SHALLOW GROUNDWATER MONITORING WELL NETWORK INSTALLATION IN THE SOUTH BRUCE AREA

Project Data Report for Shallow Groundwater Monitoring Well Network Installation

APM-REP-01332-0360 **August 2024**

Geofirma Engineering Ltd.

nwmo
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Groundwater Monitoring Well Network Installation at the South Bruce Site

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Revision Tracking Table

Revision	Revision Release Date	Description of Modifications/Edits
R0	March 7, 2023	Initial Release
R1	April 10, 2023	Revisions to address additional NWMO comments
R2	May 15, 2023	Additional revisions to address additional NWMO comments
R3	July 5, 2023	Additional revisions to address additional NWMO comments
R4	February 2, 2024	Clarification in Section 2.4.1 on completion of overburden monitoring wells and minor edits to borehole logs for monitoring intervals that were damaged and replaced.
R5	April 19, 2024	Further clarification in Section 2.4.1 on completion of overburden monitoring wells and edits to corresponding borehole logs.
R6	August 9, 2024	Update drilling contractors identified on borehole logs for SB_MW06 and SB_MW07 and minor edits throughout.

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1 INTRODUCTION

1.1 Background

Geofirma Engineering Ltd. (Geofirma) was retained by the Nuclear Waste Management Organization (NWMO) to install a shallow groundwater monitoring network at the South Bruce Site near Teeswater Ontario. The NWMO is responsible for implementing Adaptive Phased Management (APM), Canada's plan for the long-term management of used nuclear fuel. The ultimate objective of APM is the centralized containment and isolation of used nuclear fuel in a deep geological repository located at a safe site in an informed and willing host community. The installation of a shallow groundwater monitoring network at the South Bruce Site is part of Phase 2 Geoscientific Preliminary Site Investigations phase of NWMO's APM Site Selection process.

The objective of this project, *Shallow Groundwater Monitoring Well Network Installation at the South Bruce Site (the Project),* is to provide a monitoring well network in the shallow bedrock and overburden at the South Bruce Site that can be used for monitoring of water levels, estimation of hydrogeologic properties, measurement of vertical and horizontal hydraulic gradients, and periodic collection and analysis of groundwater samples.

This project involves drilling, instrumentation, and testing of monitoring well clusters at six sites within the South Bruce Site. Each monitoring well cluster included a monitoring well installed in the overburden and a bedrock borehole instrumented with three nested piezometers. Two of the well clusters (SB_MW02 and SB_MW06) had a third borehole drilled into bedrock to install a replacement monitoring well interval.

The locations of the six monitoring well clusters installed as part of this project (SB_MW02 through SB_MW07 and SB_MW09) are shown in Figure 1.

1.2 Purpose and Objectives

The purpose of this factual report is to provide a summary of all field activities including methods and findings from drilling, chip logging and sampling, geophysical logging, monitoring system design and installation, development, hydraulic testing, and instrumentation with Waterra tubing and Levelogger pressure transducers.

The main objective of the site infrastructure work package (WPA) was to provide access and a safe and secure working area in order to complete drilling (WPB), geophysical logging (WPC), and monitoring well installation, development, testing, and instrumentation (WPD).

The main objectives of WPB borehole drilling, logging/sampling, and casing installation activities are:

- To provide a network of monitoring wells that conform to Ontario Regulation 903 (O.Reg. 903).
- To provide stable boreholes walls to allow for geophysical logging, installation of groundwater monitoring well systems and subsequent groundwater monitoring and testing.
- To collect representative chip samples for logging and sampling.

- To provide detailed lithological log of overburden material and bedrock at each site.

The main objective of WPC borehole geophysical logging activity was to acquire and process continuous geophysical logs for the entire length of the drilled bedrock boreholes.

The main objectives of WPD, installation, testing and instrumentation of the groundwater monitoring well networks are:

- To provide a network of monitoring intervals at various depths and locations to allow for the measurements of hydraulic heads, estimation of the direction and magnitude of local horizontal and vertical gradients.
- To install tubing, foot valves and a pressure transducer in each monitoring interval to allow for continuous water level monitoring and collection of representative groundwater samples.
- To allow for future interference tests to assess the nature of interconnections between various wells and test intervals.
- To test the effectiveness of seals between intervals within nested piezometers installed within a single borehole.
- To provide an estimate of hydraulic conductivity for each monitoring interval.

The following section provides a detailed account of the field activities completed under each Work Package (WP) for the Project.



LEGEND

- Bruce County Property Parcels
- Wetlands
- SB_MW Series Monitoring Wells

INSET MAP

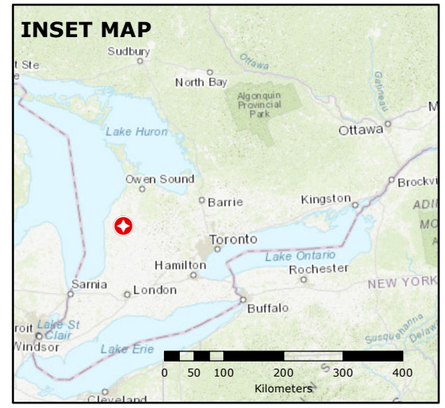


Figure 1
SB_MW02 to SB_MW07 and SB_MW09 Well Locations

Scale 1:17,000

0 100 200 400 600 800
Meters

N

Projection: NAD 1983 UTM Zone 17N

Source: Ontario GeoBase, MECP

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster

PROJECT No. 21-223-1

NWMO South Bruce
Shallow Monitoring Well Program

DESIGN: ADG
CAD/GIS: ADG
CHECK: SNS/GDB

DATE: 2023-03-06

GEOFIRMA ENGINEERING

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2 DESCRIPTION OF FIELD ACTIVITIES

2.1 WPA Site Infrastructure

WPA addresses site access, site construction, and site infrastructure. Site infrastructure as part of drilling and testing activities included the infrastructure to support drill rigs, water trucks and cuttings/fluid containment, washroom facilities, and perimeter fencing. The following subsections describe the WPA field activities.

2.1.1 Site Access and Control

The NWMO secured the use of the land for drill sites and access roads. Prior to the commencement of site work, the NWMO handed over care and custody of the sites to Geofirma. Conditions of the site handover were documented in a Site Handover Agreement, dated October 13, 2021 which was signed by Geofirma and the NWMO. When the project field activities were completed, the care and custody of the sites was returned to the NWMO. All sites with the exception of SB_MW02 were returned to the NWMO on April 11, 2022. SB_MW02 was returned on July 6, 2022 following completion of the rehabilitation work. To facilitate the drilling of SB_MW09_BR the care, custody and control of the SB_MW06 drill site was handed over to Geofirma effective November 28, 2022. Following completion of the fieldwork, the site was handed back to the NWMO on December 22, 2022.

2.1.2 Pre-Construction Activities

Pre-construction activities included site and access design, ensuring all required notices, permits, approvals, and utility locates were acquired before beginning work onsite. Prior to site construction:

- Utility Locates were obtained for all locations.
- A road occupancy permit was obtained from the Municipality of South Bruce for the roads within the project area.
- A permit for alterations to a regulated area was obtained from the Saugeen Valley Conservation Authority (SVCA) for access road updates at SB_MW06. SVCA confirmed that a permit was not required for the temporary access road work at SB_MW02. All other drill sites were not on SVCA managed lands.

2.1.3 Road Entrance, Access Road, and Drill Site Island

The drill sites were located in tilled agricultural fields. Access to the sites varied by site but required the following components:

1. A constructed entrance from the municipal roadway that allowed a water truck, truck-mounted drill rig and support vehicles daily access to the drill sites.
2. An access road to the drill site that allowed daily passage of a water truck, truck-mounted drill rig and support vehicles to the drill sites.
3. A drill site pad that allows for a level setup of the drill rig and flat stable ground for support vehicles, water and cuttings containment, and associated materials laydown.

The site access and drill pad designs utilized temporary wooden mats provided by Northern Mat & Bridge (NMB) at all six drill sites to provide access for the dual-rotary drill rig, support vehicles, and water hauling. Two of the sites, SB_MW04 and SB_MW06, also required site grading prior to mat installation to allow for the use of the mats. Cedarwell Excavating was retained to complete the site grading. At SB_MW04, the ground surface sloped to the west at a grade too steep to correct with the drill rig out-riggers to maintain an adequate and safe working area. To provide a level working area for the rig, a level granular pad was constructed at SB_MW04 by stripping the topsoil and importing granular materials to support placement of the temporary mats. Following completion of the well installations, the granular pad beyond a 3 m radius of the well was removed and topsoil returned to the area. At SB_MW06, upgrades to the access road to SB_MW06, notably along the easterly side of the landowners barn down the slope to SB_MW06 was required. At this location, the topsoil was stripped and approximately 0.45 m of fill (Granular B, topped with Granular A) was placed on the existing farm road. It was agreed with NWMO and the landowner that this beneficial material could be left in place following completion of the project work.

To optimize rental of the mats, they were set up in two separate deployments. Temporary access roads and drill pads were constructed at the first four sites to be drilled (MW02, MW03, MW04 and MW05) on October 14 and 15, 2021. Following mat installation, other site infrastructure items to support the drilling were mobilized and set up at each of the drill sites as needed including temporary fences, washrooms, pumps, generators, tanks, berms, and mobile field office. Once drilling was nearing completion at the first four wells, NMB returned from November 15 to 17, 2021 to move the mats for the second deployment at SB_MW06 and SB_MW07.

Site infrastructure items to support the drilling including temporary fences, washrooms, pumps, generators, tanks, and berms were demobilized following completion of the drilling on December 17, 2021. All temporary wooden mats were removed from the sites from December 20 to 22, 2021. The remaining site infrastructure items to support the well development, hydraulic testing and instrumentation were removed following completion of all work activities at each of drill sites. Sites were inspected to remove all wood debris from the mats and any residual drilling or well installation materials.

The additional boreholes (SB_MW02_BR_R and SB_MW09_BR) were drilled without the use of mats during frozen ground conditions. SB_MW02_BR_R was drilled at the SB_MW02 site adjacent to the initial wells and SB_MW09_BR was drilled at the SB_MW06 site using the road upgrades previously installed.

2.2 WPB Borehole Drilling and Logging

All borehole drilling and monitoring well installations were completed by a Ministry of Environment, Conservation, and Parks (MECP) licensed water well driller. The drilling contractors used to install wells included Aardvark Drilling Inc. (ADI), Highland Water Well Drilling Inc. (Highland), Steffen Drilling, and Strata Drilling Group (Strata). Drilling and well installations were completed in accordance with requirements of Ontario Regulation 903 (O.Reg. 903) under the Ontario Water Resources Act (OWRA). The MECP well records for each borehole are included in Appendix A.

With the exception of the SB_MW02 and SB_MW06 drill sites, the drilling consisted of two boreholes, one in overburden (OB) and one in bedrock (BR), at each of the six sites, totalling 12 boreholes. Due to the failure of the intermediate bedrock monitoring intervals at SB_MW02 and SB_MW06, a second

bedrock borehole was drilled to the intermediate depth to reinstall the intermediate bedrock monitoring interval at each of the sites. Borehole completion diagrams for each borehole are included in Appendix B.

During drilling operations, all produced water was contained and hauled offsite for disposal. Water production rates and volumes during drilling were recorded in the Data Quality Confirmation (DQC) Workbook in Appendix C.

Although the drilling was primarily completed using techniques that do not require drill water or muds, a small amount of water (<1m^3/well cluster) was used during drilling operations. All water that was introduced to the subsurface during drilling operations was traced using a fluorescein. The traced drill water was mixed onsite using water from the Kincardine municipal water supply and a fluorescein stock solution. The fluorescein concentration in the drill water was maintained near 100 ppb (ug/L) and was monitored onsite using a handheld fluorometer.

2.2.1 Overburden Borehole Drilling

All six of the overburden boreholes (SB_MW02_OB through SB_MW07_OB) were drilled and completed by Aardvark Drilling Inc. with a track-mounted CME75 drill rig between October 14 - 28, 2021. Geofirma and GM Blue Plan (GMBP) staff provided supervision of drilling operations and completed logging of the soil produced during drilling. Drilling of the overburden boreholes was completed using a 0.203 m (8-inch) diameter hollow stem auger with split spoon sampling. Each overburden borehole was drilled to the top of bedrock using hollow stem augers. Use of hollow stem augers enabled collection of continuous split spoon soil samples from ground surface to the top of bedrock for geological logging.

2.2.2 Bedrock Borehole Drilling

Four of the bedrock boreholes (SB_MW02_BR through SB_MW05_BR) were drilled by Aardvark Drilling Inc. between October 18 - November 18, 2021. The remaining two bedrock boreholes (SB_MW06_BR and SB_MW07_BR) were drilled by Highland Drilling between December 8 - 17, 2021. Geofirma and GMBP staff provided supervision of drilling operations and completed logging of rock cuttings produced during drilling. The two additional bedrock boreholes (SB_MW02_BR_R and SB_MW09_BR) were drilled by Steffen Well Drilling on March 2-4, 2022 and December 13-14, 2022, respectively.

All the bedrock boreholes were drilled using dual air rotary method using a dual rotary (DR24) rig. For all of the original bedrock boreholes (SB_MW02_BR through SB_MW07_BR) the dual rotary rig was used to advance a 210 mm (8.25 inch) steel casing with a casing shoe into the top of bedrock until a seal was formed. A 0.203 m (8-inch) diameter open borehole was advanced through the bedrock below the casing to the desired depth. The two replacement wells drilled by Steffen Drilling (SB_MW02_BR_R and SB_MW09_BR) were drilled using the same methods but using a smaller diameter 0.152 m (6-inch) casing and borehole. Casing details were recorded for each well on the MECP well records, borehole completion diagrams and the DQC Workbook, found in Appendix A, Appendix B and Appendix C, respectively.

2.2.3 Drilling and Rehabilitation of SB_MW02_BR_R

During the development of SB_MW02_BR-B interval, it was noted to be partially compromised as sand was noted as entering the screened interval during development. The cause of the screen failure could

not be determined through downhole camera inspections as the issue was below the surface of sand which entered the well. The SB_MW02_BR-B monitoring interval remains a viable interval for water level measurements however NWMO was concerned that groundwater sample integrity may be compromised therefore they requested that Geofirma install a replacement interval. A second bedrock borehole (SB_MW02_BR_R) was drilled adjacent to the SB_MW02_BR cluster by Steffen Drilling on March 2-4, 2022 as a replacement intermediate bedrock monitoring well. Due to borehole stability issues the replacement borehole SB_MW02_BR_R kept collapsing during drilling and monitoring well installation.

SB_MW02_BR_R was initially drilled to a depth of 68 metres below ground surface (mBGS) on March 2, 2022. When the drillers returned on March 3 to install the monitoring well, a blockage was discovered at 56 mBGS. The blockage could not be cleared with a tricone bit therefore the borehole was re-drilled to 68 m with the air rotary bit. When the drillers returned to install the monitoring interval on March 4 the borehole was open to 66 mBGS, however following an attempt to re-open the hole to 68 m, the borehole became blocked once again at approximately 55 mBGS. Due to the continued borehole instability, Geofirma requested a deviation from the Test Plan to install the replacement monitoring interval at 55 mBGS. Based on the monitoring interval remaining in the same bedrock formation and within a significant water producing zone, the deviation was approved by NWMO.

The SB_MW02_BR_R monitoring well installation began on March 4 with PVC well screen and riser installed to approximately 55.5 mBGS and sand backfilled to 53 mBGS. Due to the borehole stability issues and multiple attempts to clear blockages from the borehole, the annular space around the screen required additional sand to backfill. When the drillers returned with additional sand to complete the installation on March 5, 2022 it was discovered that the borehole had collapsed again and the annular space was now blocked at approximately 38 mBGS. Several unsuccessful attempts were made to clear the blockage; on March 11 it was determined that a more comprehensive rehabilitation plan would be needed to proceed with clearing the blockage and completing the installation. Due to the ground thawing, the rehabilitation efforts were put on hold until ground conditions dried out. Geofirma mobilized Strata Drilling to the site on June 20, 2022 to clear the blockage at SB_MW02_BR_R and complete the monitoring well installation in accordance with the approved Test Plan. The blockage was successfully cleared by overcoring the existing PVC riser to a depth of 45.3 m and the annular space backfilled with sand to 41.4 m followed by a bentonite seal to ground surface.

2.2.4 Decommissioning SB_MW06_BR-B and Drilling SB_MW09_BR

On September 20, 2022, NWMO notified Geofirma that while their contractor was on site in September 2022 to collect groundwater samples, they could not purge the SB_MW06_BR-B interval. The Waterra tubing was removed from the well with a lot of difficulty, and the bottom 15m was coated in sediment. An obstruction at approximately 39 metres below top of riser (mBTR) prevented the tubing from advancing to the bottom of the well casing. Attempts at purging the water from higher up in the column were unsuccessful as the fine granular material prevented the foot valve from seating. An attempt was made to push the tubing down through the sediment in case it was a bridge and was able to reach 43.5 mBTR. Following that, NWMO tried to scope the well, the sediment was tagged at ~47 mBTR. Although the water was turbid, the sediment blockage appeared solid and the camera could not be advanced through the sediment. Geofirma agreed to investigate the cause of the blockage and develop a plan to re-instate the sampling interval.

Geofirma completed an initial inspection of the SB_MW06_BR-B interval with NWMO on October 4, 2022. Geofirma initially ran a camera down the interval, visibility became too cloudy to see at 33 mBTR, no issues were noted to that depth. A blockage was noted at 46.6 mBTR with the camera. Waterra tubing was installed (used high density Waterra without foot valve installed and cut to a point) and was able to push through/down beyond blockage to a depth of approximately 66 mBTR. It was difficult to push to that depth but could potentially push deeper with difficulty. The camera was sent back down the interval after removing the Waterra and the blockage was now encountered at 52.3 mBTR. This observation lead us to believe material was entering the well near where the blockage was observed and not from the bottom of the interval.

Following a detailed review of the well inspection video taken on April 2, 2022, a break was identified in the wall of the PVC riser pipe at a depth between 51 to 52 metres below ground surface. The break occurs within the bentonite seal for the interval which extends from 45 to 69 mBGS. Following discussions with the NWMO it was agreed that the preferred solution was to drill and install a replacement interval and decommission the existing monitoring well SB_MW06_BR-B.

On December 12, 2022 Geofirma mobilized to the site with Steffen Drilling to drill the replacement borehole (SB_MW09_BR) and decommission the damaged interval. The replacement borehole was drilled on December 13-14, 2022 as a 0.152m diameter borehole to 73.2 mBGS with a 50.8 mm diameter PVC interval installed to 72.5 mBGS. Well drilling, testing and installation details are included in the MECP water well records, borehole diagrams and DQC Workbooks found in Appendices A through C, respectively.

Prior to decommissioning SB_MW06_BR-B, the datalogger was removed from the interval and the data was downloaded so the logger could be set up and deployed in the newly installed SB_MW09_BR-B interval. The downloaded data was provided to NWMO by email on December 19, 2022. The damaged interval SB_MW06_BR-B was decommissioned in accordance with O.Reg. 903 by plugging the entire interval with coated bentonite pellets.

2.2.5 Fluid Chemistry Measurements During Drilling

Historical MECP well records from nearby the site showed that there was potential for brackish water within the shallow bedrock units in the South Bruce Site. Field staff monitored the water produced during bedrock air rotary drilling, collecting fluid density and electrical conductivity measurements approximately once every 10 m. Density measurements were completed using a hydrometer and conductivity measurements were taken using a multimeter. No brackish water was encountered in any of the bedrock wells drilled as part of this project. All field chemistry measurements were recorded in the DQC Workbook (Appendix C).

2.2.6 Soil and Rock Cuttings Logging and Sampling

Continuous split spoon soil samples in overburden and rock cuttings in bedrock were collected, logged, and photographed during drilling by Geofirma field staff. All logging was completed and recorded in a purpose-built form in the DQC Workbook (Appendix C). Overburden samples were collected through the hollow stem augers using a 0.6 m split spoon sampler. Soil samples were collected every metre drilled for the first ten metres and then every three metres until bedrock was reached. Soil samples were photographed, logged, and then stored in labelled plastic bags.

Bedrock drilling using air rotary produces small (<1cm) rock chips/cuttings that were collected at surface. Geofirma staff collected a rock chip sample every three metres drilled into bedrock. Rock cuttings were washed, logged, photographed, and then stored in labelled plastic bags.

2.3 WPC Geophysical Logging

Geophysical logging was completed by Waterloo Geophysics Inc (WGI) and were supervised by Geofirma for the six original bedrock boreholes (SB_MW02_BR through SB_MW07_BR) prior to the monitoring well installations. No geophysical logs were completed for the re-drilled boreholes (SB_MW02_BR_R or SB_MW09_BR), as they were drilled adjacent to the previous holes with similar geological characteristics i.e., similar overburden and bedrock depths.

Several probes were used to complete the geophysical logging program, a summarized list of the logs and probes used are provided in Table 1. All logging was completed in accordance with ASTM D 5753-18 – Standard Guide for Planning and Conducting Geophysical Logging (ASTM, 2018). A minimum of 5% of the logging was repeated for quality confirmation and validation.

Downhole geophysical logging was completed using a tripod and winch system that were operated from the back of a small trailer. The downhole probes were connected to an above ground data recorder in the trailer using an electronic communication cable. The winch and logging system were powered by a portable gas-powered generator.

Table 1 Summary of Geophysical Logs for Monitoring Well Network Installation

Geophysical Log	Data Collection			Probe Information		
	Logging Speed (m/min)	Data Spacing (m)	Direction	Manufacturer	Model	With Gamma
Dummy Probe	5-10	NA	Both	NA	NA	NA
Optical Televiewer[1,2] (OTV)	~0.7-1.2	0.001	Down	ALT	QL40-OBI 2nd Gen,	Y
Natural Gamma[2]	~0.7-1.2	0.001	Down	ALT	QL40-GAM	NA
Fluid Electrical Conductivity (FEC) / Temp[2].	~0.8-1.0	0.01	Down	ALT	QL40-FTC	Y
Gamma - Resistivity (Elog[2]), Single Point Resist., Spontaneous Potential	~2.0-2.5	0.05	Up	Mount Sopris	40GRP-1000	Y
Caliper (3 arm)	~2.0-2.5	0.005	Up	ALT	2PCA-1000	Y
Acoustic Televiewer (ATV) [2]	~1.0-1.5	0.002	Up	ALT	QL40-ABI, 2nd Gen,	Y
Heat Pulse Flow Meter	Variable based on borehole flow conditions		Both	Mount Sopris	HFP-2293	Y

Notes:
~ Data collection speed controlled/limited by data density & downhole communications, adjusted as appropriate.
1. If fluid was cloudy, OTV was moved to later in the program to allow particulate to settle.
2. FL Cond/Temp, ATV, Elog, probes also measured natural gamma for depth correlation; OTV has the slowest speed and highest data density, therefore the standard.

2.4 WPD Monitoring Well Installation, Development, Testing, and Instrumentation

Apart from the SB_MW02 and SB_MW06 sites, the monitoring well installations consisted of four screened intervals installed in two boreholes, one within the overburden (OB) borehole and three within the bedrock (BR) borehole, totalling 24 monitoring intervals in 12 boreholes. Due to the failure of the intermediate bedrock monitoring intervals at SB_MW02_BR-B and SB_MW06_BR-B, a second bedrock borehole was drilled to the intermediate depth at each of the sites to reinstall the intermediate bedrock monitoring interval. Borehole completion diagrams for each borehole are included in Appendix B.

2.4.1 Overburden Monitoring Wells

All six of the overburden wells (SB_MW02_OB through SB_MW07_OB) were drilled and completed by Aardvark Drilling Inc. between October 14 - 28, 2021. Geofirma and GMBP staff provided supervision of drilling operations and completed logging of soil produced during drilling. Drilling of the six overburden wells was completed using a 0.203 m (8-inch) hollow stem auger with split spoon sampling. Overburden boreholes were drilled to the top of bedrock or auger refusal for soil logging purposes (WPB). During drilling the water level within the borehole was monitored through the augers. Once the borehole was drilled to depth (approximately five meters into the shallow water table), the boreholes were initially backfilled with bentonite chips as the augers were pulled up to the monitoring well installation depth. Due to the ground conditions, most boreholes would not remain open below the augers as they were removed therefore bentonite was installed through the augers as they were pulled up. Once the target monitoring well installation depth was reached, the borehole was backfilled with approximately 0.3 m of well sand below the monitoring well screen.

Each overburden well was instrumented with a 51 mm (2-inch) diameter PVC monitoring well, including a 3.05 m (10-ft) slotted PVC screen. Silica sand was used to backfill across the screen interval with a bentonite seal to ground surface. Details of the well completions are provided in Section 3.1, summarized in Table 4 below, and shown on the well completion diagrams included in Appendix B.

2.4.2 Bedrock Monitoring Wells

Each bedrock borehole was instrumented with three nested piezometers targeting water producing zones within the shallowest three bedrock formations at the site. In general, the Lucas, Amherstburg, and Bois Blanc formations were the target formations to install the monitoring intervals. The following nomenclature was adopted for the bedrock piezometer installations:

- Piezometers with suffix A represented the “deep interval” installed, where possible, in the Bois Blanc formation,
- Piezometers with suffix B represented a “intermediate interval” installed in the Amherstburg, and
- Piezometers with suffix C represented a “shallow interval” installed in the Lucas formation

Following the completion of drilling (WPB) and geophysical logging (WPC), the preliminary results were summarized and a monitoring well design workshop was held between Geofirma and NWMO to determine the proposed depth and length of each bedrock monitoring well interval. The design workshop for SB_MW02_BR, SB_MW03_BR and SB_MW05_BR was held November 19, 2021 and the

design workshops for SB_MW04_BR, SB_MW06_BR, and SB_MW07_BR were held on December 7, 17, and 20, 2021, respectively.

Each installed piezometer consisted of a 3.05 to 6.1 m long, 38.1 mm diameter slotted PVC screen with a 38.1 mm diameter PVC riser to ground surface. Silica sand was used to backfill across the screen interval with bentonite seals used between intervals and from the top of the shallowest monitoring interval to ground surface. Installation of the bedrock monitoring wells was completed by Aardvark Drilling Inc., under the supervision of Geofirma and GMBP staff, between December 1, 2021 and January 12, 2022. Details of the well completions are provided in Section 3.1, summarized in Table 4 below, and shown on the well completion diagrams included in Appendix B.

2.4.3 Dedicated Waterra Tubing

Each monitoring interval was instrumented with dedicated tubing that consisted of a Waterra D25 foot valve and standard flow (15.8 mm OD) HDPE tubing. The tubing was installed the entire length of the monitoring intervals, from ground surface to the bottom of the well screen. The dedicated tubing was used to complete well development and then left in each monitoring interval, except SB_MW03_BR intervals, to be used for future sampling events.

SB_MW03_BR monitoring intervals A, B and C were installed in artesian conditions with Margo plugs to prevent flow at surface, and therefore the dedicated tubing could not be left in place with the plugs installed. Instead, the dedicated tubing was removed following well development and stored in a large plastic bin adjacent to the well for use during future sampling events.

2.4.4 Monitoring Well Development

Geofirma staff completed well development of each monitoring interval. The goal of the development was to remove any accumulated sediment, clean the sand pack and remove drill fluids that may have been introduced into the formation during drilling. Well development of each interval was completed using the dedicated tubing and foot valve, with actuation of the tubing completed by hand or using a Waterra Hydrolift pump.

Field parameter measurements were recorded at the start of purging and at a minimum frequency of once per interval volume purged. Purge volumes were measured using a graduated tote, a minimum of three well volumes were purged for each interval. Purging continued until field parameters stabilized according to the criteria shown in Table 2 or to a maximum of 10 well volumes. All purging volumes and field parameter measurements were recorded in the DQC Workbook (Appendix C). All purge water was contained in totes and disposed offsite in accordance with provincial regulations.

Table 2 Field Parameter Targets for Monitoring Well Development

Field Parameter	Measurement Instrument/Technique	Target to Complete Monitoring Well Development
Fluorescein dye (tracer)	Handheld Fluorimeter (Turner Designs AquaFluor)	< 5 % drill fluid concentration, or <0.4 ppb (method detection limit)
Turbidity	Water Quality Multi-Parameter Probe (Horiba U52/50)	Stabilized within ± 10% or ± 5 NTU, if <50 NTU
Dissolved Oxygen (DO)		Stabilized within ± 10%, or ± 0.2 mg/L
Electrical Conductivity		Stabilized within ± 10%, or ± 0.05 mS/cm
Temperature		Stabilized within ± 0.5 ºC
Oxidation-Reduction Potential (ORP)		Stabilized within ± 10%, or ± 10 mV
pH		Stabilized within ± 0.2 standard pH units
Purge Volume	Measured from produced water in graduated totes	Minimum of 3 well volumes, up to maximum of 10 well volumes

2.4.5 Hydraulic Testing

Hydraulic testing and test analysis were completed by Geofirma staff for each monitoring interval. A series of rising head and falling head slug tests were completed in each monitoring interval. Data collected from slug testing was analyzed to determine test interval hydraulic conductivity (Section 3.6). A physical slug was used to generate a head response. A summary of the steps taken to complete a slug test in each monitoring interval is as follows:

- A static water level was measured prior to the start of testing.
- A barometric pressure transducer (Solinst Barologger) was set up at surface to record barometric pressure throughout the time of the test.
- A pressure transducer (Solinst Levelogger) was setup and deployed downhole, connected to a direct read cable, to record water levels in the well during the slug test.
- The slug is then quickly lowered into the well such that it is fully submerged, to displace and raise the water level. While the slug is submerged, water level measurements are taken until the water returned to approximately the original static level (falling head).
- The slug was then removed “instantaneously” from the well to lower the water level. Water level measurements are taken until the water has returned approximately to the original static water level (rising head).
- All water levels and testing data (e.g., start/end time, initial head change) was recorded in the DQC Workbook (Appendix C).

Analysis of the hydraulic test data was completed using either AQTESOLV (Version 4.5) or nSights (Version 3.0). AQTESOLV is a commercially available analytical test analysis software developed and sold by HydroSOLV Inc. nSights is a state-of-the-art numerical test analysis software developed by Geofirma as part of the Waste Isolation Pilot Plant (WIPP) project in New Mexico.

Test data was analyzed to obtain estimates of hydraulic conductivity for each monitoring interval. All input parameters and modelling considerations (e.g. boundary conditions, well geometry, model type) and results from the hydraulic test analysis was recorded in the DQC Workbook (Appendix C).

2.4.6 Transducer Installation

Following the completion of well development and hydraulic testing, each monitoring interval was instrumented with a dedicated pressure transducer (Solinst Levelogger 5) hung using stainless steel aircraft cable. Each transducer was set to record pressure (kPa) and Temperature (°C) readings once every hour. The pressure transducers were setup using Solinst Levelogger software. In the software the project ID, 21-223, was assigned and the location was assigned as the corresponding monitoring well IDs (e.g., SB_MW05_BR-A) for each transducer.

The static water level for each monitoring interval was measured prior to transducer installation and recorded in the DQC Workbook (Appendix C). In the overburden monitoring wells, the transducers were installed approximately 5 m below the static water level. In the bedrock intervals, the transducers were installed approximately 10 m below static water level. Transducers installed within artesian intervals were hung approximately 5 m below the bottom of the Margo plug. Details of transducer installations are summarized in Table 3. A single barometric pressure transducer (Solinst Barologger 5) was installed within a vented protected case at the SB_MW01 drill pad, which was installed as part of the NWMO Phase 2 Initial Borehole Drilling and Testing program.

Table 3 Transducer Installation Details

Monitoring Well IDs	Transducer Details	Static Water Level (m BTOC)	Installation Depth (m BTOC)
SB_MW01 (surface)	Solinst Barologger 5 (SN.2148898)	n/a	n/a
SB_MW02_OB-int	Solinst Levelogger 5 M10 (SN. 2148681)	5.33	10.0
SB_MW02_BR-A	Solinst Levelogger 5 M30 (SN. 2148966)	5.20	15.0
SB_MW02_BR-B	Solinst Levelogger 5 M30 (SN. 2148969)	3.90	13.5
SB_MW02_BR_R-B	Interval not instrumented	n/a	n/a
SB_MW02_BR-C	Solinst Levelogger 5 M30 (SN. 2148958)	4.77	15.0
SB_MW03_OB-int	Solinst Levelogger 5 M10 (SN. 2148686)	2.04	7.0
SB_MW03_BR-A	Solinst Levelogger 5 M30 (SN. 2148963)	0.41	10.0
SB_MW03_BR-B	Solinst Levelogger 5 M30 (SN. 2148968)	1.12	10.0
SB_MW03_BR-C	Solinst Levelogger 5 M30 (SN. 2148970)	3.07	10.0
SB_MW04_OB-int	Solinst Levelogger 5 M10 (SN. 2148689)	6.42	15.0
SB_MW04_BR-A	Solinst Levelogger 5 M30 (SN. 2148975)	4.89	18.0
SB_MW04_BR-B	Solinst Levelogger 5 M30 (SN. 2148973)	6.13	18.0
SB_MW04_BR-C	Solinst Levelogger 5 M30 (SN. 2148971)	6.61	18.0
SB_MW05_OB-int	Solinst Levelogger 5 M10 (SN. 2148691)	4.49	10.0
SB_MW05_BR-A	Solinst Levelogger 5 M30 (SN. 2148979)	2.54	18.0
SB_MW05_BR-B	Solinst Levelogger 5 M30 (SN. 2148977)	2.81	18.0
SB_MW05_BR-C	Solinst Levelogger 5 M30 (SN. 2148976)	5.25	18.0
SB_MW06_OB-int	Solinst Levelogger 5 M10 (SN. 2148692)	11.02	13.5
SB_MW06_BR-A	Solinst Levelogger 5 M30 (SN. 2148987)	10.20	20.0
SB_MW06_BR-B	Solinst Levelogger 5 M30 (SN. 2148983); Removed December 14, 2022	10.27	20.0
SB_MW06_BR-C	Solinst Levelogger 5 M30 (SN. 2148981)	10.30	20.0
SB_MW07_OB-int	Solinst Levelogger 5 M10 (SN. 2148694)	8.24	9.5
SB_MW07_BR-A	Solinst Levelogger 5 M30 (SN.2148995)	8.59	18.0
SB_MW07_BR-B	Solinst Levelogger 5 M30 (SN.2148993)	8.50	18.0
SB_MW07_BR-C	Solinst Levelogger 5 M30 (SN. 2148988)	8.59	19.0
SB_MW09_BR-B	Solinst Levelogger 5 M30 (SN. 2148983); Previously installed in SB_MW06_BR-B	11.02	20.0

Note: Due to flowing artesian conditions observed in open hole during drilling of SB_MW03_BR, margo plugs were installed to prevent flow from the intervals and transducers were affixed to the bottom of the margo plugs.

3 RESULTS

The results described in the following sections provide a summary of the field results from the monitoring well network installation and testing program.

3.1 Borehole Drilling and Monitoring Well Installation

Table 4 provides a summary of the borehole and well completion details for all six of the monitoring well sites (SB_MW02 through SB_MW07 and SB_MW09) and borehole/well completion diagrams for each are included in Appendix B.

ADI completed the drilling and installation of all six overburden wells and drilled four of the six bedrock wells (SB_MW02_BR to SB_MW05_BR). Drilling of SB_MW06_BR and SB_MW07_BR were completed by Highland. Drilling activities were completed between October 14 - December 17, 2021.

Monitoring well installations were completed by ADI between October 15 to 28, 2021, for overburden wells and between December 1, 2021 to January 12, 2022 for bedrock wells.

A second bedrock borehole (SB_MW02_BR_R) was drilled adjacent to the SB_MW02_BR cluster by Steffen Drilling on March 2-4, 2022 to install a replacement intermediate bedrock interval. Due to borehole instability, the interval could not be installed as designed at that time therefore Strata Drilling was mobilized to the site on June 20-22, 2022 to install the SB_MW02_BR_R-B interval. A second bedrock borehole (SB_MW09_BR) was also drilled adjacent to the SB_MW06_BR cluster by Steffen Drilling on December 13 and14, 2022 to install a replacement intermediate bedrock interval.

3.1.1 Surveyed Borehole Coordinates and Elevations

Table 5 provides a summary of the surveyed borehole coordinates and collar (top of riser) elevations, as surveyed by staff from GM Blueplan on February 09, 2022. The addition of monitoring intervals SB_MW02_BR_R-B and SB_MW06_BR-B were surveyed by Geofirma following installation. Survey data in Table 5 are presented with a horizontal datum of UTM 17N NAD1983-CSRS V7 (Epoch 2010.0) and a vertical datum of CGVD2013 (Can-Net VRS, CGG2013a geoid model).

3.2 Geology

During the drilling of each well, field staff collected soil and rock cutting samples for logging and photography. The following sections give a brief description of the geology observed during drilling at each borehole. Detailed logging was captured in the DQC Workbook (Appendix C). Approximate contacts of each lithological unit were determined based on the findings of both the geological logging and geophysical logging (Section 3.3). The contact depths noted should be considered approximate only as they were not verified by core and were only approximated to guide monitoring interval selection.

Table 4 Borehole and Well Completion Details

Borehole Details			Well Details					
Borehole ID	**Date Drilled**	**Drilled Depth (m)**	**Monitoring Intervals ID**	**MW Install Date**	**Screen Interval (mBGS)**	**Formation**	**Well Diameter (mm)**	**Riser Stickup (m)**
SB_MW02_OB	2021-10-14 to 2021-10-15	13.03	SB_MW02_OB-int	2021-10-15	7.63 - 10.67	Overburden	50.8	0.75
SB_MW02_BR	2021-10-28 to 2021-10-30	87.17	SB_MW02_BR-A	2021-12-09	79.0 - 82.0	Bois Blanc	38.1	0.40
			SB_MW02_BR-B		65.0 - 68.0	Amherstburg	38.1	0.40
			SB_MW02_BR-C		16.0 - 19.0	Lucas	38.1	0.40
SB_MW02_BR_R	2022-03-02 to 2022-03-04	68.00	SB_MW02_BR_R-C	2022-03-04 to 2022-06-20	52.5 – 55.5	Amherstburg	38.1	0.37
SB_MW03_OB	2021-10-18	12.34	SB_MW03_OB-int	2021-10-18	7.62 - 10.67	Overburden	50.8	0.80
SB_MW03_BR	2021-10-31 to 2021-11-03	60.15	SB_MW03_BR-A	2021-12-01 to 2021-12-03	54.0 - 57.0	Amherstburg	38.1	2.58*
			SB_MW03_BR-B		34.5 - 37.5	Amherstburg	38.1	2.58*
			SB_MW03_BR-C		17.2 - 20.2	Lucas	38.1	2.58*
SB_MW04_OB	2021-10-19 to 2021-10-22	20.73	SB_MW04_OB-int	2021-10-22	7.34 - 10.39	Overburden	50.8	0.86
SB_MW04_BR	2021-11-16 to 2021-11-18	84.25	SB_MW04_BR-A	2021-12-15 to 2021-12-17	76.5 - 79.5	Bois Blanc	38.1	0.90
			SB_MW04_BR-B		42.0 - 48.0	Amherstburg	38.1	0.90
			SB_MW04_BR-C		27.0 - 30.0	Lucas	38.1	0.90
SB_MW05_OB	2021-10-25 to 2021-10-26	22.86	SB_MW05_OB-int	2021-10-26	6.25 - 9.29	Overburden	50.8	0.78
SB_MW05_BR	2021-11-06 to 2021-11-09	76.15	SB_MW05_BR-A	2021-12-06 to 2021-12-07	72.0 - 75.0	Bois Blanc	38.1	0.69
			SB_MW05_BR-B		47.5 - 50.5	Amherstburg	38.1	0.69
			SB_MW05_BR-C		25.3 - 28.3	Lucas	38.1	0.69
SB_MW06_OB	2021-10-28	30.33	SB_MW06_OB-int	2021-10-28	11.15 - 14.19	Overburden	50.8	0.91
SB_MW06_BR	2021-12-08 to 2021-12-13	85.90	SB_MW06_BR-A	2021-12-17 to 2021-12-20	82.5 - 85.5	Bois Blanc	38.1	0.81
			SB_MW06_BR-B		69.5 - 72.5	Amherstburg	38.1	0.81
			SB_MW06_BR-C		41.5 - 44.5	Amherstburg	38.1	0.81
SB_MW07_OB	2021-10-27	12.80	SB_MW07_OB-int	2021-10-27	7.62 - 10.66	Overburden	50.8	0.73
SB_MW07_BR	2021-12-17	92.68	SB_MW07_BR-A	2022-01-11 to 2022-01-12	89.5 - 92.5	Amherstburg	38.1	0.51
			SB_MW07_BR-B		62.0 - 68.0	Amherstburg	38.1	0.51
			SB_MW07_BR-C		31.0 - 37.0	Lucas	38.1	0.51
SB_MW09_BR	2022-12-13 to 2022-12-14	73.2	SB_MW09_BR-B	2022-12-14	69.5 – 72.5	Amherstburg	50.8	0.72

** Flowing artesian conditions observed in open hole during drilling of SB_MW03_BR. Ground surface raised ~2.5m during installation of piezometers.*

Table 5 Surveyed Borehole Coordinates and Riser Elevations

Borehole ID	Northing (m)	Easting (m)	Monitoring Intervals ID	Riser Stickup (m)	Top of Riser Elevation (m ASL)
SB_MW02_OB	4872846.026	474295.314	SB_MW02_OB-int	0.75	292.5
SB_MW02_BR	4872842.624	474292.666	SB_MW02_BR-A	0.40	291.75
			SB_MW02_BR-B	0.40	291.75
			SB_MW02_BR-C	0.40	291.77
SB_MW02_BR_R	4872818	474292	SB_MW02_BR_R-B	0.37	291.49
SB_MW03_OB	4873717.772	474157.899	SB_MW03_OB-int	0.80	283.16
SB_MW03_BR	4873717.727	474161.819	SB_MW03_BR-A	2.58*	284.08
			SB_MW03_BR-B	2.58*	284.76
			SB_MW03_BR-C	2.58*	284.88
SB_MW04_OB	4872465.716	472704.875	SB_MW04_OB-int	0.86	285.29
SB_MW04_BR	4872469.386	472704.072	SB_MW04_BR-A	0.90	285.54
			SB_MW04_BR-B	0.90	285.56
			SB_MW04_BR-C	0.90	285.49
SB_MW05_OB	4874138.66	472426.758	SB_MW05_OB-int	0.78	278.7
SB_MW05_BR	4874139.153	472429.792	SB_MW05_BR-A	0.69	278.46
			SB_MW05_BR-B	0.69	278.44
			SB_MW05_BR-C	0.69	278.47
SB_MW06_OB	4873878.268	470966.776	SB_MW06_OB-int	0.91	287.37
SB_MW06_BR	4873875.901	470967.645	SB_MW06_BR-A	0.81	287.05
			SB_MW06_BR-B	0.81	287.04
			SB_MW06_BR-C	0.81	287.1
SB_MW07_OB	4872665.57	469514.666	SB_MW07_OB-int	0.73	302.69
SB_MW07_BR	4872668.04	469515.63	SB_MW07_BR-A	0.51	302.14
			SB_MW07_BR-B	0.51	302.16
			SB_MW07_BR-C	0.51	302.14
SB_MW09_BR	4873884.699	470985.976	SB_MW09_BR-B	0.72	287.43

** Flowing artesian conditions observed in open hole during drilling of SB_MW03_BR. Ground surface raised ~2.5m during installation of piezometers.*

Horizontal datum = UTM 17N NAD1983-CSRS V7 (Epoch 2010.0)
Vertical datum = CGVD2013 (Can-Net VRS, CGG2013a geoid model).

3.2.1 SB_MW02

The geological log for the SB_MW02 (overburden and bedrock) site shows that the shallow unconsolidated sediments are composed predominately of fine to medium grained sand with some clay and gravel present, from ground surface to 9.0 mBGS. A gravel rich unit with coarse grained sand and clay is present from 9.0 m to the top of bedrock at 12.8 mBGS. The shallow bedrock at the site is composed of weathered brown limestone that is interpreted as the Lucas Formation, which was present from approximately 12.8 to 41 mBGS. The intermediate bedrock unit, Amherstburg Formation, was present from 41 to 75 mBGS and is composed of light to dark grey limestone with some secondary dolostone. The underlaying bedrock unit, from 75 m to the bottom of the bedrock borehole at 87.17 mBGS, is the Bois Blanc Formation. It was composed of medium to dark grey limestone with light grey chert.

3.2.2 SB_MW03

The SB_MW03 (overburden and bedrock wells) geological log shows that the shallow unconsolidated sediments were composed predominately of fine materials including silt, clay and sand with gravel

present, from ground surface to 11.98 mBGS. The Lucas formation underlays the unconsolidated unit from 11.98 to 30 mBGS and was composed of weathered light brown to tan coloured limestone with some secondary dolostone. The Amherstburg Formation has a gradational contact with the overlaying Lucas Formation and was present from 30 mBGS to the bottom of the bedrock borehole at 60.15 mBGS. It was composed of brown limestone.

3.2.3 SB_MW04

The geological log for SB_MW04 (overburden and bedrock wells) shows the top unconsolidated sediment unit was composed primarily of fine to medium grained sand and gravel with some silt present from ground surface to 20.73 mBGS. The underlaying Lucas Formation was composed of weathered grey to brown limestone and was present from 20.73 to 35 mBGS. The Amherstburg Formation, present from 35 to 66 mBGS, was composed of medium to dark brown dolostone and grey limestone. The deep Bois Blanc unit was composed of grey to white limestone with abundant chert and was present from 66 mBGS to the bottom of the bedrock borehole at 84.25 mBGS.

3.2.4 SB_MW05

The SB_MW05 (overburden and bedrock wells) geological log shows that the shallow unconsolidated sediments were composed predominately of silt and fine-grained sand with gravel from ground surface to approximately 22.70 mBGS, the bedrock contact. The uppermost bedrock formation was the Lucas Formation composed of weathered, light brown to tan coloured dolostone to 30 mBGS. The Amherstburg formation observed to be present from 30 to 61 mBGS, was composed of medium to dark brown laminated dolostone. The Bois Blanc formation was composed of brown to gray coloured limestone with significant chert is present from 61 mBGS to the bottom of the borehole at 76.15 mBGS.

3.2.5 SB_MW06

The geological log for SB_MW06 (overburden and bedrock wells) shows the top unconsolidated sediment unit were composed of fine-grained material, primarily silt and sand with some gravel, present from ground surface to 30.18 mBGS. The Lucas formation was composed of weathered grey to brown dolostone with some limestone, present from 30.18 to 37 mBGS. The intermediate bedrock formation, Amherstburg, present from 37 to 81 mBGS was composed of brown to grey limestone. From 81 mBGS to the bottom of the borehole at 86.11 mBGS, the Bois Blanc formation was present as light to medium grey limestone.

3.2.6 SB_MW07

The SB_MW07 (overburden and bedrock wells) geological log shows that the shallow unconsolidated sediments were composed predominately of sand and silt from ground surface to 12.80 mBGS. The overburden materials was underlaid by the Lucas formation composed of brown to buff coloured dolostone with some limestone to 52 mBGS. The Amherstburg formation was present as a mix of dolostone and limestone with a grey to brown colour from 52 mBGS to the bottom of the borehole at 92.68 mBGS.

3.3 Geophysical Logging

A comprehensive suite of borehole geophysical surveys was completed in the six open bedrock boreholes between November 3 and December 19, 2021 to obtain a variety of geological and hydrogeologic data. The following sections give a brief description of the geophysical data observed during logging at each borehole. Details of logging were captured in the DQC Workbook (Appendix C). Copies of the borehole geophysical logs are provided in Appendix D.

3.3.1 Data Quality

Overall, the quality of borehole geophysical data in all boreholes were generally considered very good with excellent images from OTV and ATV probes. Some additional observations related to quality of data include:

- a “quality” log is included in the borehole geophysical logs (Appendix D) and represents a classification of the heat pulse test at each depth according to the clarity of the response and interpretation and is subjective in nature;
- the second quality log is also associated with heat pulse data and represents a temporal variation of quality at the same depth (i.e. different time of day). There appeared to be a consistent deterioration in the quality of the heat pulse data after late morning relative to earlier in the day. In some cases this was noted to occur abruptly at specific times (e.g. on the hour) and other times the variability was observed to cycle. These observations could suggest that nearby anthropogenic influences (i.e. local pumping) are impacting the data.
    - SB_MW02_BR poor data to 64 metres below top of casing (mbtoc), good below.
    - SB_MW03_BR poor throughout (artesian).
    - SB_MW04_BR became noisy midway through the first test.
    - SB_MW05_BR noisy below 30 mbtoc.
    - SB_MW06_BR noisy.
    - SB_MW07_BR noise below 86 mbtoc going down, then noisy all way up.
- uninterpretable flowmeter indicates depths at which tests were conducted but the results could not be reliably interpreted. This is useful information in assessing the overall hydrodynamics at each location.

3.3.2 SB_MW02_BR

The quality of borehole geophysical data in SB_MW02_BR were generally considered very good with excellent images from OTV and ATV probes. Continuous data sets were collected from approximately 2 mBGS down to approximately 87 mBGS. Bottom of steel casing was noted clearly in the ATV log at approximately 14 mBGS. Observations within the geophysical data from SB_MW02_BR include:

- Several caliper enlargements, including:
    - Moderate to significant enlargements around 66 mBGS and 72 to 76 mBGS.
    - Small caliper enlargement showing breakout below casing set depth around 14 to 17 mBGS.

- Consistent increase in gamma response below 64 mBGS.
- High gamma signal, small borehole enlargement and significant flow indication by fluid temperature, fluid conductivity, and flow meter logging at approximately 80 to 81 mBGS.

3.3.3 SB_MW03_BR

The quality of borehole geophysical data in SB_MW03_BR were generally considered very good with excellent images from OTV and ATV probes. Continuous data sets were collected from approximately ground surface to approximately 59 mBGS. Bottom of steel casing was noted clearly in the ATV log at approximately 16 mBGS. Observations within the geophysical data from SB_MW03_BR include:

- Several caliper enlargements, including:
  - Significant breakout zone from 27 to 38 mBGS.
  - Moderate enlargements around 20 to 58 mBGS.
  - Very minor caliper enlargements below casing set depth around 16 to 18 mBGS.
- Temperature fluctuation around 51 mBGS and a significant fluid conductivity fluctuation around 56 mBGS.
- Significant increase in gamma response at each of the caliper observations listed above.

3.3.4 SB_MW04_BR

The quality of borehole geophysical data in SB_MW04_BR were generally considered very good with excellent images from OTV and ATV probes. Continuous data sets were collected from approximately 2 mBGS down to approximately 84.5 mBGS. Bottom of steel casing was noted clearly in the ATV log at approximately 23.5 mBGS. Observations within the geophysical data from SB_MW04_BR include:

- Several caliper enlargements, including:
  - Moderate to significant enlargements around 35 to 36 mBGS and 42 to 48 mBGS.
  - Small caliper enlargement showing breakout below casing set depth around 28 and 78 mBGS.
- Consistent increase in gamma response below 46 mBGS with high gamma signal at each of the caliper breakouts identified above.
- Evidence of flow indication by fluid temperature and fluid conductivity fluctuation around 51 mBGS temperature anomaly (without conductivity) around 35 mBGS and consistent fluid temperature and conductivity increase below approximately 70 mBGS.

3.3.5 SB_MW05_BR

The quality of borehole geophysical data in SB_MW05_BR were generally considered very good with excellent images from OTV and ATV probes. Continuous data sets were collected from approximately 2 mBGS down to approximately 76 mBGS. Bottom of steel casing was noted clearly in the ATV log at approximately 24.5 mBGS. Observations within the geophysical data from SB_MW05_BR include:

- Several caliper enlargements, including:
  - Moderate to significant enlargements around 25.5, 26.5, 30, and 49 mBGS.

  - Many small caliper enlargements throughout the survey, specifically at 36.5 mBGS and between 41 to 58 mBGS.
- High gamma signal around 30 mBGS, 36 to 39 mBGS and sporadic but elevated gamma signal below approximately 42 mBGS.

3.3.6 SB_MW06_BR

The quality of borehole geophysical data in SB_MW06_BR were generally considered very good with excellent images from OTV and ATV probes. Continuous data sets were collected from approximately 2 mBGS down to approximately 86 mBGS. Bottom of steel casing was noted clearly in the ATV log at approximately 41 mBGS. Observations within the geophysical data from SB_MW06_BR include:

- Several caliper enlargements, including:
  - Significant enlargements around 41 to 43 mBGS and around 70 to 71 mBGS.
  - Many small caliper enlargements showing breakout below casing set depth around 42 to 49, 54, 63, 71, 76, 78, and 85 mBGS.
- Higher gamma signal between 40 to 48 mBGS, multiple peaks between 54 to 58 mBGS, generally elevated gamma signal below 62 mBGS with the highest gamma peak in the borehole at 68 mBGS.

3.3.7 SB_MW07_BR

The quality of borehole geophysical data in SB_MW07_BR were generally considered very good with excellent images from OTV and ATV probes. Continuous data sets were collected from approximately 2 mBGS down to approximately 92 mBGS. Bottom of steel casing was noted clearly in the ATV log at approximately 18 mBGS. Observations within the geophysical data from SB_MW07_BR include:

- Several caliper enlargements, including:
  - Significant enlargements around 18, 22, 33, 34, 36, 63-64, 65-68, 69, and 74 to 75 mBGS.
  - Many small caliper enlargements showing breakout below casing and above approximately 75 mBGS.
- Higher gamma signal at many depths with slight offsets from caliper increases. Generally elevated gamma signal below 52 mBGS with the highest gamma peak in the borehole at 74 mBGS.
- Largest fluid temperature and fluid conductivity fluctuation around 22 mBGS, with slight drop in both parameters around 36 mBGS and obvious and consistent fluid temperature and conductivity decrease below approximately 76 mBGS.

3.4 Monitoring Well Development

Details of the well development completed for this project are summarized in Table 6. As presented, Geofirma staff completed well development of each monitoring well between January 11 to February 24, 2022, with the exception of monitoring wells SB_MW02_BR-B and SB_MW03_BR-A, as discussed:

- During the development of SB_MW02_BR-B, Geofirma staff noticed a build up of sand collecting in the foot valve. After several attempts, it appeared that the screen for this interval was compromised, allowing well sand into the monitoring well interval. No further development was completed for this interval.

- It was determined that SB_MW03_BR-A did not require further development due to the presence of flowing artesian conditions. The artesian flow conditions had purged the well of a sufficient volume of water to be considered fully developed following installation.

3.4.1 Field Parameters and Purging

Field parameter measurements were collected at the start of purging and periodically throughout. All purging volumes and field parameter measurements were recorded in the DQC Workbook (Appendix C). All purge water was contained in totes and disposed offsite in accordance with applicable Provincial regulations.

3.4.2 Video Well Inspections

Video well inspections were performed on each monitoring well interval by Geofirma between March 29 and April 03, 2022. Dedicated tubing and transducers were removed from each of the monitoring well intervals and a downhole video camera was carefully lowered by field staff to inspect the well completions from top to bottom depth noting the water level, PVC joints, screens, and the bottom of each well. Details of the well inspections were recorded in the DQC Workbook, provided in Appendix C.

Transducer data were downloaded and reviewed to ensure proper function, then were re-deployed.

Table 6 Monitoring Well Development Details

Monitoring Well ID	Development Date	~3 Well Volumes (L)	Total Volume Purged (L)	Final Fluorescein concentration (ppb)
SB_MW02_OB-int	2022-01-20 to 2022-01-21	152	610	<0.4
SB_MW02_BR-A	2022-01-22 to 2022-01-23	369	1250	<0.4
SB_MW02_BR-B	-	324	-	-
SB_MW02_BR_R-B	2022-06-23	324	1750	<0.4
SB_MW02_BR-C	2022-01-21	155	560	<0.4
SB_MW03_OB-int	2022-01-27 to 2022-01-28	188	640	<0.4
SB_MW03_BR-A	-	307	-	-
SB_MW03_BR-B	2022-02-24	316	1050	<0.4
SB_MW03_BR-C	2022-02-23	176	600	<0.4
SB_MW04_OB-int	2022-01-12	115	450	<0.4
SB_MW04_BR-A	2022-01-13	361	800	<0.4
SB_MW04_BR-B	2022-01-12	326	1000	<0.4
SB_MW04_BR-C	2022-01-11	186	650	<0.4
SB_MW05_OB-int	2022-01-23 to 2022-01-30	127	422	<0.4
SB_MW05_BR-A	2022-01-25 to 2022-01-26	386	800	<0.4
SB_MW05_BR-B	2022-01-24 to 2022-01-25	285	970	<0.4
SB_MW05_BR-C	2022-01-23 to 2022-01-24	193	480	<0.4
SB_MW06_OB-int	2022-01-18 to 2022-01-19	122	450	<0.4
SB_MW06_BR-A	2022-01-19	365	1000	<0.4
SB_MW06_BR-B	2022-01-18 to 2022-01-19	316	1100	<0.4
SB_MW06_BR-C	2022-01-19	222	550	<0.4
SB_MW07_OB-int	2022-01-13 to 2022-01-15	117	500	<0.4
SB_MW07_BR-A	2022-01-13 to 2022-01-15	384	1250	<0.4
SB_MW07_BR-B	2022-01-16 to 2022-01-17	386	1300	<0.4
SB_MW07_BR-C	2022-01-16	280	1000	<0.4
SB_MW09_BR-B	2022-12-15	80	580	<0.4

3.5 Water Levels and Hydraulic Heads

Measured water levels and calculated hydraulic heads (reported in meters above mean sea level) are summarized in Table 7. Calculated hydraulic heads (assuming fresh water) from water levels in the overburden wells and bedrock piezometers were between 274.69 to 295.05 mASL. The mean hydraulic head for all overburden wells and bedrock piezometers was 283.10 mASL.

Observed water levels in the SB_MW03_BR borehole during drilling indicated flowing artesian conditions so a mound was constructed to raise the ground surface by approximately 2.5 m.

Table 7 Water Levels and Calculated Hydraulic Heads for Overburden and Shallow Bedrock Monitoring Wells, South Bruce Site

Monitoring Interval	Top of Casing/Riser Elevation (mASL)	Measured Water Level Date	Measured Water Level (m BTOC)	Hydraulic Head (m ASL)	Comments
SB_MW02_BR-A	291.75	2022-04-03	4.390	287.360	
SB_MW02_BR-B	291.76	2022-04-02	3.630	288.120	
SB_MW02_BR_R-B	291.49	2022-06-23	4.305	287.185	
SB_MW02_BR-C	291.77	2022-04-02	3.780	287.990	
SB_MW02_OB-int	292.50	2022-04-02	4.440	288.060	
SB_MW03_BR-A	284.08	2022-04-03	0.510	283.570	Flowing artesian conditions observed in open hole during drilling. Ground surface raised ~2.5m during installation
SB_MW03_BR-B	284.76	2022-04-03	0.960	283.800	
SB_MW03_BR-C	284.88	2022-04-03	2.200	282.680	
SB_MW03_OB-int	283.16	2022-04-03	1.490	281.670	
SB_MW04_BR-A	285.54	2022-03-31	4.110	281.430	
SB_MW04_BR-B	285.56	2022-03-31	5.410	280.150	
SB_MW04_BR-C	285.49	2022-03-31	5.830	279.660	
SB_MW04_OB-int	285.29	2022-03-31	5.550	279.740	
SB_MW05_BR-A	278.46	2022-03-29	2.110	276.350	
SB_MW05_BR-B	278.44	2022-03-29	2.360	276.080	
SB_MW05_BR-C	278.47	2022-03-30	2.760	275.710	
SB_MW05_OB-int	278.70	2022-03-29	4.010	274.690	
SB_MW06_BR-A	287.05	2022-04-02	9.700	277.350	
SB_MW06_BR-B	287.04	2022-04-02	9.710	277.330	
SB_MW06_BR-C	287.10	2022-04-03	9.690	277.410	
SB_MW06_OB-int	287.37	2022-04-02	10.490	276.880	
SB_MW07_BR-A	302.14	2022-03-31	8.200	293.940	
SB_MW07_BR-B	302.16	2022-03-31	7.830	294.330	
SB_MW07_BR-C	302.14	2022-04-01	8.000	294.140	
SB_MW07_OB-int	302.69	2022-03-31	7.640	295.050	
SB_MW09_BR-B	287.43	2022-12-15	11.02	276.410	

3.6 Hydraulic Testing

Geofirma staff completed hydraulic testing of each monitoring well by completing a series of rising and falling head slug tests with physical slugs of known volume. The details of each field test was recorded in the DQC Workbook (Appendix C).

One rising head or falling head slug test was analyzed for each interval using either AQTESOLV or nSights to determine an estimate of the formation hydraulic conductivity. nSights, a numerical-based test analysis software was used to analyze tests from bedrock monitoring intervals that showed a normal (overdamped) response. Tests from bedrock monitoring intervals that showed an oscillatory (underdamped) response were analyzed in AQTESOLV using the Butler (2002) analytical solution. Underdamped responses are typical for slug tests completed in small diameter wells where the formation transmissivity is high. Tests from overburden wells were analyzed in AQTESOLV using the Bouwer and Rice (1976) analytical solution.

Estimated hydraulic conductivity for the overburden and bedrock monitoring intervals were within expected ranges for the tested geologic media (Freeze & Cherry 1979). Tests with oscillatory (underdamped) responses generally had high hydraulic conductivities that were consistent with literature values for fractured carbonate rocks.

The estimated hydraulic conductivities for interval SB_MW02_BR-B and SB_MW02_BR_R-B differed by over three orders of magnitude. Since these wells were drilled at the same location, these data suggest that the estimated hydraulic conductivity for the original damaged interval (SB_MW02_BR-B) underestimates the true formation hydraulic conductivity; this is consistent with field observations of clogging of SB_MW02_BR-B with fine grained materials (e.g. silt and bentonite) sometime between well installation and the hydraulic testing.

Table 8 summarizes the details of the hydraulic testing and analyses. Complete details, including input parameters and boundary conditions were recorded in the DQC Workbook (Appendix C). Test analysis figures are included in Appendix E.

Table 8 Details of Monitoring Well Hydraulic Testing and Analysis

Monitoring Well ID	Slug Test			Hydraulic Test Analysis		
	Date/Time	Test Type	Initial Displacement (m)	Program	Solution	Hydraulic Conductivity (m/s)
SB_MW02_OB-int	2022-02-12 15:22	rising	-0.76	AQTESOLV	Unconfined	7.7×10^{-6}
SB_MW02_BR-A	2022-02-12 17:10	rising	-0.44	AQTESOLV	Confined	6.7×10^{-5}
SB_MW02_BR-B*	2022-04-05 10:00	falling	0.65	nSights	Confined	$1.1 \times 10^{-8*}$
SB_MW02_BR_R-B	2022-06-24 10:01	rising	1.63	AQTESOLV	Confined	4.4×10^{-4}
SB_MW02_BR-C	2022-02-12 16:34	rising	-0.52	nSights	Confined	8.9×10^{-6}
SB_MW03_OB-int	2022-02-12 18:30	rising	-0.49	AQTESOLV	Unconfined	6.6×10^{-5}
SB_MW03_BR-A	2022-04-03 14:35	rising	-0.63	nSights	Confined	1.0×10^{-6}
SB_MW03_BR-B	2022-02-24 14:00	rising	-0.29	AQTESOLV	Confined	2.2×10^{-4}
SB_MW03_BR-C	2022-02-23 18:00	rising	-0.49	nSights	Confined	5.2×10^{-5}
SB_MW04_OB-int	2022-01-21 12:20	rising	-0.32	AQTESOLV	Unconfined	2.7×10^{-5}
SB_MW04_BR-A	2022-02-11 13:00	rising	-0.65	nSights	Confined	8.3×10^{-5}
SB_MW04_BR-B	2022-02-11 13:45	rising	-0.60	AQTESOLV	Confined	1.1×10^{-4}
SB_MW04_BR-C	2022-02-11 14:20	rising	-0.71	nSights	Confined	4.5×10^{-5}
SB_MW05_OB-int	2022-02-08 17:20	falling	0.48	AQTESOLV	Unconfined	1.3×10^{-7}
SB_MW05_BR-A	2022-02-11 09:35	rising	-0.61	AQTESOLV	Confined	1.3×10^{-4}
SB_MW05_BR-B	2022-02-01 08:20	rising	-0.77	nSights	Confined	3.4×10^{-6}
SB_MW05_BR-C	2022-02-01 11:03	rising	-0.77	nSights	Confined	2.4×10^{-5}
SB_MW06_OB-int	2022-01-21 16:41	rising	-0.26	AQTESOLV	Unconfined	6.0×10^{-6}
SB_MW06_BR-A	2022-02-11 17:32	rising	-0.62	AQTESOLV	Confined	2.1×10^{-4}
SB_MW06_BR-B	2022-02-11 17:11	rising	-0.75	AQTESOLV	Confined	2.6×10^{-4}
SB_MW06_BR-C	2022-02-11 16:40	rising	-0.54	AQTESOLV	Confined	8.7×10^{-5}
SB_MW07_OB-int	2022-02-12 09:08	falling	0.67	AQTESOLV	Unconfined	7.7×10^{-6}
SB_MW07_BR-A	2022-02-12 10:18	rising	-0.76	nSights	Confined	1.8×10^{-6}
SB_MW07_BR-B	2022-02-12 11:43	rising	-0.60	AQTESOLV	Confined	4.3×10^{-4}
SB_MW07_BR-C	2022-01-19 13:10	falling	0.77	nSights	Confined	7.0×10^{-5}
SB_MW09_BR-B	2022-12-15 17:14	rising	-0.72	nSights	Confined	1.9×10^{-6}

** Hydraulic Testing result in not considered representative of formation properties due to the damaged monitoring well interval which was replaced with SB_MW02_BR_R-B and re-tested.*

4 DATA QUALITY ASSURANCE AND QUALITY CONTROL

Several data quality assurance and quality control (QA/QC) measures were implemented by Geofirma staff during the field program and subsequent analysis and reporting. Verification of results was completed following acceptance criteria and verification procedures outlined in the Groundwater Monitoring Network (Installation and Testing) Test Plan and the Geofirma Project Quality Plan. 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.

5 HEALTH, SAFETY AND ENVIRONMENT

All field activities were completed in accordance with the requirements outlined in the project-specific Health, Safety, and Environment Plan (HSEP) prepared by Geofirma. Pre-job briefings were conducted at the beginning of every field day onsite to discuss the daily plan, health and safety concerns, and any relevant changes to procedures.

6 CONCLUSIONS

Geofirma was retained by the NWMO to complete drilling, installation, and testing of monitoring well clusters at six sites within the South Bruce Site. Each monitoring well cluster includes an overburden monitoring well installed below the water table within the overburden and a bedrock well instrumented with three nested piezometers. A total of six overburden monitoring intervals were installed in six boreholes, one per site. A total of 18 bedrock monitoring intervals were initially installed in six bedrock boreholes. Two additional bedrock boreholes were drilled following the initial drilling program to install replacement monitoring intervals for SB_MW02_BR-B and SB_MW06_BR-B.

Field activities associated with this project were completed by Geofirma and its subcontractors between October 14, 2021, and December 22, 2022. All sites with the exception of SB_MW02 were returned to the NWMO on April 11, 2022. The monitoring well rehabilitation work on the replacement interval for SB_MW02_BR-B was completed in June 2022 with the final site handover on July 6, 2022. To facilitate the drilling of SB_MW09_BR, the care, custody and control of the SB_MW06 drill site was handed over to Geofirma effective November 28, 2022. Following completion of the fieldwork, the site was handed back to the NWMO on December 22, 2022.

The following conclusions are provided based on Geofirma's review of the field data:

- Fourteen boreholes were drilled at six sites on the South Bruce Site; six drilled into the overburden and eight drilled into bedrock.
- Geological logging of soil and drill cuttings was completed during drilling as documented in the DQC Workbooks (Appendix C).
- Geophysical logging of the six bedrock boreholes was completed following drilling activities and prior to monitoring well installations (Appendix D).
- Following drilling activities, all boreholes were instrumented as monitoring wells; six installed in the overburden (OB-int) approximately five metres into the shallow water table. Six bedrock boreholes were each instrumented with three nested piezometers (BR-A, BR-B, BR-C). Piezometers A (deep interval) installed, where possible, in the Bois Blanc formation, Piezometers B (intermediate interval) installed in the Amherstburg, and Piezometers C (shallow interval) installed in the Lucas formation.
- All monitoring wells were developed (purged) to remove any accumulated sediment, clean the sand pack, and to remove any drilling fluids that may have been introduced into the formation during drilling.
- During the well development of SB_MW02_BR-B, it was concluded that the well screen was compromised, and a decision was made to drill a second bedrock borehole adjacent to the SB_MW02_BR cluster to install a replacement intermediate bedrock interval SB_MW02_BR_R-B.
- Due to the screen failure in SB_MW02_BR-B, all monitoring intervals were inspected with a downhole camera prior to handover to NWMO.
- Downhole failures of piezometers for monitoring intervals SB_MW03_BR-A and SB_MW06_BR-B were also identified during post-installation well development and sampling. For SB_MW03_BR-A, no further action was taken due to flowing artesian conditions at that borehole location and depth. Monitoring interval SB_MW06_BR-B was decommissioned and a replacement borehole was drilled and interval installed as SB_MW09_BR-B in December 2022.

- Hydraulic testing was completed and analyzed for each monitoring well and provided confidence of the seals between intervals and an estimated hydraulic conductivity for each interval.
- Dedicated sample tubing and transducers were installed in each monitoring interval to allow for the collection of future groundwater samples, and continuous water level monitoring, respectively.

7 REFERENCES

American Society for Testing and Materials (ASTM), 2018. Standard Guide for Planning and Conducting Borehole Geophysical Logging. D 5753-18.

Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

Butler, J.J., Jr., 2002. A simple correction for slug tests in small-diameter wells, Ground Water, vol. 40, no. 3, pp. 303-307.

Freeze, R.A. and J.A. Cherry, 1979. Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604p.

Appendix A

MECP Water Well Records

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A 338365	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
NWMO Property Management 1 Inc.	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
floor 4	22	St. Clair Ave East	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	416-934-9814

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		BRUCE

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	474292	4872843	Test UTM in Map	

Other
MW2

3. Overburden and Bedrock Material *

Well Depth * 285 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Sand	Clay		0	28	–
Brown	Sand	Clay	Gravel	28	40	–
Brown	Limestone		Soft	40	44	–
Brown	Limestone			44	175	–
Grey	Limestone			175	285	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	20	Grout	8.8	–
0	50.9	Bentonite	16.80	–
64	211.6	Bentonite	44.28	–
224.7	257.5	Bentonite	11.15	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☐ Direct Push
☑ Other (specify) DR

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☑ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
8	Steel	0.188	-2	45
1.5	Plastic	0.28	-2	52.5
1.5	Plastic	0.28	-2	213
1.5	Plastic	0.28	-2	259

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
1.88	Plastic	10	52.5	62.5
1.88	Plastic	10	213	223
1.88	Plastic	10	259	269

Add Row (+)

10. Water Details

Water found at Depth 12 (ft) ☐ Gas Kind of water ☐ Fresh ☑ Untested ☐ Other

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	20	12
20	45	8.63
45	285	8

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

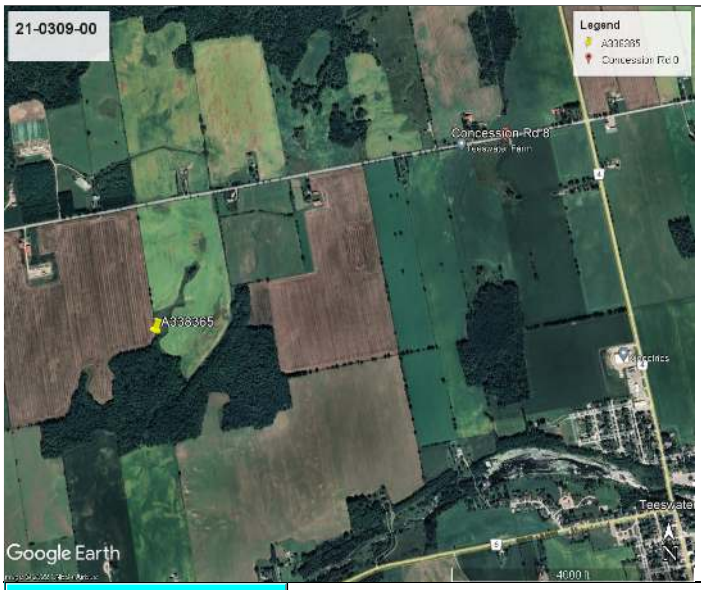
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2022/01/12

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature	Date Submitted (yyyy/mm/dd)
Matt England Digitally signed by Matt England Date: 2022.11.24 09:33:16 -05'00'	2022/11/24

17. Ministry Use Only

Audit Number

QBWM U5O6

Validate | Save Form | Print Form | Clear Form

Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below): A368586

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	NWMO Property Management Inc		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
22 St. Clair Avenue East 4th Floor		ON	M4T2S3	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
1021 Concession Road 8	Culross		

County/District/Municipality	City/Town/Village	Province	Postal Code
Bruce	Tiverton	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	17	417412	4887218		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
brown	sand	clay		0	28
	sand	clay gravel		28	40
brown	limestone			40	174
grey	limestone			174	223

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	20	bentonite/quick grout	7
0	172	bentonite hole plug	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☑ Other, specify DR

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☑ Other, specify ~~DR~~

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6	steel	.188	+2	48
1.5	plastic	.28	+2	172

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
1.88	plastic	10	172	182

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☑ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify
172		

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	20	9 5/8
20	223	6

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

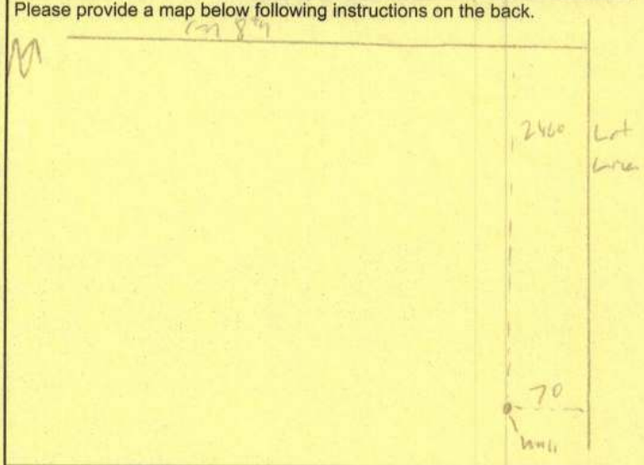
Well production (l/min/GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Steffen Well Drilling	7163

Business Address (Street Number/Name)	Municipality
3967 Bruce Rd 4 RR1	Bruce

Province	Postal Code	Business E-mail Address
ON	N0G1W0	ex9191@gmail.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5193575196	Steffen, Michael

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3162		

Well owner's information package delivered ☐ Yes ☐ No

Date Package Delivered: ____

Date Work Completed: ____

Ministry Use Only

Audit No. Z382379

Received

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Contractor's Copy

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A 324231	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Nuclear Waste Management Organization	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	22	St. Clair Ave East, 4th floor	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	o	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		Bruce

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	474297	4872857	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 42 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Topsoil			0	2	–
Brown	Sand	Gravel	Dry	2	5	–
Brown	Stones	Sand	Dry	5	15	–
Brown	Sand	Gravel	Wet	15	42	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	30	Holeplug - Bentonite	10.48	–
30	42	Sand	4.20	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☑ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
2	Plastic	0.28	-3	32	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	32	42

Add Row (+)

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	42	8.25

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/10/15

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature		Date Submitted (yyyy/mm/dd)
Matt England	Digitally signed by Matt England Date: 2021.11.01 10:14:14 -04'00'	2021/11/01

17. Ministry Use Only

Audit Number

9GPC EUCK

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number * Help
A 338366

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
NWMO Property Management 1 Inc.	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
floor 4	22	St. Clair Ave East	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	416-934-9814

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		BRUCE

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	474161	4873718	Test UTM in Map	

Other
MW3

3. Overburden and Bedrock Material *

Well Depth * 200 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Sand	Clay		0	12	–
Grey	Silt			12	36	–
Brown	Limestone			36	50	–
Red	Limestone			50	55	–
		Fractured	Overburden	55	56	–
Brown	Limestone			56	200	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	20	Grout	8.8	–
0	54.8	Bentonite	18.63	–
67.9	101.7	Bentonite	10.14	–
124	175.5	Bentonite	17.51	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☐ Direct Push
☑ Other (specify) DR

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☑ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
8	Steel	0.188	-8	58	−
1.5	Plastic	0.28	-8	56	−
1.5	Plastic	0.28	-8	113	−
1.5	Plastic	0.28	-8	177	−

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
1.88	Plastic	10	56	66	−
1.88	Plastic	10	113	123	−
1.88	Plastic	10	177	187	−

Add Row (+)

10. Water Details

Water found at Depth 50 (ft) ☐ Gas Kind of water ☐ Fresh ☑ Untested ☐ Other −

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	20	12	−
20	58	8.63	−
58	200	8	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2022/01/12

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature	Date Submitted (yyyy/mm/dd)
Matt England Digitally signed by Matt England Date: 2022.11.24 09:37:11 -05'00'	2022/11/24

17. Ministry Use Only

Audit Number

9N6X 7999

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

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Street Number/Name and City/town/Village must be provided, if available.

