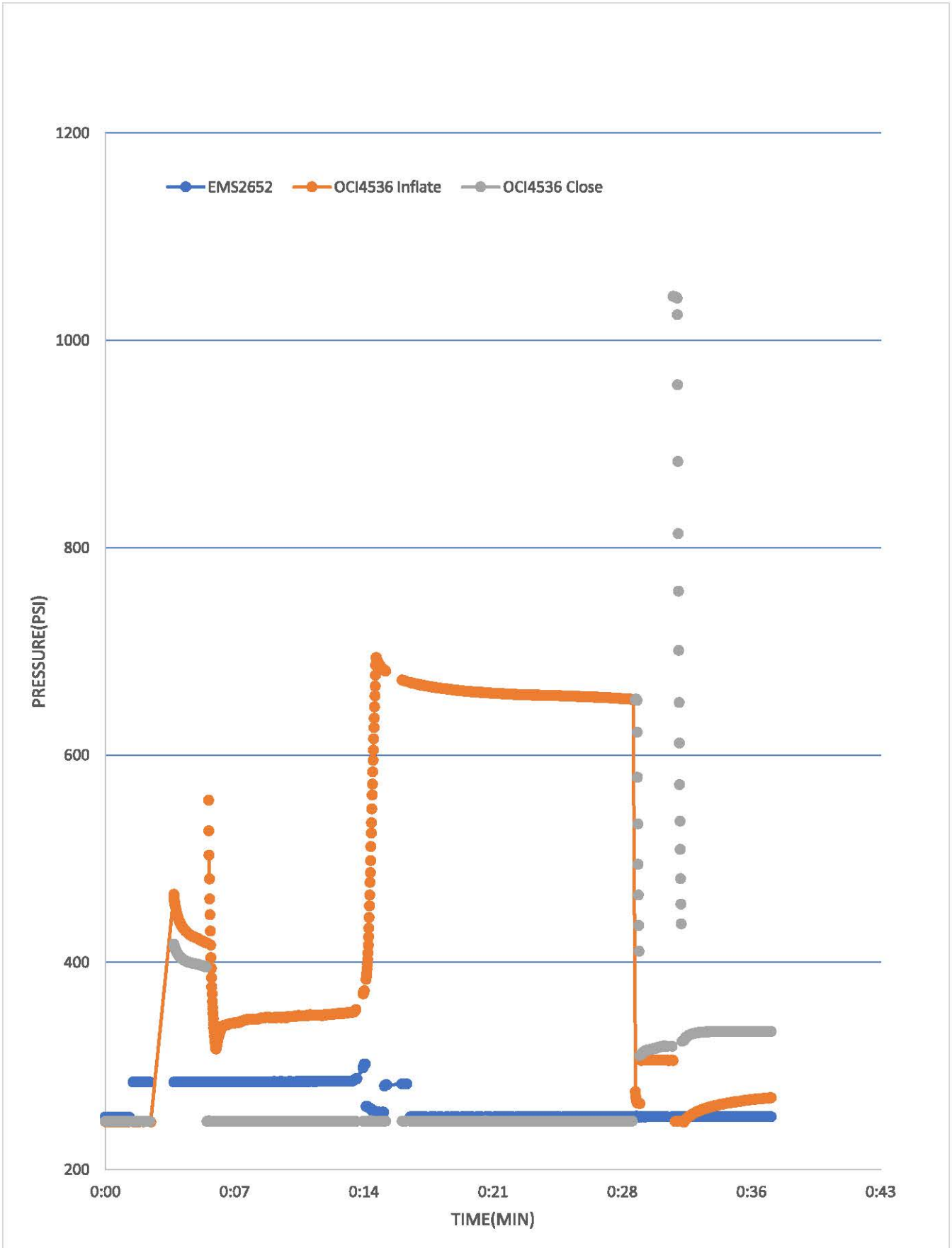
Pumping Information

Vol (L)	Pressure (psi) Line	Inf Tool	Close Tool	Vent Tool	Clock	Tag	Inf Valve O	I	C	Pump Off	On	Comments
0	0	246.47	246.71	250.78	10:12							Start recording. EMS shoe out - 15 rot
0	0	246	247	284.53	10:14							OCI shoe out - 15 rot
0	0	469	414	285	10:15							pump to 750 psi.
0.7	750	421	397	285	10:17							OCI I
0.7	110	646	246	285	10:17							Start pumping
1.0	270	339	247	285	10:18							1L
5.0	320	350	"	285	10:24							5L
5.75	398	398	"	304	10:26							EMS valve open (motor time out (slow pump down)
6.1	490	694	"	255	10:27							Stop pump / EMS valve close - shoe in
6.3	410	669	"	251	10:29							10 min QA
6.3	400	659	"	251	10:34							15 min
6.3	400	654	"	251	10:40							OCI C / vent pump / OCI O
6.0	0	306	314	251	10:42							Pump to 800 psi
6.7	800	306	319	251	10:43							OCI C / vent pump / OCI O
6.0	0	245	327	251	10:44							5 min QA
6.0	0	267	333	251	10:47							13 min
"	"	270	333	251	10:49							OCI shoe in - 15 rot
"	"	246.75	246.99	251.15	10:51							2 min QA
"	"	246.75	246.98	251.26	10:53							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 35
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 056
Packer Depth:182.26 m



Packer #35 Well SB_BH01

Plot by:TK 2023-01-27

640

Westbay Instruments

Westbay System MP55 Packer Inflation Field Record

Doc No. QA20210325-007

Page No: 1

Project No: WB 992 Client: _____ By: MP Date: June 29/22 Location: _____

Well No. BH01 Borehole Dia: _____ Computer Data File: _____.WD3

Packer No: 36 Depth: _____

Inf Tool No: 4536 Vent Tool No: 4954

H-B Valve (P_H): n/a Offset (P_V): 4

Vent Tool Pressure (Shoe Out,(P_O)): 238

Target Infl P: (PO + PM): 237 + 400 = ~~740~~ 640

Confirm Venting (Vent Tool Data): (Yes / No)

Volume Pumped (L): _____ Volume Returned (L): _____ Final Inf'n Vol (L): _____

Calc'd Element Pressure (PF +PV- PO): _____ Confirm Pkr Valve Closed: (Yes / No)

Comments: _____

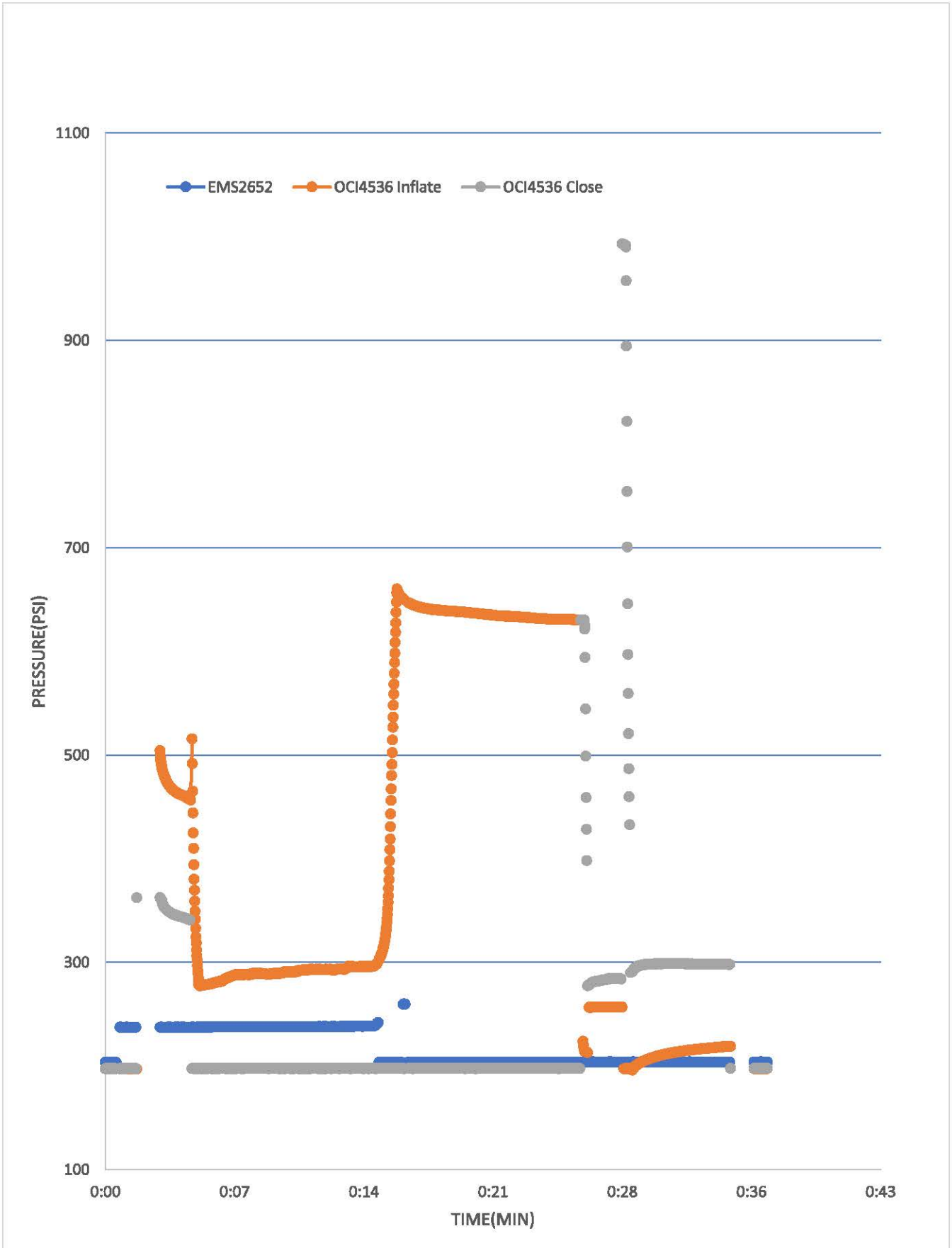
Pumping Information

Vol (L)	Pressure (psi) Line	Inf Tool	Close Tool	Vent Tool	Clock	Tag	Inf Valve O	I	C	Pump Off	On	Comments
0	0	197.34	197.58	~~203.53~~	11:47							Start recording. EMS shoe at -15 rot
0	0	197	198	237.38	11:48							OCI shoe at -15 rot
0	0	516	362	237	11:50							Pump to 750 psi
0.7	750	460	342	237	11:51							OCI I
0.7	160	598	198	237	11:51							Start pumping
1.0	240	279	"	237	11:52							1L
5.0	280	294	"	238	12:00							5L
6.0	300	296	"	238	12:01							6L
6.2	360	306	"	242	12:02							EMS valve open
6.6	500	660	"	204	12:03							pump off / EMS vale close - shoe in
6.6	440	646	"	204	12:03							10 min QA
6.6	430	634	"	204	12:08							+5 min
6.6	420	630	"	204	12:13							OCI C / vent pump / OCI O
6.25	0	257	281	204	12:14							Pump to 800 psi
6.9	800	257	284	204	12:15							OCI C / vent pump / OCI O
6.2	0	199	295	204	12:16							5 min QC
"	"	212	299	204	12:18							+2 min
"	"	218	298	204	12:21							OCI shoe in -15 rot
"	"	197.61	197.82	203.96	12:23							2 min QA
"	"	197.61	197.82	203.95	12:25							Stop recording / save file

Company: Geofirma/NWMO
Site: Teeswater, ON
Description: Packer 36
Well: SB_BH01
WB: 992

MP 55 Packer Inflation Record

Packer M/N - S/N:0414 - 072
Packer Depth:148.84 m



Packer #36 Well SB_BH01

Plot by:TK 2023-01-27

APPENDIX 2: MONITORING WELL: SB_BH01 MX INSTALLATION

Pre-MX String Installation Piezometric Pressure/ Levels

Field Data and Calculation Sheet (Oct 18)	- 6 pages
Figure 4, Pre MX String Installation Profile	- 1 page
MOSDAX cable fabrication assembly	- 3 pages
MX Probe String Installation (field copy)	- 2 pages
Overnight Data Collection Graph	- 1 page

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Well No.: SB-BH01
Datum: G-L
Elev. G.S.: NA
Height of Westbay above G.S.:
Elev. top of Westbay Casing:
Reference Elevation:
Borehole angle: 90°

Probe Type: Pressure Probe - 2526S
Serial No.: EM-5500
Probe Range: 2K
Westbay Casing Type: MP55 (S-S)
Sampler Valve Position: NA

Date: OCT 18/22
Client: NWMO
Job No.: WB 992
Location: Teeswater
Weather: Rain, 4°C
Operator: MO, TK, PT

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

		Start:	Finish:
	Pressure	13.84	13.95
	Temp	3.91	8.70
	Time	11:23	1732

P_{atm} 13.84 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (m) H = (P2-Patm)/w	Piez. Level Outside Port (m) Dz = Dp - H	Comments	
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)				
1	867.03			1230.24	954.67	12:15	23.37				865.55	R=16
					953.93	12:20	23.40					
					953.87	12:21	23.42	1230.33	661.06	205.97		
2	853.66		1210.92	~~1230.33~~	976.04	12:37	23.24				852.16	R=16
					965.16	12:39	23.22					
					962.42	12:40	23.21					
					958.04	12:42	23.20	1210.92	663.99	189.67	826.80	R=16
3	828.23			1174.56	935.60	12:51	22.91					
					929.33	1253	22.87					
					925.46	1255	22.85					
					922.44	1257	22.82					
					919.92	1259	22.82					
					918.80	1300	22.82					
					917.73	1301	22.81	1174.52	635.65	192.58		

Notes: w = 1.422psi / m of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

w = 9.804 kPA

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Well No.: _____ Probe Type: _____ Date: _____

Datum: _____ Serial No.: _____ Client: _____

Elev. G.S.: _____ Probe Range: _____ Job No.: _____

Height of Westbay above G.S.: _____ Westbay Casing Type: _____ Location: _____

Elev. top of Westbay Casing: _____ Sampler Valve Position: _____ Weather: _____

Reference Elevation: _____ Operator: _____

Borehole angle: _____

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure _____ Finish: _____

Temp _____ _____

Time _____ _____

P_{atm} 13.84 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (m) H = (P2-Patm)/w	Piez. Level Outside Port (m) Dz = Dp - H	Comments
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)			
4	805.81			1142.48	901.45	1308	22.57				804.55 R=16
					901.40	1309	22.54	1142.50	624.16	181.65	
5	786.39			1114.62	886.08	13:17	22.23				785.25 R=16
					885.97	1318	22.20	1114.69	613.31	173.08	
6	760.96			1078.41	860.12	1326	21.82				759.90 R=16
					859.74	1328	21.72				
					859.63	13:29	21.72	1078.43	594.78	166.18	737.60 R=16
7	738.54			1046.39	1058.45	~~1332~~ 13:25	21.17				
					1059.12	1347	21.16				
					1059.40	1348	21.16	1046.39			715.30 R=16
8	716.11			1014.33	~~1021.96~~ ~~1014.33~~	~~1354~~ ~~1021.96~~	20.82				
					1022.13	1356	20.80				
					1022.19	1357	20.77	1014.34			
9	693.69			982.30	985.66	1404	20.34				692.90 R=16
					985.84	1406	20.29				

Notes: w = 1.422psi / m of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Well No.: _____ Probe Type: _____ Date: _____

Datum: _____ Serial No.: _____ Client: _____

Elev. G.S.: _____ Probe Range: _____ Job No.: _____

Height of Westbay above G.S.: _____ Westbay Casing Type: _____ Location: _____

Elev. top of Westbay Casing: _____ Sampler Valve Position: _____ Weather: _____

Reference Elevation: _____ Operator: _____

Borehole angle: _____

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure _____ Finish: _____

Temp _____ _____

Time _____ _____

P_{atm} 13.84 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (m) H = (P2-Patm)/w	Piez. Level Outside Port (m) Dz = Dp - H	Comments
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)			
9					985.95	1410	20.22	982.31			
10	671.26			950.26	954.34	1416	19.91				670.55 R=16
					954.42	1418	19.88	950.27			
11	648.64			918.23	919.58	1425	19.53				648.25 R=16
					919.59	1425	19.46	918.24			
12	638.42			903.29	902.96	1433	19.20				637.70 R=16
					902.97	1435	19.12	903.30			
C 13	618.99			875.54	875.37	1441	18.65				618.60 R=16
					875.32	1442	18.56	875.55			~~600.6~~
H 14	601.07			849.98	849.24	1447	18.05				600.60 R=16
					847.80	1449	17.91	849.99			
X 15	578.64			817.92	813.84	1453	17.41				578.4 R=16
					813.68	1455	17.26	817.94			
16	556.22			785.93	~~780.55~~ 780.47	~~1505~~ 1507	16.62				556.0 R=16
					~~780.49~~	~~1504~~	16.43	785.95			

Notes: w = 1.422psi / m of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Well No.: _____ Probe Type: _____ Date: _____

Datum: _____ Serial No.: _____ Client: _____

Elev. G.S.: _____ Probe Range: _____ Job No.: _____

Height of Westbay above G.S.: _____ Westbay Casing Type: _____ Location: _____

Elev. top of Westbay Casing: _____ Sampler Valve Position: _____ Weather: _____

Reference Elevation: _____ Operator: _____

Borehole angle: _____

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure _____ Finish: _____

Temp _____ _____

Time _____ _____

P_{atm} 13.84 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (m) H = (P2-Patm)/w	Piez. Level Outside Port (m) Dz = Dp - H	Comments
#13											
17	537.79			753.90	747.75	1513	15.91				537.60 R=17
					747.36	1515	15.79	753.90			
					748.43	1518	15.67				Shoved out again to confirm readings.
					748.26	1520	15.66	753.86			
18	508.37			717.56	712.42	1527	15.13				508.30 R=17
					712.37	1528	15.03	17.57			
19	485.95			685.53	732.24	1534	14.99				485.90 R=16
					732.36	1537	14.44				
					732.42	1538	14.48	685.54			~~4~~
20	457.52			644.97	685.79	1550	13.65				457.60
				~~644~~	685.96	1553	13.60	644.92			
18				717.65	714.18	1601	14.40				508.40 R=16 (Redrill Interval)
					713.84	1604	14.65	717.64			
21	429.10			604.38	640.38	1612	13.66				429.33 R=16
					640.56	1614	13.37	604.40			

Notes: w = 1.422psi / m of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Well No.: _____ Probe Type: _____ Date: _____

Datum: _____ Serial No.: _____ Client: _____

Elev. G.S.: _____ Probe Range: _____ Job No.: _____

Height of Westbay above G.S.: _____ Westbay Casing Type: _____ Location: _____

Elev. top of Westbay Casing: _____ Sampler Valve Position: _____ Weather: _____

Reference Elevation: _____ Operator: _____

Borehole angle: _____

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure _____ Finish: _____

Temp _____ _____

Time _____ _____

P_{atm} 13.84 psi

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings: Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)	Pressure Head Outside Port (m) H = (P2-Patm)/w	Piez. Level Outside Port (m) Dz = Dp - H	Comments
22	415.67			585.24	624.31	1618	12.92				415.79 R=16
					624.98	1619	12.82	585.25			
23	396.25			557.48	592.96	1623	12.52				396.65 R=16
					593.97	1624					
					594.98	1626	12.29				
					595.54	1627	~~557.44~~	557.41			Pressure still rising slowly after 5 mins
24	375.32			527.56	563.70	1632	12.00				375.69 R=16
					564.54	1633	11.92	527.56			~~362~~
25	361.90			508.41	541.25	1636	11.78				362.13 R=16
					542.87	1638	11.70	508.36			
26	342.48			480.66	512.88	1641	11.51				342.98 R=16
				~~482~~	513.28	1643	11.48	480.67			
27	327.55			459.46	490.83	1645	11.37	459.34			328.33 R=16
28	307.69			431.05	461.64 ~~64~~	1649	11.25	430.99			309.44 R=16
29	292.76			409.68	~~411.09~~ 440.04	1652	11.08	409.68			293.56 R=16

Notes: w = 1.422psi / m of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Westbay Piezometric Pressures/Levels

Field Data and Calculation Sheet

Well No.: SB_BH61
Datum:
Elev. G.S.:
Height of Westbay above G.S.:
Elev. top of Westbay Casing:
Reference Elevation:
Borehole angle:

Probe Type:
Serial No.:
Probe Range:
Westbay Casing Type:
Sampler Valve Position:

Date: OCT 18/2022
Client: NWMO
Job No.:
Location:
Weather:
Operator:

Note: "Port position" in angled boreholes refer to position along drillhole. True depth (Dp) needs to be calculated using borehole angle and deviation data to calculate zone piezometric level (Dz).