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UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
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- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
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If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A 324232	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Nuclear Waste Management Organization	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	22	St. Clair Ave East, 4th floor	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	o	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		Bruce

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	474158	4873718	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 40 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Topsoil			0	2	–
Brown	Sand	Gravel	Dry	2	5	–
Brown	Sand	Stones	Dry	5	15	–
Brown	Sand	Gravel	Wet	15	40	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	28	Holeplug - Bentonite	9.78	–
28	40	Sand	4.20	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☑ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
2	Plastic	0.28	-3	30	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
2	Plastic	10	30	40	−

Add Row (+)

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other −

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	40	8.25	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger −



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/10/18

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature		Date Submitted (yyyy/mm/dd)
Matt England	Digitally signed by Matt England Date: 2021.11.01 10:15:43 -04'00'	2021/11/01

17. Ministry Use Only

Audit Number

8MNX XV74

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A 338364	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
NWMO Property Management 3 Inc.	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
floor 4	22	St. Clair Ave East	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	416-934-9814

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		BRUCE

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	472704	4872469	Test UTM in Map	

Other
MW4

3. Overburden and Bedrock Material *

Well Depth * 276 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Gravel	Sand		0	72	–
Grey	Limestone			72	74	–
Grey	Limestone			74	276	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	20	Grout	8.8	–
0	86	Bentonite	28.43	–
100	134	Bentonite	10.50	–
159	249.5	Bentonite	30.77	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☐ Direct Push
☑ Other (specify) DR

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☑ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
8	Steel	0.188	-2	77	–
1.5	Plastic	0.28	-2	88.5	–
1.5	Plastic	0.28	-2	137.5	–
1.5	Plastic	0.28	-2	251	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
1.88	Plastic	10	88.5	98.5	−
1.88	Plastic	10	137.5	157.5	−
1.88	Plastic	10	251	261	−

Add Row (+)

10. Water Details

Water found at Depth 20 (ft) ☐ Gas Kind of water ☐ Fresh ☑ Untested ☐ Other −

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	20	12	−
20	77	8.63	−
77	276	8	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

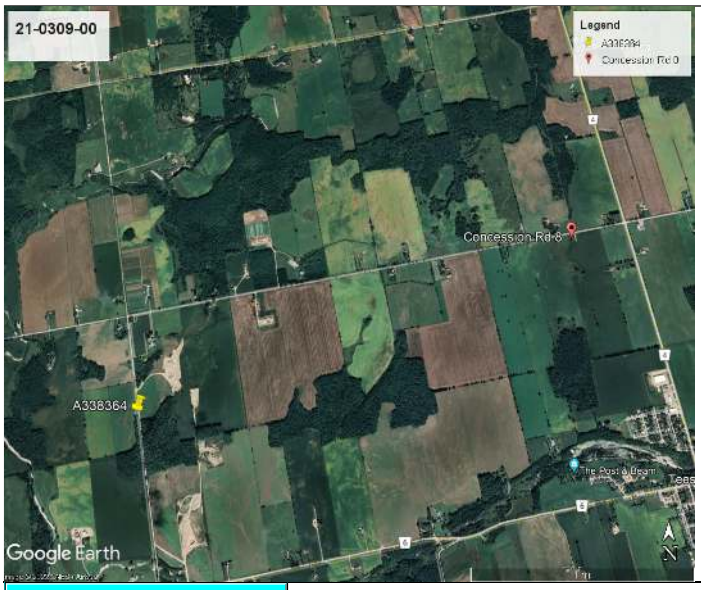
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2022/01/12

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature		Date Submitted (yyyy/mm/dd)
Matt England	Digitally signed by Matt England Date: 2022.11.24 09:34:39 -05'00'	2022/11/24

17. Ministry Use Only

Audit Number

86QD B3PG

Validate Save Form Print Form Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

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Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

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 © Queen's Printer for Ontario, 2020

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Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

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If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

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Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

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- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
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Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
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If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number * Help
A 324233

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Nuclear Waste Management Organization	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	22	St. Clair Ave East, 4th floor	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	o	Side Road 25 N	Culross

Lot	Concession	County/District/Municipality
		Bruce

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	472705	4872467	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 35 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Topsoil			0	1	−
Brown	Sand	Gravel	Dry	1	10	−
Brown	Gravel	Sand	Dry	10	15	−
Brown	Sand	Gravel	Wet	15	30	−
Brown	Sand	Gravel	Wet	30	35	−

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	23	Holeplug - Bentonite	8.03	−
23	35	Sand	4.20	−

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☑ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
2	Plastic	0.28	-3	25	−

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	25	35

Add Row (+)

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	35	8.25

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

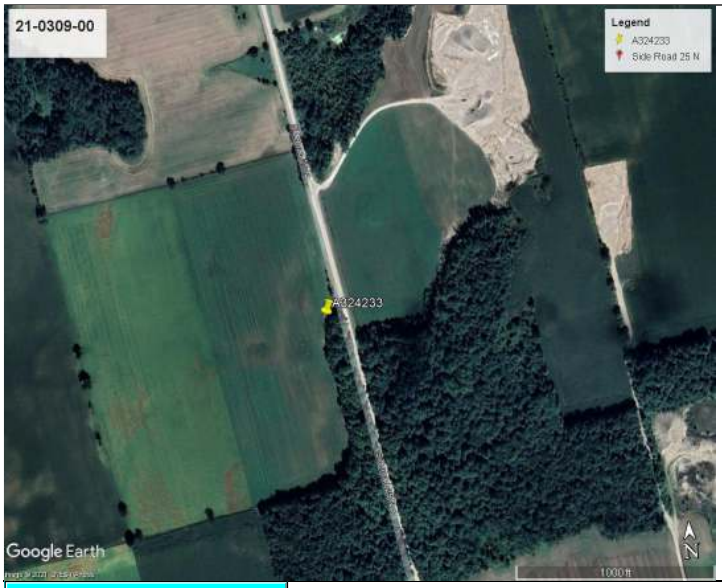
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/10/22

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature		Date Submitted (yyyy/mm/dd)
Matt England	Digitally signed by Matt England Date: 2021.11.01 10:19:47 -04'00'	2021/11/01

17. Ministry Use Only

Audit Number

TMSM D5LA

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A 324189	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
NWMO Property Management 1 Inc.	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
floor 4	22	St. Clair Ave East	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	416-934-9814

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		BRUCE

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	472429	4874139	Test UTM in Map	

Other
MW5

3. Overburden and Bedrock Material *

Well Depth * 250 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
	Sand	Gravel	Silt	0	74	–
	Dolostone			74	250	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	20	Grout	8.8	–
0	81.4	Bentonite	27.55	–
94.5	155	Bentonite	18.15	–
169	234.5	Bentonite	22.30	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☐ Direct Push
☑ Other (specify) DR

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☑ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
8	Steel	0.188	-2	80	–
1.5	Plastic	0.28	-2	83	–
1.5	Plastic	0.28	-2	155.5	–
1.5	Plastic	0.28	-2	236	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
1.88	Plastic	10	83	93	−
1.88	Plastic	10	155.5	165.5	−
1.88	Plastic	10	236	246	−

Add Row (+)

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other −

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	20	12	−
20	80	8.63	−
80	250	8	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

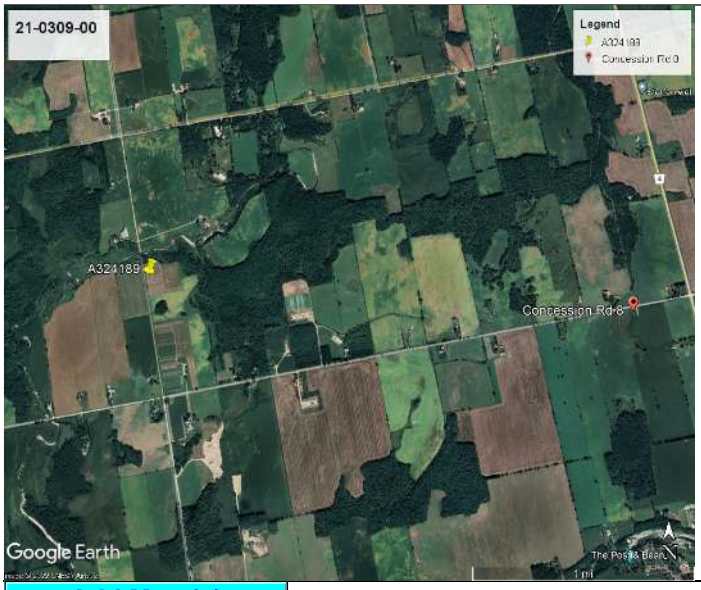
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger −



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2022/01/12

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature		Date Submitted (yyyy/mm/dd)
Matt England	Digitally signed by Matt England Date: 2022.11.24 09:35:55 -05'00'	2022/11/24

17. Ministry Use Only

Audit Number

IWPU MFKF

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

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A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

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Street Number/Name and City/town/Village must be provided, if available.

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For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
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If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number * Help
A 324234

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Nuclear Waste Management Organization	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	22	St. Clair Ave East, 4th floor	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	o	Side Road 25 N	Culross

Lot	Concession	County/District/Municipality
		Bruce

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	472428	4874136	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 30 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Topsoil			0	2	−
Brown	Stones	Sand	Dry	2	4	−
Brown	Gravel	Sand	Dry	4	15	−
Brown	Sand	Gravel	Wet	15	25	−
Brown	Sand	Silt	Wet	25	30	−

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	17	Holeplug - Bentonite	5.94	−
17	30	Sand	4.54	−

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☑ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
2	Plastic	0.28	-3	20	−

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	20	30

Add Row (+)

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	30	8.25

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/10/26

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature	Date Submitted (yyyy/mm/dd)
Matt England Digitally signed by Matt England Date: 2021.11.01 10:20:41 -04'00'	2021/11/01

17. Ministry Use Only

Audit Number

22PR M3UD

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A315285	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
NWMO Property Management 1 Inc.	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
floor 4	22	St. Clair Ave East	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	416-934-9814

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		BRUCE

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	470981	4873864	Test UTM in Map	

Other
MW6

3. Overburden and Bedrock Material *

Well Depth * 282.5 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
	Sand	Silty	Gravel	0	100	–
				100	282.5	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	20	Grout	8.8	–
0	134.5	Bentonite	40.83	–
147.5	226.5	Bentonite	23.55	–
240	268.5	Bentonite	9.69	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☐ Direct Push
☑ Other (specify) DR

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☑ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
8	Steel	0.188	-2	80	–
1.5	Plastic	0.28	-2	136	–
1.5	Plastic	0.28	-2	228	–
1.5	Plastic	0.28	-2	270.5	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
1.88	Plastic	10	136	146	−
1.88	Plastic	10	228	238	−
1.88	Plastic	10	270.5	280.5	−

Add Row (+)

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other −

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	20	12	−
20	80	8.83	−
80	282.5	8	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

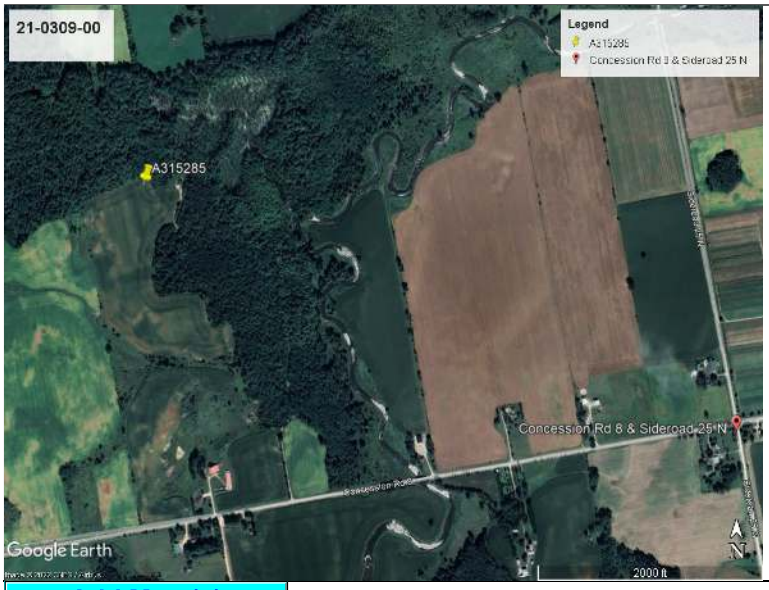
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger −



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2022/01/12

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature		Date Submitted (yyyy/mm/dd)
Matt England	Digitally signed by Matt England Date: 2022.02.24 08:26:02 -05'00'	2022/02/24

17. Ministry Use Only

Audit Number

J2AT DLD8

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

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Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

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Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number * Help
A 324236

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Nuclear Waste Management Organization	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	22	St. Clair Ave East, 4th floor	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	o	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		Bruce

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	470965	4873878	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 47 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Topsoil			0	1	–
Brown	Gravel	Sand	Dry	1	20	–
Brown	Sand	Gravel	Wet	20	47	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	35	Holeplug - Bentonite	12.22	–
35	47	Sand	4.20	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☑ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
2	Plastic	0.28	-3	37	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
2	Plastic	10	37	47	–

Add Row (+)

10. Water Details

Water found at Depth (ft)	☐ Gas	Kind of water ☐ Fresh ☐ Untested ☐ Other	−

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	47	8.25	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

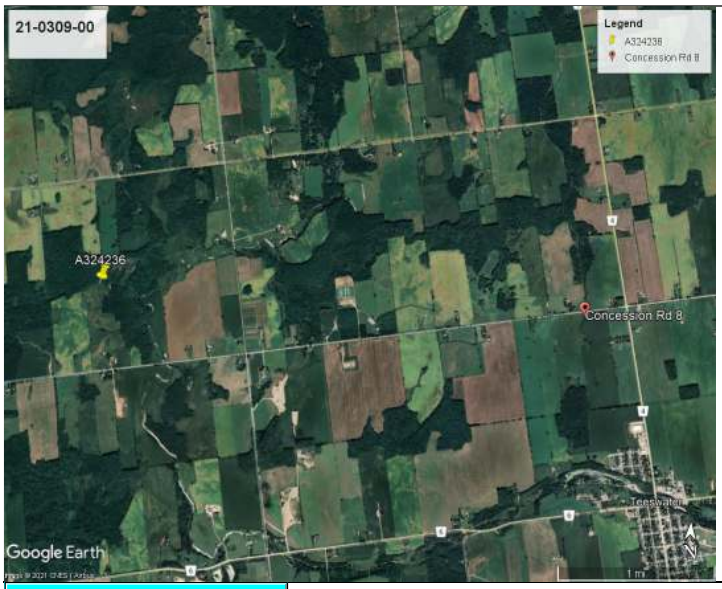
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger −



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/10/29

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature	Date Submitted (yyyy/mm/dd)
Matt England Digitally signed by Matt England Date: 2021.11.01 10:22:13 -04'00'	2021/11/01

17. Ministry Use Only

Audit Number

9GPG N9Z4

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

False and Misleading Information

Subsection 98(2) of the *Ontario Water Resources Act*, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number * Help
A 338367

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization	**Email Address**
NWMO Property Management 3 Inc.	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village	
floor 4	22	St. Clair Ave East	Toronto	
Country	**Province**		**Postal Code**	**Telephone Number**
Canada	Ontario		M4T 2S3	416-934-9814

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township	
	0	Concession Road 8	Culross	
Lot	**Concession**		**County/District/Municipality**	
			BRUCE	
City/Town			**Province**	**Postal Code**
Teeswater			Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	469539	4872679	Test UTM in Map	

Other
MW7

3. Overburden and Bedrock Material *

Well Depth * 310 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown		Sandy		0	24	–
Brown		Sandy	Gravel	24	54	–
Brown	Limestone			54	55	–
Brown	Limestone			55	60	–
Brown	Limestone			60	180	–
Grey	Limestone			180	310	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	20	Grout	8.8	–
0	100	Bentonite	30.13	–
123	201	Bentonite	23.4	–
224	292	Bentonite	23.12	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☐ Direct Push
☑ Other (specify) DR

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☑ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
8	Steel	0.188	-2	57	−
1.5	Plastic	0.28	-1	101	−
1.5	Plastic	0.28	-1	203	−
1.5	Plastic	0.28	-1	293.5	−

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
1.88	Plastic	10	101	121	−
1.88	Plastic	10	203	223	−
1.88	Plastic	10	293.5	303.5	−

Add Row (+)

10. Water Details

Water found at Depth 20 (ft) ☐ Gas Kind of water ☐ Fresh ☑ Untested ☐ Other −

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	20	12	−
20	57	8.63	−
57	310	8	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2022/01/12

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature	Date Submitted (yyyy/mm/dd)
Matt England Digitally signed by Matt England Date: 2022.02.24 08:31:02 -05'00'	2022/02/24

17. Ministry Use Only

Audit Number

9RS7 FF76

Validate | Save Form | Print Form | Clear Form

General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: WellRecordSubmission@ontario.ca

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Measurements

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Well Owner's Information

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Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone.

Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

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- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the “Comments” area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check “Other (specify)” and record the type of equipment, check each equipment that applies.

Well Use

If the well’s use is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well’s status is not provided on the list, check “Other (specify)” and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing “Depth From” as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing “Depth From” as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A “well screen” means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is “Untested,” “Fresh” (i.e., not salty), or “Other (specify).” If “Other (specify)” is recorded, use the “Other (specify)” dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off “Gas” if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off “Pumping Discontinued” if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off “Pumping Discontinued” on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off “Flowing Well” (i.e., static water level above the ground surface).

In the “Results of Well Yield Testing” section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the “Map of Well Location” section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on “Add Map (+)” to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: “I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate”.

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from “**incomplete**” to an assigned audit number. The signature field will then be available. Click on “signature” to enter the well technician’s electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: https://helpx.adobe.com/acrobat/using/digital-ids.html

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *	Help
A 324235	

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Nuclear Waste Management Organization	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	22	St. Clair Ave East, 4th floor	Toronto

Country	Province	Postal Code	Telephone Number
Canada	Ontario	M4T 2S3	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	o	Concession Road 8	Culross

Lot	Concession	County/District/Municipality
		Bruce

City/Town	Province	Postal Code
Teeswater	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	469512	4872665	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 35 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)	
Brown	Topsoil			0	1	–
Brown	Sand		Dry	1	20	–
Brown	Sand	Gravel	Wet	20	35	–

Add Row (+)

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)	
0	23	Holeplug - Bentonite	8.03	–
23	35	Sand	4.20	–

Add Row (+)

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☑ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)	
2	Plastic	0.28	-3	25	–

Add Row (+)

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)	
2	Plastic	10	25	35	–

Add Row (+)

10. Water Details

Water found at Depth (ft)	☐ Gas	Kind of water ☐ Fresh ☐ Untested ☐ Other	−

Add Water Details (+)

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)	
0	35	8.25	−

Add Row (+)

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

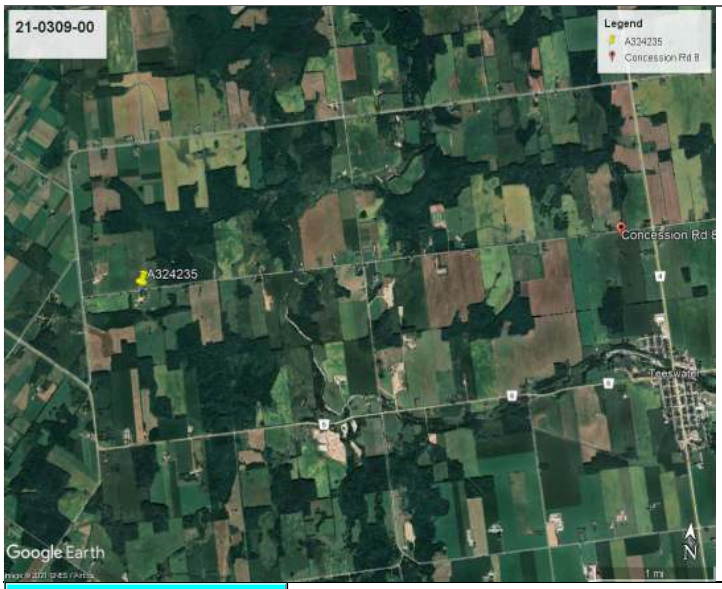
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger −



Add Map (+)

14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/10/27

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Aardvark Drilling Inc.	7675

Business Address

Unit Number	Street Number	Street Name *
C	25	Lewis Road

City/Town/Village *	Province	Postal Code *
Guelph	ON	N1H 1E9

Business Telephone Number	Business Email Address
519-826-9340	info@aardvarkdrillinginc.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
England	Matt	3059

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com

Signature	Date Submitted (yyyy/mm/dd)
Matt England Digitally signed by Matt England Date: 2021.11.01 10:21:31 -04'00'	2021/11/01

17. Ministry Use Only

Audit Number

B7GZ V66O

Validate | Save Form | Print Form | Clear Form

Ontario — Ministry of the Environment, Conservation and Parks

Well Tag No. (Place Sticker and/or Print Below): A368590

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☐ Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	NWMO Property Management Inc.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
22 St. Clair Avenue East 4th Floor		ON	M4T2S3	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
1266 Concession Road 8	Culross		

County/District/Municipality	City/Town/Village	Province	Postal Code
Bruce	Teeswater	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3		[illegible]	4887381815		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	sand	silty gravel	gravel	0	105
brown	limestone			105	240

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	20	bentonite/quick grout	7
0	128	hole plug	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☑ Other, specify DR

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6	steel	.188	+2	148
1.5	plastic	.28	~~228~~ +2	228

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
1.88	plastic	10	228	238

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
105	☐	☐ Fresh ☑ Untested	
	☐	☐ Fresh ☐ Untested	
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	20	9 5/8
20	240	6.

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

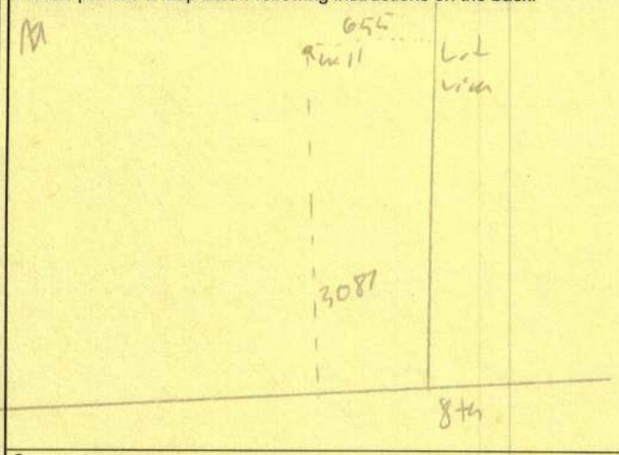
Well production (l/min/GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Steffen Well Drilling	7 1 6 1 3

Business Address (Street Number/Name)	Municipality
3967 Bruce Rd 4 RR1	Bruce

Province	Postal Code	Business E-mail Address
ON		NWMWD ex9191@gmail.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5 1 9 3 5 7 1 9 6 0	Steffen, Michael

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3 8 6 2		[illegible] M M D D

Well owner's information package delivered: ☑ Yes ☐ No

Date Package Delivered: [illegible] M M D D

Date Work Completed: [illegible] M M D D

Ministry Use Only

Audit No. Z401452

Received

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Contractor's Copy

Appendix B

Borehole Completion Diagrams

Well ID: SB_MW02

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilled Dates: MW02_OB: Oct 14-15, 2021 / MW02_BR: Oct 28-30, 2021

Drilling Company: Aardvark Drilling Inc.

Drilling Method: MW02_OB: hollow stem auger / MW02_BR: dual rotary

Total Depth (m): MW02_OB: 13.03 / MW02_BR: 87.17

Borehole Diameter (m): MW02_OB: 0.2095 / MW02_BR: 0.2032

Surface Completion: MW02_OB: monument / MW02_BR: 8.5 in steel casing stickup

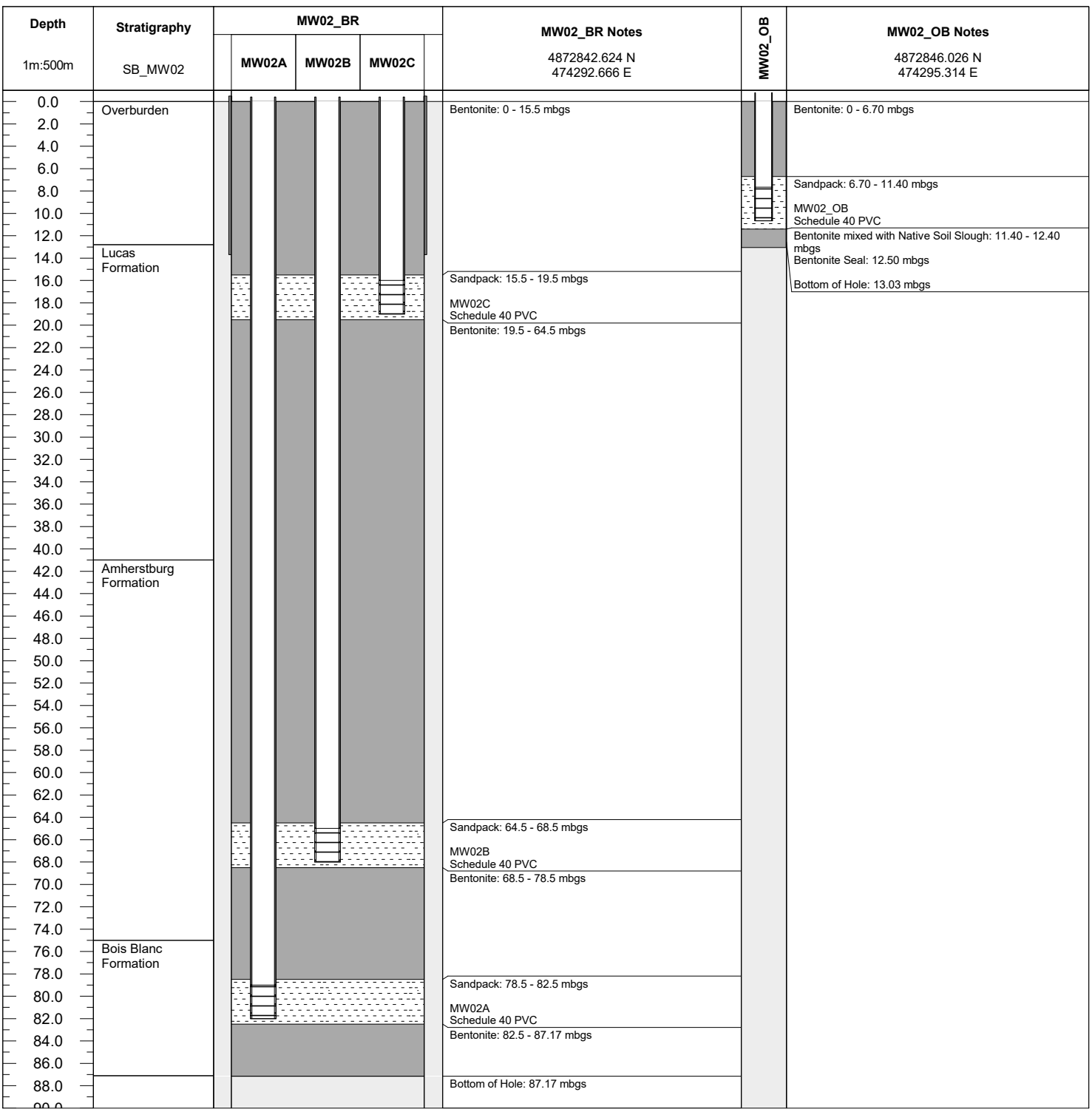
Casing Stickup (m): MW02_OB: 0.75 / MW02_BR: 0.40

Ground Surface Elevation (m asl): MW02_OB: 291.75 / MW02_BR: 291.37

MW Install Date(s): MW02_OB: Oct 15, 2021 / MW02_BR: Dec 9, 2021

Comments:
Monitoring interval SB_MW02_BR-B was replaced in June 2022 with SB_MW02_BR_R

Document Tracking
Created by: CRS
Checked by: SNS
File Name: SB_MW02_WellCompletion_R1



Well ID: SB_MW02_BR_R-B

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilled Dates: March 2-4, 2022

Drilling Company: Steffen Drilling & Strata Drilling

Drilling Method: Dual Rotary

Total Depth (m): 68.0

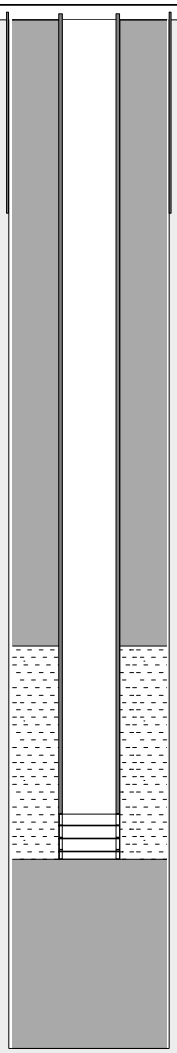
Borehole Diameter (m): 0.1524

Surface Completion: 6" Steel casing stickup

Casing Stickup (m): 0.37

MW Install Date(s): March 4, 2022 to June 22, 2022

Document Tracking	
Created by:	CAM
Checked by:	GDB
File Name:	SB_MW02_BR_R-B_WellCompletion_R2

Depth 1m:500m	Stratigraphy SB_MW02	Well Completion	MW02_BR_R-B Notes MW02_BR_R-B was drilled and installed to replace the damaged MW02_BR-B.
0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 32.0 34.0 36.0 38.0 40.0 42.0 44.0 46.0 48.0 50.0 52.0 54.0 56.0 58.0 60.0 62.0 64.0 66.0 68.0 70.0 72.0 74.0 76.0 78.0 80.0 82.0 84.0 86.0 88.0 90.0	Overburden Lucas Formation Amherstburg Formation		Bentonite: 0 - 41.4 mbgs Sandpack: 41.4 - 55.5 mbgs Screen: 52.5-55.5 mbgs Interval SB_MW02_BR_R-B Schedule 40 PVC Unable to install monitoring well to bottom of drilled hole due to borehole collapse Collapse material from 55.5-68 mbgs

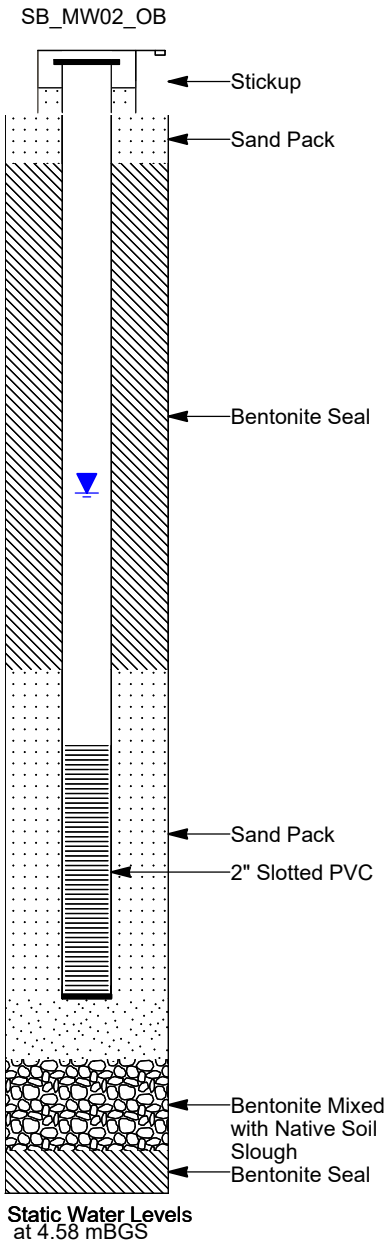
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW02_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 474295.314E, 4872846.026N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324231
Date Completed: October 14-15, 2021
Supervisor: GDB
Logged By: Alex Cachunjua
Ground Surface Elevation: 291.75
Date of Water Level Measurement: 12 February 2022

DEPTH BGS (ft / m)	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION
							GROUND SURFACE
0 / 0				--	--		TOPSOIL unconsolidated sediment, loose, brown, moist
3 / 1				--	--		SAND with silt, dark brown, moist
6 / 2				--	--		SAND fine calcarious sand with varying silt and gravel content, fine grained, light brown to brown, moist
9 / 3				--	--		
11 / 3				--	--		wet
13 / 4				--	--		saturated
16 / 5				--	--		
19 / 6				--	--		
21 / 6				--	--		fine to medium grained
23 / 7				--	--		intermixed with some gravel and glacial till
26 / 8				--	--		
29 / 9				--	--		coarse grained, brown
30 / 9				--	--		GRAVEL with sand and silt, coarse grained
33 / 10				--	--		SILTY SAND petroliferous smell, medium to coarse grained, light brown
36 / 11				--	--		white/brown
38 / 12				--	--		GRAVEL gravel with silty sand, white/light brown
41 / 12				--	--		
42 / 13							BEDROCK dolostone, Lucas formation, White / light tan
							BOREHOLE TERMINATED Total Depth of SB_MW02_OB 13.03 mBGS



Prepared By: TKG
Reviewed By: GDB
Doc Revision: R1
Template: GEOFIRMA_TEMPLATE.GDT

GEOFIRMA ENGINEERING

Well ID: SB_MW03

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilling Company: Aardvark Drilling Inc.

Total Depth (m): MW03_OB: 12.34 / MW03_BR: 60.15

Surface Completion: MW02_OB: monument / MW02_BR: 8.5 in steel casing stickup

Ground Surface Elevation (m asl): MW03_OB: 282.36 / MW03_BR: 282.30

MW Install Date(s): MW03_OB: Oct 18, 2021 / MW03_BR: Dec 1-3, 2021

Drilled Dates: MW03_OB: Oct 18, 2021 / MW03_BR: Oct 31 - Nov 3, 2021

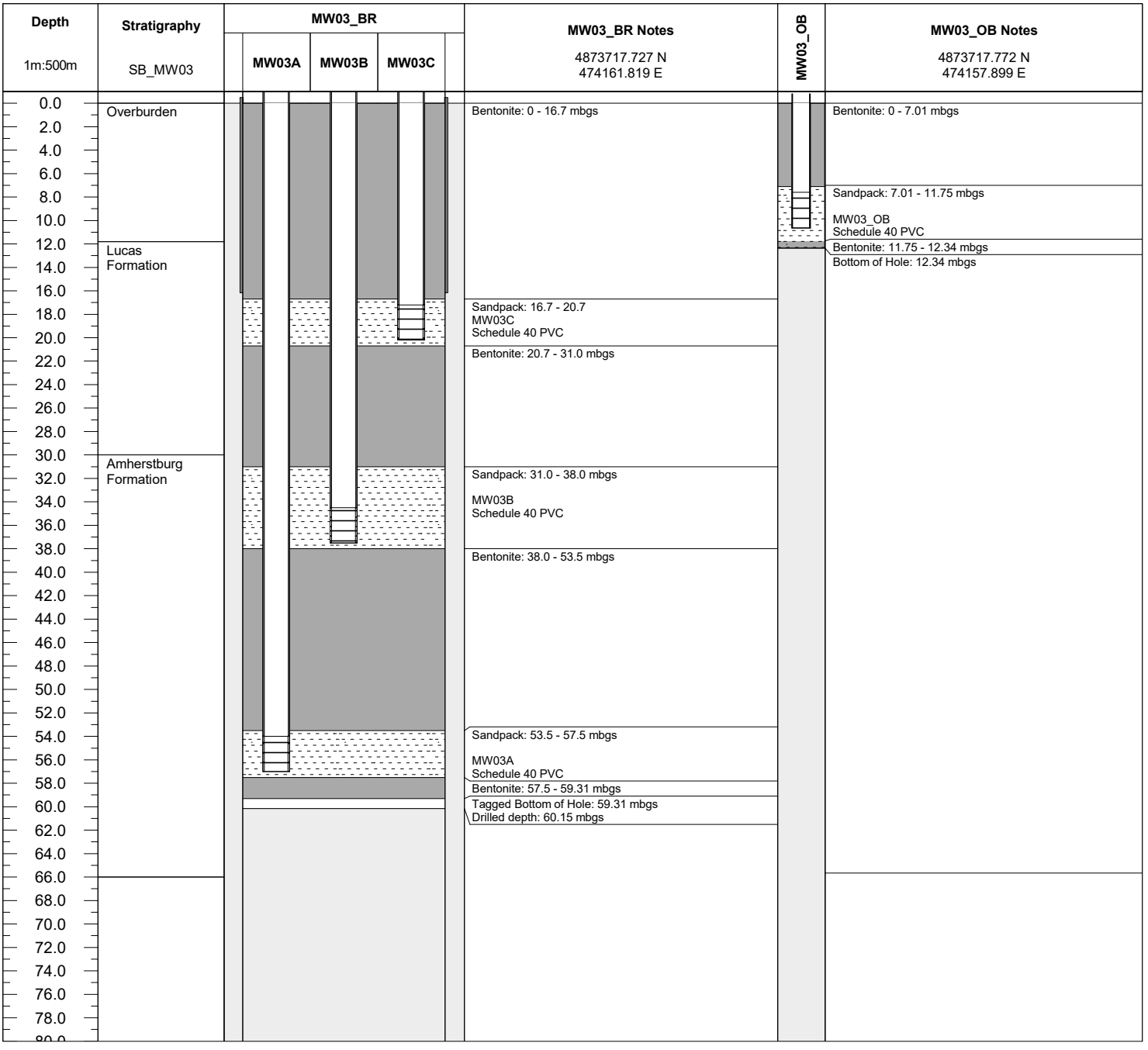
Drilling Method: MW03_OB: hollow stem auger / MW03_BR: dual rotary

Borehole Diameter (m): MW03_OB: 0.2095 / MW03_BR: 0.2032

Casing Stickup (m): MW03_OB: 0.80 / MW03_BR: 2.58

Comments:

Document Tracking
Created by: CRS
Checked by: SNS
File Name: SB_MW03_WellCompletion_R1



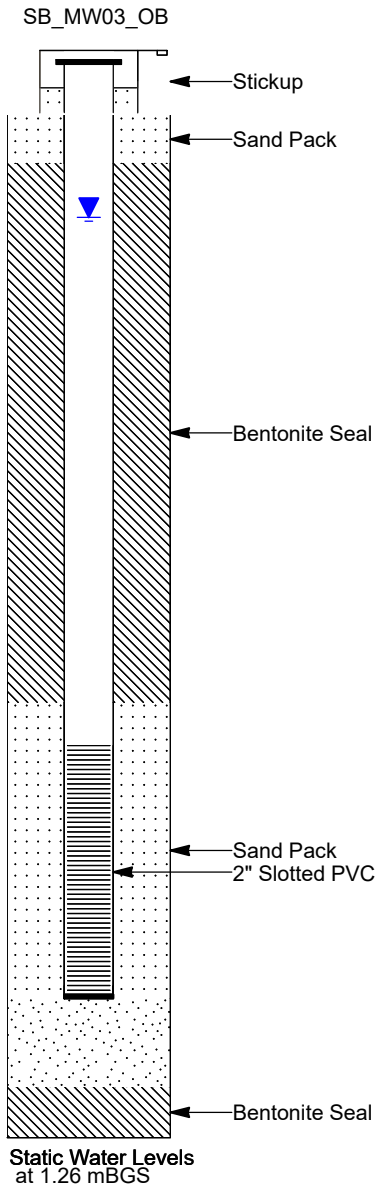
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW03_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 474157.899E, 4873717.772N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324232
Date Completed: October 18, 2021
Supervisor: GDB
Logged By: Alex Cachunjua
Ground Surface Elevation: 282.36
Date of Water Level Measurement: 12 February 2022

DEPTH BGS (ft / m)	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION
0 / 0							GROUND SURFACE
0 – 1 / 0 – 0.3				--	--		TOPSOIL loose, brown, moist
1 – 4 / 0.3 – 1.2				--	--		SILT silt and fine grained sand with minor gravel, light brown, moist
4 – 5 / 1.2 – 1.5				--	--		
5 – 12 / 1.5 – 3.7				--	--		CLAY with sand, fine grained, stiff, grey
12 – 13 / 3.7 – 4.0				--	--		Saturated
13 – 25 / 4.0 – 7.6				--	--		CLAY with gravel, stiff, grey
25 – 26 / 7.6 – 8.0				--	--		GRAVEL with sand, coarse grained
26 – 39 / 8.0 – 12.0				--	--		SILTY SAND with gravel, light brown
29 – 39 / 9.0 – 12.0				--	--		wet
39 – 40 / 12.0 – 12.3				--	--		BEDROCK dolostone, Lucas formation
							BOREHOLE TERMINATED Total Depth of SB_MW03_OB 12.34 mBGS



Prepared By: TKG
Reviewed By: GDB
Doc Revision: R1
Template: GEOFIRMA_TEMPLATE.GDT

GEOFIRMA ENGINEERING

Well ID: SB_MW04

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilled Dates: MW04_OB: Oct 19-22, 2021 / MW04_BR: Nov 16-18, 2021

Drilling Company: Aardvark Drilling Inc.

Drilling Method: MW04_OB: hollow stem auger / MW04_BR: dual rotary

Total Depth (m): MW04_OB: 20.73 / MW04_BR: 84.25

Borehole Diameter (m): MW04_OB: 0.2095 / MW04_BR: 0.2032

Surface Completion: MW04_OB: monument / MW04_BR: 8.5in steel casing stickup

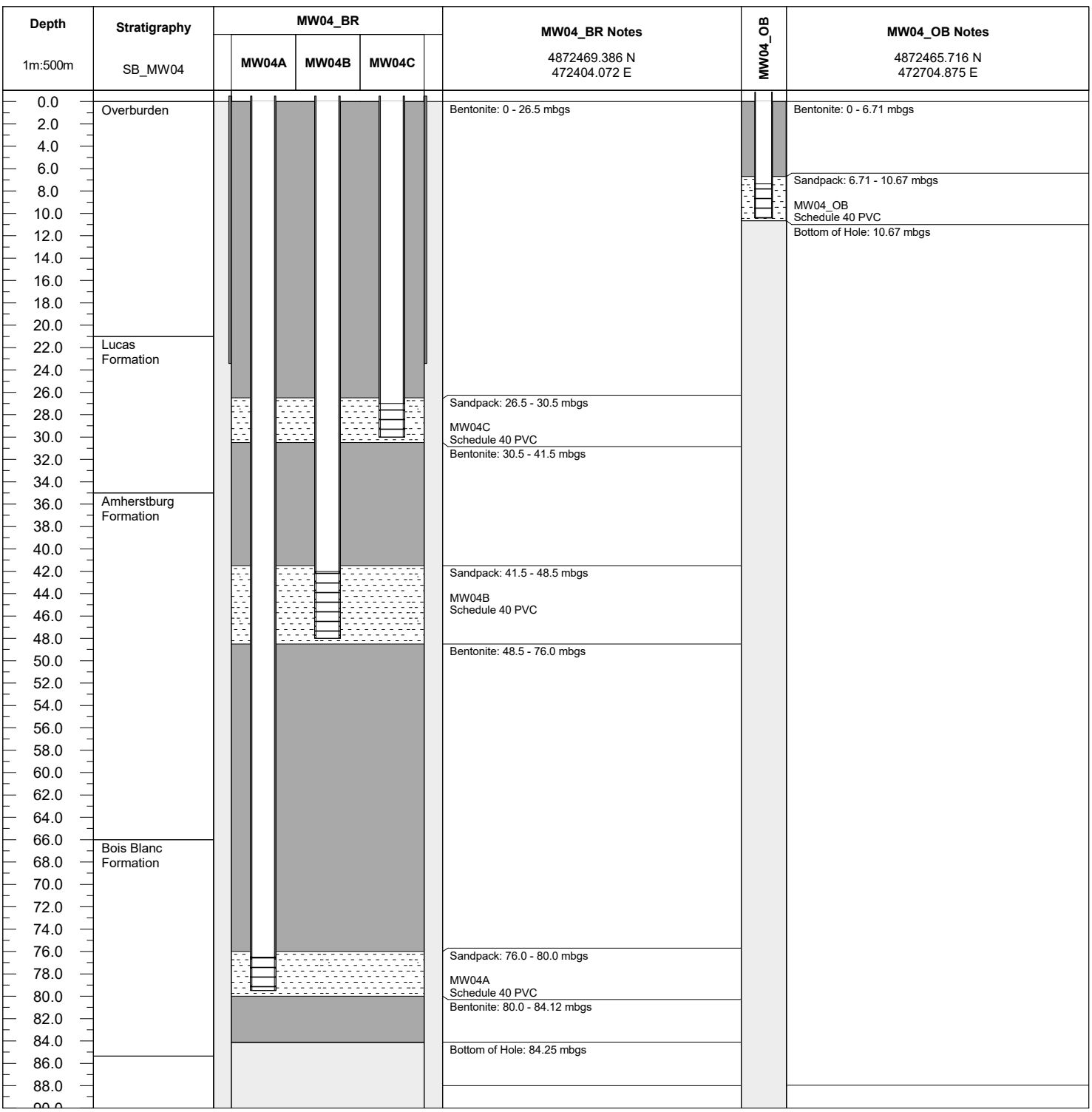
Casing Stickup (m): MW04_OB: 0.86 / MW04_BR: 0.90

Ground Surface Elevation (m asl): MW04_OB: 284.43 / MW04_BR: 284.66

MW Install Date(s): MW04_OB: Oct 22, 2021 / MW04_BR: Dec 15-17, 2021

Comments:

Document Tracking
Created by: CRS
Checked by: SNS
File Name: SB_MW04_WellCompletion_R1



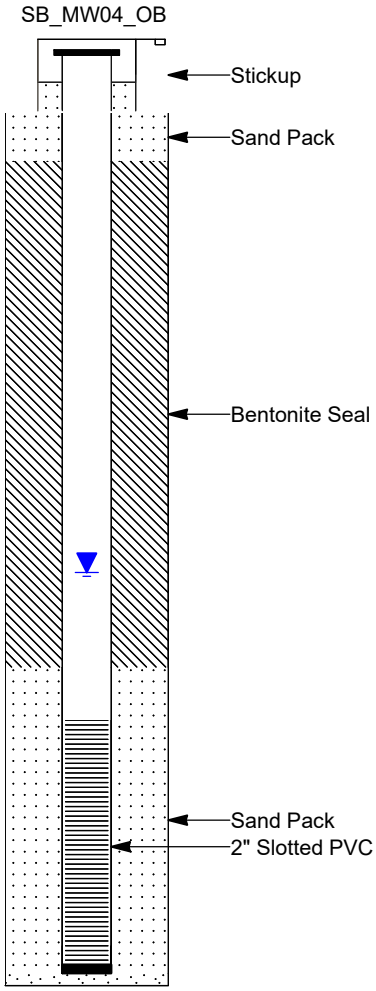
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW04_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 472704.875E, 4872465.716N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324233
Date Completed: October 19-22, 2021
Supervisor: GDB
Logged By: Alex Cachunjua
Ground Surface Elevation: 284.43
Date of Water Level Measurement: 15 February 2022

DEPTH BGS (ft / m)	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION
0 / 0							GROUND SURFACE
0 – 2 / 0 – 0.6				--	--		TOPSOIL poorly sorted silt with fine sand and gravel, loose, brown, dry
2 – 12 / 0.6 – 3.7				--	--		SILT with sand and gravel, fine to medium grained, red, light brown, dry
12 – 50 / 3.7 – 15.2				--	--		SAND with gravel, medium grained, light brown wet fine to medium grained



Prepared By: TKG
Reviewed By: GDB
Doc Revision: R1
Template: GEOFIRMA_TEMPLATE.GDT

GEOFIRMA ENGINEERING

BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW04_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 472704.875E, 4872465.716N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324233
Date Completed: October 19-22, 2021
Supervisor: GDB
Logged By: Alex Cachunjua
Ground Surface Elevation: 284.43
Date of Water Level Measurement: 15 February 2022

DEPTH BGS	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
52				--	--		SAND with gravel, medium grained, light brown *(continued)*	
53	16							
54				--	--			
55								
56	17			--	--			
57								
58				--	--			
59	18							
60								
61				--	--			
62	19							
63								
64				--	--			
65								
66	20							
67				--	--			
68								
69	21						BEDROCK dolostone, Lucas formation, white, wet	Static Water Levels at 5.56 mBGS
70								
71								
72	22						BOREHOLE TERMINATED Total Depth of SB_MW04_OB 20.73 mBGS	
73								
74								
75	23							
76								
77								
78	24							
79								
80								
81	25							
82								
83								
84	26							
85								
86								
87	27							
88								
89								
90	28							
91								
92								
93	29							
94								
95								
96	30							
97								
98								
99	31							
100								
101								
102	32							
103								
104								
105								

Well ID: SB_MW05

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilling Company: Aardvark Drilling Inc.

Total Depth (m): MW05_OB: 22.86 / MW05_BR: 76.15

Surface Completion: MW05_OB: monument / MW05_BR: 8.5in steel casing stickup

Ground Surface Elevation (m asl): MW05_OB: 277.92 / MW05_BR: 277.78

MW Install Date(s): MW05_OB: Oct 26, 2021 / MW05_BR: Dec 6-7, 2021

Drilled Dates: MW05_OB: Oct 25-26, 2021 / MW05_BR: Nov 6-9, 2021

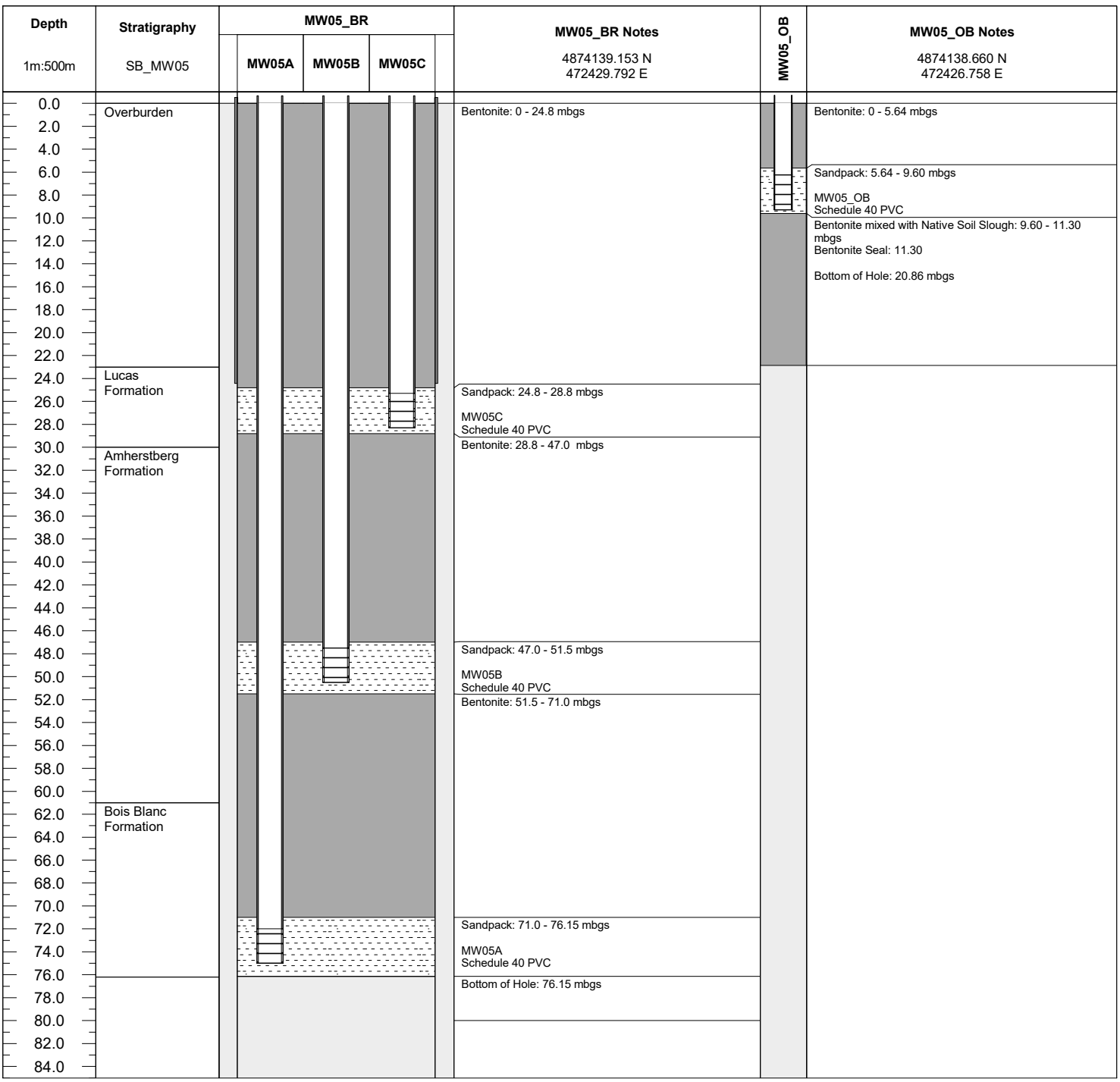
Drilling Method: MW05_OB: hollow stem auger / MW05_BR: dual rotary

Borehole Diameter (m): MW05_OB: 0.2095/ MW05_BR: 0.2032

Casing Stickup (m): MW05_OB: 0.78 / MW05_BR: 0.69

Comments:

Document Tracking
Created by: CRS
Checked by: SNS
File Name: SB_MW05_WellCompletion_R1



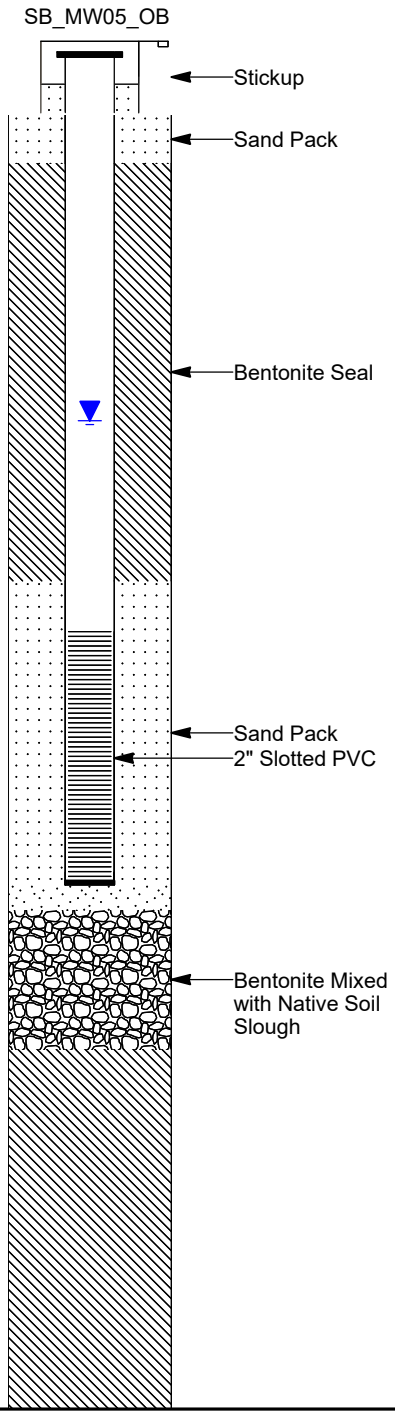
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW05_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 472426.758E, 4874138.660N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324234
Date Completed: October 25-26, 2021
Supervisor: GDB
Logged By: Jessica Weller
Ground Surface Elevation: 277.92
Date of Water Level Measurement: 15 February 2022

DEPTH BGS (ft / m)	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION
0 / 0							GROUND SURFACE
0 – 2 / 0 – 1				--	--		TOPSOIL poorly sorted silt with fine sand and gravel, loose, brown, dry
2 – 7 / 1 – 2				--	--		SILT with clay, red, light brown, dry
7 – 25 / 2 – 8				--	--		SAND with gravel, light brown
25 – 45 / 8 – 14				--	--		SILT with sand, wet
45 – 50 / 14 – 15				--	--		SILT with some sand and gravel, and trace clay



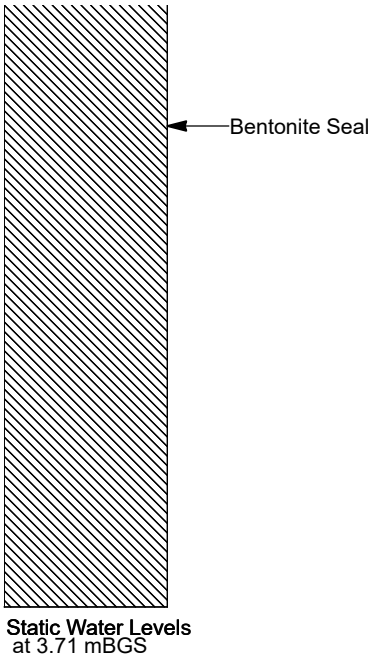
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW05_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 472426.758E, 4874138.660N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324234
Date Completed: October 25-26, 2021
Supervisor: GDB
Logged By: Jessica Weller
Ground Surface Elevation: 277.92
Date of Water Level Measurement: 15 February 2022

DEPTH BGS	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
52				--	--		SILT with some sand and gravel, and trace clay *(continued)*	
53	16							
54				--	--			
55								
56	17			--	--			
57								
58				--	--			
59	18							
60				--	--			
61								
62	19			--	--			
63								
64				--	--			
65								
66	20			--	--			
67								
68				--	--			
69	21							
70				--	--			
71								
72	22			--	--			
73								
74				--	--			
75							BEDROCK dolostone, Lucas formation, white	
76	23							
77								
78								
79	24						BOREHOLE TERMINATED Total Depth of SB_MW05_OB 22.86 mBGS	
80								
81								
82	25							
83								
84								
85	26							
86								
87								
88	27							
89								
90								
91	28							
92								
93								
94	29							
95								
96								
97	30							
98								
99								
100	31							
101								
102								
103	32							
104								
105								



Prepared By: TKG
Reviewed By: GDB
Doc Revision: R1
Template: GEOFIRMA_TEMPLATE.GDT

GEOFIRMA ENGINEERING

Well ID: SB_MW06

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilled Dates: MW06_OB: Oct 28, 2021 / MW06_BR: Dec 8-13, 2021

Drilling Company: Aardvark Drilling Inc. & Highland Drilling

Drilling Method: MW06_OB: hollow stem auger / MW06_BR: dual rotary

Total Depth (m): MW06_OB: 30.33 / MW06_BR: 86.11

Borehole Diameter (m): MW06_OB: 0.2095 / MW06_BR: 0.2032

Surface Completion: MW06_OB: monument / MW06_BR: 8.5in steel casing stickup

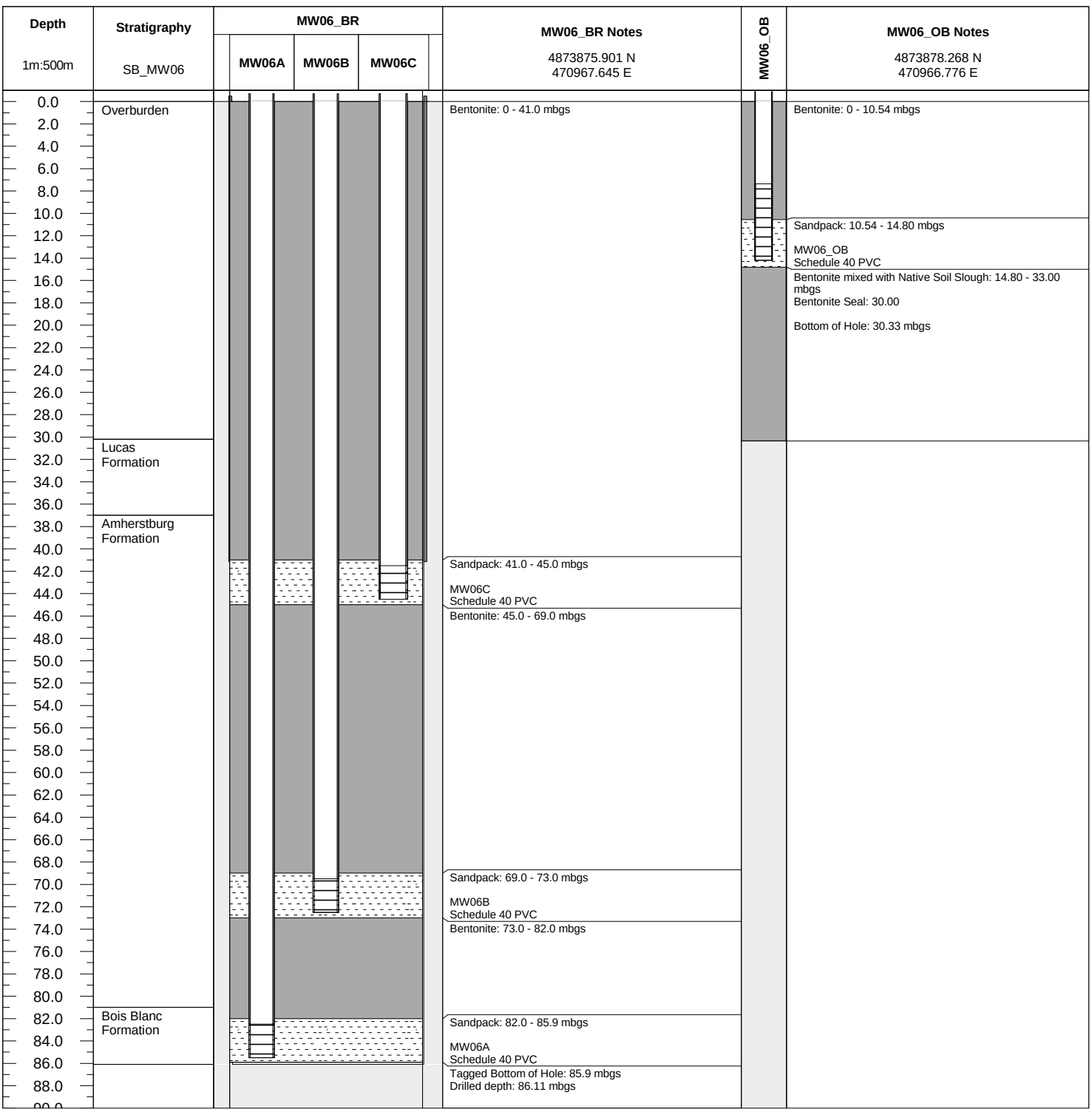
Casing Stickup (m): MW06_OB: 0.91 / MW06_BR: 0.81

Ground Surface Elevation (m asl): MW06_OB: 286.46 / MW06_BR: 286.29

MW Install Date(s): MW06_OB: Oct 29, 2021 / MW06_BR: Dec 17-20, 2021

Comments:
SB_MW06_BR-B was decomissioned in Dec 2022 and replaced with monitoring interval SB_MW09_BR-B.

Document Tracking
Created by: CRS
Checked by: SNS
File Name: SB_MW06_WellCompletion_R2



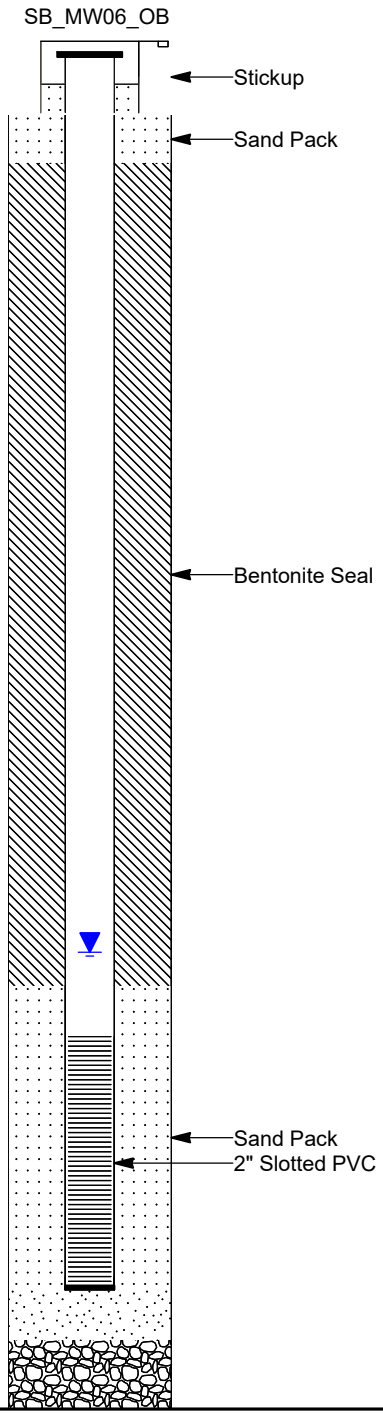
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW06_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 470966.776E, 4873878.268N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324236
Date Completed: October 28, 2021
Supervisor: GDB
Logged By: Jessica Weller
Ground Surface Elevation: 286.46
Date of Water Level Measurement: 15 February 2022

DEPTH BGS (ft / m)	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION
0 / 0							GROUND SURFACE
0 – 2 / 0 – 1				--	--		TOPSOIL with organics, some sand and gravel, dark brown, dry
2 – 4 / 1 – 1.5				--	--		SAND with silt and some gravel, light brown, dry
4 – 26 / 1.5 – 8				--	--		
26 – 28 / 8 – 8.5				--	--		light brown to grey
28 – 30 / 8.5 – 9				--	--		
30 – 32 / 9 – 9.5				--	--		brown, moist
32 – 34 / 9.5 – 10				--	--		wet
34 – 50 / 10 – 15				--	--		



BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW06_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 470966.776E, 4873878.268N (UTM Zone 18))
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324236
Date Completed: October 28, 2021
Supervisor: GDB
Logged By: Jessica Weller
Ground Surface Elevation: 286.46
Date of Water Level Measurement: 15 February 2022

DEPTH BGS	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
52–65	16–19			--	--		SAND with silt and some gravel, light brown, dry *(continued)*	
65–66	20						No split spoon sampling below 19.81m. Augured to bedrock surface. Geology logged from augur cuttings.	
72–79	22–24						Silt with clay	Bentonite Mixed with Native Soil Slough
80–99	25–30						SAND with silt	
100–105	31–32						BEDROCK dolostone, Lucas formation, white BOREHOLE TERMINATED Total Depth of SB_MW06_OB 30.33 mBGS	Bentonite Seal Static Water Levels at 10.11 mBGS

Well ID: SB_MW07

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilled Dates: MW07_OB: Oct 27, 2021 / MW07_BR: Dec 17, 2021

Drilling Company: Aardvark Drilling Inc. & Highland Drilling

Drilling Method: MW07_OB: hollow stem auger / MW07_BR: dual rotary

Total Depth (m): MW07_OB: 12.80 / MW07_BR: 90.68

Borehole Diameter (m): MW07_OB: 0.2095 / MW07_BR: 0.2032

Surface Completion: MW07_OB: monument / MW07_BR: 8.5in steel casing stickup

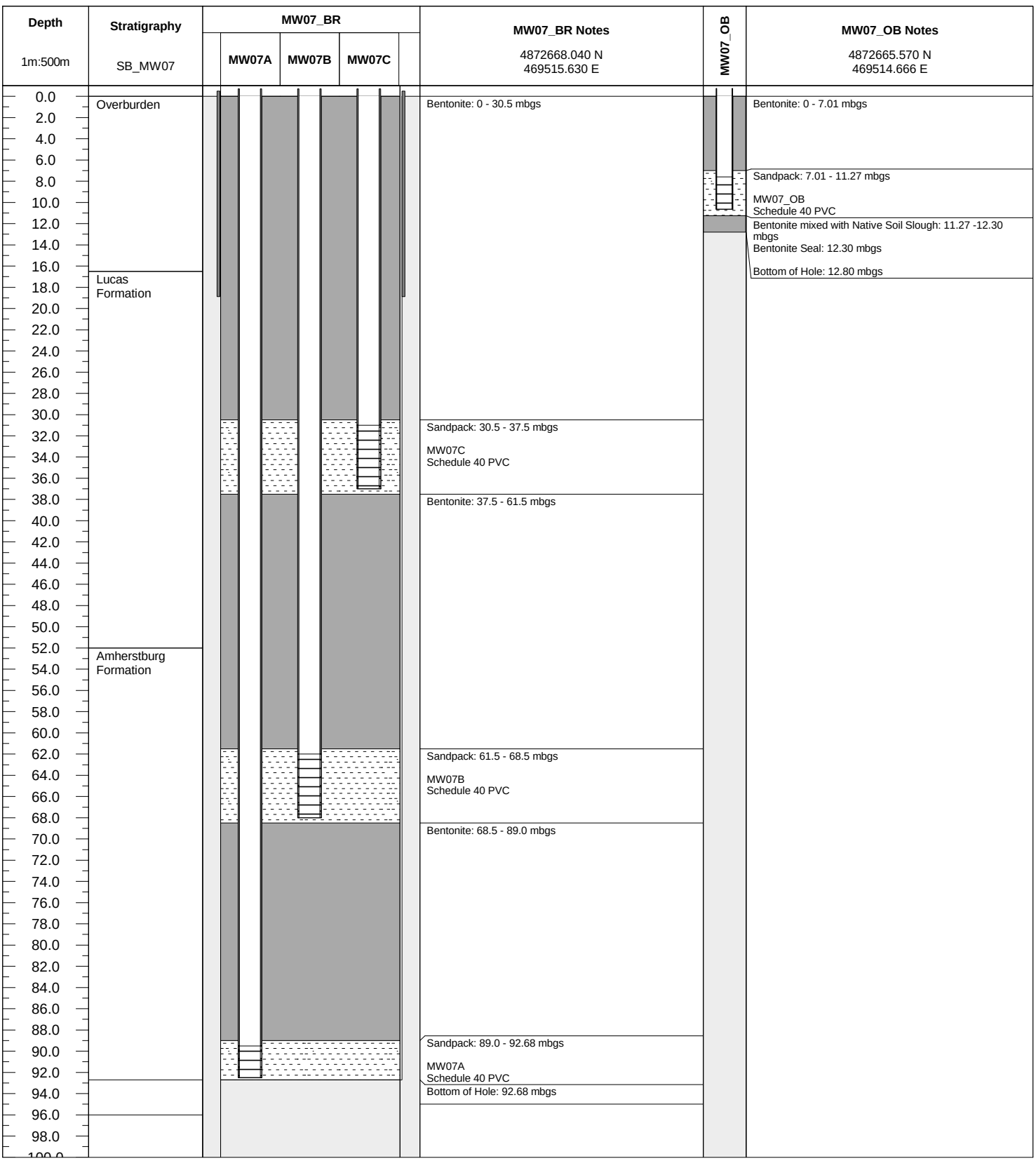
Casing Stickup (m): MW07_OB: 0.73 / MW07_BR: 0.51

Ground Surface Elevation (m asl): MW07_OB: 301.96 / MW07_BR: 301.65

MW Install Date(s): MW07_OB: Oct 27, 2021 / MW07_BR: Jan 11-12, 2022

Comments:

Document Tracking
Created by: CRS
Checked by: SNS
File Name: SB_MW07_WellCompletion_R2



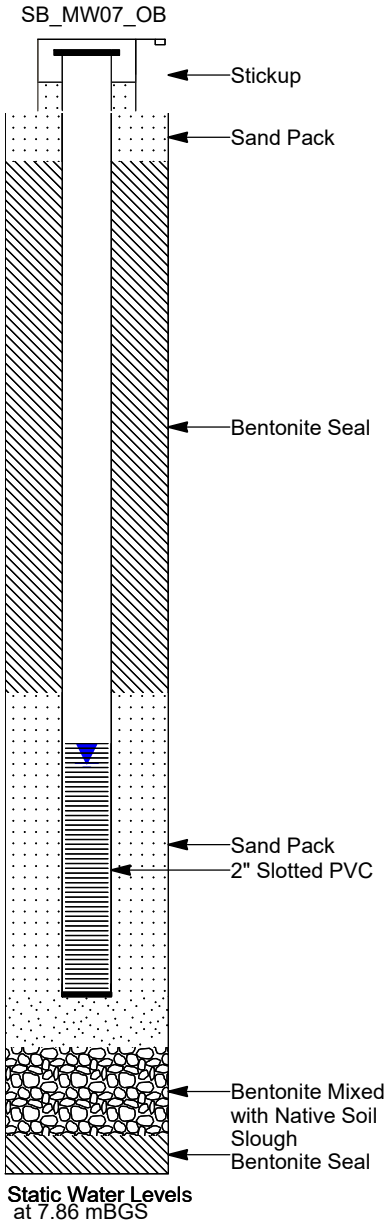
BOREHOLE STRATIGRAPHIC AND INSTRUMENTATION LOG

Borehole Number: SB_MW07_OB

Project Number: 21-223-1
Client: Nuclear Waste Management Organization
Site Location: South Bruce
Coordinates: 469514.666E, 4872665.570N (UTM Zone 18)
Drilling Method: Hollow Stem Auger / Split Spoon
Drilling Rig: CME 75

MOE Well ID: A324235
Date Completed: October 27, 2021
Supervisor: GDB
Logged By: Jessica Weller
Ground Surface Elevation: 301.96
Date of Water Level Measurement: 15 February 2022

DEPTH BGS (ft / m)	SAMPLES	LAB SAMPLE	BLOW COUNT	CGI (ppm)	PID (ppm)	LOG	STRATIGRAPHIC DESCRIPTION
0 / 0							GROUND SURFACE
0 – 3 / 0 – 1				--	--		TOPSOIL with organics, some sand and gravel, loose, light brown, dry
3 – 13 / 1 – 4				--	--		SAND with silt and some gravel, coarse grained, brown, dry
13 – 21 / 4 – 6				--	--		SAND with silt, well sorted, fine grained, light brown
21 – 26 / 6 – 8				--	--		moist
26 – 39 / 8 – 12				--	--		Saturated
39 – 42 / 12 – 13				--	--		brown
42 / 13							BEDROCK dolostone, Lucas formation
							BOREHOLE TERMINATED Total Depth of SB_MW07_OB 12.80 mBGS



Prepared By: TKG
Reviewed By: GDB
Doc Revision: R1
Template: GEOFIRMA_TEMPLATE.GDT

GEOFIRMA ENGINEERING

Well ID: SB_MW09_BR-B

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilled Dates: December 13-14, 2022

Drilling Company: Steffen Drilling

Drilling Method: Dual Rotary

Total Depth (m): 73.2

Borehole Diameter (m): 0.1524

Surface Completion: 6" Steel casing stickup

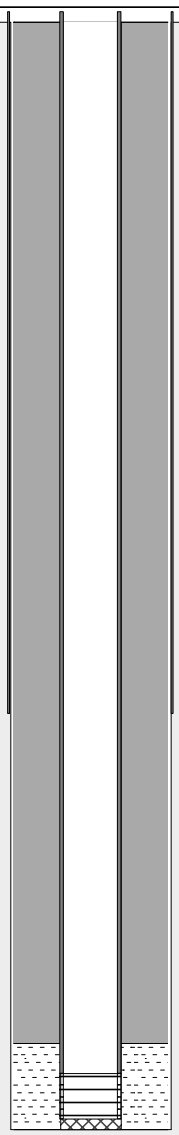
Casing Stickup (m): 0.72

Ground Surface Elevation (m asl): 286.71

MW Install Date(s): December 14, 2022

Document Tracking	
Created by:	CAM
Checked by:	GDB
File Name:	SB_MW09_WellCompletion_R0

Depth (1m:500m)	Stratigraphy (SB_MW06)	Well Completion	MW09_BR-B Notes
0.0 – 28.0	Overburden	Bentonite: 0 - 67.5	
30.0 – 36.0	Lucas Formation		
38.0 – 80.0	Amherstburg Formation	Sandpack: 67.5-73.2 mbgs Screen: 69.5-72.5 mbgs Interval SB_MW09_BR-B Schedule 40 PVC (50.8mm, 2" diameter)	
82.0 – 86.0	Bois Blanc Formation		



Appendix C

Data Quality Workbooks

GEOFIRMA ENGINEERING

South Bruce Monitoring Well Network Installation

DQC Workbook

WPB Borehole Drilling and Logging

GEOFIRMA ENGINEERING

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB & SB_MW02_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-14	9:30	CJS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:169, LEL:93, O2:16.4	N	--	--	--	
2021-10-14	11:00	AMC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999.9g,5999.9g	N	--	--	--	
2021-10-15	7:30	CJS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:100, LEL:15.1, O2:14	N	--	--	--	
2021-10-17	11:00	SCE	Ohaus Scale	8342066132	--	--	N	4000g	4000g	Y	
2021-10-18	8:14	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5999g	N	--	--	--	
2021-10-18	14:45	MEOR	Air monitor	195845			N	--	--	--	Calibration check completed
2021-10-19	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3000g,5999g	N	4000g	4000g	Y	
2021-10-19	14:45	SCE	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-20	7:15	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5998g	N	--	--	--	
2021-10-20	7:15	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-21	7:30	SCE	Air monitor	195845	--	--	Y	--	--	Y	Calibration performed
2021-10-21	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-22	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-22	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.009ppb,10.25ppb, 98.53ppb,399.2ppb	Y	
2021-10-22	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-25	8:30	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-26	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2997g,5992g	N	--	--	--	
2021-10-26	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-26	8:30	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb,10.30ppb, 99.50ppb,399.0ppb	Y	
2021-10-27	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-27	7:00	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-27	7:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 98.98ppb,399.7ppb	Y	
2021-10-28	8:20	CJS	Sound Monitor	3311044	114 dB	109dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-28	7:10	CJS	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-28	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.96, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-28	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-28	8:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.012ppb,10.33ppb, 98.8ppb,399.3ppb	Y	
2021-10-29	8:30	CJS	Sound Monitor	3311044	114 dB	111 dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-29	7:30	CJS	Altair 5X Air Monitor	00115938	--	--	N	--	--	--	Bump test completed
2021-10-29	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.00, pH 4.01, pH 9.98, & Cond 1410 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB & SB_MW02_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-29	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.23ppb, 99.53ppb, 398.7ppb	Y	
2021-10-29	15:15	LIM	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-30	7:30	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-30	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.99, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-30	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-10-31	16:30	LIM	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5995g	N	--	--	--	
2021-10-31	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-31	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-11-01	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.005ppb, 10.35ppb, 103.2ppb, 397.2ppb	Y	
2021-11-01	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-01	8:00	CC	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.06, pH 4.14, pH 10.26, & Cond 1413 uS/cm	Y	
2021-11-02	2:40	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5997g	N	--	--	--	
2021-11-02	7:15	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014ppb, 10.25ppb, 100.2ppb, 398.2ppb	Y	
2021-11-02	7:20	MdK	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-03	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-04	10:15	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated; used at MW02 site for WPC activities
2021-11-05	7:05	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-05	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-06	7:20	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:07	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	4.0 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated
2021-11-07	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.017ppb, 10.18ppb, 99.25ppb, 399.9ppb	Y	
2021-11-07	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-07	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 4.01, pH 10.04, & Cond 1406 uS/cm	Y	
2021-11-08	3:00	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-08	7:00	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007ppb, 10.26ppb, 99.71ppb, 398.7ppb	Y	
2021-11-08	7:10	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB & SB_MW02_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-08	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.06, pH 4.05, pH 10.05, & Cond 1414 uS/cm	Y	
2021-11-09	12:10	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-09	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.00ppb, 10.25ppb, 98.85ppb, 399.7ppb	Y	
2021-11-09	7:05	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-10	1:37	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5996g	N	--	--	--	
2021-11-10	7:26	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated; used for WPC
2021-11-11	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-12	7:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-15	9:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.95, pH 4.01, pH 10.00, & Cond 1418 uS/cm	Y	
2021-11-16	15:30	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	34.9 ppb	Y	
2021-11-16	9:00	CJS	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:10	CJS	Casella Sound Monitor	3311044	114 dB	113.2 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-17	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.00, pH 3.98, pH 10.01, & Cond 1413 uS/cm	Y	
2021-11-17	7:50	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.40 ppb	Y	
2021-11-17	7:00	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-17	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-18	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.09, pH 10.00, & Cond 1414 uS/cm	Y	
2021-11-18	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.10 ppb	Y	
2021-11-18	6:25	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-18	6:40	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-19	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.10, pH 10.02, & Cond 1414 uS/cm	Y	
2021-11-19	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.4 ppb	Y	
2021-11-19	6:45	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB & SB_MW02_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-19	6:55	JKW	Casella Sound Monitor	3311044	114 dB	113.7 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-20	7:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 3.99, pH 10.18, & Cond 1414 uS/cm	Y	
2021-11-20	7:00	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	36.07	Y	
2021-11-20	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-20	6:55	CJS	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-22	10:36	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.04, pH 10.09, & Cond 1414 uS/cm	Y	
2021-11-22	10:47	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	33.76	Y	
2021-11-22	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-22	10:36	CDC	Casella Sound Monitor	3311044	114 dB	113.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-23	9:57	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.99, pH 4.00, pH 10.00, & Cond 1416 uS/cm	Y	
2021-11-23	10:10	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (35.3ppb)	34.45	Y	
2021-11-23	10:20	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-10	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-10	7:00	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 9.997ppb, 100.2ppb, 398.7ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB & SB_MW02_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-12-10	8:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-10	7:35	JKW	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-13	7:35	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-13	7:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.046ppb, 10.22ppb, 101.1ppb, 397.9ppb	Y	
2021-12-13	7:20	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-13	7:30	JKW	Casella Sound Monitor	3311044	114 dB	114.0 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-14	11:00	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.80, pH 4.15, pH 10.01, & Cond 1414 uS/cm	Y	
2021-12-14	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.31ppb, 101.5ppb, 396.4ppb	Y	
2021-12-14	10:50	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-14	11:20	JKW	Casella Sound Monitor	3311044	114 dB	114.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-15	7:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.90, pH 3.97, pH 9.90, & Cond 1410 uS/cm	Y	
2021-12-15	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.002, 10.26, 100.8, 397.9 ppb	Y	
2021-12-15	7:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-15	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.8 dB	Y	114dB Calibration Device	114 dB	Y	
2022-01-20	7:31	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Yes	
2022-01-20	7:31	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.38, 102.2, 397.4 ppb	Yes	
2022-01-21	7:35	FJH/LIM	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.98 pH, 4.52 mS/cm, 0.0 NTU	Yes	
2022-01-21	7:35	FJH/LIM	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014, 10.27, 101.7, 396.9 ppb	Yes	
2022-01-22	7:55	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.98 pH, 4.49 mS/cm, 0.0 NTU	Yes	
2022-01-22	8:40	FJH	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.003, 10.25, 100.0, 398.3 ppb	Yes	
2022-01-23	7:30	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.40 pH, 4.49 mS/cm, 0.0 NTU	Yes	Also completed a manual DO % calibration
2022-01-23	7:45	FJH	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.12, 100.0, 399.6 ppb	Yes	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB & SB_MW02_BR	General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2022-03-02	7:20	MdK	AquaFluor	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.006, 10.46, 97.95, 399.9	Yes	
2022-03-02	7:20	MdK	Horiba	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49mS/cm, 0.0 NTU	Yes	
2022-06-23	10:20	MdK	AquaFluor	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.43, 98.82, 399.7	Yes	
2022-06-23	10:20	MdK	Horiba	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.01 pH, 4.49mS/cm, 0.0 NTU	Yes	