P_{atm} 13.84 psi

Ambient Reading (P_{atm}) (pressure, temperature, time)

Start: Pressure
Temp
Time

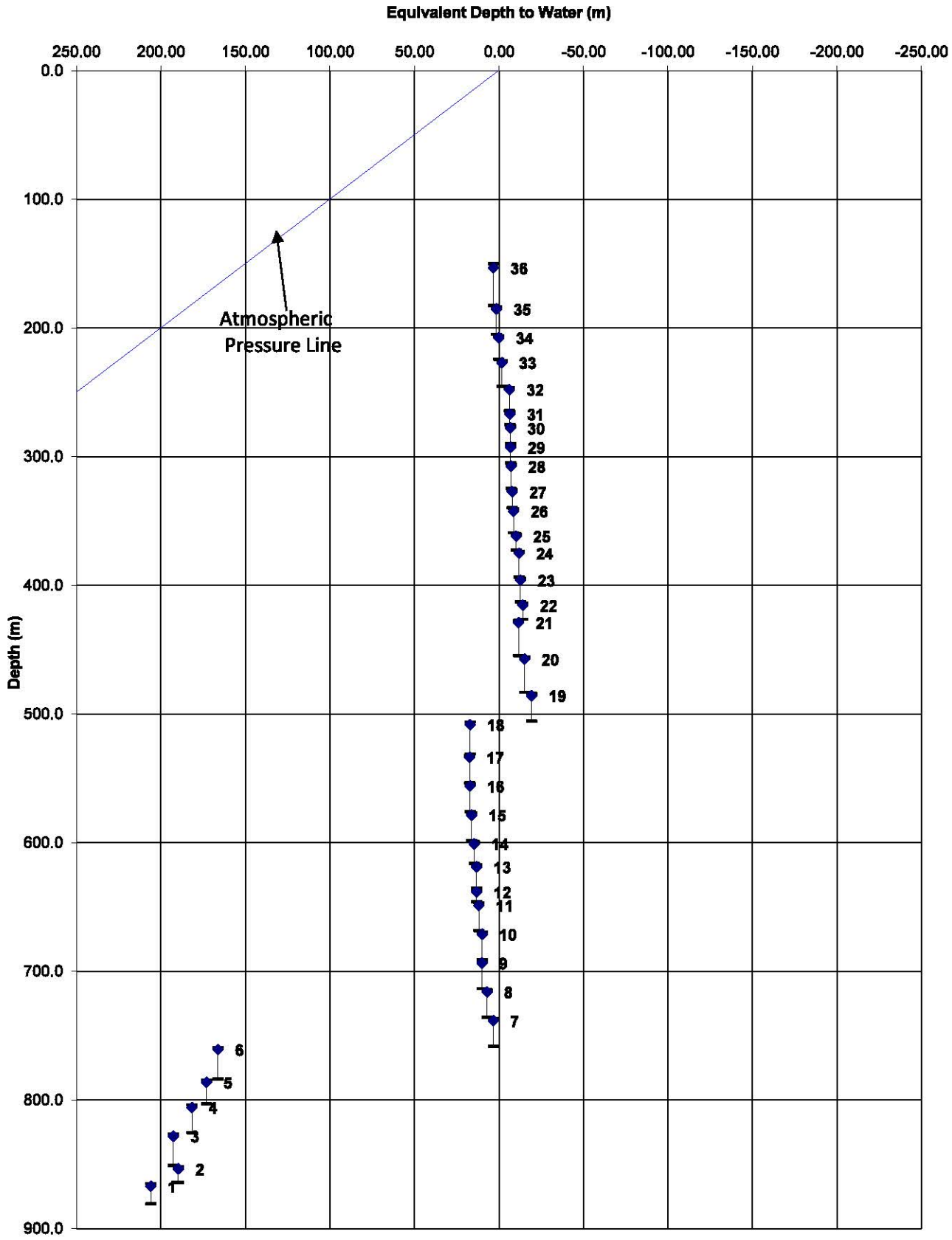
Finish:

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings					Pressure Head Outside Port (m) H = (P2-Patm)/w	Piez. Level Outside Port (m) Dz = Dp - H	Comments
				Inside Casing (P1)	Outside Casing (P2)	Time H:M:S	Probe Temp. (°C)	Inside Casing (P1)			
30	277.89			388.48	418.56	1654	10.90	388.48			278.76 R=16
31	267.03			372.93	402.83	1700	10.66	372.93			267.77 R=17
32	248.01			345.88	375.39	1702	10.54	345.82			249.00 R=17
33	227.18			315.88	338.75	1705	10.37				228.17 R=17
					339.31	1707	10.27	316.00			
34	207.75			288.12	308.42	1709	10.07				208.85 R=17
					308.81	1710	10.02				
					309.09	1711	9.97	288.13			
35	185.33			255.98	274.09	1714	9.75				186.46 R=17
					275.31 274.31	1716	9.67	255.98			
36	153.41			210.19	226.96	1721	9.36				154.35 R=17
					227.38	1722	9.31	210.19			

Notes: w = 1.422psi / m of H_2O Dz = piezometric level in zone Patm = atmospheric pressure H = pressure head of water in zone Dp = true depth of measurement port

Piezometric Profile
Monitoring Well:SB_BH01

Profile Date:October 18, 2022
Comments:Post-Inflation Profile



Client:Geofirma/NWMO
Site:Teeswater, ON
Datum:Ground Surface

Figure 3

Plot By:____Date:_____
Checked By:____Date:_____
Westbay Project:WB992

Fabrication of MOSDAX 2518 Probe Cables.
Assembly Record and Acceptance Tests.

Client: Geofirma/NWMO Borehole No.: SB_BH01 No. of Probes: Depth: 870.4 m Project No.: WB992

Port No.	Nom. Port Depth (m) from log	Cable ID No.	Nominal Length (m)	Cable Type	Top Assembly			Bottom Assembly			Continuity Tests			Final Length (m)	Final Accept
					# Strands(12/7)	Adhesive	Connector	# Strands(all)	Adhesive	Connector	A = Center	B = Armor	A to B		
1	867.03														
		1 - 2	13.37	9201	12/7	epoxy	—	All	Part of Batch #1		0.9 Ω	0.1 Ω	≥ 20mΩ	13.35	43.82
2	853.66								epoxy	—					
		2 - 3	25.43	9201	12/7	epoxy	—	All	Part of Batch #1		1.9 Ω	0.2 Ω	>20mΩ	25.41	83.38
3	828.23								epoxy	—					
		3 - 4	22.42	9201	12/7	epoxy	—	All	epoxy	—	1.7 Ω	0.1 Ω	>20mΩ	22.41	73.52
4	805.81														
		4 - 6	44.85	9201	12/7	epoxy	—	All	epoxy	—	3.3 Ω	0.1 Ω	>20mΩ	44.83	147.10 ✓
6	760.96														
		6 - 7	22.42	9201	12/7	epoxy	—	All	epoxy	—	1.6 Ω	0.1 Ω	>20mΩ	22.38	73.45
7	738.54														
		7 - 9	44.85	9201	12/7	epoxy	—	All	epoxy	—	3.4 Ω	0.1 Ω	>20mΩ	44.82	147.07 ✓
9	693.69														
		9 - 10	22.43	9201	12/7	epoxy	—	All	Part of Batch #1		1.6 Ω	0.3 Ω	>20mΩ	22.40	73.50 ✓
10	671.26								epoxy	—					
		10 - 11	22.42	9201	12/7	epoxy	—	All	Part of Batch #1		1.6 Ω	0.3 Ω	>20mΩ	22.39	73.47
11	648.84								epoxy	—					

43.82 23.38

19.42m
63.64' — 19.42 m

68.58' 20.93 m
20.90m

} change not used

22-23
12/7 epoxy — All epoxy — 1.4 Ω 0.2 Ω >20mΩ

12/7 epoxy — All epoxy — 1.5Ω 0.1 Ω >20mΩ

23.24

Release for Fabrication:_____ Date:_____.

Completion: MW Date: Oct 7/22

Fabrication of MOSDAX 2518 Probe Cables.
Assembly Record and Acceptance Tests.

Client: Geofirma/NWMO Borehole No.: SB_BH01 No. of Probes: Depth: 870.4 m Project No.: WB992

Port No.	Nom. Port Depth (m) from log	Cable ID No.	Nominal Length (m)	Cable Type	Top Assembly			Bottom Assembly			Continuity Tests			Final Length (m)	Final Accept
					# Strands(12/7)	Adhesive	Connector	# Strands(all)	Adhesive	Connector	A = Center	B = Armor	A to B		
11	648.84														
		11 - 13	29.85	9201	12/7	epoxy	—	All	epoxy	—	2.2 Ω	0.1 Ω	>20mΩ	29.83	@ 97.86 ✓
13	618.99														
		13 - 14	17.92	9201	12/7	epoxy	—	All	Part of Batch #1		1.4 Ω	0.1 Ω	>20mΩ	58.72	17.89
14	601.07								epoxy	—					
		14 - 15	22.43	9201	12/7	epoxy	—	All	Part of Batch #1		1.7 Ω	0.1 Ω	>20mΩ	22.40	73.49
15	578.64								epoxy						
		15 - 17	44.85	9201	12/7	epoxy	—	All	epoxy	—	3.2 Ω	0.1 Ω	>20mΩ	44.83	147.08 ✓
17	533.79														
		17 - 18	25.42	9201	12/7	epoxy	—	All	epoxy	—	1.9 Ω	0.1 Ω	>20mΩ	83.40	25.42 ✓
18	508.37														
		18 - 19	22.42	9201	12/7	epoxy	—	All	epoxy	—	1.7 Ω	0.1 Ω	>20mΩ	22.40	73.50
19	485.95														
		19 - 22	70.28	9201	12/7	epoxy	—	All	epoxy	—	5.4 Ω	0.1 Ω	>20mΩ	70.26	230.52
22	415.67														
		22 - 24	40.35	9201	12/7	epoxy	—	All	epoxy	—	3.0 Ω	0.1 Ω	>20mΩ	40.33	132.32
24	375.32														

Release for Fabrication:_____ Date:_____.

Completion: MZ Date: Oct 7/22

Fabrication of MOSDAX 2518 Probe Cables.
Assembly Record and Acceptance Tests.

Client: Geofirma/NWMO Borehole No.: SB_BH01 No. of Probes: Depth: 870.4 m Project No.: WB992

Port No.	Nom. Port Depth (m) from log	Cable ID No.	Nominal Length (m)	Cable Type	Top Assembly			Bottom Assembly			Continuity Tests			Final Length (m)	Final Accept
					# Strands(12/7)	Adhesive	Connector	# Strands(all)	Adhesive	Connector	A = Center	B = Armor	A to B		
24	375.32														
		24 - 28	**67.63**	9201	12/7	epoxy	✓	All	epoxy	✓	5.1 Ω	0.1 Ω	>20 Ω	67.60	221.81
28	307.69														
		28 - 30	**29.80**	9201	12/7	epoxy	✓	All	epoxy	✓	2.2 Ω	0.1 Ω	>20 mΩ	~~29.83~~ 29.79	97.72
30	277.89														
		30 - 36	**124.48**	9201	12/7	epoxy	✓	All	epoxy	✓	9.5 Ω	0.1 Ω	720 mΩ	124.47	408.39
36	153.41														
		0 - 36	**163.41**	~~9206~~ 3/16	10/5	epoxy	✓	All	epoxy	✓	5.1	0.1 Ω	720mΩ	163.41	
top															

Release for Fabrication:_____ Date:_____.

Completion: MF Date: Oct 7/22

MOSDAX Probe String
Installation Field Record

Project: WB992 Well No: SB_BH01 By: TK/ KBT

Client: Geofirma/NWMO Location: Teeswater,ON Date: Nov 9, 10

Installation Data

Port No.	Zone No.	Nom. Depth (m)	Collar Depth (m)	Cable No.	Cable Length (m)	Electrical Continuity (A - A)/ OK, If >20MΩ	Probe No.	Probe S/N	Prev. Press. Data (Po, psia)	(Pi) Inside Westbay (psia)	(Po) Outside Westbay (psia)
1	1	867.03	867.78				1	5486		1240.64	975.40
				1-2	13.37	1.2/OK					R=16
2	2	853.66	854.41				2	5487		1221.54	939.72
				2-3	25.43	2.0/OK					R=14
3	3	828.23	828.98			1.9	3	5488		1185.48	894.49
				3-4	22.42	~~2.0~~/OK					R=17
4	4	805.81	806.56				4	5489		1153.33	905.64
				4-6	44.85	3.5/OK					R=16
6	6	760.96	761.71				5	5490		1089.59	845.48
				6-7	22.42	1.9/OK					R=16
7	7	738.54	739.29				6	5491		1057.67	1039.97
				7-9	44.85	3.4/OK					R=15
9	9	693.69	694.44				7	5492		994.29	973.80
				9-10	22.43	1.8/OK					R=15
10	10	671.26	672.01				8	5493		961.76	950.50
				10-11	22.42	1.8/OK					R=15
11	11	648.84	649.59				9	5494		930.17	914.42
				11-13	29.85	2.4/OK					R=16
13	13	618.99	619.74				10	5495		887.29	863.36
				13-14	17.92	1.6/OK					R=15
14	14	601.07	601.82				11	5496			

Datalogging Settings

Schedule		MAGI Settings	
Scan Rate:		Power Save:	
Collect Rate:		Beeper:	
Start Time:		External Power:	

MOSDAX Probe String
Installation Field Record

Project: WB992 Well No: SB_BH01 By: TK / KBT

Client: Geofirma/NWMO Location: Teeswater,ON Date: Nov 9, 10

Installation Data

Port No.	Zone No.	Nom. Depth (m)	Collar Depth (m)	Cable No.	Cable Length (m)	Electrical Continuity (A - A)/ OK, If >20MΩ	Probe No.	Probe S/N	Prev. Press. Data (Po, psia)	(Pi) Inside Westbay (psia)	(Po) Outside Westbay (psia)
14	14	601.07	601.82				11	5496		861.71	844.87
				14-15	22.43	1.8/Ok					R=15
15	15	578.64	579.39				12	5497		829.79	810.36
				15-17	44.85	3.5/ok.					R=14
17	17	533.79	534.54				13	5498		766.08	743.68
				17-18	25.42	2.0/Ok.					R=16
18	18	508.37	509.12				14	5499		729.62	706.10
				18-19	22.42	1.8/Ok					R=14
19	19	485.95	486.7				15	5500		698.18	734.71
				19-22	70.28	5.4/ ok.					R=15
22	22	415.67	416.42				16	5501		597.97	627.57
				22-24	40.35	3.2/ok					R=15
24	24	375.32	376.07				17	5502		540.27	564.37
				24-28	67.63	5.4/ok					R=15
28	28	307.69	308.44				18	5503		443.93	461.44
				28-30	29.8	2.3/ok.					R=16
30	30	277.89	278.64				19	5504		401.69	418.49
				30-36	124.48	9.5/ok					R=15
36	36	153.41	154.16				20	5505		223.84	229.87
				36-0	163.41	5.2/	EID	5429			R=16
Surface	0	0	N/A								

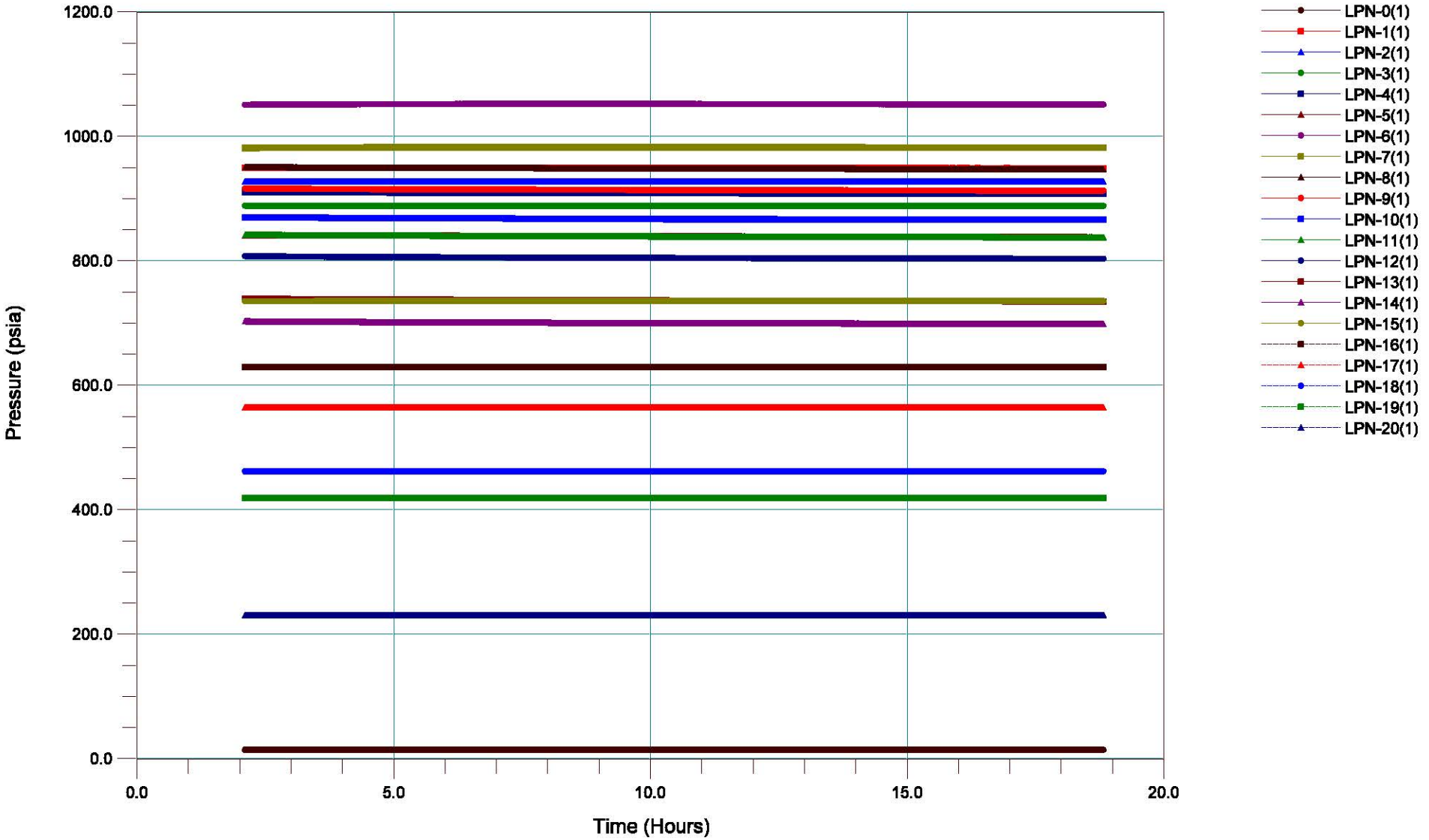
Datalogging Settings

Schedule		MAGI Settings	
Scan Rate:		Power Save:	
Collect Rate:		Beeper:	
Start Time:		External Power:	

Project: WB992
Description: SB_BH01

SB_BH01 Overnight Test (Nov. 11 to Nov. 12)

Company: Geofirma/NWMO
Site: Teeswater, ON



TZero: Fri Nov 11 20:53:20 2022

Report Date: Fri Feb 03 10:21:39 2023

WDF 2022-11-12 12-58.WD2


Westbay
Instruments

Appendix C

Pressure Profile Records

GEOFIRMA ENGINEERING

NWMO SOUTH BRUCE
WESTBAY MP55 SYSTEM
PIEZOMETRIC PRESSURES/LEVELS

Project No.:
20-211-1

Well ID: SB_BH01
Datum: Ground Level
Elev. G.S.: 291.494
Height of Westbay above G.S.: 0.82 m AGS
Elev. Top of Westbay Casing: 292.31
Reference Elevation: 291.494
Borehole angle: 90

Probe Type: Sampler
Serial No.: EMS4954
Probe Range: 2K
Westbay Casing Type: MP55
Sampler Valve Position: Closed

Weather: Sunny, 27°C
Operator: T. Kim, M.Larssen
Date: 21-Jun-22

Pre Profile
Start: Pressure 97.56 (Kpa)
Temp. 25.69 °C
Time 8:17
MP38 Water Level Before mBTOC

Post Profile
Finish: Pressure 97.77 (Kpa)
Temp. 9.53 °C
Time 13:17
MP38 Water Level After mBTOC

Specific wt. of water (kN/m3) 9.804 Provided by NWMO
Gravitational Acceleration (m/ 9.8065

Note:

P_{atm} 97.66

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings								Pressure Head Outside Port (m) H=(P2-Patm)/w	Piezo Level Outside Port (m) Dz = Dp-H	Z: Elev of pressure measurement port (mASL)	Freshwater Head (mASL)	Comments
				Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Outside Casing (P2) (psi)	Outside Casing (P2) (kPa)	Time (H:M:S)	Probe Temp. (°C)	Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)					
1	867.03		866.88	1180.04	8136.09	1323.29	9123.77	10:35:00	23.13	1180.09	8136.44	920.66	-53.78	-575.39	345.27	
2	853.66		853.51	1161.12	8005.64	1293.68	8919.61	10:40:00	23.25	1161.18	8006.06	899.83	-46.32	-562.02	337.82	
3	828.23		828.08	1124.88	7755.78	1266.88	8734.83	10:46:00	23.07	1124.74	7754.81	880.98	-52.90	-536.59	344.40	
4	805.81		805.67	1092.97	7535.77	1232.35	8496.76	10:53:00	22.81	1092.96	7535.70	856.70	-51.03	-514.18	342.52	
5	786.39		786.25	1065.25	7344.64	1202.40	8290.26	11:03:00	22.29	1065.28	7344.85	835.64	-49.39	-494.76	340.88	
6	760.96		760.82	1028.83	7093.54	1163.12	8019.43	11:09:00	22.03	1028.85	7093.67	808.01	-47.19	-469.33	338.69	
7	738.54		738.4	996.58	6871.18	1128.41	7780.12	11:17:00	21.63	996.60	6871.32	783.60	-45.20	-446.91	336.70	
8	716.11		715.98	964.77	6651.86	1093.31	7538.11	11:21:00	21.25	964.79	6652.00	758.92	-42.94	-424.49	334.43	
9	693.69		693.56	932.76	6431.16	1052.72	7258.25	11:28:00	20.77	932.78	6431.29	730.37	-36.81	-402.07	328.31	
10	671.26		671.14	900.80	6210.80	1022.56	7050.31	11:33:00	20.40	900.78	6210.66	709.16	-38.02	-379.65	329.52	
9	693.69		693.56	932.76	6431.16	1058.07	7295.14	11:38:00	19.97	932.82	6431.57	734.14	-40.58	-402.07	332.07	
10	671.26		671.14	900.80	6210.80	1022.55	7050.24	11:43:00	19.98	900.64	6209.70	709.16	-38.02	-379.65	329.51	
11	648.84		648.72	868.42	5987.55	986.95	6804.78	11:47:00	19.80	868.95	5991.20	684.12	-35.40	-357.23	326.89	
12	638.42		638.3	853.90	5887.44	970.32	6690.12	11:50:00	19.50	853.81	5886.82	672.43	-34.13	-346.81	325.62	
13	618.99		618.87	826.36	5697.55	939.61	6478.39	11:54:00	19.31	826.34	5697.42	650.83	-31.96	-327.38	323.45	
14	601.07		600.96	800.67	5520.43	911.98	6287.88	11:57:00	18.71	800.60	5519.94	631.40	-30.44	-309.47	321.93	
15	578.64		578.53	768.23	5296.76	878.13	6054.50	12:02:00	18.18	768.21	5296.62	607.59	-29.06	-287.04	320.56	
16	556.22		556.11	736.33	5076.82	844.72	5824.14	12:05:00	17.54	736.21	5075.99	584.10	-27.99	-264.62	319.48	
17	533.79		533.69	704.84	4859.70	811.16	5592.75	12:08:00	16.94	704.77	4859.22	560.49	-26.80	-242.20	318.30	
18	508.37		508.27	668.12	4606.53	773.54	5333.37	12:12:00	16.29	668.11	4606.46	534.04	-25.77	-216.78	317.26	
19	485.95		485.85	636.21	4386.52	740.61	5106.33	12:15:00	15.57	636.15	4386.10	510.88	-25.03	-194.36	316.52	
20	457.52		457.43	595.72	4107.35	698.93	4818.95	12:19:00	15.08	595.77	4107.69	481.57	-24.14	-165.94	315.63	
21	429.10		429.01	555.25	3828.32	657.21	4531.31	12:23:00	14.32	555.13	3827.49	452.23	-23.22	-137.52	314.71	
22	415.67		415.58	536.12	3696.42	637.57	4395.89	12:26:00	13.63	536.09	3696.21	438.42	-22.84	-124.09	314.33	
23	396.25		396.17	508.38	3505.16	608.77	4197.32	12:29:00	13.17	--	--	418.16	-21.99	-104.68	313.49	
24	375.32		375.24	478.40	3298.45	577.84	3984.07	12:33:00	12.72	478.38	3298.32	396.41	-21.17	-83.75	312.66	
25	361.90		361.82	459.21	3166.14	557.91	3846.66	12:36:00	12.37	459.36	3167.18	382.39	-20.57	-70.33	312.07	
26	342.48		342.41	431.42	2974.54	528.92	3646.78	12:39:00	11.99	431.51	2975.16	362.01	-19.60	-50.92	311.09	
27	327.55		327.48	410.14	2827.82	506.59	3492.82	12:43:00	11.73	410.25	2828.58	346.30	-18.82	-35.99	310.32	
28	307.69		307.62	381.94	2633.38	476.90	3288.11	12:46:00	11.54	381.89	2633.04	325.42	-17.80	-16.13	309.30	
29	292.76		292.69	360.68	2486.80	454.48	3133.53	12:49:00	11.39	360.65	2486.60	309.66	-16.97	-1.20	308.46	
30	277.89		277.83	339.39	2340.01	432.12	2979.36	12:52:00	11.20	339.37	2339.87	293.93	-16.10	13.66	307.59	
31	267.03		266.97	324.08	2234.45	465.71	3210.96	12:56:00	10.97	324.10	2234.59	317.55	-50.58	24.52	342.08	
32	248.01		247.95	297.12	2048.57	387.19	2669.58	12:58:00	10.82	297.03	2047.95	262.33	-14.38	43.54	305.88	
33	227.18		227.13	267.14	1841.87	355.60	2451.78	13:01:00	10.64	267.17	1842.07	240.12	-12.99	64.36	304.48	
34	207.75		207.7	239.32	1650.05	326.12	2248.52	13:04:00	10.41	239.40	1650.61	219.39	-11.69	83.79	303.18	
35	185.33		185.29	207.39	1429.90	292.07	2013.75	13:07:00	10.18	207.46	1430.39	195.44	-10.15	106.20	301.64	
36	153.41		153.37	161.96	1116.68	243.59	1679.49	13:10:00	9.96	161.98	1116.81	161.35	-7.98	138.12	299.47	
1	867.03		866.88	1181.10	8143.40	1326.84	9148.24	13:54:00	21.87	1181.13	8143.61	923.15	-56.27	-575.39	347.77	
2	853.66		853.51	1161.84	8010.61	1306.17	9005.73	13:59:00	22.63	1161.79	8010.26	908.62	-55.11	-562.02	346.60	
3	828.23		828.08	1125.57	7760.54	1266.87	8734.76	14:04:00	22.86	1125.56	7760.47	880.98	-52.90	-536.59	344.39	
4	805.81		805.67	1093.52	7539.56	1232.32	8496.55	14:07:00	22.55	1093.57	7539.90	856.68	-51.01	-514.18	342.50	
5	786.39		786.25	1065.55	7346.71	1202.37	8290.05	14:23:00	22.23	1065.51	7346.44	835.62	-49.37	-494.76	340.86	

Geofirma Complete & Verify Sign-off

Completed by:

Morgan de Kroon 07-Jul-22

Date

Verified by:

Sean Sterling 11-Jul-22

Date

GEOFIRMA

NWMO SOUTH BRUCE
WESTBAY MP55 SYSTEM
PIEZOMETRIC PRESSURES/LEVELS

Project No.: 20-211-1

Well ID: SB_BH01
Datum: Ground Level
Elev. G.S.: 291.494
Height of Westbay above G.S.: 0.82 m AGS
Elev. Top of Westbay Casing: 292.31
Reference Elevation: 291.494
Borehole angle: 90

Probe Type: Sampler O/C
Serial No.: EMS2652
Probe Range: 2K
Westbay Casing Type: MP55
Sampler Valve Position: Closed

Weather: Overcast
Operator: T.Kim, M.Larssen
Date: 29-Jun-22

Pre Profile
Start: Pressure 99.28 (Kpa)
Temp. 23.15 °C
Time 12:55
MP38 Water Level Before mBTOC

Post Profile
Finish: Pressure 99.01 (Kpa)
Temp. 9.18 °C
Time 16:30
MP38 Water Level After mBTOC

Specific wt. of water (kN/m3) 9.804 Provided by NWMO
Gravitational Acceleration (m/ 9.8065

Note:

P_{atm} 99.15

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Port Depth "Dp" (m)	Fluid Pressure Readings							Inside Casing (P1) (kPa)	Pressure Head Outside Port (m) H=(P2-Patm)/w	Piezo Level Outside Port (m) Dz = Dp-H	Z: Elev of pressure measurement port (mASL)	Freshwater Head (mASL)	Comments
				Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Outside Casing (P2) (psi)	Outside Casing (P2) (kPa)	Time (H:M:S)	Probe Temp. (°C)	Inside Casing (P1) (psi)						
1	867.03		866.88	1215.98	8383.89	1069.25	7372.22	13:33:00	22.66	1215.99	8383.96	741.85	125.03	-575.39	166.46	
2	853.66		853.51	1196.73	8251.17	1053.66	7264.73	13:44:00	23.10	1196.71	8251.03	730.88	122.63	-562.02	168.87	
3	828.23		828.08	1160.44	8000.96	1019.22	7027.28	13:55:00	22.78	1160.41	8000.75	706.66	121.42	-536.59	170.08	
4	805.81		805.67	1128.23	7778.88	1049.95	7239.15	14:05:00	22.45	1128.26	7779.08	728.27	77.40	-514.18	214.10	
5	786.39		786.25	1100.54	7587.96	1026.17	7075.20	14:13:00	22.14	1100.50	7587.68	711.55	74.70	-494.76	216.80	
6	760.96		760.82	1063.98	7335.89	992.37	6842.15	14:18:00	21.82	1013.89	6990.53	687.78	73.04	-469.33	218.46	
7	738.54		738.4	1031.95	7115.05	1075.85	7417.73	14:27:00	21.38	1031.95	7115.05	746.49	-8.09	-446.91	299.58	
8	716.11		715.98	1000.02	6894.90	1038.68	7161.45	14:34:00	20.84	1000.05	6895.10	720.35	-4.37	-424.49	295.86	
9	693.69		693.56	967.85	6673.09	1001.35	6904.07	14:38:00	20.42	967.83	6672.96	694.10	-0.54	-402.07	292.03	
10	671.26		671.14	935.86	6452.53	967.62	6671.51	14:41:00	20.22	935.81	6452.19	670.38	0.76	-379.65	290.73	
11	648.84		648.72	903.76	6231.21	931.61	6423.23	14:45:00	19.79	903.77	6231.28	645.05	3.67	-357.23	287.83	
12	638.42		638.3	888.92	6128.89	913.12	6295.74	14:48:00	19.58	888.95	6129.10	632.05	6.25	-346.81	285.24	
13	618.99		618.87	861.08	5936.94	886.65	6113.24	14:53:00	19.04	861.66	5940.94	613.43	5.44	-327.38	286.06	
14	601.07		600.96	835.64	5761.54	859.38	5925.22	14:57:00	18.51	835.62	5761.40	594.25	6.71	-309.47	284.79	
15	578.64		578.53	803.66	5541.04	823.10	5675.08	15:00:00	17.86	803.65	5540.97	568.74	9.79	-287.04	281.70	
16	556.22		556.11	771.51	5319.38	787.29	5428.18	15:04:00	17.32	771.49	5319.24	543.56	12.55	-264.62	278.94	
17	533.79		533.69	739.43	5098.19	751.77	5183.27	15:08:00	16.68	739.47	5098.47	518.58	15.11	-242.20	276.38	
18	508.37		508.27	703.09	4847.64	730.68	5037.86	15:11:00	16.03	703.07	4847.50	503.75	4.52	-216.78	286.97	
19	485.95		485.85	671.03	4626.59	726.65	5010.08	15:15:00	15.16	671.01	4626.45	500.91	-15.06	-194.36	306.55	
20	457.52		457.43	630.49	4347.08	682.14	4703.19	15:20:00	14.40	630.41	4346.53	469.61	-12.18	-165.94	303.67	
21	429.10		429.01	589.94	4067.49	637.42	4394.86	15:24:00	13.97	589.96	4067.63	438.16	-9.15	-137.52	300.64	
22	415.67		415.58	570.68	3934.70	622.26	4290.33	15:27:00	13.31	570.59	3934.08	427.50	-11.92	-124.09	303.41	
23	396.25		396.17	543.00	3743.85	592.45	4084.80	15:31:00	12.77	543.04	3744.13	406.53	-10.36	-104.68	301.86	
24	375.32		375.24	513.18	3538.25	562.10	3875.54	15:36:00	12.22	513.14	3537.98	385.19	-9.95	-83.75	301.44	
25	361.90		361.82	493.96	3405.74	541.96	3736.68	15:40:00	12.00	493.98	3405.87	371.03	-9.21	-70.33	300.70	
26	342.48		342.41	466.17	3214.13	513.35	3539.43	15:43:00	11.79	466.14	3213.92	350.91	-8.50	-50.92	299.99	
27	327.55		327.48	444.95	3067.82	491.17	3386.50	15:47:00	11.46	444.96	3067.89	335.31	-7.83	-35.99	299.32	
28	307.69		307.62	416.60	2872.36	461.83	3184.21	15:50:00	11.46	416.58	2872.22	314.67	-7.05	-16.13	298.55	
29	292.76		292.69	395.29	2725.43	440.18	3034.94	15:52:00	11.35	395.28	2725.36	299.45	-6.76	-1.20	298.25	
30	277.89		277.83	374.14	2579.61	418.67	2886.63	16:05:00	10.92	374.10	2579.33	284.32	-6.49	13.66	297.98	
31	267.03		266.97	358.67	2472.94	403.02	2778.73	16:07:00	10.81	358.69	2473.08	273.31	-6.34	24.52	297.84	
32	248.01		247.95	331.65	2286.65	375.42	2588.43	16:10:00	10.59	331.67	2286.79	253.90	-5.95	43.54	297.45	
33	227.18		227.13	301.81	2080.91	346.54	2389.31	16:12:00	10.59	301.87	2081.32	233.59	-6.46	64.36	297.96	
34	207.75		207.7	274.08	1889.72	319.25	2201.15	16:15:00	10.26	274.10	1889.85	214.40	-6.70	83.79	298.20	
35	185.33		185.29	242.09	1669.15	285.91	1971.28	16:20:00	10.05	242.11	1669.29	190.96	-5.67	106.20	297.16	
36	153.41		153.37	196.62	1355.65	238.35	1643.37	16:24:00	9.60	196.66	1355.92	157.51	-4.14	138.12	295.63	