Completed by:	JKW	Verified by:	AMSC
Date:	2021-12-13	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-14	9:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:169, LEL:93, O2:16.4	N	--	--	--	
2021-10-14	11:00	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g, 2999.9g, 5999.9g	N	--	--	--	
2021-10-15	7:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:100, LEL:15.1, O2:14	N	--	--	--	
2021-10-17	11:00	SCE	Ohaus Scale	8342066132	--	--	Y	4000g	4000g	Y	
2021-10-18	8:14	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5999g	N	--	--	--	
2021-10-18	14:45	MEOR	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-19	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3000g,5999g	Y	4000g	4000g	Y	
2021-10-19	14:45	SCE	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-20	7:15	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5998g	N	--	--	--	
2021-10-20	7:15	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-21	7:30	SCE	Air monitor	195845	--	--	Y	--	--	Y	Calibration performed
2021-10-21	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-22	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-22	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.009ppb,10.25ppb, 98.53ppb,399.2ppb	Y	
2021-10-22	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-25	8:30	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-26	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2997g,5992g	N	--	--	--	
2021-10-26	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-26	8:30	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb,10.30ppb, 99.50ppb,399.0ppb	Y	
2021-10-27	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-27	7:00	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-27	7:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 98.98ppb,399.7ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-28	8:20	CJS	Sound Monitor	3311044	114 dB	109dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-28	7:10	CJS	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-28	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.96, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-28	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-28	8:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.012ppb,10.33ppb, 98.8ppb,399.3ppb	Y	
2021-10-29	8:30	CJS	Sound Monitor	3311044	114 dB	111 dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-29	7:30	CJS	Altair 5X Air Monitor	00115938	--	--	N	--	--	--	Bump test completed
2021-10-29	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.00, pH 4.01, pH 9.98, & Cond 1410 uS/cm	Y	
2021-10-29	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.23ppb, 99.53ppb, 398.7ppb	Y	
2021-10-29	15:15	LIM	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-30	7:30	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-30	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.99, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-30	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-10-31	16:30	LIM	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5995g	N	--	--	--	
2021-10-31	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-31	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-11-01	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.005ppb, 10.35ppb, 103.2ppb, 397.2ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	**General Comments:**	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-01	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-01	8:00	CC	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.06, pH 4.14, pH 10.26, & Cond 1413 uS/cm	Y	
2021-11-02	2:40	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5997g	N	--	--	--	
2021-11-02	7:15	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014ppb, 10.25ppb, 100.2ppb, 398.2ppb	Y	
2021-11-02	7:20	MdK	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-03	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-04	10:15	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated; used at MW02 site for WPC activities
2021-11-05	7:05	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-05	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-06	7:20	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:07	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	4.0 pH, 4.49 mS/cm, 0.0 NTU	4.0 pH, 4.49 mS/cm, 0.0 NTU	Y	
2021-11-07	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.017ppb, 10.18ppb, 99.25ppb, 399.9ppb	Y	
2021-11-07	7:00	FJH	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-07	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 4.01, pH 10.04, & Cond 1406 uS/cm	Y	
2021-11-08	3:00	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-08	7:00	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007ppb, 10.26ppb, 99.71ppb, 398.7ppb	Y	
2021-11-08	7:10	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-08	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.06, pH 4.05, pH 10.05, & Cond 1414 uS/cm	Y	
2021-11-09	12:10	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-09	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.00ppb, 10.25ppb, 98.85ppb, 399.7ppb	Y	
2021-11-09	7:05	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-10	1:37	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5996g	N	--	--	--	
2021-11-10	7:26	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated; used for WPC
2021-11-11	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-12	7:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-15	9:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.95, pH 4.01, pH 10.00, & Cond 1418 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-16	15:30	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	34.9 ppb	Y	
2021-11-16	9:00	CJS	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:10	CJS	Casella Sound Monitor	3311044	114 dB	113.2 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-17	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.00, pH 3.98, pH 10.01, & Cond 1413 uS/cm	Y	
2021-11-17	7:50	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.40 ppb	Y	
2021-11-17	7:00	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-17	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-18	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.09, pH 10.00, & Cond 1414 uS/cm	Y	
2021-11-18	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.10 ppb	Y	
2021-11-18	6:25	JKW	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-18	6:40	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-19	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.10, pH 10.02, & Cond 1414 uS/cm	Y	
2021-11-19	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.4 ppb	Y	
2021-11-19	6:45	JKW	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-19	6:55	JKW	Casella Sound Monitor	3311044	114 dB	113.7 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-20	7:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 3.99, pH 10.18, & Cond 1414 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-20	7:00	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	36.07	Y	
2021-11-20	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-20	6:55	CJS	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-22	10:36	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.04, pH 10.09, & Cond 1414 uS/cm	Y	
2021-11-22	10:47	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	33.76	Y	
2021-11-22	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-22	10:36	CDC	Casella Sound Monitor	3311044	114 dB	113.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-23	9:57	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.99, pH 4.00, pH 10.00, & Cond 1416 uS/cm	Y	
2021-11-23	10:10	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (35.3ppb)	34.45	Y	
2021-11-23	10:20	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-12-10	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-10	7:00	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 9.997ppb, 100.2ppb, 398.7ppb	Y	
2021-12-10	8:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-10	7:35	JKW	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-13	7:35	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-13	7:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.046ppb, 10.22ppb, 101.1ppb, 397.9ppb	Y	
2021-12-13	7:20	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-13	7:30	JKW	Casella Sound Monitor	3311044	114 dB	114.0 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-14	11:00	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.80, pH 4.15, pH 10.01, & Cond 1414 uS/cm	Y	
2021-12-14	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.31ppb, 101.5ppb, 396.4ppb	Y	
2021-12-14	10:50	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-14	11:20	JKW	Casella Sound Monitor	3311044	114 dB	114.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-15	7:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.90, pH 3.97, pH 9.90, & Cond 1410 uS/cm	Y	
2021-12-15	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.002, 10.26, 100.8, 397.9 ppb	Y	
2021-12-15	7:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-15	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.8 dB	Y	114dB Calibration Device	114 dB	Y	
2022-01-27	7:15	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2022-01-27	7:15	LIM	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.013, 10.38, 100.8, 397.8 ppb	Y	
2022-01-28	7:20	BFS/LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-28	7:20	KBT	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.031, 10.28, 100.1, 398.6 ppb	Y	
2022-02-23	7:05	MdK	Horiba	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49mS/cm, 0.0 NTU	Y	
2022-02-23	7:05	MdK	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.38, 98.32, 399.7 ppb	Y	
2022-02-24	7:10	MdK	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007, 10.48, 102.4, 396.3 ppb	Y	
2022-02-24	7:10	MdK	Horiba	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.50mS/cm, 0.0 NTU	Y	

Completed by:	LIM	Verified by:	AMSC
Date:	2022-02-27	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Borehole ID:	SB_MW04_OB & SB_MW04_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-14	9:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:169, LEL:93, O2:16.4	N	--	--	--	
2021-10-14	11:00	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999.9g,5999.9g	N	--	--	--	
2021-10-15	7:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:100, LEL:15.1, O2:14	N	--	--	--	
2021-10-17	11:00	SCE	Ohaus Scale	8342066132	--	--	Y	4000g	4000g	Y	
2021-10-18	8:14	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5999g	N	--	--	--	
2021-10-18	14:45	MEOR	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-19	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3000g,5999g	N	4000g	4000g	Y	
2021-10-19	14:45	SCE	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-20	7:15	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5998g	N	--	--	--	
2021-10-20	7:15	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-21	7:30	SCE	Air monitor	195845	--	--	Y	--	--	Y	Calibration performed
2021-10-21	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-22	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-22	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.009ppb,10.25ppb, 98.53ppb,399.2ppb	Y	
2021-10-22	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-25	8:30	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-26	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2997g,5992g	N	--	--	--	
2021-10-26	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-26	8:30	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb,10.30ppb, 99.50ppb,399.0ppb	Y	
2021-10-27	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-27	7:00	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-27	7:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 98.98ppb,399.7ppb	Y	
2021-10-28	8:20	CJS	Sound Monitor	3311044	114 dB	109dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-28	7:10	CJS	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-28	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.96, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-28	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-28	8:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.012ppb,10.33ppb, 98.8ppb,399.3ppb	Y	
2021-10-29	8:30	CJS	Sound Monitor	3311044	114 dB	111 dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-29	7:30	CJS	Altair 5X Air Monitor	00115938	--	--	N	--	--	--	Bump test completed
2021-10-29	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.00, pH 4.01, pH 9.98, & Cond 1410 uS/cm	Y	
2021-10-29	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.23ppb, 99.53ppb, 398.7ppb	Y	
2021-10-29	15:15	LIM	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID: SB_MW04_OB & SB_MW04_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-30	7:30	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-30	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.99, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-30	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-10-31	16:30	LIM	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5995g	N	--	--	--	
2021-10-31	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-31	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-11-01	7:10	LIM	Fluorometer	807511				4 standard solutions	0.005ppb, 10.35ppb, 103.2ppb, 397.2ppb	Y	
2021-11-01	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-01	8:00	CC	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.06, pH 4.14, pH 10.26, & Cond 1413 uS/cm	Y	
2021-11-02	2:40	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5997g	N	--	--	--	
2021-11-02	7:15	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014ppb, 10.25ppb, 100.2ppb, 398.2ppb	Y	
2021-11-02	7:20	MdK	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-03	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-04	10:15	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated; used at MW02 site for WPC activities
2021-11-05	7:05	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-05	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-06	7:20	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:07	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.0 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated
2021-11-07	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.017ppb, 10.18ppb, 99.25ppb, 399.9ppb	Y	
2021-11-07	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-07	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 4.01, pH 10.04, & Cond 1406 uS/cm	Y	
2021-11-08	3:00	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-08	7:00	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007ppb, 10.26ppb, 99.71ppb, 398.7ppb	Y	
2021-11-08	7:10	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-08	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.06, pH 4.05, pH 10.05, & Cond 1414 uS/cm	Y	
2021-11-09	12:10	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-09	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.00ppb, 10.25ppb, 98.85ppb, 399.7ppb	Y	
2021-11-09	7:05	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-10	1:37	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5996g	N	--	--	--	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW04_OB & SB_MW04_BR	General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-10	7:26	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated; used for WPC
2021-11-11	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-12	7:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-15	9:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.95, pH 4.01, pH 10.00, & Cond 1418 uS/cm	Y	
2021-11-16	15:30	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	34.9 ppb	Y	
2021-11-16	9:00	CJS	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:10	CJS	Casella Sound Monitor	3311044	114 dB	113.2 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-17	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.00, pH 3.98, pH 10.01, & Cond 1413 uS/cm	Y	
2021-11-17	7:50	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.40 ppb	Y	
2021-11-17	7:00	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-17	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-18	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.09, pH 10.00, & Cond 1414 uS/cm	Y	
2021-11-18	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.10 ppb	Y	
2021-11-18	6:25	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-18	6:40	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-19	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.10, pH 10.02, & Cond 1414 uS/cm	Y	
2021-11-19	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.4 ppb	Y	
2021-11-19	6:45	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-19	6:55	JKW	Casella Sound Monitor	3311044	114 dB	113.7 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-20	7:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 3.99, pH 10.18, & Cond 1414 uS/cm	Y	
2021-11-20	7:00	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	36.07	Y	
2021-11-20	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-20	6:55	CJS	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Borehole ID:	SB_MW04_OB & SB_MW04_BR	**General Comments:**	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-22	10:36	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.04, pH 10.09, & Cond 1414 uS/cm	Y	
2021-11-22	10:47	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	33.76	Y	
2021-11-22	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-22	10:36	CDC	Casella Sound Monitor	3311044	114 dB	113.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-23	9:57	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.99, pH 4.00, pH 10.00, & Cond 1416 uS/cm	Y	
2021-11-23	10:10	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (35.3ppb)	34.45	Y	
2021-11-23	10:20	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-10	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-10	7:00	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 9.997ppb, 100.2ppb, 398.7ppb	Y	
2021-12-10	8:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-10	7:35	JKW	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-13	7:35	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-13	7:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.046ppb, 10.22ppb, 101.1ppb, 397.9ppb	Y	
2021-12-13	7:20	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-13	7:30	JKW	Casella Sound Monitor	3311044	114 dB	114.0 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-14	11:00	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.80, pH 4.15, pH 10.01, & Cond 1414 uS/cm	Y	
2021-12-14	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.31ppb, 101.5ppb, 396.4ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW04_OB & SB_MW04_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-12-14	10:50	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-14	11:20	JKW	Casella Sound Monitor	3311044	114 dB	114.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-15	7:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.90, pH 3.97, pH 9.90, & Cond 1410 uS/cm	Y	
2021-12-15	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.002, 10.26, 100.8, 397.9 ppb	Y	
2021-12-15	7:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-15	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.8 dB	Y	114dB Calibration Device	114 dB	Y	
2022-01-10	7:55	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-10	7:55	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.033, 10.39, 101.1, 398.3 ppb	Y	
2022-01-11	7:20	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-11	7:20	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.005, 10.28, 101.9, 397.6 ppb	Y	
2022-01-12	7:24	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.02pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-12	7:24	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.021, 10.23, 100.8, 400.0 ppb	Y	
2022-01-13	7:38	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00pH, 4.52 mS/cm, 0.0 NTU	Y	
2022-01-13	7:38	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.028, 10.24, 100.5, 398.3 ppb	Y	

Completed by:	LIM	Verified by:	AMSC
Date:	2022-02-27	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB & SB_MW05_BR	**General Comments:**	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-14	9:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:169, LEL:93, O2:16.4	N	--	--	--	
2021-10-14	11:00	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999.9g,5999.9g	N	--	--	--	
2021-10-15	7:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:100, LEL:15.1, O2:14	N	--	--	--	
2021-10-17	11:00	SCE	Ohaus Scale	8342066132	--	--	Y	4000g	4000g	Y	
2021-10-18	8:14	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5999g	N	--	--	--	
2021-10-18	14:45	MEOR	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-19	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3000g,5999g	N	4000g	4000g	Y	
2021-10-19	14:45	SCE	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-20	7:15	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5998g	N	--	--	--	
2021-10-20	7:15	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-21	7:30	SCE	Air monitor	195845	--	--	Y	--	--	Y	Calibration performed
2021-10-21	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb,101.0ppb,393.9ppb	Y	
2021-10-22	7:30	SCE	Air monitor	195845	--	--	N	--	--	N	Bump test completed
2021-10-22	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.009ppb,10.25ppb, 98.53ppb,399.2ppb	Y	
2021-10-22	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-25	8:30	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-26	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2997g,5992g	N	--	--	--	
2021-10-26	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-26	8:30	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb,10.30ppb, 99.50ppb,399.0ppb	Y	
2021-10-27	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-27	7:00	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-27	7:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 98.98ppb,399.7ppb	Y	
2021-10-28	8:20	CJS	Sound Monitor	3311044	114 dB	109dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-28	7:10	CJS	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-28	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.96, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-28	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-28	8:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.012ppb,10.33ppb, 98.8ppb,399.3ppb	Y	
2021-10-29	8:30	CJS	Sound Monitor	3311044	114 dB	111 dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-29	7:30	CJS	Altair 5X Air Monitor	00115938	--	--	N	--	--	--	Bump test completed

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB & SB_MW05_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-10-29	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.00, pH 4.01, pH 9.98, & Cond 1410 uS/cm	Y	
2021-10-29	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.23ppb, 99.53ppb, 398.7ppb	Y	
2021-10-29	15:15	LIM	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-30	7:30	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-30	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.99, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-30	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-10-31	16:30	LIM	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5995g	N	--	--	--	
2021-10-31	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-31	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-11-01	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.005ppb, 10.35ppb, 103.2ppb, 397.2ppb	Y	
2021-11-01	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-01	8:00	CC	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.06, pH 4.14, pH 10.26, & Cond 1413 uS/cm	Y	
2021-11-02	2:40	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5997g	N	--	--	--	
2021-11-02	7:15	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014ppb, 10.25ppb, 100.2ppb, 398.2ppb	Y	
2021-11-02	7:20	MdK	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-03	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-04	10:15	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated; used at MW02 site for WPC activities
2021-11-05	7:05	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-05	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-06	7:20	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:07	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.0 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated
2021-11-07	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.017ppb, 10.18ppb, 99.25ppb, 399.9ppb	Y	
2021-11-07	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-07	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 4.01, pH 10.04, & Cond 1406 uS/cm	Y	
2021-11-08	3:00	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB & SB_MW05_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-08	7:00	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007ppb, 10.26ppb, 99.71ppb, 398.7ppb	Y	
2021-11-08	7:10	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-08	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.06, pH 4.05, pH 10.05, & Cond 1414 uS/cm	Y	
2021-11-09	12:10	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-09	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.00ppb, 10.25ppb, 98.85ppb, 399.7ppb	Y	
2021-11-09	7:05	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump test completed
2021-11-10	1:37	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5996g	N	--	--	--	
2021-11-10	7:26	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated; used for WPC
2021-11-11	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-12	7:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-15	9:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.95, pH 4.01, pH 10.00, & Cond 1418 uS/cm	Y	
2021-11-16	15:30	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	34.9 ppb	Y	
2021-11-16	9:00	CJS	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-16	8:10	CJS	Casella Sound Monitor	3311044	114 dB	113.2 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-17	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.00, pH 3.98, pH 10.01, & Cond 1413 uS/cm	Y	
2021-11-17	7:50	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.40 ppb	Y	
2021-11-17	7:00	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-17	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-18	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.09, pH 10.00, & Cond 1414 uS/cm	Y	
2021-11-18	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.10 ppb	Y	
2021-11-18	6:25	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-18	6:40	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-19	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.10, pH 10.02, & Cond 1414 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB & SB_MW05_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-11-19	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.4 ppb	Y	
2021-11-19	6:45	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-19	6:55	JKW	Casella Sound Monitor	3311044	114 dB	113.7 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-20	7:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 3.99, pH 10.18, & Cond 1414 uS/cm	Y	
2021-11-20	7:00	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	36.07	Y	
2021-11-20	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-20	6:55	CJS	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-22	10:36	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.04, pH 10.09, & Cond 1414 uS/cm	Y	
2021-11-22	10:47	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	33.76	Y	
2021-11-22	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-11-22	10:36	CDC	Casella Sound Monitor	3311044	114 dB	113.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-23	9:57	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.99, pH 4.00, pH 10.00, & Cond 1416 uS/cm	Y	
2021-11-23	10:10	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (35.3ppb)	34.45	Y	
2021-11-23	10:20	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB & SB_MW05_BR	**General Comments:**	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2021-12-10	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-10	7:00	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 9.997ppb, 100.2ppb, 398.7ppb	Y	
2021-12-10	8:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-10	7:35	JKW	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-13	7:35	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-13	7:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.046ppb, 10.22ppb, 101.1ppb, 397.9ppb	Y	
2021-12-13	7:20	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-13	7:30	JKW	Casella Sound Monitor	3311044	114 dB	114.0 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-14	11:00	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.80, pH 4.15, pH 10.01, & Cond 1414 uS/cm	Y	
2021-12-14	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.31ppb, 101.5ppb, 396.4ppb	Y	
2021-12-14	10:50	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-14	11:20	JKW	Casella Sound Monitor	3311044	114 dB	114.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-15	7:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.90, pH 3.97, pH 9.90, & Cond 1410 uS/cm	Y	
2021-12-15	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.002, 10.26, 100.8, 397.9 ppb	Y	
2021-12-15	7:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	Y	Bump Test Completed
2021-12-15	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.8 dB	Y	114dB Calibration Device	114 dB	Y	
2022-01-23	7:30	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.40 pH, 4.49 mS/cm, 0.0 NTU	Y	Also completed a manual DO % calibration
2022-01-23	7:45	FJH	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.12, 100.0, 399.6 ppb	Y	
2022-01-24	7:30	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.40 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-24	7:45	FJH	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 9.696, 100.5, 398.8 ppb	Y	
2022-01-25	7:30	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.01 pH, 4.48 mS/cm, 0.0 NTU	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB & SB_MW05_BR	**General Comments:**	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2022-01-25	7:30	FJH	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.024, 10.24, 101.2, 397.2 ppb	Y	
2022-01-26	7:20	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-26	7:20	LIM	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.20, 100.5, 399.5 ppb	Y	
2022-01-27	7:15	LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-27	7:15	LIM	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.013, 10.38, 100.8, 397.8 ppb	Y	
2022-01-28	7:20	BFS/LIM	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-28	7:20	KBT	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.031, 10.28, 100.1, 398.6 ppb	Y	
2022-01-29	7:29	FJH	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-29	7:12	KBT	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.067, 10.47, 103.8, 395.8 ppb	Y	
2022-01-30	7:26	FJH	Horiba	RHE67A2F	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-30	7:31	KBT	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.004, 10.35, 103.0, 395.5 ppb	Y	

Completed by:	JKW, LIM	Verified by:	AMSC
Date:	2022-01-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-10-14	9:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:169, LEL:93, O2:16.4	N	--	--	--	
2021-10-14	11:00	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999.9g,5999.9g	N	--	--	--	
2021-10-15	7:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:100, LEL:15.1, O2:14	N	--	--	--	
2021-10-17	11:00	SCE	Ohaus Scale	8342066132	--	--	Y	4000g	4000g	Y	
2021-10-18	8:14	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5999g	N	--	--	--	
2021-10-18	14:45	MEOR	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-19	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3000g,5999g	N	4000g	4000g	Y	
2021-10-19	14:45	SCE	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-20	7:15	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5998g	N	--	--	--	
2021-10-20	7:15	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-21	7:30	SCE	Air monitor	195845	--	--	Y	--	--	Y	Calibration performed
2021-10-21	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb,101.0ppb,393.9ppb	Y	
2021-10-22	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-22	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.009ppb,10.25ppb,98.53ppb,399.2ppb	Y	
2021-10-22	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-25	8:30	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb,101.0ppb,393.9ppb	Y	
2021-10-26	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2997g,5992g	N	--	--	--	
2021-10-26	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-26	8:30	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb,10.30ppb,99.50ppb,399.0ppb	Y	
2021-10-27	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-27	7:00	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-27	7:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb,98.98ppb,399.7ppb	Y	
2021-10-28	8:20	CJS	Sound Monitor	3311044	114 dB	109dB	Y	114dB Calibration Device	114 dB	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-10-28	7:10	CJS	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-28	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.96, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-28	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-28	8:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.012ppb,10.33ppb, 98.8ppb,399.3ppb	Y	
2021-10-29	8:30	CJS	Sound Monitor	3311044	114 dB	111 dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-29	7:30	CJS	Altair 5X Air Monitor	00115938	--	--	N	--	--	--	Bump test completed
2021-10-29	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.00, pH 4.01, pH 9.98, & Cond 1410 uS/cm	Y	
2021-10-29	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.23ppb, 99.53ppb, 398.7ppb	Y	
2021-10-29	15:15	LIM	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-30	7:30	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-30	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.99, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-30	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-10-31	16:30	LIM	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5995g	N	--	--	--	
2021-10-31	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-31	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-11-01	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.005ppb, 10.35ppb, 103.2ppb, 397.2ppb	Y	
2021-11-01	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-01	8:00	CC	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.06, pH 4.14, pH 10.26, & Cond 1413 uS/cm	Y	
2021-11-02	2:40	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5997g	N	--	--	--	
2021-11-02	7:15	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014ppb, 10.25ppb, 100.2ppb, 398.2ppb	Y	
2021-11-02	7:20	MdK	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-03	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-04	10:15	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated; used at MW02 site for WPC activities
2021-11-05	7:05	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-05	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-06	7:20	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:07	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.0 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated
2021-11-07	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.017ppb, 10.18ppb, 99.25ppb, 399.9ppb	Y	
2021-11-07	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump test completed
2021-11-07	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 4.01, pH 10.04, & Cond 1406 uS/cm	Y	
2021-11-08	3:00	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-08	7:00	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007ppb, 10.26ppb, 99.71ppb, 398.7ppb	Y	
2021-11-08	7:10	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump test completed
2021-11-08	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.06, pH 4.05, pH 10.05, & Cond 1414 uS/cm	Y	
2021-11-09	12:10	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-09	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.00ppb, 10.25ppb, 98.85ppb, 399.7ppb	Y	
2021-11-09	7:05	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump test completed
2021-11-10	1:37	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5996g	N	--	--	--	
2021-11-10	7:26	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated; used for WPC
2021-11-11	7:00	FJH	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-12	7:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-15	9:00	KC	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-16	8:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.95, pH 4.01, pH 10.00, & Cond 1418 uS/cm	Y	
2021-11-16	15:30	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	34.9 ppb	Y	
2021-11-16	9:00	CJS	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-16	8:10	CJS	Casella Sound Monitor	3311044	114 dB	113.2 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-17	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.00, pH 3.98, pH 10.01, & Cond 1413 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-17	7:50	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.40 ppb	Y	
2021-11-17	7:00	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-17	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-18	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.09, pH 10.00, & Cond 1414 uS/cm	Y	
2021-11-18	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.10 ppb	Y	
2021-11-18	6:25	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-18	6:40	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-19	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.10, pH 10.02, & Cond 1414 uS/cm	Y	
2021-11-19	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.4 ppb	Y	
2021-11-19	6:45	JKW	Altair 4X Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-19	6:55	JKW	Casella Sound Monitor	3311044	114 dB	113.7 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-20	7:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 3.99, pH 10.18, & Cond 1414 uS/cm	Y	
2021-11-20	7:00	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	36.07	Y	
2021-11-20	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-20	6:55	CJS	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-22	10:36	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.04, pH 10.09, & Cond 1414 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	General Comments:	

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-22	10:47	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	33.76	Y	
2021-11-22	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-11-22	10:36	CDC	Casella Sound Monitor	3311044	114 dB	113.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-23	9:57	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.99, pH 4.00, pH 10.00, & Cond 1416 uS/cm	Y	
2021-11-23	10:10	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (35.3ppb)	34.45	Y	
2021-11-23	10:20	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-10	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-10	7:00	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 9.997ppb, 100.2ppb, 398.7ppb	Y	
2021-12-10	8:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-10	7:35	JKW	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-13	7:35	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-13	7:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.046ppb, 10.22ppb, 101.1ppb, 397.9ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB & SB_MW06_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-12-13	7:20	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-13	7:30	JKW	Casella Sound Monitor	3311044	114 dB	114.0 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-14	11:00	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.80, pH 4.15, pH 10.01, & Cond 1414 uS/cm	Y	
2021-12-14	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.31ppb, 101.5ppb, 396.4ppb	Y	
2021-12-14	10:50	JKW	RKI GX-2021 Air Monitor	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-14	11:20	JKW	Casella Sound Monitor	3311044	114 dB	114.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-15	7:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.90, pH 3.97, pH 9.90, & Cond 1410 uS/cm	Y	
2021-12-15	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.002, 10.26, 100.8, 397.9 ppb	Y	
2021-12-15	7:15	JKW	RKI GX-2021 Air Monito	195845	--	--	Y	--	--	--	Bump Test Completed
2021-12-15	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.8 dB	Y	114dB Calibration Device	114 dB	Y	
2022-01-18	7:26	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Yes	
2022-01-18	7:30	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.09, 100.2, 399.6 ppb	Yes	
2022-01-19	7:24	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00 pH, 4.49 mS/cm, 0.0 NTU	Yes	
2022-01-19	7:24	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.04, 101.9, 397.4 ppb	Yes	

Completed by:	JKW, JLB	Verified by:	AMSC
Date:	2022-01-19	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)

Project Number: 21-223-1

EQUIPMENT CALIBRATION DATA SHEET

Borehole ID: SB_MW07_OB & SB_MW07_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-10-14	9:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:169, LEL:93, O2:16.4	N	--	--	--	
2021-10-14	11:00	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999.9g,5999.9g	N	--	--	--	
2021-10-15	7:30	CS	GasAlert Microclip XL	KA418-1109742	CO, CH4, O2, N2	CO:100, LEL:15.1, O2:14	N	--	--	--	
2021-10-17	11:00	SCE	Ohaus Scale	8342066132	--	--	Y	4000g	4000g	Y	
2021-10-18	8:14	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5999g	N	--	--	--	
2021-10-18	14:45	MEOR	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-19	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3000g,5999g	N	4000g	4000g	Y	
2021-10-19	14:45	SCE	Air monitor	195845	--	--	N	--	--	--	Calibration check completed
2021-10-20	7:15	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5998g	N	--	--	--	
2021-10-20	7:15	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-21	7:30	SCE	Air monitor	195845	--	--	Y	--	--	Y	Calibration performed
2021-10-21	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-22	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-22	8:20	DNB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.009ppb,10.25ppb, 98.53ppb,399.2ppb	Y	
2021-10-22	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,3001g,5999g	N	--	--	--	
2021-10-25	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-25	8:30	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 101.0ppb,393.9ppb	Y	
2021-10-26	7:30	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2997g,5992g	N	--	--	--	
2021-10-26	7:30	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-26	8:30	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb,10.30ppb, 99.50ppb,399.0ppb	Y	
2021-10-27	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-27	7:00	SCE	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-27	7:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.11ppb, 98.98ppb,399.7ppb	Y	
2021-10-28	8:20	CJS	Sound Monitor	3311044	114 dB	109dB	Y	114dB Calibration Device	114 dB	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID: SB_MW07_OB & SB_MW07_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-10-28	7:10	CJS	Air monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-28	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.96, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-28	7:00	SCE	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-28	8:00	SCE	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.012ppb,10.33ppb, 98.8ppb,399.3ppb	Y	
2021-10-29	8:30	CJS	Sound Monitor	3311044	114 dB	111 dB	Y	114dB Calibration Device	114 dB	Y	
2021-10-29	7:30	CJS	Altair 5X Air Monitor	00115938	--	--	N	--	--	--	Bump test completed
2021-10-29	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.00, pH 4.01, pH 9.98, & Cond 1410 uS/cm	Y	
2021-10-29	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.23ppb, 99.53ppb, 398.7ppb	Y	
2021-10-29	15:15	LIM	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2998g,5995g	N	--	--	--	
2021-10-30	7:30	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-30	10:00	CJS	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 6.99, pH 4.00, pH 9.99, & Cond 1410 uS/cm	Y	
2021-10-30	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-10-31	16:30	LIM	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5995g	N	--	--	--	
2021-10-31	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-10-31	7:15	MdK	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.19ppb, 101.1ppb, 397.6ppb	Y	
2021-11-01	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.005ppb, 10.35ppb, 103.2ppb, 397.2ppb	Y	
2021-11-01	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID: SB_MW07_OB & SB_MW07_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-01	8:00	CC	YSI Meter	12H102489	--	--	Y	pH 7.01, pH 4.00, pH 10.00, & Cond 1418 uS/cm	pH 7.06, pH 4.14, pH 10.26, & Cond 1413 uS/cm	Y	
2021-11-02	2:40	AC	Ohaus Scale	8342066132	1000g,3000g,6000g	1000g,2999g,5997g	N	--	--	--	
2021-11-02	7:15	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.014ppb, 10.25ppb, 100.2ppb, 398.2ppb	Y	
2021-11-02	7:20	MdK	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-03	7:15	LIM	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-04	10:15	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated; used at MW02 site for WPC activities
2021-11-05	7:05	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-05	7:10	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:15	LIM	Altair 4X Air Monitor	195845	--	--	Y	--	--	Y	Auto calibrated
2021-11-06	7:20	LIM	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.018ppb, 10.31ppb, 99.68ppb, 399.2ppb	Y	
2021-11-06	7:07	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.0 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated
2021-11-07	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.017ppb, 10.18ppb, 99.25ppb, 399.9ppb	Y	
2021-11-07	7:00	FJH	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-07	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 4.01, pH 10.04, & Cond 1406 uS/cm	Y	
2021-11-08	3:00	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID: SB_MW07_OB & SB_MW07_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-08	7:00	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.007ppb, 10.26ppb, 99.71ppb, 398.7ppb	Y	
2021-11-08	7:10	FJH	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump test completed
2021-11-08	9:55	LIM/FJH	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.06, pH 4.05, pH 10.05, & Cond 1414 uS/cm	Y	
2021-11-09	12:10	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2998g, 5995g	N	--	--	--	
2021-11-09	6:55	FJH	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.00ppb, 10.25ppb, 98.85ppb, 399.7ppb	Y	
2021-11-09	7:05	FJH	Altair 4X Air Monitor	195845	--	--	n	--	--	--	Bump test completed
2021-11-10	1:37	OCSC	Ohaus Scale	8342066132	1000g, 3000g, 6000g	1000g, 2999g, 5996g	N	--	--	--	
2021-11-10	7:26	FJH	Horiba multiparameter probe	40H7XHMF	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	Auto calibrated; used for WPC
2021-11-11	7:00	FJH	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-12	7:00	KC	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-15	9:00	KC	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-16	8:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.95, pH 4.01, pH 10.00, & Cond 1418 uS/cm	Y	
2021-11-16	15:30	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	34.9 ppb	Y	
2021-11-16	9:00	CJS	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-16	8:10	CJS	Casella Sound Monitor	3311044	114 dB	113.2 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-17	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.00, pH 3.98, pH 10.01, & Cond 1413 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID: SB_MW07_OB & SB_MW07_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-17	7:50	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.40 ppb	Y	
2021-11-17	7:00	JKW	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-17	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-18	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.09, pH 10.00, & Cond 1414 uS/cm	Y	
2021-11-18	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.10 ppb	Y	
2021-11-18	6:25	JKW	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-18	6:40	JKW	Casella Sound Monitor	3311044	114 dB	113.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-19	6:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.10, pH 10.02, & Cond 1414 uS/cm	Y	
2021-11-19	6:30	JKW	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	35.4 ppb	Y	
2021-11-19	6:45	JKW	Altair 4X Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-19	6:55	JKW	Casella Sound Monitor	3311044	114 dB	113.7 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-20	7:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.03, pH 3.99, pH 10.18, & Cond 1414 uS/cm	Y	
2021-11-20	7:00	CJS	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	36.07	Y	
2021-11-20	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-20	6:55	CJS	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-22	10:36	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.01, pH 4.04, pH 10.09, & Cond 1414 uS/cm	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID: SB_MW07_OB & SB_MW07_BR

General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-11-22	10:47	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (33.7ppb)	33.76	Y	
2021-11-22	7:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-11-22	10:36	CDC	Casella Sound Monitor	3311044	114 dB	113.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-11-23	9:57	CDC	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.99, pH 4.00, pH 10.00, & Cond 1416 uS/cm	Y	
2021-11-23	10:10	CDC	Fluorometer	807511	--	--	Y	1 Manufacturer-Supplied Standard Solution (35.3ppb)	34.45	Y	
2021-11-23	10:20	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-08	14:00	CJS	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 7.02, pH 4.00, pH 10.00, & Cond 1414 uS/cm	Y	
2021-12-08	7:35	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 10.19ppb, 98.39ppb, 400.4ppb	Y	
2021-12-08	9:00	CJS	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-10	7:10	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-10	7:00	MT	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.001ppb, 9.997ppb, 100.2ppb, 398.7ppb	Y	
2021-12-10	8:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-10	7:35	JKW	Casella Sound Monitor	3311044	114 dB	114.3 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-13	7:35	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.98, pH 4.00, pH 10.02, & Cond 1415 uS/cm	Y	
2021-12-13	7:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.046ppb, 10.22ppb, 101.1ppb, 397.9ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW07_OB & SB_MW07_BR	General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2021-12-13	7:20	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-13	7:30	JKW	Casella Sound Monitor	3311044	114 dB	114.0 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-14	11:00	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.80, pH 4.15, pH 10.01, & Cond 1414 uS/cm	Y	
2021-12-14	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb, 10.31ppb, 101.5ppb, 396.4ppb	Y	
2021-12-14	10:50	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-14	11:20	JKW	Casella Sound Monitor	3311044	114 dB	114.5 dB	Y	114dB Calibration Device	114 dB	Y	
2021-12-15	7:30	JKW	YSI Meter	11G100358	--	--	Y	pH 7.00, pH 4.01, pH 10.00, & Cond 1413 uS/cm	pH 6.90, pH 3.97, pH 9.90, & Cond 1410 uS/cm	Y	
2021-12-15	11:00	LMB	Fluorometer	807511	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.002, 10.26, 100.8, 397.9 ppb	Y	
2021-12-15	7:15	JKW	RKI GX-2021 Air Monitor	195845	--	--	N	--	--	--	Bump Test Completed
2021-12-15	7:10	JKW	Casella Sound Monitor	3311044	114 dB	113.8 dB	Y	114dB Calibration Device	114 dB	Y	
2022-01-13	7:38	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00pH, 4.52 mS/cm, 0.0 NTU	Y	
2022-01-13	7:38	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.028, 10.24, 100.5, 398.3 ppb	Y	
2022-01-14	7:22	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	4.00pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-14	7:22	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.013, 10.47, 101.9, 398.70 ppb	Y	
2022-01-15	7:25	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.51 mS/cm, 0.0 NTU	Y	
2022-01-15	7:27	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.19, 99.73, 399.9 ppb	Y	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW07_OB & SB_MW07_BR	General Comments:

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed	
2022-01-16	7:34	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.98 pH, 4.49 mS/cm, 0.0 NTU	Y	
2022-01-16	7:34	JLB/LMB	AquaFluor	807513	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.044, 10.21, 98.51, 400.1 ppb	Y	
2022-01-17	7:21	JLB/LMB	Horiba	P1RCDHHU	--	--	Y	Auto Calibration (pH 4.0, 4.49mS/cm, 0.0 NTU)	3.99 pH, 4.49 mS/cm, 0.0 NTU	Y	

Completed by:	LIM	Verified by:	AMSC
Date:	2022-02-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB (Drilling) and WPD (MW Installation / Testing)
EQUIPMENT CALIBRATION DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW09_BR	**General Comments:**

Date	Time	Personnel	Equipment Type	Serial Number	Calibration Check			Calibration Performed			Comments
					Check Method & Standard(s) Used	Equipment Reading(s)	Calibration Required (Y/N)	Calibration Method & Standard(s) Used	Equipment Reading(s)	Calibration Completed (Y/N)	
2022-12-13	7:05	TKG	AquaFluor	801434	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000ppb,10.09ppb, 100.7ppb,393.8ppb	Y	
2022-12-13	7:15	TKG	Horiba multiparameter probe	RUOWKNST	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	4.49 mS/cm, pH 4.00, 0.0 NTU	Y	Auto calibrated
2022-12-14	7:30	TKG	AquaFluor	801434	--	--	Y	4 point calibration (0, 10, 100, 400 ppb)	0.000, 10.38, 102.2, 397.4 ppb	Y	
2022-12-14	7:45	TKG	Horiba multiparameter probe	RUOWKNST	--	--	Y	4.49 mS/cm, pH 4.00, 0.0 NTU	4.49 mS/cm, pH 4.01, 0.0 NTU	Y	Auto calibrated

Completed by: TKG	Verified by: GDB
Date: 14-Dec-22	Date: 2022-12-15

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_BR	General Comments:
Multiparameter Probe Serial Number:	YSI (SN.12H102489), Horiba (40H7XHMF)	
Hydrometer Serial Number:	Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Drill Depth (mBGS)	Sampler Initials	Multiparameter Probe				Fluorimeter Measurement (ppb)	Specific Gravity	Comments (sample type, sample collection method, odour, etc)
				Calibrated	Temp (°C)	EC (mS/cm)	pH			
10/28/2021	13:00	13.7 - 14.0	CJS	Y	14.00	0.35	8.29	0.36	--	pH was not required by field program but included as additional information
10/28/2021	13:27	16.8 - 17.1	CJS	Y	14.00	0.35	8.29	14.86	--	
10/28/2021	13:40	19.8 - 20.1	CJS	Y	14.60	0.48	8.91	2.94	--	
10/28/2021	14:15	29.0 - 29.3	CJS	Y	15.00	0.61	8.83	--	--	
10/28/2021	14:27	32.0 - 32.3	CJS	Y	--	--	--	1.33	--	
10/28/2021	14:34	38.1 - 38.4	CJS	Y	13.10	0.38	8.91	--	--	
10/28/2021	14:46	47.2 - 47.5	CJS	Y	12.20	0.56	8.60	1.32	--	
10/28/2021	16:45	56.4 - 56.7	CJS	Y	8.21	0.48	8.21	--	--	
10/29/2021	11:25	65.5 - 65.8	CJS	Y	10.20	0.45	8.13	4.17	--	
10/29/2021	12:35	74.7 - 75.0	CJS	Y	10.70	0.45	8.02	2.95	1.000	
10/30/2021	13:50	83.8 - 84.1	CJS	Y	9.80	0.58	8.07	0.49	1.001	
3/2/2022	9:10	15.2	CJS	Y	11.10	0.74	8.60	--	--	
3/2/2022	9:30	18.3	CJS	Y	10.90	0.64	8.50	--	1.000	
3/2/2022	9:45	21.3	CJS	Y	--	--	--	--	1.000	
3/2/2022	10:15	24.4	CJS	Y	10.64	0.51	8.41	--	1.000	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW02_BR	General Comments:
Multiparameter Probe Serial Number:	YSI (SN.12H102489), Horiba (40H7XHMF)	
Hydrometer Serial Number:	Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Drill Depth (mBGS)	Sampler Initials	Multiparameter Probe				Fluorimeter Measurement (ppb)	Specific Gravity	Comments (sample type, sample collection method, odour, etc)
				Calibrated	Temp (°C)	EC (mS/cm)	pH			
3/2/2022	10:30	27.4	CJS	Y	10.07	0.544	8.42	--	1.000	
3/2/2022	11:15	30.5	CJS	Y	9.66	0.663	9.04	--	1.000	
3/2/2022	11:30	33.5	CJS	Y	11.06	0.555	8.83	--	1.000	
3/2/2022	11:46	36.6	CJS	Y	10.89	0.61	8.80	--	1.000	
3/2/2022	12:00	39.6	CJS	Y	10.78	0.6	8.80	--	1.000	
3/2/2022	12:15	42.7	CJS	Y	11.19	0.485	8.08	--	1.000	
3/2/2022	12:25	45.7	CJS	Y	11.53	0.557	8.58	--	1.000	
3/2/2022	12:35	48.8	CJS	Y	10.31	0.513	8.34	--	1.000	
3/2/2022	12:45	51.8	CJS	Y	11.00	0.546	8.23	--	1.000	
3/2/2022	13:00	54.9	CJS	Y	10.48	0.526	8.03	--	1.000	
3/2/2022	13:15	57.9	CJS	Y	11.20	0.510	8.00	--	1.000	
3/2/2022	13:30	61	CJS	Y	11.37	0.500	7.80	--	1.000	
3/2/2022	13:55	64	CJS	Y	12.31	0.458	7.82	--	1.000	
3/2/2022	14:15	67.1	CJS	Y	13.46	0.460	8.19	--	1.000	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Borehole ID:	SB_MW02_BR	General Comments:
Multiparameter Probe Serial Number:	YSI (SN.12H102489), Horiba (40H7XHMF)	
Hydrometer Serial Number:	Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Drill Depth (mBGS)	Sampler Initials	Multiparameter Probe				Fluorimeter Measurement (ppb)	Specific Gravity	Comments (sample type, sample collection method, odour, etc)
				Calibrated	Temp (°C)	EC (mS/cm)	pH			

Completed by:	CJS / LIM	Verified by:	AMSC
Date:	3/2/2022	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW03_BR	General Comments:
Multiparameter Probe Serial Number:	YSI (SN. 12H102489)	
Hydrometer Serial Number:	Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Sampler Initials:	Multiparameter Probe				Specific Gravity	Fluorescein (ppb)	Comments (sample type, sample collection method, odour, etc)
			Calibrated	Temp (°C)	EC (mS/cm)	TDS (g/L)			
10/31/2021	15:53	LIM	Y	13.0	0.4625	N/A	1.000	6.363	Water in bucket collected with SB_MW03_BR_DC001
11/1/2021	8:53	LIM	Y	12.0	0.3443	N/A	1.000	0.000	Water in bucket collected with SB_MW03_BR_DC006
11/1/2021	9:20	LIM	Y	9.7	0.791	N/A	1.000	1.447	Water in bucket collected with SB_MW03_BR_DC009
11/1/2021	10:40	CC	Y	8.8	0.764	N/A	1.000	0.401	Water in bucket collected with SB_MW03_BR_DC013
11/1/2021	11:18	CC	Y	7.6	0.813	N/A	1.000	0.205	Water in bucket collected with SB_MW03_BR_DC015
11/1/2021	15:40	CC/LIM	Y	8.4	0.834	N/A	1.000	1.724	Water in bucket collected with SB_MW03_BR_DC018

Completed by:	LIM	Verified by:	AMSC
Date:	11/1/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW04_BR	General Comments:
Multiparameter Probe Serial Number:	YSI (11G100358)	
Hydrometer Serial Number:	Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Sampler Initials:	Multiparameter Probe				Specific Gravity	Fluorescein (ppb)	Comments (sample type, sample collection method, odour, etc)
			Calibrated	Temp (°C)	EC (mS/cm)	TDS (g/L)			
11/16/2021	8:35	CJS	Y	6.28	1.27	N/A	0.995	3.469	Water in bucket collected with SB_MW04_BR_DC001
11/16/2021	10:36	JKW	Y	7.76	1.13	N/A	0.993	0.000	Water in bucket collected with SB_MW04_BR_DC003
11/16/2021	11:00	JKW	Y	8.29	1.28	N/A	0.997	0.000	Water in bucket collected with SB_MW04_BR_DC006
11/16/2021	11:26	JKW	Y	8.05	1.37	N/A	0.995	0.000	Water in bucket collected with SB_MW04_BR_DC009
11/16/2021	16:06	JKW	Y	7.95	1.54	N/A	0.993	0.000	Water in bucket collected with SB_MW04_BR_DC0012
11/17/2021	9:48	JKW	Y	8.05	1.63	N/A	0.992	0.000	Water in bucket collected with SB_MW04_BR_DC0015
11/18/2021	7:39	JKW	Y	7.76	1.82	N/A	0.996	1.050	Water in bucket collected with SB_MW04_BR_DC0018
11/18/2021	8:10	JKW	Y	7.82	1.65	N/A	0.0996	0.000	Water in bucket collected with SB_MW04_BR_DC0021

Completed by:	JKW	Verified by:	AMSC
Date:	11/18/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Project Number: 21-223-1

Borehole ID:	SB_MW05_BR
Multiparameter Probe Serial Number:	YSI (SN. 11G100358)
Hydrometer Serial Number:	Durac (SN. 4308182)

General Comments:

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Sampler Initials:	Multiparameter Probe				Specific Gravity	Fluorescein (ppb)	Comments (sample type, sample collection method, odour, etc)
			Calibrated	Temp (°C)	EC (mS/cm)	TDS (g/L)			
11/6/2021	11:02	LIM	Y	10.1	0.518	N/A	1.000	52.94	Return water when washing casing during 8" casing installation once casing was at a depth of 30'
11/6/2021	13:23	LIM	Y	12.2	0.89	N/A	1.000	6.508	Water in bucket collected with SB_MW05_BR_DC003.
11/7/2021	10:39	LIM/FJH	Y	11.6	0.752	N/A	1.000	0.650	Water in bucket collected with SB_MW05_BR_DC006
11/7/2021	13:53	LIM/FJH	Y	11.5	0.88	N/A	1.000	0.092	Water in bucket collected with SB_MW05_BR_DC009
11/7/2021	15:45	LIM/FJH	Y	9.9	0.922	N/A	1.000	0.102	Water in bucket collected with SB_MW05_BR_DC012
11/8/2021	8:32	FJH	Y	9.0	0.765	N/A	1.000	0.598	Water in bucket collected with SB_MW05_BR_DC015
11/8/2021	13:55	LIM/FJH	Y	9.61	0.928	N/A	1.000	0.059	Water in bucket collected with SB_MW05_BR_DC018

Completed by:	LIM	Verified by:	AMSC
Date:	2021/11/09	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Borehole ID: SB_MW06_BR	General Comments:
Multiparameter Probe Serial Number: YS (SN. 11G100358)	
Hydrometer Serial Number: HM-03 Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Sampler Initials:	Multiparameter Probe				Specific Gravity	Fluorescein Concentration (ppb)	Comments (sample type, sample collection method, odour, etc)
			Calibrated	Temp (°C)	EC (mS/cm)	TDS (g/L)			
12/8/2021	14:25	CJS	Y	10.25	0.931	N/A	0.995	0.273	Water in bucket collected with SB_MW06_BR_DC002 (32.3m).
12/8/2021	15:05	CJS	Y	3.42	0.733	N/A	0.996	0.079	Water in bucket collected with SB_MW06_BR_DC004 (36.9m)
12/10/2021	12:05	CJS	Y	9.49	0.884	N/A	0.996	0.016	Water in bucket collected with SB_MW06_BR_DC007 (46.0m)
12/10/2021	12:43	CJS	Y	8.75	1.02	N/A	0.997	.0.095	Water in bucket collected with SB_MW06_BR_DC010 (55.2m)
12/10/2021	13:15	CJS	Y	8.62	1.056	N/A	0.996	0.11	Water in bucket collected with SB_MW06_BR_DC013 (64.3m)
12/10/2021	14:09	CJS	Y	7.49	0.697	N/A	0.997	0.156	Water in bucket collected with SB_MW06_BR_DC016 (73.5m)
12/13/2021	10:05	CJS	Y	7.62	1.062	N/A	0.995	0.084	Water in bucket collected with SB_MW06_BR_DC019 (82.6m)
12/13/2021	11:35	CJS	Y	7.54	1.063	N/A	0.998	0.072	Water in bucket collected from end of purge water after completion of hole (86m)

Completed by:	CJS	Verified by:	AMSC
Date:	12/8/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
FIELD PARAMETER DATA SHEET

Borehole ID:	SB_MW07_BR	General Comments:
Multiparameter Probe Serial Number:	YSI (SN. 11G100358)	
Hydrometer Serial Number:	Durac (SN. 4308182)	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time	Sampler Initials:	Multiparameter Probe				Specific Gravity	Comments (sample type, sample collection method, odour, etc)
			Calibrated	Temp (°C)	EC (mS/cm)	TDS (g/L)		
11/19/2021	11:30	JKW	Y	8.88	0.978	N/A	0.992	Water in bucket collected with SB_MW07_BR_DC001.
11/19/2021	11:45	JKW	Y	9.49	0.845	N/A	0.992	Water in bucket collected with SB_MW07_BR_DC004
11/19/2021	12:34	JKW	Y	8.19	0.836	N/A	0.993	Water in bucket collected with SB_MW07_BR_DC007
11/19/2021	13:00	JKW	Y	8.78	0.876	N/A	0.994	Water in bucket collected with SB_MW07_BR_DC010
11/19/2021	13:29	JKW	Y	8.61	0.824	N/A	0.993	Water in bucket collected with SB_MW07_BR_DC013
11/20/2021	10:55	CJS	Y	8.24	0.852	N/A	0.995	Water in bucket collected with SB_MW07_BR_DC016
11/22/2021	16:57	CJS	Y	7.83	0.866	N/A	0.996	Water in bucket collected with SB_MW07_BR_DC019
12/15/2021	9:30	JKW	Y	8.36	0.918	N/A	0.998	Water in bucket collected with SB_MW07_BR_DC022

Completed by:	JKW/CJS	Verified by:	AMSC
Date:	2021/11/22	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID: SB_MW02_OB & SB_MW02_BR

General Comments:

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Sample Type (Core/Drill Cuttings)	Sample Weight (g)	Geological/Geotechnical Log									
								Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW02_OB_SC001	10/14/2021 13:00	0.0	0.00	2.0	0.61	Split Spoon	612	Unconsolidated sediment- fine grained sand with minor silt/clay and gravel	Sand	Clay	brown	FG Sand (0.125-0.25 mm)	Silt/Clay (<0.062 mm)	Well Rounded	Very Well	Moist	None
SB_MW02_OB_SC002	10/14/2021 13:10	2.5	0.76	4.5	1.37	Split Spoon	833	Topsoil - unconsolidated sediment- predominantly moist fine sand with moist silt at the top. Minor gravel	Sand	Clay	brow-dark brown	FG Sand (0.125-0.25 mm)	Silt/Clay (<0.062 mm)	Well Rounded	Very Well	Moist	None
SB_MW02_OB_SC003	10/14/2021 13:20	5	1.52	7	2.13	Split Spoon	365	First 15 cm is moist, silty sand underlain by moist sand and dry carbonate/calcareous sand	Sand	Clay	medium-light brown	FG Sand (0.125-0.25 mm)	Silt/Clay (<0.062 mm)	Well Rounded	Very Well	Moist	None
SB_MW02_OB_SC004	10/14/2021 13:30	7.5	2.29	9.5	2.90	Split Spoon	1015	First half of split is moist fine grained sand and second half is damp fine grained sand	Sand	Clay	brown	FG Sand (0.125-0.25 mm)	Silt/Clay (<0.062 mm)	Well Rounded	Very Well	Moist	None
SB_MW02_OB_SC005	10/14/2021 13:40	10	3.05	12	3.66	Split Spoon	1133	Light brown-tan carbonate sand; fizzes with acid. First 30 cm is fine grained sand followed by very fine grained sand in second 30cm	Sand	--	Tan	FG Sand (0.125-0.25 mm)	--	Well Rounded	Very Well	Moist	None
SB_MW02_OB_SC006	10/14/2021 13:50	12.5	3.81	14.5	4.42	Split Spoon	1045	Light brown silty carbonate sand with minor gravel	Sand	Gravel	light brown/tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Well Rounded	Very Well	Wet	None
SB_MW02_OB_SC007	10/14/2021 14:00	15	4.57	17	5.18	Split Spoon	1188	Wet- saturated fine grained calcareous sand. First 20cm (4.57-4.77m water saturated zone)	Sand	--	tan	FG Sand (0.125-0.25 mm)	--	Well Rounded	Very Well	Saturated	None
SB_MW02_OB_SC008	10/14/2021 14:10	17.5	5.33	19.5	5.94	Split Spoon	1357	Fine grained calcareous/carbonate sand with minor gravel. Last 10cm is fully saturated with water	Sand	Gravel	medium brown	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Well Rounded	Well	Wet	None
SB_MW02_OB_SC009	10/14/2021 14:20	20	6.10	22	6.71	Split Spoon	1245	Fine-medium grained silty sand with minor gravel	Sand	Gravel	brown	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Well	Wet	None
SB_MW02_OB_SC010	10/14/2021 14:30	22.5	6.86	24.5	7.47	Split Spoon	1532	First 40cm is saturated, fine-medium grained sand and last 20cm is silty sand intermixed with some gravel and glacial till	Sand	Gravel	medium brown	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Moderate	Saturated	None
SB_MW02_OB_SC011	10/14/2021 14:40	25	7.62	27	8.23	Split Spoon	935	Upper 50cm is saturated, fine grained sand and lower 20cm is wet sand intermixed with gravel	Sand	Gravel	tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Well	Saturated	None
SB_MW02_OB_SC012	10/14/2021 14:50	27.5	8.38	29.5	8.99	Split Spoon	1075	Moderate coarse grained calcareous/carbonate sand with poorly sorted sand and gravel.	Sand	Gravel	light brown/tan	CG Sand (0.5-1 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Moderate	Saturated	None
SB_MW02_OB_SC013	10/14/2021 15:10	30	9.14	32	9.75	Split Spoon	929	Saturated gravel with coarse grain silty sand	Gravel	Sand	medium brown	Pebbles/Gravel (2-64 mm)	CG Sand (0.5-1 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW02_OB_SC014	10/14/2021 15:25	32.5	9.91	34	10.36	Split Spoon	1498	First 40 cm is moderately sorted saturated medium-coarse grained sand; last 30cm is saturated silty sand mixed with gravel. Petroliferous smell. Over recovery	Sand	Gravel	brown	CG Sand (0.5-1 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Poor	Saturated	None
SB_MW02_OB_SC015	10/14/2021 15:55	35	10.67	36.5	11.13	Split Spoon	925	Medium-coarse sand with silty sand interbedded and minor gravel	Sand	Gravel	light-medium brown	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Moderate	Saturated	None
SB_MW02_OB_SC016	10/14/2021 16:05	37.5	11.43	39	11.89	Split Spoon	1181	First 45cm is expected heaved sand and last 45 cm is white/brown gravel with some moist silty sand	Gravel	Sand	white/brown	Pebbles/Gravel (2-64 mm)	FG Sand (0.125-0.25 mm)	Sub Angular	Moderate	Saturated	None
SB_MW02_OB_SC017	10/14/2021 16:25	40	12.19	41.5	12.65	Split Spoon	782	First 50cm is expected to be heaved sand; last 20cm is tan gravel with silty sand	Gravel	Sand	white, light brown	Pebbles/Gravel (2-64 mm)	Silt/Clay (<0.062 mm)	Angular	Very Poor	Saturated	None
SB_MW02_OB_SC018	10/15/2021 10:15	44.5	13.56	45.6	13.89	Split Spoon	1073	First 35cm is expected sand heave in the augers; last 10 cm is tan coloured dolostone with characteristics consistent with the Lucas formation (dolostone with some lime mud and some needle-like pores and strong petroliferous). Possible bedrock contact close to this interval, drillers got stuck, maybe on a boulder or at top of bedrock. Will drill another hole 4.2m adjacent to this hole to confirm if it is top of bedrock or just a boulder	Dolostone	Limestone	White / light tan	N/A	N/A	N/A	N/A	Saturated	None
SB_MW02_OB_SC019	10/15/2021 13:05	42	12.80	42.8	13.03	Split Spoon	473	First 50cm is heaved sand and gravel. Last 20cm light tan to cream laminated limestone/dolostone of the Lucas with abundant lime mud and petroliferous smell. This sample is taken from new borehole at 4.2m ENE of original borehole. This borehole was drilled to confirm top of bedrock at 12.8mBGS.	Dolostone	Limestone	light tan-creamy	N/A	N/A	N/A	N/A	Saturated	None
SB_MW02_BR_DC001	10/28/2021 13:10	45	13.72	46	14.02	Drill Cuttings	241	Tan dolostone	Dolostone	--	light brown/tan	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW02_BR_DC002	10/28/2021 13:15	55	16.76	56	17.07	Drill Cuttings	1088	Brown-grey limestone, laminations visible on some fragments	Limestone	--	light greyish brown/tan	N/A	N/A	N/A	N/A	N/A	Strong hydrocarbon
SB_MW02_BR_DC003	10/28/2021 13:40	65	19.81	66	20.12	Drill Cuttings	621	Greyish brown limestone with some dark brown bituminous laminations	Limestone	--	light brown/tan with some medium brown and dark brown	N/A	N/A	N/A	N/A	N/A	Moderate hydrocarbon
SB_MW02_BR_DC004	10/28/2021 13:50	75	22.86	76	23.16	Drill Cuttings	1490	Brown and grey limestone with strong bituminous/petroliferous odour.	Limestone	--	medium brown with some medium-light brownish grey	N/A	N/A	N/A	N/A	N/A	Moderate hydrocarbon
SB_MW02_BR_DC005	10/28/2021 14:00	85	25.91	86	26.21	Drill Cuttings	406	Brownish grey and grey limestone	Limestone	--	medium brownish grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC006	10/28/2021 14:15	95	28.96	96	29.26	Drill Cuttings	80	Grey and brownish grey dolomitic limestone	Limestone	--	medium grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC007	10/28/2021 14:27	105	32.00	106	32.31	Drill Cuttings	16	Medium-dark brown dolomitic limestone with a few lighter limestone fragments	Limestone	--	medium-dark brown	N/A	N/A	N/A	N/A	N/A	Moderate hydrocarbon
SB_MW02_BR_DC008	10/28/2021 14:34	115	35.05	116	35.36	Drill Cuttings	244	Medium brown limestone	Limestone	--	medium brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW02_BR_DC009	10/28/2021 14:46	125	38.10	126	38.40	Drill Cuttings	1352	Medium brown limestone	Limestone	--	medium brown	N/A	N/A	N/A	N/A	N/A	Moderate hydrocarbon
SB_MW02_BR_DC010	10/28/2021 14:51	135	41.15	136	41.45	Drill Cuttings	529	Lighter greyish-brown limestone, medium brown dolomitic limestone with dark brown bituminous bits	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	Moderate hydrocarbon
SB_MW02_BR_DC011	10/28/2021 15:35	145	44.20	146	44.50	Drill Cuttings	188	Light grey limestone	Limestone	--	light grey	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW02_BR_DC012	10/28/2021 15:45	155	47.24	156	47.55	Drill Cuttings	84	Light grey limestone and brown dolomitic (although doesn't react as strongly with HCl) limestone	Limestone	--	dark brown with some lighter brownish grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC013	10/28/2021 16:30	165	50.29	166	50.60	Drill Cuttings	457	Dark brown limestone	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW02_BR_DC014	10/28/2021 16:35	175	53.34	176	53.64	Drill Cuttings	118	Medium-dark brownish grey limestone and light grey limestone with some euhedral calcite crystals	Limestone	--	light and dark grey	N/A	N/A	N/A	N/A	N/A	None

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID: SB_MW02_OB & SB_MW02_BR

General Comments:

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Sample Type (Core/Drill Cuttings)	Sample Weight (g)	Geological/Geotechnical Log									
								Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW02_BR_DC015	10/28/2021 16:45	185	56.39	186	56.69	Drill Cuttings	98	Medium-dark brownish grey limestone and light limestone	Limestone	--	light and dark grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC016	10/28/2021 17:00	195	59.44	196	59.74	Drill Cuttings	388	Medium brownish grey dolostone and light grey limestone, some pebble-sized fragments of brownish grey dolostone are pitted/vuggy	Dolostone	Limestone	light grey and medium brownish grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC017	10/29/2021 11:15	205	62.48	206	62.79	Drill Cuttings	863	Medium brownish grey dolomitic limestone and light grey limestone, some pebble-sized fragments of brownish grey dolostone are pitted/vuggy	Limestone	--	medium brownish grey with some light grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC018	10/29/2021 11:25	215	65.53	216	65.84	Drill Cuttings	1293	Medium brownish grey limestone and light grey limestone	Limestone	--	medium brownish grey with rare light grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC019	10/29/2021 12:00	225	68.58	226	68.88	Drill Cuttings	173	Medium brownish grey limestone and light grey limestone	Limestone	--	medium brownish grey with some light grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC020	10/29/2021 12:20	235	71.63	236	71.93	Drill Cuttings	839	Light grey limestone and medium grey dolomitic limestone with rare euhedral calcite crystals and chert. Darker laminations observed on some dark and light limestone fragments. Some brachiopod fossils observed.	Limestone	Dolomitic limestone	mostly light grey with some medium grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC021	10/29/2021 12:35	245	74.68	246	74.98	Drill Cuttings	444	Mostly grey limestone with rare dolostone and chert and euhedral calcite crystals, One subrounded, medium, brown, pebble-sized dolostone fragment with dark laminations (suspected to not be a cutting)	Limestone	Chert	light grey and medium brownish grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC022	10/29/2021 13:10	255	77.72	256	78.03	Drill Cuttings	240	Grey limestone and chert with fragments of pure calcite (fossil, vug or fracture infill?)	Limestone	Chert	medium brownish grey and light-medium grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC023	10/29/2021 14:09	265	80.77	266	81.08	Drill Cuttings	101	Light-medium grey chert and dark grey limestone	Limestone	Chert	light and dark grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC024	10/30/2021 13:50	275	83.82	276	84.12	Drill Cuttings	88	Light grey chert and medium-dark grey limestone, brachiopod fossil	Limestone	Chert	light and medium-dark grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW02_BR_DC025	10/30/2021 14:06	285	86.87	286	87.17	Drill Cuttings	6	Light grey chert and medium grey limestone	Limestone	Chert	light and medium grey	N/A	N/A	N/A	N/A	N/A	None

Completed by:	CS / AC / LM	Verified by:	AMSC
Date:	10/30/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB & SB_MW03_BR	**General Comments:**

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Recovery (m)	Sample Type (Core/Drill Cuttings)	Blow Counts	Sample Weight (g)	Geological/Geotechnical Log									
										Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW03_OB_SC001	10/18/2021 9:40	0.0	0.00	2.0	0.61	0.45	Split Spoon	1/1/1/1	747	Topsoil composed of predominantly sand with silty sand in last 10cm	Topsoil	Other, Specify	medium-light brown	VFG Sand (0.062-0.125 mm)	Silt/Clay (<0.062 mm)	Well Rounded	Poor	Moist	None
SB_MW03_OB_SC002	10/18/2021 9:50	2.5	0.76	4.5	1.37	0.50	Split Spoon	3/5/5/5	1024	Silt with some fine sand	Silt	Sand	light tan	Silt (0.002-0.05 mm)	VFG Sand (0.062-0.125 mm)	Well Rounded	Very Well	Moist	None
SB_MW03_OB_SC003	10/18/2021 10:10	5	1.52	7	2.13	0.40	Split Spoon	3/3/14/24	971	Poorly sorted fine grained sandy silt with minor gravel.	Silt	Sand	light tan	Silt (0.002-0.05 mm)	VFG Sand (0.062-0.125 mm)	Well Rounded	Poor	Moist	None
SB_MW03_OB_SC004	10/18/2021 10:20	7.5	2.29	9.5	2.90	0.20	Split Spoon	2/5/6/5	411	Poorly sorted silt/silty sand with minor gravel. Coarsening downward	Silt	Gravel	brown	Silt (0.002-0.05 mm)	Pebbles/Gravel (2-64 mm)	Well Rounded	Poor	Moist	None
SB_MW03_OB_SC005	10/18/2021 10:30	10	3.05	12	3.66	0.40	Split Spoon	2/6/6/8	1064	Silty clay with some gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Poor	Saturated	None
SB_MW03_OB_SC006	10/18/2021 10:40	12.5	3.81	14.5	4.42	0.57	Split Spoon	1/5/4/5	1191	Wet clay and gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Poor	Saturated	None
SB_MW03_OB_SC007	10/18/2021 10:50	15	4.57	17	5.18	0.61	Split Spoon	1/2/1/1	1572	Wet clay and gravel, water at around 4-5m	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Poor	Saturated	None
SB_MW03_OB_SC008	10/18/2021 11:10	17.5	5.33	19.5	5.94	0.27	Split Spoon	1/2/8/12	635	Fine grained sand with wet clay and gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Well Rounded	Poor	Saturated	None
SB_MW03_OB_SC009	10/18/2021 11:20	20	6.10	22	6.71	0.61	Split Spoon	3/6/8/12	1513	Stiff clay and gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Poor	Saturated	None
SB_MW03_OB_SC010	10/18/2021 11:25	22.5	6.86	24.5	7.47	0.30	Split Spoon	5/9/15/13	690	Stiff clay and gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Poor	Saturated	None
SB_MW03_OB_SC011	10/18/2021 11:30	25	7.62	27	8.23	0.35	Split Spoon	9/10/14/21	632	Gravel with fine grained silty sand	Gravel	Sand	medium grey	Pebbles/Gravel (2-64 mm)	VFG Sand (0.062-0.125 mm)	Sub Angular	Moderate	Saturated	None
SB_MW03_OB_SC012	10/18/2021 11:40	27.5	8.38	29.5	8.99	0.70	Split Spoon	--	1507	Silty clay mixed with gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Poor	Saturated	None
SB_MW03_OB_SC013	10/18/2021 11:50	30	9.14	32	9.75	0.70	Split Spoon	5/5/12/15	1335	Clay, silt with gravel	Clay	Gravel	medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Poor	Wet	None
SB_MW03_OB_SC014	10/18/2021 12:00	32.5	9.91	34.5	10.52	0.70	Split Spoon	49/29/30/15	1118	First 50 cm is gravel mixed with clay and silt; last 20cm is light grey-creamy limestone and lime mud (possible bedrock contact), needle like pores	Clay	Gravel	light-medium grey	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Poor	Wet	None
SB_MW03_OB_SC015	10/18/2021 12:10	35	10.67	37	11.28	0.70	Split Spoon	33/48/38/39	1680	First 50cm is coarse sand and gravel, last 20cm is light grey-creamy limestone and potentially bedrock	Sand	Gravel	light tan-creamy	VCG Sand (1-2 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Moderate	Wet	None
SB_MW03_OB_SC016	10/18/2021 12:20	37.5	11.43	39.5	12.04	0.50	Split Spoon	22/38/46/50	1266	First 20 cm is heaved sand and gravel followed by light tan-grey petroliferous limestone. Some dark brown calcareous sand observed (possible Lucas member). Bedrock is at 39' 4" / 11.98m	Limestone	Dolostone	light tan- light grey	N/A	N/A	N/A	N/A	Wet	None
SB_MW03_OB_SC017	10/18/2021 12:30	40	12.19	40.5	12.34	0.15	Split Spoon	50	375	Light tan-brown limestone.	Limestone	Dolostone	light tan/brown	N/A	N/A	N/A	N/A	Wet	None
SB_MW03_BR_DC001	10/31/2021 15:46	45	13.72	46	14.02	N/A	Drill Cuttings	N/A	166	Sample right below casing (installed to depth of 45') light brown/tan limestone with strong bituminous smell	Limestone	Dolostone	light Brown	N/A	N/A	N/A	N/A	N/A	hydrocarbon
SB_MW03_BR_DC002	10/31/2021 15:47	50	15.24	51	15.54	N/A	Drill Cuttings	N/A	337	This second sample was collected earlier as the drill was getting a bit jammed in the first 5' below the casing.- predominantly light tan with some light grey limestone with needle like porosity and minor frosted sand/dolomite grains in calcite/dolomitic matrix with strong bituminous smell	Limestone	Dolostone	light tan/light grey	N/A	N/A	N/A	N/A	N/A	hydrocarbon
SB_MW03_BR_DC003	10/31/2021 15:51	55	16.76	56	17.07	N/A	Drill Cuttings	N/A	470	Sample not sieved. Clay-infilled fracture encountered at 55'. Driller sampled to confirm clay and whether a deeper casing was needed.	Clay	--	grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC004	10/31/2021 15:53	58	17.68	59	17.98	N/A	Drill Cuttings	N/A	1577	Last sample collected prior to resuming casing installation to a new depth of 57' - medium tan limestone with minor laminations. Slight bituminous smell	Limestone	Dolostone	medium tan	N/A	N/A	N/A	N/A	N/A	hydrocarbon
SB_MW03_BR_DC005	11/1/2021 8:46	60	18.29	61	18.59	N/A	Drill Cuttings	N/A	1278	Light to medium tan argillaceous limestone with pinhole pores	Limestone	Dolostone	light-medium tan	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC006	11/1/2021 8:53	70	21.34	71	21.64	N/A	Drill Cuttings	N/A	84	Light to medium tan argillaceous limestone with pinhole pores	Limestone	Dolostone	light-medium tan	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC007	11/1/2021 9:03	80	24.38	81	24.69	N/A	Drill Cuttings	N/A	339	Medium brown limestone with minor frosted sand/dolomitic grains	Limestone	--	medium brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC008	11/1/2021 9:09	90	27.43	91	27.74	N/A	Drill Cuttings	N/A	17	Dark-medium brown laminated dolostone- First occurrence of what looks like the Amherstburg Formation. Lucas-Amherstburg contact is gradational	Dolostone	Limestone	dark-medium brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC009	11/1/2021 9:20	99	30.18	100	30.48	N/A	Drill Cuttings	N/A	1440	Medium brown limestone with euhedral calcite crystals	Limestone	--	medium brown	N/A	N/A	N/A	N/A	N/A	Slightly hydrocarbon
SB_MW03_BR_DC010	11/1/2021 9:26	110	33.53	111	33.83	N/A	Drill Cuttings	N/A	727	Predominantly dark brown limestone with minor light tan limestone chips. Abundance of dark brown limestone chips supports the presence of Amherstburg formation therefore possible contact	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	Slightly hydrocarbon
SB_MW03_BR_DC011	11/1/2021 10:06	120	36.58	121	36.88	N/A	Drill Cuttings	N/A	78	Dark brown laminated limestone with bituminous partings	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	Slightly hydrocarbon
SB_MW03_BR_DC012	11/1/2021 10:10	130	39.62	131	39.93	N/A	Drill Cuttings	N/A	344	Light-dark brown slightly laminated limestone/dolostone	Limestone	Dolostone	liight-dark brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC013	11/1/2021 10:40	140	42.67	141	42.98	N/A	Drill Cuttings	N/A	345	Medium-dark brown limestones with bituminous partings	Limestone	--	medium-dark	N/A	N/A	N/A	N/A	N/A	Slightly hydrocarbon
SB_MW03_BR_DC014	11/1/2021 11:18	150	45.72	151	46.02	N/A	Drill Cuttings	N/A	450	Very dark brown laminted limestones with bituminous partings	Limestone	--	very dark brown	N/A	N/A	N/A	N/A	N/A	Slightly hydrocarbon
SB_MW03_BR_DC015	11/2/2021 11:00	160	48.77	161	49.07	N/A	Drill Cuttings	N/A	202	Predominantly dark brown laminted limestones with bituminous partings; some light tan limestone chips, also in bag, but it's probably fallen chips from upper units/layers	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	Slightly hydrocarbon
SB_MW03_BR_DC016	11/1/2021 15:16	170	51.82	171	52.12	N/A	Drill Cuttings	N/A	24	Medium-dark brown limestone chips. Very little recovery in this interval	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC017	11/1/2021 15:30	180	54.86	181	55.17	N/A	Drill Cuttings	N/A	4	Medium-dark brown limestone chips	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW03_BR_DC018	11/1/2021 15:40	190	57.91	191	58.22	N/A	Drill Cuttings	N/A	18	Dark brown limestone with possible smaller cherty limestone chips	Limestone	--	dark brown	N/A	N/A	N/A	N/A	N/A	None

Completed by:	LIM/AMC	Verified by:	AMSC
Date:	11/1/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID:	SB_MW04_OB & SB_MW04_BR	General Comments:	