Geofirma Complete & Verify Sign-off

Completed by:

Morgan de Kroon 07-Jul-22
Date

Verified by:

Sean Sterling 11-Jul-22
Date

GEOFIRMA

NWMO SOUTH BRUCE
WESTBAY MP55 SYSTEM
PIEZOMETRIC PRESSURES/LEVELS

Project No.:
20-211-1

Well ID: SB_BH01
Datum: Ground Level
Elev. G.S.: 291.494 ASL
Height of Westbay above G.S.: 0.82 m AGS
Elev. Top of Westbay Casing: 292.31 ASL
Reference Elevation: 291.494 ASL
Borehole angle: 90

Probe Type: MOSDAX Pressure Probe
Serial No.: EM5496
Probe Range: 2K
Westbay Casing Type: MP55
Sampler Valve Position: Closed

Weather: Overcast, 20deg
Operator: Morgan de Kroon
Date: 21-Jul-22

Pre Profile
Start: Pressure 97.84 (Kpa)
Temp. 21.29 °C
Time 8:25
MP55 Water Level Before 16.31 mBTOC

Post Profile
Finish: Pressure 96.97 (Kpa)
Temp. 9.33 °C
Time 16:25
MP55 Water Level A 16.57 mBTOC

Specitic wt. of water (kN/m3) 9.804 Provided by NWMO
Gravitational Acceleration (m/s²) 9.8065

Note:

P_{atm} 97.41

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Vertical Depth of Port (m)	Fluid Pressure Readings							Inside Casing (P1) (kPa)	Pressure Head Outside Port (m) H=(P2-Patm)/w	Piezo Level Outside Port (m) Dz = Dp-H	Z: Elev of pressure measurement port (mASL)	Freshwater Head (mASL)	Comments
				Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Outside Casing (P2) (psi)	Outside Casing (P2) (kPa)	Time (H:M:S)	Probe Temp. (°C)	Inside Casing (P1) (psi)						
1	867.03	867.03	866.88	1230.77	8485.86	1070.56	7381.25	10:50:00	23.33	1230.71	8485.45	742.95	123.93	-575.39	167.56	
2	853.66	853.66	853.51	1211.60	8353.69	1047.17	7219.99	10:55:00	23.33	1211.53	8353.21	726.50	127.01	-562.02	164.48	
3	828.23	828.23	828.08	1175.13	8102.24	1000.50	6898.21	11:05:00	22.97	1175.00	8101.34	693.68	134.40	-536.59	157.09	
4	805.81	805.81	805.67	1143.16	7881.81	977.39	6738.87	11:12:00	22.66	1143.16	7881.81	677.42	128.25	-514.18	163.25	
5	786.39	786.39	786.25	1115.30	7689.73	948.28	6538.16	11:20:00	22.39	1115.41	7690.48	656.95	129.30	-494.76	162.20	
6	760.96	760.96	760.82	1079.08	7440.00	910.90	6280.44	11:28:00	21.89	1079.07	7439.93	630.66	130.16	-469.33	161.34	
7	738.54	738.54	738.4	1046.99	7218.74	1068.57	7367.53	11:38:00	21.45	1047.02	7218.95	741.55	-3.15	-446.91	294.64	
8	716.11	716.11	715.98	1014.99	6998.11	1033.11	7123.05	11:46:00	21.09	1014.98	6998.04	716.61	-0.63	-424.49	292.12	
9	693.69	693.69	693.56	982.91	6776.93	997.60	6878.21	11:51:00	20.68	982.90	6776.86	691.64	1.92	-402.07	289.57	
10	671.26	671.26	671.14	950.90	6556.23	963.45	6642.76	11:58:00	20.23	950.88	6556.09	667.62	3.52	-379.65	287.97	
11	648.84	648.84	648.72	918.84	6335.18	928.03	6398.54	12:03:00	19.87	918.89	6335.53	642.71	6.01	-357.23	285.49	
12	638.42	638.42	638.3	903.96	6232.59	911.37	6283.68	12:08:00	19.51	904.00	6232.86	630.99	7.31	-346.81	284.19	
13	618.99	618.99	618.87	876.22	6041.33	881.75	6079.45	12:12:00	19.10	898.00	6191.49	610.16	8.71	-327.38	282.79	
14	601.07	601.07	600.96	850.65	5865.03	853.98	5887.99	12:17:00	18.24	850.70	5865.37	590.63	10.33	-309.47	281.17	
15	578.64	578.64	578.53	818.64	5644.33	818.84	5645.71	12:52:00	17.06	818.60	5644.05	565.92	12.61	-287.04	278.89	
16	556.22	556.22	556.11	786.55	5423.07	785.01	5412.46	13:05:00	16.56	786.60	5423.42	542.13	13.98	-264.62	277.51	
17	533.79	533.79	533.69	754.51	5202.17	751.31	5180.10	13:14:00	15.92	754.60	5202.79	518.43	15.26	-242.20	276.23	
18	508.37	508.37	508.27	718.25	4952.16	763.23	5262.29	13:28:00	15.01	718.24	4952.09	526.81	-18.54	-216.78	310.04	
19	485.95	485.95	485.85	686.20	4731.18	732.40	5049.72	13:39:00	14.74	686.25	4731.53	505.13	-19.28	-194.36	310.78	
20	457.52	457.52	457.43	645.62	4451.39	689.32	4752.70	13:48:00	14.19	645.61	4451.33	474.84	-17.41	-165.94	308.90	
21	429.10	429.10	429.01	605.01	4171.40	645.81	4452.70	13:55:00	13.59	605.05	4171.67	444.24	-15.23	-137.52	306.72	
22	415.67	415.67	415.58	585.96	4040.05	627.50	4326.46	14:02:00	12.94	585.95	4039.98	431.36	-15.78	-124.09	307.27	
23	396.25	396.25	396.17	558.18	3848.52	597.84	4121.96	14:07:00	12.67	558.17	3848.45	410.50	-14.33	-104.68	305.83	
24	375.32	375.32	375.24	528.31	3642.57	564.32	3890.85	14:12:00	12.34	528.35	3642.85	386.93	-11.69	-83.75	303.18	
25	361.90	361.90	361.82	509.17	3510.60	543.58	3747.85	14:25:00	11.79	509.16	3510.54	372.34	-10.52	-70.33	302.02	
26	342.48	342.48	342.41	481.49	3319.76	514.66	3548.46	14:35:00	11.55	481.48	3319.69	352.00	-9.59	-50.92	301.09	
27	327.55	327.55	327.48	460.21	3173.04	490.98	3385.19	14:40:00	11.46	460.15	3172.62	335.35	-7.87	-35.99	299.37	
28	307.69	307.69	307.62	431.86	2977.57	461.73	3183.52	14:46:00	11.32	431.86	2977.57	314.78	-7.16	-16.13	298.65	
29	292.76	292.76	292.69	410.54	2830.57	440.17	3034.87	14:51:00	11.17	410.53	2830.51	299.62	-6.93	-1.20	298.42	
30	277.89	277.89	277.83	389.39	2684.75	418.71	2886.90	15:11:00	10.71	398.39	2746.80	284.53	-6.70	13.66	298.19	
31	267.03	267.03	266.97	373.88	2577.81	403.02	2778.73	15:17:00	10.66	373.93	2578.16	273.49	-6.52	24.52	298.02	
32	248.01	248.01	247.95	346.90	2391.79	375.51	2589.05	15:22:00	10.57	346.90	2391.79	254.15	-6.20	43.54	297.69	
33	227.18	227.18	227.13	317.07	2186.12	338.12	2331.26	15:28:00	10.37	317.06	2186.05	227.85	-0.72	64.36	292.22	
34	207.75	207.75	207.7	289.35	1995.00	308.99	2130.41	15:41:00	10.09	289.34	1994.93	207.37	0.33	83.79	291.16	
35	185.33	185.33	185.29	257.14	1772.92	275.54	1899.78	15:58:00	9.86	257.25	1773.68	183.84	1.45	106.20	290.05	
36	153.41	153.41	153.37	211.22	1456.31	223.02	1537.67	15:57:00	9.47	211.22	1456.31	146.91	6.46	138.12	285.03	

Geofirma Complete & Verify Sign-off

Comoleted bv:

Morgan de Kroon 22-Jul-22
Date

Verified by:

Sean Sterling 22-Jul-22
Date

GEOFIRMA ENGINEERING

NWMO SOUTH BRUCE
WESTBAY MP55 SYSTEM
PIEZOMETRIC PRESSURES/LEVELS

Project No.:
20-211-1

Well ID: SB_BH01
Datum: Ground Level
Elev. G.S.: 291.494 ASL
Height of Westbay above G.S.: 0.82 m AGS
Elev. Top of Westbay Casing: 292.31 ASL
Reference Elevation: 291.494 ASL
Borehole angle: 90

Probe Type: MOSDAX Pressure Probe
Serial No.: EM5498
Probe Range: 2000 psi
Westbay Casing Type: MP55
Sampler Valve Position: Closed

Weather: 25 deg C, sunny. Chance of thunderstorms.
Operator: AMSC, EAT
Date: 16-Aug-22

Pre Profile			Post Profile		
Start: Pressure	99.19	(Kpa)	Finish: Pressure	96.59	(Kpa)
Temp.	24.36	°C	Temp.	10.11	°C
Time	10:35		Time	17:25	
MP55 Water Level Before	16.53	mBTOC	MP55 Water Level A	n/a	mBTOC

Specific wt. of water (kN/m3): 9.804 Provided by NWMO
Gravitational Acceleration (m/s^2): 9.8065

Note:

P_{atm} 97.89

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Vertical Depth of Port (m)	Fluid Pressure Readings: Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Outside Casing (P2) (psi)	Outside Casing (P2) (kPa)	Time (H:M:S)	Probe Temp. (°C)	Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Pressure Head Outside Port (m) H=(P2-Patm)/w	Piezo Level Outside Port (m) Dz = Dp-H	Z: Elev of pressure measurement port (mASL)	Freshwater Head (mASL)	Comments
1	867.03	867.03	866.88	1231.18	8488.70	1015.87	7004.19	13:39:00	23.71	1231.38	8490.07	704.44	162.44	-575.39	129.05	Trouble porting. Pressure will not stabilize, it continues to decrease. After 10-15mins of waiting the decrease in pressure slows down. Tried both EMS5497 and EMS5498 probes, both gave the same results.
2	853.66	853.66	853.51	1211.81	8355.15	1022.59	7050.49	14:05:00	23.53	1211.64	8353.97	709.16	144.35	-562.02	147.14	Same as previous port. Pressure will not stabilize, continues to decrease. The decrease in pressure slows down after ~10mins.
3	828.23	828.23	828.08	1175.41	8104.19	978.26	6744.85	15:58:00	23.17	1175.09	8101.99	677.98	150.10	-536.59	141.40	Same as previous port. Pressure will not stabilize, continues to decrease. The decrease in pressure slows down after ~10mins.
4	805.81	805.81	805.67	1143.07	7881.18	943.11	6502.54	16:07:00	22.90	1143.48	7884.03	653.27	152.40	-514.18	139.09	Pressure stabilized withing ~5mins
5	786.39	786.39	786.25	1115.37	7690.21	940.92	6487.44	16:20:00	22.58	1115.66	7692.24	651.73	134.52	-494.76	156.97	Pressure stabilized withing ~5mins
6	760.96	760.96	760.82	1078.98	7439.32	925.86	6383.56	16:31:00	22.08	1079.22	7440.95	641.13	119.69	-469.33	171.81	Pressure stabilized withing ~5mins
7	738.54	738.54	738.4	1046.87	7217.90	1057.15	7288.82	16:40:00	21.71	1046.92	7218.29	733.47	4.93	-446.91	286.56	Pressure stabilized withing ~5mins
8	716.11	716.11	715.98	1014.76	6996.53	1020.49	7036.04	16:55:00	21.21	1014.88	6997.32	707.69	8.29	-424.49	283.20	Pressure stabilized withing ~5mins

Geofirma Complete & Verify Sign-off
Completed by:

Amy Cartier 16-Aug-22
Date

Verified by:

Morgan de Kroon 06-Sep-22
Date

GEOFIRMA ENGINEERS LTD

NWMO SOUTH BRUCE
WESTBAY MP55 SYSTEM
PIEZOMETRIC PRESSURES/LEVELS

Project No.:
20-211-1

Well ID: SB_BH01
Datum: Ground Level
Elev. G.S.: 291.494 ASL
Height of Westbay above G.S.: 0.82 m AGS
Elev. Top of Westbay Casing: 292.31 ASL
Reference Elevation: 291.494 ASL
Borehole angle: 90

Probe Type: MOSDAX Pressure Probe
Serial No.: EM5500
Probe Range: 2000 psi
Westbay Casing Type: MP55
Sampler Valve Position: Closed

Weather: 22 deg C, sunny. Chance of thunderstorms.
Operator: AMSC, EAT
Date: 17-Aug-22

Pre Profile			Post Profile		
Start: Pressure	97.47	(Kpa)	Finish: Pressure	97.19	(Kpa)
Temp.	19.16	°C	Temp.	14.56	°C
Time	8:45		Time	13:45	
MP55 WL Before	17.10	mBTOC	MP55 WL After	17.11	mBTOC

Specific wt. of water (kN/m3): 9.804 Provided by NWMO
Gravitational Acceleration (m/s^2): 9.8065

Note:

P_{atm}: 97.33

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Vertical Depth of Port (m)	Fluid Pressure Readings						Inside Casing (P1) (kPa)	Pressure Head Outside Port (m) H=(P2-Patm)/w	Piezo Level Outside Port (m) Dz = Dp-H	Z: Elev of pressure measurement port (mASL)	Freshwater Head (mASL)	Comments
				Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Outside Casing (P2) (psi)	Outside Casing (P2) (kPa)	Time (H:M:S)	Probe Temp. (°C)						
1	867.03	867.03	866.88	1230.74	8485.64	987.90	6811.34	9:36:00	23.38	1230.61	8484.79	684.82	182.06	-575.39	109.44	Trouble porting. Pressure will not stabilize, continues to decrease. The decrease in pressure slows down after ~10mins.
2	853.66	853.66	853.51	1211.47	8352.78	976.71	6734.16	9:50:00	23.23	1211.76	8354.80	676.95	176.56	-562.02	114.94	Same as previous port. Pressure will not stabilize, continues to decrease. The decrease in pressure slows down after ~10mins.
3	828.23	828.23	828.08	1175.05	8101.72	943.90	6507.95	10:05:00	22.85	1175.02	8101.48	653.88	174.20	-536.59	117.29	Same as previous port. Pressure will not stabilize, continues to decrease. The decrease in pressure slows down after ~10mins.
4	805.81	805.81	805.67	1142.83	7879.54	957.00	6598.26	10:25:00	22.46	1142.95	7880.34	663.09	142.58	-514.18	148.91	
5	786.39	786.39	786.25	1115.23	7689.25	936.17	6454.64	10:30:00	22.24	1115.41	7690.49	648.44	137.81	-494.76	153.68	
6	760.96	760.96	760.82	1078.92	7438.91	906.35	6249.04	10:40:00	21.69	1078.87	7438.58	627.47	133.35	-469.33	158.14	
7	738.54	738.54	738.4	1046.86	7217.85	1086.42	7490.62	10:45:00	21.36	1046.71	7216.78	754.11	-15.71	-446.91	307.20	
8	716.11	716.11	715.98	1014.76	6996.52	1049.99	7239.44	10:49:00	20.96	1014.88	6997.38	728.49	-12.51	-424.49	304.00	
9	693.69	693.69	693.56	982.69	6775.39	1012.41	6980.33	10:57:00	20.28	982.86	6776.60	702.06	-8.50	-402.07	299.99	
10	671.26	671.26	671.14	950.64	6554.45	984.51	6787.96	11:02:00	19.94	950.66	6554.54	682.44	-11.30	-379.65	302.79	
11	648.84	648.84	648.72	918.67	6334.00	948.49	6539.62	11:08:00	19.61	918.72	6334.36	657.11	-8.39	-357.23	299.88	
12	638.42	638.42	638.3	903.67	6230.58	934.07	6440.16	11:45:00	19.09	903.75	6231.14	646.96	-8.66	-346.81	300.16	Trouble porting. Pressure stabilized after ~15 mins
13	618.99	618.99	618.87	876.03	6040.03	904.84	6238.64	11:50:00	18.68	875.99	6039.75	626.41	-7.54	-327.38	299.03	
14	601.07	601.07	600.96	850.47	5863.79	876.53	6043.45	11:55:00	18.04	850.37	5863.13	606.50	-5.54	-309.47	297.03	
15	578.64	578.64	578.53	818.42	5642.79	840.89	5797.71	12:00:00	17.35	818.43	5642.91	581.43	-2.90	-287.04	294.40	
16	556.22	556.22	556.11	786.37	5421.85	804.52	5546.98	12:05:00	16.75	786.27	5421.17	555.86	0.25	-264.62	291.24	
17	533.79	533.79	533.69	754.44	5201.70	768.78	5300.57	12:10:00	16.05	754.29	5200.66	530.73	2.96	-242.20	288.53	
18	508.37	508.37	508.27	718.10	4951.16	734.68	5065.44	12:15:00	15.24	718.07	4950.92	506.74	1.53	-216.78	289.97	
19	485.95	485.95	485.85	686.03	4730.00	728.60	5023.55	12:22:00	14.60	686.09	4730.46	502.47	-16.62	-194.36	308.11	
20	457.52	457.52	457.43	645.45	4450.23	683.26	4710.91	12:27:00	14.01	645.57	4451.07	470.58	-13.15	-165.94	304.65	
21	429.10	429.10	429.01	604.83	4170.18	637.71	4396.86	12:31:00	13.30	604.79	4169.88	438.55	-9.54	-137.52	301.03	
22	415.67	415.67	415.58	585.69	4038.16	626.04	4316.39	12:37:00	12.87	585.69	4038.19	430.34	-14.76	-124.09	306.25	
23	396.25	396.25	396.17	557.93	3846.76	595.76	4107.61	12:41:00	12.46	557.82	3846.06	409.05	-12.88	-104.68	304.37	
24	375.32	375.32	375.24	528.11	3641.18	564.65	3893.10	12:45:00	12.07	528.23	3641.99	387.17	-11.93	-83.75	303.42	
25	361.90	361.90	361.82	508.91	3508.80	543.32	3746.03	12:50:00	11.78	508.74	3507.66	372.16	-10.34	-70.33	301.84	
26	342.48	342.48	342.41	481.22	3317.88	514.05	3544.28	12:53:00	11.56	481.22	3317.91	351.59	-9.18	-50.92	300.67	
27	327.55	327.55	327.48	459.90	3170.89	491.17	3386.47	12:57:00	11.37	459.90	3170.91	335.49	-8.01	-35.99	299.50	
28	307.69	307.69	307.62	431.55	2975.42	461.97	3185.17	13:03:00	11.27	431.66	2976.19	314.96	-7.34	-16.13	298.83	
29	292.76	292.76	292.69	410.23	2828.46	440.37	3036.26	13:06:00	11.14	410.07	2827.32	299.77	-7.08	-1.20	298.57	
30	277.89	277.89	277.83	388.99	2681.98	418.90	2888.19	13:12:00	10.78	388.93	2681.60	284.67	-6.84	13.66	298.33	
31	267.03	267.03	266.97	373.48	2575.07	403.16	2779.72	13:15:00	10.67	373.51	2575.26	273.60	-6.63	24.52	298.13	
32	248.01	248.01	247.95	346.49	2388.95	375.61	2589.72	13:19:00	10.56	346.38	2388.20	254.22	-6.27	43.54	297.77	
33	227.18	227.18	227.13	316.60	2182.91	338.27	2332.26	13:23:00	10.35	316.50	2182.16	227.96	-0.83	64.36	292.33	
34	207.75	207.75	207.7	288.73	1990.75	308.36	2126.09	13:26:00	10.12	288.74	1990.78	206.93	0.77	83.79	290.73	
35	185.33	185.33	185.29	256.58	1769.08	274.20	1890.57	13:30:00	9.75	256.54	1768.75	182.91	2.38	106.20	289.11	
36	153.41	153.41	153.37	210.68	1452.60	226.79	1563.65	13:35:00	9.45	210.63	1452.25	149.56	3.81	138.12	287.69	

Geofirma Complete & Verify Sign-off

Completed by:

Amy Cartier 17-Aug-22
Date

Verified by:

Morgan de Kroon 06-Sep-22
Date

GEOFIRMA ENGINEERING

NWMO SOUTH BRUCE
WESTBAY MP55 SYSTEM
PIEZOMETRIC PRESSURES/LEVELS

Project No.:
20-211-1

Well ID: SB_BH01
Datum: Ground Level
Elev. G.S.: 291.494 ASL
Height of Westbay above G.S.: 0.82 m AGS
Elev. Top of Westbay Casing: 292.31 ASL
Reference Elevation: 291.494 ASL
Borehole angle: 90

Probe Type: MOSDAX Pressure Probe
Serial No.: EM5500
Probe Range: 2000 psi
Westbay Casing Type: MP55
Sampler Valve Position: Closed

Weather: 4 deg C, Rainy
Operator: MEOR, TK, PT
Date: 18-Oct-22

Pre Profile
Start: Pressure 95.38 (Kpa)
Temp. 4.07 °C
Time 11:15
MP55 Water Level Before 17.29 mBTOC

Post Profile
Finish: Pressure 95.82 (Kpa)
Temp. 8.82 °C
Time 17:31
MP55 Water Level A 17.23 mBTOC

P..... 95.60

Specific wt. of water (kN/m3) 9.804 Provided by NWMO
Gravitational Acceleration (m/s^2) 9.8065

Note:

Port No.	Port Position From Log (m)	Port Position From Cable (m)	True Vertical Depth of Port (m)	Fluid Pressure Readings											
				Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Outside Casing (P2) (psi)	Outside Casing (P2) (kPa)	Time (H:M:S)	Probe Temp. (°C)	Inside Casing (P1) (psi)	Inside Casing (P1) (kPa)	Pressure Head Outside Port (m) H=(P2-Patm)/w	Piezo Level Outside Port (m) Dz = Dp-H	Z: Elev of pressure measurement port (mASL)	Freshwater Head (mASL)	Comments
1	867.03	867.03	866.88	1230.24	8482.21	953.87	6576.70	12:19:00	23.40	1230.17	8481.73	661.07	205.81	-575.39	85.68	Pressure took ~ 5mins to stabilize. Pressure is lower than July and August measurements.
2	853.66	853.66	853.51	1210.92	8349.00	958.04	6605.46	12:42:00	23.20	1210.92	8349.00	664.00	189.51	-562.02	101.98	Pressure took ~ 5mins to stabilize. Pressure is lower than July and August measurements.
3	828.23	828.23	828.08	1174.56	8098.31	917.73	6327.53	13:01:00	22.81	1210.92	8349.00	635.65	192.43	-536.59	99.07	Pressure will not stabilize, continues to decrease. The decrease in pressure slows down after ~10mins. Pressure is lower than July and August measurements.
4	805.81	805.81	805.67	1142.48	7877.13	901.40	6214.94	13:09:00	22.54	1142.50	7877.26	624.17	181.50	-514.18	109.99	
5	786.39	786.39	786.25	1114.62	7685.04	885.97	6108.55	13:18:00	22.20	1114.69	7685.52	613.32	172.93	-494.76	118.56	
6	760.96	760.96	760.82	1078.41	7435.38	859.63	5926.94	13:29:00	21.72	1078.43	7435.52	594.79	166.03	-469.33	125.47	
7	738.54	738.54	738.4	1046.39	7214.61	1059.40	7304.31	13:48:00	21.16	1046.39	7214.61	735.28	3.12	-446.91	288.38	Outside pressure is higher than inside pressure. Same trend as July and August measurements
8	716.11	716.11	715.98	1014.33	6993.56	1022.19	7047.75	13:56:00	20.77	1014.34	6993.63	709.11	6.87	-424.49	284.63	
9	693.69	693.69	693.56	982.30	6772.72	985.95	6797.89	14:10:00	20.22	982.31	6772.79	683.63	9.93	-402.07	281.56	
10	671.26	671.26	671.14	950.26	6551.81	954.42	6580.50	14:18:00	19.88	959.27	6613.94	661.45	9.69	-379.65	281.81	
11	648.84	648.84	648.72	918.23	6330.98	919.59	6340.35	14:27:00	19.46	918.24	6331.04	636.96	11.76	-357.23	279.73	
12	638.42	638.42	638.3	903.29	6227.97	902.97	6225.76	14:35:00	19.12	903.30	6228.04	625.27	13.03	-346.81	278.47	Change of trend from July and August measurements. Inside pressure is higher than outside pressure.
13	618.99	618.99	618.87	875.54	6036.64	875.32	6035.12	14:42:00	18.56	875.55	6036.71	605.83	13.04	-327.38	278.45	
14	601.07	601.07	600.96	849.98	5860.41	847.80	5845.38	14:49:00	19.91	849.99	5860.48	586.47	14.49	-309.47	277.01	
15	578.64	578.64	578.53	817.92	5639.36	813.68	5610.13	14:55:00	17.26	817.94	5639.50	562.48	16.05	-287.04	275.44	
16	556.22	556.22	556.11	785.93	5418.80	780.47	5381.15	15:07:00	16.43	785.95	5418.94	539.12	16.99	-264.62	274.51	
17	533.79	533.79	533.69	753.90	5197.96	748.26	5159.07	15:20:00	15.66	753.86	5197.68	516.47	17.22	-242.20	274.27	
18	508.37	508.37	508.27	717.56	4947.40	712.37	4911.62	15:28:00	15.03	1210.92	8349.00	491.23	17.04	-216.78	274.45	Measurement recollected to verify P2 value after port 20. Value is consistent.
19	485.95	485.95	485.85	685.53	4726.56	732.42	5049.86	15:38:00	14.40	685.54	4726.63	505.33	-19.48	-194.36	310.97	Change of trend from previous port. Outside pressure higher than inside pressure. Same trend as July and August measurements.
20	457.52	457.52	457.43	644.97	4446.91	685.96	4729.53	15:53:00	13.60	1210.92	8349.00	472.66	-15.23	-165.94	306.72	
21	429.10	429.10	429.01	604.38	4167.06	640.38	4415.27	16:14:00	13.30	604.40	4167.19	440.60	-11.59	-137.52	303.09	
22	415.67	415.67	415.58	585.24	4035.09	624.98	4309.09	16:19:00	12.87	585.25	4035.16	429.77	-14.19	-124.09	305.69	
23	396.25	396.25	396.17	557.40	3843.14	595.54	4106.11	16:27:00	12.29	557.41	3843.21	409.07	-12.90	-104.68	304.39	
24	375.32	375.32	375.24	527.56	3637.40	564.54	3892.37	16:33:00	11.92	527.56	3637.40	387.27	-12.03	-83.75	303.52	
25	361.90	361.90	361.82	508.41	3505.36	542.87	3742.96	16:38:00	11.70	508.36	3505.02	372.03	-10.21	-70.33	301.70	
26	342.48	342.48	342.41	480.66	3314.04	513.28	3538.94	16:43:00	11.48	480.67	3314.10	351.22	-8.81	-50.92	300.30	
27	327.55	327.55	327.48	459.40	3167.45	490.40	3381.19	16:45:00	11.37	459.34	3167.04	335.13	-7.65	-35.99	299.14	
28	307.69	307.69	307.62	431.05	2971.99	461.64	3182.90	16:49:00	11.25	430.99	2971.57	314.90	-7.28	-16.13	298.78	
29	292.76	292.76	292.69	409.68	2824.65	440.04	3033.97	16:52:00	11.08	409.68	2824.65	299.71	-7.02	-1.20	298.52	
30	277.89	277.89	277.83	388.45	2678.27	418.56	2885.87	16:54:00	10.90	388.48	2678.48	284.61	-6.78	13.66	298.27	
31	267.03	267.03	266.97	372.93	2571.26	402.83	2777.42	17:00:00	10.66	372.93	2571.26	273.54	-6.57	24.52	298.07	
32	248.01	248.01	247.95	345.88	2384.76	375.39	2588.22	17:02:00	10.54	345.82	2384.35	254.25	-6.30	43.54	297.79	
33	227.18	227.18	227.13	315.88	2177.92	339.31	2339.46	17:07:00	10.27	316.00	2178.74	228.87	-1.74	64.36	293.24	
34	207.75	207.75	207.7	288.12	1986.52	309.09	2131.10	17:11:00	9.97	288.13	1986.59	207.62	0.08	83.79	291.41	
35	185.33	185.33	185.29	255.97	1764.85	275.21	1897.51	17:16:00	9.36	255.98	1764.92	183.79	1.50	106.20	290.00	
36	153.41	153.41	153.37	210.19	1449.21	227.30	1567.18	17:22:00	9.31	210.19	1449.21	150.10	3.27	138.12	288.22	

Geofirma Complete & Verify Sign-off

Completed by:

Michael Olaya Rengifo 20-Oct-22
Date

Verified by:

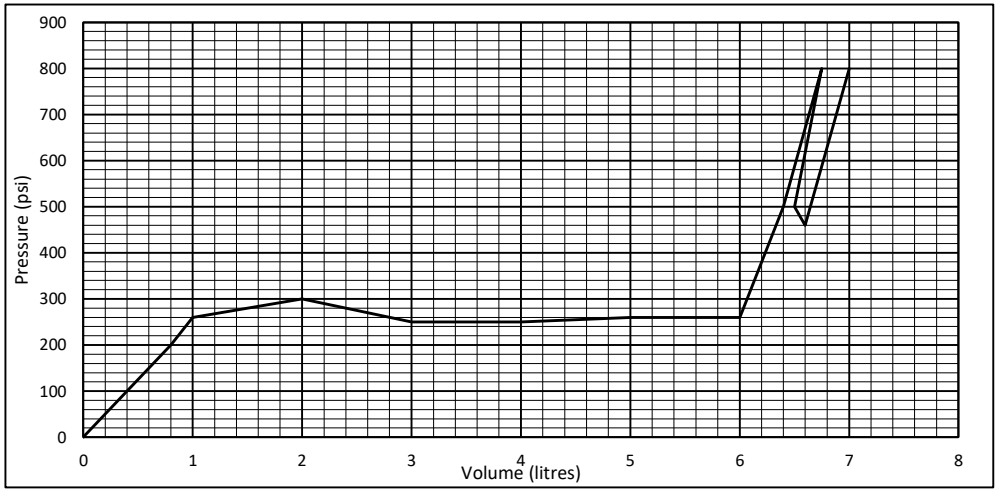
Morgan de Kroon 25-Oct-22
Date

Appendix D

Packer Inflation Summary Records

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	1	864.0	066	1697	1326	4	375	22-Jun-22	12:30	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.8	200
1	260
2	300
3	250
4	250
5	260
6	260
6.4	500
6.75	800
6.5	500
6.6	460
7	800



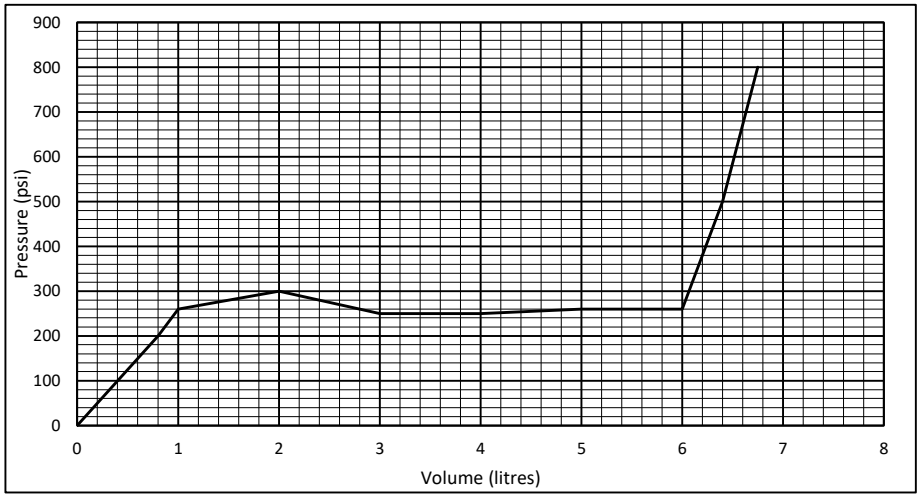
Reviewed by:

Morgan de Kroon — 13-Apr-23

Signature — Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	2	850.6	036	1718	1306	4	416	22-Jun-22	14:24	TK
Other										

Volume (L)	Pressure (psi)
0	0
0.8	200
1	260
2	300
3	250
4	250
5	260
6	260
6.4	500
6.75	800



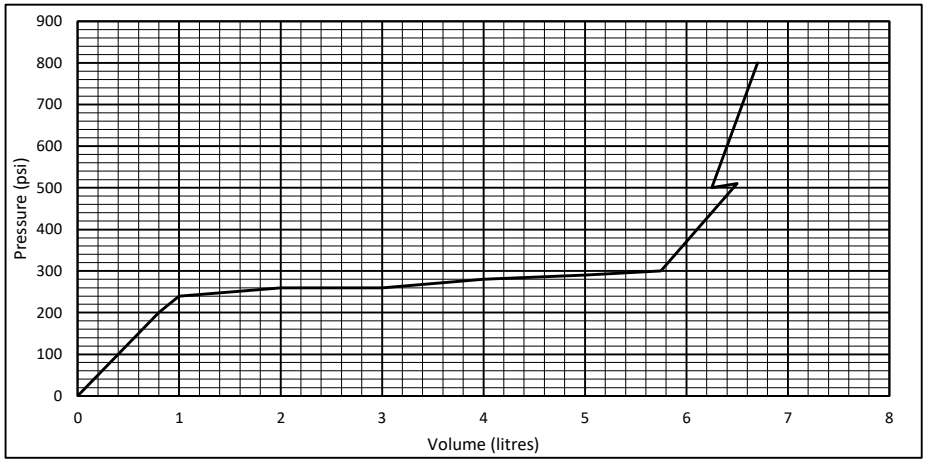
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	3	825.2	050	1681	1267	4	418	22-Jun-22	15:21	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.8	200
1	240
2	260
3	260
4	280
5	290
5.75	300
6.5	510
6.25	500
6.7	800