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Recovery (m)	Sample Type (Core/Drill Cuttings)	Blow Counts	Sample Weight (g)	Geological/Geotechnical Log									
										Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW04_OB_SC001	10/15/2021 10:15	0.0	0.00	2.0	0.61	0.30	Split Spoon	3/2/2/3	352	Topsoil; poorly sorted silt with fine sand and gravel	Topsoil	Gravel	brown	Silt/Clay (<0.062 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Poor	Dry	none
SB_MW04_OB_SC002	10/15/2021 13:05	2.5	0.76	4.5	1.37	0.30	Split Spoon	2/5/4/5	439	Topsoil-very fine grained calcareous silty sand with a bit of silt and gravel	Sand	Gravel	light tan	VFG Sand (0.062-0.125 mm)	Pebbles/Gravel (2-64 mm)	Well Rounded	Moderate	Dry	None
SB_MW04_OB_SC003	10/18/2021 9:40	5	1.52	7	2.13	0.25	Split Spoon	1/5/5/7	321	Angular to subrounded gravel with fine silty sand	Gravel	Sand	red, light tan,brown	Pebbles/Gravel (2-64 mm)	FG Sand (0.125-0.25 mm)	Sub Angular	Poor	Dry	None
SB_MW04_OB_SC004	10/18/2021 9:50	7.5	2.29	9.5	2.90	0.48	Split Spoon	5/5/5/7	588	Predominantly silt and sand with some gravel. First 10cm is gravel and remaining 38cm is fine grained well sorted sand and silt	Silt	Gravel	red, medium tan	Silt (0.002-0.05 mm)	Pebbles/Gravel (2-64 mm)	Well Rounded	Well	Dry	None
SB_MW04_OB_SC005	10/18/2021 10:10	10	3.05	12	3.66	0.43	Split Spoon	2/2/4/7	423	Predominanty silt with sand and minor gravel. Last 5cm is moist stiff clay but overall dry	Silt	Sand	brown, medium tan	Silt (0.002-0.05 mm)	FG Sand (0.125-0.25 mm)	Well Rounded	Moderate	Dry	None
SB_MW04_OB_SC006	10/18/2021 10:20	12.5	3.81	14.5	4.42	0.33	Split Spoon	8/12/10/11	511	Poorly sorted gravel with fine grained sand	Gravel	Sand	ligt tan,brownish	Pebbles/Gravel (2-64 mm)	FG Sand (0.125-0.25 mm)	Sub Angular	Very Poor	Dry	none
SB_MW04_OB_SC007	10/18/2021 10:30	15	4.57	17	5.18	0.32	Split Spoon	6/10/9/15	393	Fine-medium light brown sand with gravel	Sand	Gravel	light brown	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Poor	Dry	none
SB_MW04_OB_SC008	10/18/2021 10:40	17.5	5.33	19.5	5.94	0.25	Split Spoon	5/6/7/7	300	First 10cm is wet gravel followed by 10cm of dry gravel with sand	Gravel	Sand	light tan	Pebbles/Gravel (2-64 mm)	FG Sand (0.125-0.25 mm)	Angular	Very Poor	Wet	none
SB_MW04_OB_SC009	10/18/2021 10:50	20	6.10	22	6.71	0.27	Split Spoon	8/7/7/10	500	Water saturated gravel with medium-coarse grained sand	Gravel	Sand	light tan	Pebbles/Gravel (2-64 mm)	CG Sand (0.5-1 mm)	Subrounded	Very Poor	Saturated	None
SB_MW04_OB_SC010	10/18/2021 11:10	22.5	6.86	24.5	7.47	0.32	Split Spoon	2/7/7/7	545	Water saturated medium-coarse grained sand with gravel	Sand	Gravel	light tan	VCG Sand (1-2 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Poor	Saturated	None
SB_MW04_OB_SC011	10/18/2021 11:20	25	7.62	27	8.23	0.33	Split Spoon	10/9/7/11	891	Fine grained sand coarsening downward to medium and coarse grained sand then followed by gravel	Sand	Gravel	light tan	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Well	Saturated	None
SB_MW04_OB_SC012	10/18/2021 10:00	27.5	8.38	29.5	8.99	0.10	Split Spoon	4/5/7	254	Sand and gravel	Sand	Gravel	light tan	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Poor	Saturated	None
SB_MW04_OB_SC013	10/18/2021 11:30	30	9.14	32	9.75	0.26	Split Spoon	7/6/8/7	590	Fine sand and gravel	Sand	Gravel	light tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Poor	Saturated	None
SB_MW04_OB_SC014	10/18/2021 11:40	32.5	9.91	34.5	10.52	0.40	Split Spoon	2/4/5/4	738	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	VFG Sand (0.062-0.125 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Well	Saturated	None
SB_MW04_OB_SC015	10/18/2021 11:50	35	10.67	37	11.28	0.30	Split Spoon	3/8/5/6	516	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Well	Saturated	None
SB_MW04_OB_SC016	10/18/2021 12:00	37.5	11.43	39.5	12.04	0.30	Split Spoon	5/4/4/3	299	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	VFG Sand (0.062-0.125 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Well	Saturated	None
SB_MW04_OB_SC017	10/18/2021 12:10	40	12.19	42	12.80	0.30	Split Spoon	4/3/3/3	430	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	VFG Sand (0.062-0.125 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Well	Saturated	None
SB_MW04_OB_SC018	10/18/2021 12:20	42.5	12.95	44.5	13.56	0.31	Split Spoon	2/2/7/13	669	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	VFG Sand (0.062-0.125 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Well	Saturated	None
SB_MW04_OB_SC019	10/18/2021 12:30	45	13.72	47	14.33	0.50	Split Spoon	4/4/16/17	1046	Coarsening downward, fine grained sand to gravel but mostly medium to coarse grained sand	Sand	Gravel	light tan	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Very Well	Saturated	None
SB_MW04_OB_SC020	10/19/2021 10:00	47.5	14.48	49.5	15.09	0.47	Split Spoon	8/16/20/21	1007	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Well	Saturated	None
SB_MW04_OB_SC021	10/19/2021 10:20	50	15.24	52	15.85	0.45	Split Spoon	6/12/15/18	1136	Coarsening downward silt to gravel	Sand	Gravel	light tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Well	Saturated	None
SB_MW04_OB_SC022	10/19/2021 10:30	52.5	16.00	54.5	16.61	0.61	Split Spoon	21/50	1363	Coarsening downward, fine grained sand to gravel	Sand	Gravel	light tan	FG Sand (0.125-0.25 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Well	Saturated	None
SB_MW04_OB_SC023	10/20/2021 10:40	55	16.76	57	17.37	0.75	Split Spoon	7/14/31/>50	1172	First 65cm is coarsening downward fine grained sand to gravel, last 10cm is fine grained sand mixed with gravel. Sand was very compact	Sand	Gravel	light tan	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Well	Wet	None
SB_MW04_OB_SC024	10/20/2021 10:50	60	18.29	62	18.90	0.66	Split Spoon	-	1193	First 56cm is fine to medium grain sand, next 6cm is coarse grained sand, last 4cm is mixed very coarse grained sand and gravel	Sand	Gravel	light tan	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Well	Wet	None
SB_MW04_OB_SC025	10/19/2021 11:00	62.5	19.05	64.5	19.66	0.10	Split Spoon	-	289	Lime mud with some gravel	Other, Specify	Gravel	White	Clay (<0.002 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW04_OB_SC026	10/20/2021 11:10	65	19.81	67	20.42	0.29	Split Spoon	11/-	898	Lime mud with CG to VCG sand and some gravel	Sand	Gravel	White	VCG Sand (1-2 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW04_OB_SC027	10/20/2021 11:20	67.5	20.57	69.5	21.18	0.10	Split Spoon	4/-	1114	Mostly heave, last 10cm is calcitic CG to VCG sand and Gravel in lime mud. Characteristics of Lucas formation, top of bedrock at 20.73 m.	Sand	Gravel	Creamy white	CG Sand (0.5-1 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW04_BR_DC001	11/16/2021 8:45	73	22.25	74	22.56	N/A	Rock Cuttings	N/A	7	Grey-to-Buff coloured weathered, fine-textured, Limestone with some light grey Limestone (Sampled at the top of the bedrock surface)	Limestone		Grey to Buff / Light Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC002	11/16/2021 9:00	76	23.16	77	23.47	N/A	Rock Cuttings	N/A	245.3	Grey-to-Buff coloured weathered, fine-textured Limestone with some light grey Limestone (Sampled approximately 3 to 4 ft into bedrock)	Limestone		Grey to Buff / Light Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC003	11/16/2021 10:37	87	26.52	88	26.82	N/A	Rock Cuttings	N/A	42.1	Grey to light grey Limestone. Fine textured with a few clasts of medium textured limestone. Some calcite crystals evident. Suspected brachiopod fossil.	Limestone		Grey / White			N/A	N/A	N/A	None
SB_MW04_BR_DC004	11/16/2021 10:40	97	29.57	98	29.87	N/A	Rock Cuttings	N/A	59.5	Grey to light brown/buff coloured fine-textured limesone with some pinhole pores visible in larger fragments	Limestone		Grey to Light Brown /Buff			N/A	N/A	N/A	None
SB_MW04_BR_DC005	11/16/2021 10:45	107	32.61	108	32.92	N/A	Rock Cuttings	N/A	84.8	Grey to light brown/buff coloured fine-textured limesone with some pinhole pores visible in larger fragments	Limestone		Grey to Light Brown /Buff			N/A	N/A	N/A	None
SB_MW04_BR_DC006	11/16/2021 11:00	117	35.66	118	35.97	N/A	Rock Cuttings	N/A	47.2	Grey Limestone with some medium brown limestone fragments with minor frosted sand/dolomitic grains	Limestone		Grey or Medium Brown			N/A	N/A	N/A	None
SB_MW04_BR_DC007	11/16/2021 11:09	127	38.71	128	39.01	N/A	Rock Cuttings	N/A	48	Dark brownish-grey Dolostone, medium grained and sucrosic with suspected reef structure, abundent pinhole weathering (majority of drill cuttings are coarse sand-sized particles)	Dolostone		Dark Brownish Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC008	11/16/2021 11:19	137	41.76	138	42.06	N/A	Rock Cuttings	N/A	29.6	Dark brownish-grey Dolostone, medium grained with abundent pinhole weathering (majority of drill cuttings are coarse sand-sized particles)	Dolostone		Dark Brownish Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC009	11/16/2021 11:26	147	44.81	148	45.11	N/A	Rock Cuttings	N/A	41.6	Light greyish brown / buff medium textured dolostone with pinhole weathering	Dolostone		Light Greyish Brown / Buff			N/A	N/A	N/A	None
SB_MW04_BR_DC010	11/16/2021 11:30	157	47.85	158	48.16	N/A	Rock Cuttings	N/A	95.8	Brownish grey, Fine textured Argillaceous limestone (larger rock fragments, inferring a more competent/hard rock at this depth)	Limestone		Brownish Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC011	11/16/2021 13:07	167	50.90	168	51.21	N/A	Rock Cuttings	N/A	45.3	Grey Argillaceous Limestone with grey argillaceous and white dolostone, fine-to-medium textured	Limestone	Dolostone	Grey or White			N/A	N/A	N/A	None
SB_MW04_BR_DC012	11/16/2021 16:03	177	53.95	178	54.25	N/A	Rock Cuttings	N/A	43.1	Light grey medium textured limestone	Limestone		Light Grey			N/A	N/A	N/A	Hydrocarbon
SB_MW04_BR_DC013	11/16/2021 16:20	187	57.00	188	57.30	N/A	Rock Cuttings	N/A	68.6	Light grey medium textured limestone	Limestone		Light Grey			N/A	N/A	N/A	Hydrocarbon
SB_MW04_BR_DC014	11/17/2021 9:20	197	60.05	198	60.35	N/A	Rock Cuttings	N/A	28.7	Light grey medium textured limestone	Limestone		Light Grey			N/A	N/A	N/A	Hydrocarbon
SB_MW04_BR_DC015	11/17/2021 9:25	207	63.09	208	63.40	N/A	Rock Cuttings	N/A	83	Grey medium textured limestone with some very dark-dark brown laminted limestones with bituminous partings	Limestone		Grey			N/A	N/A	N/A	Hydrocarbon
SB_MW04_BR_DC016	11/17/2021 9:31	217	66.14	218	66.45	N/A	Rock Cuttings	N/A	37	Grey Medium textured limestone with some very dark-dark brown laminted limestones with bituminous partings	Limestone		Grey			N/A	N/A	N/A	Hydrocarbon
SB_MW04_BR_DC017	11/17/2021 9:45	227	69.19	228	69.49	N/A	Rock Cuttings	N/A	55.7	Light grey to dark grey Limestone with trace light brown/buff coloured dolostone	Limestone	Dolostone	Light Grey to Dark Grey			N/A	N/A	N/A	Hydrocarbon
SB_MW04_BR_DC018	11/18/2021 7:39	237	72.24	238	72.54	N/A	Rock Cuttings	N/A	35.4	Light grey to dark grey Limestone with trace light brown/buff coloured dolostone	Limestone	Dolostone	Light Grey to Dark Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC019	11/18/2021 7:45	247	75.29	248	75.59	N/A	Rock Cuttings	N/A	58.1	Grey Limestone with some fine-textured dark grey dolostone	Limestone	Dolostone	Grey			N/A	N/A	N/A	None
SB_MW04_BR_DC020	11/18/2021 7:50	257	78.33	258	78.64	N/A	Rock Cuttings	N/A	75.9	Light grey limestone with white chert and calcite crystals	Limestone		Light Grey or White			N/A	N/A	N/A	None
SB_MW04_BR_DC021	11/18/2021 8:10	267	81.38	268	81.69	N/A	Rock Cuttings	N/A	84.8	Light grey limestone with abundent white chert. Evident stylolites in limestone clasts	Limestone		Light Grey or White			N/A	N/A	N/A	None
SB_MW04_BR_DC022	11/18/2021 8:30	275	83.82	276	84.25	N/A	Rock Cuttings	N/A	59.8	Light grey limestone with abundent white chert. Evident stylolites in limestone clasts	Limestone		Light Grey or White			N/A	N/A	N/A	None

Completed by:	AC/SCE	Verified by:	AMSC
Date:	10/19/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Recovery (m)	Sample Type (Core/Drill Cuttings)	Blow Counts	Sample Weight (g)	Geological/Geotechnical Log									
										Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW05_OB_SC001	10/25/2021 9:55	0.0	0.00	2.0	0.61	0.45	Split Spoon	1/4/3/2	713	Mostly dark brown silty clay with few very coarse sand grains	Clay	Silt	Dark brown	Clay (<0.002 mm)	Silt (0.002-0.05 mm)	Rounded	Poor	Moist	None
SB_MW05_OB_SC002	10/25/2021 10:07	2.5	0.76	4.5	1.37	0.37	Split Spoon	1/3/3/6	722	Brown silty clay to coarse sand with few gravel chips	Clay	Sand	Brown	Clay (<0.002 mm)	CG Sand (0.5-1 mm)	Rounded	Poor	Wet	None
SB_MW05_OB_SC003	10/25/2021 10:20	5.0	1.52	7.0	2.13	0.45	Split Spoon	11/14/8/10	913	First 8cm is fine grained sand mixed with silty clay, rest of sample is medium grained sand to gravel	Sand	Gravel	Brown	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Poor	Dry	None
SB_MW05_OB_SC004	10/25/2021 10:32	7.5	2.29	9.5	2.90	0.47	Split Spoon	11/10/14/35	834	Fine grained sand with some gravel	Sand	Gravel	Brown	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Moderate	Dry	None
SB_MW05_OB_SC005	10/25/2021 10:45	10.0	3.05	12.0	3.66	0.63	Split Spoon	33/48/49/50	1180	Fine grained sand with some gravel	Sand	Gravel	Light brown, to white	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Poor	Dry	None
SB_MW05_OB_SC006	10/25/2021 10:59	12.5	3.81	14.5	4.42	0.37	Split Spoon	14/18/5/6	857	Fine grained sand with some gravel	Sand	Gravel	Brown	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Poor	Moist	None
SB_MW05_OB_SC007	10/25/2021 11:11	15.0	4.57	17.0	5.18	0.43	Split Spoon	20/30/8/6	711	Fine grained sand with some gravel	Sand	Gravel	Brown	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Poor	Moist	None
SB_MW05_OB_SC008	10/25/2021 11:30	17.5	5.33	19.5	5.94	0.47	Split Spoon	15/15/5/6	1057	VF sand	Sand	Sand	creamy brown	VFG Sand (0.05-0.10 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Moderate	Saturated	None
SB_MW05_OB_SC009	10/25/2021 11:46	20.0	6.10	22.0	6.71	0.5	Split Spoon	2/8/10/11	1054	Fine grained sand with some gravel, saturated	Sand	Gravel	Brown to cream (Top to bottom)	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Very Poor	Moist	None
SB_MW05_OB_SC010	10/25/2021 12:01	22.5	6.86	24.5	7.47	0.52	Split Spoon	6/8/24/22	1371	First 33cm is coarsening downwards from light brown very fine grained sand to gravel, remaining sample is fine grained sand to gravel, last 10cm is cream in color	Sand	Gravel	Light brown	FG Sand (0.10-0.25 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Well	Moist	None
SB_MW05_OB_SC011	10/25/2021 12:20	25.0	7.62	27.0	8.23	0.64	Split Spoon	5/6/11/14	1467	Coarsening downwards VFG sand with some gravel	Sand	Gravel	Brown	VFG Sand (0.05-0.10 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Well	Wet	None
SB_MW05_OB_SC012	10/25/2021 12:40	27.5	8.38	29.5	8.99	0.56	Split Spoon	2/5/10/13	1384	Fining downwards from medium grained sand to silty sand	Sand	Silt	Brown	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	N/A	Very Well	Wet	None
SB_MW05_OB_SC013	10/25/2021 13:05	30.0	9.14	32.0	9.75	0.62	Split Spoon	4/8/16/18	1625	Fining downwards from fine grained sand to silty sand	Sand	Silt	Brown	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	N/A	Well	Wet	None
SB_MW05_OB_SC014	10/25/2021 13:40	32.5	9.91	34.5	10.52	0.58	Split Spoon	0/0/6/8	1084	Saturated VFG sand to silty sand	Sand	Silt	Brown	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	N/A	Well	Saturated	None
SB_MW05_OB_SC015	10/25/2021 13:55	35.0	10.67	37.0	11.28	0.64	Split Spoon	2/1/15/17	1344	Fine grained sand to VFG sand, grey	Sand	Sand	Brown	VFG Sand (0.05-0.10 mm)	FG Sand (0.10-0.25 mm)	N/A	Well	Saturated	None
SB_MW05_OB_SC016	10/25/2021 14:08	37.5	11.43	39.5	12.04	0.64	Split Spoon	3/6/16/18	1490	Fine grained sand to very fine grained sand, last 8cm is whitish grey	Sand	Sand	Brown	VFG Sand (0.05-0.10 mm)	FG Sand (0.10-0.25 mm)	N/A	Well	Wet	None
SB_MW05_OB_SC017	10/25/2021 14:22	40.0	12.19	42.0	12.80	0.64	Split Spoon	12/18/30/42	1301	Fine grained sand in first 39 cm, remaining is grey VFG sand	Sand	Sand	Brown to grey (Top to bottom)	VFG Sand (0.05-0.10 mm)	FG Sand (0.10-0.25 mm)	N/A	Well	Wet	None
SB_MW05_OB_SC018	10/25/2021 14:35	42.5	12.95	44.5	13.56	0.66	Split Spoon	6/6/12/18	1302	VFG to FG silty sand, grey	Sand	Silt	Brown to grey (Top to bottom)	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	N/A	Well	Saturated	None
SB_MW05_OB_SC019	10/25/2021 14:48	45.0	13.72	47.0	14.33	0.66	Split Spoon	--	1438	VFG to FG silty sand, grey	Sand	Silt	Grey	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	N/A	Well	Saturated	None
SB_MW05_OB_SC020	10/25/2021 15:03	47.5	14.48	49.5	15.09	0.66	Split Spoon	0/6/9/38	1355	Silt with some FG sand, clay and some gravel	Silt	Sand	Grey	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Poor	Saturated	None
SB_MW05_OB_SC021	10/25/2021 15:17	50.0	15.24	52.0	15.85	0.1	Split Spoon	20/23/33/18	338	Sandy silt with some clay and trace gravel	Silt	Sand	Greyish brown	VFG Sand (0.05-0.10 mm)	VFG Sand (0.05-0.10 mm)	Rounded	Very Poor	Saturated	None
SB_MW05_OB_SC022	10/25/2021 15:35	52.5	16.00	54.5	16.61	0.3	Split Spoon	28/38/45/40	1067	First 10 cm medium grained sand (inferred heave), remaining sandy silt with some clay and gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC023	10/25/2021 15:47	55.0	16.76	57.0	17.37	0.33	Split Spoon	25/28/22/25	741	Silt with some FG sand, clay and some gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Rounded	Very Poor	Saturated	None
SB_MW05_OB_SC024	10/25/2021 15:55	57.5	17.53	59.5	18.14	0.65	Split Spoon	22/25/38/27	1715	Silt with some FG sand, clay and some gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC025	10/25/2021 16:10	60.0	18.29	62.0	18.90	0.54	Split Spoon	8/16/20/21	1618	Silt with some FG sand, clay and some gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC026	10/25/2021 16:25	62.5	19.05	64.5	19.66	0.40	Split Spoon	25/20/40/44	1031	Silt with some FG sand, clay and some gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC027	10/25/2021 16:40	65.0	19.81	67.0	20.42	0.30	Split Spoon	--	610	Silt with some FG sand, clay and some gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC028	10/25/2021 17:10	67.5	20.57	69.5	21.18	0.62	Split Spoon	30/33/30/40	1699	First 20cm medium grained sand and gravel (inferred heave) Silt with some VFG sand and clay and some gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC029	10/26/2021 12:22	70.0	21.34	72.0	21.95	0.10	Split Spoon	25/27/31/35	263	Silt with some VFG sand and clay and some minor gravel	Silt	Sand	Grey brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC030	10/26/2021 13:00	72.5	22.10	74.5	22.71	0.40	Split Spoon	13/23/50	981	Silt with some VFG sand and trace clay, minor gravel. Last couple cm show evidence of top of bedrock	Silt	Sand	Grey Brown	Silt (0.002-0.05 mm)	VFG Sand (0.05-0.10 mm)	Sub Angular	Very Poor	Saturated	None
SB_MW05_OB_SC031	10/26/2021 13:30	75.0	22.86	77.0	23.47	0.10	Split Spoon	>50	223	Dolostone at 22.86 m, confirming top of bedrock around 22.7 m	Dolostone	--	Light tan brown						
SB_MW05_BR_DC001	11/6/2021 13:20	75.0	22.86	76.0	23.16	N/A	Drill Cuttings	N/A	1596	Sample collected from first 1' interval drilled after tagging bedrock at 74.5' while installing 8" casing. Weathered buff tan dolostone	Dolostone	--	Buff tan	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC002	11/6/2021 13:21	76.0	23.16	77.0	23.47	N/A	Drill Cuttings	N/A	1563	Sample collected check to weathering/compentency of the rock while installing 8" casing. Weathered dolostone (less weathered than DC001).	Dolostone	--	Light brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC003	11/6/2021 13:22	77.0	23.47	78.0	23.77	N/A	Drill Cuttings	N/A	1221	Sample collected to check weathering/compentency of the rock while installing 8" casing. Driller reported that the rock still felt soft and was concerned about wash out at the bottom of casing.	Dolostone	--	Light brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC004	11/7/2021 10:13	85.0	25.91	86.0	26.21	N/A	Drill Cuttings	N/A	1044	Light tan pure limestone with needle like pores	Dolostone	--	Light tan	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC005	11/7/2021 10:21	95.0	28.96	96.0	29.26	N/A	Drill Cuttings	N/A	1510	Light tan pure limestone with needle like porosity	Dolostone	Limestone	Light-medium tan	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC006	11/7/2021 10:39	105.0	32.00	106.0	32.31	N/A	Drill Cuttings	N/A	639	Medium brown argillceous dolostone with minor laminations	Dolostone	--	Medium brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC007	11/7/2021 10:45	115.0	35.05	116.0	35.36	N/A	Drill Cuttings	N/A	1304	Medium brown argillceous dolostone with laminations and dark bituminous partings	Dolostone	--	Medium-dark brown	N/A	N/A	N/A	N/A	N/A	hydrocarbon
SB_MW05_BR_DC008	11/7/2021 13:40	125.0	38.10	126.0	38.40	N/A	Drill Cuttings	N/A	1350	Medium brown argillceous dolostone with laminations and dark bituminous partings	Dolostone	--	Medium-dark brown	N/A	N/A	N/A	N/A	N/A	hydrocarbon
SB_MW05_BR_DC009	11/7/2021 13:53	135.0	41.15	136.0	41.45	N/A	Drill Cuttings	N/A	914	Medium dark brown dolostone with bituminous partings	Dolostone	--	Medium-dark brown	N/A	N/A	N/A	N/A	N/A	Strong hydrocarbon
SB_MW05_BR_DC010	11/7/2021 14:41	145.0	44.20	146.0	44.50	N/A	Drill Cuttings	N/A	656	Argillaceous, laminated medium-dark brown dolostone with bituminous partings	Dolostone	--	Dark brown	N/A	N/A	N/A	N/A	N/A	hydrocarbon
SB_MW05_BR_DC011	11/7/2021 15:00	155.0	47.24	156.0	47.55	N/A	Drill Cuttings	N/A	758	Argillaceous, laminated dark brown dolostone with bituminous partings	Dolostone	--	Medium-dark brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC012	11/7/2021 15:45	165.0	50.29	166.0	50.60	N/A	Drill Cuttings	N/A	97	Predominantly dark brown dolostone with minor limstone as secondary lithology. Sample bag contains rounded rock fragments raging from 5-10mm likely fell from upper layers while drilling	Dolostone	Limestone	dark-medium brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW05_BR_DC013	11/7/2021 15:49	175.0	53.34	176.0	53.64	N/A	Drill Cuttings	N/A	360	Grey, brown, limestone/dolostone chips with dark bituminous partings	Limestone	Dolostone	grey,brown,dark	N/A	N/A	N/A	N/A	N/A	None
SB_MW05_BR_DC014	11/8/2021 8:16	185.0	56.39	186.0	56.69	N/A	Drill Cuttings	N/A	459	Medium brown, medium grey, argillaceous laminated dolostone	Dolostone	--	medium brown,medium grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW05_BR_DC015	11/8/2021 8:23	195.0	59.44	196.0	59.74	N/A	Drill Cuttings	N/A	288	Dark brown laminated dolostone	Dolostone	--	Dark brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW05_BR_DC016	11/8/2021 10:10	205.0	62.48	206.0	62.79	N/A	Drill Cuttings	N/A	163	Dark brown laminated dolostone	Dolostone	--	Dark brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW05_BR_DC017	11/8/2021 10:22	215.0	65.53	216.0	65.84	N/A	Drill Cuttings	N/A	426	Medium to dark brown dolostone with small bituminous partings	Dolostone	--	Medium-dark brown	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC018	11/8/2021 13:55	225.0	68.58	226.0	68.88	N/A	Drill Cuttings	N/A	104	Medium-dark brown laminated dolostone with some medium grey argillaceous limestone and minor chert	Dolostone	Limestone	Medium-dark brown, medium grey	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW05_BR_DC019	11/9/2021 9:03	235.0	71.63	236.0	71.93	N/A	Drill Cuttings	N/A	116	Medium brown limestone with medium grey chert/cherty limestone	Limestone	Chert	medium brown,medium grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW05_BR_DC020	11/9/2021 9:36	245.0	74.68	246.0	74.98	N/A	Drill Cuttings	N/A	84	Light-Medium brown laminated limestone with medium grey chert/cherty limestone	Limestone	Chert	medium brown,medium grey	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon

Completed by:	JW, LIM, AC	Verified by:	AMSC
Date:	2021/11/09	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID: SB_MW06_OB & SB_MW06_BR

General Comments:

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Recovery (m)	Sample Type (Core/Drill Cuttings)	Blow Counts	Sample Weight (g)	Geological/Geotechnical Log									
										Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW06_OB_SC001	10/25/2021 13:00	0.0	0.00	2.0	0.61	0.45	Split Spoon	5/11/12/12	612	Dark brown topsoil with organics, bottom 10cm course sand and gravel	Sand	Gravel	Dark brown	CG Sand (0.5-1 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Poor	Moist	None
SB_MW06_OB_SC002	10/25/2021 13:40	2.5	0.76	4.5	1.37	0.45	Split Spoon	13/15/9/5	510	Silty VCG sand with gravel and pebbles	Sand	Gravel	Light brown	VCG Sand (1-2 mm)	Pebbles/Gravel (2-64 mm)	Sub Angular	Poor	Dry	None
SB_MW06_OB_SC003	10/25/2021 13:55	5.0	1.52	7.0	2.13	0.30	Split Spoon	10/15/14/8	441	Silty FG sand with some gravel	Sand	Silt	Light brown to grey	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Sub Angular	Poor	Dry	None
SB_MW06_OB_SC004	10/25/2021 14:08	7.5	2.29	9.5	2.90	0.59	Split Spoon	15/11/12/12	913	First 16cm brown VCG well sorted sand, last 43cm silty FG sand with some gravel	Sand	Silt	Light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Sub Angular	Poor	Dry	None
SB_MW06_OB_SC005	10/25/2021 14:22	10.0	3.05	12.0	3.66	0.51	Split Spoon	4/7/10/11	806	First 9cm brown VCG well sorted sand, last 42cm silty FG to medium grained sand with some gravel	Sand	Silt	Light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Subrounded	Poor	Dry	None
SB_MW06_OB_SC006	10/25/2021 14:35	12.5	3.81	14.5	4.42	0.44	Split Spoon	8/11/11/11	681	Silty medium grained sand with some gravel	Sand	Silt	light brown	MG Sand (0.25-0.5 mm)	Silt (0.002-0.05 mm)	Subrounded	Moderate	Dry	None
SB_MW06_OB_SC007	10/25/2021 14:48	15.0	4.57	17.0	5.18	0.45	Split Spoon	4/12/20/18	796	Silty medium grained sand with some gravel	Sand	Silt	light brown	MG Sand (0.25-0.5 mm)	Silt (0.002-0.05 mm)	Subrounded	Moderate	Dry	None
SB_MW06_OB_SC008	10/25/2021 15:03	17.5	5.33	19.5	5.94	0.50	Split Spoon	10/24/28/15	804	Top 20cm VCG sand and gravel with trace silt, bottom 30 CM silty medium grained sand with some gravel	Sand	Gravel	Light brown	MG Sand (0.25-0.5 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Very Poor	Moist	None
SB_MW06_OB_SC009	10/25/2021 15:17	20.0	6.10	22.0	6.71	0.41	Split Spoon	14/34/40/27	968	Silty medium to fine grained sand with some gravel	Sand	Silt	Light brown	MG Sand (0.25-0.5 mm)	Silt (0.002-0.05 mm)	Subrounded	Poor	Dry	None
SB_MW06_OB_SC010	10/25/2021 15:35	22.5	6.86	24.5	7.47	0.60	Split Spoon	34/49/40/23	1097	First 10cm inferred heave (VGC sand) last 50cm silty medium grained sand with some gravel	Sand	Silt	Light brown	MG Sand (0.25-0.5 mm)	Silt (0.002-0.05 mm)	Sub Angular	Poor	Dry	None
SB_MW06_OB_SC011	10/25/2021 15:47	25.0	7.62	27.0	8.23	0.61	Split Spoon	10/21/20/19	816	Silty medium to coarse grained sand with gravel	Sand	Silt	Light brown to grey	CG Sand (0.5-1 mm)	Silt (0.002-0.05 mm)	Sub Angular	Poor	Dry	None
SB_MW06_OB_SC012	10/25/2021 15:55	27.5	8.38	29.5	8.99	0.56	Split Spoon	12/22/23/17	994	Top 6cm inferred heave (VCG well sorted sand), last 50cm silty medium to coarse grained sand with gravel	Sand	Silt	Light brown to grey	MG Sand (0.25-0.5 mm)	Silt (0.002-0.05 mm)	Subrounded	Poor	Dry	None
SB_MW06_OB_SC013	10/25/2021 16:10	30.0	9.14	32.0	9.75	0.40	Split Spoon	12/16/28/19	827	VFG silty sand	Sand	Silt	Brown	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Moist	None
SB_MW06_OB_SC014	10/25/2021 16:25	32.5	9.91	34.5	10.52	0.55	Split Spoon	0/1/4/1	1044	Top 42cm VFG silty sand, bottom 13cm VCG sand and gravel with trace silt	Sand	Silt	brown	VFG Sand (0.05-0.10 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Moderate	Saturated	None
SB_MW06_OB_SC015	10/25/2021 16:40	35.0	10.67	37.0	11.28	0.30	Split Spoon	2/6/10/10	699	VCG silty sand with gravel	Sand	Silt	Brown	VCG Sand (1-2 mm)	Pebbles/Gravel (2-64 mm)	Rounded	Poor	Saturated	None
SB_MW06_OB_SC016	10/25/2021 17:10	37.5	11.43	39.5	12.04	0.61	Split Spoon	2/4/3/3	1319	First 28cm VCG silty sand with gravel , last 33cm medium to FG silty sand with trace gravel	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Moderate	Saturated	None
SB_MW06_OB_SC017	10/26/2021 12:22	40.0	12.19	42	12.80	0.40	Split Spoon	4/8/11/12	1074	First 20cm inferred heave (coarse grained silty sand), last 20cm FG silty sand	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Moderate	Saturated	None
SB_MW06_OB_SC018	10/28/2021 13:40	42.5	12.95	44.5	13.56	0.40	Split Spoon	7/14/17/0	1514	First 18cm inferred heave (coarse grained silty sand), last 22cm FG silty sand	Sand	Silt	Brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Moderate	Saturated	None
SB_MW06_OB_SC019	10/28/2021 13:54	45.0	13.72	47	14.33	0.61	Split Spoon	14/49/-	1037	FG silty sand	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Well	Saturated	None
SB_MW06_OB_SC020	10/28/2021 14:07	47.5	14.48	49.5	15.09	0.41	Split Spoon	15/24/13/50	741	VCG silty sand with gravel	Sand	Silt	light brown	VCG Sand (1-2 mm)	Silt (0.002-0.05 mm)	Subrounded	Poor	Saturated	None
-	10/28/2021 14:19	50.0	15.24	52	15.85					No sample - inferred heave exceeded spoon length									
SB_MW06_OB_SC021	10/28/2021 14:28	52.5	16.00	54.5	16.61	0.61	Split Spoon	11/26/25/22	1164	Top 40cm inferred heave (VCG silty sand with gravel), last 21cm VFG silty sand)	Sand	Silt	brown	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	Rounded	Moderate	Saturated	None
SB_MW06_OB_SC022	10/28/2021 14:45	55.0	16.76	57	17.37	0.55	Split Spoon	1/1/8/24	1319	Fine to medium grained silty sand	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Well	Saturated	None
SB_MW06_OB_SC023	10/28/2021 15:02	57.5	17.53	59.5	18.14	0.50	Split Spoon	1/12/29/38	927	Fine to medium grained silty sand	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Subrounded	Well	Saturated	None
SB_MW06_OB_SC024	10/28/2021 15:20	60.0	18.29	62	18.90	0.61	Split Spoon	0/0/6/15	560	Fine to medium grained silty sand	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Subrounded	Well	Saturated	None
-	10/28/2021 15:30	62.5	19.05	64.5	19.66					No sample - heave exceeded spoon length									
SB_MW06_OB_SC025	10/28/2021 15:44	65.0	19.81	67	20.42	0.61	Split Spoon	1/4/7/-	1416	Top 51cm inferred heave (fine to medium grained silty sand), last 10cm silty VCG sand and gravel	Sand	Gravel	brown	VCG Sand (1-2 mm)	Pebbles/Gravel (2-64 mm)	Subrounded	Poor	Saturated	None
-	10/28/2021 16:00	67.5	20.57	69.5	21.18					No sample due to heave - inferred geology based on heave and drilling	Sand	Gravel							
-	10/28/2021 16:40	70.0	21.34	72	21.95					No sample due to heave - inferred geology based on heave and drilling	Sand	Gravel							
-	10/28/2021 17:00	72.5	22.10	74.5	22.71					No sample due to heave - inferred geology based on heave and drilling - Difficult Drilling with Gravel	Silt	Clay							
-	10/28/2021 17:05	75.0	22.86	77	23.47					No sample due to heave - inferred geology based on heave and drilling - Difficult Drilling with Gravel	Silt	Clay							
-	10/28/2021 17:10	77.5	23.62	79.5	24.23					No sample due to heave - inferred geology based on heave and drilling - Difficult Drilling with Gravel	Silt	Clay							
-	10/28/2021 17:17	80.0	24.38	82	24.99					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:25	82.5	25.15	84.5	25.76					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:30	85.0	25.91	87	26.52					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:36	87.5	26.67	89.5	27.28					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:41	90.0	27.43	92	28.04					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:45	92.5	28.19	94.5	28.80					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:49	95.0	28.96	97	29.57					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
-	10/28/2021 17:55	97.5	29.72	99.5	30.33					No sample due to heave - inferred geology based on heave and drilling - Soft Easy Drilling	Sand	Silt							
SB_MW06_BR_SC026	12/8/2021 12:40	70.0	21.34	72	21.95	--	--	--		Medium sand with trace silt and gravel	Sand		Brown	MG Sand (0.25-0.5 mm)			Moderate	Saturated	None
SB_MW06_BR_SC027	12/8/2021 12:45	75.0	22.86	77	23.47	--	--	--		Medium-to-coarse sand with some cobbles, gravel and silt.	Sand	Silt, Gravel, and Cobbles	Greyish Brown	CG Sand (0.5-1 mm)	Cobbles (>64 mm)	Rounded	Well	Saturated	None
SB_MW06_BR_SC028	12/8/2021 13:25	80.0	24.38	82	24.99	--	--	--		Rounded Medium Gravel with Coarse Sand	Gravel	Sand	Light Brown	Pebbles/Gravel (2-64 mm)	CG Sand (0.5-1 mm)	Rounded	Poor	Saturated	None
SB_MW06_BR_SC029	12/8/2021 13:29	85.0	25.91	87	26.52	--	--	--		Driller reported boulders below 84' - Coarse Sand with rounded medium gravel with cobbles and boulders	Sand	Gravel, Cobbles, and Boulders	Light Brown	CG Sand (0.5-1 mm)	Cobbles and Boulders	Rounded	Poor	Saturated	None
SB_MW06_BR_SC030	12/8/2021 13:34	90.0	27.43	92	28.04	--	--	--		Silty Coarse-to-Medium Sand with Some Gravel	Sand	Silt and Gravel	Brown	CG Sand (0.5-1 mm)	Silt (0.002-0.05 mm)	Rounded	Moderate	Saturated	None

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID: SB_MW06_OB & SB_MW06_BR

General Comments:

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Recovery (m)	Sample Type (Core/Drill Cuttings)	Blow Counts	Sample Weight (g)	Geological/Geotechnical Log									
										Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW06_BR_SC031	12/8/2021 13:38	95.0	28.96	97	29.57	--	--	--		Silty Fine-to-Coarse Gravel with some Coarse Sand	Gravel	Silt	Light Brown	Pebbles/Gravel (2-64 mm)	Silt (0.002-0.05 mm)	Rounded	Well	Saturated	None
SB_MW06_BR_DC001	12/8/2021 14:15	99.0	30.18	100	30.48	--	--	--		Top of bedrock at 99' (30.18 m) - Surface Rock Cuttings									
SB_MW06_BR_DC002	12/8/2021 14:25	105.0	32.00	106	32.31	--	--	--											
SB_MW06_BR_DC003	12/8/2021 14:33	110.0	33.53	111	33.83	--	--	--											
SB_MW06_BR_DC004	12/8/2021 15:05	120.0	36.58	121	36.88	--	--	--		Casing set at 35.05m									
SB_MW06_BR_DC005	12/8/2021 15:15	130.0	39.62	131	39.93	--	--	--		Caving Void with some sand from approximately 131 to 132, advanced casing to 135' (41.15 m)									
SB_MW06_BR_DC006	12/10/2021 11:56	140.0	42.67	141	42.98	--	--	--	481.2	Harder drilling, medium grey dolostone with black laminations visible in larger chips, 75% chips coarse sand sized, 25% pebble sized	Dolostone	-	Medium grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC007	12/10/2021 12:05	150.0	45.72	151	46.02	--	--	--	220.6	Medium grey dolostone, 50% chips coarse sand sized, 50% pebble sized	Dolostone	-	Medium grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC008	12/10/2021 12:18	160.0	48.77	161	49.07	--	--	--	491.7	Medium brown-grey dolostone homogeneous in colour, 85% chips coarse sand sized, 15% pebble sized	Dolostone	-	Medium brown-grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC009	12/10/2021 12:25	170.0	51.82	171	52.12	--	--	--	144.3	Medium brown-grey dolostone and limestone homogeneous in colour, 50% chips coarse sand sized, 50% pebble sized	Dolostone	Limestone	Medium brown-grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC010	12/10/2021 12:43	180.0	54.86	181	55.17	--	--	--	172.2	Dark brown-grey dolostone and limestone homogeneous in colour, 70% chips coarse sand sized, 30% pebble sized	Dolostone	Limestone	Dark brown-grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC011	12/10/2021 12:50	190.0	57.91	191	58.22	--	--	--	192.2	50-50 mix of dark grey and light grey limestone, pervasive reaction with HCl, 40% chips coarse sand sized, 60% pebble sized	Limestone	-	Dark and light grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC012	12/10/2021 13:06	200.0	60.96	201	61.26	--	--	--	376.3	Light-medium grey limestone, strong pervasive reaction with HCl, 75% chips coarse sand sized, 25% pebble sized, feels sand-like in texture	Limestone	-	Light-medium grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC013	12/10/2021 13:15	210.0	64.01	211	64.31	--	--	--	190.7	Very dark brown limestone with <5% medium grey chips, weak reation with HCl	Limestone	Dolostone	Dark brown	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC014	12/10/2021 13:33	220.0	67.06	221	67.36	--	--	--	204	Medium grey-brown limestone homogeneous in colour, weak reation with HCl, 40% chips coarse sand sized, 30% platy pebble sized	Limestone	-	Medium grey-brown	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC015	12/10/2021 13:40	230.0	70.10	231	70.41	--	--	--	226.5	50% dark brown limestone, 50% medium grey limestone, weak reation with HCl, 95% chips coarse sand sized, 5% pebble sized	Limestone	-	Dark brown / medium grey	N/A	N/A	N/A	N/A	N/A	Subtle hydrocarbon
SB_MW06_BR_DC016	12/10/2021 14:09	240.0	73.15	241	73.46	--	--	--	208.8	Medium slight blue-grey limestone, weak reation with HCl, 50% chips coarse sand sized, 50% platy pebble sized	Limestone	-	Medium slight blue-grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC017	12/10/2021 14:30	250.0	76.20	251	76.50	--	--	--	228.5	Medium grey and very dark dark brown limestone, strong pervasive reaction with HCl, trace fine grained pyrite observed on chip surface	Limestone	-	Medium grey / very dark brown	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC018	12/13/2021 9:45	260.0	79.25	261	79.55	--	--	--	196.2	Medium grey fossiliferous (crinoid, coral) limestone, patchy strong reation with HCl, 90% chips coarse sand sized, 10% pebble sized	Limestone	-	Medium grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC019	12/13/2021 10:05	270.0	82.30	271	82.60	--	--	--	145.1	Medium grey limestone with some (15%) light grey chert, strong pervasive reaction with HCl, 90% chips coarse sand sized, 10% platy pebble sized	Limestone	-	Medium grey / light grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC020	12/13/2021 11:30	280.0	85.34	281	85.65	--	--	--	127.2	Light grey limestone with some (10%) medium grey limestone chips, strong pervasive reaction with HCl, chips coarse grained sand size with trace pebble sized chips	Limestone	-	Light grey / medium grey	N/A	N/A	N/A	N/A	N/A	-
SB_MW06_BR_DC021	12/13/2021 11:35	281.5	85.80	282	86.00	--	--	--	143.4	Light grey and medium grey limestone, strong pervasive reaction with HCl, chips coarse grained sand size with ~25% pebble sized chips. Water sample collected after pump-out.	Limestone	-	Light grey / medium grey	N/A	N/A	N/A	N/A	N/A	-

Completed by:	Corbin Sweet
Date:	12/8/2021
Verified by:	AMSC
Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
GEOLOGICAL / GEOTECHNICAL LOG

Project Number: 21-223-1

Borehole ID:	SB_MW07_OB & SB_MW07_BR	General Co

Sample ID	Date/Time	Interval Top Depth (ft BGS)	Interval Top Depth (m BGS)	Interval Bottom Depth (ft BGS)	Interval Bottom Depth (m BGS)	Recovery (m)	Sample Type (Core/Drill Cuttings)	Blow Counts	Sample Weight (g)	Geological/Geotechnical Log									
										Description/Comments	Lithology (Primary)	Lithology (Secondary)	Colour	Grain Size (Primary)	Grain Size (Secondary)	Roundness	Sorting	Moisture Content	Odour
SB_MW07_OB_SC001	10/27/2021 11:30	0.0	0.00	2.0	0.61	0.38	Split Spoon	1/2/3/4	725	Topsoil - FG sand with silt/clay and minor gravel	Sand	Silt	Light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Poor	Moist	None
SB_MW07_OB_SC002	10/27/2021 11:44	2.5	0.76	4.5	1.37	0.38	Split Spoon	3/3/4/7	742	Topsoil - FG sand with silt/clay and minor gravel	Sand	Silt	Light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Poor	Moist	None
SB_MW07_OB_SC003	10/27/2021 11:50	5.0	1.52	7.0	2.13	0.28	Split Spoon	1/5/8/5	601	First 10 cm is FG sand with silt/clay and minor gravel, bottom 18cm is MG sand with gravel and some silt	Sand	Silt	Light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Well	Dry	None
SB_MW07_OB_SC004	10/27/2021 11:55	7.5	2.29	9.5	2.90	0.56	Split Spoon	3/3/5/8	1245	First 5cm is MG sand with gravel and some silt, last 51cm is silty sand (FG) with minor gravel	Sand	Silt	Brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Well	Dry	None
SB_MW07_OB_SC005	10/27/2021 11:59	10.0	3.05	12.0	3.66	0.61	Split Spoon	7/8/11/11	1289	First 44cm silty sand with minor gravel, last 17cm silty fine grained sand	Sand	Silt	Light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Dry	None
SB_MW07_OB_SC006	10/27/2021 12:11	12.5	3.81	14.5	4.42	0.57	Split Spoon	4/6/6/28	1015	VFG silty sand	Sand	Silt	Light brown/tan	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	Well Rounded	Very Well	Dry	None
SB_MW07_OB_SC007	10/27/2021 12:20	15.0	4.57	17.0	5.18	0.61	Split Spoon	11/25/38/-	1005	VFG well sorted sand	Sand	Sand	tan	VFG Sand (0.05-0.10 mm)	VFG Sand (0.05-0.10 mm)	Well Rounded	Very Well	Dry	None
SB_MW07_OB_SC008	10/27/2021 12:31	17.5	5.33	19.5	5.94	0.61	Split Spoon	14/35/49/-	1034	VFG well sorted sand	Sand	Sand	Tan	VFG Sand (0.05-0.10 mm)	VFG Sand (0.05-0.10 mm)	Well Rounded	Very Well	Dry	None
SB_MW07_OB_SC009	10/27/2021 12:39	20.0	6.10	22.0	6.71	0.61	Split Spoon	16/27/37/32	777	Silty VFG sand, bottom 40 cm is moist	Sand	Silt	Tan/light brown	VFG Sand (0.05-0.10 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Moist	None
SB_MW07_OB_SC010	10/27/2021 12:49	22.5	6.86	24.5	7.47	0.61	Split Spoon	11/23/13/47	1164	Silty sand , top 50cm moist, bottom 10cm becoming saturated	Sand	Silt	light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Moist	None
SB_MW07_OB_SC011	10/27/2021 13:01	25.0	7.62	27.0	8.23	0.53	Split Spoon	15/25/24/25	1107	Silty fine to medium grained sand, saturated	Sand	Silt	Brown	MG Sand (0.25-0.5 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Saturated	None
SB_MW07_OB_SC012	10/27/2021 13:10	27.5	8.38	29.5	8.99	0.61	Split Spoon	15/22/26/33	1113	Silty fine to medium grained sand	Sand	Silt	Brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Saturated	None
SB_MW07_OB_SC013	10/27/2021 13:18	30.0	9.14	32.0	9.75	0.61	Split Spoon	20/27/24/30	1115	Silty FG sand	Sand	Silt	brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Saturated	None
SB_MW07_OB_SC014	10/27/2021 13:41	32.5	9.91	34.5	10.52	0.61	Split Spoon	14/38/-	1636	Silty FG sand	Sand	Silt	light brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Well Rounded	Well	Saturated	None
SB_MW07_OB_SC015	10/27/2021 13:49	35.0	10.67	37.0	11.28	0.61	Split Spoon	0/9/15	1347	First 50 cm silty FG sand, last 11cm VCG sand with trace silt	Sand	Silt	Brown	FG Sand (0.10-0.25 mm)	Silt (0.002-0.05 mm)	Rounded	Moderate	Saturated	None
SB_MW07_OB_SC016	10/27/2021 14:00	37.5	11.43	39.5	12.04	0.61	Split Spoon	9/-	1601	First 52cm VCG sand with trace silt, last 9cm VFG sandy silt	Sand	Silt	Dark brown	VCG Sand (1-2 mm)	Silt (0.002-0.05 mm)	Subrounded	Moderate	Saturated	None
SB_MW07_OB_SC017	10/27/2021 14:20	40.0	12.19	42	12.80	0.30	Split Spoon	-		Inferred heave , VCG sand with trace silt	Sand	Silt	brown	VCG Sand (1-2 mm)	Silt (0.002-0.05 mm)	Subrounded	Moderate	Saturated	None
SB_MW07_BR_DC001	11/19/2021 11:30	82	24.99	83	25.30	N/A	Rock Cuttings	N/A	140.7	Top of bedrock at 54' (16.46 m) Brownish Grey, Fine-textured dolostone with some limestone	Dolostone	Limestone	Brownish Grey / Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC002	11/19/2021 11:34	92	28.04	93	28.35	N/A	Rock Cuttings	N/A	67.4	Greyish Brown to Buff Coloured Dolostone with a little brownish grey limestone. Some pinhole weathering features in dolostone	Dolostone	Limestone	Greyish Brown (Buff) or Brownish Grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC003	11/19/2021 11:40	102	31.09	103	31.39	N/A	Rock Cuttings	N/A	61.8	Thinly laminated dark brown argilaceous limestone with trace buff coloured dolostone	Limestone	Dolostone	Dark Brown or Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC004	11/19/2021 11:45	112	34.14	113	34.44	N/A	Rock Cuttings	N/A	361.6	Brown to dark brown argillacous dolostone with trace brown limestone. Fine-to-medium textured. Some evident pinhole weathering.	Dolostone	Limestone	Brown to Dark Brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC005	11/19/2021 11:50	122	37.19	123	37.49	N/A	Rock Cuttings	N/A	32.5	Light brown to Buff Dolostone with pinhole weathering. Medium textured	Dolostone		Light Brown to Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC006	11/19/2021 11:56	132	40.23	133	40.54	N/A	Rock Cuttings	N/A	81.2	Light brown to Buff Dolostone with pinhole weathering. Medium textured. Trace limestone	Dolostone	Limestone	Light Brown to Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC007	11/19/2021 12:34	142	43.28	143	43.59	N/A	Rock Cuttings	N/A	118.1	Light Brown to Buff Dolostone with pinhole weathering. Medium textured. Trace limestone	Dolostone		Light Brown to Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC008	11/19/2021 12:41	152	46.33	153	46.63	N/A	Rock Cuttings	N/A	158.2	Brown to dark greyish-brown argillaceous dolostone with trace limestone	Dolostone		Brown to Dark Greyish Brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC009	11/19/2021 12:50	162	49.38	163	49.68	N/A	Rock Cuttings	N/A	147.4	Brown to dark greyish-brown argillaceous dolostone	Dolostone		Brown to Dark Greyish Brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC010	11/19/2021 13:00	172	52.43	173	52.73	N/A	Rock Cuttings	N/A	54.3	Medium textured greyish brown dolostone with some stylolites and trace limestone	Dolostone	Limestone	Brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC011	11/19/2021 13:10	182	55.47	183	55.78	N/A	Rock Cuttings	N/A	250.2	Light grey and white argillaceous limestone with dolostone	Limestone	Dolostone	Light Grey and white	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC012	11/19/2021 13:15	192	58.52	193	58.83	N/A	Rock Cuttings	N/A	131.2	Light brownish grey / buff dolostone with trace grey limestone	Dolostone	Limestone	Light Brownish Grey / Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC013	11/19/2021 13:29	202	61.57	203	61.87	N/A	Rock Cuttings	N/A	89.3	Light brownish grey / buff dolostone with trace grey limestone	Dolostone	Limestone	Light Brownish Grey / Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC014	11/19/2021 13:38	212	64.62	213	64.92	N/A	Rock Cuttings	N/A	292.2	Greyish brown dolostone with trace limestone. Primarily coarse sand sized fragments	Dolostone	Limestone	Greyish Brown (Buff) or Brownish Grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC015	11/19/2021 13:47	222	67.67	223	67.97	N/A	Rock Cuttings	N/A	91.5	Buff coloured, fine-textured dolostone, laminated	Dolostone		Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC016	11/20/2021 10:55	232	70.71	233	71.02	N/A	Rock Cuttings	N/A	58.8	Light brown to buff coloured, fine-textured dolostone, laminated	Dolostone		Light Brown to Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC017	11/22/2021 16:07	242.5	73.91	243.5	74.22	N/A	Rock Cuttings	N/A	225.3	Greyish brown medium-textured Dolostone with evident pinhole weathering	Dolostone		Greyish Brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC018	11/22/2021 16:31	252	76.81	253	77.11	N/A	Rock Cuttings	N/A	115.6	Greyish brown medium-textured Dolostone with evident pinhole weathering	Dolostone		Greyish Brown	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC019	11/22/2021 16:57	262	79.86	263	80.16	N/A	Rock Cuttings	N/A	94.2	Brown to light-brown moderate lamination fine-to-medium textured dolostone with minor bituminous partings and trace limestone	Dolostone	Limestone	Brown to Light Brown/Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC020	11/23/2021 10:50	272	82.91	273	83.21	N/A	Rock Cuttings	N/A	99.8	Brown and Light-Brown fine-to-medium textured dolostone with minor bituminous partings and trace limestone	Dolostone	Limestone	Brown and Light Brown/Buff	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC021	12/14/2021 13:16	282	85.95	283	86.26	N/A	Rock Cuttings	N/A	139.3	50-50 mix of dark brown and medium grey limestone, weak reaction with HCl, large grey chips contain vuggs	Limestone		Dark brown / medium grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC022	12/15/2021 9:30	292	89.00	293	89.31	N/A	Rock Cuttings	N/A	55.4	Light grey limestone, strong pervasive reaction with HCl, trace dark brown limestone, 50-50 mix of coarse sand sized chips and pebble sized chips	Limestone		Light grey	N/A	N/A	N/A	N/A	N/A	None
SB_MW07_BR_DC023	12/15/2021 9:45	302	92.05	303	92.35	N/A	Rock Cuttings	N/A	96.4	Medium grey limestone, strong pervasive reaction with HCl, coarse sand sized chips and trace pebble sized chips	Limestone		Medium grey	N/A	N/A	N/A	N/A	N/A	None

Completed by:	CJS / JKW	Verified by:	AMSC
Date:	2021/12/16	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW02_OB	General Comments:	Water level measurements taken during drilling operations of SB_MW02_OB
Sampling Personnel	LIM, JLB, LMB, PRT, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurment Device (e.g. WL-01)	Comments
10/14/2021	16:20:00	6.25	WL-10	Measurement Down Augers
10/15/2021	9:15:00	9.27	WL-10	Measurement Down Augers
10/15/2021	9:55:00	8.9	WL-10	Measurement Down Augers
10/15/2021	13:10:00	7.01	WL-10	Measurement Down Augers
10/15/2021	14:37:00	5.1	WL-10	Measurement Down Augers
10/18/2021	13:30:00	4.45	WL-10	Below Flush Mount -Temporary Casing
10/22/2021	10:19:00	4.37	WL-10	Below Flush Mount -Temporary Casing
10/31/2021	7:50:00	5.17	WL-11	MW02_OB (recorded by LIM)

Completed by:	LIM	Verified by:	AMSC
Date:	10/31/2022	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW02_BR	General Comments:	Water level measurements taken during drilling operations of SB_MW02_BR
Sampling Personnel	CJS / LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
10/28/2021	10:00	4.42	Solinst Model 101-WL10	Measurement down freshly installed 8.5" diameter bedrock well casing. (TOC= 0.4 m AGS)
10/30/2021	16:20	5.22	Solinst Model 101-WL10	Measurement down 8.5" Diameter casing of completed Bedrock well shortly after drilling and development (TOC = 0.4 m AGS)
10/31/2021	12:05	4.88	Solinst Model 101-WL11	MW02_BR (bedrock well)
11/1/2021	16:15	4.91	Solinst Model 101-WL11	Confirmation measurement. Measured after water level in SB_MW03_BR was observed rising on trend for static water level to be above ground surface

Completed by:	LIM/CJS	Verified by:	AMSC
Date:	11/1/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW03_OB	General Comments:	Water levels collected during drilling operations of MW03_OB
Sampling Personnel	LIM, CJS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/10/18	14:40	4.1	Solinst Model 102	Water level 3.3 m BGS; water level measure with augers downhole
2021/10/18	17:16	6.00	Solinst Model 102	Water level immediately after installing well
2021/10/18	18:00	5.66	Solinst Model 102	Water Level 45min after installation
2021/10/19	7:50	3.34	Solinst Model 102	
2021/10/22	10:10	2.16	Solinst Model 102	
2021/10/31	10:10	1.05	WL-11	SB_MW03_OB measured prior to installing MW03-BR casing and drilling
2021/11/01	8:00	1.93	WL-11	
2021/11/04	14:05	0.55	WL-11	TOC = 0.90 m

Completed by:	LIM	Verified by:	AMSC
Date:	11/4/2021	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW03_BR	General Comments:	Water levels collected during drilling operations of MW03_OB
Sampling Personnel	LIM/CJS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
11/1/2021	14:20	1.53	WL-11	Measured a couple hours after drilling stopped before drilling resumed (drilling stopped until there was enough space in holding tank to proceed with drilling). Top of casing 0.6m above ground surface
11/1/2021	16:15	0.51	WL-11	Measured after drilling stopped (48 300 L produced with a final drilled to depth of 200')
11/1/2021	16:45	0.24	WL-11	
11/1/2021	16:46	0.22	WL-11	
11/1/2021	16:47	0.20	WL-11	
11/1/2021	16:48	0.16	WL-11	
11/1/2021	16:49	0.14	WL-11	
11/1/2021	16:50	0.13	WL-11	
11/1/2021	16:51	0.11	WL-11	
11/1/2021	16:52	0.08	WL-11	
11/1/2021	16:53	0.06	WL-11	
11/1/2021	16:54	0.04	WL-11	No more water levels taken as drillers needed to weld more casing on top
11/2/2021	8:30	1.24	WL-11	Top of casing is 2.73m above ground surface, meaning water level is 1.49 m above ground surface.
11/3/2021	13:13:20	1.43	WL-11	Top of casing (with well cap) is 2.68 m above ground surface. First measurement after well was completed with well tag.
11/3/2021	13:14:00	1.42	WL-11	Top of casing (with well cap) is 2.68 m above ground surface.
11/3/2021	13:15:21	1.42	WL-11	Top of casing (with well cap) is 2.68 m above ground surface.
11/3/2021	13:16:46	1.41	WL-11	Top of casing (with well cap) is 2.68 m above ground surface.
11/3/2021	13:19:27	1.41	WL-11	Top of casing (with well cap) is 2.68 m above ground surface.
11/3/2021	15:53	1.29	WL-11	Water level is 1.39 m above ground surface.
11/4/2021	13:50	1.20	WL-11	Water level is 1.48 m above ground surface.
11/9/2021	13:50	1.23	WL-11	Top of casing (with well cap) is 2.68 m above ground surface.
11/11/2021	7:15	1.25	WL-11	Top of casing (with well cap) is 2.68 m above ground surface. Water level is 1.43 m above ground surface.
12/13/2021	14:30	1.76	WL-11	Water level in casing measured after pumping casing
12/13/2021	15:32	1.49	WL-11	Water level measured immediately after Margo plug installation
12/13/2021	16:00	1.54	WL-11	Water level in casing at end of day
12/14/2021	15:50	1.54	WL-11	Water level in casing at end of day
2/1/2022	17:00	1.44	tape measure	Ice in casing
2/20/2022	12:00	1.45	tape measure	Ice in casing, adhered to 1.5" PVC casings of nested wells and melted away from sides of 8" outer casing

Completed by:	LIM / CJS	Verified by:	AMSC
Date:	2/24/2022	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW04_OB	General Comments:	Water levels collected during drilling operations of MW04_OB
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/10/22	11:21:00	6.83	Solinst Model 101-WL10	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW04_BR	General Comments:	Water levels collected during drilling operations of bedrock well MW04_BR
Sampling Personnel	CJS, JKW		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
11/18/2021	12:30	6.47	Solinst Model 101-WL10	Measurement down freshly installed 8.5" diameter bedrock well casing. (TOC= 0.60 m AGS)

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_OB	General Comments:	Water levels collected during drilling operations of MW05_OB
Sampling Personnel	JW, LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
10/26/2021	17:45:00	4.50	WL-10	
11/5/2021	17:40:00	4.36	WL-11	
11/7/2021	7:55:00	4.34	WL-11	

Completed by:	LIM	Verified by:	AMSC
Date:	11/7/2022	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_BR	General Comments:	Water levels collected during drilling operations of bedrock well MW05_BR
Sampling Personnel	LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/11/06	8:15	5.22	WL-11	Measured down outer 12" casing set to a depth of 8.00m BGS, TOC=1.14 m above ground surface.
2021/11/06	19:20	19.21	WL-11	Measured through 8" casing (to a depth of 24.46mBGS) after grouting and removing 12" casing. TOC = 1.34 m above ground surface.
2021/11/07	7:55	9.88	WL-11	TOC = 1.34 m above ground surface.
2021/11/07	10:58:36	7.00	WL-11	Measured down casing with drill rods still within casing after drilling to 120' (30.38mBGS)
2021/11/07	10:59:05	6.53	WL-11	
2021/11/07	10:59:47	6.00	WL-11	
2021/11/07	11:00:45	5.50	WL-11	
2021/11/07	11:02:17	5.00	WL-11	
2021/11/07	11:03:38	4.75	WL-11	
2021/11/07	11:06:06	4.50	WL-11	
2021/11/07	11:13:12	4.25	WL-11	
2021/11/07	11:20	4.16	WL-11	
2021/11/07	11:36	4.06	WL-11	
2021/11/07	11:51	4.01	WL-11	
2021/11/07	12:42	3.94	WL-11	
2021/11/07	13:21	3.91	WL-11	
2021/11/07	14:05:56	8.50	WL-11	Measured down casing with drill rods still within casing after drilling to 140' (42.67 mBGS). Drilling stopped at
2021/11/07	14:06:01	8.25	WL-11	
2021/11/07	14:06:12	8.00	WL-11	
2021/11/07	14:06:22	7.75	WL-11	
2021/11/07	14:06:35	7.50	WL-11	
2021/11/07	14:07:33	7.00	WL-11	
2021/11/07	14:08:14	6.50	WL-11	
2021/11/07	14:09:15	6.00	WL-11	
2021/11/07	14:10:58	5.50	WL-11	
2021/11/07	14:15:11	5.00	WL-11	
2021/11/07	14:27	4.50	WL-11	
2021/11/07	15:12:15	8.50	WL-11	Measured down casing with drill rods still within casing after drilling to 160' (48.77 mBGS)
2021/11/07	15:12:33	8.00	WL-11	
2021/11/07	15:12:52	7.50	WL-11	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_BR	General Comments:	Water levels collected during drilling operations of bedrock well MW05_BR
Sampling Personnel	LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/11/07	15:13:17	7.00	WL-11	
2021/11/07	15:13:48	6.50	WL-11	
2021/11/07	15:14:29	6.00	WL-11	
2021/11/07	15:15:30	5.50	WL-11	
2021/11/07	15:16:17	5.25	WL-11	
2021/11/07	15:17:17	5.00	WL-11	
2021/11/07	15:18:56	4.75	WL-11	
2021/11/07	15:21:52	4.50	WL-11	
2021/11/07	16:05:31	5.75	WL-11	Measured down casing with drill rods still within casing after drilling to 180' (56.86 mBGS)
2021/11/07	16:06:04	5.50	WL-11	
2021/11/07	16:06:53	5.25	WL-11	
2021/11/07	16:08:10	5.00	WL-11	
2021/11/07	16:10:20	4.75	WL-11	
2021/11/07	16:14:19	4.50	WL-11	
2021/11/08	7:30:00	3.62	WL-11	Water level measured after taking the well seal off (on overnight) prior to drilling. Current drilled depth at the time of this measurement was 50.86mBGS
2021/11/08	8:35:43	5.50	WL-11	Measured down casing with drill rods still within casing after drilling to 200' (67.06 mBGS)
2021/11/08	8:36:44	5.25	WL-11	
2021/11/08	8:37:36	5.10	WL-11	
2021/11/08	8:38:18	5.00	WL-11	
2021/11/08	8:39:16	4.90	WL-11	
2021/11/08	8:40:30	4.80	WL-11	
2021/11/08	8:41:18	4.75	WL-11	
2021/11/08	8:42:11	4.70	WL-11	
2021/11/08	8:48:20	4.49	WL-11	
2021/11/08	10:34:36	5.00	WL-11	Measured down casing with drill rods still within casing after drilling to 219' (66.75 mBGS)
2021/11/08	10:37:17	4.50	WL-11	
2021/11/08	10:38:18	4.40	WL-11	
2021/11/08	10:39:48	4.30	WL-11	
2021/11/08	10:40:43	4.25	WL-11	
2021/11/08	10:41:50	4.20	WL-11	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_BR	General Comments:	Water levels collected during drilling operations of bedrock well MW05_BR
Sampling Personnel	LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/11/08	10:43:13	4.15	WL-11	
2021/11/08	11:05	3.81	WL-11	
2021/11/08	11:10	3.80	WL-11	
2021/11/08	12:34	3.83	WL-11	Measured down casing with drill rods still within casing after drilling to 223' (68.88 mBGS)
2021/11/08	12:49	3.77	WL-11	
2021/11/09	7:30	3.46	WL-11	Water level measured after taking the well seal off (on overnight) prior to drilling. Current drilled depth at the time of this measurement was 68.88 mBGS
2021/11/09	10:28:29	3.64	WL-11	Water levels after drilling to target depth of 76.2m and removing all the drill rods. TOC ~1.3
2021/11/09	10:36:22	3.61	WL-11	
2021/11/09	10:59:39	3.57	WL-11	
2021/11/09	12:01	2.88	WL-11	Water level after casing was cut down to 0.72m above ground (TOC). Water level is still recovering following drilling. Bottom of the hole was tagged at 76.90mBTOC

Completed by:	LIM	Verified by:	AMSC
Date:	2021/11/09	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW06_OB	General Comments:	Water level measurements taken during drilling operations of SB_MW06_OB
Sampling Personnel	JW		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/10/29	12:00:00	11.18	Solinst Model 101-WL10	

Completed by:	JW	Verified by:	AMSC
Date:	2021/10/29	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW07_OB	General Comments:	Water levels collected during drilling operations of bedrock well MW07_OB
Sampling Personnel	JKW, LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/10/27	16:30:00	8.70	Solinst Model 101-WL10	Non-equilibrium water level collected immediately after well installation
2021/10/28	8:20:00	8.50	Solinst Model 101-WL10	

Completed by:	LIM	Verified by:	AMSC
Date:	2022/03/26	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW07_BR	General Comments:	Water levels collected during drilling operations of bedrock well MW07_BR
Sampling Personnel	CJS / CDC		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021/11/20	15:41:00	8.43	Solinst Model 101-WL10	Water Level collected from bedrock well. (TOC = 0.61 metres above ground surface)
2021/12/14	10:00:00	7.96	Solinst Model 101-WL11	Water Level collected from bedrock well. (TOC = 0.61 metres above ground surface)
2021/12/17	12:00:00	8.25	Solinst Model 101-WL10	Water Level collected from bedrock well. (TOC = 0.61 metres above ground surface)

Completed by:	CJS / CDC	Verified by:	AMSC
Date:	2022/12/17	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW02_BR
Sampling Personnel	CJS / LIM

General Comments: Actual real-time discharge rate is not measurable due to sporadic bursts of discharge water and cuttings into tank (i.e. safety issue).

Tank volume includes cuttings accumulation in tank.

Tank Details

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)
Tank #1	Small Receiving Tank	1.14	2.31	3.56	9.37	9375
Tanks #2 &	Large Holding Tanks	2.15	2.45	6.1	32.13	32132

					Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (m BGS)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full	Approximate Volume Water Used (Traced with NaFl) [L]	Tank Measurement (m below top of tank)	Change in Tank Volume (L)	Tank Measurement (mB top of tank)	Volume in Tank (L)	Tank Measurement (mB top of tank)	Volume in Tank (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments (measurement method,
10/28/2021	16.8 - 17.1	13:15	--	--	0.90	1974	2.15	0	2.15	0	1974	1974	1974	Initial Tank Measurement after approximately three (3) metres of drilling
10/28/2021	22.9 - 23.2	13:50	--	0	0.86	329	2.15	0	2.15	0	329	2303	2303	
10/28/2021	29.0 - 29.3	14:15	--	185	0.76	806	2.15	0	2.15	0	806	3109	3109	
10/28/2021	41.2 - 41.5	14:58	--	250	0.59	1414	2.15	0	2.15	0	1414	4523	4523	
10/28/2021	47.2 - 47.6	15:45	--	250	0.27	2632	2.15	0	2.15	0	2632	7155	7155	
10/28/2021	47.6	16:10	--	--	0.63	-2960	1.95	2989	2.15	0	29	7183	7183	Pumped Water from receiving tank into holding tank, approximately half the filled volume of the tank was observed to be cuttings. Volume in Tank #2 after pumping (~2,989 L)
10/28/2021	56.4 - 56.7	16:45	--	350	0.51	987	1.95	2989	2.15	0	3976	8170	8170	
10/28/2021	59.7	17:00	--	350	--	--	1.41	11134	2.15	0	--	**11134**	11134	Reported after the fact that they had been pumping the receiving tank out during drilling for the last few runs (i.e. estimated after approximately 50 mBGS) due to the volume being produced. FINAL END OF DAY VOLUME IN HOLDING TANK = 11,134 L.
10/29/2021	59.7	11:00	--	350	0.88	2138	1.41	11134	2.15	0	0	0	11134	BH Cleanout after the tank was fully pumped of cuttings by KJC
10/29/2021	62.5 - 62.8	11:15	--	350	0.74	1151	1.41	11134	2.15	0	1151	1151	12285	Drilling commenced
10/29/2021	65.5 - 65.8	11:25	100	350	0.61	1069	1.26	13346	2.15	0	3281	4432	15566	
10/29/2021	Tank Transfer	11:41	99.5	384	1.10	-4030	0.99	17327	2.15	0	0	4432	15566	Stopped and Pumped Tank 1 into Tank 2
10/29/2021	68.5 - 68.8	12:00	98	486	1.00	822	0.32	27387	2.15	0	6852	11285	22419	
10/29/2021	71.6 - 71.9	12:20	98	486	1.01	-82	0.23	28715	1.64	7652	8980	20265	31399	
10/29/2021	74.7 - 75.0	12:35	96	623	0.18	6826	0.23	28715	1.63	7831	7005	27270	38404	Pump not running from Tank 1 to Tank 3
10/29/2021	77.7 - 78.0	13:05	96	623	0.99	-6661	0.23	28694	0.69	21882	14030	41300	52434	Stopped and Pumped Tank 1 into Tank 3
10/29/2021	80.8 - 81.1	14:09	96	623	1.03	-329	0.23	28694	0.27	28097	6214	**47514**	58648	Stopped Drillers @ 14:09 since we were rapidly approaching 50,000 L maximum water production per day (i.e. 47,514 L)
10/30/2021	KJC Tank #3 Pumpout No. 1	8:38	--	--	--	--	0.23	28694	0.77	20624	-7473	--	--	Tank 3 Pumpout by KJS Hydrovac (8,220 L)
10/30/2021	KJC Tank #3 Pumpout No. 2	9:05	--	--	--	--	0.23	28694	1.24	13600	-7024	--	--	Tank 3 Pumpout by KJS Hydrovac (7,024 L)
10/30/2021	KJC Tank #3 Pumpout No. 3	9:45	--	--	--	--	0.23	28694	1.72	6426	-7174	--	--	Tank 3 Pumpout by KJS Hydrovac (7,174 L)
10/30/2021	KJC Tank #2 Pumpout No. 1	10:19	--	--	--	--	0.75	20923	1.72	6426	-7771	--	--	Tank 2 Pumpout by KJS Hydrovac (7,771 L)
10/30/2021	KJC Tank #3 Pumpout No. 2	11:53	--	--	--	--	1.23	13749	1.72	6426	-7174	--	--	Tank 2 Pumpout by KJS Hydrovac (7,174 L)
10/30/2021	KJC Tank #3 Pumpout No. 3	11:20	--	--	0.98	--	1.73	6277	1.72	6426	-7473	--	--	Tank 2 Pumpout by KJS Hydrovac (7,473 L)
10/30/2021	KJC Tank 1 and 2 Pumpout	12:00	--	--	1.13	-1234	2.06	1345	1.72	6426	-6165	-50253	--	Tank 1 and Tank 2 Pump out by KJS Hydrovac (6,165 L)
10/30/2021	Initial Pumpout	12:45	96	623	0.84	2385	2.06	1345	1.72	6426	2385	2385	61033	
10/30/2021	83.1	13:05	96	623	0.84	0	1.72	6426	1.39	11358	10013	12398	71046	
10/30/2021	85	13:39	95	691	0.52	2632	1.41	11059	1.10	15692	11599	23997	82645	
10/30/2021	83.8 - 84.1	13:50	95	691	1.04	-4276	0.99	17336	0.96	17785	4093	28089	86738	
10/30/2021	86.8 - 87.2	14:06	94	759	0.20	6908	0.68	21969	0.86	19279	13035	41125	99773	
10/30/2021	Pre-Development	14:40	94	759	0.94	-6085	0.37	26602	0.74	21072	341	41466	100114	Pre-Development Volumes
10/30/2021	Post-Development	14:45	94	759	0.20	6085	0.23	28694	0.75	20923	8028	**49494**	108142	Post-Development Volumes. FINAL END OF DAY VOLUME = 49,494 L

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW02_BR	General Comments:	Actual real-time discharge rate is not measurable due to sporadic bursts of discharge water and cuttings into tank (i.e. safety issue). Tank volume includes cuttings accumulation in tank.
Sampling Personnel	CJS / LIM		

Tank Details

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)
Tank #1	Small Receiving Tank	1.14	2.31	3.56	9.37	9375
Tanks #2 &	Large Holding Tanks	2.15	2.45	6.1	32.13	32132

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)		Steffen Drilling Tank (Tank #4)						
Date	Drill Depth	Time (HH:MM:SS)	Truck Holding Tank Percentage Full	Approximate Volume Water Used (Traced with NaFl) [L]		Tank Measurement (m below top of tank)	Change in Tank Volume (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Total Interval Volume Produced (L)	Total Water Removed From Site (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments (measurement method,
3/2/2022	15.2	10:00	-	0		-	-	-	-	-	-	0.68	3788	3788	--	3788	111930	End of Casing Installation
3/2/2022	24.4	10:25	-	0		-	-	-	-	-	-	0.93	1967	1179	3000	4967	113109	Nick Hayes Removes 3 - 1,000L Totes From Tank 4
3/2/2022	30.5	10:37	-	0		-	-	-	-	-	-	0.9	2185	219	--	5185	113328	
3/2/2022	36.6	10:57	-	0		-	-	-	-	-	-	0.8	2914	728	--	5914	114056	
3/2/2022	42.7	11:10	-	0		-	-	-	-	-	-	0.69	3715	801	--	6715	114857	
3/2/2022	48.8	11:30	-	0		-	-	-	-	-	-	0.9	2185	1470	3000	8185	116328	Nick Hayes Removes 3 - 1,000L Totes From Tank 4
3/2/2022	57.9	11:46	-	0		-	-	-	-	-	-	0	8741	6556	--	14741	122883	
3/2/2022	57.9	12:05	-	0		-	-	-	-	-	-	0.88	2331	0	6410	14741	122883	Hawkins Pump out 6,410 L from Tank 4
3/2/2022	60	12:08	-	0		-	-	-	-	-	-	0.61	4298	1967	--	16708	124850	Blowout
3/2/2022	60.1	12:15	-	0		-	-	-	-	-	-	0	8741	4443	--	21151	129293	
3/2/2022	60.1	12:55	-	0		-	-	-	-	-	-	1.2	0	0	8741	21151	129293	Tank Pumped out By Hawkins and Hayes
3/2/2022	64	13:06	-	0		-	-	-	-	-	-	0	8741	12741	4000	33892	142034	1/2 Hayes Tank
3/2/2022	64	13:22	-	0		-	-	-	-	-	-	0.42	5682	0	3000	33892	142034	Tank Pumped by Hayes
3/2/2022	64	13:55	-	0		-	-	-	-	-	-	1.2	0	0	5682	33892	142035	Hawkins Pump out 5,700 L from Tank #4
3/2/2022	67.1	14:00	-	0		-	-	-	-	-	-	0	8741	13059	4318	46951	155093	Hawkins Pump out 2300 L from Tank #4 While Drilling, Hayes 3,000l
3/2/2022	68	14:15	-	0		-	-	-	-	-	-	0	8741	3000	3000	**49951**	158093	EOH - Final Volume = 49,951 L

Completed by:	CJS	Verified by:	AMSC
Date:	3/2/2022	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW03_BR	General Comments:
Sampling Personnel	LIM/CJS	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)
Tank #1	Small Receiving Tank	1.14	2.31	3.56	9.37	9375
Tank #2	Holding Tank (open man hole in centre of tank)	2.06	2.44	6.00	30.16	30158
Tank #2	Holding tank (8" opening access by ladder)	2.15	2.44	6.00	31.48	31476

					Small Receiving Tank (Tank #1) *includes cuttings		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (ft)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full or Tote volume [L]	Approximate Volume Water Used (Traced with NaFl) [L]	Tank Measurement (m below top of tank)	Change in Tank Volume (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
10/31/2021	45'	15:15	700	0	0.96	1480	2.06	0	--	--	1480	1480	1480	Initial measurement prior to drilling (no water used while installing the casing to 45'), 108.8 ppb NaFl in tote
10/31/2021	59'	15:53	550	150	0.84	2467	2.06	0	--	--	2467	3947	5428	No water was moved from receving tank to holding tank (< 4000L of water produced total for the day)
11/1/2021	59'	8:00	550	0	0.84	2467	2.06	0	--	--	--	--	--	Water levels in tanks prior to drilling same as end of day yesterday.
11/1/2021	60'	8:46	520	30	0.77	3043	2.06	0	--	--	--	--	--	At the start of sample DC005
11/1/2021	70'	8:53	440	80	0.74	3289	2.06	0	--	--	--	--	--	At the start of sample DC006
11/1/2021	80'	9:03	330	110	0.72	3454	2.06	0	--	--	--	--	--	At the start of sample DC007
11/1/2021	90'	9:09	220	110	0.69	3701	2.06	0	--	--	--	--	--	At the start of sample DC008
11/1/2021	99'	9:20	190	30	0.54	4934	2.06	0	--	--	--	--	--	At the start of sample DC009. Tote was tilted to aid out flow, making it challenging to obtain a volume measurement.
11/1/2021	110'	9:26	<200 L	140	0.46	5592	2.06	0	--	--	--	--	--	At the start of sample DC010
11/1/2021	119'	9:35	<200 L		0.36	6414	2.06	0	--	--	--	--	--	Pumped out receiving tank into holding tank
11/1/2021	119'	9:55	<200 L		0.96	1480	1.68	5563	--	--	--	--	--	After drilling, water pumped from receiving tank to holding tank
11/1/2021	120'	10:06	<200 L		0.51	5181	1.68	5563	--	--	--	--	--	At the start of sample DC011 after drilling 1'
11/1/2021	130'	10:10	<200 L		0.33	6661	1.68	5563	--	--	--	--	--	
11/1/2021	140'	10:40	<200 L		0.39	6168	1.31	10980	--	--	--	--	--	Pumped some water out of the receiving tank into the holding tank. Noticeably producing a lot more water at this depth and below.
11/1/2021	150'	11:00	<200 L		0.90	1974	0.98	15811	--	--	--	--	--	Pumped out receiving tank into holding tank
11/1/2021	151'	11:03	<200 L		0.29	6990	0.98	15811	--	--	--	--	--	
11/1/2021	160'	11:18	<200 L		0.93	1727	0.69	20057	--	--	--	--	--	Pumped out receiving tank into holding tank

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Borehole ID	SB_MW03_BR	General Comments:
Sampling Personnel	LIM/CJS	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)
Tank #1	Small Receiving Tank	1.14	2.31	3.56	9.37	9375
Tank #2	Holding Tank (open man hole in centre of tank)	2.06	2.44	6.00	30.16	30158
Tank #2	Holding tank (8" opening access by ladder)	2.15	2.44	6.00	31.48	31476

					Small Receiving Tank (Tank #1) *includes cuttings		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (ft)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full or Tote volume [L]	Approximate Volume Water Used (Traced with NaFl) [L]	Tank Measurement (m below top of tank)	Change in Tank Volume (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
11/1/2021	161'	11:27	50 L	0	N/A	N/A	0.33	25327	--	--	**25327**			Drilling stopped because of high volumes of water production and tanks needed to be emptied. Water production was high enough to neccesitate continuously pumping from receiving tank to holding tank while drilling below 161'. Water production was monitored by measuring water levels in the holding tank only. Total volume produced while drilling from 59' to 161' is the volume in the holding tank (25 327L).
11/1/2021	161'	15:05	100% of initial volume in ADI tank	0	1.00	1151	1.30	11126	--	--	**22976**	**48303**	**53730**	Start of drilling after hydrovac removed water from both holding tank and receiving tank. Some cuttings remained after hydrovac removed cuttings from receiving tank. Hydrovac removed 14 201 L from holding tank.
11/1/2021	191'	15:48	100% of initial volume in ADI tank	0	0.34	**6579**	0.18	27523	--	--				Pumping water from receiving tank to holding tank while drilling as water production is too high for holding tank to keep up. Receiving tank level was monitored live while drilling from 161' to 200'
11/2/2021	197'	9:30	not needed	0	N/A	N/A	1.77	5563	--	--	**30069**	**30069**	83799	Water pumping directly into holding tank (now measured from 2.15 m above tank bottom; new reference point). Flow rate was found to be 15 gal/min (3420L/hr) once casing was cut down to 0.6m. Water in holding tank is what was leftover from November 1st production that was not removed prior to November 2 (today's) production.
11/2/2021	197'	10:56	not needed	0	N/A	N/A	1.84	5563	--	--				After tanker truck removed 10 000L
11/2/2021	197'	12:57	not needed	0	N/A	N/A	1.92	4538	--	--				After tanker truck removed 10 000L
11/2/2021	197'	15:35	not needed	0	N/A	N/A	0.46	3367	--	--				Water levels prior to blowing water out of the well, to finish installing upper segment of casing and well capping, at 2.73m above ground surface.
11/2/2021	197'	15:55	not needed	0	0.74	3289	1.99	2342	--	--				Values recorded here are after well was capped with casing 2.73m above ground surface. Holding tank was emptied to maximum amount that the tanker truck (Kempton) could remove---removed 10 000L.
11/3/2021	197'	8:15	not needed	0	0.74	3289	1.99	2342	--	--				Water levels prior to blowing drill cuttings from bottom of the well.
11/4/2021	197'	8:50	not needed	0	0.23	7483	1.99	2342	--	--				Receiving tank volume after blowing drill cuttings from bottom of the well.

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW03_BR	General Comments:
Sampling Personnel	LIM/CJS	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)
Tank #1	Small Receiving Tank	1.14	2.31	3.56	9.37	9375
Tank #2	Holding Tank (open man hole in centre of tank)	2.06	2.44	6.00	30.16	30158
Tank #2	Holding tank (8" opening access by ladder)	2.15	2.44	6.00	31.48	31476

					Small Receiving Tank (Tank #1) *includes cuttings		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (ft)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full or Tote volume [L]	Approximate Volume Water Used (Traced with NaFl) [L]	Tank Measurement (m below top of tank)	Change in Tank Volume (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Tank Measurement (mb top of tank)	Volume in Tank (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
11/5/2021	197'	9:20	not needed	0	0.96	1480	1.99	2342	--	--	4194	18541	102340	Receiving tank volume is after hydrovac removed some cuttings, water, and most of the water in the receving tank. Continuously pumping from well directly into holding tank to keep water level below TOC while upper casing is re-welded on.
11/6/2021	197'	--	not needed	0	1.14	0	1.01	16690	--	--	14347			Receiving tank completely emptied by hydrovac truck. Hydrovac truck unable to remove water from holding tank.
11/11/2021	197'	8:00	not needed	0	1.14	0	2.15	0	--	--	0	16836	119176	Only Tank #2 onsite at start of day. Tank empty.
11/11/2021	197'	10:54	not needed	0	1.14	0	1.74	6002	--	--	6002			Water produced during water removal while blockages were cleared.
11/11/2021	197'	12:15	not needed	0	1.14	0	1.00	16836	--	--	10834			Final water produced after blockages cleared and casing re-welded above ground surface.
11/12/2021	197'	11:00	not needed	0	1.14	0	2.15	0	--	--	0	10248	129424	Tank #2 emptied at the start of the day by Jacksons.
11/12/2021	197'	12:15	not needed	0	1.14	0	1.45	10248	--	--	10248			Final water produced after blockages cleared and casing re-welded above ground surface.

Completed by:	LIM / CJS	Verified by:	AMSC
Date:	11/12/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW04_BR	General Comments:
Sampling Personnel	CJS	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mB top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Removed From Tank Storage (KJC or Kempton)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
11/15/2021	0.0	0.00	12:00	900	0	1.15	0	2.13	0	2.20	0		0	0	0	
11/15/2021	60.0	18.29	17:10	900	0	1.00	1234	2.13	0	2.20	0		1234	1234	1234	Cumulative Soil Cuttings and Groundwater Discharge volume during partial casing installation
11/16/2021	77.0	23.47	9:16	900	0	0.63	3043	2.13	0	2.20	0		3043	3043	4276	
11/16/2021	87.0	26.52	10:35	600	300	0.43	1645	2.13	0	2.20	0		1645	4687	5921	
11/16/2021	117.0	35.66	11:00	600	0	0.50	-576	1.59	8011	2.20	0		7435	12123	13356	
11/16/2021	137.0	41.76	11:15	600	0	0.76	-2138	1.32	4006	2.20	0	**7000**	8867	20990	22224	Jackson Pumping Tank 1 of sediment and water, partially completed. (Estimated 7,000L)
11/16/2021	167.0	50.90	12:55	600	0	1.15	-3207	1.03	4302	2.20	0	**5000**	6095	27085	28319	Jackson Pumping Tank 1 of sediment until empty. (Estimated 5,000L)
11/16/2021	170.0	51.82	13:20	600	0	1.03	987	1.03	0	1.76	6336		7323	34408	35642	Volume at start of Shutdown (discharge hose repair)
11/16/2021	170.0	51.82	15:49	600	0	0.84	1562	1.03	0	1.72	576		2138	36546	37780	Volume after initial well blowout after discharge hose repaired.
11/16/2021	177.0	53.95	16:00	600	0	1.02	-1480	1.03	0	1.20	7488		6008	42554	43788	
11/16/2021	185.0	56.39	16:10	600	0	0.30	5921	1.03	0	1.20	0		5921	48475	49709	
11/16/2021	188.0	57.30	16:20	600	0	0.55	-2056	1.03	0	1.01	2736		680	49155	50389	
11/17/2021	188.0	57.30	7:30	600	0	0.77	-1809	1.03	0	1.01	0	**1809**	0	0	50389	Kempton onsite prior to drilling commencing
11/17/2021	188.0	57.30	9:08	600	0	0.77	0	1.99	-14242	1.01	0	**14242**	0	0	50389	Kempton continues to remove water from Tank #2 before drilling starts. Drilling commences at 9:10 and begin pumping into Tank #2
11/17/2021	198.0	60.35	9:19	600	0	0.77	0	1.68	4599	1.01	0		4599	4599	54988	
11/17/2021	208.0	63.40	9:30	600	0	0.77	0	1.30	5637	1.01	0		5637	10236	60625	
11/17/2021	218.0	66.45	9:39	600	0	0.77	0	1.03	4006	1.01	0		4006	14242	64631	
11/17/2021	228.0	69.49	9:53	600	0	0.77	0	0.47	8308	1.01	0		8308	22550	72938	
11/17/2021			9:56	600	0	0.77	0	0.34	1929	1.43	-6048	**6048**	1929	24478	74867	ADI stops pumping into Tank #2 and begins pumping into Tank #3. Kempton onsite removing from stagnant tank
11/17/2021			10:05	500	100	0.77	0	0.34	0	1.02	5904		5904	30382	80771	
11/17/2021			10:17	500	0	0.77	0	0.34	0	0.64	5472		5472	35854	86243	
11/17/2021			10:19		6814	0.77	0	0.34	0	0.53	1584		1584	37438	87827	
11/17/2021			10:21			0.77	0	0.34	0	1.32	-11376	**11376**	0	37438	87827	Kempton Removes water from Tank #3
11/17/2021			10:25			0.77	0	0.34	0	0.79	7632		7632	45070	95459	
11/17/2021			10:27			0.77	0	0.34	0	0.61	2592		2592	47662	98051	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW04_BR	General Comments:
Sampling Personnel	CJS	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mB top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Removed From Tank Storage (KJC or Kempton)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
11/17/2021			10:29		0	0.68	740	0.34	0	0.53	0		740	48402	98791	Drilling stops at 10:20 to ensure water production limit has not been reached.
11/17/2021			13:20			0.68	0	2.03	-25071	1.82	-18576	**43647**				Kempton removes as much water as possible from Tank #2 and Tank #3
11/18/2021			6:50			0.99	0	2.06	0	1.83	0		0	0	98791	
11/18/2021			7:33			0.99	0	2.06	0	1.65	2592		2592	2592	101383	Drillers begin at 7:30
11/18/2021	238.0	72.54	7:40			0.99	0	2.06	0	1.53	1728		1728	4320	103111	
11/18/2021	248.0	75.59	7:45			0.99	0	2.06	0	1.32	3024		3024	7344	106135	
11/18/2021	258.0	78.64	7:50			0.99	0	2.06	0	1.07	3600		3600	10944	109735	
11/18/2021			7:55			0.99	0	2.06	0	0.91	2304		2304	13248	112039	
11/18/2021			8:00			0.99	0	2.06	0	0.63	4032		4032	17280	116071	
11/18/2021			8:06			0.99	0	2.06	0	0.47	2304		2304	19584	118375	Drillers stop pumping into Tank #2 and begin pumping into Tank #3
11/18/2021	268.0	81.69	8:10			0.99	0	1.87	2819	0.47	0		2819	22403	121194	
11/18/2021			8:15			0.99	0	1.64	3412	0.47	0		3412	25815	124606	
11/18/2021			8:20			0.99	0	1.40	3560	0.47	0		3560	29375	128166	
11/18/2021			8:25			0.99	0	1.25	2225	0.47	0		2225	31601	130392	
11/18/2021	278.0	84.73	8:30			0.99	0	1.04	3115	0.47	0		3115	34716	133507	
11/18/2021			8:35			0.99	0	0.82	3264	0.47	0		3264	37980	136771	
11/18/2021			8:40			0.99	0	0.62	2967	0.47	0		2967	40947	139738	
11/18/2021			8:43			0.99	0	0.48	2077	0.47	0		2077	43024	141815	Drillers shut off pump into Tank #2
11/18/2021			8:58			0.70	2385	0.48	0	0.47	0		2385	45408	144200	

Completed by:	CJS/CDC	Verified by:	AMSC
Date:	11/15/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW05_BR	General Comments:
Sampling Personnel	LIM	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full or Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
5/Nov/21	0.0	0.00	10:45	100%	0	1.15	0	2.13	0	2.20	0	0	0	0	Levels prior to casing installation
5/Nov/21	15.0	4.57	11:50	90%	681	1.14	82	2.13	0	2.20	0	82	82	82	Tank levels after driving 12" casing 15' BGS and going on standby awaiting approval on proceeding with casing installation
5/Nov/21	20.0	6.10	15:49	90%	0	1.01	1069	2.13	0	2.20	0	1069	1151	1151	Tank levels after driving 12" casing to a depth of 20' BGS
5/Nov/21	26.2	8.00	16:48	90%	0	0.95	493	2.13	0	2.20	0	493	1645	1645	Tank levels after driving 12" casing to the final depth of 8.00 mBGS (~26.5')
6/Nov/21	26.2	8.00	8:30	90%	0	0.95	0	2.13	0	2.20	0	0	0	1645	Tank levels at the start of day before installing 8" casing. Water in tanks is from previous day's production.
6/Nov/21	38.5	11.73	11:10	80%	1363	0.90	411	2.13	0	2.20	0	411	411	2056	8" casing now down below 12" casing
6/Nov/21	58.5	17.83	12:30	80%	0	0.79	905	2.13	0	2.20	0	905	1316	2960	
6/Nov/21	78.5	23.93	13:20	**750**	0	0.71	658	2.13	0	2.20	0	658	1974	3618	Switched from using crane truck tank to a tote for traced water. Top of bedrock was found to be 74.5' (22.7m) BGS.
6/Nov/21	80.3	24.46	14:25	750	0	0.81	-822	2.04	1335	2.20	0	513	2486	4131	Into solid rock at 80'3" (24.46m) BGS and driller says he is comfortable putting the casing to this depth. Water was pumped from receiving tank (tank #1) to holding tank (tank #2) while drilling from 78.5' to 80.25'.
6/Nov/21	80.3	24.46	19:20	750	0	0.79	164	2.04	0	2.20	0	164	2651	4296	Tank volumes at the end of day after grouting and pulling out 12" outer casing.
7/Nov/21	80.3	24.46	7:15	750	0	0.79	0	2.04	0	2.20	0	0	0	4296	Water levels at the start of the day. All water on site was produced on previous days.
7/Nov/21	100.0	30.48	10:30	750	0	0.65	1151	2.04	0	2.20	0	1151	1151	5447	
7/Nov/21	120.0	36.58	10:52	750	0	0.68	-247	1.91	1929	2.20	0	1682	2833	7129	Water was pumped from receiving (Tank #1) to holding tank (Tank #2) while drilling
7/Nov/21	140.0	42.67	14:00	750	0	0.84	-1316	1.40	7566	2.20	0	6250	9083	13379	Water was pumped from receiving (Tank #1) to holding tank (Tank #2) while drilling
7/Nov/21	160.0	48.77	15:04	750	0	0.82	164	1.02	5637	2.20	0	5802	14885	19181	Water was pumped from receiving (Tank #1) to holding tank (Tank #2) while drilling

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW05_BR	General Comments:
Sampling Personnel	LIM	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full or Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
7/Nov/21	180.0	54.86	15:59	600	150	0.70	987	0.50	7714	2.20	0	8701	23586	27882	Water was pumped from receiving (Tank #1) to holding tank (Tank #2) while drilling
8/Nov/21	180.0	54.86	7:30	600	0	0.70	0	0.50	0	2.20	0	0	0	27882	Water levels at the start of the day. All water on site was produced on previous days.
8/Nov/21	200.0	60.96	8:50	600	0	0.69	82	0.50	0	1.30	12960	13042	13042	40924	Water was pumped from receiving (Tank #1) to holding tank (Tank #3) while drilling
8/Nov/21	200.0	60.96	9:20	600	0	0.69	0	1.27	-11423	1.30	0	0	13042	40924	Tanker truck removed water from Tank #2 (1st load)
8/Nov/21	200.0	60.96	9:35	600	0	0.69	0	0.95	4747	1.63	-4752	0	13042	40924	After, water was pumped from Tank #3 to Tank #2 to have enough capacity in Tank #3 to drill next run.
8/Nov/21	200.0	60.96	10:26	600	0	0.69	0	1.65	-10385	1.63	0	0	13042	40924	Tanker truck removed water from Tank #2 during drilling (2nd load). Water was being pumped into Tank #3 while drilling so the water levels for Tanks #1 and #3 recorded here reflect the water levels prior to drilling.
8/Nov/21	219.0	66.75	10:28	600	0	0.64	411	1.65	0	0.28	19440	19851	32893	60775	Water was pumping from receiving (Tank #1) to holding tank (Tank #3) while drilling from 200'-219'. Driller stopped run 1' early when hitting a bad fracture at 219' that start producing a lot of water.
8/Nov/21	219.0	66.75	11:29	600	0	0.64	0	2.06	-6082	0.63	-5040	0	32893	60775	Tanker truck removed water from Tank #2 and Tank #3 (3rd load).
8/Nov/21	223.0	67.97	11:52	600	0	0.22	3454	1.73	4896	0.63	0	8350	41243	69125	Water was pumped from receiving (Tank #1) to holding tank (Tank #2) while drilling 219'-223' BGS. Drilling stopped because 3" pump could not keep up.
8/Nov/21	223.0	67.97	12:20	600	0	0.22	0	1.73	0	1.32	-9936	0	41243	69125	Tanker truck removed water from Tank #3 (4th load).
8/Nov/21	223.0	67.97	12:30	600	0	0.35	-1069	1.68	742	1.32	0	0	41243	69125	After pumping from receiving (Tank #1) to holding tank (Tank #2) with 2" pump.
8/Nov/21	223.0	67.97	12:20	600	0	0.35	0	1.68	0	2.08	-10944	0	41243	69125	Tanker truck removed water from Tank #3 (5th load).

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Borehole ID	SB_MW05_BR
Sampling Personnel	LIM

General Comments:

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Truck Holding Tank Percentage Full or Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
8/Nov/21	226.0	68.88	13:56	600	0	0.38	-247	1.22	6824	2.08	0	6577	47820	75702	Water was pumped with two 3" pumps from receiving (Tank #1) to holding tank (Tank #2) while drilling 223'-226' BGS. Drilling was stopped as the 50 000 L production limit was reached. Tank #1 is ~2/3 full of drill cuttings
8/Nov/21	226.0	68.88	16:24	600	0	0.90	-4276	1.95	-10830	2.08	0	0	47820	75702	Vac truck removed water and cuttings from Tank #1 (1st load) and removed water from Tank #2 (2nd load). Tank #1 now ~1/3 full of drill cuttings after vac truck removal.
9/Nov/21	226.0	68.88	7:30	600	0	0.90	0	1.95	0	2.08	0	0	0	75702	Water levels at the start of the day. All water on site was produced on previous days.
9/Nov/21	240.0	73.15	9:07	600	0	0.78	987	0.47	21956	2.08	0	22943	22943	98645	Water was pumped with two 3" pumps from receiving (Tank #1) to holding tank (Tank #2) while drilling.
9/Nov/21	250.0	76.20	9:39	600	0	0.77	82	0.47	0	0.70	19872	19954	42897	118600	Water was pumped with two 3" pumps from receiving (Tank #1) to holding tank (Tank #3) while drilling. Drilling stopped when target depth of 250' (76m) was reached.

Completed by:	LIM
Date:	2021/11/09

Verified by:	AMSC
Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW06_BR	General Comments:
Sampling Personnel	CJS, AC	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1A	Original Highland Receiving Tank	1.52	2.33	6.10	21.60	21604	Lip of the tank (max. fill point is below this)
Tank #1B	Swapped Highland Receiving Tank	1.75	2.17	6.10	23.16	23165	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Pumped By Kempton or Hawkins (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
12/7/2021	0.0	0.00	15:00		0	1.52	0	2.13	0	2.20	0		0	0	0	
12/8/2021	80.0	24.38	13:25	750	0	1.40	1706	2.13	0	2.20	0		1706	1706	1706	First 80' of casing installation
12/8/2021	115.0	35.05	14:45	750	0	1.01	5543	2.13	0	2.20	0		5543	7249	7249	Casing installed @ 35.05 mbgs
12/8/2021	125.0	38.10	15:10	700	50	0.65	5117	1.95	2670	2.20	0		7787	15036	15036	
12/8/2021	136.0	41.45	15:20	700	50	0.42	3269	1.87	1187	2.20	0		4456	19491	19491	Drilling finished for the day at 41.5 mbgs
12/9/2021	136.0	41.45	7:00	--	0	1.14	**-10233**	1.18	10236	2.20	0	**10233**	0	0	19491	Pumped Clean water from Tank #1A to Tank #2
12/9/2021	136.0	41.45	13:00	--	0	1.09	711	2.03	**-12610**	2.20	0	**12610**	0	0	19491	After Kempton pumped a load (i.e. 12,184 L Load)
12/9/2021	136.0	41.45	16:00	--	0	1.32	**-3269**	2.03	0	2.20	0	**3269**	0	0	19491	After GFL pumped impacted water out of Tank #1A (Reported 3,265L Load)
12/10/2021	136.0	41.45	8:00	--	0	1.51	**-2700**	2.03	0	2.20	0		0	0	19491	Measurements after Hawkins pumped cuttings out of Tank #1A.
12/10/2021	136.0	41.45	11:30	--	0	1.75	0	2.03	0	2.20	0		0	0	19491	Initial water levels after Tank 1A swapped with Tank 1B, prior to drilling
12/10/2021	136.0	41.45	11:50	--	0	1.45	4264	2.03	0	2.20	0		4264	4264	23755	Casing Installed @ 135', drilling from 136' commenced
12/10/2021	165.0	50.29	12:22	--	0	1.04	5827	2.03	0	2.20	0		5827	10091	29582	
12/10/2021	180.0	54.86	12:37	--	0	0.80	3411	2.03	0	2.20	0		3411	13502	32993	Start transfer from Tank #1B to Tank #2
12/10/2021	190.0	57.91	12:54	--	0	0.88	-1137	1.64	5786	2.20	0		4649	18151	37642	
12/10/2021	205.0	62.48	13:00	--	0	1.07	-2700	1.30	5044	2.20	0		2343	20495	39986	Prior to Kempton pumping from Tank #2
12/10/2021	230.0	70.10	13:40	--	0	1.30	-3269	1.72	-6231	2.20	0	**15000**	-9500	25995	30486	After Kempton pumped a load (i.e. estimated 15,000 L)
12/10/2021	235.0	71.63	13:53	--	0	1.22	1137	1.40	4747	2.20	0		5884	31879	36370	
12/10/2021	240.0	73.15	14:09	--	0	1.20	284	1.03	5489	2.20	0		5773	37652	42143	
12/10/2021	246.0	74.98	14:16	--	0	0.91	4122	0.90	1929	2.20	0		6050	43703	48194	Prior to Kempton pumping from Tank #2
12/10/2021	250.0	76.20	14:25	--	0	0.76	2132	0.87	445	2.20	0		2577	46280	50771	
12/10/2021	256.0	78.03	14:30	--	0	0.50	3695	1.83	-14242	2.20	-2160	**15000**	2294	48573	53064	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW06_BR	General Comments:
Sampling Personnel	CJS, AC	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1A	Original Highland Receiving Tank	1.52	2.33	6.10	21.60	21604	Lip of the tank (max. fill point is below this)
Tank #1B	Swapped Highland Receiving Tank	1.75	2.17	6.10	23.16	23165	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Pumped By Kempton or Hawkins (L)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
12/13/2021	256.0	78.03	8:30	--	0	1.70	0	1.87	0	2.05	2160		0	0	53064	
12/13/2021	265.0	80.77	9:50	--	0	1.12	8244	1.47	5934	2.05	0		14178	14178	67242	
12/13/2021	267.0	81.38	10:00	--	0	0.94	2558	1.31	2374	2.05	0		4932	19110	72174	
12/13/2021	270.0	82.30	10:05	--	0	0.58	5117	0.83	7121	2.05	0		12238	31347	84411	
12/13/2021	276.0	84.12	10:20	--	0	0.61	-426	0.50	4896	2.02	432		4901	36248	89313	Tank #3 sediment in bottom to ~2.02m
12/13/2021	280.0	85.34	11:20	--	0	1.35	-10518	1.22	-10681	0.56	21024		-175	36073	89138	After water transfers
12/13/2021	282.5	86.11	11:30	--	0	1.16	2700	0.92	4451	0.48	1152		8303	44376	97441	Drilling Stops
12/13/2021	282.5	86.11	12:00	--	0	1.66	-7107	0.25	9940	0.30	2592		5425	49802	102866	Measured After Purging Borehole

Completed by:	CJS	Verified by:	AMSC
Date:	12/13/2021	Date:	4/7/2022

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Borehole ID	SB_MW07_BR	General Comments:
Sampling Personnel	Cuirin C, Jessica W.	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1A	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #1B	Highland Small Receiving Tank	1.75	2.17	6.10	23.16	23165	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Removed From Tank Storage (KJC or Kempton)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
		0.00	7:10	500	0	1.15	0	2.13	0	2.20	0		0	0	0	
11/19/2021	78.0	23.77	10:48	0	6814	0.47	5592	2.13	0	2.20	0		5592	5592	5592	
11/19/2021	102.0	31.09	11:40	800	0	0.47	0	1.94	2819	2.20	0		2819	8411	8411	
11/19/2021	112.0	34.14	11:45	800	0	0.47	0	1.86	1187	2.20	0		1187	9598	9598	
11/19/2021	122.0	37.19	11:50	800	0	0.47	0	1.84	297	2.20	0		297	9894	9894	
11/19/2021	132.0	40.23	11:55	800	0	0.47	0	1.79	742	2.20	0		742	10636	10636	
11/19/2021	138.0	42.06	12:00	800	0	0.47	0	1.75	593	2.20	0		593	11229	11229	
11/19/2021	142.0	43.28	12:30	800	0	0.47	0	1.75	0	2.20	0		0	11229	11229	
11/19/2021	143.0	43.59	12:35	800	0	0.47	0	1.72	445	2.20	0		445	11674	11674	
11/19/2021	152.0	46.33	12:40	800	0	0.47	0	1.57	2225	2.20	0		2225	13900	13900	
11/19/2021	158.0	48.16	12:45	800	0	0.47	0	1.48	1335	2.20	0		1335	15235	15235	
11/19/2021	162.0	49.38	12:50	800	0	0.47	0	1.45	445	2.20	0		445	15680	15680	
11/19/2021	167.0	50.90	12:55	800	0	0.47	0	1.39	890	2.20	0		890	16570	16570	
11/19/2021	182.0	55.47	13:20	800	0	0.47	0	1.88	-7269	2.20	0	**15000**	7731	24301	24301	Kempton pumps out a full load from Tank #2
11/19/2021	202.0	61.57	13:30	800	0	0.47	0	1.58	4451	2.20	0		4451	28751	28751	
11/19/2021	212.0	64.62	13:40	800	0	0.47	0	1.16	6231	2.20	0		6231	34982	34982	
11/19/2021	216.0	65.84	13:45	800	0	0.47	0	0.95	3115	2.20	0		3115	38098	38098	
11/19/2021	222.0	67.67	13:50	800	0	0.47	0	0.72	3412	2.20	0		3412	41510	41510	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Borehole ID	SB_MW07_BR	General Comments:
Sampling Personnel	Cuirin C, Jessica W.	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1A	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #1B	Highland Small Receiving Tank	1.75	2.17	6.10	23.16	23165	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

							Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)					
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]		Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Removed From Tank Storage (KJC or Kempton)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
11/19/2021	222.0	67.67	13:54	800	0		0.47	0	0.40	4747	2.20	0		4747	46257	46257	
11/19/2021	222.0	67.67	13:55	800	0		0.27	1645	0.38	297	2.20	0		1941	48198	48198	
11/20/2021	226.0	62.79	7:10	800	0		0.68	0	1.99	0	2.20	0		0	0	48198	
11/20/2021	226.0	62.79	8:15	800	0		0.63	411	1.24	11126	2.20	0		11538	11538	59736	
11/20/2021	228.0	63.40	8:50	800	0		0.71	-658	1.98	-10978	2.20	0	**11636**	0	11538	59736	Kempton pumped out a partial load of the water available from Tank 1 and 2 while the drill was shut down waiting for KJC to arrive.
11/20/2021	228.0	63.40	10:45	800	0		1.15	-3618	1.98	0	2.20	0	**3618**	0	11537	59736	KJC pumped out Drill Cuttings from Tank 1 while drill was shut down.
11/20/2021	228.0	63.40	--	800	0		0.64	4194	1.89	1335	2.20	0		5529	17066	65265	Initial Well Purge
11/20/2021	234.0	65.23	--	800	0		1.15	-4194	1.77	1780	2.20	0	**15000**	12586	29653	77851	Kempton pumped out Tank 2 as ADI drilled from 208 to 215 ft
11/20/2021	238.0	66.45	11:25	800	0		0.45	5757	1.45	4747	2.20	0		10504	40156	88355	
11/20/2021	239.0	66.75	11:29	800	0		0.29	1316	1.24	3115	2.20	0		4431	44588	92786	
11/20/2021	239.0	67.06	11:35	800	0		0.12	1398	0.97	4006	2.20	0		5404	49991	98189	
11/22/2021	220.0	67.06	10:15	800	0		1.04	0	1.99	0	2.07	0		0	0	98189	
11/22/2021	244.5	74.52	4:05	800	0		0.44	-2632	1.79	-12165	2.05	2160		8189	8189	106378	Measured during collection of SB_MW07_DC017
11/22/2021	249.0	75.90	4:10	800	0		0.44	0	1.46	4896	1.99	864		5760	13949	112138	
11/22/2021	253.0	77.11	4:15	800	0		0.44	0	1.16	4451	1.88	1584		6035	19983	118173	
11/22/2021	255.0	77.72	16:18	800	0		0.22	1809	1.02	2077	1.79	1296		5182	25165	123355	
11/22/2021	259.0	78.94	16:30	800	0		0.97	-6168	0.60	6231	1.66	1872		1935	27100	125290	
11/22/2021	260.0	79.25	16:33	800	0		0.36	5016	0.60	0	1.42	3456		8472	35573	133762	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW07_BR	General Comments:
Sampling Personnel	Cuirin C, Jessica W.	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1A	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #1B	Highland Small Receiving Tank	1.75	2.17	6.10	23.16	23165	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

							Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]		Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Removed From Tank Storage (KJC or Kempton)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
11/22/2021	261.0	79.55	4:45	800	0		0.73	-3043	0.60	0	1.05	5328		2285	37858	136048	
11/22/2021	263.0	80.16	4:58	800	0		0.53	1645	0.60	0	0.58	6768		8413	46271	144460	Stopped Drilling
11/22/2021	263.0	80.16	5:07	800	0		0.98	-3701	0.60	0	0.32	3744		43	46314	144504	
11/23/2021		0.00	8:30	800	0		0.98	0	1.73	0	0.32	0	**16764**	0	0	144504	
11/23/2021		0.00	10:00	800	0		0.98	0	2.09	-22104	1.21	-12816	**18157**	0	0	144504	
11/23/2021		0.00	10:35	800	0		0.98	0	1.74	5192	1.21	0		5192	5192	149696	Started Drilling at 10:35
11/23/2021		0.00	10:40	800	0		0.22	6250	1.32	6231	1.21	0		12481	17673	162177	
11/23/2021		0.00	10:45	800	0		0.20	164	0.37	14093	1.21	0		14258	31931	176435	
11/23/2021		0.00	11:00	800	0		0.20	0	0.37	0	1.95	-10656	**10000**	-656	31275	175779	Partially loaded Kempton truck (~2/3 full)
11/23/2021		0.00	11:10	800	0		0.50	-2467	0.37	0	1.64	4464	**5000**	6997	38272	182776	Last 1/3 of tank filled
11/23/2021		0.00	11:15	800	0		0.12	3125	0.37	0	1.09	7920		11045	49317	193820	
11/23/2021		0.00	11:30	800	0		0.95	-3701	0.37	0	0.49	16560		12859	51131	195635	
12/14/2021	279.0	85.15	13:00	800	0		1.75	0	2.13	0	2.20	0		0	0	0	
12/14/2021	281.0	85.65	13:27	800	0		0.44	17340	2.13	0	1.97	3312		20652	20652	20652	
12/14/2021	283.0	86.26	13:35	800	0		0.58	-1853	1.88	3709	1.28	9936		11792	32444	32444	

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPB Drilling
WATER PRODUCTION

Project Number: 21-223-1

Borehole ID	SB_MW07_BR	General Comments:
Sampling Personnel	Cuirin C, Jessica W.	

Tank ID	Description	Height (m)	Width (m)	Length (m)	Volume (m3)	Volume (L)	Reference point (m) where height is measured from
Tank #1A	Small Receiving Tank	1.15	2.31	3.56	9.46	9457	Lip of the tank (max. fill point is below this)
Tank #1B	Highland Small Receiving Tank	1.75	2.17	6.10	23.16	23165	Lip of the tank (max. fill point is below this)
Tank #2	W.I.S.E holding tank	2.13	2.44	6.08	31.60	31599	Bottom lip of manhole by the steps
Tank #3	U.S. Ecology holding tank	2.20	2.40	6.00	31.68	31680	Top lip of 8" opening on NE corner

						Small Receiving Tank (Tank #1)		Large Holding Tank (Tank #2)		Large Holding Tank (Tank #3)						
Date	Drill Depth (feet)	Drill Depth (m)	Time (HH:MM:SS)	Tote volume [L]	Volume Water Used (Traced with NaFl) [L]	Water level in tank (mb top of tank)	Change in Tank Volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Water level in tank (mb top of tank)	Change in tank volume (L)	Volume Removed From Tank Storage (KJC or Kempton)	Total Interval Volume Produced (L)	Cumulative Volume Produced per day (L)	Cumulative Volume Produced (L)	Comments
12/14/2021	286.0	87.17	13:44	800	0	0.52	794	1.55	4896	1.01	3888		9578	42022	42022	
12/14/2021	287.0	87.48	13:50	800	0	0.55	-397	1.41	2077	0.75	3744		5424	47446	47446	
12/14/2021	288.0	87.78	13:56	800	0	1.75	-15884	1.15	3857	0.70	720	**15000**	3693	51138	51138	
12/15/2021	288.0	87.78	8:00	800	0	1.75	0	2.13	0	2.20	0		0	0	0	
12/15/2021	292.0	89.00	9:18	800	0	1.00	9928	1.70	6379	2.05	2160		18467	18467	18467	
12/15/2021	295.0	89.92	9:23	800	0	0.90	1324	1.39	4599	1.83	3168		9091	27557	27557	
12/15/2021	297.0	90.53	9:26	800	0	0.90	0	1.07	4747	1.77	864		5611	33169	33169	Drilling stopped to re-weld seal on tank
12/15/2021	298.0	90.83	9:41	800	0	1.45	-7280	0.89	2670	1.53	3456		-1154	32015	32015	
12/15/2021	299.0	91.14	9:47	800	0	1.40	662	0.25	9495	0.95	8352		18508	50523	50523	
12/17/2021	299.0	91.14	9:35	800	0	1.75	0	2.13	0	2.20	0		0	0	0	
12/17/2021	300.0	91.44	9:35	800	0	1.10	8604	1.75	5637	2.12	1152		15393	15393	15393	
12/17/2021	302.0	92.05	9:40	800	0	1.10	0	1.40	5192	1.93	2736		7928	23322	23322	
12/17/2021	303.0	92.35	9:42	800	0	1.10	0	1.30	1484	1.81	1728		3212	26533	26533	
12/17/2021	304.0	92.66	9:44	800	0	1.12	-265	0.98	4747	1.66	2160		6643	33176	33176	
12/17/2021	304.0	92.66	9:48	800	0	1.12	0	0.71	4006	1.49	2448		6454	39629	39629	
12/17/2021	304.0	92.66	9:51	800	0	1.12	0	0.50	3115	1.34	2160		5275	44905	44905	
12/17/2021	304.0	92.66	9:58	800	0	1.29	-2250	0.16	5044	1.16	2592		5386	50290	50290	

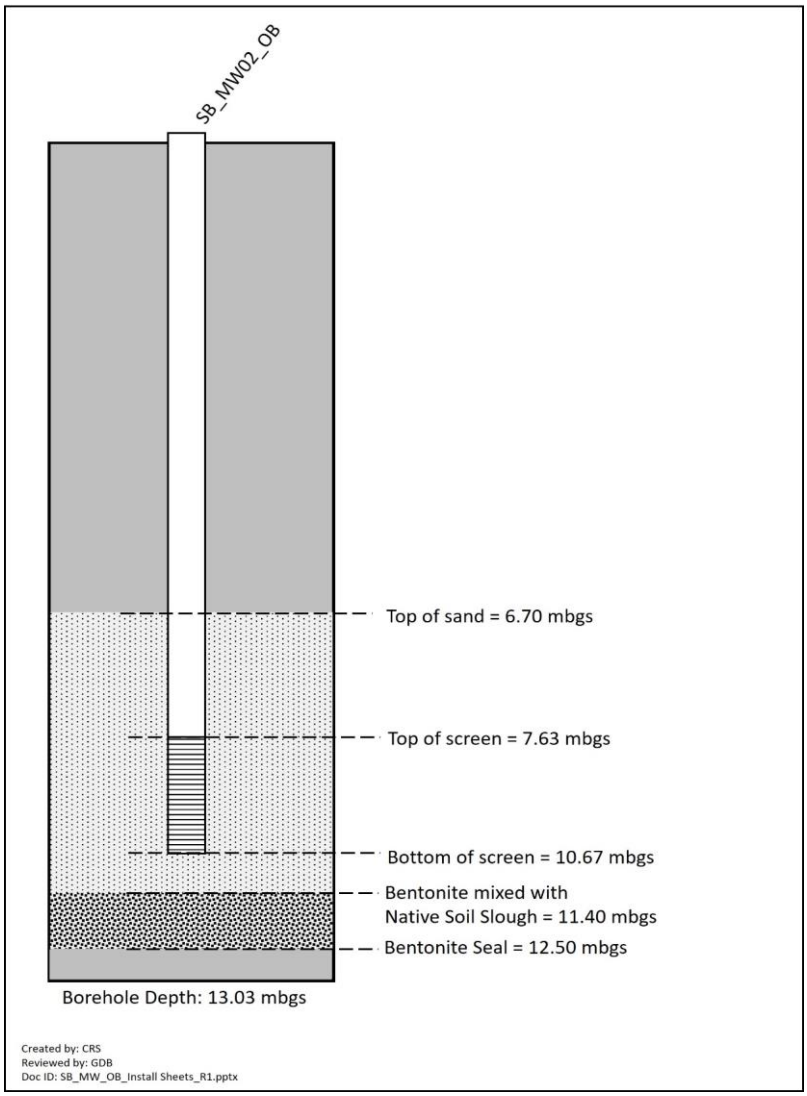
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Date:	2021/12/17	Date:	2022/04/07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW02_OB	Drilling Company:	Aardvark	Drillers:	Dan Warren, Dawson McGrath
Drilled Dates:	2021-10-14/15	Drilling Method:	Hollow Stem Auger / Split Spoon	Geofirma/GM BluePlan Staff:	Alex Cachunjua, Corbin Sweet
MW Install Date(s):	2021-10-15				

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2095
Borehole Depth (m)	13.03
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	Monument

Casing

Casing Installed (y/n)	No
Casing ID (mm)	N/A
Casing OD (mm)	N/A

Monitoring Wells (PVC)

Monitoring Well 1 (SB_MW02_OB-int)	
Well 1 OD (mm)	Schedule 40 Thickkness
Well 1 ID (mm)	50.8
Well 1 Screen Interval (m BGS)	7.63 to 10.67
Well 1 Stickup (m AGS)	0.75
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	N/A
Well 2 ID (mm)	N/A
Well 2 Screen Interval (m BGS)	N/A
Well 2 Stickup (m AGS)	N/A
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	N/A
Well 3 ID (mm)	N/A
Well 3 Screen Interval (m BGS)	N/A
Well 3 Stickup (m AGS)	N/A

General Comments

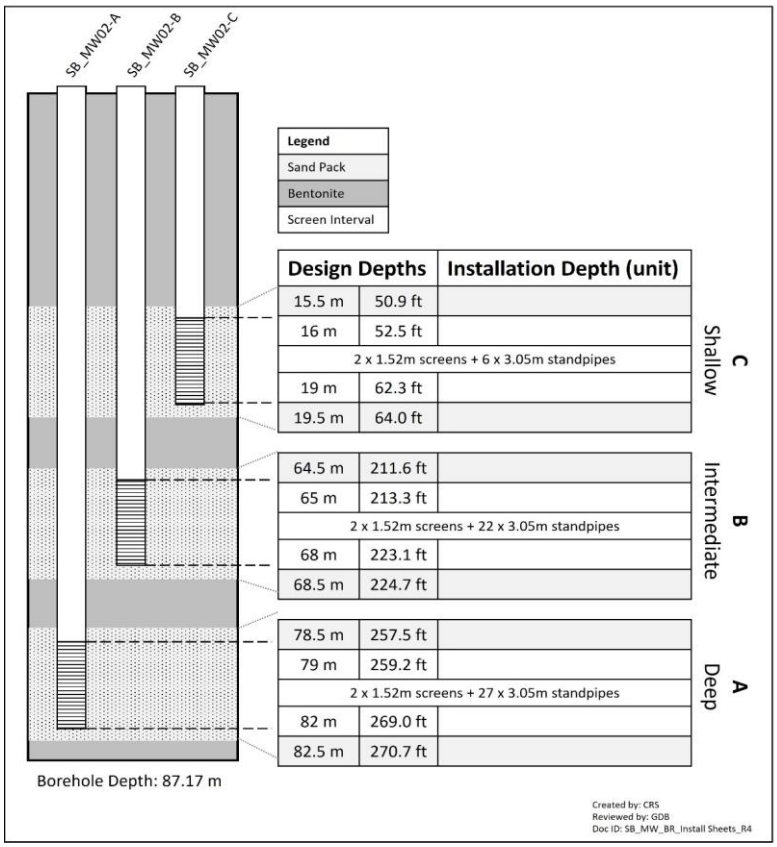
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Date:	2021-10-15	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW02_BR	Drilling Company:	Aardvark	Drillers:	Jesse P., Kevin M., David G.
Drilled Dates:	2021-10-28/29/30	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Corbin Sweet
MW Install Date(s):	2021-12-09			Bedrock Depth (m bgs):	12.8

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2032
Borehole Depth (m)	87.17
Well Installation (single or nested)	nested
Surface Completion (monument/ flush mount)	8.5 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	209.6
Casing OD (mm)	215.9
Casing Depth (m bgs)	13.7

Monitoring Wells (PVC)

Monitoring Well A	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	38.1 (1.5 inch)
Well 1 Screen Interval (m BGS)	82.0 - 79.0
Well 1 Stickup (m AGS)	0.40
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	68.0 - 65.0
Well 2 Stickup (m AGS)	0.40
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	Schedule 40 Thickness
Well 3 ID (mm)	38.1 (1.5 inch)
Well 3 Screen Interval (m BGS)	19.0 - 16.0
Well 3 Stickup (m AGS)	0.40

General Comments

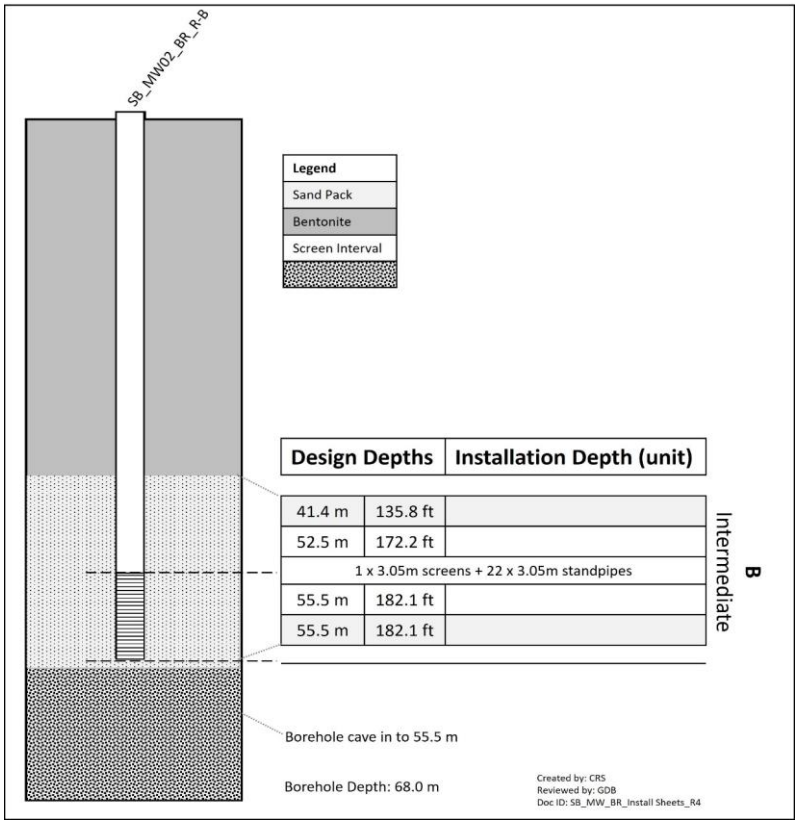
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Date:	2021-10-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW02_BR_R-B	Drilling Company:	Steffen Drilling & Strata	Drillers:	Mike S., Adam R.
Drilled Dates:	2022-03-02/03/04	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Corbin Sweet
MW Install Date(s):	2022-06-22			Bedrock Depth (m bgs):	12.8

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.1524
Borehole Depth (m)	68.00
Well Installation (single or nested)	single
Surface Completion (monument/ flush mount)	6 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	154
Casing OD (mm)	170
Casing Depth (m bgs)	14.6

Monitoring Wells (PVC)

Monitoring Well A	
Well 1 OD (mm)	
Well 1 ID (mm)	
Well 1 Screen Interval (m BGS)	
Well 1 Stickup (m AGS)	
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	55.5 - 52.5
Well 2 Stickup (m AGS)	0.37
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	
Well 3 ID (mm)	
Well 3 Screen Interval (m BGS)	
Well 3 Stickup (m AGS)	

General Comments

MW02_BR_R-B was drilled and installed to replace the damaged MW02_BR-B.

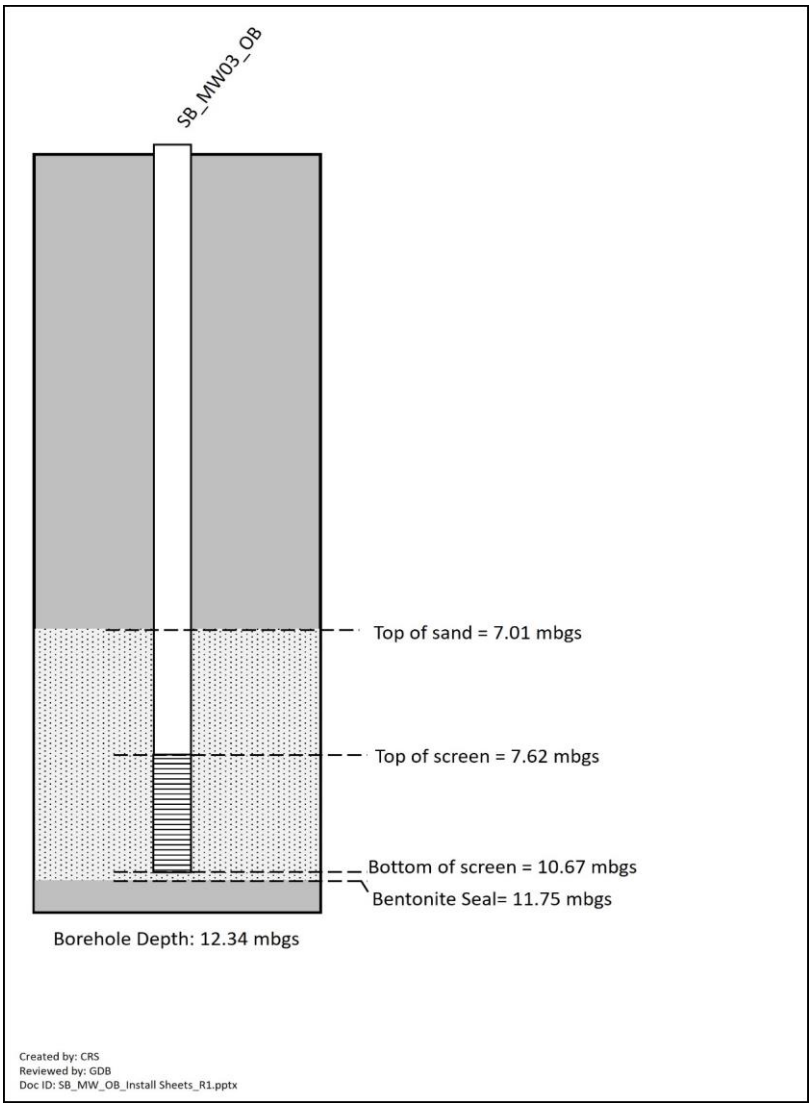
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Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW03_OB	Drilling Company:	Aardvark	Drillers:	Dan W; Dawson M
Drilled Dates:	2021-10-18	Drilling Method:	Hollow Stem Auger / Split Spoon	Geofirma/GM BluePlan Staff:	Alex C.
MW Install Date(s):	2021-10-18				

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2095
Borehole Depth (m)	12.34
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	Monument

Casing

Casing Installed (y/n)	No
Casing ID (mm)	N/A
Casing OD (mm)	N/A

Monitoring Wells (PVC)

Monitoring Well 1 (SB_MW03_OB-int)	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	50.8
Well 1 Screen Interval (m BGS)	7.62 - 10.67
Well 1 Stickup (m AGS)	0.8
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	N/A
Well 2 ID (mm)	N/A
Well 2 Screen Interval (m BGS)	N/A
Well 2 Stickup (m AGS)	N/A
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	N/A
Well 3 ID (mm)	N/A
Well 3 Screen Interval (m BGS)	N/A
Well 3 Stickup (m AGS)	N/A

General Comments

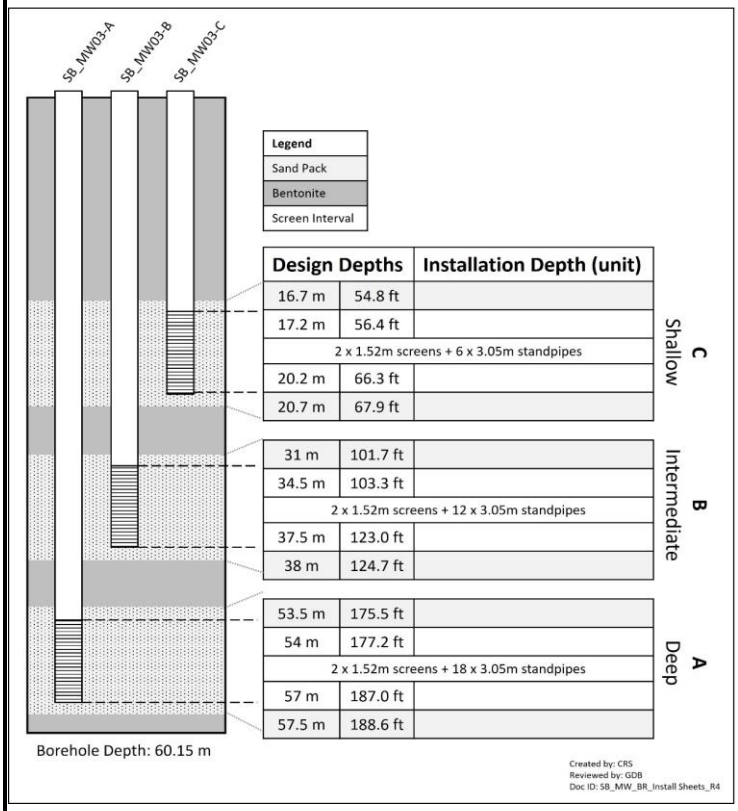
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Date:	2021-10-18	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW03_BR	Drilling Company:	Aardvark	Drillers:	Kevin Millette, Jesse Perlotta, Matt Howard
Drilled Dates:	2021-10-31 to 2021-11-03	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Lauren Madronich, Cuirin Cantwell
MW Install Date(s):	2021-12-01 to 2021-12-03			Bedrock Depth (m BGS):	11.98

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2032
Borehole Depth (m)	60.15
Well Installation (single or nested)	Nested
Surface Completion (monument/ flush mount)	8.5 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	209.6
Casing OD (mm)	215.9
Casing Depth (m bgs)	16.2

Monitoring Well 1

Monitoring Well A	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	38.1 (1.5 inch)
Well 1 Screen Interval (m BGS)	57.0 - 54.0
Well 1 Stickup (m AGS)	2.58
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	37.5 - 34.5
Well 2 Stickup (m AGS)	2.58
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	Schedule 40 Thickness
Well 3 ID (mm)	38.1 (1.5 inch)
Well 3 Screen Interval (m BGS)	20.2 - 17.2
Well 3 Stickup (m AGS)	2.58

General Comments

Casing was first installed to 13.72m BGS. Upon drilling below original casing depth, a clay filled fracture was encountered 16.7-17.0 m BGS. Additional casing was installed to a depth of 16.2 m BGS.
Tag line caught on a fracture lip 33.62 m BGS. Borehole drilled to 58.22 m on Nov 1, artesian conditions encountered. Advanced to 60.15 m on Nov 2, could not drill deeper on Nov 3 due to water production.

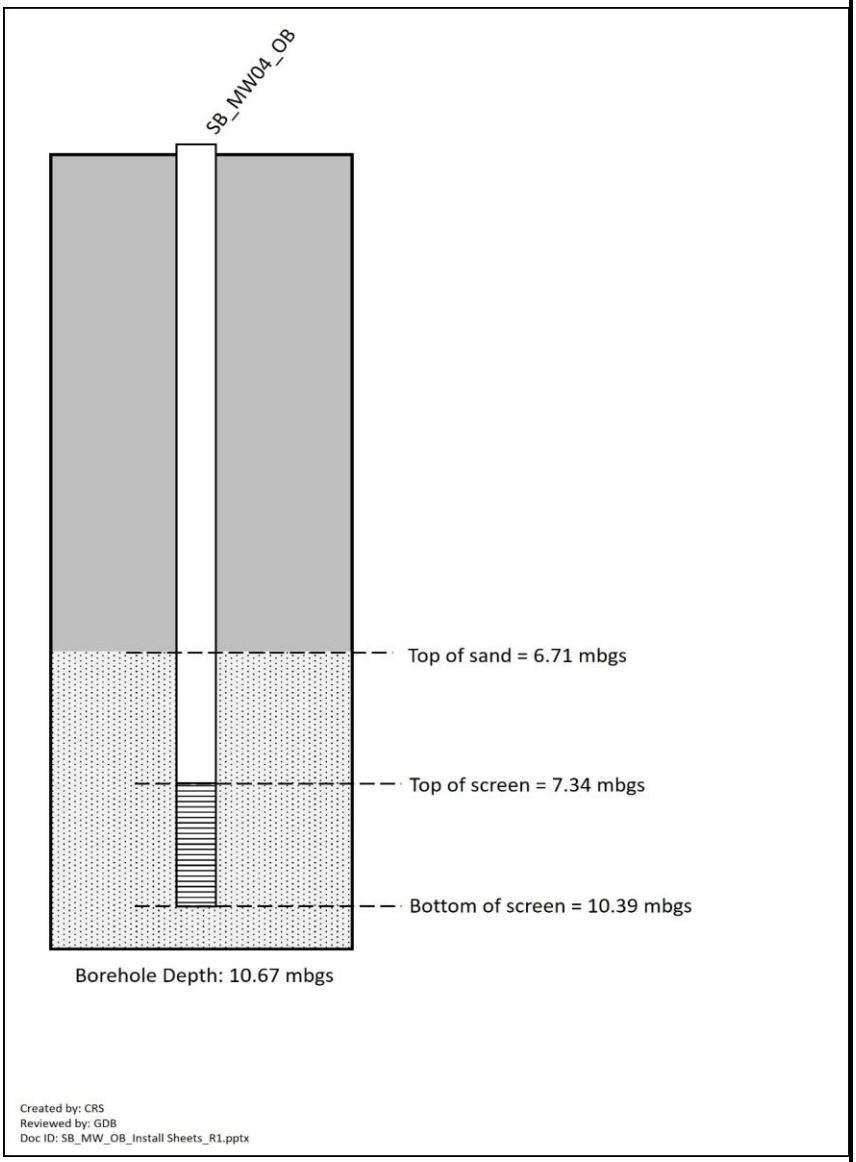
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Date:	2021-11-04	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW04_OB	Drilling Company:	Aardvark	Drillers:	Dan W; Dawson M
Drilled Dates:	2021-10-19 to 2021-10-22	Drilling Method:	Hollow Stem Auger / Split Spoon	Geofirma/GM BluePlan Staff:	Alex C.
MW Install Date(s):	2021-10-22				

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2095
Borehole Depth (m)	10.67
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	Monument

Casing

Casing Installed (y/n)	No
Casing ID (mm)	N/A
Casing OD (mm)	N/A

Monitoring Wells (PVC)

Monitoring Well 1 (SB_MW04_OB-int)	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	50.8
Well 1 Screen Interval (m BGS)	7.34 - 10.39
Well 1 Stickup (m AGS)	0.86
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	N/A
Well 2 ID (mm)	N/A
Well 2 Screen Interval (m BGS)	N/A
Well 2 Stickup (m AGS)	N/A
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	N/A
Well 3 ID (mm)	N/A
Well 3 Screen Interval (m BGS)	N/A
Well 3 Stickup (m AGS)	N/A

General Comments

21-Oct-2021: 200 L of traced fluorescein water at 92 ppb added to first install attempt. (AC)
Approximately 40 L of fluorescein traced water added for final installation at 92 ppb

Initial borehole drilled to refusal at 20.73 mbgs. Had to abandon BH and move over to install.

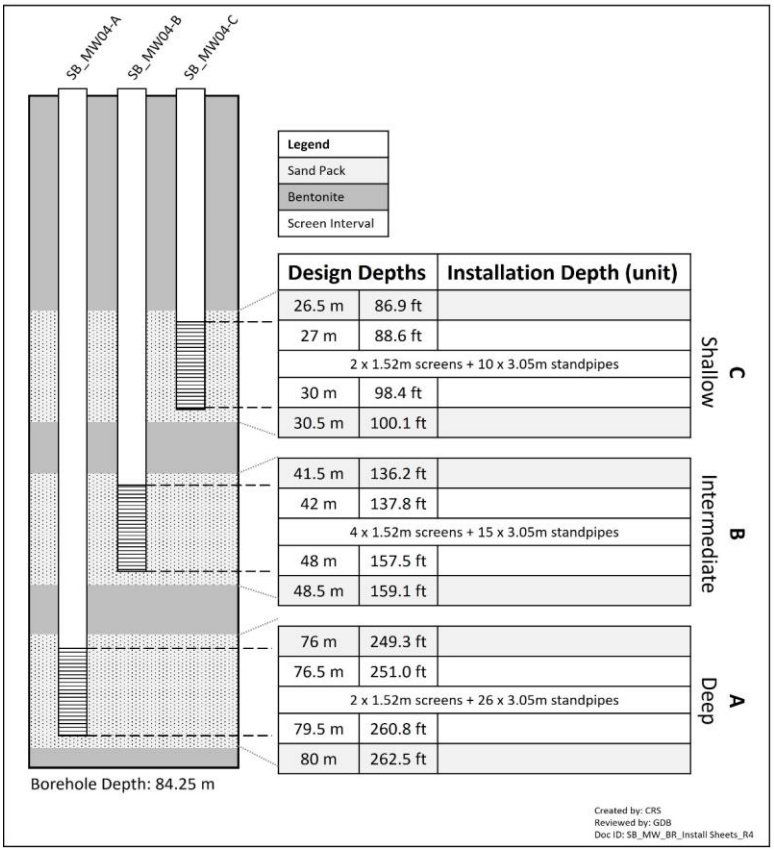
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Date:	2021-10-22	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW04_BR	Drilling Company:	Aardvark	Drillers:	Kevin M., Jesse P. Jastus D.
Drilled Dates:	2021-11-16 to 2021-11-18	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Jessica W. , Cuirin C., Corbin S.
MW Install Date(s):	2021-12-15 to 2021-12-17			Bedrock Depth (m bgs):	21.64 (Note: BR ground surface raised ~ 1 m due to drill pad)

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2032
Borehole Depth (m)	84.25
Well Installation (single or nested)	Nested
Surface Completion (monument/ flush mount)	8.5 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	209.6
Casing OD (mm)	215.9
Casing Depth (m bgs)	23.47

Monitoring Wells (PVC)

Monitoring Well A	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	38.1 (1.5 inch)
Well 1 Screen Interval (m BGS)	79.5 - 76.5
Well 1 Stickup (m AGS)	0.90
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	48 - 42
Well 2 Stickup (m AGS)	0.90
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	Schedule 40 Thickness
Well 3 ID (mm)	38.1 (1.5 inch)
Well 3 Screen Interval (m BGS)	30 - 27
Well 3 Stickup (m AGS)	0.9

General Comments

The bedrock borehole was drilled from a constructed drill pad (sand and gravel) that is approximately 1 m above original ground surface.

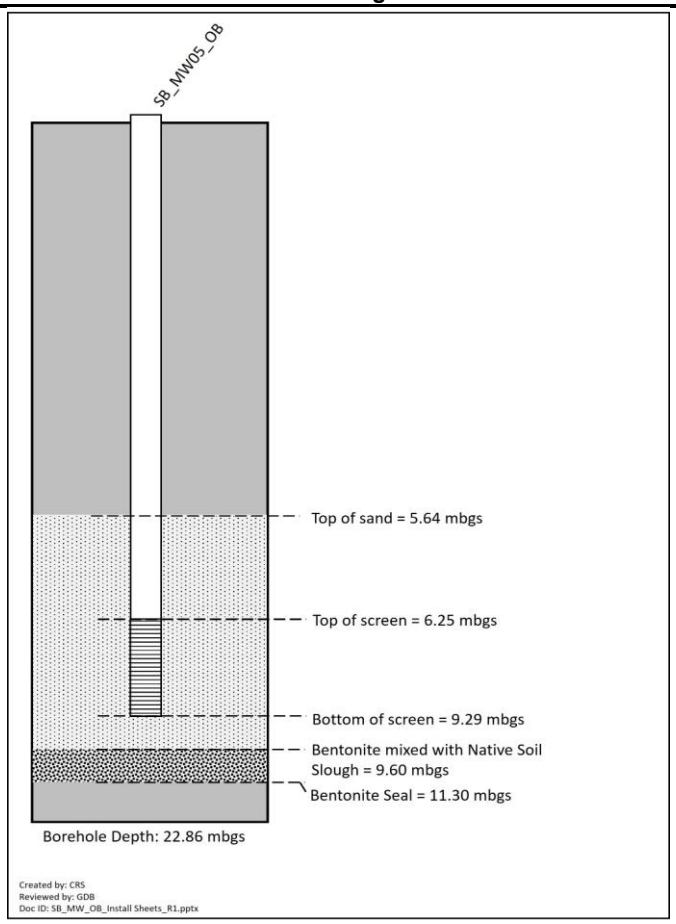
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Date:	2021-12-18	Date:	2021-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW05_OB	Drilling Company:	Aardvark	Drillers:	Dan W; Dawson M
Drilled Dates:	2021-10-25/26	Drilling Method:	Hollow Stem Auger / Split Spoon	Geofirma/GM BluePlan Staff:	Sam E., Jessica W.
MW Install Date(s):	2021-10-26				

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2095
Borehole Depth (m)	22.86
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	Monument

Casing

Casing Installed (y/n)	No
Casing ID (mm)	N/A
Casing OD (mm)	N/A

Monitoring Wells (PVC)

Monitoring Well 1 (SB_MW05_OB-int)	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	50.8
Well 1 Screen Interval (m BGS)	6.25 - 9.29
Well 1 Stickup (m AGS)	0.78
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	N/A
Well 2 ID (mm)	N/A
Well 2 Screen Interval (m BGS)	N/A
Well 2 Stickup (m AGS)	N/A
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	N/A
Well 3 ID (mm)	N/A
Well 3 Screen Interval (m BGS)	N/A
Well 3 Stickup (m AGS)	N/A

General Comments

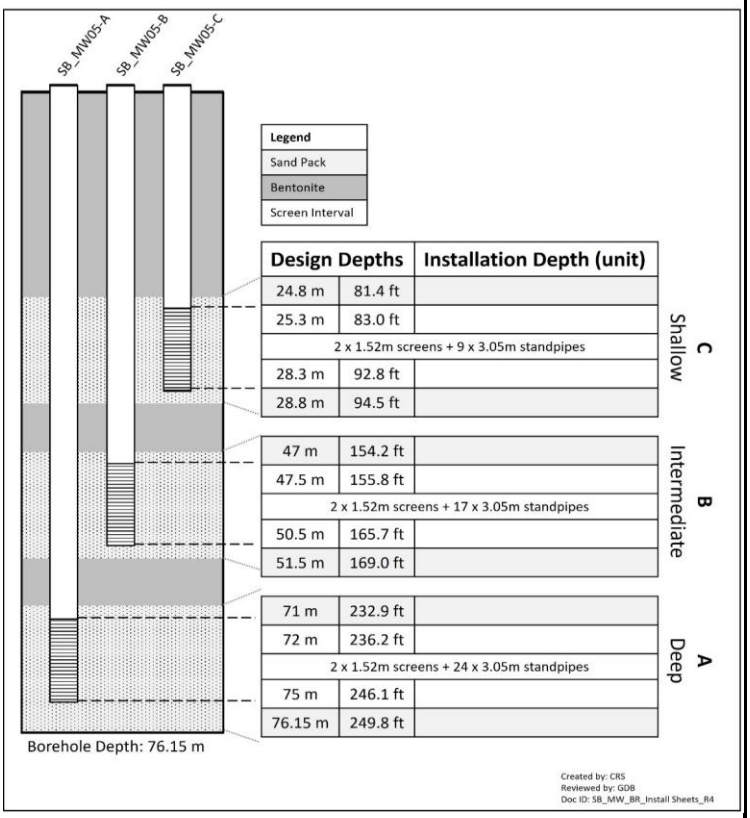
Completed by:	JKW	Verified by:	AMSC
Date:	2021-10-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW05_BR	Drilling Company:	Aardvark	Drillers:	Doug McConkey
Drilled Dates:	2021-11-06 to 2021-11-09	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Lauren Madronich, Fionn Hembruff
MW Install Date(s):	2021-12-06/07			Bedrock Depth (m bgs):	22.7

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2032
Borehole Depth (m)	76.15
Well Installation (single or nested)	Nested
Surface Completion (monument/ flush mount)	8.5 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	209.6
Casing OD (mm)	215.9
Casing Depth (m bgs)	24.46

Monitoring Wells (PVC)

Monitoring Well A	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	38.1 (1.5 inch)
Well 1 Screen Interval (m BGS)	75.0 - 72.0
Well 1 Stickup (m AGS)	0.69
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	50.50 - 47.5
Well 2 Stickup (m AGS)	0.69
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	Schedule 40 Thickness
Well 3 ID (mm)	38.1 (1.5 inch)
Well 3 Screen Interval (m BGS)	28.30 - 25.30
Well 3 Stickup (m AGS)	0.69

General Comments

Last rock chip sample collected from 74.68 to 74.98 m.

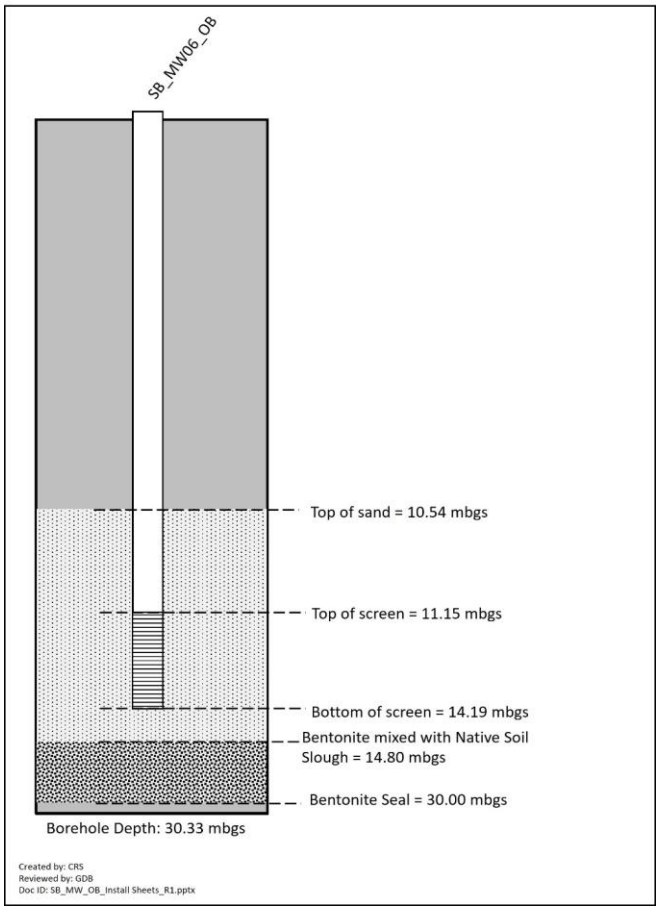
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Date:	2021-12-08	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW06_OB	Drilling Company:	Aardvark	Drillers:	Dan W; Dawson M
Drilled Dates:	2021-10-28	Drilling Method:	Hollow Stem Auger / Split Spoon	Geofirma/GM BluePlan Staff:	Jessica Weller
MW Install Date(s):	2021-10-28				

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2095
Borehole Depth (m)	30.33
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	Monument

Casing

Casing Installed (y/n)	No
Casing ID (mm)	N/A
Casing OD (mm)	N/A

Monitoring Wells (PVC)

Monitoring Well 1 (SB_MW06_OB-int)	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	50.8
Well 1 Screen Interval (m BGS)	11.15 - 14.19
Well 1 Stickup (m AGS)	0.91
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	N/A
Well 2 ID (mm)	N/A
Well 2 Screen Interval (m BGS)	N/A
Well 2 Stickup (m AGS)	N/A
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	N/A
Well 3 ID (mm)	N/A
Well 3 Screen Interval (m BGS)	N/A
Well 3 Stickup (m AGS)	N/A

General Comments

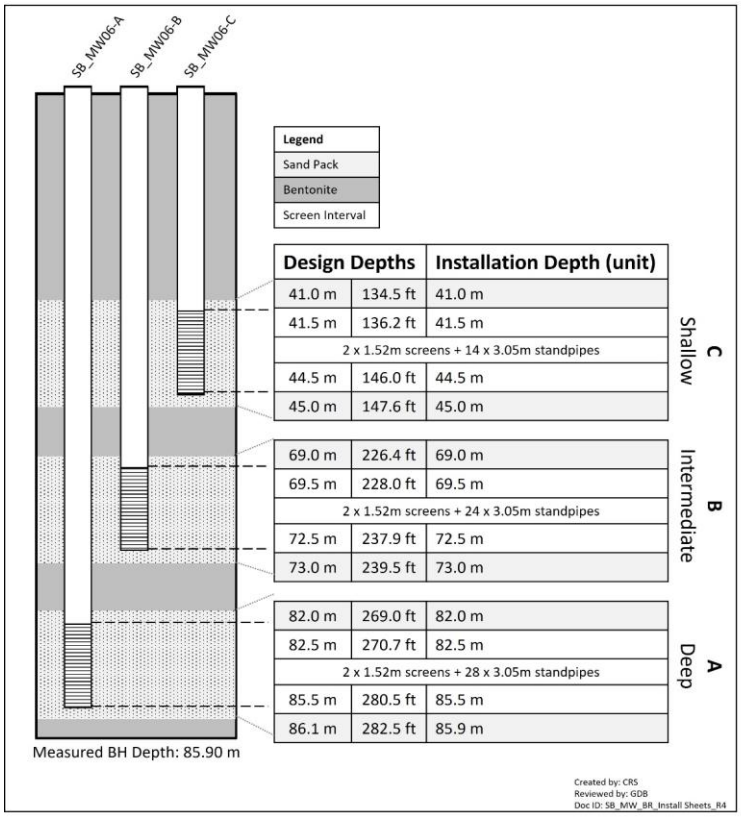
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Date:	2021-10-29	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW06_BR	Drilling Company:	Highland	Drillers:	Nigel P., Nathan G.
Drilled Dates:	2021-12-08 to 2021-12-13	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Jessica W., Corbin S.
MW Install Date(s):	2021-12-17 to 2021-12-20			Bedrock Depth (mbgs)	30.18

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2032
Borehole Depth (m)	86.11
Well Installation (single or nested)	Nested
Surface Completion (monument/ flush mount)	8.5 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	209.6
Casing OD (mm)	215.9
Casing Depth (m bgs)	41.15

Monitoring Wells (PVC)

Monitoring Well A	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	38.1 (1.5 inch)
Well 1 Screen Interval (m BGS)	85.5 - 82.5
Well 1 Stickup (m AGS)	0.81
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	72.5 - 69.5
Well 2 Stickup (m AGS)	0.81
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	Schedule 40 Thickness
Well 3 ID (mm)	38.1 (1.5 inch)
Well 3 Screen Interval (m BGS)	44.5 - 41.5
Well 3 Stickup (m AGS)	0.81

General Comments

Total depth drilled was 86.11 m however bottom was tagged at 85.9 m prior to installation.

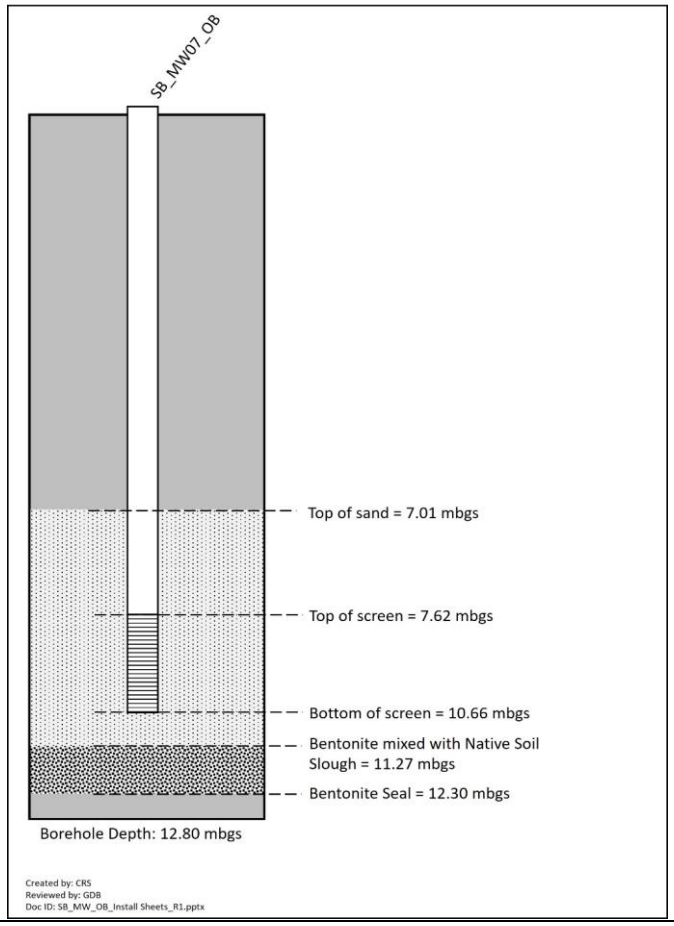
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Date:	2021-12-20	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW07_OB	Drilling Company:	Aardvark	Drillers:	Dan W; Dawson M
Drilled Dates:	2021-10-27	Drilling Method:	Hollow Stem Auger / Split Spoon	Geofirma/GM BluePlan Staff:	Sam E., Jessica W.
MW Install Date(s):	2021-10-27				

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2095
Borehole Depth (m)	12.80
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	Monument

Casing

Casing Installed (y/n)	No
Casing ID (mm)	N/A
Casing OD (mm)	N/A

Monitoring Wells (PVC)

Monitoring Well 1 (SB_MW07_OB-int)	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	50.8
Well 1 Screen Interval (m BGS)	10.66-7.62
Well 1 Stickup (m AGS)	0.73
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	N/A
Well 2 ID (mm)	N/A
Well 2 Screen Interval (m BGS)	N/A
Well 2 Stickup (m AGS)	N/A
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	N/A
Well 3 ID (mm)	N/A
Well 3 Screen Interval (m BGS)	N/A
Well 3 Stickup (m AGS)	N/A

General Comments

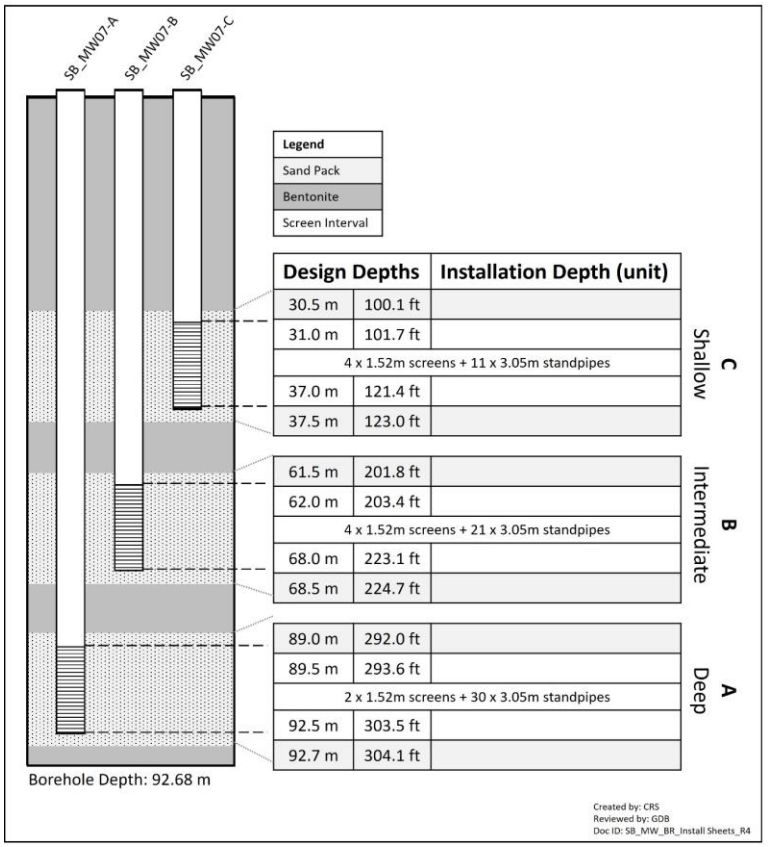
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Date:	2021-10-27	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW07_BR	Drilling Company:	Aardvark & Highland	Drillers:	Dan W., Dawson M.
Drilled Dates:	Nov 18-23 & Dec 14-17, 2021	Drilling Method:	Dual Rotary	Geofirma/GM BluePlan Staff:	Paul T.
MW Install Date(s):	2022-01-11/12			Bedrock Depth (m bgs):	16.46

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.2032
Borehole Depth (m)	92.68
Well Installation (single or nested)	Nested
Surface Completion (monument/ flush mount)	8.5 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	209.6
Casing OD (mm)	215.9
Casing Depth (m bgs)	18.9

Monitoring Wells (PVC)

Monitoring Well 1	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	38.1 (1.5 inch)
Well 1 Screen Interval (m BGS)	31.0-37.0
Well 1 Stickup (m AGS)	0.51
Monitoring Well 2 (if nested piezometers)	
Well 2 OD (mm)	Schedule 40 Thickness
Well 2 ID (mm)	38.1 (1.5 inch)
Well 2 Screen Interval (m BGS)	62.0-68.0
Well 2 Stickup (m AGS)	0.51
Monitoring Well 3 (if nested piezometers)	
Well 3 OD (mm)	Schedule 40 Thickness
Well 3 ID (mm)	38.1 (1.5 inch)
Well 3 Screen Interval (m BGS)	89.5-92.5
Well 3 Stickup (m AGS)	0.51

General Comments

Dec. 30/21 to Jan. 3/22 damaged well casings removed from well

Dec. 21/21 initial well installation including well sand at bottom of hole

Borehole diameter is 8"

Piezometers are 1.5" SCH 40 PVC

Piezometers sealed with J plugs

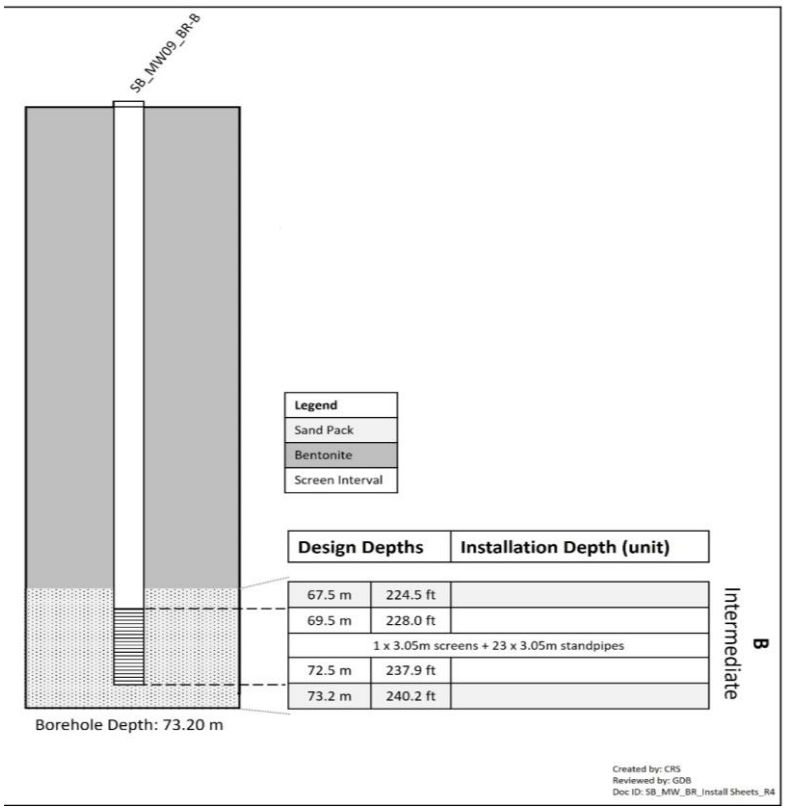
Completed by:	PT	Verified by:	AMSC
Date:	2022-02-18	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPB (Drilling) and WPD (MW Installation / Testing): BOREHOLE COMPLETION

Project Number: 21-223-1

Borehole ID:	SB_MW09_BR	Drilling Company:	Steffen Drilling	Drillers:	Mike S., James C.
Drilled Dates:	2022-12-13/14	Drilling Method:	Dual Rotary	Geofirma Staff:	Tim Galt
MW Install Date(s):	2022-12-14			Bedrock Depth (m bgs):	30.18

Borehole Diagram



Include:
- screen intervals, sand pack intervals, bentonite intervals, lithology summary, borehole diameters

Borehole Details

Borehole Diameter (m)	0.1524
Borehole Depth (m)	73.20
Well Installation (single or nested)	Single
Surface Completion (monument/ flush mount)	6 inch Steel Casing Stickup

Casing

Casing Installed (y/n)	Y
Casing ID (mm)	155
Casing OD (mm)	168
Casing Depth (m bgs)	45.7

Monitoring Wells (PVC)

Monitoring Well A	
Well 1 OD (mm)	Schedule 40 Thickness
Well 1 ID (mm)	50.8 (2 inch)
Well 1 Screen Interval (m BGS)	72.5 - 69.5
Well 1 Stickup (m AGS)	0.72
Monitoring Well B (if nested piezometers)	
Well 2 OD (mm)	
Well 2 ID (mm)	
Well 2 Screen Interval (m BGS)	
Well 2 Stickup (m AGS)	
Monitoring Well C (if nested piezometers)	
Well 3 OD (mm)	
Well 3 ID (mm)	
Well 3 Screen Interval (m BGS)	
Well 3 Stickup (m AGS)	

General Comments

MW09_BR-B was drilled and installed to replace the damaged MW06_BR-B.