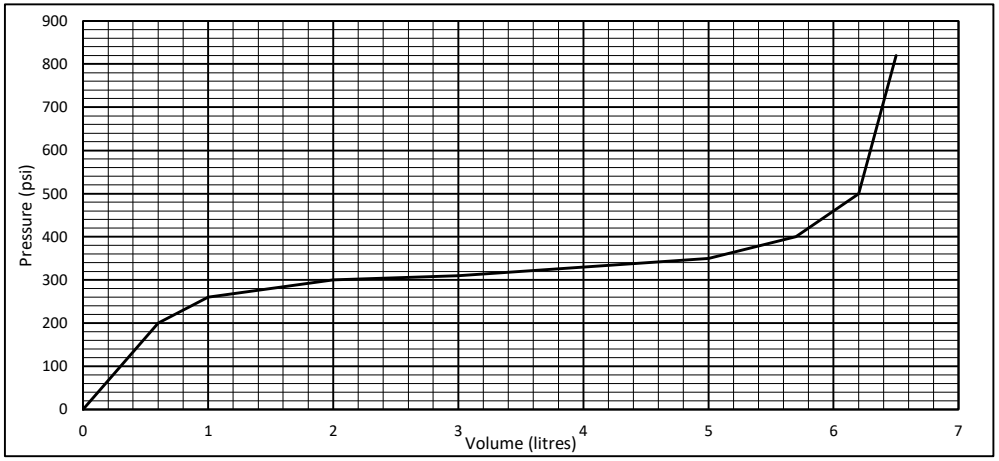
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	4	802.7	054	1643	1232	4	415	22-Jun-22	16:10	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	200
1	260
2	300
3	310
4	330
5	350
5.7	400
6.2	500
6.5	820



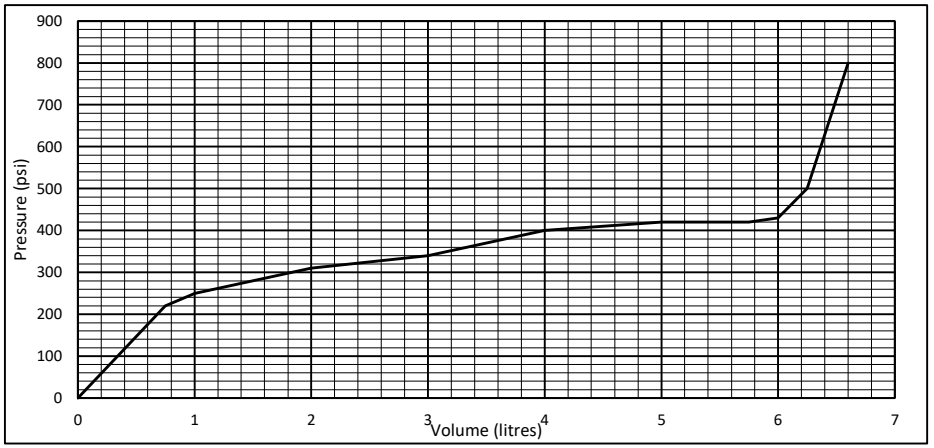
Reviewed by:

Morgan de Kroon — 13-Apr-23

Signature — Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	5	783.3	046	1633	1203	4	434	22-Jun-22	17:00	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.75	220
1	250
2	310
3	340
4	400
5	420
5.75	420
6	430
6.25	500
6.6	800



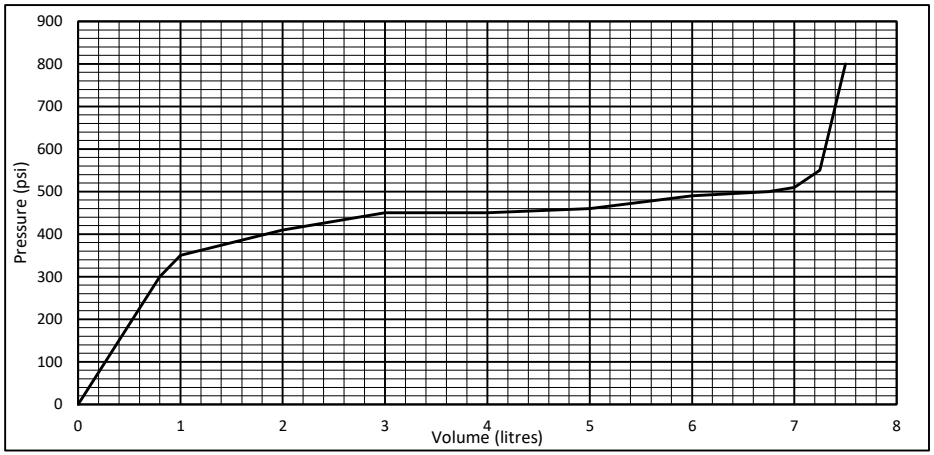
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	6	757.9	052	1626	1163	4	467	22-Jun-22	17:55	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.8	300
1	350
2	410
3	450
4	450
5	460
6	490
6.75	500
7	510
7.25	550
7.5	800



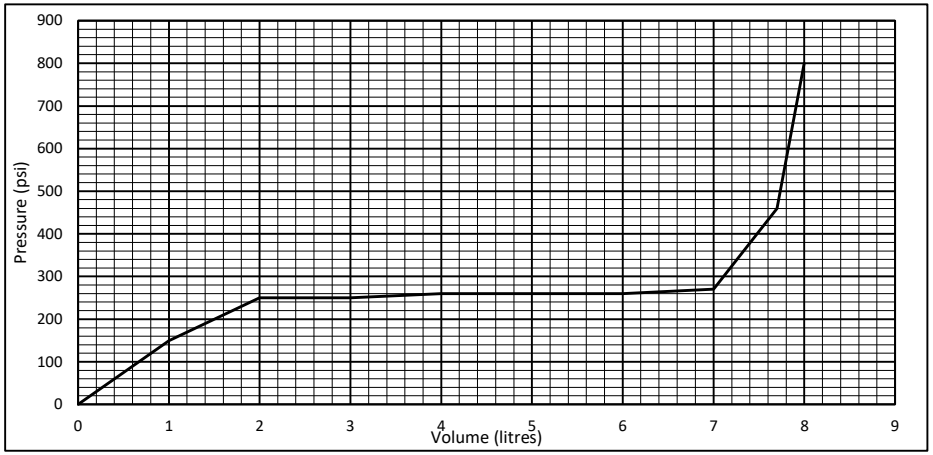
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	7	735.5	062	1512	1126	4	390	23-Jun-22	14:37	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
1	150
2	250
3	250
4	260
5	260
6	260
7	270
7.7	460
8	800



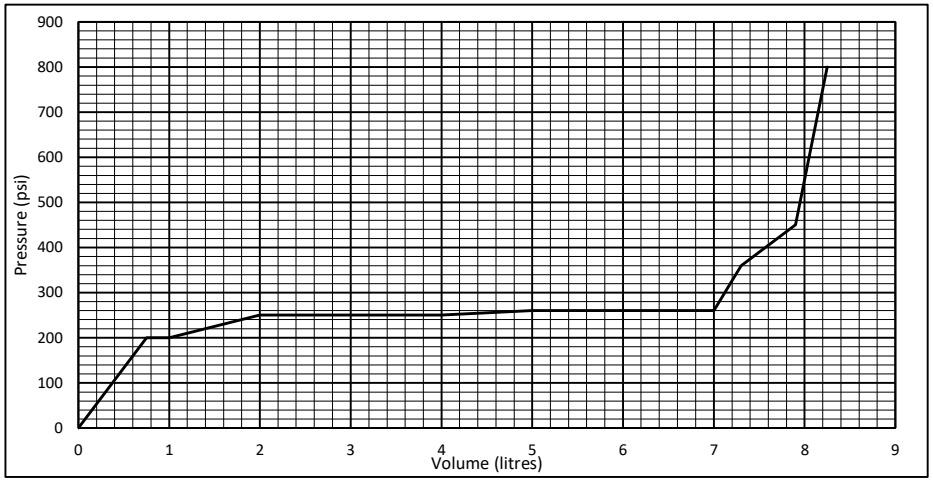
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	8	713.0	043	1469	1091	4	382	23-Jun-22	15:30	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.75	200
1	200
2	250
3	250
4	250
5	260
6	260
7	260
7.3	360
7.9	450
8.25	800



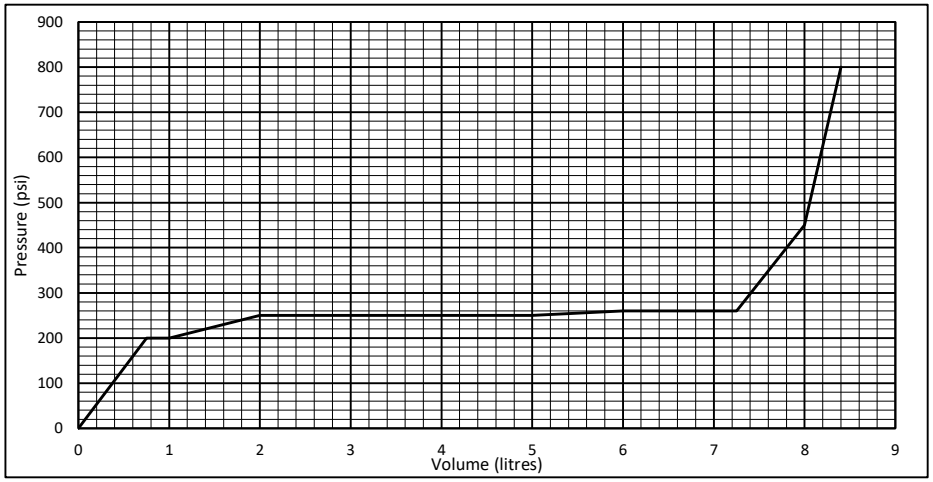
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	9	690.6	038	1431	1056	4	379	23-Jun-22	16:19	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.75	200
1	200
2	250
3	250
4	250
5	250
6	260
7	260
7.25	260
8	450
8.4	800



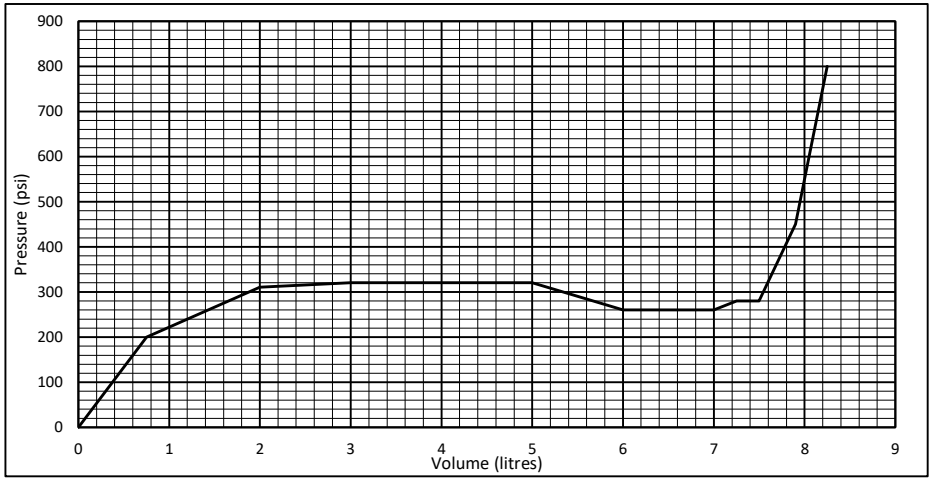
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	10	668.2	049	1403	1022	4	385	23-Jun-22	17:15	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.75	200
2	310
3	320
4	320
5	320
6	260
7	260
7.25	280
7.5	280
7.9	450
8.25	800



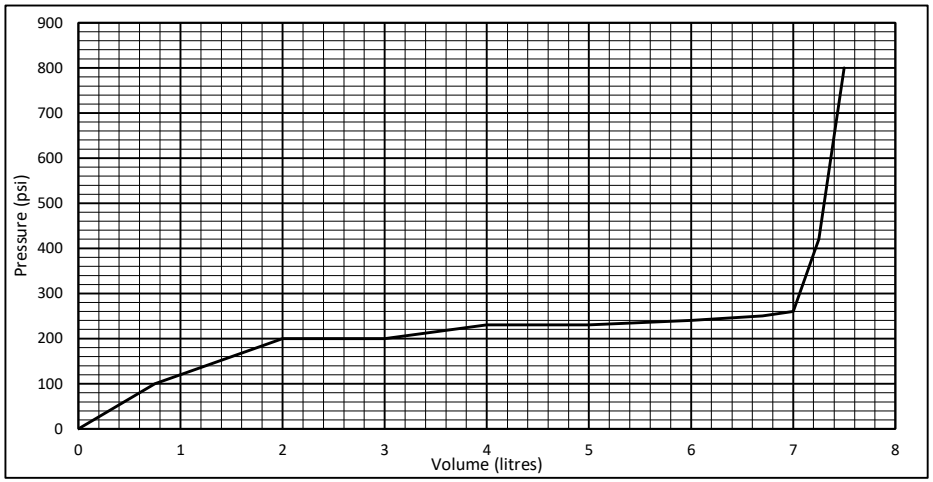
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	11	645.8	045	1337	977	4	364	25-Jun-22	13:53	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.75	100
2	200
3	200
4	230
5	230
6	240
6.7	250
7	260
7.25	420
7.5	800



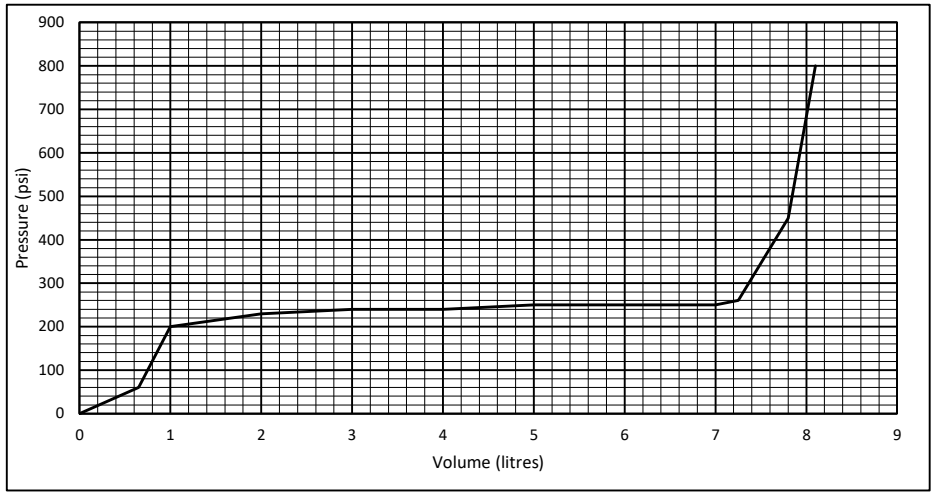
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	12	635.4	051	1347	960	4	391	25-Jun-22	14:41	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.65	60
1	200
2	230
3	240
4	240
5	250
6	250
7	250
7.25	260
7.8	450
8.1	800



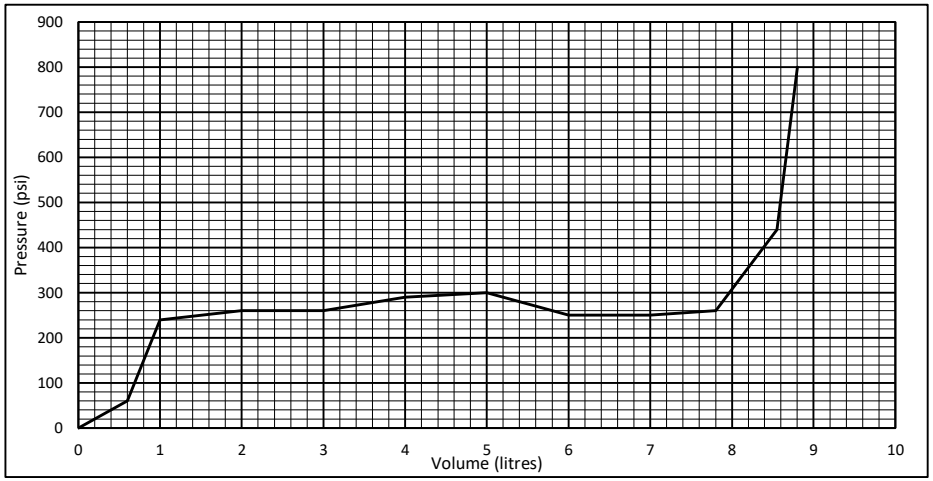
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	13	615.9	071	1316	930	4	390	25-Jun-22	15:31	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	60
1	240
2	260
3	260
4	290
5	300
6	250
7	250
7.8	260
8.55	440
8.8	800



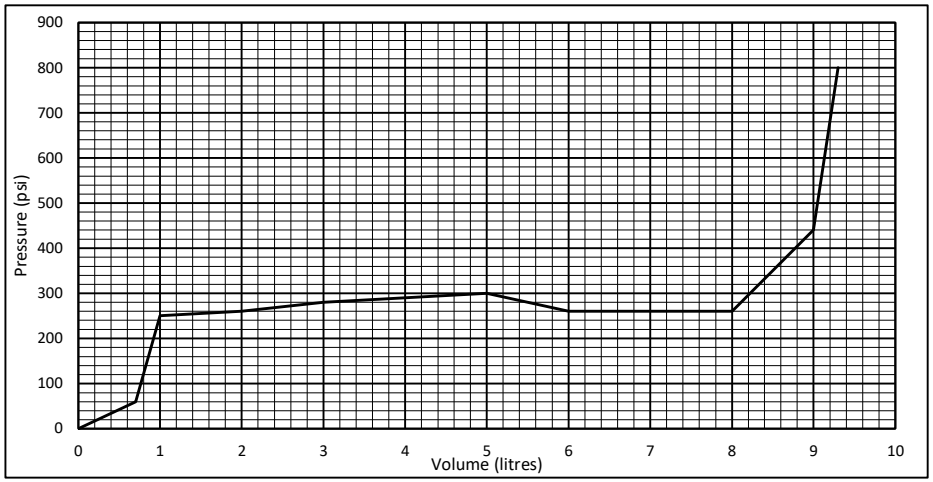
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	14	598.0	070	1286	903	4	387	27-Jun-22	9:45	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	60
1	250
2	260
3	280
4	290
5	300
6	260
7	260
8	260
9	440
9.3	800