Completed by: TKG	Verified by: GDB
Date: 14-Dec-22	Date: 16-Dec-22

South Bruce Monitoring Well Network Installation

DQC Workbook

WPC Geophysical Logging

GEOFIRMA ENGINEERING

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW02_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**04-Nov 14:40**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	ATI 150814/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-02

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***08_SB-MW02_ALT_ATV-Gam_CAL041121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.6**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***08_SB-MW02_ALT_ATV-Gam_CAL041121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**258.8**
180 degrees	**179.7**
270 degrees	**269.4**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW02_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	31

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW02_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**04-Nov 14:40**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	2PCA-1000 3131
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-02

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***##_SB-BH##_MSCalGR_Cal-pre_date21.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		8
10		9.97
12		11.98

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☐	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

Fluid Temperature / Conductivity– FIELD TEST

SB_MW02_DQC_TP-21223-WPC BH Geophys_FTC_Calibration_20211108_R0A

Date and Time:	**04-Nov 12:01**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Ref	SB Mon. Wells
Project:	Kinloss
Location:	MW-02
HoleID:	

Probe is functional checked against known soloutions (fluid resistivity)

Test 1: P0st Fluid Temp Cond

See File above: ***##_SB-BH##_FTCGR_Cal-pre_date21.tfd***

Reference	Measured by Tool (uS/cm)	Temp
Tap Water	386	*4.6*
Salted (34300)	65532	*2.9*

Post ResponseTest Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW02_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	26

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Fluid Conductivity Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW02_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**05-Nov 14:22**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	MS 2293
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-02

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW02_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**03-Nov 14:22**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	OBI G2 16054/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-02

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***01-SB-MW02_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**90.0**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***01-SB-MW02_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**1**
270 degrees	**268.8**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***01-SB-MW02_ALT_OBI-Gam_Cal_031121.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW02_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	29

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

Encoder – FIELD TEST

SB_MW02-7_DQC_TP-21223-WPC BH Geophys_Encoder_Calibration_20211108_R0A

Date and Time:	**03-Nov 10:45**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
SN:	
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	Pre Job

A measured length of cable is extracted and rewound on to spool under tension

Test 1: EncoderTest

Filename: ***N/A***

Original Calibration 1.0036969

	Measured by Encoder		
Measured Length (m)	**Length**	**Error**	**% Offset**
50	50	0	**0.000000%**
100	100	0	**0.000000%**
		0	
		0	

Encoder Test Results:

X Passed

☐Not Passed

Corrected Calibration NA

General Inspection and Performance

Item	Pass		Fail	Comments
Visual Inspection for Damage	x		☐	

Encoder Field Test – Overall Results

X Passed

☐Not Passed



PPehme

Test Operator **Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW03_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**13-Nov 11:14**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	ATI 150814/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-03

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***04_SB-MW03_ALT_ABI-Gam_Cal_101121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.8**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***04_SB-MW03_ALT_ABI-Gam_Cal_101121***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**359.8**
270 degrees	**270.8**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***04_SB-MW03_ALT_ABI-Gam_Cal_101121***

Source	Measured by Tool
Atmosphere	35

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW03_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**13-Nov 07:16**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	2PCA-1000 3131
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-03

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Post ResponseTest

Filename: ***09_SB-MW03_MS_3ARM_Cal_131121.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		7.98
10		9.98
12		11.97

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

Electric Log – FIELD TEST

SB_MW03_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**13-Nov 13:10**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6384
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-03

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***16_SB-MW03_MS_ELOG_GAM_Cal_131121.tfd***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104.7	100.5	1.11	112.0
1000	1048	1015.6		116.0
10000	10270	9985		10936

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *16_SB-MW03_MS_ELOG_GAM_Cal_131121.tfd*

Surface	Measured by Tool
Air	25.2

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

Fluid Temperature / Conductivity– FIELD TEST

SB_MW03_DQC_TP-21223-WPC BH Geophys_FTC_Calibration_20211108_R0A

Date and Time:	**14-Nov 07:21**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Ref	SB Mon. Wells
Project:	Kinloss
Location:	MW-03
HoleID:	

Probe is functional checked against known soloutions (fluid resistivity)

Test 1: P0st Fluid Temp Cond

See File above: ***16_SB-MW03_MS_ELOG_GAM_Cal_131121.tfd***

Reference	Measured by Tool (uS/cm)	Temp
Tap Water	225	*1.27*
Salted (14200)	11070	*1.06*

Post ResponseTest Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***16_SB-MW03_MS_ELOG_GAM_Cal_131121.tfd***

Source	Measured by Tool
Atmosphere	22

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Fluid Conductivity Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW03_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**14-Nov 13:20**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	MS 2293
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-03

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW03_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**13-Nov 10:42**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	OBI G2 16054/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-03

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***12_SB-MW03_ALT_OBI_GAM_Cal_131121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.9**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***12_SB-MW03_ALT_OBI_GAM_Cal_131121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**359.2**
270 degrees	**269**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***12_SB-MW03_ALT_OBI_GAM_Cal_131121.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***12_SB-MW03_ALT_OBI_GAM_Cal_131121.tfd***

Source	Measured by Tool
Atmosphere	38

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW04_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**19-Nov 10:49**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	ATI 150814/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-04

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***04_SB-MW04_ALT_ABI_GAM_Cal_191121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.7**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***04_SB-MW04_ALT_ABI_GAM_Cal_191121***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**359.7**
270 degrees	**272.7**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***04_SB-MW04_ALT_ABI_GAM_Cal_191121***

Source	Measured by Tool
Atmosphere	20

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P.Wray	P. Pehme
Test Operator	**Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW04_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**19-Nov 15:09**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	2PCA-1000 3131
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-04

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***07_SB-MW04_MS_3-Arm_Cal_191121***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		7.96
10		9.98
12		11.99

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed

P.Wray	P.Pehme
Test Operator	**Supervisor**

Electric Log – FIELD TEST

SB_MW04_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**21-11-19 15:34:38 PM**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6384
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-03

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***09_SB-MW04_MS_ELOG_Cal_191121***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104	100.0	0.51	112.0
1000	1048	1016.0		1116.0
10000	10356	10030		11095

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *09_SB-MW04_MS_ELOG_Cal_191121*

Surface	Measured by Tool
Air	20-30

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed

P.Wray	P.Pehme
Test Operator	**Supervisor**

Fluid Temperature / Conductivity– FIELD TEST

SB_MW04_DQC_TP-21223-WPC BH Geophys_FTC_Calibration_20211108_R0A

Date and Time:	**20-Nov 07:19**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Ref	SB Mon. Wells
Project:	Kinloss
Location:	MW-04
HoleID:	

Probe is functional checked against known soloutions (fluid resistivity)

Test 1: P0st Fluid Temp Cond

See File above: ***12_SB-MW04_MS_FTC-Gam_Cal_191121***

Reference	Measured by Tool (uS/cm)	Temp	
Tap Water	241	*0.24*	
Salted	7740	*-0.035*	*fresh water topped*

Post ResponseTest Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***12_SB-MW04_MS_FTC-Gam_Cal_191121***

Source	Measured by Tool
Atmosphere	20-30

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Fluid Conductivity Field Test – Overall Results

X Passed

☐Not Passed

P.Wray	P. Pehme
Test Operator	**Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW04_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**20-Nov 10:39**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	MS 2293
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-04

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

X Passed

☐Not Passed

P.Wray	P.Pehme
Test Operator	**Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW04_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**19-Nov 07:31**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	OBI G2 16054/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-04

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***03_SB-MW04_ALT_OBI_GAM_Cal_191121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.8**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***03_SB-MW04_ALT_OBI_GAM_Cal_191121***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**359.7**
270 degrees	**273.7**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***03_SB-MW04_ALT_OBI_GAM_Cal_191121***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***03_SB-MW04_ALT_OBI_GAM_Cal_191121***

Source	Measured by Tool
Atmosphere	21.9

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P.Wray	P. Pehme
Test Operator	**Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**10-Nov 11:35**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	ATI 150814/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**90**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Azimuth	Azimuth Measured by Tool
90 degrees	**90.4**
180 degrees	**178**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Source	Measured by Tool
Atmosphere	39

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**10-Nov 14:00**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	2PCA-1000 3131
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***07_SB-MW05_MS_3Arm_Cal_101121.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		8.05
10		10.03
12		12.01

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☐	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

Electric Log – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6384
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***10_SB-MW05_MS_Elog_Cal_101121.tfd***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104	100.0	0.51	112.0
1000	1115	1016.0		1115.0
10000	10342	10070		11000

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *10_SB-MW05_MS_Elog_Cal_101121.tfd*

Surface	Measured by Tool
Air	29

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.0**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**0**
90 degrees	**91**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	29

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**10-Nov 11:35**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**90**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Azimuth	Azimuth Measured by Tool
90 degrees	**90.4**
180 degrees	**178**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Source	Measured by Tool
Atmosphere	39

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**10-Nov 14:00**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***07_SB-MW05_MS_3Arm_Cal_101121.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		8.05
10		10.03
12		12.01

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☐	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed

	P.Pehme
Test Operator	**Supervisor**

Electric Log – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***10_SB-MW05_MS_Elog_Cal_101121.tfd***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104	100.0	0.51	112.0
1000	1115	1016.0		1115.0
10000	10342	10070		11000

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *10_SB-MW05_MS_Elog_Cal_101121.tfd*

Surface	Measured by Tool
Air	29

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed

P.Pehme

Test Operator **Supervisor**

Fluid Temperature / Conductivity– FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_FTC_Calibration_20211108_R0A

Date and Time:	**11-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Ref	SB Mon. Wells
Project:	Kinloss
Location:	MW-05
HoleID:	

Probe is functional checked against known soloutions (fluid resistivity)

Test 1: P0st Fluid Temp Cond

See File above: ***13_SB-MW05_MS_FTC_Cal_111121.tfd***

Reference	Measured by Tool (uS/cm)	Temp	
Tap Water	380	*3.57*	
Salted (22700)	16000	*3.67*	*fresh water topped*

Post ResponseTest Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***13_SB-MW05_MS_FTC_Cal_111121.tfd***

Source	Measured by Tool
Atmosphere	28

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Fluid Conductivity Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**11-Nov 14:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed

	P.Pehme
Test Operator	**Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**11-Nov 14:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	MS 2293
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	OBI G2 16054/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.0**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**0**
90 degrees	**91**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	29

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**10-Nov 11:35**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	ATI 150814/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**90**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Azimuth	Azimuth Measured by Tool
90 degrees	**90.4**
180 degrees	**178**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Source	Measured by Tool
Atmosphere	39

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**10-Nov 14:00**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	2PCA-1000 3131
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***07_SB-MW05_MS_3Arm_Cal_101121.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		8.05
10		10.03
12		12.01

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☐	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

Electric Log – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6384
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***10_SB-MW05_MS_Elog_Cal_101121.tfd***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104	100.0	0.51	112.0
1000	1115	1016.0		1115.0
10000	10342	10070		11000

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *10_SB-MW05_MS_Elog_Cal_101121.tfd*

Surface	Measured by Tool
Air	29

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.0**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**0**
90 degrees	**91**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	29

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**10-Nov 11:35**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**90**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Theoretical Azimuth	Azimuth Measured by Tool
90 degrees	**90.4**
180 degrees	**178**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***04_SB-MW05_ALT_ABI-Gam_Cal_101121***

Source	Measured by Tool
Atmosphere	39

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**10-Nov 14:00**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***07_SB-MW05_MS_3Arm_Cal_101121.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		8.05
10		10.03
12		12.01

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☐	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed

	P.Pehme
Test Operator	**Supervisor**

Electric Log – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***10_SB-MW05_MS_Elog_Cal_101121.tfd***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104	100.0	0.51	112.0
1000	1115	1016.0		1115.0
10000	10342	10070		11000

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *10_SB-MW05_MS_Elog_Cal_101121.tfd*

Surface	Measured by Tool
Air	29

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed

P.Pehme

Test Operator **Supervisor**

Fluid Temperature / Conductivity– FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_FTC_Calibration_20211108_R0A

Date and Time:	**11-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Ref	SB Mon. Wells
Project:	Kinloss
Location:	MW-05
HoleID:	

Probe is functional checked against known soloutions (fluid resistivity)

Test 1: P0st Fluid Temp Cond

See File above: ***13_SB-MW05_MS_FTC_Cal_111121.tfd***

Reference	Measured by Tool (uS/cm)	Temp	
Tap Water	380	*3.57*	
Salted (22700)	16000	*3.67*	*fresh water topped*

Post ResponseTest Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***13_SB-MW05_MS_FTC_Cal_111121.tfd***

Source	Measured by Tool
Atmosphere	28

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Fluid Conductivity Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme

Test Operator **Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**11-Nov 14:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed

	P.Pehme
Test Operator	**Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**11-Nov 14:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	MS 2293
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed



P.Pehme

Test Operator **Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW05_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**10-Nov 08:22**
Operator:	P.Wray / P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	OBI G2 16054/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-05

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.0**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**0**
90 degrees	**91**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01-SB-MW05_ALT_OBI-Gam_Cal_031121.tfd***

Source	Measured by Tool
Atmosphere	29

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed



P. Pehme

Test Operator **Supervisor**

ACOUSTIC TELEVIEWER – FIELD TEST

SB_MW07_DQC_TP-21223-WPC BH Geophys_ATV_Calibration_20211108_R0A

Date and Time:	**18-Dec 15:14**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	ATI 150814/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-07

Probe is factory calibrated by the manufacturer and does not require further calibration. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***07_SB-MW07_ALT_ABI-Gam_C_181221.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**90**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***07_SB-MW07_ALT_ABI-Gam_C_181221.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
90 degrees	**87.9**
180 degrees	**180**

Azimuth Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***07_SB-MW07_ALT_ABI-Gam_C_181221.tfd***

Source	Measured by Tool
Atmosphere	30-40

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Acoustic Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme	P. Pehme
Test Operator	**Supervisor**

3 arm Caliper Probe (w. Gamma) – FIELD TEST

SB_MW07_DQC_TP-21223-WPC BH Geophys_Caliper_Calibration_20211108_R0A

Date and Time:	**19-Dec 07:56**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	2PCA-1000 3131
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-07

Probe is calibrated onsite using of rings of known diameters, placed over the extended arms.

Test 1: Pre ResponseTest

Filename: ***10_SB-MW07_MS-3Arm_C_191221.tfd***

	Measured by Tool	
Ref Diameter	**cps**	**Inch**
8		8.04
10		9.98
12		11.95

Pre ResponseTest Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Caliper Field Test – Overall Results

X Passed

☐Not Passed

P.Pehme	P.Pehme
Test Operator	**Supervisor**

Electric Log – FIELD TEST

SB_MW07_DQC_TP-21223-WPC BH Geophys_ELOG_Calibration_20211108_R0A

Date and Time:	**19-Dec 10:12**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6384
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-07

Probe is calibrated onsite with a resistance box which tests the probe across a range of known resistivities

Test 1: Pre ResponseTest

Filename: ***13_SB-MW07_MS-Elog_C_191221.tfd***

	Measured by Tool			
Cal Box	**16" (ohm-m)**	**64" (ohm-m)**	**SP (mV)**	**SPR (ohm)**
100	104	100.0	-0.09	111.9
1000	1049	1016.0		1117.0
10000	10380	10000		10900

Pre ResponseTest Results:

X Passed

☐Not Passed

Test 2: Gamma

See File above: *13_SB-MW07_MS-Elog_C_191221.tfd*

Surface	Measured by Tool
Air	29

X Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	X	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Electric Log Field Test – Overall Results

X Passed

☐Not Passed

P.Pehme	P.Pehme
Test Operator	**Supervisor**

Fluid Temperature / Conductivity– FIELD TEST

SB_MW07_DQC_TP-21223-WPC BH Geophys_FTC_Calibration_20211108_R0A

Date and Time:	**18-Dec 08:20**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	6327/16009
Ref	SB Mon. Wells
Project:	Kinloss
Location:	MW-07
HoleID:	

Probe is functional checked against known soloutions (fluid resistivity)

Test 1: Pre Fluid Temp Cond

See File above: ***01_SB-MW07_MS_FLTC_Cal_181221.tfd***

Reference	Measured by Tool (uS/cm)	Temp
Tap Water	131	*-0.3*
Salted	6900	*-1.4*

Post ResponseTest Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***01_SB-MW07_MS_FLTC_Cal_181221.tfd***

Source	Measured by Tool
Atmosphere	10-30

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Fluid Conductivity Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme	P. Pehme
Test Operator	**Supervisor**

Heat Pulse Flowmeter Probe – FIELD TEST

SB_MW07_DQC_TP-21223-WPC BH Geophys_HPFL_Calibration_20211108_R0A

Date and Time:	**19-Dec 13:22**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	MS 2293
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-07

Probe is pre calibrated in flow column, onsite functionality

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Heat Pulse Field Test – Overall Results

☐ Passed

☐Not Passed

P.Pehme	P.Pehme
Test Operator	**Supervisor**

OPTICAL TELEVIEWER – FIELD TEST

SB_MW07_DQC_TP-21223-WPC BH Geophys_OTV_Calibration_20211108_R0A

Date and Time:	**18-Dec 14:50**
Operator:	P Pehme
Geofirma Supervisor	P Pehme
Probe Model and SN:	OBI G2 16054/16009
Project:	SB Mon. Wells
Location:	Kinloss
HoleID:	MW-07

Probe is factory calibrated by the manufacturer and does not require further calibration by Colog. Field test is conducted prior to deployment in borehole to confirm the probe is functional and the probe is giving the correct deviation outputs

Test 1: Inclination Test

Filename: ***06_SB-MW07_ALT_OBI-Gam_C_181221.tfd***

Theoretical Inclination	Inclination Measured by Tool
90 degrees	**89.7**

Inclination Test Results:

X Passed

☐Not Passed

Test 2: Azimuth Test

Filename: ***06_SB-MW07_ALT_OBI-Gam_C_181221.tfd***

Theoretical Azimuth	Azimuth Measured by Tool
0 degrees	**0.2**
90 degrees	**88.5**

Azimuth Test Results:

X Passed

☐Not Passed

Test 4: Optics

Colour pallett card measured

Filename: ***06_SB-MW07_ALT_OBI-Gam_C_181221.tfd***

Colour Test Results:

X Passed

☐Not Passed

Test 5: Gamma

See File above: ***06_SB-MW07_ALT_OBI-Gam_C_181221.tfd***

Source	Measured by Tool
Atmosphere	20-30

Gamma Test Results:

X Passed

☐Not Passed

General Inspection and Performance

Item	Pass	Fail	Comments
Visual Inspection for Damage	☒	☐	
Probe Startup	☒	☐	
Probe Telemetry	☒	☐	

Optical Televiewer Field Test – Overall Results

X Passed

☐Not Passed

P. Pehme	P. Pehme
Test Operator	**Supervisor**

20-211-1: Log Quality Confirmation Report

Log Information																Log QA Review						
					Probe							Data				Reviewed						
Log Name	Probe Serial Number	WL (TOC)	Logged Date (Start Time)	Logging Operator	Length	Surface Ref Depth	Tape @ 50m ref	Cable Out	50m offset[2]	Return to Surface	Return to ref offset[1]	From (m)	To (m)	Raw File Name(s)	Depth Ref.	Date	By	FileType and Format Consistent with Test Plan	Depth Reference Recorded	Logged Resolution Consistent with Test Plan	Data Quality (acceptable, poor, not acceptable)	Comments
OTV/Gamma	16054/16009	4.89	03-Nov-21	P.Pehme	74.25	2.59	52.61	50.02	0.02	2.61	0.02	2.59	76.84	01_SB-MW02_OTVGAM_D_031121	Top of Casing (0.50m abgs)	04-Nov-21	PP	yes	yes	yes	Accept	Clear, probe hung up on fracture
Fluid T&C / Cond	6327/16009	4.9	04-Nov-21	P.Pehme	64.40	1.90	51.90	50.00	0.00	na	na	1.90	66.30	06_SB-MW02_FTCGAM_D_041122		04-Nov-21	PP	yes	yes	yes	Accept	Probe hung up
Fluid T&C / Cond	6327/16009		04-Nov-21	P.Pehme	35.88	1.90	51.90	50.00	0.00	1.94	0.04	51.90	87.78	03_SB-MW02_FTCGAM_D_041122		04-Nov-21	PP	yes	yes	yes	Accept	With overlap for repeat
OTV/Gamma	16054/16009	4.92	04-Nov-21	P.Pehme	17.79	2.59	52.59	50.00	0.00	2.56	-0.03	70.00	87.79	06_SB-MW02_OTVGAM_D_41121		04-Nov-21	PP	yes	yes	yes	Accept	With overlap for repeat
OTV/Gamma	16054/16009	4.92	04-Nov-21	P.Pehme	8.00	2.59	na	na	na	2.56	-0.03	78.00	70.00	07_SB-MW02_OTVGAM_U_41121		04-Nov-21	PP	yes	yes	yes	Accept	Over hangup on down log
ATV/Gamma	150814/16009		04-Nov-21	P.Pehme	9.86	2.74	52.83	50.09	0.09	na	na	78.00	87.86	09_SB-MW02_ATVGAM_D_041122		05-Nov-21	PP	yes	yes	yes	Accept	Rough due to drilling technique
ATV/Gamma	150814/16009		04-Nov-21	P.Pehme	85.08	2.74	na	na	na	2.78	0.04	87.86	2.78	10_SB-MW02_ATVGAM_D_041123		05-Nov-21	PP	yes	yes	yes	Accept	Rough due to drilling technique
Caliper	3131	4.96	05-Nov-21	Pehme /Wray	86.11	1.69	51.76	50.07	0.07	1.79	0.1	87.9	1.79	12_SB-MW02_MS_Cal_u_051121		05-Nov-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384/16009		05-Nov-21	Pehme /Wray	77.98	9.82	59.92	50.10	0.10	9.92	0.1	87.9	9.92	14_SB-MW02_MS_Elog_U__051121		05-Nov-21	PP	yes	yes	yes	Accept	
HtPIFL	2293		05-Nov-21	Pehme /Wray	20	0.97	na	na	na	0.98	0.01	10	30	16_SB-MW02_MS_HPF_D_051121		05-Nov-21	PP	yes	yes	yes	Accept	Portions with repeated irregular response, either high vertical or cross flow
HtPIFL	2293		05-Nov-21	Pehme /Wray	63	0.97	na	na	na	1.05	0.08	10	73	17_SB-MW02_MS_HPF_D_051121		05-Nov-21	PP	yes	yes	yes	Accept	Consistent with above

Other Comments:

1- Logging depths as recorded in field (refer to bottom of tool, without final encoder and closure corrections)
2- Return to ref offset ("+" =below, "-" =above)
3- Cable marked at 50m & 100m mark
4- If probe depth with 50m tape at ref noted

Logging Staff:	Pete Pehme, Peter Wray	QC	Verified by:
Date:	08/11/2021		Date:

20-211-1: Log Quality Confirmation Report

Log Information																	Log QA Review						
					Probe								Data				Reviewed						
Log Name	Probe Serial Number	WL (TOC)	Logged Date (Start Time)	Logging Operator	Length	Surface Ref Depth	Tape @ 50m ref	Cable Out	50m offset[2]	bottom tape	Return to Surface	Return to ref offset[1]	From (m)	To (m)	Raw File Name(s)	Depth Ref.	Date	By	FileType and Format Consistent with Test Plan	Depth Reference Recorded	Logged Resolution Consistent with Test Plan	Data Quality (acceptable, poor, not acceptable)	Comments
OTV/Gamma	16054/16009	1.19	06-Nov-21	Pehme /Wray	33.43	2.59	na	na	na	na	na	na	2.59	36.02	02_SB-MW03_ALT_OBI-Gam_D_061121	Top of Casing (2.68m abgs)	06-Nov-21	PP	yes	yes	yes	Accept	Clear, probe hung up on fracture
OTV/Gamma	16054/16009	1.19	06-Nov-21	Pehme /Wray	20.75	2.59	na	na	na	na	2.56	-0.03	36.02	15.27	03_SB-MW03_ALT_OBI-Gam_U_061121		06-Nov-21	PP	yes	yes	yes	Accept	
Caliper	3131		06-Nov-21	Pehme /Wray	24.13	1.69	na	na	na	na	1.71	0.02	36.13	12	04_SB-MW03_MS_Cal-U_061121		06-Nov-21	PP	yes	yes	yes	Accept	For BH quality assessment
OTV/Gamma	16054/16009		12-Nov-21	Pehme /Wray	22.00	2.59	na	na	na	na	2.57	-0.02	2.59	24.59	06_SB-MW03_ALT_OBI-Gam_D_121121	Top of Casing (2.69m abgs)	12-Nov-21	PP	yes	yes	yes	Accept	Clear, probe hung up on fracture
OTV/Gamma	16054/16009		12-Nov-21	Pehme /Wray	17.70	2.59	na	na	na	na	na	na	18.50	36.20	07_SB-MW03_ALT_OBI-Gam_D_121121		12-Nov-21	PP	yes	yes	yes	Accept	Clear, probe hung up on fracture
Caliper	3131		12-Nov-21	Pehme /Wray	34.47	1.69	na	na	na	na	na	na	36.26	1.79	08_SB-MW03_MS_Cal_U_121121		12-Nov-21	PP	yes	yes	yes	Accept	For BH quality assessment
Caliper	3131	1.25	13-Nov-21	Pehme /Wray	60.4	1.69	51.60	49.91	-0.09	2.00	1.73	0.04	62.13	1.73	10_SB-MW03_MS_3ARM_U_131121	Top of Casing (2.70m abgs)	13-Nov-21	PP	yes	yes	yes	Accept	
OTV/Gamma	16054/16009		13-Nov-21	Pehme /Wray	59.65	2.59	52.55	49.96	-0.04	1.05	2.52	-0.07	62.17	2.52	11_SB-MW03_ALT_OBI_GAM_U_131121		13-Nov-21	PP	yes	yes	yes	Accept	Clear, collected upward to avoid hangups
ATV/Gamma	150814/16009		13-Nov-21	Pehme /Wray	11.15	2.74	52.83	50.09	0.09	0.92	na	na	51.00	62.15	14_SB-MW03_ALT_ABI_GAM_D_131121		13-Nov-21	PP	yes	yes	yes	Accept	Rough due to drilling technique
ATV/Gamma	150814/16009		13-Nov-21	Pehme /Wray	59.47	2.74	53.83	51.09	1.09	0.92	2.68	-0.06	62.15	2.68	15_SB-MW03_ALT_ABI_GAM_U_131121		13-Nov-21	PP	yes	yes	yes	Accept	Rough due to drilling technique
Elog / Gam	6384/16009		13-Nov-21	Pehme /Wray	12.2	9.82	59.8	49.98	-0.02	na	na	na	50	62.2	17_SB-MW03_MS_ELOG_GAM_D_131121		13-Nov-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384/16009		13-Nov-21	Pehme /Wray	52.28	9.82	na	na	na	na	9.8	-0.02	62.2	9.92	18_SB-MW03_MS_ELOG_GAM_U_131121		13-Nov-21	PP	yes	yes	yes	Accept	
Fluid T&C / Cond	6327/16009	1.26	14-Nov-21	Pehme /Wray	64.40	1.90	51.84	49.94	-0.06	1.73	na	na	1.90	66.30	20_SB-MW03_MS_TFLCond_GAM_D_141121		14-Nov-21	PP	yes	yes	yes	Accept	
HtPlFL	2293		14-Nov-21	Pehme /Wray	27.54	0.97	na	na	na	na	na	na	0.97	28.51	21_SB_MW03_MS_HPFLW_D_141121		14-Nov-21	PP	yes	yes	yes	Accept	Repeated irregular response, either high vertical or cross flow
HtPlFL	2293		14-Nov-21	Pehme /Wray	52.48	0.97	50.88	49.91	-0.09	1.97	0.91	-0.06	9.49	61.97	22_SB_MW03_MS_HPFLW_D_141121		14-Nov-21	PP	yes	yes	yes	Accept	Consistent with above

Other Comments:

1- Logging depths as recorded in field (refer to bottom of tool, without final encoder and closure corrections)
2- Return to ref offset ("+" =below, "-" =above)
3- Cable marked at 50m & 100m mark
4- If probe depth with 50m tape at ref noted

Logging Staff:	Pete Pehme, Peter Wray	QC Pehme	Verified by:
Date:	15/11/2021		Date:

20-211-1: Log Quality Confirmation Report

Log Information																	Log QA Review						
					Probe								Data				Reviewed						
Log Name	Probe Serial Number	WL (TOC)	Logged Date (Start Time)	Logging Operator	Length	Surface Ref Depth	Tape @ 50m ref	Cable Out	50m offset[2]	bottom tape	Return to Surface	Return to ref offset[1]	From (m)	To (m)	Raw File Name(s)	Depth Ref.	Date	By	FileType and Format Consistent with Test Plan	Depth Reference Recorded	Logged Resolution Consistent with Test Plan	Data Quality (acceptable, poor, not acceptable)	Comments
OTV/Gamma	16054/16009		19-Nov-21	Pehme	10.15	2.59	52.62	50.03	0.03	na	na	na	85.16	75.01	01_SB-MW04_ALT_OBI_GAM_U_191121	Top of Casing (0.59m abgs)	19-Nov-21	PP	yes	yes	yes	Accept	Clear, probe hung up on fracture
OTV/Gamma	16054/16009		19-Nov-21	Pehme	82.57	2.59	52.60	50.01	0.01	0.00	2.59	0.00	85.16	2.59	02_SB-MW04_ALT_OBI_GAM_U_191121		19-Nov-21	PP	yes	yes	yes	Accept	
ATV/Gamma	150814/16009		19-Nov-21	Pehme	14.60	2.74	52.78	50.04	0.04	0.15	na	na	70.55	85.15	05_SB-MW04_ALT_ABI_GAM_D_191121		19-Nov-21	PP	yes	yes	yes	Accept	Rough due to drilling technique
ATV/Gamma	150814/16009		19-Nov-21	Pehme	82.45	2.74	52.72	49.98	-0.02	0.15	2.70	-0.04	85.15	2.70	06_SB-MW04_ALT_ABI_GAM_U_191121		19-Nov-21	PP	yes	yes	yes	Accept	Rough due to drilling technique
Caliper	3131		19-Nov-21	Pehme /Wray	83.47	1.69	51.67	49.98	-0.02	-0.95	1.64	-0.05	85.11	1.64	08_SB-MW04_MS_3-Arm_U_191121		19-Nov-21	PP	yes	yes	yes	Accept	
Caliper	3131		20-Nov-21	Pehme /Wray	16	1.69	na	na	na	na	1.91	0.22	38	22	14_SB-MW04_MS_3-Arm_U_201121		20-Nov-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384/16009		19-Nov-21	Pehme /Wray	12.2	9.82	na	na	na	na	na	na	50	62.2	10_SB-MW04_MS_ELOG_D_191121		19-Nov-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384/16009		19-Nov-21	Pehme /Wray	75.32	9.82	59.86	50.04	0.04	na	9.83	0.01	85.15	9.83	11_SB-MW04_MS_ELOG_U_191121		19-Nov-21	PP	yes	yes	yes	Accept	
Fluid T&C / Cond	6327/16009		20-Nov-21	Pehme /Wray	83.19	1.90	51.90	50.00	0.00	-0.73	1.91	0.01	1.90	85.09	13_SB-MW04_MS_FTC-Gam_DI_191121		20-Nov-21	PP	yes	yes	yes	Accept	
HtPlFL	2293		20-Nov-21	Pehme	20	0.97	na	na	na	na	na	na	20	40	15_SB_MW04_MS_HPFLW_D_201121		21-Nov-21	PP	yes	yes	yes	Accept	Repeated irregular response, either high vertical or cross flow
HtPlFL	2293		20-Nov-21	Pehme	10	0.97	na	na	na	na	0.92	-0.05	40	50	16_SB_MW04_MS_HPFLW_D_201121		21-Nov-21	PP	yes	yes	yes	Accept	Consistent with above -probe hung 56.52
HtPlFL	2293		20-Nov-21	Pehme	32.08	0.97	50.97	50.00	0.00	1.97	na	na	51.97	84.05	17_SB_MW04_MS_HPFLW_D_201121		21-Nov-21	PP	yes	yes	yes	Accept	Consistent with above, becomes periodic -restart @ tape
HtPlFL	2293		20-Nov-21	Pehme /Wray	72	0.97	50.88	49.91	-0.09	1.97	0.96	-0.01	82	10	18_SB_MW04_MS_HPFLW_U_201121		21-Nov-21	PP	yes	yes	yes	Accept	Cyclic Period (20s - <10s)

Other Comments:

1- Logging depths as recorded in field (refer to bottom of tool, without final encoder and closure corrections)
2- Return to ref offset ("+" =below, "-" =above)
3- Cable marked at 50m & 100m mark
4- If probe depth with 50m tape at ref noted

Logging Staff:	Pete Pehme, Peter Wray	QC Pehme	Verified by:
Date:	21-Nov-21		Date:

20-211-1: Log Quality Confirmation Report

Log Information																	Log QA Review						
					Probe								Data				Reviewed						
Log Name	Probe Serial Number	WL (TOC)	Logged Date (Start Time)	Logging Operator	Length	Surface Ref Depth	Tape @ 50m ref	Cable Out	50m offset[2]	Tape @ bottom	Return to Surface	Return to ref offset[1]	From (m)	To (m)	Raw File Name(s)	Depth Ref.	Date	By	FileType and Format Consistent with Test Plan	Depth Reference Recorded	Logged Resolution Consistent with Test Plan	Data Quality (acceptable, poor, not acceptable)	Comments
OTV/Gamma	16054/16009	2.75	10-Nov-21	Pehme /Wray	74.47	2.59	52.59	50.00	0.00	0.00	na	na	2.59	77.06	02_SB-MW05_ALT_OBI-Gam_D101121	Top of Casing (0.75m abgs)	10-Nov-21	PP	yes	yes	yes	Accept	
OTV/Gamma	16054/16009		10-Nov-21	Pehme /Wray	10.55	2.59	52.59	50.00	0.00	0.00	2.54	-0.05	77.06	66.51	03_SB-MW05_ALT_OBI-Gam_U101121		10-Nov-21	PP	yes	yes	yes	Accept	
ATV/Gamma	150814/16009		10-Nov-21	Pehme /Wray	11.10	2.74	52.76	50.02	0.02	0.095	na	na	66.02	77.12	05_SB-MW05_ALT_ABI-Gam_D101121		10-Nov-21	PP	yes	yes	yes	Accept	
ATV/Gamma	150814/16009		10-Nov-21	Pehme /Wray	74.39	2.74	na	na	na	0.095	2.73	-0.01	77.12	2.73	06_SB-MW05_ALT_ABI-Gam_U101121		10-Nov-21	PP	yes	yes	yes	Accept	
Caliper	3131		10-Nov-21	Pehme /Wray	11.12	1.69	51.71	50.02	0.02	-0.95	2.73	1.04	77.12	66	08_SB-MW05_MS_3Arm_U101121		10-Nov-21	PP	yes	yes	yes	Accept	
Caliper	3131		10-Nov-21	Pehme /Wray	75.41	1.69		-1.69	-51.69	-0.95	1.71	0.02	77.12	1.71	09_SB-MW05_MS_3Arm_U101121		10-Nov-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384/16009		10-Nov-21	Pehme /Wray	11.11	9.82	59.81	49.99	-0.01	na	na	na	66	77.11	11_SB-MW05_MS_Elog_D101121		10-Nov-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384/16009		10-Nov-21	Pehme /Wray	67.31	9.82	59.83	50.01	0.01	na	9.8	-0.02	77.11	9.8	12_SB-MW05_MS_Elog_U101121		10-Nov-21	PP	yes	yes	yes	Accept	
Fluid T&C / Cond	6327/16009	2.75	11-Nov-21	Pehme /Wray	75.18	1.90	51.90	50.00	0.00	na	1.87	-0.03	1.90	77.08	14_SB-MW05_MS_FTC_D_111121		11-Nov-21	PP	yes	yes	yes	Accept	
HPFlow	2293		11-Nov-21	Pehme /Wray	55.4	0.97	50.92	49.95	-0.05	na	na	na	20	75.4	15_SB-MW05_MS_HPF_D_111121		11-Nov-21	PP	yes	yes	yes	Accept	Irregular indeterminant response below 30m
HPFlow	2293		11-Nov-21	Pehme /Wray	9.01	0.97	na	na	na	na	0.9	-0.07	31	21.99	16_SB-MW05_MS_HPF_U_111121		11-Nov-21	PP	yes	yes	yes	Accept	Irregular indeterminant response where earlier distinct peak (varies over day)

Other Comments:

1- Logging depths as recorded in field (refer to bottom of tool, without final encoder and closure corrections)
2- Return to ref offset ("+" =below, "-" =above)
3- Cable marked at 50m & 100m mark
4- If probe depth with 50m tape at ref noted

Logging Staff:	Pete Pehme, Peter Wray	QC P.Pehme	Verified by:
Date:	15/11/2021		Date:

20-211-1: Log Quality Confirmation Report

Log Information																	Log QA Review						
					Probe								Data				Reviewed						
Log Name	Probe Serial Number	WL (TOC)	Logged Date (Start Time)	Logging Operator	Length	Surface Ref Depth	Tape @ 50m ref	Cable Out	50m offset[2]	Tape @ bottom	Return to Surface	Return to ref offset[1]	From (m)	To (m)	Raw File Name(s)	Depth Ref.	Date	By	FileType and Format Consistent with Test Plan	Depth Reference Recorded	Logged Resolution Consistent with Test Plan	Data Quality (acceptable, poor, not acceptable)	Comments
OTV/Gamma	16054/16009	9.88	15-Dec-21	Pehme	39.80	2.59	na	na	na	na	na	na	2.59	42.39	01_SB-MW06_ALT_OBI_GAM_D_151221	Top of Casing (0.75m abgs)	15-Dec-21	PP	yes	yes	yes	Accept	intensity in rock too bright
OTV/Gamma	16054/16009		15-Dec-21	Pehme	46.48	2.59	52.65	50.06	0.06	na	na	na	40.28	86.76	02_SB-MW06_ALT_OBI_GAM_D_151221		15-Dec-21	PP	yes	yes	yes	Accept	brief hang up at ~72m
OTV/Gamma	16054/16009		15-Dec-21	Pehme	10.00	2.59	na	na	na	na	2.55	-0.04	80.00	70.00	03_SB-MW06_ALT_OBI_GAM_U_151221		15-Dec-21	PP	yes	yes	yes	Accept	overlaps hang up in above
ATV/Gamma	150814/16009		15-Dec-21	Pehme	11.81	2.74	52.76	50.02	0.02	na	na	na	75.00	86.81	06_SB-MW06_ALT_ABI_GAM_D_151221		15-Dec-21	PP	yes	yes	yes	Accept	
ATV/Gamma	150814/16009		15-Dec-21	Pehme	84.07	2.74	na	na	na	na	2.74	0.00	86.81	2.74	07_SB-MW06_ALT_ABI_GAM_U_151221		15-Dec-21	PP	yes	yes	yes	Accept	
Caliper	3131		15-Dec-21	Pehme	11.83	1.69	51.71	50.02	0.02	na	2.73	1.04	86.83	75	09_SB-MW06_MS_3arm_U1_151221		16-Dec-21	PP	yes	yes	yes	Accept	
Caliper	3131		15-Dec-21	Pehme	85.17	1.69	na	na	na	na	1.68	-0.01	86.85	1.68	09_SB-MW05_MS_3Arm_U101121		16-Dec-21	PP	yes	yes	yes	Accept	
Fluid T&C / Cond	6327/16009		16-Dec-21	Pehme	84.86	1.90	na	na	na	na	2.04	0.14	1.90	86.76	12_SB-MW06_MS_FLTC_D_161221		16-Dec-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384		16-Dec-21	Pehme	11.74	9.82	na	na	na	na	na	na	75	86.74	14_SB-MW06_MS_Elog_D_161221		16-Dec-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384		16-Dec-21	Pehme	77	9.82	59.8	49.98	-0.02	na	9.74	-0.08	86.74	9.74	15_SB-MW06_MS_Elog_U_161221		16-Dec-21	PP	yes	yes	yes	Accept	
HPFlow	2293		16-Dec-21	Pehme	46.57	0.97	51.03	50.06	0.06	na	na	na	40	86.57	16_SB-MW06_MS_HP_D1_161221		16-Dec-21	PP	yes	yes	yes	Accept	Irregular indeterminant response
HPFlow	2293		16-Dec-21	Pehme	56.57	0.97	na	na	na	na	0.97	0	86.57	30	17_SB-MW06_MS_HP_U1_161221		16-Dec-21	PP	yes	yes	yes	Accept	limited number of noisy responses

Other Comments:

1- Logging depths as recorded in field (refer to bottom of tool, without final encoder and closure corrections)
2- Return to ref offset ("+" =below, "-" =above)
3- Cable marked at 50m & 100m mark
4- If probe depth with 50m tape at ref noted

Logging Staff:	Pete Pehme	QC P.Pehme	Verified by:
Date:	17-Dec-21		Date:

20-211-1: Log Quality Confirmation Report

Log Information																	Log QA Review						
					Probe								Data				Reviewed						
Log Name	Probe Serial Number	WL (TOC)	Logged Date (Start Time)	Logging Operator	Length	Surface Ref Depth	Tape @ 50m ref	Cable Out	50m offset[2]	Tape @ bottom	Return to Surface	Return to ref offset[1]	From (m)	To (m)	Raw File Name(s)	Depth Ref.	Date	By	FileType and Format Consistent with Test Plan	Depth Reference Recorded	Logged Resolution Consistent with Test Plan	Data Quality (acceptable, poor, not acceptable)	Comments
Fluid T&C / Cond	6327/16009	7.95	18-Dec-21	Pehme	84.86	1.90	51.95	50.05	0.05	na	na	na	1.90	64.04	02_SB-MW07_MS_FLTC_D_181221	Top of Casing (0.61m abgs)	18-Dec-21	PP	yes	yes	yes	Accept	Hang up
Fluid T&C / Cond	6327/16009		18-Dec-21	Pehme	84.86	1.90	na	na	na	na	1.94	0.04	62.00	93.20	03_SB-MW07_MS_FLTC_D2_181221		18-Dec-21	PP	yes	yes	yes	Accept	with overlap
OTV/Gamma	16054/16009		18-Dec-21	Pehme	10.03	2.59	na	na	na	na	na	na	18.00	28.03	04_SB-MW07_ALT_OBI-Gam_D_181221		18-Dec-21	PP	yes	yes	yes	Accept	
OTV/Gamma	16054/16009		18-Dec-21	Pehme	90.45	2.59	na	na	na	na	2.55	-0.04	93.00	2.55	05_SB-MW07_ALT_OBI-Gam_U_181221		18-Dec-21	PP	yes	yes	yes	Accept	several hangups going to bottom, lower protion monitored cloudy
ATV/Gamma	150814/16009		18-Dec-21	Pehme	11.19	2.74	na	na	na	na	na	na	82.00	93.19	08_SB-MW07_ALT_ABI-Gam_D_181221		19-Dec-21	PP	yes	yes	yes	Accept	
ATV/Gamma	150814/16009		18-Dec-21	Pehme	90.45	2.74	52.74	50.00	0.00	na	2.74	0.00	93.19	2.74	09_SB-MW07_ALT_ABI-Gam_U_181221		19-Dec-21	PP	yes	yes	yes	Accept	
Caliper	3131	7.97	19-Dec-21	Pehme	13.29	1.69	na	na	na	na	na	na	93.29	80	11_SB-MW07_MS-3Arm_U_191221		19-Dec-21	PP	yes	yes	yes	Accept	
Caliper	3131		19-Dec-21	Pehme	91.58	1.69	na	na	na	na	1.73	0.04	93.31	1.73	12_SB-MW07_MS-3Arm_U_191221		19-Dec-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384		19-Dec-21	Pehme	83.38	9.82	na	na	na	na	na	na	9.92	93.3	14_SB-MW07_MS-Elog_D_191221		19-Dec-21	PP	yes	yes	yes	Accept	
Elog / Gam	6384		19-Dec-21	Pehme	83.37	9.82	na	na	na	na	9.93	0.11	93.3	9.93	15_SB-MW07_MS-Elog_U_191221		19-Dec-21	PP	yes	yes	yes	Accept	
HPFlow	2293		19-Dec-21	Pehme	76.97	0.97	50.99	50.02	0.02	na	na	na	16	92.97	16_SB-MW07_MS-HPFLW_D_191221		19-Dec-21	PP	yes	yes	yes	Accept	Portions variable, others high quality responce
HPFlow	2293		19-Dec-21	Pehme	32.97	0.97	na	na	na	na	0.97	0	92.97	60	17_SB-MW07_MS-HPFLW_U_191221		19-Dec-21	PP	yes	yes	yes	Accept	Monitored while moving cyclic variability persisted

Other Comments:

1- Logging depths as recorded in field (refer to bottom of tool, without final encoder and closure corrections)
2- Return to ref offset ("+" =below, "-" =above)
3- Cable marked at 50m & 100m mark
4- If probe depth with 50m tape at ref noted

Logging Staff:	Pete Pehme	QC P.Pehme	Verified by:
Date:	21-Dec-21		Date:

South Bruce Monitoring Well Network Installation

DQC Workbook

WPD MW Installation, Development, Testing and Instrumentation

GEOFIRMA ENGINEERING

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW02_OB-int	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, JLB, LMB, PRT, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurment Device (e.g. WL-01)	Comments
2022-01-22	16:10:00	5.16	WL-10	Before slug tests, transducer installed
2022-01-22	17:52:00	5.16	WL-10	After slug tests, prior to transducer removed
2022-02-12	14:29:00	5.33	WL-12	Prior to hydraulic testing
2022-02-12	14:48:00	5.16	WL-12	Start of hydraulic testing
2022-02-13	17:50:00	5.32	WL-12	After transducer installed
2022-02-15	16:45:00	5.35	WL-12	After transducer reprogrammed and reinstalled
2022-03-29	15:03:00	4.51	WL-11	After removing tubing at 14:53 in anticipation of well inspection
2022-04-02	17:45:00	4.44	WL-11	Prior to well inspection

Completed by:	LIM/LMB	Verified by:	AMSC
Date:	2022-04-02	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW02_BR-A	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, JLB, LMB, PRT, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurment Device (e.g. WL-01)	Comments
2022-01-20	10:15:00	5.05	WL-10	Water level prior to well development
2022-01-22	10:00:00	5.01	WL-11	Water level prior to well development
2022-02-12	16:00:00	5.21	WL-12	Prior to hydraulic testing
2022-02-15	16:30:00	5.20	WL-12	Prior to transducer installation
2022-03-29	14:58:00	4.43	WL-11	After removing tubing at 14:30 in anticipation of well inspection
2022-04-03	10:30:00	4.39	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-29	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW02_BR-B	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, JLB, LMB, PRT, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurment Device (e.g. WL-01)	Comments
2022-01-20	10:15:00	4.12	WL-10	Water level prior to well development
2022-01-20	16:30:00	5.01	WL-11	Water level after three attempts at development. The screen for the basal sand interval appears to be compromised.
2022-01-20	17:45:00	4.76	WL-11	Water level after three attempts at development. The screen for the basal sand interval appears to be compromised.
2022-01-21	9:40:00	4.66	WL-11	Monitoring water level after apparent screen failure
2022-01-22	9:55:00	4.69	WL-11	Monitoring water level after apparent screen failure
2022-03-29	14:59:00	3.90	WL-11	No tubing or transducer in well
2022-04-02	16:39:00	3.63	WL-11	Prior to well inspection
2022-04-05	10:15:00	2.48	WL-11	Start of hydraulic testing
2022-04-06	9:20:00	2.02	WL-11	After hydraulic testing (23hr slug test)

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-29	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW02_BR-R	General Comments:
Sampling Personnel	MdK, KC	TOC: 0.37mAGS

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurment Device (e.g. WL-01)	Comments
2022-06-23	11:20:00	4.305	WL-10	Prior to purging
2022-06-23	18:25:00	4.324	WL-10	Following purging
2022-06-24	9:20:00	4.336	WL-10	Prior to slug testing
2022-06-24	10:50:00	4.340	WL-10	Following slug tests
2022-06-24	11:10:00	4.335	WL-10	Static after slug test

Completed by:	MDK	Verified by:	AMSC
Date:	2022-06-24	Date:	2022-07-08

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW02_BR-C	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, JLB, LMB, PRT, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurment Device (e.g. WL-01)	Comments
2022-01-20	10:15:00	4.45	WL-10	Water level prior to well development
2022-02-12	16:00:00	4.77	WL-12	Prior to hydraulic testing
2022-02-15	16:30:00	4.72	WL-12	Prior to transducer installation
2022-03-29	15:01:00	3.84	WL-11	After removing tubing at 14:44 in anticipation of well inspection
2022-04-02	17:25:00	3.780	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-29	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW03_OB-int	General Comments:
Sampling Personnel	LIM, CJS	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-27	9:45	2.05	WL-12	Water level prior to well development
2022-02-12	16:16	2.06	WL-12	Prior to hydraulic testing
2022-02-12	17:55	1.99	WL-12	After transducer install
2022-02-15	17:50	2.04	WL-12	Prior to transducer reinstallation
2022-03-29	15:34	1.52	WL-11	After removing tubing at 15:23 in anticipation of well and inspection
2022-04-03	14:45	1.490	WL-11	Water level prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2021-11-01	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW03_BR-A	General Comments:
Sampling Personnel	FJH, BFS	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-27	--	--	--	Could not measure water level due to frozen in-place Margo plugs
2022-02-24	16:27	1.03	WL-10	Water level taken right after Margo plug removal, water level still rising
2022-02-24	16:33	0.60	WL-10	
2022-02-24	16:44	0.47	WL-10	
2022-02-24	16:53	0.43	WL-10	
2022-02-24	17:10	0.42	WL-10	Water level still rising
2022-02-25	9:49	1.27	WL-10	After removing Margo plug at 9:50
2022-02-25	9:50	1.03	WL-10	After removing Margo plug at 9:50
2022-04-03	14:15	0.51	WL-11	Measurement taken prior to slug testing
2022-04-03	16:11	0.47	WL-11	Measurement taken after slug testing
2022-04-03	16:55	0.41	WL-11	Measurement taken prior to well inspection

Completed by:	FJH	Verified by:	AMSC
Date:	2022-02-25	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW03_BR-B	General Comments:
Sampling Personnel	LIM, CJS	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-27	--	--	--	Could not measure water level due to frozen in-place Margo plugs
2022-02-24	9:20	1.02	WL-10	Water level prior to well development
2022-02-24	13:47	1.12	WL-10	Water level prior to slug testing
2022-02-24	14:25	1.07	WL-10	Water level after slug testing
2022-04-03	16:23	0.96	WL-11	Water level prior to well inspection

Completed by:	LIM / CJS	Verified by:	AMSC
Date:	2021-11-11	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Well ID	SB_MW03_BR-C	General Comments:
Sampling Personnel	FJH, BFS	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-27	--	--	--	Could not measure water level due to frozen in-place Margo plugs
2022-02-23	11:40	2.11	WL-10	Water level prior to well development
2022-02-23	17:32	3.07	WL-10	Water level prior to slug testing
2022-02-23	18:30	3.07	WL-10	Water level after slug testing
2022-04-03	15:45	2.20	WL-11	Water level prior to well inspection

Completed by:	FJH	Verified by:	AMSC
Date:	2022-02-23	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW04_OB-int	General Comments: Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-10	11:30:00	6.80	WL-12	
2022-01-21	16:25:00	6.20	WL-12	Prior to slug testing
2022-01-21	18:12:00	6.20	WL-12	After slug testing
2022-02-15	15:30:00	6.42	WL-12	Prior to transducer installation
2022-03-27	16:01:00	5.89	WL-11	Prior to removal of high-density tubing and transducer for well inspection with downhole camera
2022-03-31	9:49:00	5.55	WL-11	Water level with transducer down well prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-31	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW04_BR-A	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-10	11:30:00	4.53	WL-12	
2022-02-11	11:52:00	4.77	WL-12	Water level prior to slug test
2022-02-11	13:15:00	4.77	WL-12	Water level after slug test
2022-02-15	15:10:00	4.89	WL-12	Prior to transducer installation
2022-03-27	14:10:00	4.27	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-31	8:22:00	4.11	WL-11	Water level with transducer down well prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-31	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW04_BR-B	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-10	11:30:00	5.81	WL-12	
2022-02-11	12:46:00	6.08	WL-12	Prior to slug testing
2022-02-11	13:55:00	6.08	WL-12	After slug testing
2022-02-15	15:10:00	6.13	WL-12	Prior to transducer installation
2022-03-27	17:01:00	4.51	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-31	9:12:00	5.41	WL-11	Water level with transducer down well prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-31	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW04_BR-C	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-10	11:30:00	6.29	WL-12	
2022-02-11	14:08:00	6.57	WL-12	Prior to slug testing
2022-02-11	14:36:00	6.57	WL-12	After slug testing
2022-02-15	15:30:00	6.61	WL-12	Prior to transducer installation
2022-03-27	15:56:00	5.89	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-31	9:31:00	5.83	WL-11	Water level with transducer down well prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-31	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_OB-int	General Comments:	Water levels collected during WPD activities
Sampling Personnel	JW, LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-23	9:30:00	4.46	WL-11	Water level prior to well development
2022-02-08	11:17:00	4.64	WL-12	Prior to hydraulic testing
2022-02-08	19:57:00	4.07	WL-12	After hydraulic testing
2022-02-13	17:37:00	4.46	WL-12	After transducer installation
2022-02-15	17:30:00	4.49	WL-12	Prior to transducer reinstallation
2022-03-27	11:11:00	3.96	WL-11	Prior to removal of high-density tubing and transducer for well inspection with downhole camera
2022-03-29	16:11:00	4.01	WL-11	Water level with only a transducer downhole prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_BR-A	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-23	9:30:00	2.478	WL-11	Water level prior to well development
2022-02-11	9:00:00	2.485	WL-12	Prior to hydraulic testing
2022-02-11	9:50:00	2.42	WL-12	After hydraulic testing
2022-02-15	17:30:00	2.545	WL-12	Prior to transducer installation
2022-03-27	11:05:00	2.18	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-29	13:25:00	2.11	WL-11	Water level with only a transducer downhole prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW05_BR-B	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-23	9:30:00	2.72	WL-11	Water level prior to well development
2022-02-11	8:07:00	2.77	WL-12	Prior to slug testing
2022-02-11	9:00:00	2.70	WL-12	After slug testing
2022-02-15	17:45:00	2.81	WL-12	Prior to transducer installation
2022-03-26	14:52:00	2.38	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-29	15:15:00	2.36	WL-11	Water level with only a transducer downhole prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW05_BR-C	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-23	9:30:00	3.15	WL-11	Water level prior to well development
2022-02-08	9:00:00	3.20	WL-12	Prior to slug testing
2022-02-08	11:33:00	3.20	WL-12	Prior to slug testing
2022-02-15	17:45:00	5.25	WL-12	Prior to transducer installation
2022-03-26	14:12:00	3.46	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-30	15:50:00	2.76	WL-11	Water level with only a transducer downhole prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW06_OB-int	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021-10-29	12:00:00	11.18	Solinst Model 101-WL10	
2022-01-17	14:50:00	10.89	WL-11	
2022-01-21	15:40:00	10.94	WL-11	Prior to hydraulic testing
2022-01-21	17:31:00	10.768	WL-11	After hydraulic testing
2022-02-15	13:20:00	11.02	WL-12	Prior to transducer installation
2022-03-29	17:06:00	10.50	WL-11	After removing tubing at 16:55 in anticipation of well inspection
2022-04-02	11:20:00	10.49	WL-11	Prior to well inspection

Completed by:	CJS, LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW06_BR-A	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-17	14:50:00	10.07	WL-11	
2022-02-11	17:20:00	10.20	WL-12	Prior to hydraulic testing
2022-02-11	17:46:00	10.20	WL-12	After hydraulic testing
2022-02-15	13:20:00	10.26	WL-12	Prior to transducer installation
2022-03-29	17:03:00	9.69	WL-11	After removing tubing at 16:18 in anticipation of well inspection
2022-04-02	10:22:00	9.70	WL-11	Prior to well inspection

Completed by:	LIM, FJH, BFS	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW06_BR-B	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-17	14:50:00	10.79	WL-11	
2022-02-11	16:50:00	10.26	WL-12	Prior to hydraulic testing
2022-02-11	17:18:00	10.25	WL-12	After hydraulic testing
2022-02-15	13:30:00	10.27	WL-12	Prior to transducer installation
2022-03-29	17:03:00	9.70	WL-11	After removing tubing at 16:38 in anticipation of well inspection
2022-04-02	13:00:00	9.71	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW06_BR-C	General Comments:	Water levels collected during WPD activities
Sampling Personnel	LIM, FJH, BFS		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-17	14:50:00	10.13	WL-11	
2022-02-11	16:00:00	10.26	WL-12	Prior to slug testing
2022-02-11	16:53:00	10.26	WL-12	After to slug testing
2022-02-15	13:30:00	10.30	WL-12	Prior to transducer installation
2022-03-29	17:05:00	9.71	WL-11	After removing tubing at 16:50 in anticipation of well inspection
2022-04-02	14:08:00	9.69	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Borehole ID	SB_MW07_OB-int	General Comments:
Sampling Personnel	JKW, LIM	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2021-10-27	16:30:00	8.70	Solinst Model 101-WL10	Non-equilibrium water level collected immediately after well installation
2021-10-28	8:20:00	8.50	Solinst Model 101-WL10	
2022-01-13	13:48:00	8.11	WL-12	Before development
2022-01-21	11:50:00	8.15	Solinst Model 101	Before slug test
2022-02-12	7:58:00	8.23	WL-12	Prior to hydraulic testing
2022-02-12	9:42:00	8.26	WL-12	After hydraulic testing
2022-02-15	14:15:00	8.24	WL-12	Prior to transducer installation
2022-03-26	8:32:00	7.68	WL-11	Prior to removal of high-density tubing and transducer for well inspection with downhole camera
2022-03-31	14:10:00	7.64	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW07_BR-A	General Comments:
Sampling Personnel	JLB, LMB, LIM	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-13	17:25:00	8.36	WL-12	
2022-02-12	9:46:00	8.58	WL-12	Prior to slug testing
2022-02-12	11:26:00	8.60	WL-12	After slug testing
2022-02-15	14:15:00	8.59	WL-12	Prior to transducer installation
2022-03-26	10:40:00	7.93	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-31	15:02:00	8.20	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW07_BR-B	General Comments:
Sampling Personnel	JLB, LMB, LIM	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-13	17:25:00	8.29	WL-12	
2022-02-12	11:16:00	8.49	WL-12	Prior to slug testing
2022-02-12	11:58:00	8.48	WL-12	After slug testing
2022-02-15	14:30:00	8.50	WL-12	Prior to transducer installation
2022-03-26	14:21:00	7.86	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-03-31	17:04:00	7.83	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW07_BR-C	General Comments:
Sampling Personnel	JLB, LMB, LIM	

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-01-13	17:25:00	8.37	WL-12	
2022-02-12	11:55:00	8.59	WL-12	Prior to slug testing
2022-02-12	12:36:00	8.59	WL-12	After slug testing
2022-02-15	14:30:00	8.59	WL-12	Prior to transducer installation
2022-03-26	15:08:00	7.96	WL-11	Water level after well inspection with downhole camera prior to returning transducer and high-density tubing down well
2022-04-01	17:30:00	8.00	WL-11	Prior to well inspection

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form: WPD (MW Installation / Testing)
WATER LEVEL DATA SHEET

Project Number: 21-223-1

Well ID	SB_MW09_BR-B	General Comments:	Water levels collected during WPD activities
Sampling Personnel	TKG		

Note: A separate field data sheet is to be completed for each well during yield testing

Date	Time (HH:MM:SS)	Water Level (m BTOC)	Measurement Device (e.g. WL-01)	Comments
2022-12-15	8:48:00	11.00	WL-10	Water level prior to well development
2022-12-15	15:52:00	11.02	WL-10	Water level prior to slug testing
2022-12-15	17:32:00	11.02	WL-10	Water level following data logger installation

Completed by:	TKG	Verified by:	GDB
Date:	2022-12-15	Date:	16-Dec-22

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW02_BR-A	2022-04-04	CAM	RH	2022-02-12 17:10	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Excellent	6.7E-05	SNS	Oscillatory Response
SB_MW02_BR-B	2022-04-06	CAM	FH	2022-04-05 10:00	nSights	Confined model, Fitted formation K, and formation P	Good	1.1E-08	SNS	Interval plugged with sand and bentonite. Estimated hydraulic conductivity not representative of formation K.
SB_MW02_BR-C	2022-02-15	CAM	RH	2022-02-12 16:34	nSights	Confined model, Fitted formation K, flow dimension (n), and formation P	Excellent	8.9E-06	SNS	Required fitted flow dimension to obtain high-quality fit
SB_MW02_OB-int	2022-04-05	CAM	RH	2022-02-12 15:22	AQTESOLV	Unconfined solution (Bouwer-Rice 1976), Fitted formation K	Good	7.7E-06	SNS	
SB_MW02_BR_R	2022-10-04	CAM	RH	2022-06-24 10:01	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Good	4.4E-04	SNS	Oscillatory Response

Completed by:	CAM	Verified by:	GDB
Date:	2022-10-04	Date:	2022-12-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW03_BR-A	2022-04-04	CAM	RH	2022-04-03 14:35	nSights	Confined model, Fitted formation K, Ss, and formation P	Excellent	1.0E-06	SNS	Interval filled with well sand. Estimated hydraulic conductivity possibly underestimates true formation K.
SB_MW03_BR-B	2022-04-04	CAM	RH	2022-02-24 14:00	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Moderate	2.2E-04	SNS	Oscillatory Response
SB_MW03_BR-C	2022-04-04	CAM	RH	2022-02-23 18:00	nSights	Confined model, Fitted formation K and formation P	Good	5.2E-05	SNS	
SB_MW03_OB-int	2022-04-05	CAM	RH	2022-02-12 18:30	AQTESOLV	Unconfined solution (Bouwer-Rice 1976), Fitted formation K	Moderate	6.6E-05	SNS	

Completed by: CAM	Verified by: AMSC
Date: 2022-04-05	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW04_BR-A	2022-02-14	CAM	RH	2022-02-11 13:00	nSights	Confined model, Fitted formation K, and formation P	Good	8.3E-05	SNS	
SB_MW04_BR-B	2022-04-05	CAM	RH	2022-02-11 13:45	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Good	1.1E-04	SNS	Oscillatory Response
SB_MW04_BR-C	2022-02-14	CAM	RH	2022-02-11 14:20	nSights	Confined model, Fitted formation K, and formation P	Good	4.5E-05	SNS	
SB_MW04_OB-int	2022-04-06	CAM	RH	2022-01-21 12:20	AQTESOLV	Unconfined solution (Bouwer-Rice 1976), Fitted formation K	Poor	2.7E-05	SNS	

Completed by:	CAM	Verified by:	AMSC
Date:	2022-04-06	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW05_BR-A	2022-04-05	CAM	RH	2022-02-11 9:35	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Excellent	1.3E-04	SNS	Oscillatory Response
SB_MW05_BR-B	2022-04-05	CAM	RH	2022-02-01 8:20	nSights	Confined model, Fitted formation K, Ss, and formation P	Excellent	3.4E-06	SNS	
SB_MW05_BR-C	2022-02-15	CAM	RH	2022-02-01 11:03	nSights	Confined model, Fitted formation K, and formation P	Excellent	2.4E-05	SNS	
SB_MW05_OB-int	2022-04-06	CAM	FH	2022-02-08 17:20	AQTESOLV	Unconfined solution (Bouwer-Rice 1976), Fitted formation K	Good	1.3E-07	SNS	

Completed by:	CAM	Verified by:	AMSC
Date:	2022-04-06	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW06_BR-A	2022-04-05	CAM	RH	2022-02-11 17:32	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Excellent	2.1E-04	SNS	Oscillatory Response
SB_MW06_BR-B	2022-04-05	CAM	RH	2022-02-11 17:11	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Good	2.6E-04	SNS	Oscillatory Response
SB_MW06_BR-C	2022-04-05	CAM	RH	2022-02-11 16:40	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Moderate	8.7E-05	SNS	Oscillatory Response
SB_MW06_OB-int	2022-04-06	CAM	RH	2022-01-21 16:41	AQTESOLV	Unconfined solution (Bouwer-Rice 1976), Fitted formation K	Excellent	6.0E-06	SNS	

Completed by:	CAM	Verified by:	AMSC
Date:	2022-04-06	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW07_BR-A	2022-02-14	CAM	RH	2022-02-12 10:18	nSights	Confined model, Fitted formation K, Ss, and formation P	Excellent	1.8E-06	SNS	
SB_MW07_BR-B	2022-04-05	CAM	RH	2022-02-12 11:43	AQTESOLV	Confined solution (Butler 2002) Fitted Formation K	Excellent	4.3E-04	SNS	Oscillatory Response
SB_MW07_BR-C	2022-02-14	CAM	RH	2022-01-19 13:10	nSights	Confined model, Fitted formation K, Ss, and formation P	Excellent	7.0E-05	SNS	
SB_MW07_OB-int	2022-04-06	CAM	FH	2022-02-12 9:08	AQTESOLV	Unconfined solution (Bouwer-Rice 1976), Fitted formation K	Poor	7.7E-06	SNS	

Completed by: CAM	Verified by: AMSC
Date: 2022-04-06	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDARULIC TEST ANALYSIS SUMMARY SHEET

Project Number: 21-223-1

Well ID	Date	Analyzed By:	Test Type	Test Date and Time	Model Used	Input Parameters and Boundary Conditions	Fit Quality (good, excellent, poor)	Estimated K (m/s)	Reviewed By:	Comments
SB_MW09_BR	2022-12-19	CAM	Rising Head	Dec 15, 17:14	nSights	Confined aquifer, fitted K, Ss	Good	1.9E-06	GDB	

Completed by:	CAM	Verified by:	GDB
Date:	2022-12-21	Date:	2022-12-21

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Testing Personnel: PT, BS, MDK, KC	Downhole Transducer Model: Solinist Levelogger 5, Model 3001
Testing Dates: 2022-02-12, 2022-04-05, 2022-06-24	Downhole Transducer Serial Number: 2148681, 2125317, 2093344

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (m BTOC)	Slug Type and Size	Head Displacement (m)	End Water Level (m BTOC)	End Time (HH:MM:SS)	Elapsed Time (HH:MM:SS)	Comments
SB_MW02_OB-int	2022-02-12	14:48:00	1	5.16	Physical Slug (870 mL)	0.31	5.16	14:55:59	0:07:59	Falling head
SB_MW02_OB-int	2022-02-12	15:02:57	2	5.16	Physical Slug (870 mL)	0.61	5.16	15:07:31	0:04:34	Falling head
SB_MW02_OB-int	2022-02-12	15:09:02	3	5.16	Physical Slug (870 mL)	-0.83	5.16	15:15:00	0:05:58	Rising head
SB_MW02_OB-int	2022-02-12	15:15:00	4	5.16	Physical Slug (870 mL)	0.60	5.16	15:21:59	0:06:59	Falling head
SB_MW02_OB-int	2022-02-12	15:21:59	5	5.16	Physical Slug (870 mL)	-0.76	5.16	15:31:46	0:09:47	Rising head
SB_MW02_BR-C	2022-02-12	16:01:00	1	4.77	Physical Slug (870 mL)	0.77	4.74	16:10:00	0:09:00	Falling head
SB_MW02_BR-C	2022-02-12	16:10:01	2	4.74	Physical Slug (870 mL)	-0.41	4.70	16:18:33	0:08:32	Rising head
SB_MW02_BR-C	2022-02-12	16:25:07	3	4.74	Physical Slug (870 mL)	0.62	4.71	16:33:59	0:08:52	Falling head
SB_MW02_BR-C	2022-02-12	16:34:00	4	4.71	Physical Slug (870 mL)	-0.52	4.74	16:46:52	0:12:52	Rising head
SB_MW02_BR-A	2022-02-12	17:05:01	1	5.21	Physical Slug (870 mL)	0.84	5.21	17:09:00	0:03:59	underdamped falling head
SB_MW02_BR-A	2022-02-12	17:09:00	2	5.21	Physical Slug (870 mL)	-0.44	5.21	17:11:02	0:02:02	underdamped rising head
SB_MW02_BR-A	2022-02-12	17:11:03	3	5.21	Physical Slug (870 mL)	0.87	5.21	17:13:02	0:01:59	underdamped falling head
SB_MW02_BR-A	2022-02-12	17:13:02	4	5.21	Physical Slug (870 mL)	-0.43	5.21	17:16:01	0:02:59	underdamped rising head
SB_MW02_BR-A	2022-02-12	17:16:01	5	5.21	Physical Slug (870 mL)	0.63	5.21	17:17:30	0:01:29	underdamped falling head
SB_MW02_BR-A	2022-02-12	17:18:11	6	5.21	Physical Slug (870 mL)	-0.52	5.21	17:20:42	0:02:31	underdamped rising head
SB_MW02_BR-B	2022-04-05	10:15:00	1	2.48	Physical Slug (870 mL)	0.65	2.46	15:45	5:30:00	Falling head ; water level taken before dropping slug and after pulling it out
SB_MW02_BR-B	2022-04-05	15:45:00	2	2.46	Physical Slug (870 mL)	-0.31	2.02	09:20 (2022-04-06)	17:35:00	Rising head;water level taken before dropping slug and after pulling it out
SB_MW02_BR-R	2022-06-24	09:47:00	1	4.33	Physical Slug (1.868 L)	0.89	4.34	9:49:00	0:02:00	Rising head, extremely permeable zone, duration is not indicative of actual recovery
SB_MW02_BR-R	2022-06-24	09:52:00	2	4.33	Physical Slug (1.868 L)	1.02	4.34	9:53:00	0:01:00	Rising head, extremely permeable zone, duration is not indicative of actual recovery
SB_MW02_BR-R	2022-06-24	09:56:00	3	4.34	Physical Slug (1.868 L)	1.17	4.33	9:57:00	0:01:00	Rising head, extremely permeable zone, duration is not indicative of actual recovery
SB_MW02_BR-R	2022-06-24	10:01:00	4	4.34	Physical Slug (1.868 L)	1.31	4.33	10:03:00	0:02:00	Rising head, extremely permeable zone, duration is not indicative of actual recovery
SB_MW02_BR-R	2022-06-24	10:06:00	5	4.34	Physical Slug (1.868 L)	1.28	4.34	10:08:00	0:02:00	Rising head, extremely permeable zone, duration is not indicative of actual recovery
SB_MW02_BR-R	2022-06-24	10:11:00	6	4.34	Physical Slug (1.868 L)	1.36	4.33	10:12:00	0:01:00	Rising head, extremely permeable zone, duration is not indicative of actual recovery
SB_MW02_BR-R	2022-06-24	10:12:30	7	4.34	Physical Slug (1.868 L)	-1.36	4.33	10:13:45	0:01:15	Falling head, extremely permeable zone, duration is not indicative of actual recovery

Completed by:	PRT, LIM, AMSC	Verified by:	AMSC
Date:	2022-07-28	Date:	2022-07-28

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Testing Personnel: PRT, CAM, LIM

Testing Dates: 2022-02-12, 2022-02-23, 2022-02-24, 2022-04-03

Downhole Transducer Model: Solinst Levelogger 5, Model 3001

Downhole Transducer Serial Number: 2148681, 2125317

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (m BTOC)	Slug Type and Size	Head Displacement (m)	End Water Level (m BTOC)	End Time (HH:MM:SS)	Elapsed Time (MM:SS)	Comments
SB_MW03_OB-int	2022-02-12	18:34:00	1	2.06	Physical Slug (870 mL)	-0.49	2.55	18:38:59	00:04:59	rising head test
SB_MW03_OB-int	2022-02-12	18:39:00	2	2.06	Physical Slug (870 mL)	0.67	2.05	18:42:01	00:03:01	falling head test
SB_MW03_OB-int	2022-02-12	18:42:02	3	2.51	Physical Slug (870 mL)	-0.55	2.05	18:46:01	00:03:59	rising head test
SB_MW03_OB-int	2022-02-12	18:46:01	4	2.05	Physical Slug (870 mL)	0.55	2.05	18:50:11	00:04:10	falling head test
SB_MW03_BR-C	2022-02-23	17:54:07	1	3.06	Physical Slug (870 mL)	0.63	3.15	17:55:57	00:01:50	falling head test
SB_MW03_BR-C	2022-02-23	17:55:58	2	3.15	Physical Slug (870 mL)	-0.51	3.08	17:59:32	00:03:34	rising head test
SB_MW03_BR-C	2022-02-23	17:59:33	3	3.08	Physical Slug (870 mL)	0.57	3.04	18:02:56	00:03:23	falling head test
SB_MW03_BR-C	2022-02-23	18:02:57	4	3.04	Physical Slug (870 mL)	-0.47	3.08	18:05:52	00:02:55	rising head test
SB_MW03_BR-C	2022-02-23	18:05:53	5	3.08	Physical Slug (870 mL)	0.63	3.02	18:09:20	00:03:27	falling head test
SB_MW03_BR-C	2022-02-23	18:09:21	6	3.02	Physical Slug (870 mL)	-0.49	3.08	18:11:58	00:02:37	rising head test
SB_MW03_BR-C	2022-02-23	18:11:59	7	3.08	Physical Slug (870 mL)	0.56	3.02	18:14:13	00:02:14	falling head test
SB_MW03_BR-C	2022-02-23	18:14:14	8	3.02	Physical Slug (870 mL)	-0.49	3.08	18:16:13	00:01:59	rising head test
SB_MW03_BR-C	2022-02-23	18:16:14	9	3.08	Physical Slug (870 mL)	0.52	3.03	18:18:50	00:02:36	falling head test
SB_MW03_BR-C	2022-02-23	18:18:51	10	3.03	Physical Slug (870 mL)	-0.55	3.08	18:23:10	00:04:19	rising head test
SB_MW03_BR-B	2022-02-24	13:59:03	1	1.08	Physical Slug (870 mL)	0.27	1.09	14:02:34	00:03:31	underdamped falling head test
SB_MW03_BR-B	2022-02-24	14:02:35	2	1.09	Physical Slug (870 mL)	-0.29	1.08	14:05:53	00:03:18	underdamped rising head test
SB_MW03_BR-B	2022-02-24	14:05:54	3	1.08	Physical Slug (870 mL)	0.43	1.08	14:10:27	00:04:33	underdamped falling head test
SB_MW03_BR-B	2022-02-24	14:10:28	4	1.08	Physical Slug (870 mL)	-0.29	1.07	14:14:56	00:04:28	underdamped rising head test
SB_MW03_BR-B	2022-02-24	14:14:58	5	1.07	Physical Slug (870 mL)	0.35	1.07	14:17:33	00:02:35	underdamped falling head test
SB_MW03_BR-B	2022-02-24	14:17:34	6	1.07	Physical Slug (870 mL)	-0.25	1.07	14:22:40	00:05:06	underdamped rising head test
SB_MW03_BR-A	2022-04-03	14:16:16	1	0.510	Physical Slug (870 mL)	0.38	0.480	14:36:07	00:19:51	falling head test
SB_MW03_BR-A	2022-04-03	14:36:09	2	0.480	Physical Slug (870 mL)	-0.63	0.490	15:05:09	00:29:00	rising head test
SB_MW03_BR-A	2022-04-03	15:05:13	3	0.490	Physical Slug (870 mL)	0.41	0.470	15:35:40	00:30:27	falling head test
SB_MW03_BR-A	2022-04-03	15:35:46	4	0.470	Physical Slug (870 mL)	-0.58	0.470	16:11:06	00:35:20	rising head test

Completed by:	PRT, LIM, CAM	Verified by:	AMSC
Date:	2022-04-03	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Testing Personnel: PRT, BFS	Downhole Transducer Model: Solinst Levelogger 5, Model 3001
Testing Dates: 2022-01-21, 2022-02-11	Downhole Transducer Serial Number: 2148681

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (m BTOC)	Slug Type and Size	Head Displacement (m)	End Water Level (m BTOC)	End Time (HH:MM:SS)	Elapsed Time (MM:SS)	Comments
SB_MW04_OB-int	2022-01-21	11:53:01	1	6.2	Physical Slug (870 mL)	0.22	6.2	12:20:53	27:52	Falling head - underdamped
SB_MW04_OB-int	2022-01-21	12:20:57	2	6.2	Physical Slug (870 mL)	-0.32	6.2	13:10:10	49:13	Rising head - underdamped
SB_MW04_OB-int	2022-01-21	18:05:57	3	6.2	Physical Slug (870 mL)	0.14	6.2	18:08:59	03:02	Falling head - underdamped
SB_MW04_OB-int	2022-01-21	18:09:59	4	6.2	Physical Slug (870 mL)	-0.10	6.2	18:12:23	02:24	Rising head - underdamped
SB_MW04_BR-C	2022-02-11	14:18:28	1	6.57	Physical Slug (870 mL)	0.83	6.57	14:21:02	02:34	Falling head test
SB_MW04_BR-C	2022-02-11	14:21:03	2	6.57	Physical Slug (870 mL)	-0.71	6.56	14:25:49	04:46	Rising head test
SB_MW04_BR-C	2022-02-11	14:25:54	3	6.56	Physical Slug (870 mL)	1.64	6.56	14:29:01	03:07	Falling head test
SB_MW04_BR-C	2022-02-11	14:29:02	4	6.56	Physical Slug (870 mL)	-0.63	6.56	14:31:48	02:46	Rising head test
SB_MW04_BR-C	2022-02-11	14:31:50	5	6.56	Physical Slug (870 mL)	0.74	6.56	14:34:03	02:13	Falling head test
SB_MW04_BR-C	2022-02-11	14:34:04	6	6.56	Physical Slug (870 mL)	-0.65	6.57	14:36:42	02:38	Rising head test
SB_MW04_BR-B	2022-02-11	13:41:52	1	6.08	Physical Slug (870 mL)	0.42	6.08	13:43:11	01:19	Falling head - underdamped
SB_MW04_BR-B	2022-02-11	13:43:12	2	6.08	Physical Slug (870 mL)	-0.74	6.08	13:44:46	01:34	Rising head - underdamped
SB_MW04_BR-B	2022-02-11	13:44:47	3	6.08	Physical Slug (870 mL)	0.45	6.08	13:45:50	01:03	Falling head - underdamped
SB_MW04_BR-B	2022-02-11	13:45:51	4	6.08	Physical Slug (870 mL)	-0.60	6.08	13:47:33	01:42	Rising head - underdamped
SB_MW04_BR-B	2022-02-11	13:47:34	5	6.08	Physical Slug (870 mL)	0.56	6.08	13:49:01	01:27	Falling head - underdamped
SB_MW04_BR-B	2022-02-11	13:49:02	6	6.08	Physical Slug (870 mL)	-0.64	6.08	13:55:17	06:15	Rising head - underdamped
SB_MW04_BR-A	2022-02-11	13:03:13	1	4.77	Physical Slug (870 mL)	0.53	4.77	13:04:29	01:16	Falling head - underdamped
SB_MW04_BR-A	2022-02-11	13:04:32	2	4.77	Physical Slug (870 mL)	-0.65	4.77	13:07:13	02:41	Rising head - underdamped
SB_MW04_BR-A	2022-02-11	13:07:16	3	4.77	Physical Slug (870 mL)	0.57	4.77	13:09:16	02:00	Falling head - underdamped
SB_MW04_BR-A	2022-02-11	13:09:23	4	4.77	Physical Slug (870 mL)	-0.64	4.77	13:12:20	02:57	Rising head - underdamped
SB_MW04_BR-A	2022-02-11	13:12:23	5	4.77	Physical Slug (870 mL)	0.65	4.77	13:13:48	01:25	Falling head - underdamped
SB_MW04_BR-A	2022-02-11	13:13:50	6	4.77	Physical Slug (870 mL)	-0.46	4.77	13:16:19	02:29	Rising head - underdamped

Completed by:	PRT/LIM	Verified by:	AMSC
Date:	2022-02-27	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Project Number: 21-223-1

Testing Personnel:	PRT	Downhole Transducer Model:	Solinst Levelogger 5 Model 3001
Testing Dates:	2022-02-08, 2022-02-11	Downhole Transducer Serial Number:	2148681

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (m BTOC)	Slug Type and Size	Head Displacement (m)	End Water Level (m BTOC)	End Time (HH:MM:SS)	Elapsed Time (MM:SS)	Comments
SB_MW05_OB-int	2022-02-08	14:03:59	1	4.64	Physical Slug (870mL)	0.48	4.63	16:03:06	1:59:07	falling head test
SB_MW05_OB-int	2022-02-08	17:19:39	2	4.64	Physical Slug (870mL)	0.45	4.59	19:02:12	1:42:33	falling head test
SB_MW05_OB-int	2022-02-08	19:02:13	3	4.59	Physical Slug (870mL)	-0.52	4.07	19:57:03	0:54:50	rising head test
SB_MW05_BR-C	2022-02-08	11:03:40	2	3.19	Physical Slug (870mL)	-0.77	3.20	11:08:12	0:04:32	rising head test after a noisy falling head test, which was disregarded as transducer cable was caught on slug
SB_MW05_BR-C	2022-02-08	11:08:12	3	3.20	Physical Slug (870mL)	0.61	3.19	11:14:53	0:06:41	falling head test
SB_MW05_BR-C	2022-02-08	11:14:53	4	3.19	Physical Slug (870mL)	-0.63	3.20	11:22:14	0:07:21	rising head test
SB_MW05_BR-C	2022-02-08	11:22:14	5	3.20	Physical Slug (870mL)	0.60	3.19	11:28:03	0:05:49	falling head test
SB_MW05_BR-C	2022-02-08	11:28:03	6	3.19	Physical Slug (870mL)	-0.67	3.20	11:33:56	0:05:53	rising head test
SB_MW05_BR-B	2022-02-11	8:07:50	1	2.77	Physical Slug (870mL)	0.69	2.77	8:13:25	0:05:35	underdamped falling head test
SB_MW05_BR-B	2022-02-11	8:22:20	3	2.72	Physical Slug (870mL)	-0.77	2.72	8:38:00	0:15:40	underdamped rising head test
SB_MW05_BR-B	2022-02-11	8:38:00	5	2.71	Physical Slug (870mL)	0.68	2.72	8:49:00	0:11:00	underdamped falling head test
SB_MW05_BR-B	2022-02-11	8:49:02	6	2.72	Physical Slug (870mL)	-0.77	2.70	9:00:29	0:11:27	underdamped rising head test
SB_MW05_BR-A	2022-02-11	9:21:58	1	2.49	Physical Slug (870mL)	0.42	2.49	9:26:00	0:04:02	underdamped falling head test
SB_MW05_BR-A	2022-02-11	9:26:00	2	2.49	Physical Slug (870mL)	-0.56	2.44	9:29:19	0:03:19	underdamped rising head test
SB_MW05_BR-A	2022-02-11	9:29:20	3	2.43	Physical Slug (870mL)	0.53	2.43	9:34:00	0:04:40	underdamped falling head test with some noise; the following rising head test had a lot of noise and was disregarded
SB_MW05_BR-A	2022-02-11	9:38:00	5	2.43	Physical Slug (870mL)	0.66	2.43	9:42:45	0:04:45	underdamped falling head test
SB_MW05_BR-A	2022-02-11	9:45:00	6	2.43	Physical Slug (870mL)	-0.61	2.42	9:50:37	0:05:37	underdamped rising head test

Completed by:	LIM	Verified by:	AMSC
Date:	2022-02-20	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Project Number: 21-223-1

Testing Personnel: PRT, BFS	Downhole Transducer Model: Solinst Levelogger 5, Model 3001
Testing Dates: 2022-01-21, 2022-02-11	Downhole Transducer Serial Number: 2148681

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (m BTOC)	Slug Type and Size	Head Displacement (m)	End Water Level (m BTOC)	End Time (HH:MM:SS)	Elapsed Time (MM:SS)	Comments
SB_MW06_OB-int	2022-01-21	16:12:52	1	10.94	Physical Slug (870mL)	0.53	10.95	16:39:41	26:49	Falling head
SB_MW06_OB-int	2022-01-21	16:39:41	2	10.95	Physical Slug (870mL)	-0.26	10.86	17:02:59	23:18	Rising head
SB_MW06_OB-int	2022-01-21	17:02:59	3	10.86	Physical Slug (870mL)	0.32	10.97	17:12:56	09:57	Falling head
SB_MW06_OB-int	2022-01-21	17:17:09	4	10.97	Physical Slug (870mL)	0.43	10.96	17:23:54	06:45	Falling head
SB_MW06_OB-int	2022-01-21	17:23:54	5	10.96	Physical Slug (870mL)	-0.43	10.768	17:31:10	07:16	Rising head
SB_MW06_BR-C	2022-02-11	16:35:53	1	10.26	Physical Slug (870mL)	0.57	10.26	16:40:03	04:10	falling head test, data is noisy
SB_MW06_BR-C	2022-02-11	16:40:09	2	10.26	Physical Slug (870mL)	-0.54	10.26	16:43:02	02:53	rising head test, slightly underdamped
SB_MW06_BR-C	2022-02-11	16:43:04	3	10.26	Physical Slug (870mL)	0.54	10.26	16:45:00	01:56	falling head test, slightly underdamped
SB_MW06_BR-C	2022-02-11	16:45:03	4	10.26	Physical Slug (870mL)	-0.54	10.26	16:47:02	01:59	rising head test, slightly underdamped
SB_MW06_BR-C	2022-02-11	16:47:05	5	10.26	Physical Slug (870mL)	0.38	10.26	16:48:57	01:52	falling head test, slightly underdamped
SB_MW06_BR-C	2022-02-11	16:49:03	6	10.26	Physical Slug (870mL)	-0.53	10.26	16:51:39	02:36	rising head test, slightly underdamped
SB_MW06_BR-C	2022-02-11	16:51:41	7	10.26	Physical Slug (870mL)	0.48	10.26	16:53:57	02:16	falling head test, slightly underdamped
SB_MW06_BR-B	2022-02-11	17:00:26	1	10.26	Physical Slug (870mL)	0.57	10.25	17:03:01	02:35	falling head test, underdamped
SB_MW06_BR-B	2022-02-11	17:03:03	2	10.25	Physical Slug (870mL)	-0.59	10.25	17:08:03	05:00	rising head test, underdamped
SB_MW06_BR-B	2022-02-11	17:08:04	3	10.25	Physical Slug (870mL)	0.61	10.25	17:11:01	02:57	falling head test, underdamped
SB_MW06_BR-B	2022-02-11	17:11:02	4	10.25	Physical Slug (870mL)	-0.75	10.25	17:13:22	02:20	rising head test, underdamped
SB_MW06_BR-B	2022-02-11	17:13:24	5	10.25	Physical Slug (870mL)	0.49	10.25	17:16:01	02:37	falling head test, underdamped
SB_MW06_BR-B	2022-02-11	17:16:02	6	10.25	Physical Slug (870mL)	-0.67	10.25	17:18:34	02:32	rising head test, underdamped
SB_MW06_BR-A	2022-02-11	17:30:03	1	10.20	Physical Slug (870mL)	0.51	10.20	17:32:12	02:09	falling head test, underdamped
SB_MW06_BR-A	2022-02-11	17:32:13	2	10.20	Physical Slug (870mL)	-0.62	10.20	17:35:28	03:15	rising head test, underdamped
SB_MW06_BR-A	2022-02-11	17:35:31	3	10.20	Physical Slug (870mL)	0.42	10.20	17:38:03	02:32	falling head test, underdamped
SB_MW06_BR-A	2022-02-11	17:38:04	4	10.20	Physical Slug (870mL)	-0.53	10.20	17:41:14	03:10	rising head test, underdamped
SB_MW06_BR-A	2022-02-11	17:41:17	5	10.20	Physical Slug (870mL)	0.48	10.20	17:44:04	02:47	falling head test, underdamped
SB_MW06_BR-A	2022-02-11	17:44:05	6	10.20	Physical Slug (870mL)	-0.63	10.20	17:46:21	02:16	rising head test, underdamped

Completed by:	PRT, LIM	Verified by:	AMSC
Date:	2022-02-27	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Project Number: 21-223-1

Testing Personnel: PRT, BFS

Downhole Transducer Model: Solinst Levelogger 5, Model 3001

Testing Dates: 2022-01-21, 2022-02-12

Downhole Transducer Serial Number: 2148681

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (m BTOC)	Slug Type and Size	Head Displacement (m)	End Water Level (m BTOC)	End Time (HH:MM:SS)	Elapsed Time (MM:SS)	Comments
SB_MW07_OB-int	2022-01-21	11:52:54	1	8.15	Physical Slug (870mL)	**1.04**	8.15	12:20:28	0:27:34	falling head test. Head displacement above expected range (max displacement with 870mL slug = +/- 0.87m)
SB_MW07_OB-int	2022-01-21	12:20:28	2	8.15	Physical Slug (870mL)	-0.54	8.16	13:16:26	0:55:58	rising head test
SB_MW07_OB-int	2022-02-12	8:50:52	3	8.23	Physical Slug (870mL)	0.25	8.23	9:01:37	0:10:45	falling head test
SB_MW07_OB-int	2022-02-12	9:09:19	4	8.24	Physical Slug (870mL)	0.67	8.23	9:17:01	0:07:42	falling head test
SB_MW07_OB-int	2022-02-12	9:28:06	5	8.27	Physical Slug (870mL)	0.47	8.26	9:34:02	0:05:56	falling head test
SB_MW07_OB-int	2022-02-12	9:34:03	6	8.26	Physical Slug (870mL)	-0.35	8.26	9:42:41	0:08:38	rising head test
SB_MW07_BR-C	2022-01-19	13:07:04	1	8.37	Physical Slug (870mL)	0.77	8.37	13:10:28	0:03:24	falling head test
SB_MW07_BR-C	2022-02-12	12:16:30	2	8.59	Physical Slug (870mL)	0.40	8.58	12:19:09	0:02:39	falling head test
SB_MW07_BR-C	2022-02-12	12:19:10	3	8.58	Physical Slug (870mL)	-0.80	8.59	12:22:00	0:02:50	rising head test
SB_MW07_BR-C	2022-02-12	12:22:01	4	8.59	Physical Slug (870mL)	0.51	8.58	12:24:02	0:02:01	falling head test
SB_MW07_BR-C	2022-02-12	12:24:03	5	8.58	Physical Slug (870mL)	-0.70	8.58	12:27:35	0:03:32	rising head test
SB_MW07_BR-C	2022-02-12	12:27:36	6	8.58	Physical Slug (870mL)	0.74	8.58	12:30:32	0:02:56	falling head test
SB_MW07_BR-C	2022-02-12	12:30:33	7	8.58	Physical Slug (870mL)	-0.50	8.58	12:32:58	0:02:25	rising head test
SB_MW07_BR-C	2022-02-12	12:32:59	8	8.58	Physical Slug (870mL)	0.75	8.58	12:35:01	0:02:02	falling head test
SB_MW07_BR-C	2022-02-12	12:35:03	9	8.58	Physical Slug (870mL)	-0.55	8.59	12:36:53	0:01:50	rising head test
SB_MW07_BR-B	2022-02-12	11:38:13	1	8.49	Physical Slug (870mL)	0.31	8.49	11:43:02	0:04:49	underdamped falling head test
SB_MW07_BR-B	2022-02-12	11:43:03	2	8.49	Physical Slug (870mL)	-0.60	8.49	11:48:05	0:05:02	underdamped rising head test
SB_MW07_BR-B	2022-02-12	11:48:07	3	8.49	Physical Slug (870mL)	0.30	8.48	11:54:02	0:05:55	underdamped falling head test
SB_MW07_BR-B	2022-02-12	11:54:04	4	8.48	Physical Slug (870mL)	-0.53	8.48	11:58:15	0:04:11	underdamped rising head test
SB_MW07_BR-A	2022-02-12	10:03:04	1	8.58	Physical Slug (870mL)	0.72	8.58	10:19:02	0:15:58	falling head test
SB_MW07_BR-A	2022-02-12	10:19:04	2	8.58	Physical Slug (870mL)	-0.76	8.58	10:32:49	0:13:45	rising head test
SB_MW07_BR-A	2022-02-12	10:32:50	3	8.58	Physical Slug (870mL)	0.72	5.58	10:50:00	0:17:10	falling head test
SB_MW07_BR-A	2022-02-12	10:50:02	4	5.58	Physical Slug (870mL)	-0.65	5.59	11:00:10	0:10:08	rising head test
SB_MW07_BR-A	2022-02-12	11:00:12	5	5.59	Physical Slug (870mL)	0.72	8.57	11:15:02	0:14:50	falling head test
SB_MW07_BR-A	2022-02-12	11:15:03	6	8.57	Physical Slug (870mL)	-0.75	8.60	11:26:02	0:10:59	rising head test

Completed by:	PRT/LIM	Verified by:	AMSC
Date:	2022-02-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): HYDRAULIC TESTING DATA SHEET

Project Number: 21-223-1

Testing Personnel: TKG	Downhole Transducer Model: Solinist Levelogger 5, Model 3001
Testing Dates: 2022-12-15	Downhole Transducer Serial Number: 2148983

Well ID	Date	Start Time (HH:MM:SS)	Test #	Static Water Level (kPa)	Slug Type and Size	Post-Slug Water Level (kPa)	Head Displacement (kPa)	End Water Level (kPa)	End Time (HH:MM:SS)	Elapsed Time (HH:MM:SS)	Comments
SB_MW09_BR-B	2022-12-15	16:54:00	1	186.50	Physical Slug	192.80	6.30	186.60	16:57:00	0:03:00	Static water level = 11.02 m BTOC prior to testing
SB_MW09_BR-B	2022-12-15	16:58:00	2	186.60	Physical Slug	179.87	-6.73	186.54	17:01:00	0:03:00	
SB_MW09_BR-B	2022-12-15	17:02:00	3	186.54	Physical Slug	193.09	6.55	186.60	17:05:00	0:03:00	
SB_MW09_BR-B	2022-12-15	17:05:00	4	186.60	Physical Slug	179.06	-7.54	186.54	17:10:00	0:05:00	
SB_MW09_BR-B	2022-12-15	17:10:00	5	186.54	Physical Slug	192.63	6.09	186.62	17:14:00	0:04:00	
SB_MW09_BR-B	2022-12-15	17:14:00	6	186.62	Physical Slug	179.61	-7.01	186.58	17:22:00	0:08:00	Static water level = 11.02 m BTOC at end of testing

Completed by:	TKG	Verified by:	GDB
Date:	2022-12-15	Date:	2022-12-16

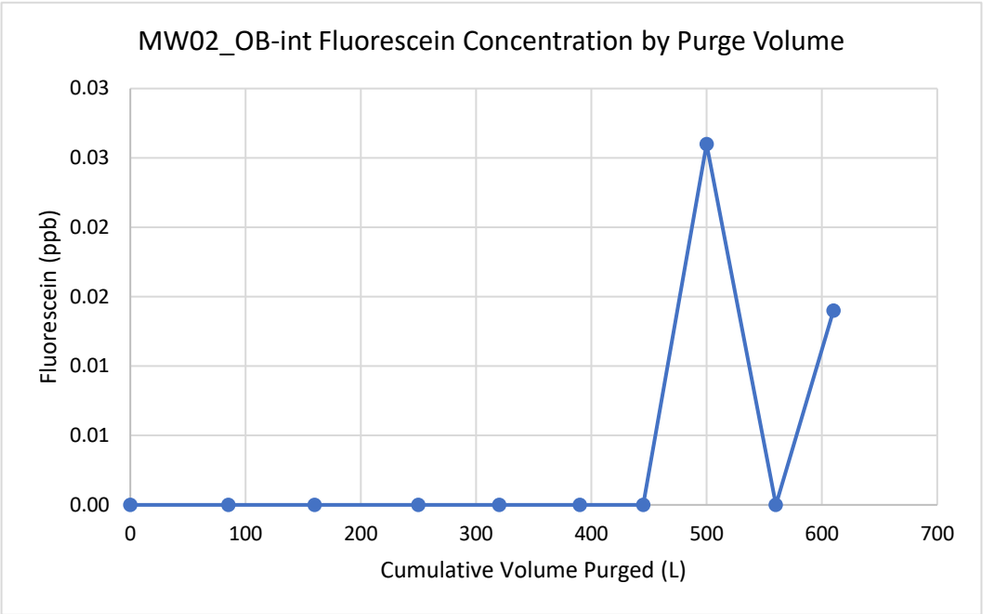
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

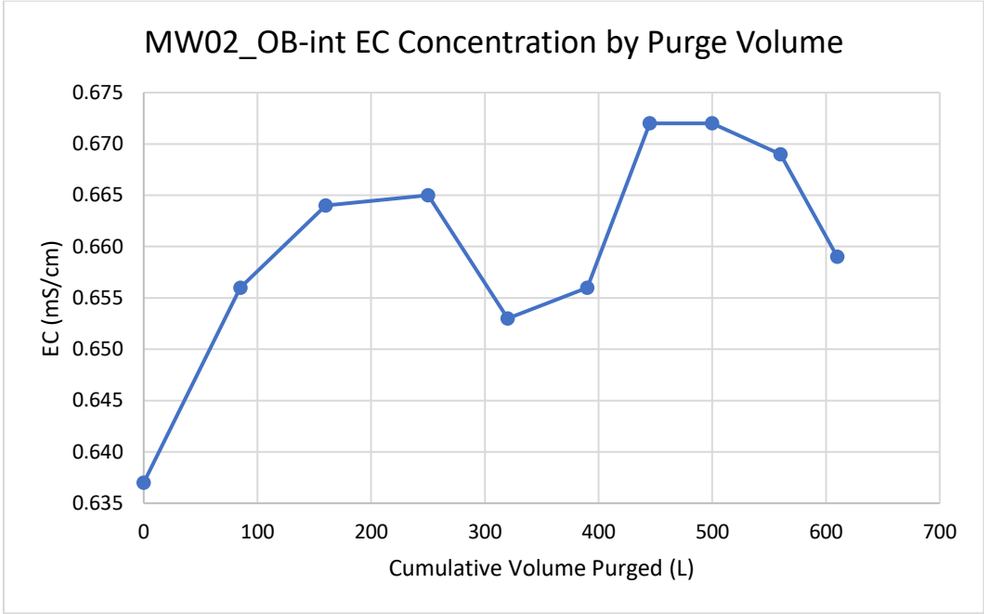
Sample Interval: MW02_OB-int	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: LIM, PRT, FJH	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

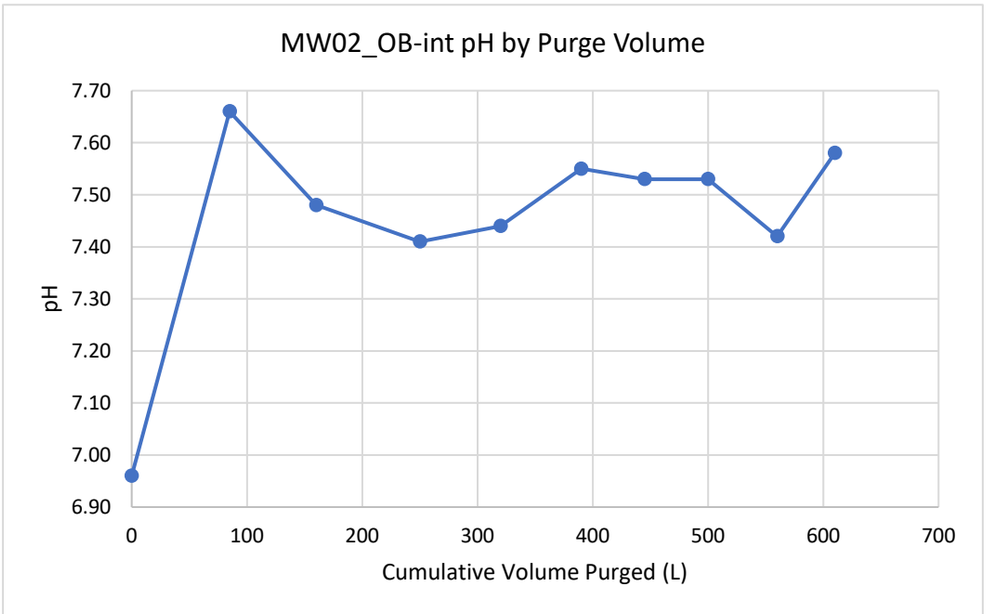
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-20	12:45	LIM/PRT	0	0	Y	6.96	2.29	0.637	321	7.85	>1000	Y	0.00	N	
2022-01-20	14:08	LIM/PRT	85	85	Y	7.66	3.57	0.656	187	4.52	>1000	Y	0.000	N	
2022-01-20	15:15	LIM/FJH	75	160	Y	7.48	3.57	0.664	275	3.09	>1000	Y	0.000	N	
2022-01-20	16:05	LIM/FJH	90	250	Y	7.41	4.50	0.665	297	2.80	>1000	Y	0.000	N	
2022-01-20	16:35	LIM/FJH	70	320	Y	7.44	4.01	0.653	295	2.75	>1000	Y	0.000	N	
2022-01-20	17:25	PRT/FJH	70	390	Y	7.55	5.15	0.656	299	2.79	>1000	Y	0.000	N	
2022-01-21	13:45	LIM/FJH	55	445	Y	7.53	5.80	0.672	227	3.55	>1000	Y	0.000	N	
2022-01-21	14:25	LIM/FJH	55	500	Y	7.53	5.73	0.672	216	3.77	>1000	Y	0.026	N	
2022-01-21	15:20	LIM/FJH	60	560	Y	7.42	6.16	0.669	196	3.25	>1000	Y	0.000	N	
2022-01-21	16:05	LIM/FJH	50	610	Y	7.58	6.65	0.659	238	2.86	>1000	Y	0.014	N	

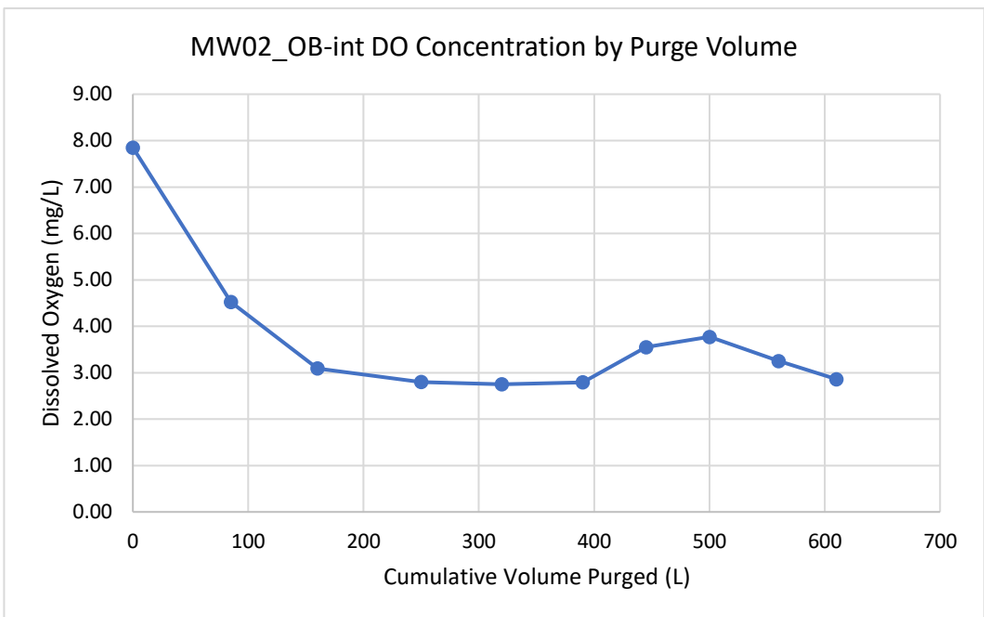
Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-21	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

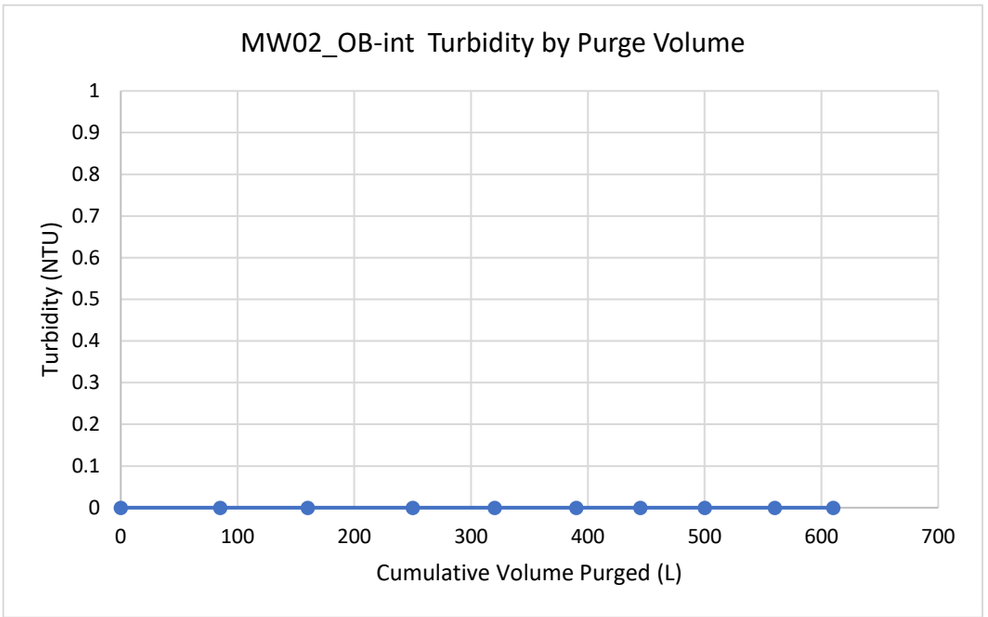


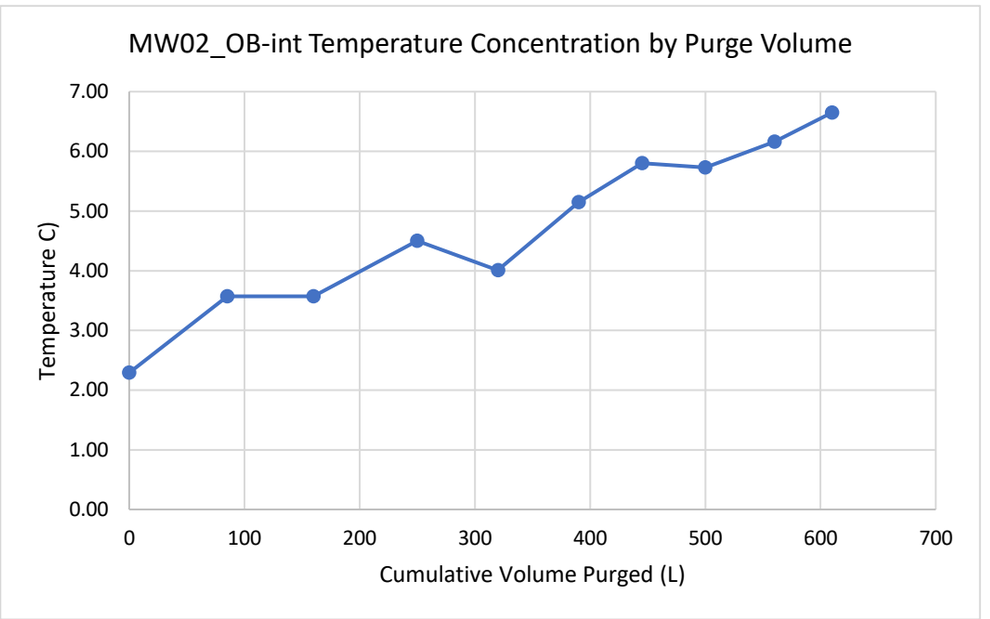


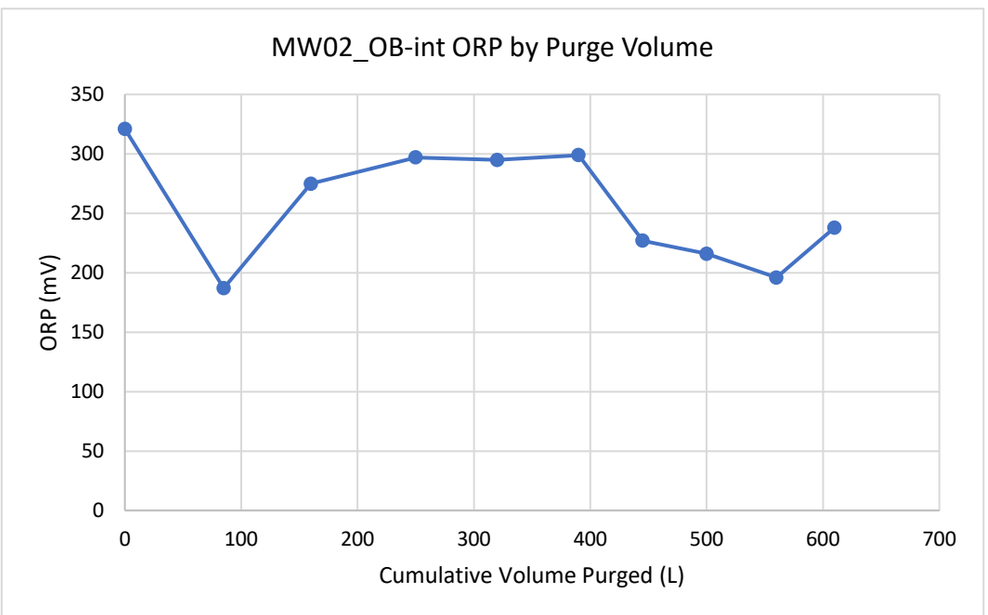




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







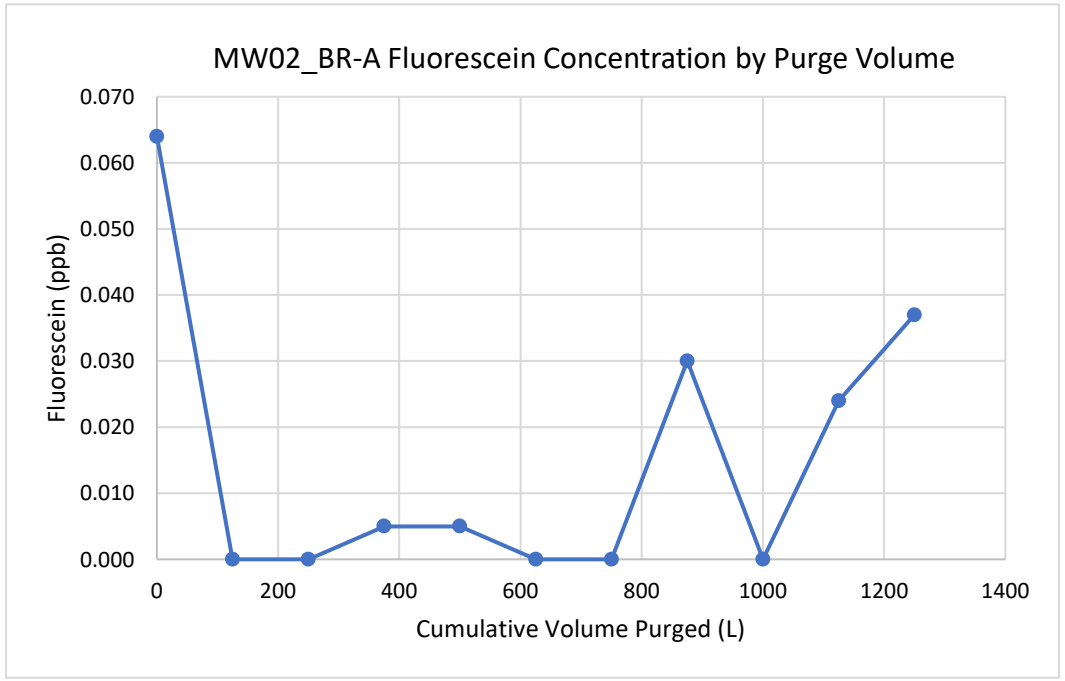
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

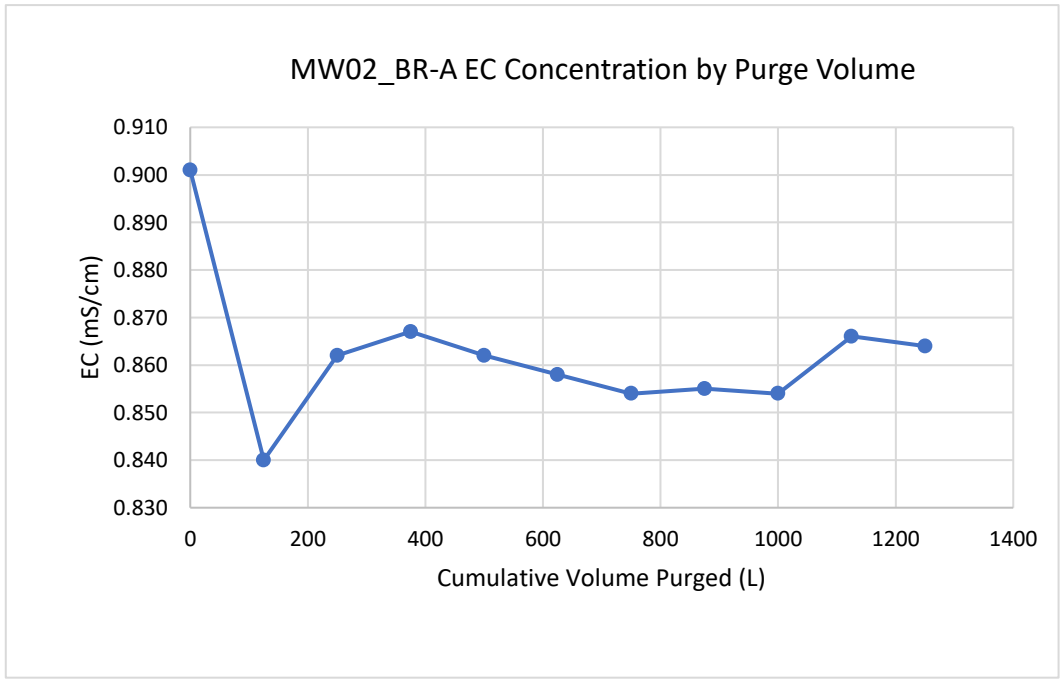
Sample Interval:	MW02_BR-A	Multiparameter Probe:	Horiba U52 (SN. RHE67A2F)	Comments:	
Sampling Personnel:	LIM, FJH, BFS	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

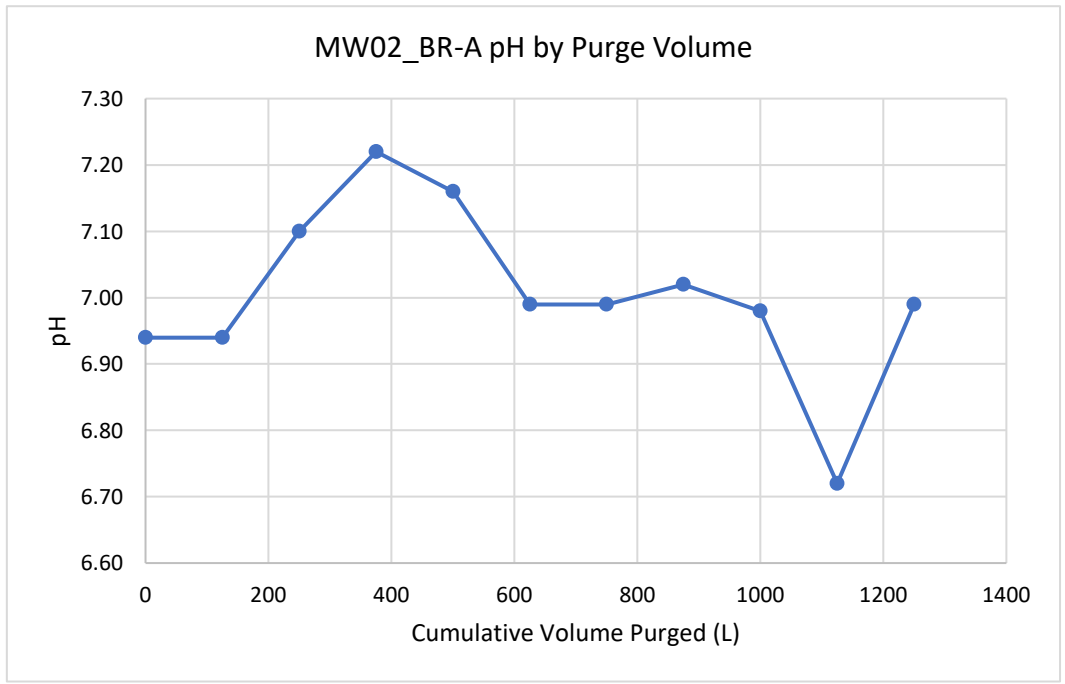
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-22	10:25	LIM/FJH	0	0	Y	6.94	8.33	0.901	-9	0.93	>1000	Y	0.064	N	Water started out clear but then turned greyish brown in colour (slightly siltly). Parameters measured in a small bucket
2022-01-22	11:25	LIM/FJH/BFS	125	125	Y	6.94	8.62	0.840	60	0.69	79.1	Y	0.000	N	Water is mostly clear, with slight light brown tint. DO was still slowly dropping as another 75L were produced (water directed through flow through cell and monitored with the Horiba during this period)
2022-01-22	12:20	LIM/FJH/BFS	125	250	Y	7.10	8.72	0.862	44	0.71	51.6	Y	0.000	N	DO did not go lower than 0.71mg/L even after >50L went through the flowthrough cell
2022-01-22	13:30	LIM/FJH/BFS	125	375	Y	7.22	8.51	0.867	46	0.58	58.0	Y	0.005	N	Back to measuring with Horiba in small bucket as flow through cell is no longer working well
2022-01-22	14:15	FJH/FBS	125	500	Y	7.16	8.21	0.862	49	0.63	62.5	Y	0.005	N	Wind has increased and may be cooling the water more quickly as it comes out of the ground
2022-01-22	15:50	FJH/FBS	125	625	Y	6.99	8.76	0.858	48	0.67	115	Y	0.000	N	Piston clamp on tubing came loose just prior to this measurement likely causing the increase in turbitidity. Piston clamp on tubing was tightened just before measurements were taken.
2022-01-22	16:32	FJH/FBS	125	750	Y	6.99	8.70	0.854	58	0.76	57.9	Y	0.000	N	
2022-01-22	17:12	FJH/FBS	125	875	Y	7.02	8.39	0.855	58	0.71	38.9	Y	0.030	N	
2022-01-22	17:48	FJH/FBS	125	1000	Y	6.98	8.34	0.854	54	0.62	59.1	Y	0.000	N	
2022-01-23	11:50	LIM/FJH/BFS	125	1125	Y	6.72	9.08	0.866	57	0.83	16.3	Y	0.024	N	
2022-01-23	12:25	LIM/FJH/BFS	125	1250	Y	6.99	8.97	0.864	55	0.66	14.9	Y	0.037	N	

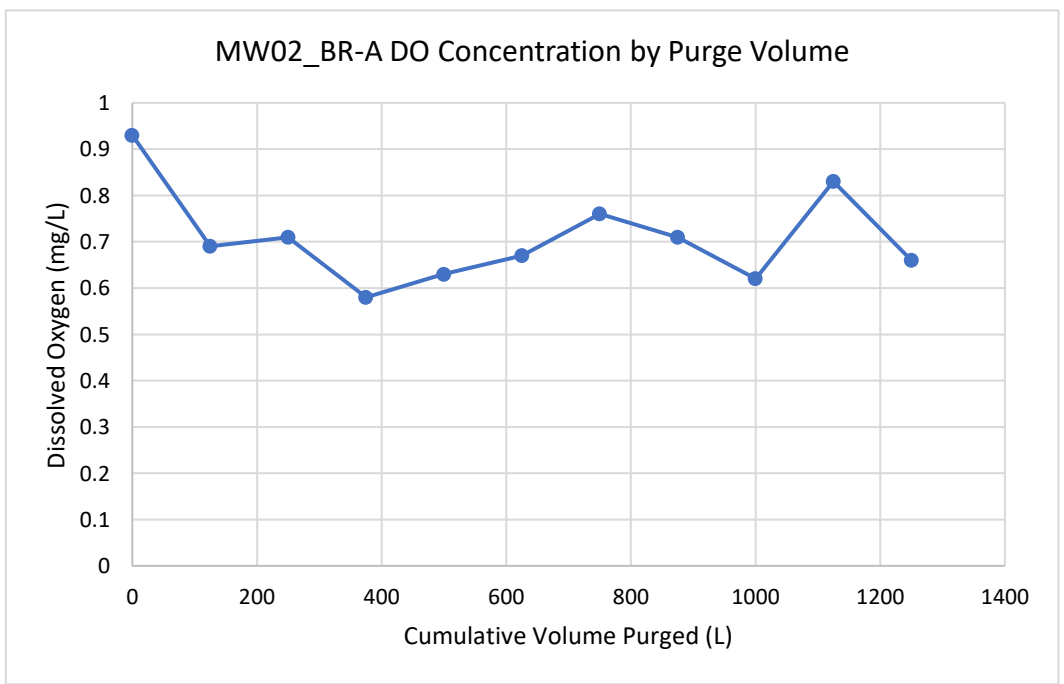
Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-23	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

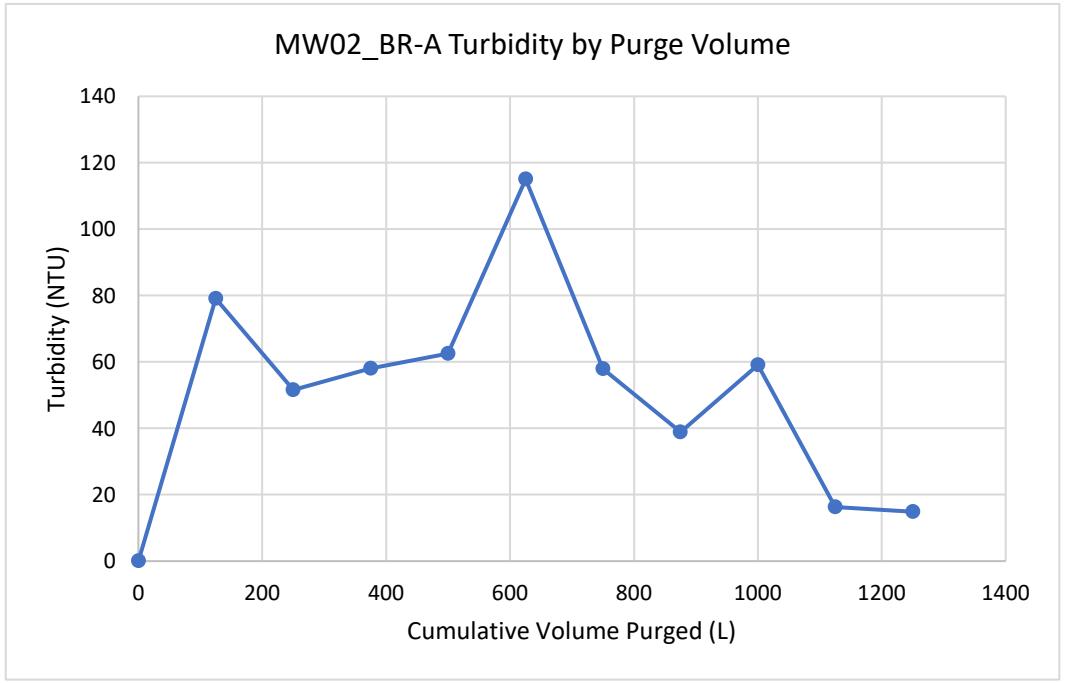


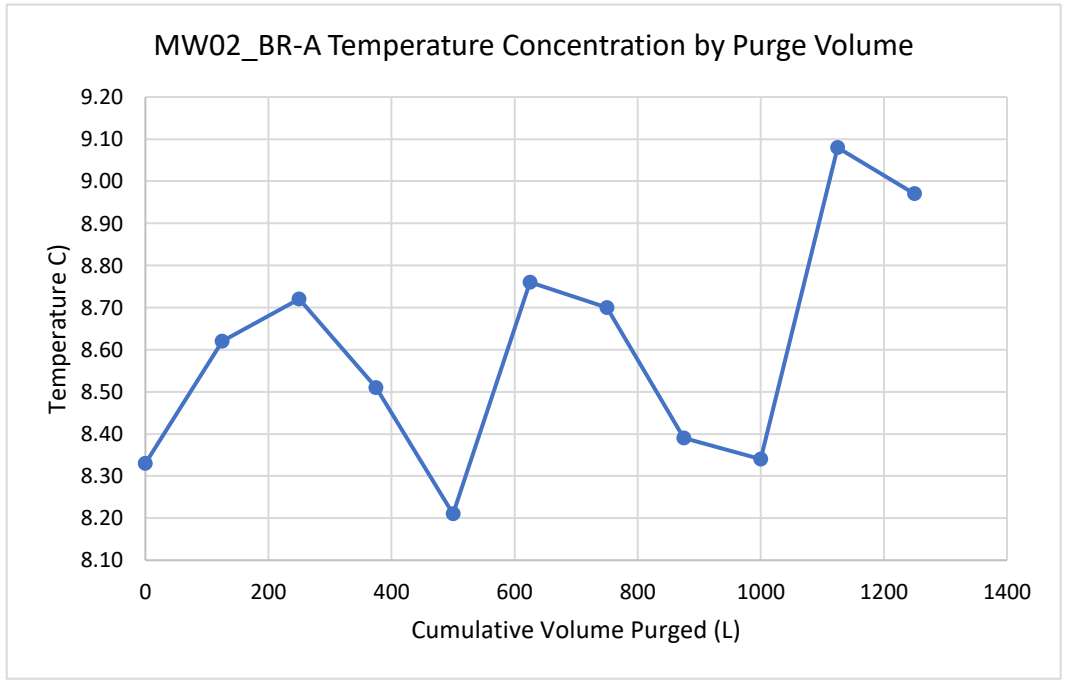


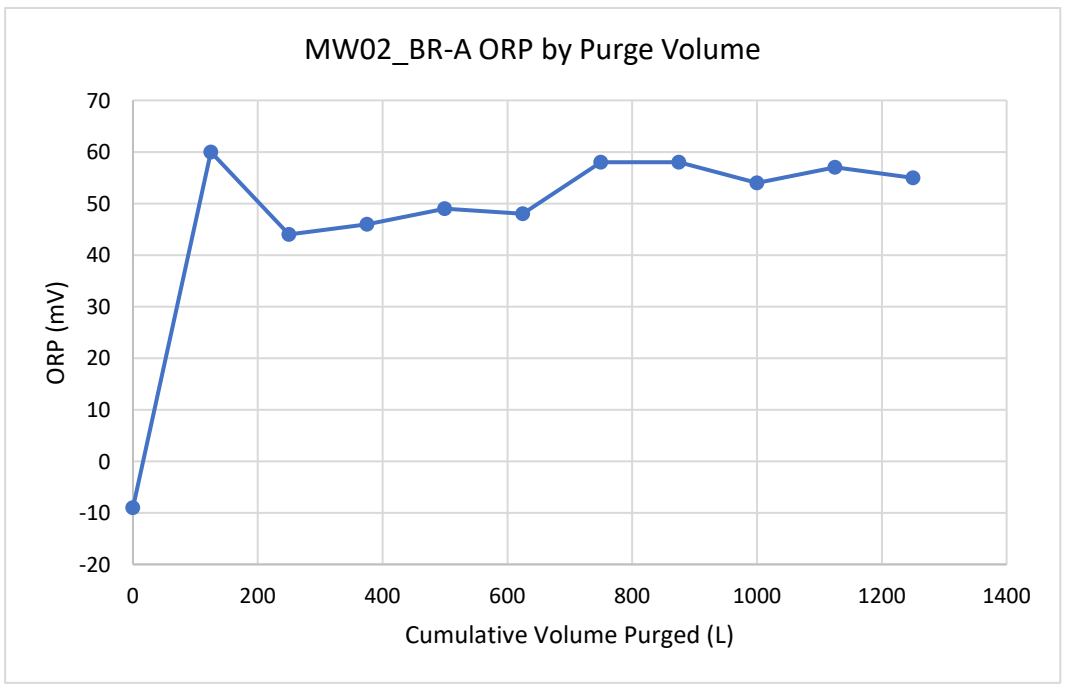




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

Sample Interval:	MW02_BR-B	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	LIM, PRT	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-20	14:45	PRT/LIM	0	0	Y	7.84	-0.24	0.775	249	0.69	>1000	Y	0.00	N	Unable to develop full well volume due to clean sand colleting in foot valve;it appears the screen may have cracked of detached from the casing

Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-20	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

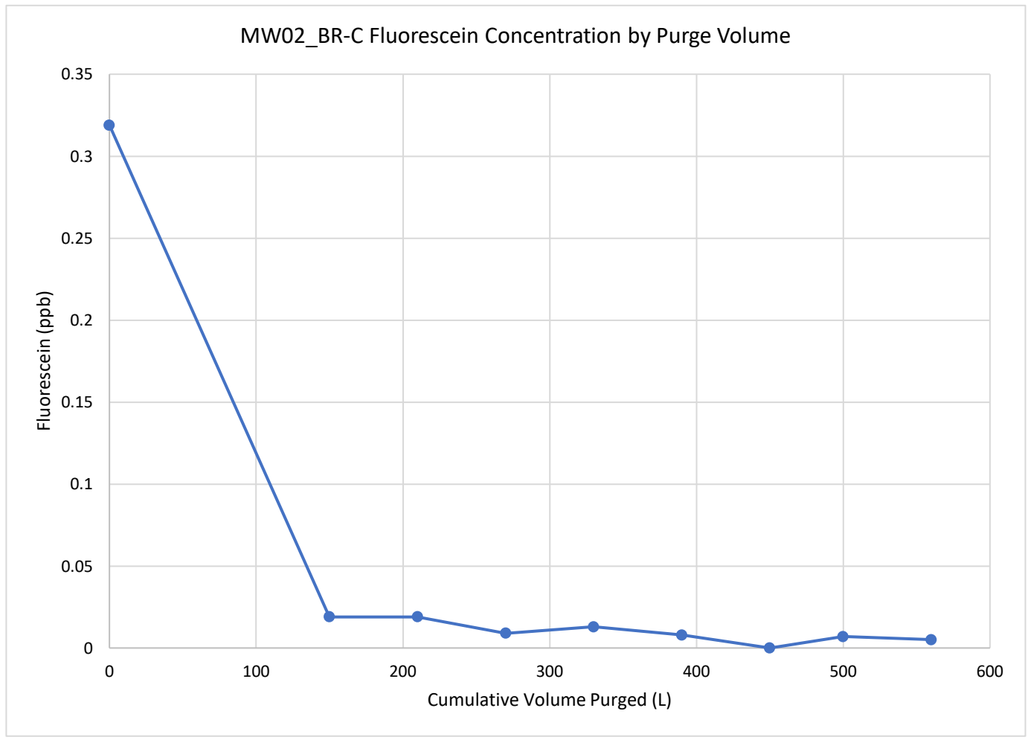
Sample Interval:	MW02_BR-C	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	LIM, FJH	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

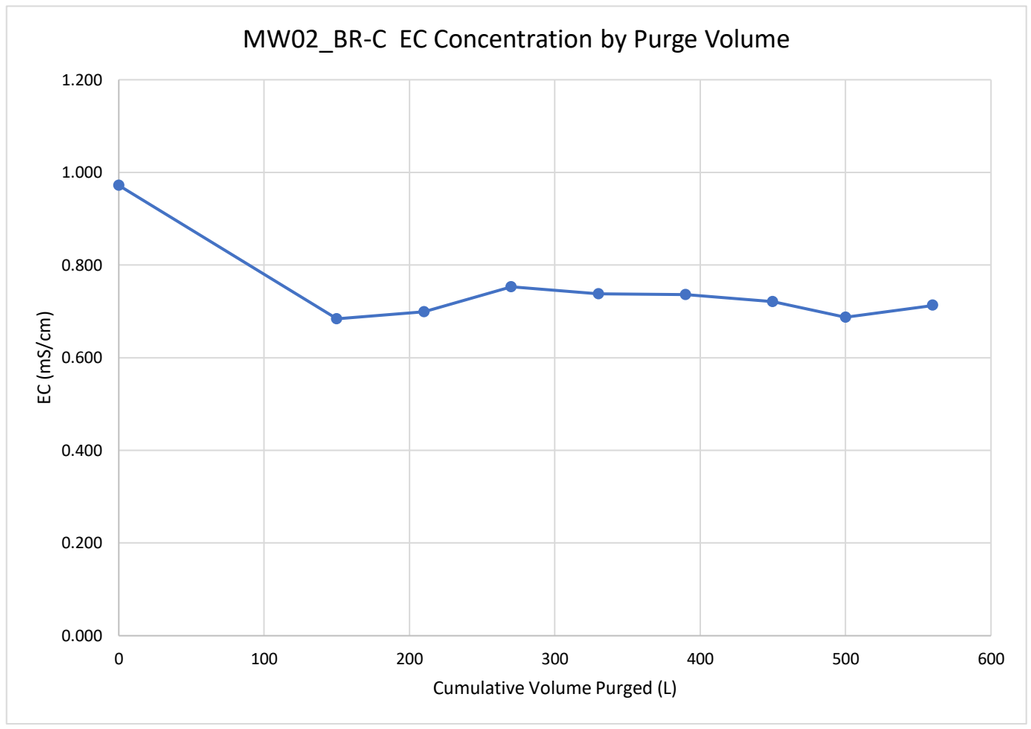
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-21	11:10	LIM/FJH	0	0	Y	7.61	7.63	0.972	203	0.000	>1000	Y	0.319	N	water very silty and opaque light grey in colour
2022-01-21	12:20	LIM/FJH	150	150	Y	7.40	7.90	0.684	168	0.000	>1000	Y	0.019	N	water noticeably less silty and same light grey colour
2022-01-21	12:45	LIM/FJH	60	210	Y	7.39	7.60	0.699	195	0.000	729	Y	0.019	N	slightly silty light grey water
2022-01-21	13:05	LIM/FJH	60	270	Y	7.47	7.78	0.753	91	0.030	551	Y	0.009	N	slightly silty light grey water
2022-01-21	13:50	LIM/FJH	60	330	Y	7.63	7.32	0.738	84	0.410	498	Y	0.013	N	slightly silty light grey water
2022-01-21	14:30	LIM/FJH	60	390	Y	7.48	7.53	0.736	112	0.400	755	Y	0.008	N	slightly silty light grey water
2022-01-21	15:10	LIM/FJH	60	450	Y	7.55	7.79	0.721	121	0.580	768	Y	0.000	N	slightly silty light grey water
2022-01-21	15:45	LIM/FJH	50	500	Y	7.63	7.32	0.687	183	0.890	>1000	Y	0.007	N	slightly silty light grey water
2022-01-21	16:20	LIM/FJH	60	560	Y	7.33	7.43	0.713	155	0.710	666	Y	0.005	N	slightly silty light grey water

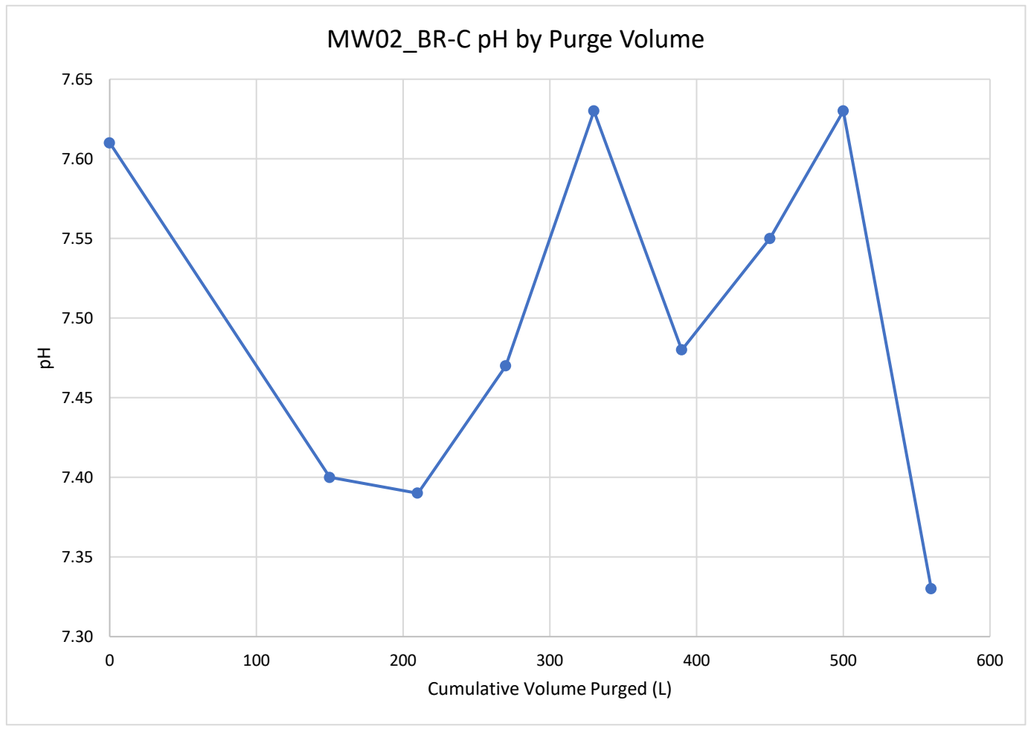
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Date:	2022-01-21	Date:	2022-04-07

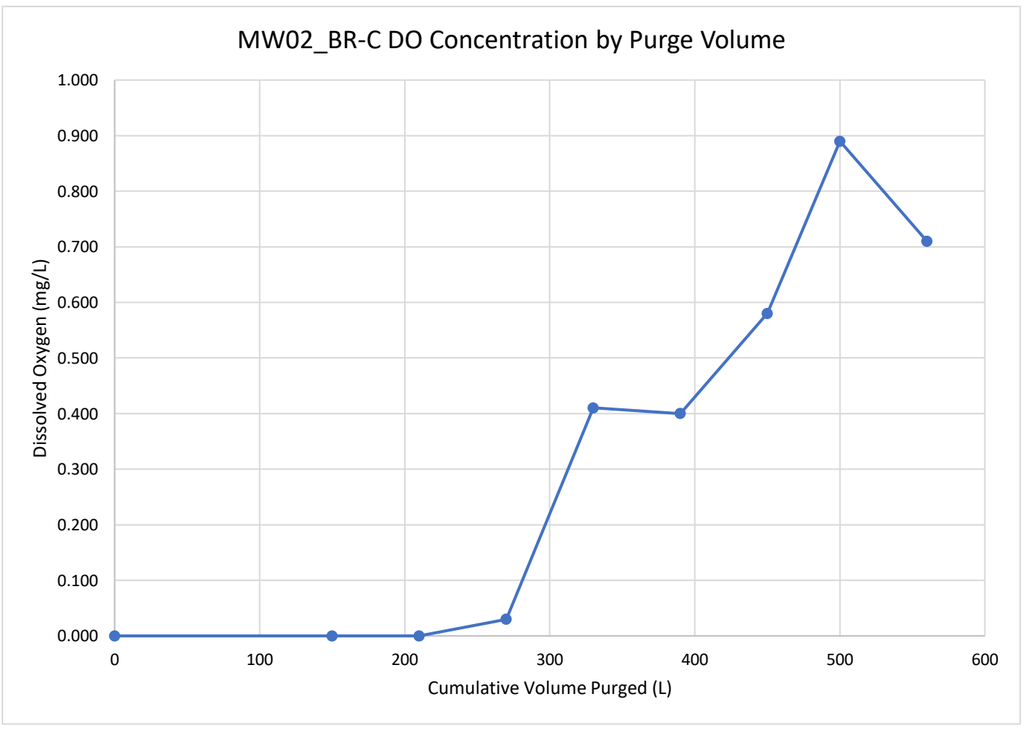
21-223_DQC_SB_MW02_R0C

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots





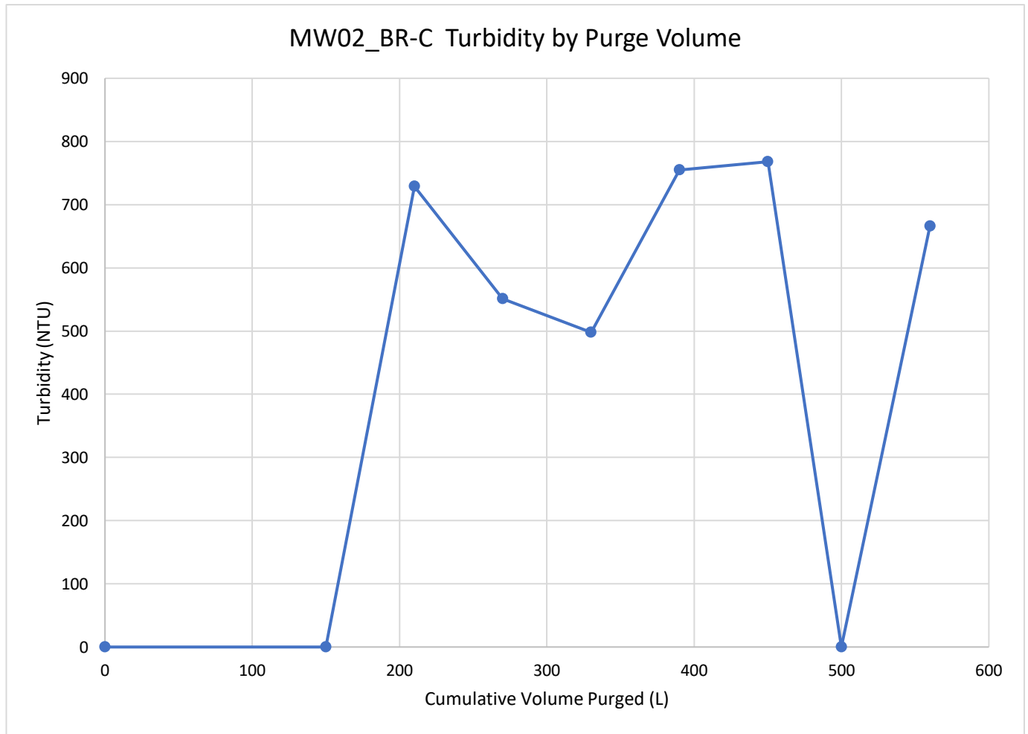


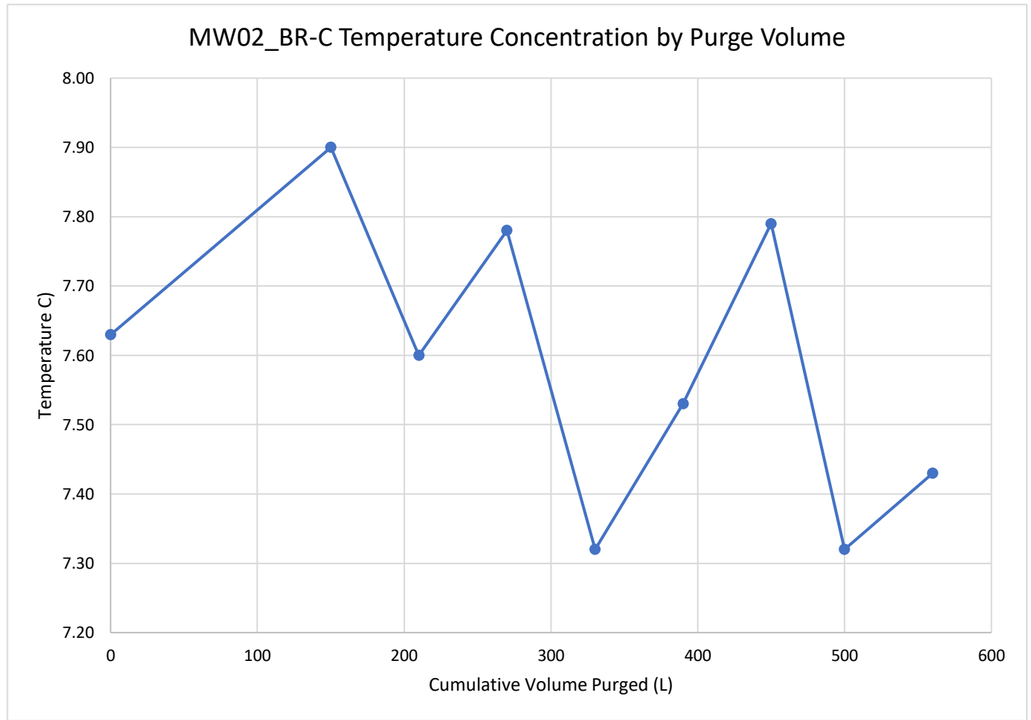


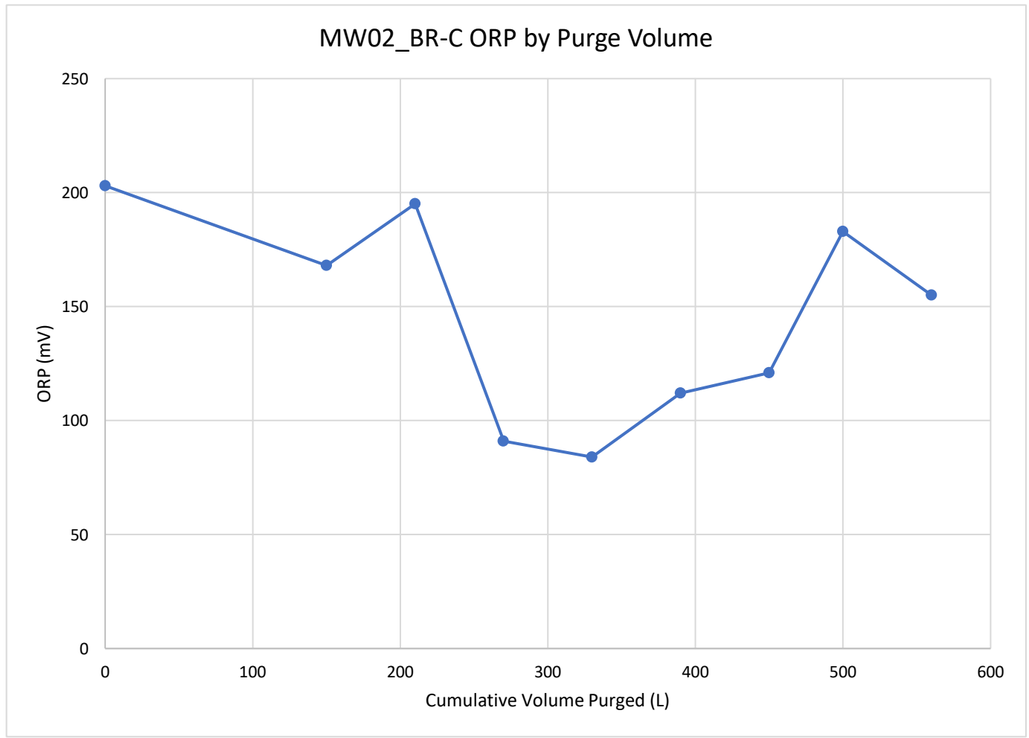
21-223_DQC_SB_MW02_R0B

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Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







21-223_DQC_SB_MW02_R0B

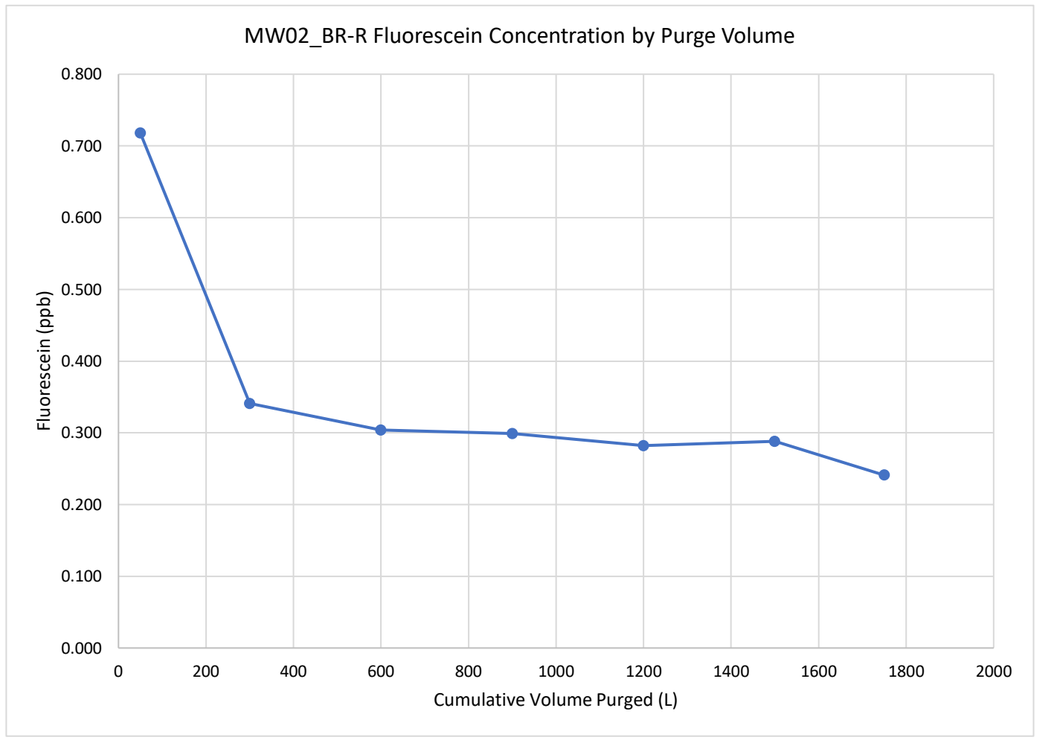
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

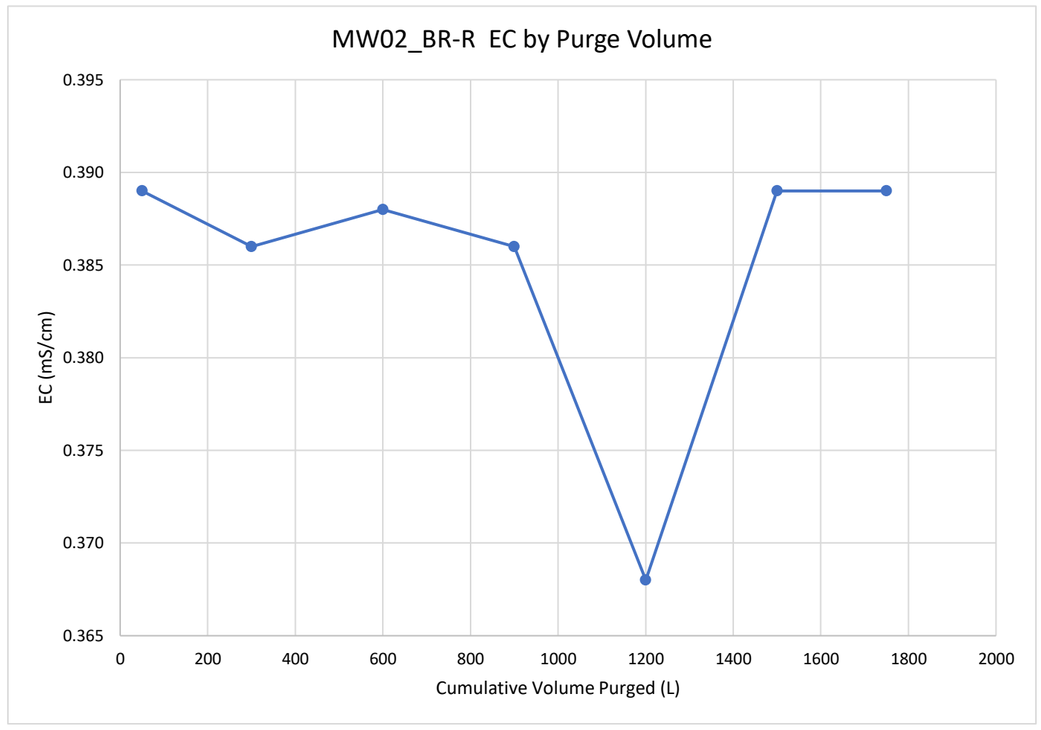
Sample Interval:	MW02_BR-R	Multiparameter Probe:	Horiba U52 (SN. 40H7XHMF)	Comments:	
Sampling Personnel:	MdK, KC	Fluorometer:	TurnerDesigns AquaFluor (SN. 807511)		