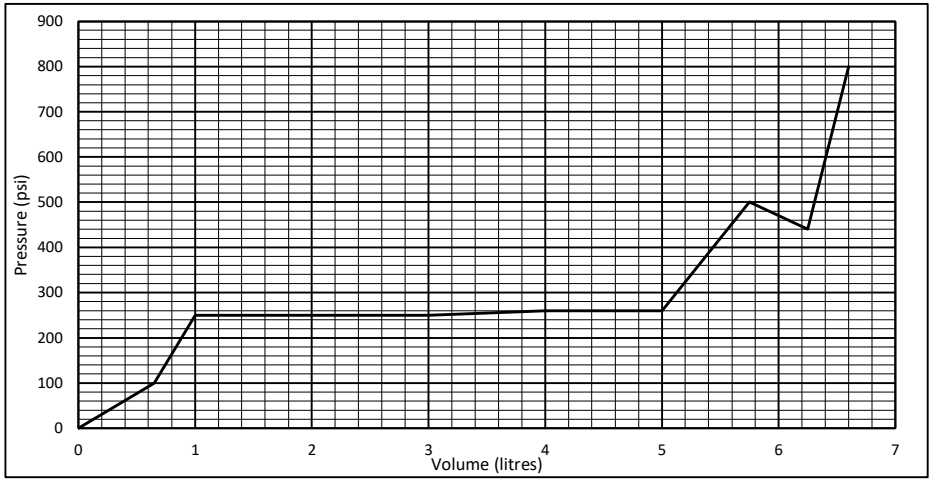
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	15	575.6	041	1255	869	4	390	27-Jun-22	10:32	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.65	100
1	250
2	250
3	250
4	260
5	260
5.75	500
6.25	440
6.6	800



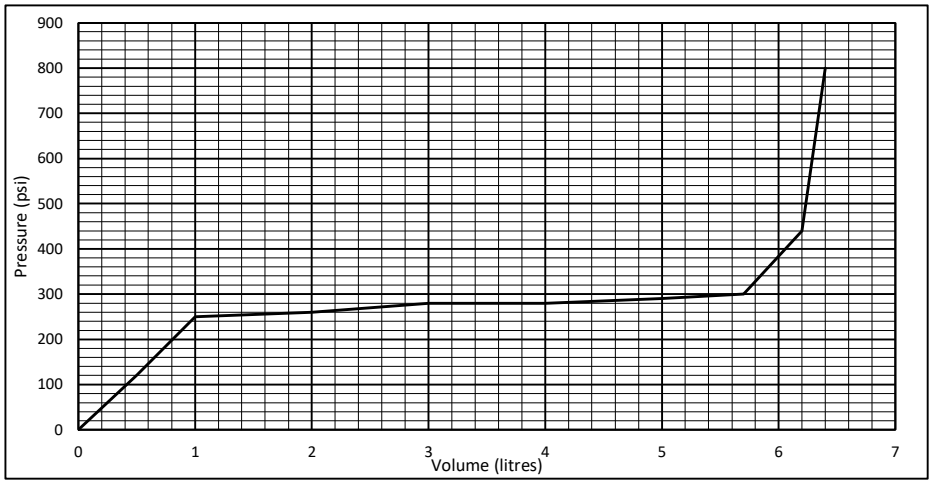
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	16	553.2	037	1221	835	4	390	27-Jun-22	11:25	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.5	120
1	250
2	260
3	280
4	280
5	290
5.7	300
6.2	440
6.4	800



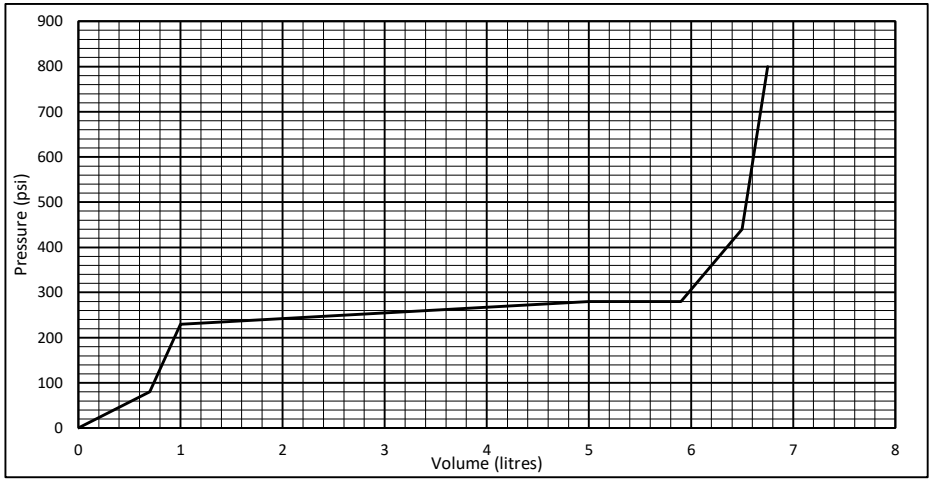
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	17	530.7	048	1189	801	4	392	27-Jun-22	14:00	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	80
1	230
5	280
5.9	280
6.5	440
6.75	800



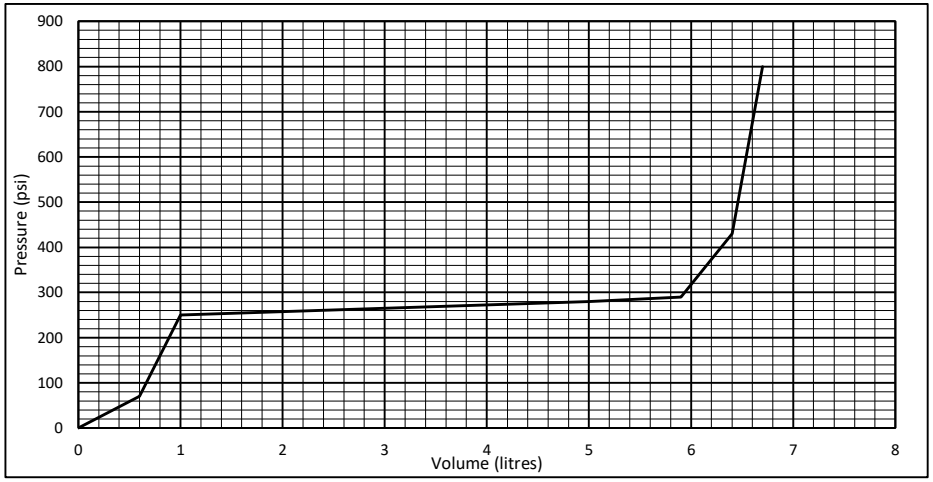
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	18	505.3	044	1145	762	4	387	27-Jun-22	14:43	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	70
1	250
5	280
5.9	290
6.4	430
6.7	800



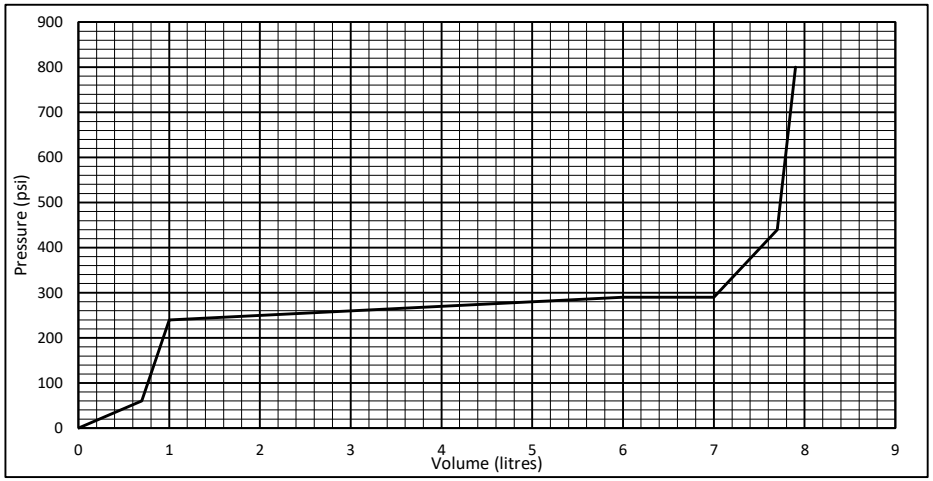
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	19	482.9	069	1122	728	4	398	27-Jun-22	15:30	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	60
1	240
6	290
7	290
7.7	440
7.9	800



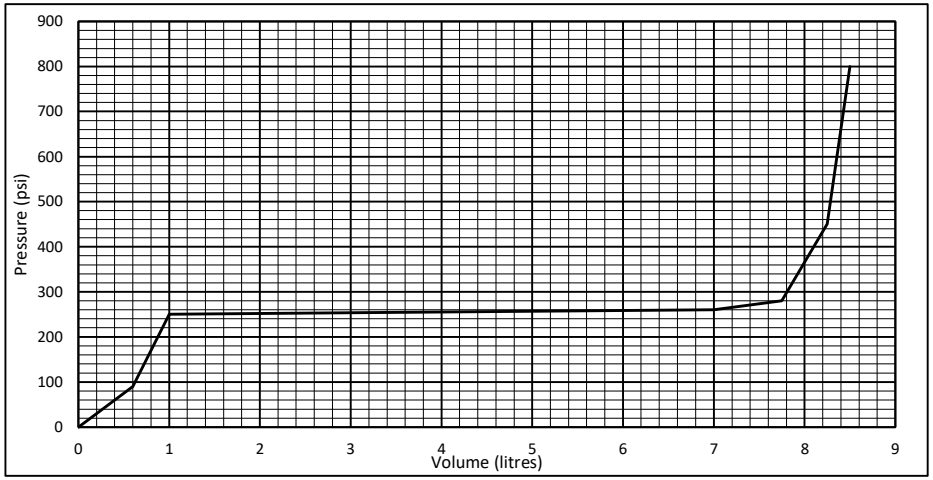
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	20	454.5	039	1087	685	4	406	27-Jun-22	16:16	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	90
1	250
7	260
7.75	280
8.25	450
8.5	800



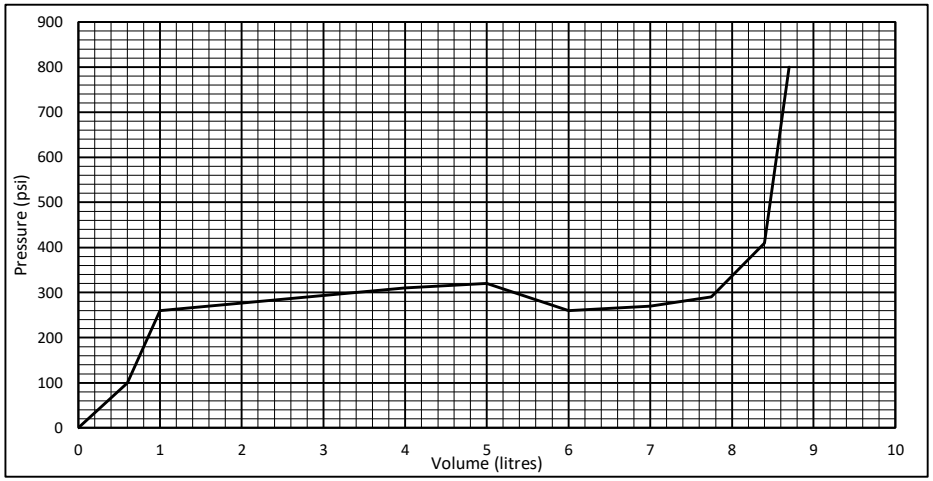
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	21	426.0	067	1011	643	4	372	27-Jun-22	17:05	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	100
1	260
4	310
5	320
6	260
7	270
7.75	290
8.4	410
8.7	800



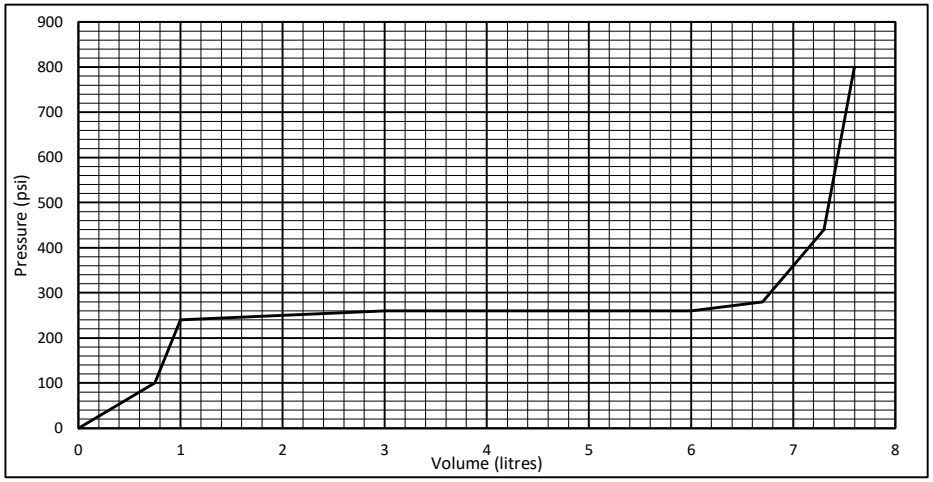
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	22	412.6	047	1014	623	4	395	28-Jun-22	9:12	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.75	100
1	240
3	260
5	260
6	260
6.7	280
7.3	440
7.6	800



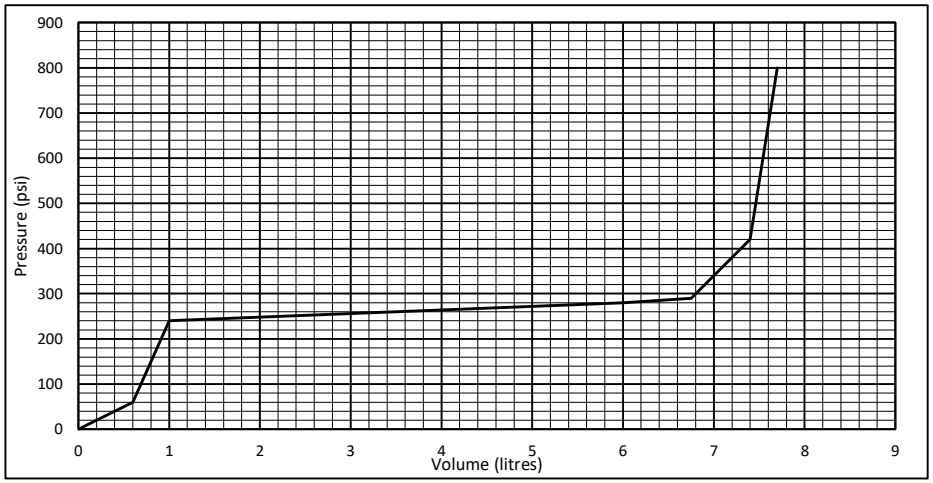
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	23	393.2	053	977	594	4	387	28-Jun-22	10:00	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	60
1	240
6	280
6.75	290
7.4	420
7.7	800



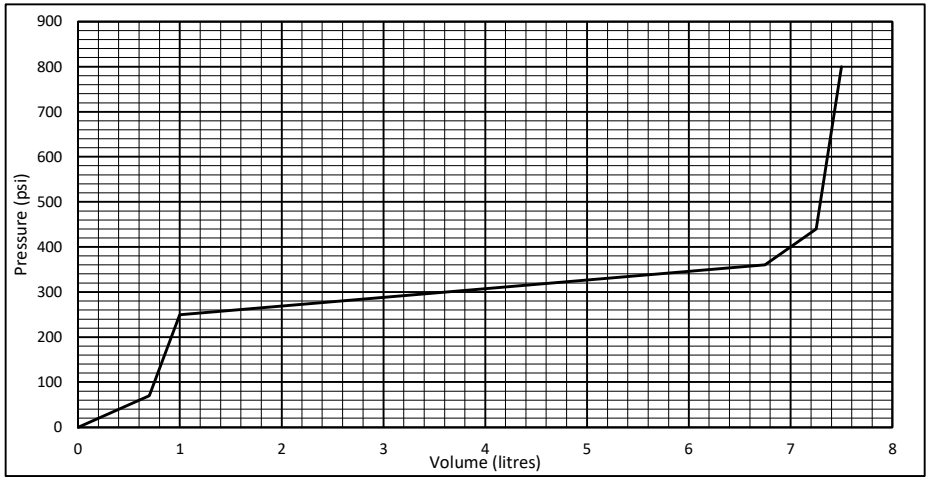
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	24	372.3	068	963	562	4	405	28-Jun-22	10:46	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	70
1	250
6.75	360
7.25	440
7.5	800



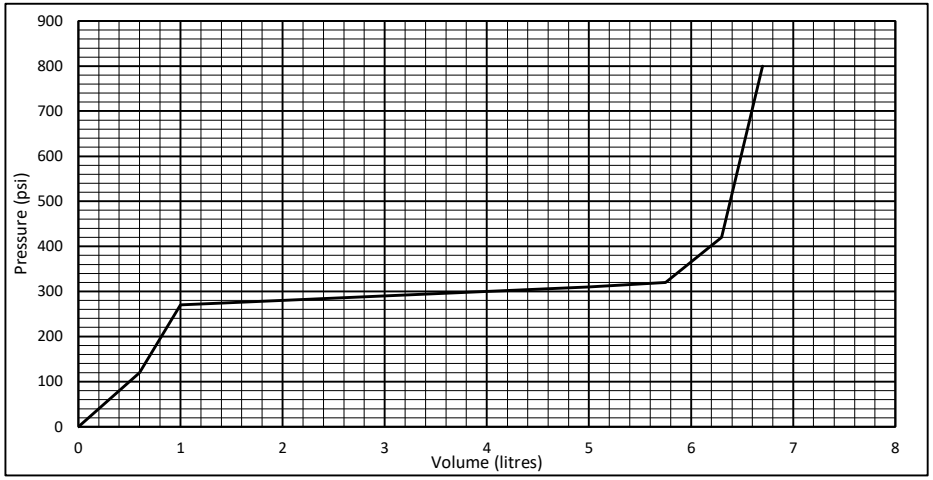
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	25	358.8	061	932	542	4	394	28-Jun-22	11:31	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	120
1	270
5	310
5.75	320
6.3	420
6.7	800



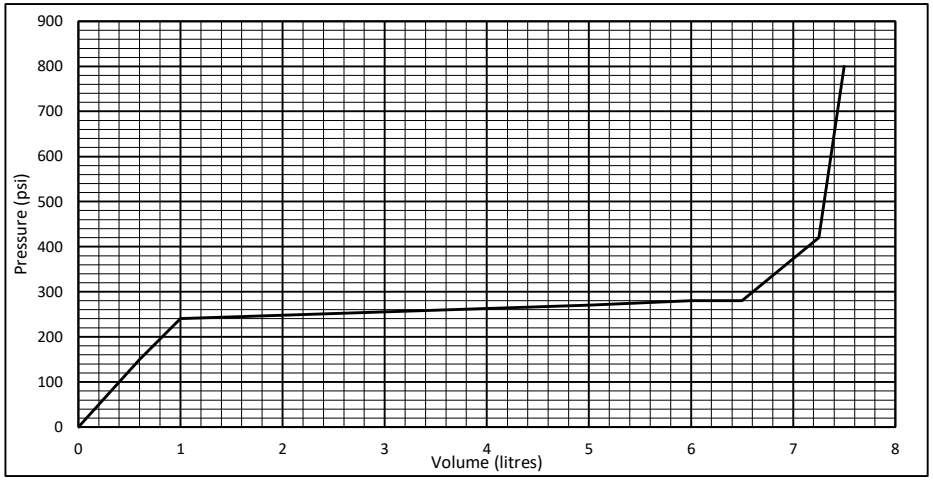
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	26	339.4	065	911	513	4	402	28-Jun-22	12:17	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	150
1	240
5	270
6	280
6.5	280
7.25	420
7.5	800



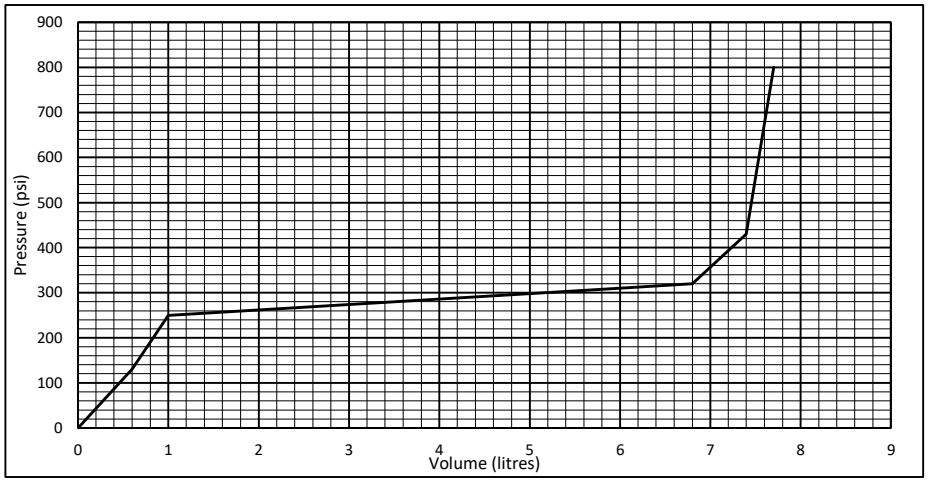
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	27	324.5	057	888	491	4	401	28-Jun-22	13:01	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	130
1	250
6	310
6.8	320
7.4	430
7.7	800



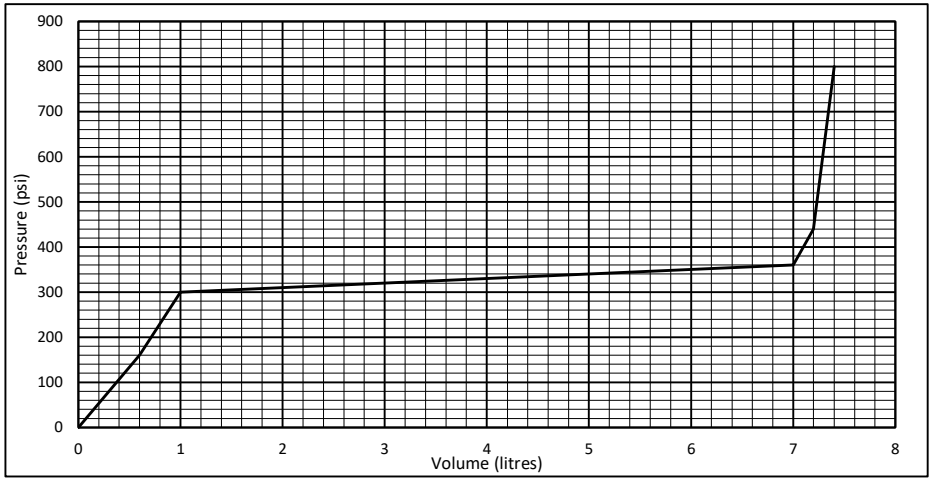
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	28	304.6	073	870	462	4	412	28-Jun-22	13:45	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	160
1	300
6	350
7	360
7.2	440
7.4	800



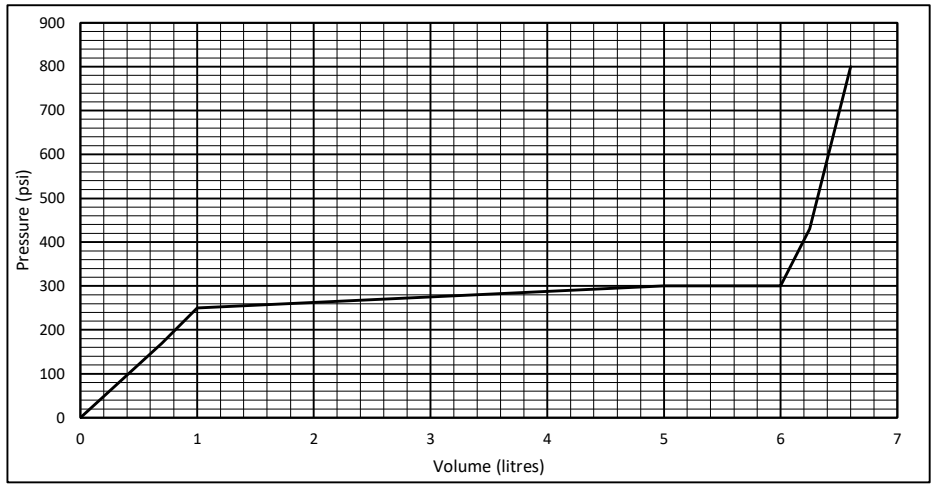
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	29	289.7	063	836	440	4	400	28-Jun-22	14:34	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	170
1	250
5	300
6	300
6.25	430
6.6	800



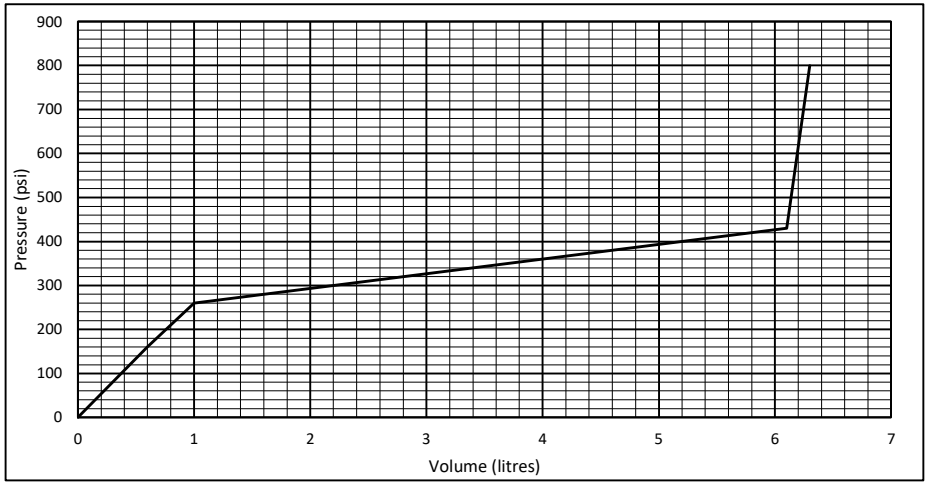
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	30	274.8	059	814	419	4	399	28-Jun-22	15:22	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	160
1	260
6.1	430
6.3	800



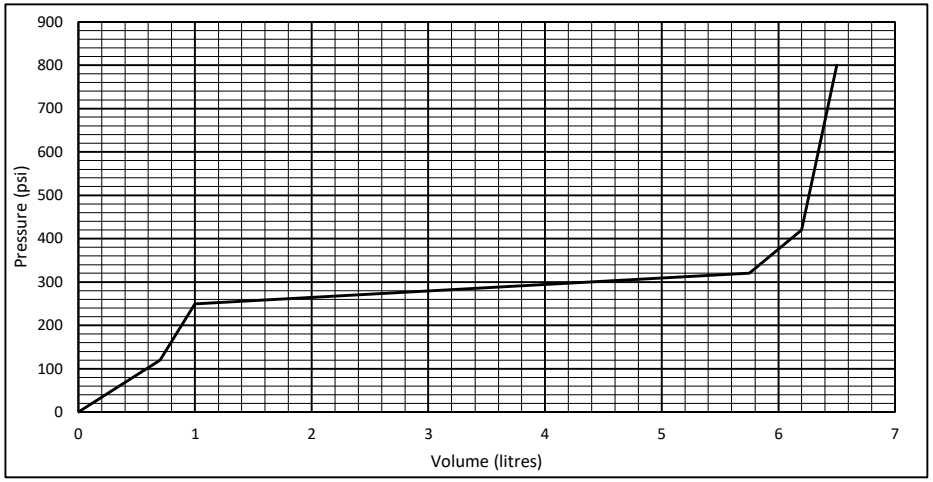
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	31	264.0	055	798	403	4	399	28-Jun-22	16:05	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	120
1	250
5.75	320
6.2	420
6.5	800



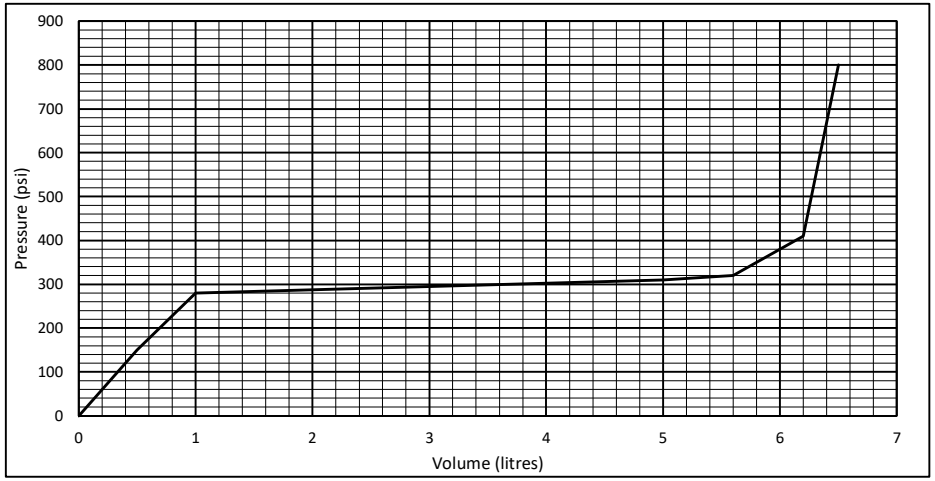
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	32	245.0	042	757	375	4	386	28-Jun-22	16:51	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.5	150
1	280
5	310
5.6	320
6.2	410
6.5	800



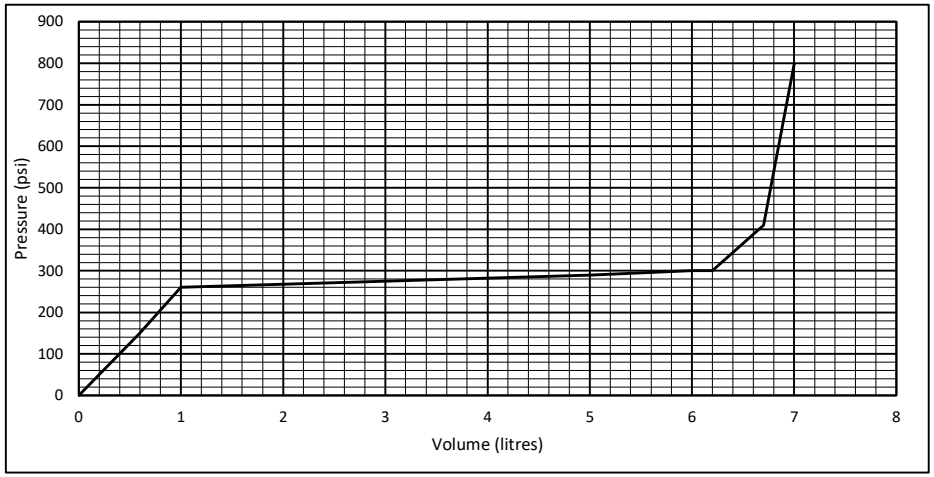
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (P_O - P_V)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	33	224.1	058	723	345	4	382	29-Jun-22	9:18	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	150
1	260
5	290
6	300
6.2	300
6.7	410
7	800



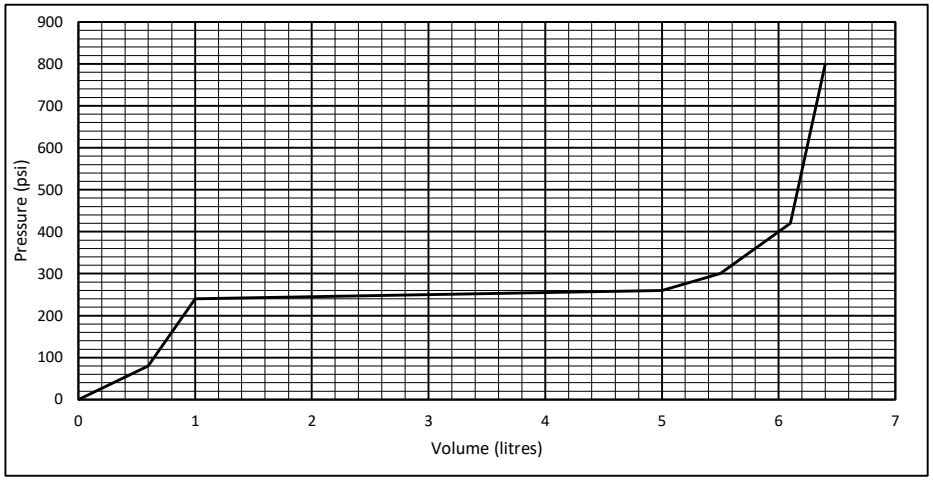
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	34	204.7	040	704	317	4	391	29-Jun-22	10:04	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.6	80
1	240
5	260
5.5	300
6.1	420
6.4	800



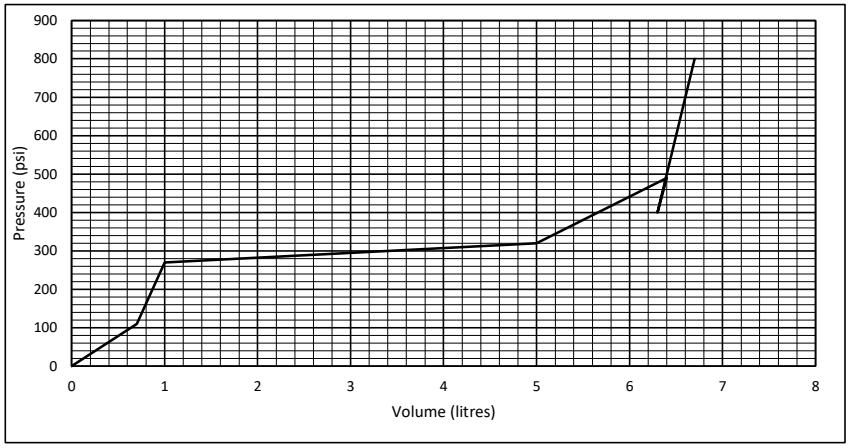
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	35	182.3	056	654	285	4	373	29-Jun-22	10:53	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	110
1	270
5	320
6.4	490
6.3	400
6.7	800



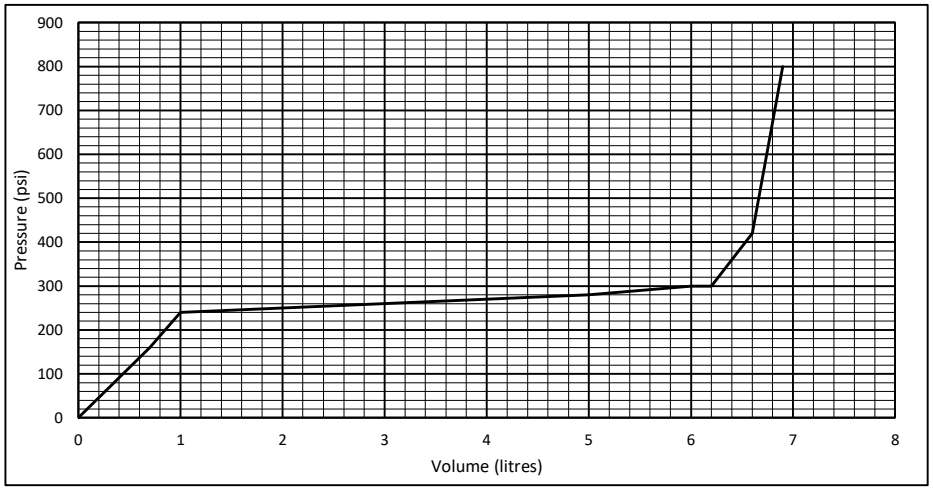
Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date

	Packer No.	Packer Depth(m)	Packer S/N	Packer Inflation Pressure, P_F (psia)	Outside Pressure, P_O (psia)	Offset Pressure, P_V (psi) Depth Separation btw Packer to M-Port	Calculated Final Packer Element Pressure, $P_E = P_F - (Po - Pv)$ (psi)	Date	Time(EST)	Initials
Packers and Inflation Line	36	148.8	072	630	237	6	399	29-Jun-22	12:25	TK
Other (explain)										

Volume (L)	Pressure (psi)
0	0
0.7	160
1	240
5	280
6	300
6.2	300
6.6	420
6.9	800



Reviewed by:

Morgan de Kroon 13-Apr-23

Signature Date