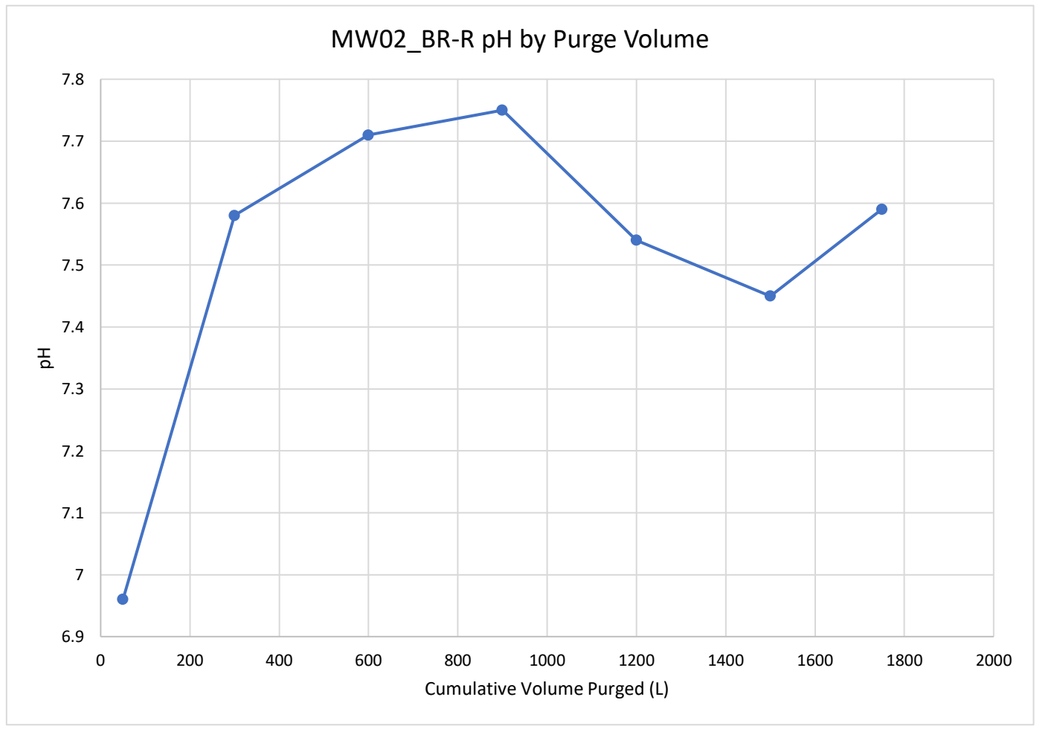
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-06-23	12:30	KC / MdK	50	50	Y	6.96	13.8	0.389	163	0	0	Y	0.718	N	
2022-06-23	13:30	KC / MdK	250	300	Y	7.58	12.81	0.386	117	0	0	Y	0.341	N	
2022-06-23	14:40	KC / MdK	300	600	Y	7.71	12.28	0.388	152	0	0	Y	0.304	N	
2022-06-23	15:30	KC / MdK	300	900	Y	7.75	12.12	0.386	156	0	29.8	Y	0.299	N	
2022-06-23	16:25	KC / MdK	300	1200	Y	7.54	13.98	0.368	138	0.32	0	Y	0.282	N	
2022-06-23	17:20	KC / MdK	300	1500	Y	7.45	10.9	0.389	158	0	0	Y	0.288	N	
2022-06-23	18:00	KC / MdK	250	1750	Y	7.59	10.24	0.389	166	0	0	Y	0.241	N	

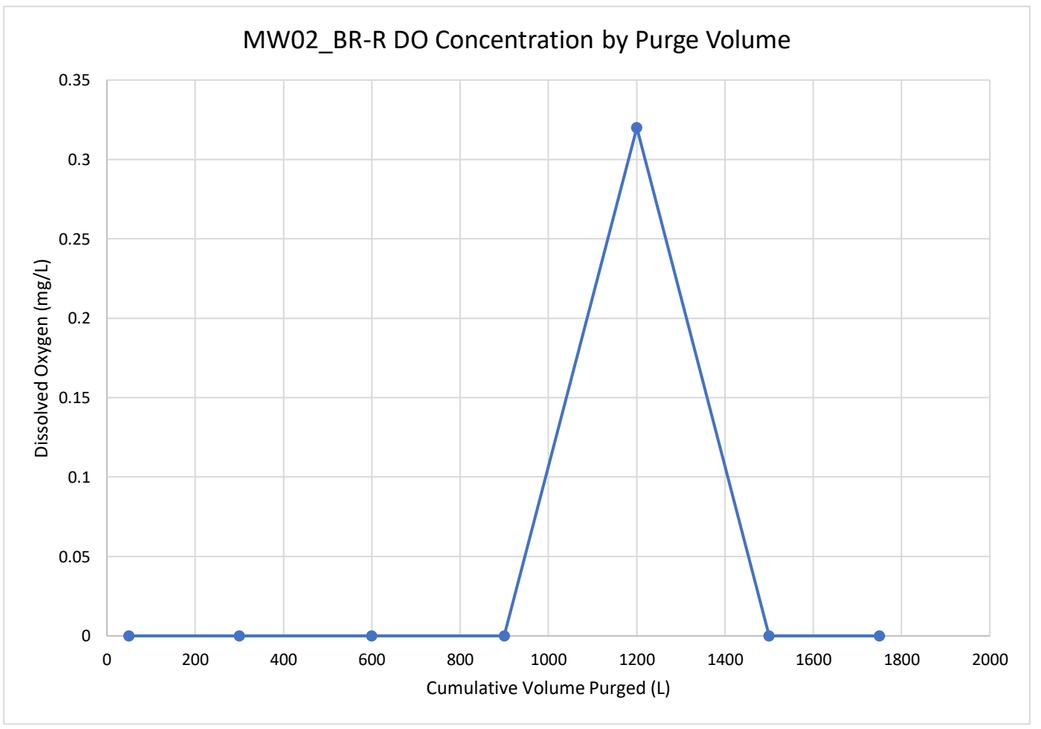
Completed by:	MdK	Verified by:	AMSC
Date:	2022-06-27	Date:	2022-07-08

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

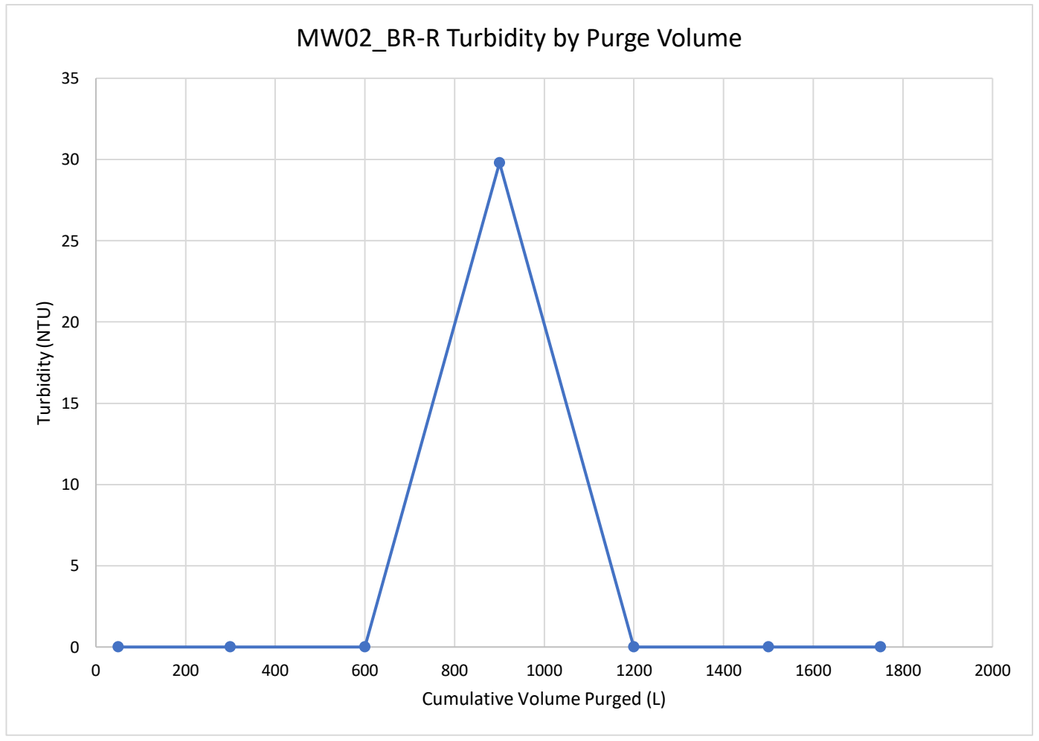


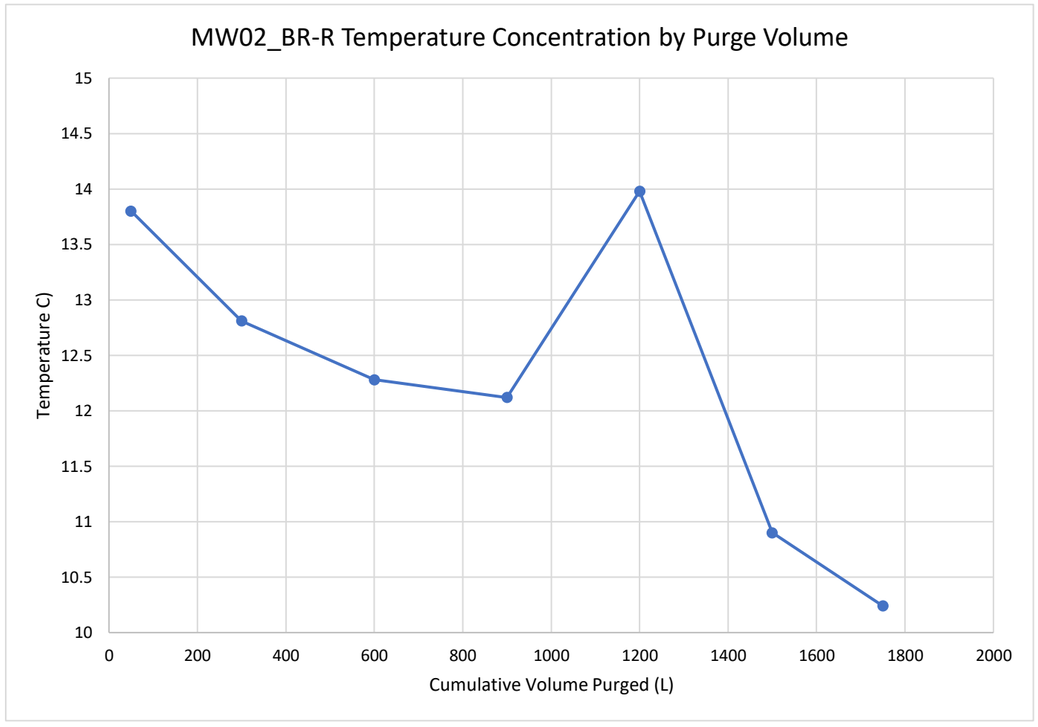


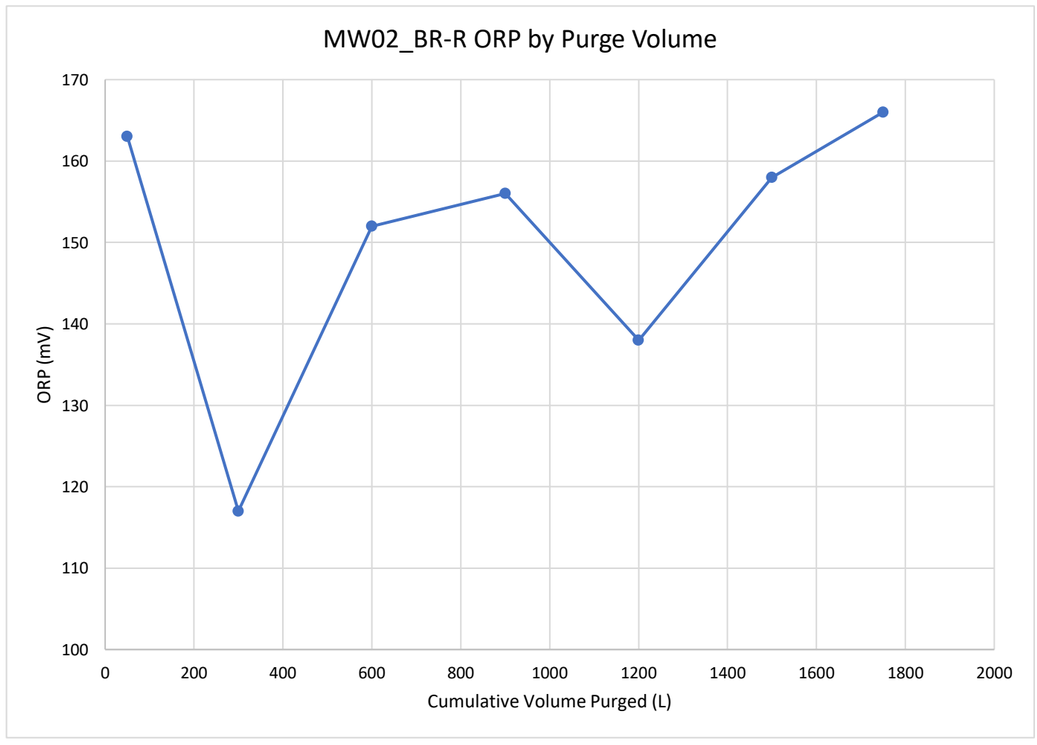




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







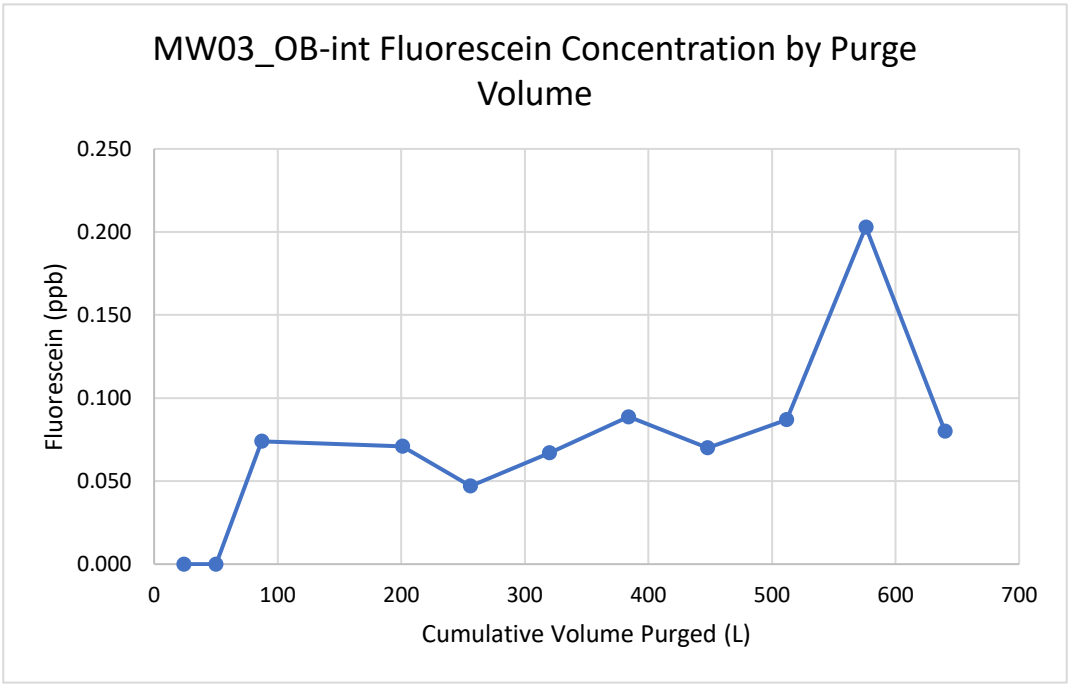
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

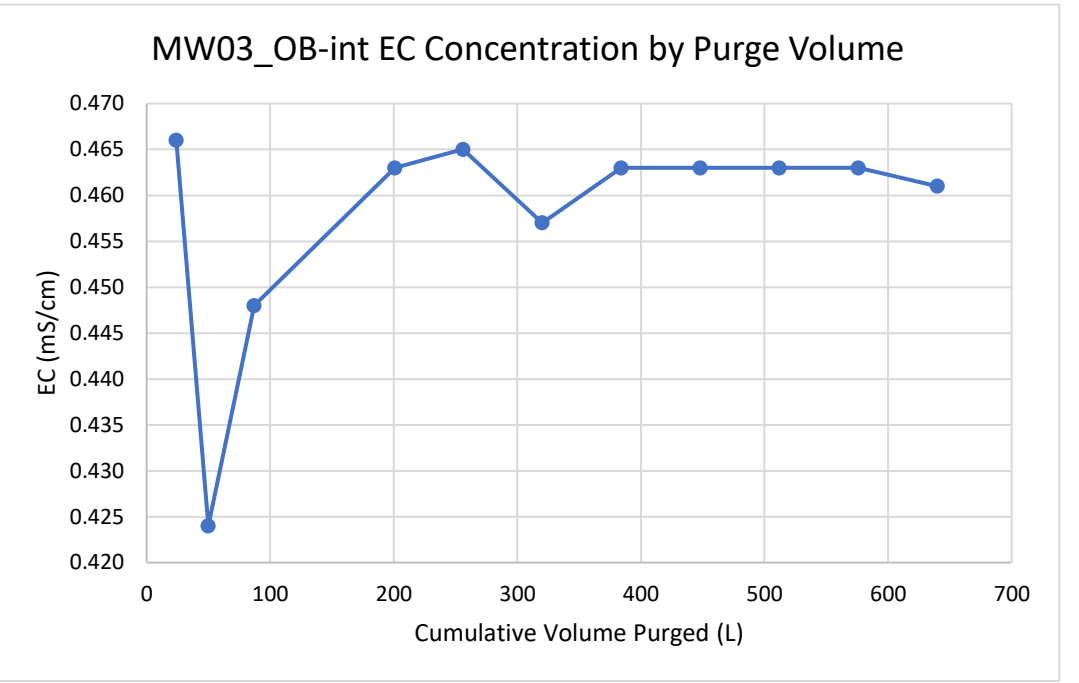
Sample Interval:	SB_MW03_OB-int	Multiparameter Probe:	Horiba U52 (SN. RHE67A2F)	Comments:	
Sampling Personnel:	LIM, BFS, FJH	Fluorometer:	Turner Designs AquaFluor (SN. 807513)		

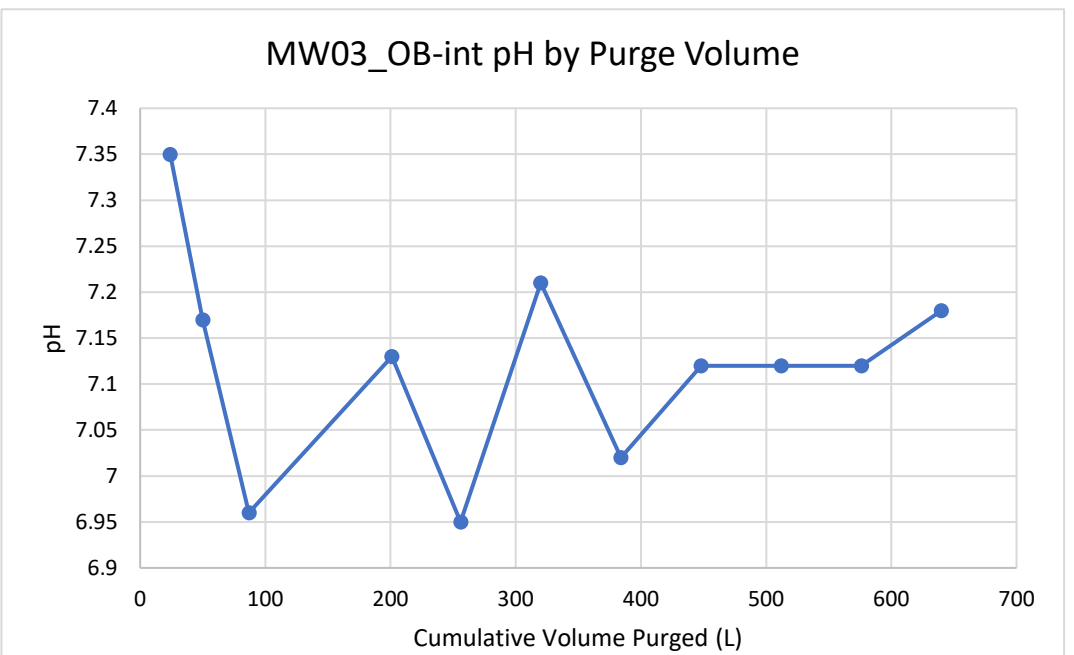
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-27	13:30	LIM/BFS	0	24	Y	7.35	6.89	0.466	-76	0.34	>1000	Y	0.000	N	Brown water with abundant fine grain sand and some silt; Well ran dry after 24L produced
2022-01-27	16:00	LIM/BFS	26	50	Y	7.17	9.39	0.424	-57	0.00	>1000	Y	0.000	N	Brown water with abundant fine grain sand and some silt; well ran dry after 26L produced
2022-01-28	8:39	FJH/BFS/LIM	37	87	Y	6.96	9.40	0.448	-88	0.13	>1000	Y	0.074	N	Well ran dry after 37L produced, ~10cm of sediment removed from bottom of well through purging
2022-01-28	9:37	BFS/FJH	114	201	Y	7.13	9.72	0.463	-56	0.00	>1000	Y	0.071	N	Well did not run dry and water started to become a bit less silty
2022-01-28	12:27	BFS/FJH	55	256	Y	6.95	8.24	0.465	-32	0.19	595	Y	0.047	N	Now purging with hydrolift piston and water is much clearer than previous measurement
2022-01-28	13:04	BFS/FJH	64	320	Y	7.21	8.89	0.457	-44	0.00	343	Y	0.067	N	Some silt in water
2022-01-28	14:15	BFS/FJH	64	384	Y	7.02	8.79	0.463	-39	0.00	307	Y	0.089	N	Some silt in water
2022-01-28	14:40	BFS/FJH	64	448	Y	7.12	8.95	0.463	-43	0.00	202	Y	0.070	N	Some silt in water
2022-01-28	15:20	BFS/FJH	64	512	Y	7.12	8.26	0.463	-39	0.00	160	Y	0.087	N	Some silt in water
2022-01-28	16:28	BFS/FJH	64	576	Y	7.12	9.11	0.463	-36	0.00	167	Y	0.203	N	Some silt in water
2022-01-28	16:45	BFS/FJH	64	640	Y	7.18	9.19	0.461	-41	0.00	232	Y	0.080	N	Some silt in water

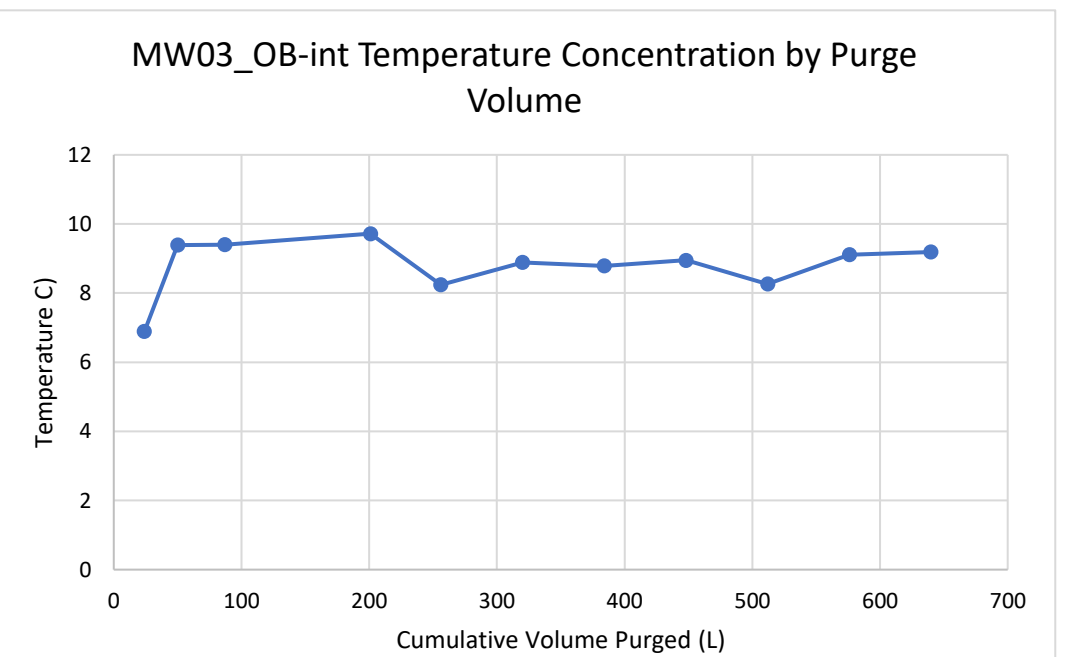
Completed by:	LIM, BFS, FJH	Verified by:	AMSC
Date:	2022-01-28	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

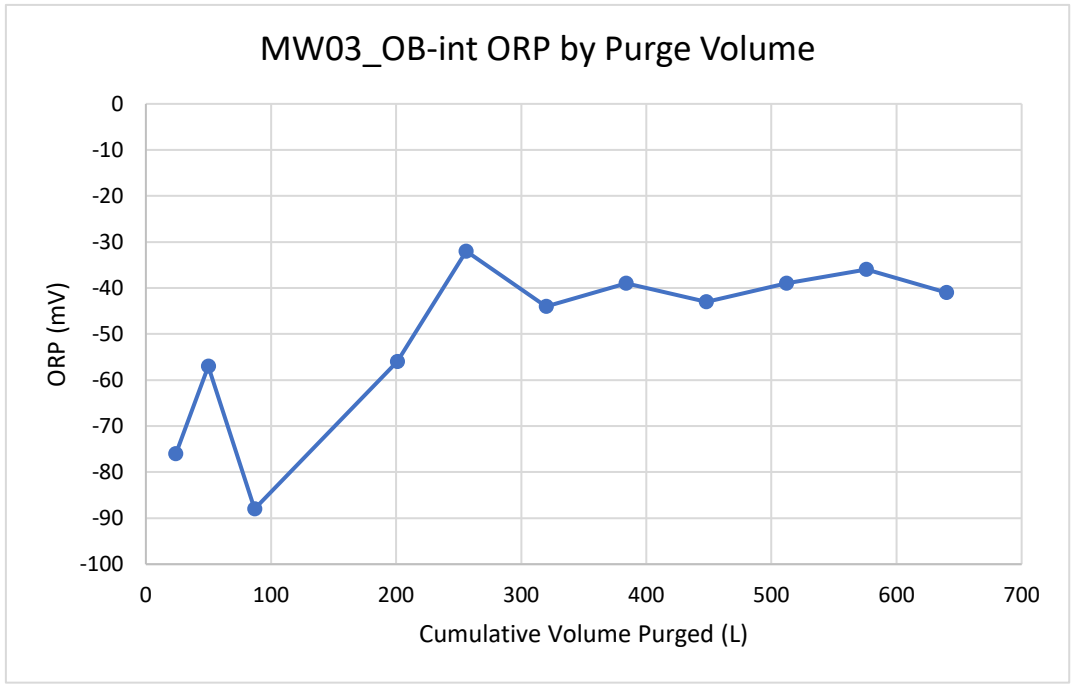


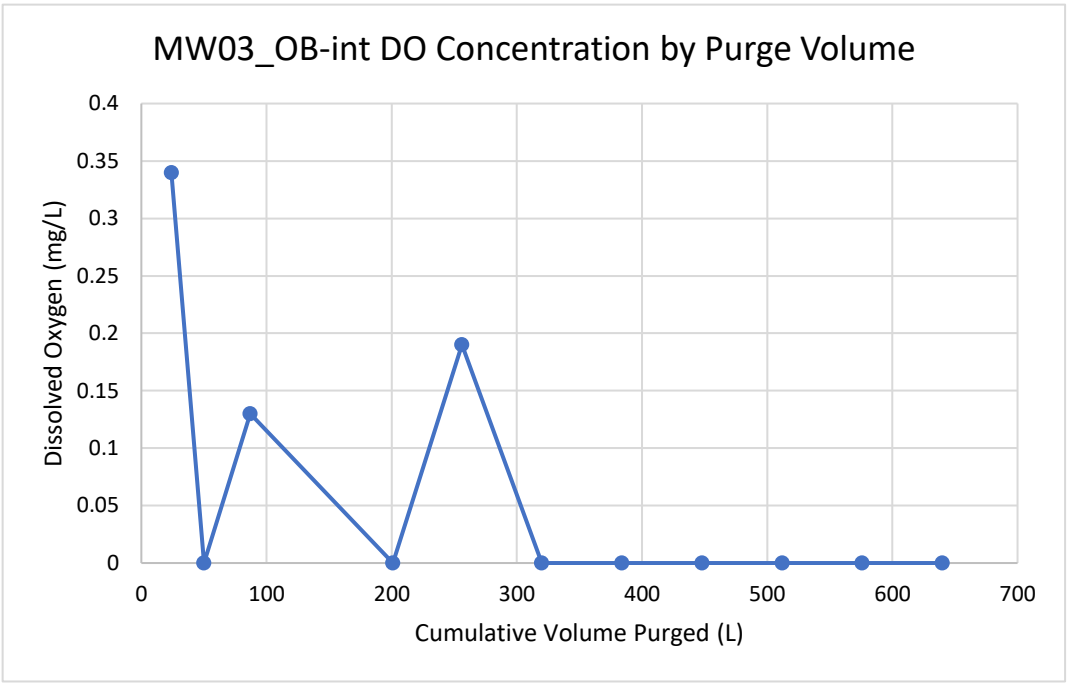


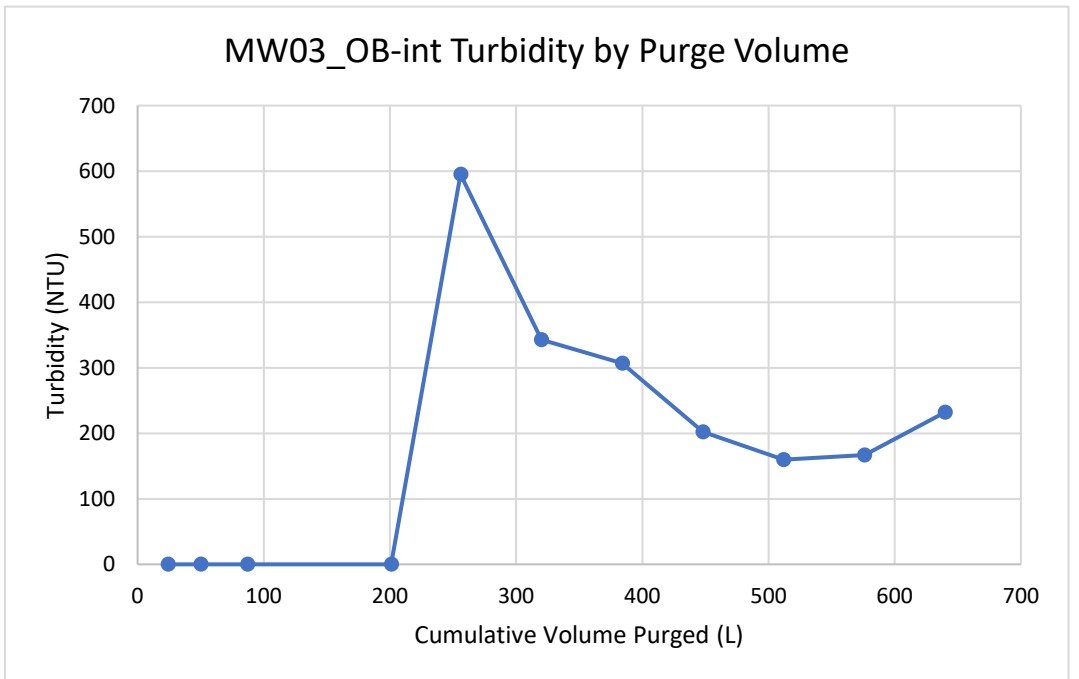




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







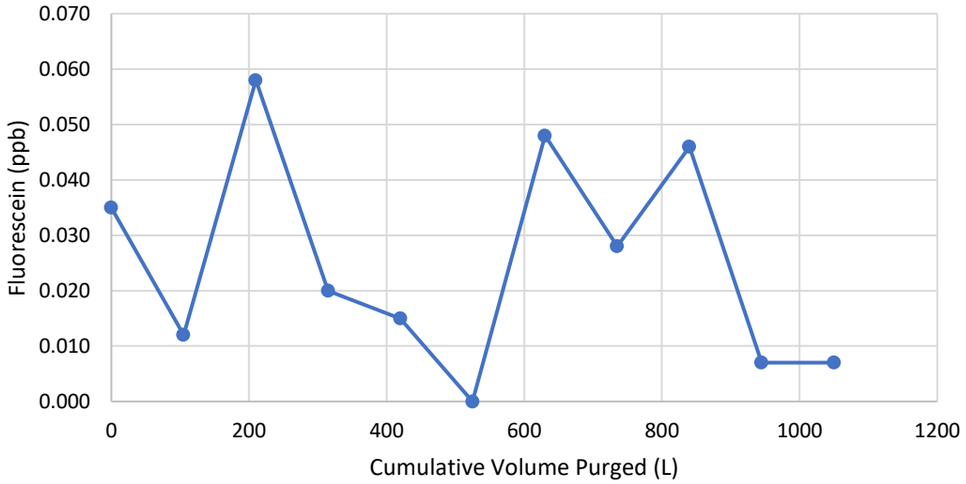
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

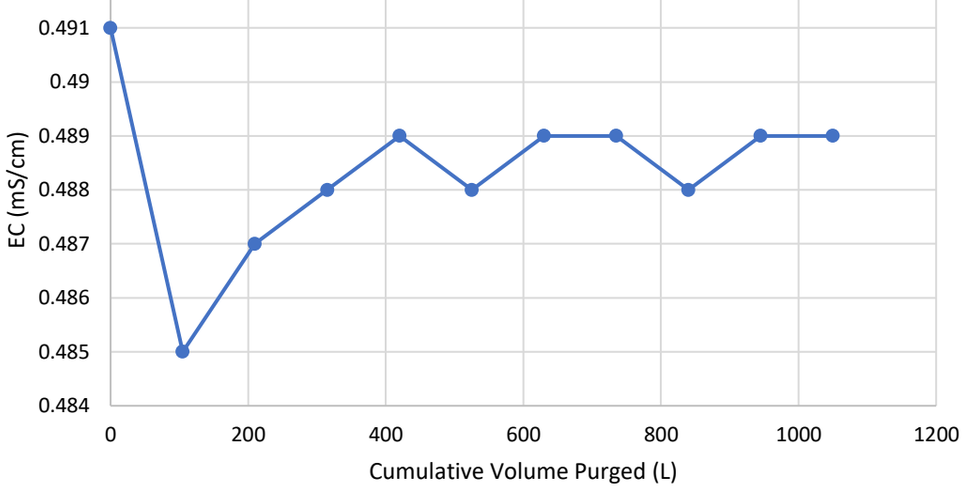
Sample Interval:	SB_MW03_BR-B	Multiparameter Probe:	Horiba U52 (SN. RHE67A2F)	Comments:	
Sampling Personnel:	FJH, BFS	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

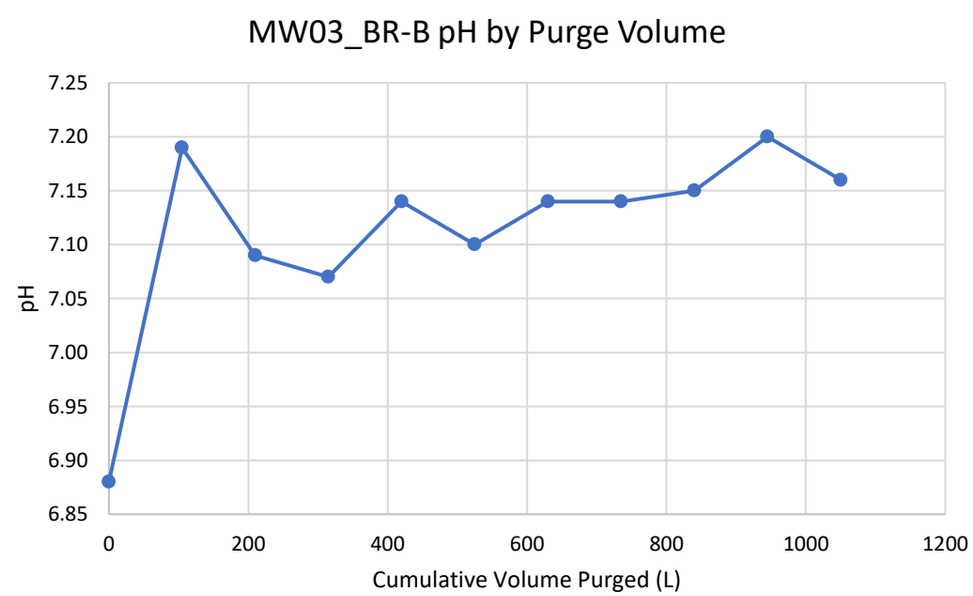
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-02-24	10:27	FJH/BFS	0	0	Y	6.88	7.64	0.491	177	0	401	Y	0.035	N	
2022-02-24	10:42	FJH/BFS	105	105	Y	7.19	8.50	0.485	76	0	73.0	Y	0.012	N	
2022-02-24	10:59	FJH/BFS	105	210	Y	7.09	8.62	0.487	35	0	21.9	Y	0.058	N	
2022-02-24	11:17	FJH/BFS	105	315	Y	7.07	8.71	0.488	19	0	16.7	Y	0.020	N	
2022-02-24	11:33	FJH/BFS	105	420	Y	7.14	8.70	0.489	18	0	8.6	Y	0.015	N	
2022-02-24	11:51	FJH/BFS	105	525	Y	7.10	8.86	0.488	18	0	2.3	Y	0.000	N	
2022-02-24	12:05	FJH/BFS	105	630	Y	7.14	8.81	0.489	17	0	0.0	Y	0.048	N	
2022-02-24	12:20	FJH/BFS	105	735	Y	7.14	8.69	0.489	19	0	0.0	Y	0.028	N	
2022-02-24	12:42	FJH/BFS	105	840	Y	7.15	8.56	0.488	17	0	0.0	Y	0.046	N	
2022-02-24	13:04	FJH/BFS	105	945	Y	7.20	8.61	0.489	17	0	0.0	Y	0.007	N	
2022-02-24	13:21	FJH/BFS	105	1050	Y	7.16	8.39	0.489	18	0	0.0	Y	0.007	N	

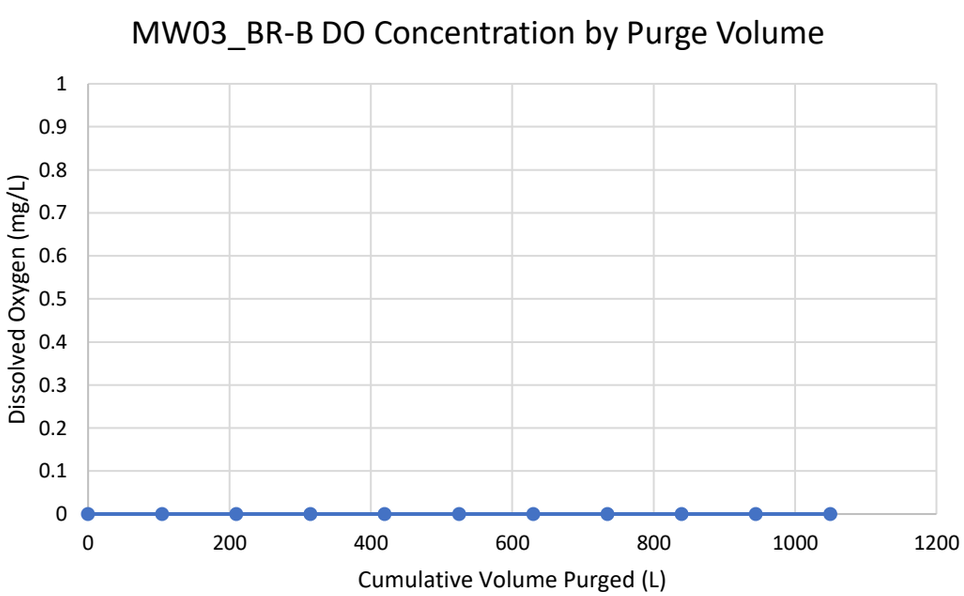
Completed by:	LIM	Verified by:	AMSC
Date:	2022-02-24	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

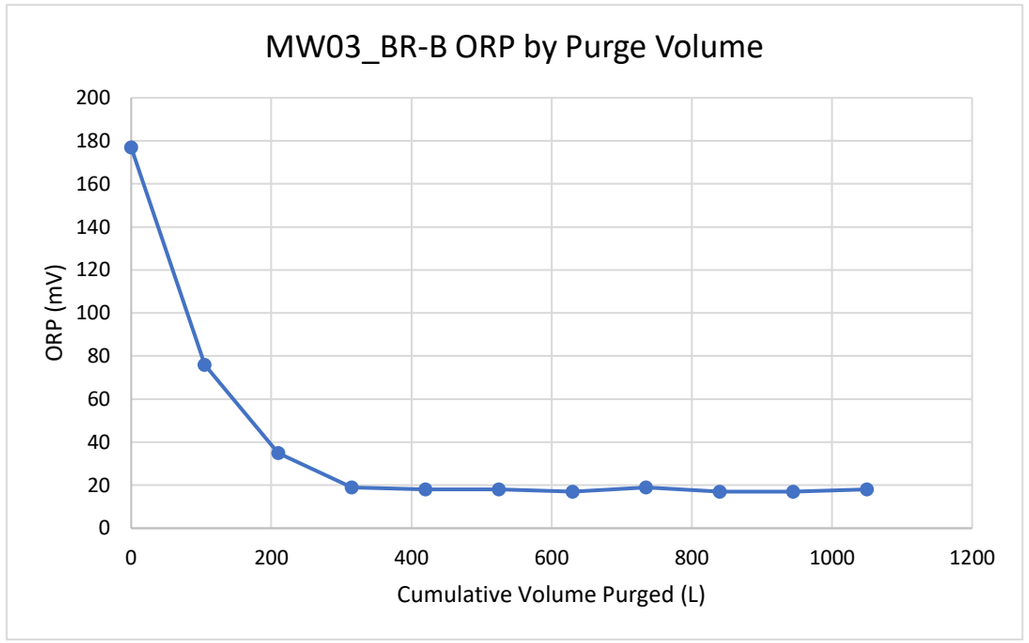


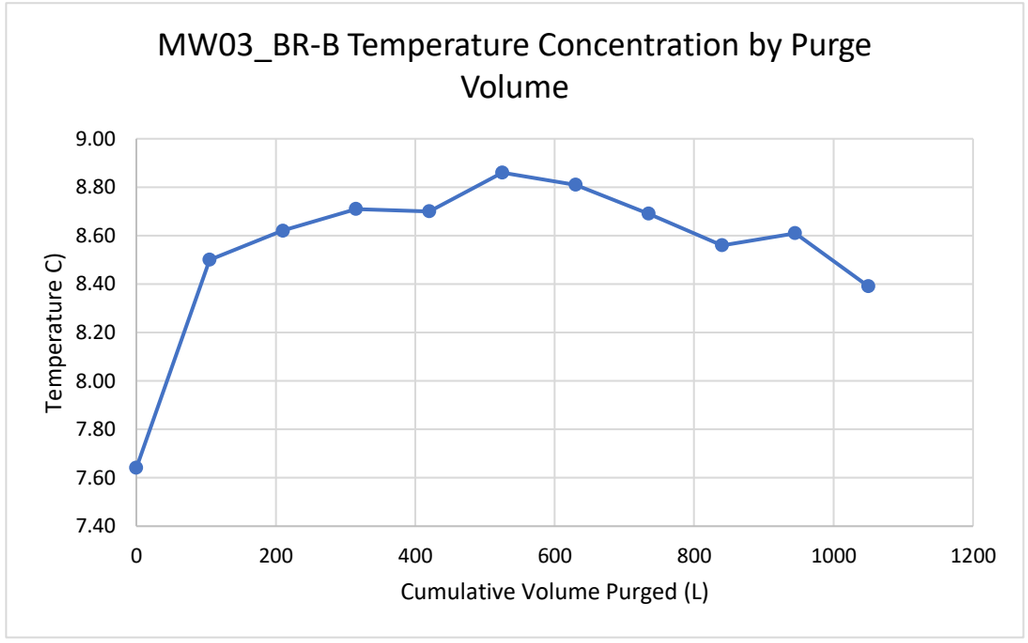


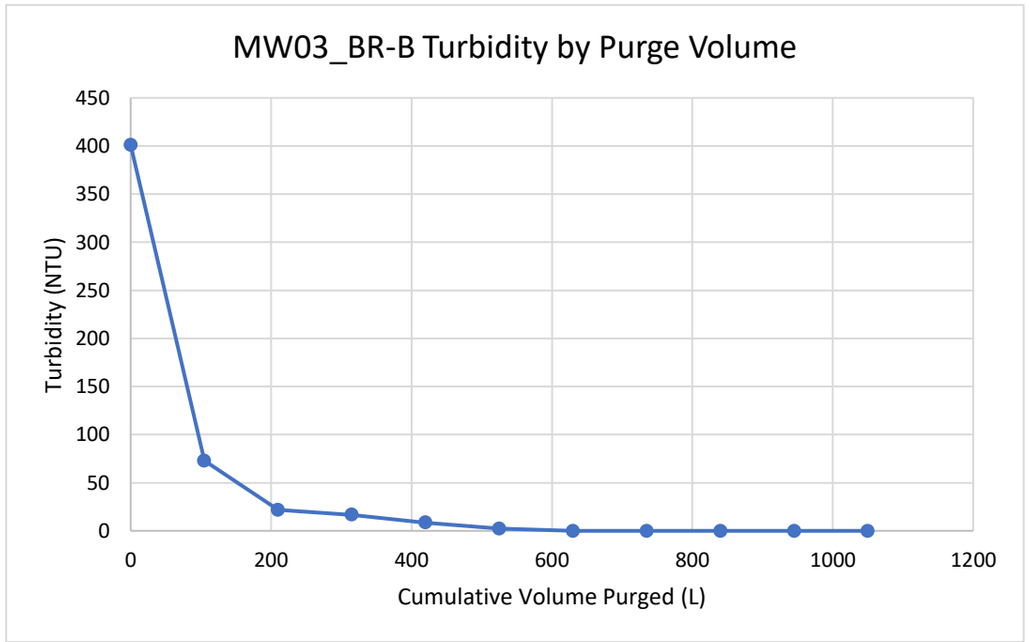




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







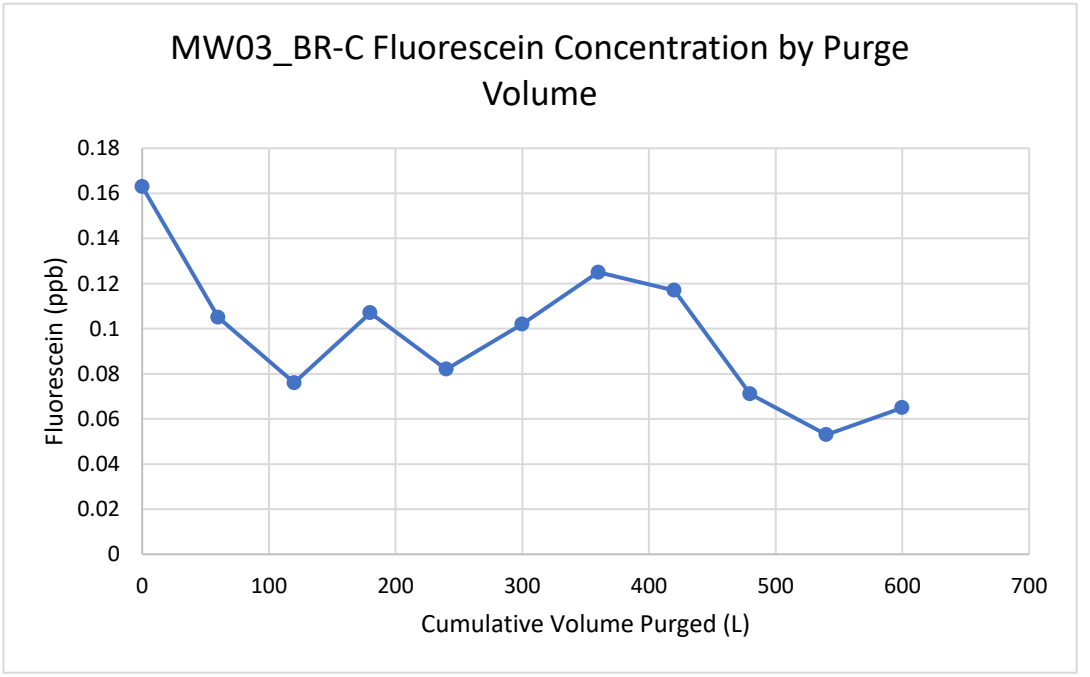
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

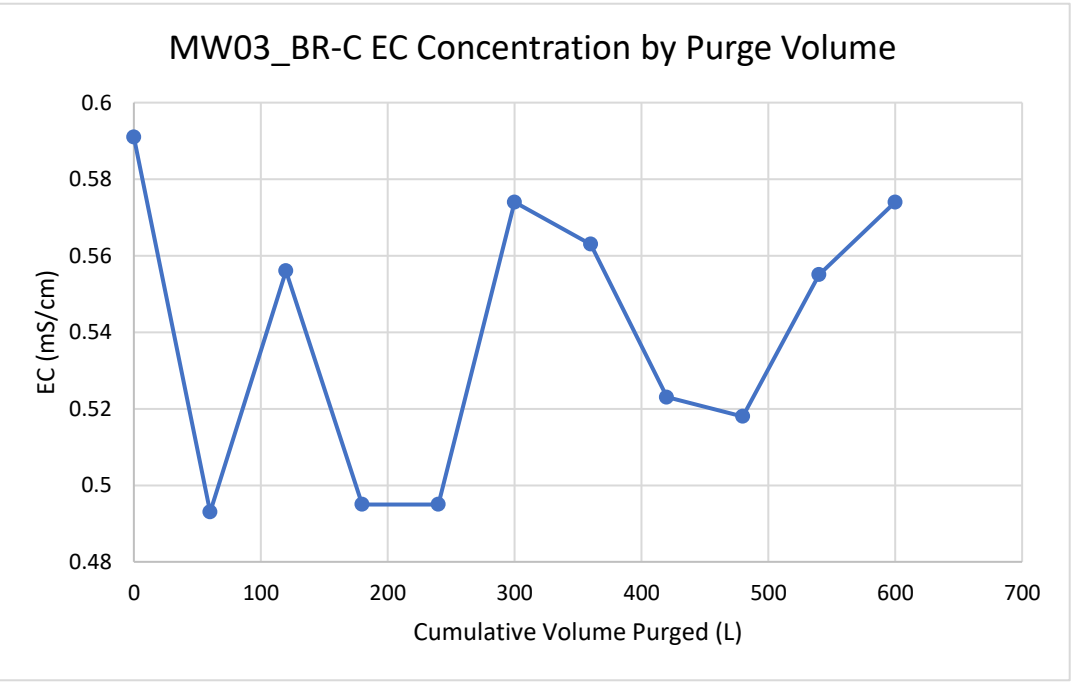
Sample Interval:	SB_MW03_BR-C	Multiparameter Probe:	Horiba U52 (SN. RHE67A2F)	Comments:	
Sampling Personnel:	FJH, BFS	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

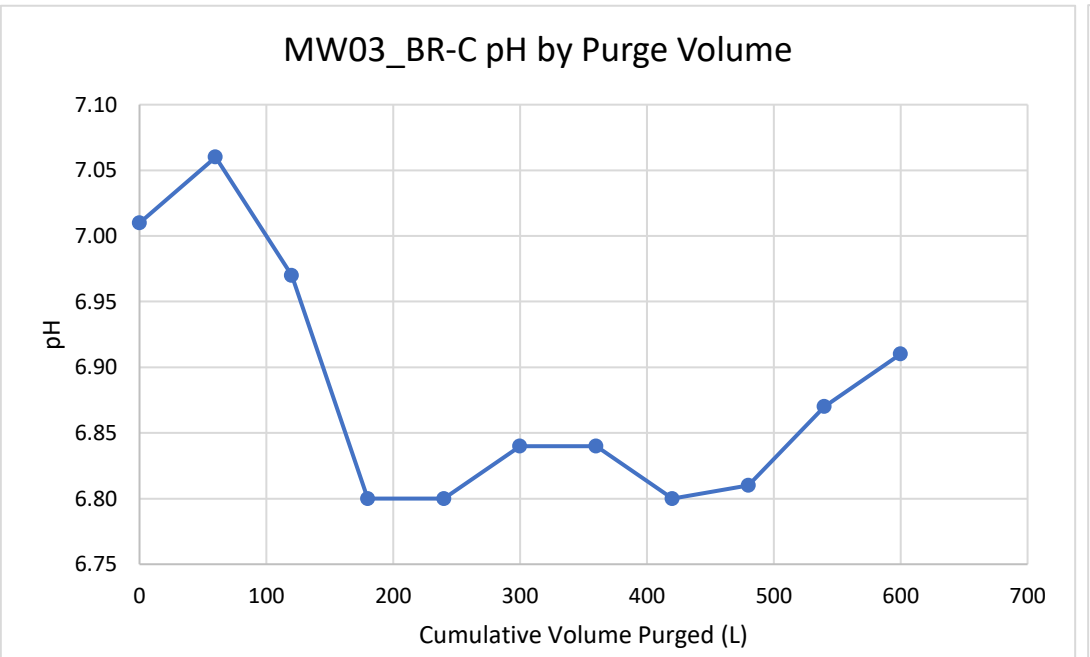
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-02-23	14:28	FJH/BFS	0	0	Y	7.01	7.62	0.591	54	0.00	1000	Y	0.163	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	14:59	FJH/BFS	60	60	Y	7.06	7.85	0.493	25	0.00	1000	Y	0.105	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	15:11	FJH/BFS	60	120	Y	6.97	8.73	0.556	22	0.00	1000	Y	0.076	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	15:23	FJH/BFS	60	180	Y	6.80	8.68	0.495	27	0.00	1000	Y	0.107	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	15:32	FJH/BFS	60	240	Y	6.80	8.69	0.495	27	0.00	1000	Y	0.082	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	15:44	FJH/BFS	60	300	Y	6.84	8.07	0.574	34	0.00	1000	Y	0.102	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	15:55	FJH/BFS	60	360	Y	6.84	8.47	0.563	38	0.00	1000	Y	0.125	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	16:07	FJH/BFS	60	420	Y	6.80	8.61	0.523	39	0.00	633	Y	0.117	N	
2022-02-23	16:16	FJH/BFS	60	480	Y	6.81	8.59	0.518	39	0.00	1000	Y	0.071	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	16:26	FJH/BFS	60	540	Y	6.87	8.59	0.555	39	0.00	1000	Y	0.053	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes
2022-02-23	16:36	FJH/BFS	60	600	Y	6.91	8.56	0.574	38	0.00	1000	Y	0.065	N	Turbidity >1000NTU, recorded as 1000NTU for plotting purposes

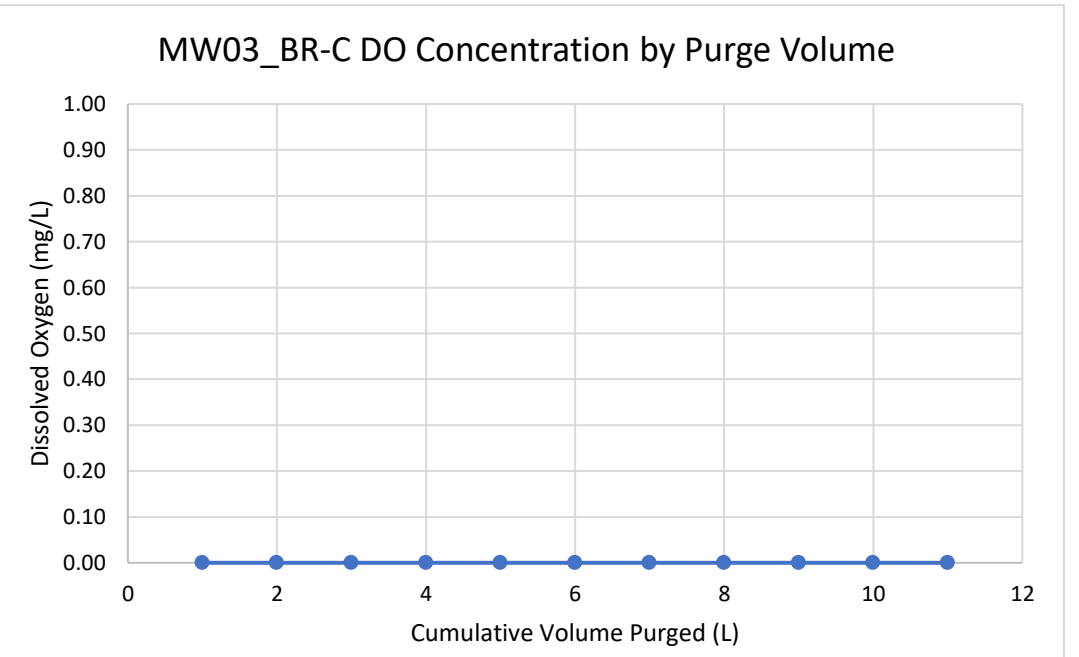
Completed by:	LIM	Verified by:	AMSC
Date:	2022-02-23	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

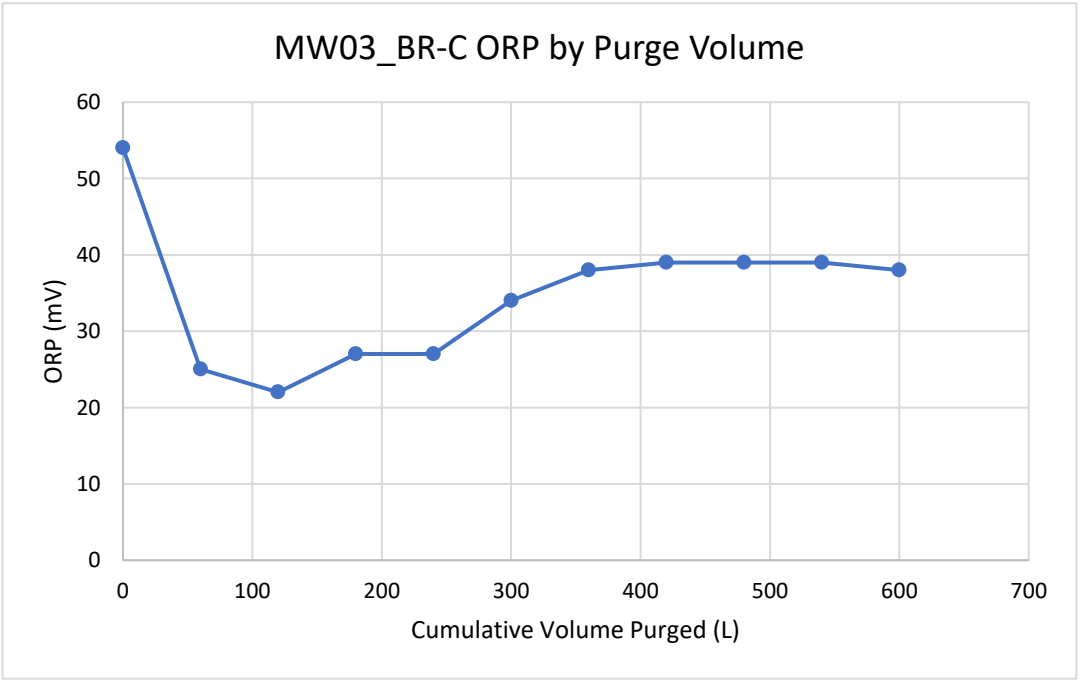


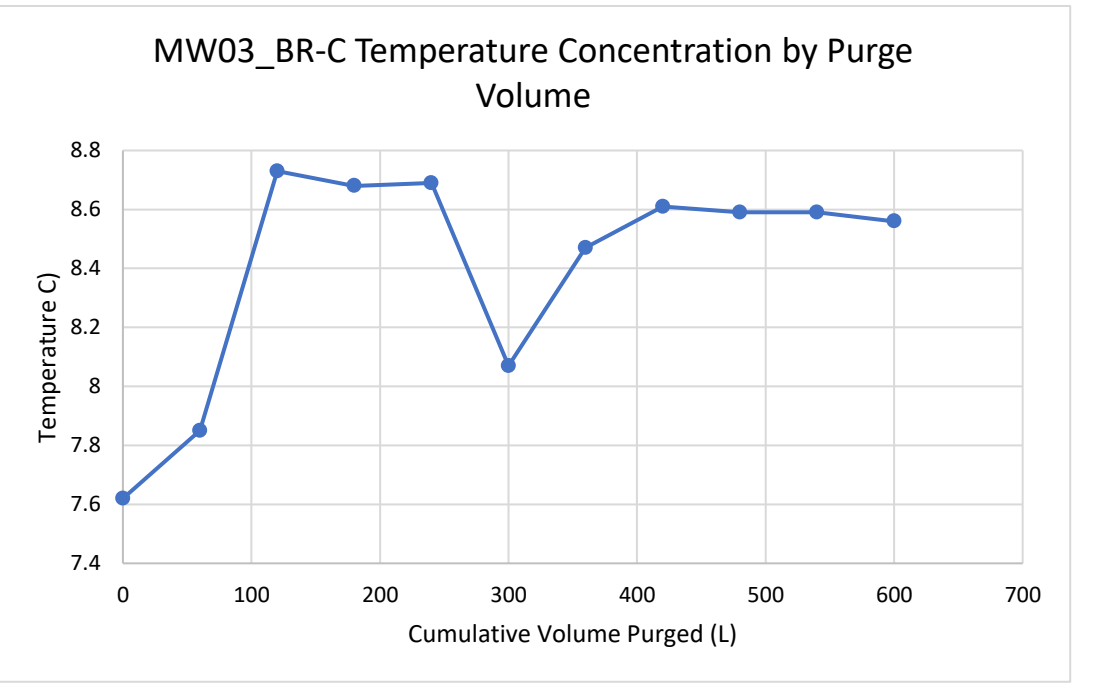


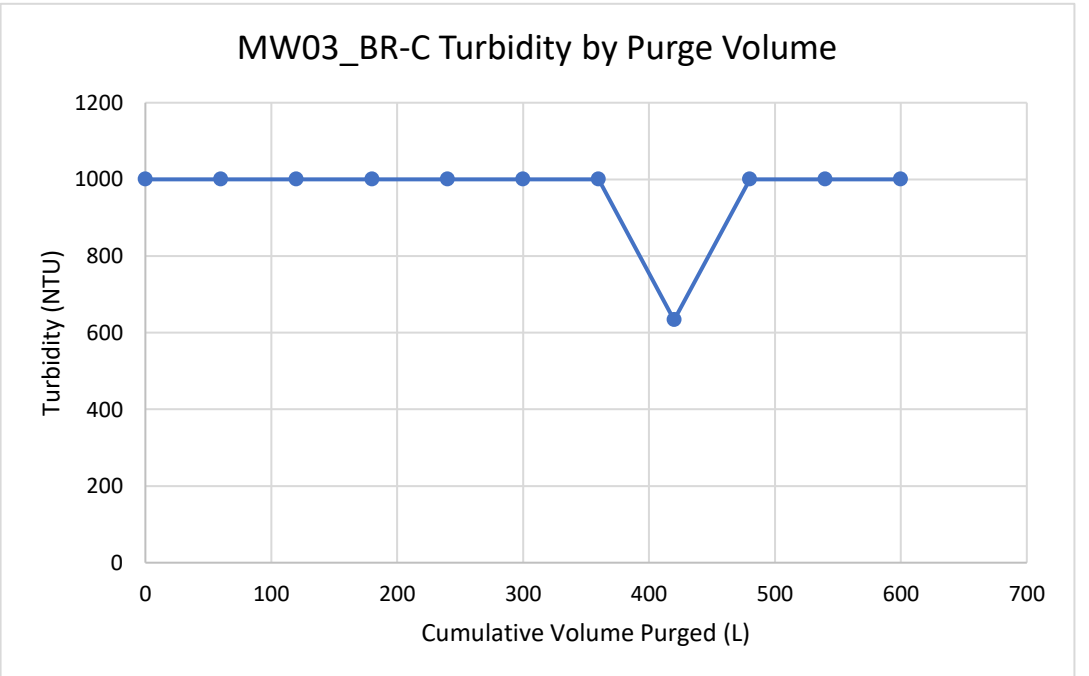




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







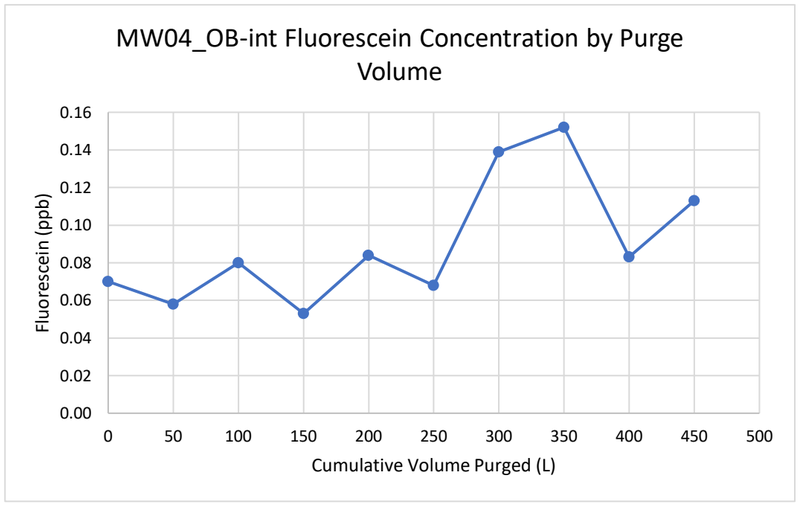
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

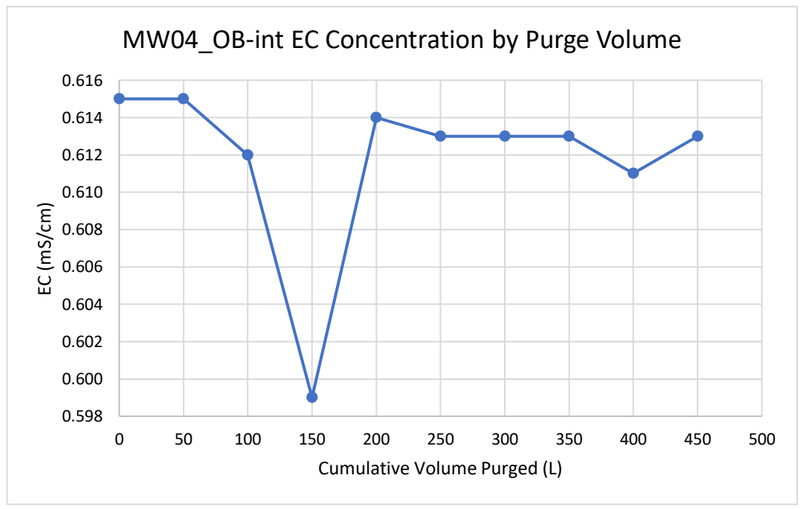
Sample Interval:	SB_MW04_OB-int	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	JLB, LMB	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

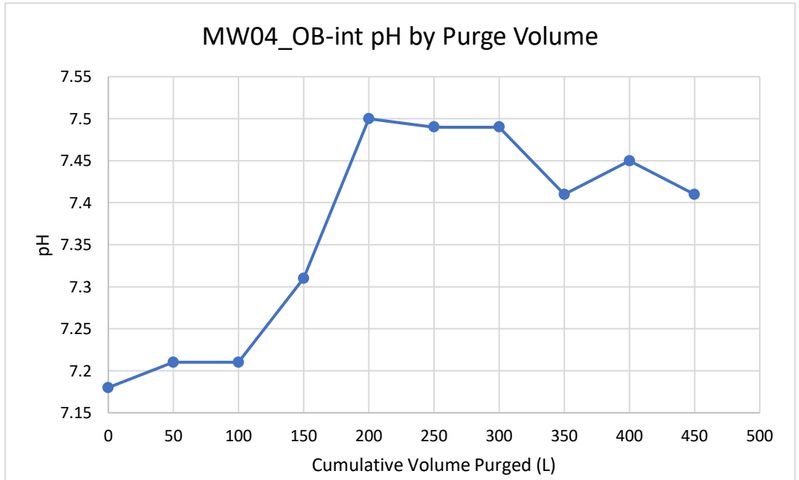
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-12	15:53	JLB/LMB	0	0	Y	7.18	7.96	0.615	279	8.26	1000	Y	0.07	N	Initial measurement, NTU is over 1000 entered as 1000 for plotting purposes
2022-01-12	16:09	JLB/LMB	50	50	Y	7.21	7.87	0.615	298	8.93	1000	Y	0.058	N	NTU is over 1000 entered as 1000 for plotting purposes
2022-01-12	16:20	JLB/LMB	50	100	Y	7.21	7.95	0.612	308	8.73	1000	Y	0.080	N	NTU is over 1000 entered as 1000 for plotting purposes
2022-01-12	16:35	JLB/LMB	50	150	Y	7.31	7.74	0.599	305	8.39	845	Y	0.053	N	
2022-01-12	16:47	JLB/LMB	50	200	Y	7.5	7.79	0.614	308	8.72	656	Y	0.084	N	
2022-01-12	17:00	JLB/LMB	50	250	Y	7.49	7.67	0.613	309	8.74	486	Y	0.068	N	
2022-01-12	17:14	JLB/LMB	50	300	Y	7.49	7.79	0.613	311	8.71	338	Y	0.139	N	
2022-01-12	17:27	JLB/LMB	50	350	Y	7.41	7.85	0.613	304	8.27	275	Y	0.152	N	
2022-01-12	17:39	JLB/LMB	50	400	Y	7.45	7.84	0.611	314	8.45	214	Y	0.083	N	
2022-01-12	17:55	JLB/LMB	50	450	Y	7.41	7.96	0.613	322	7.94	225	Y	0.113	N	Last measurement, purged 10 well volumes

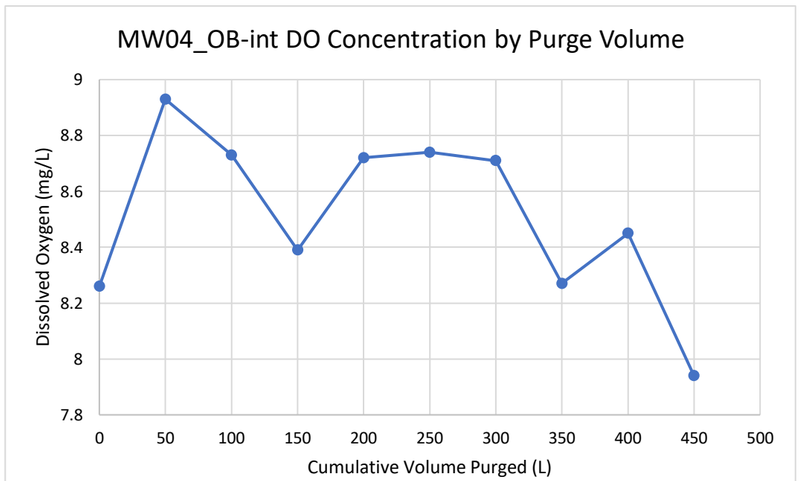
Completed by:	JLB, LMB	Verified by:	AMSC
Date:	2022-01-12	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

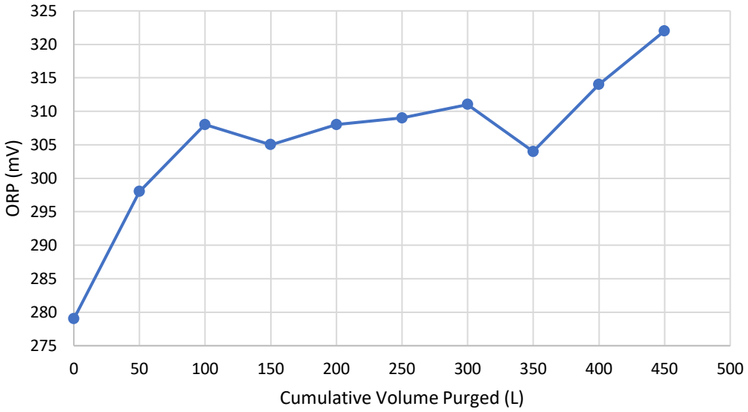


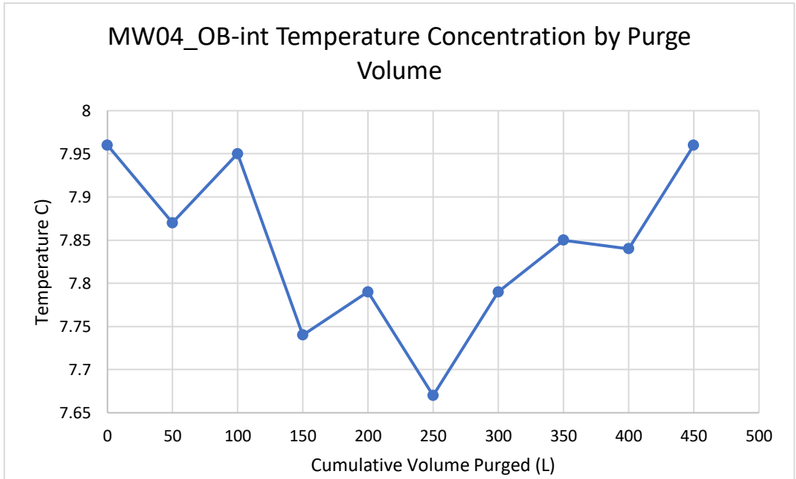


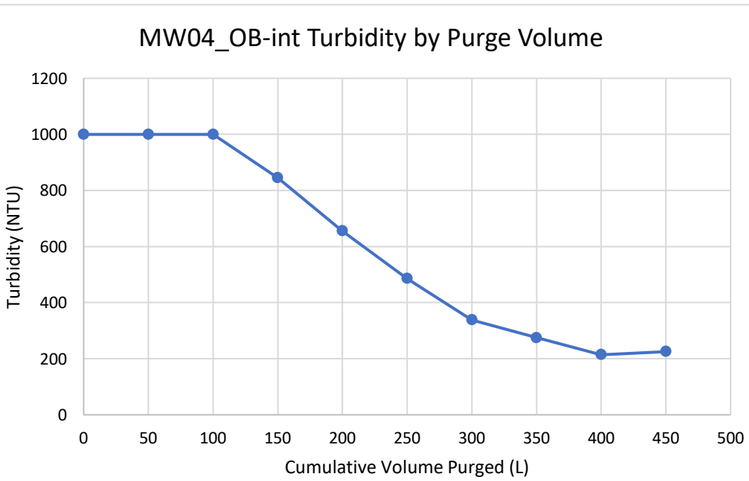




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







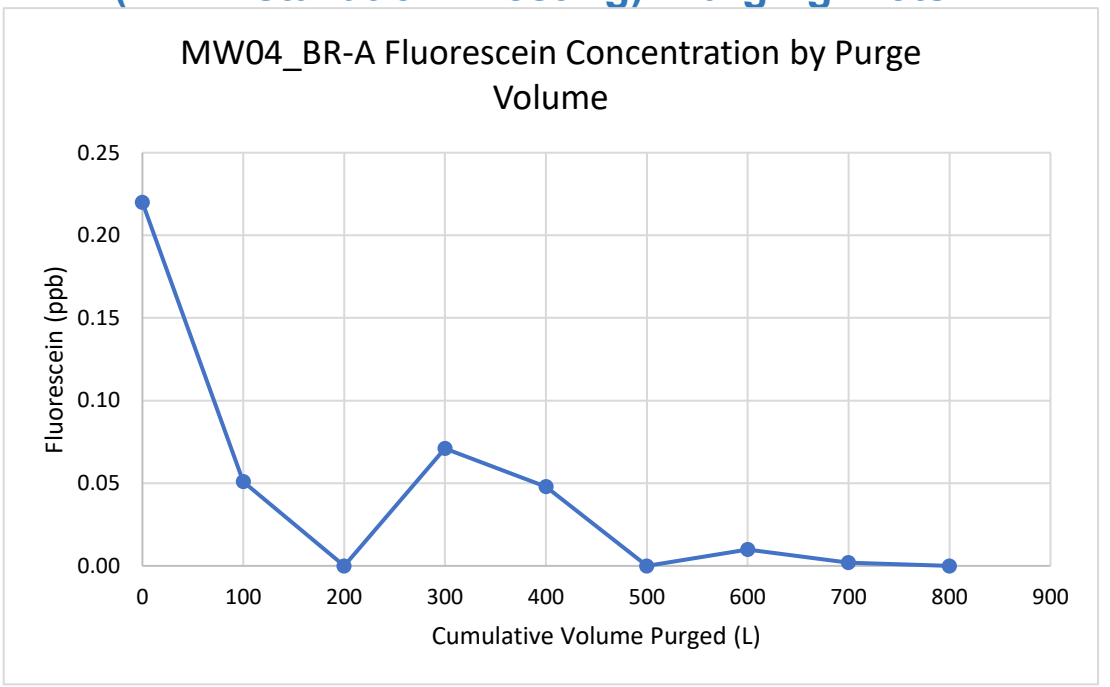
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

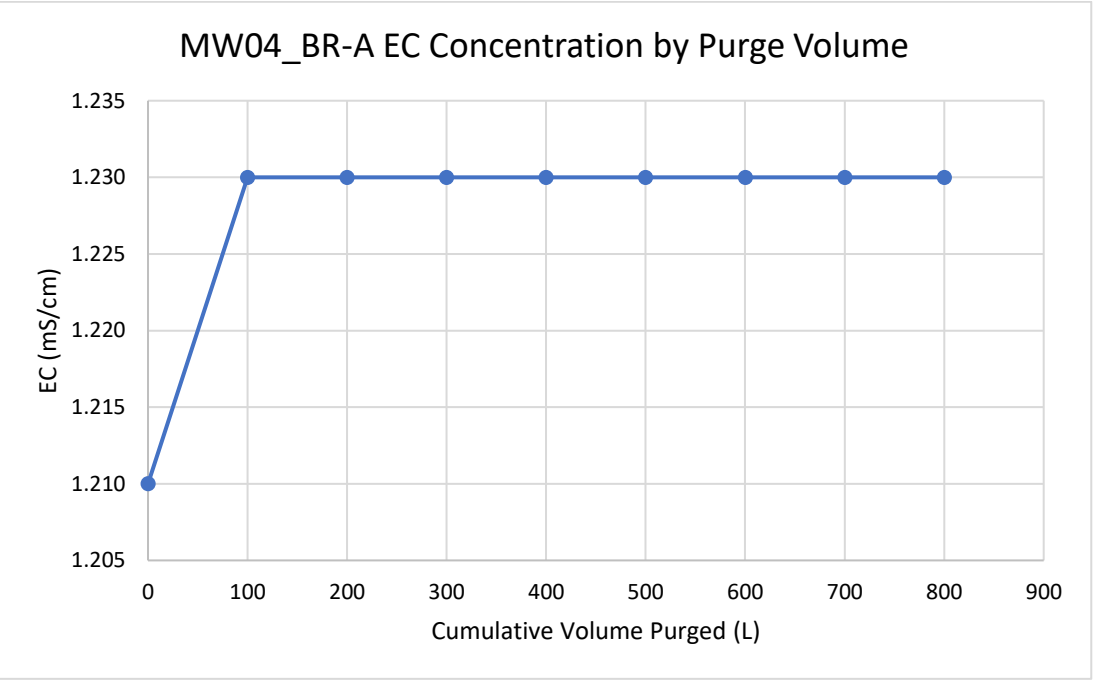
Sample Interval: SB_MW04_BR-A	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: JLB, LMB	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

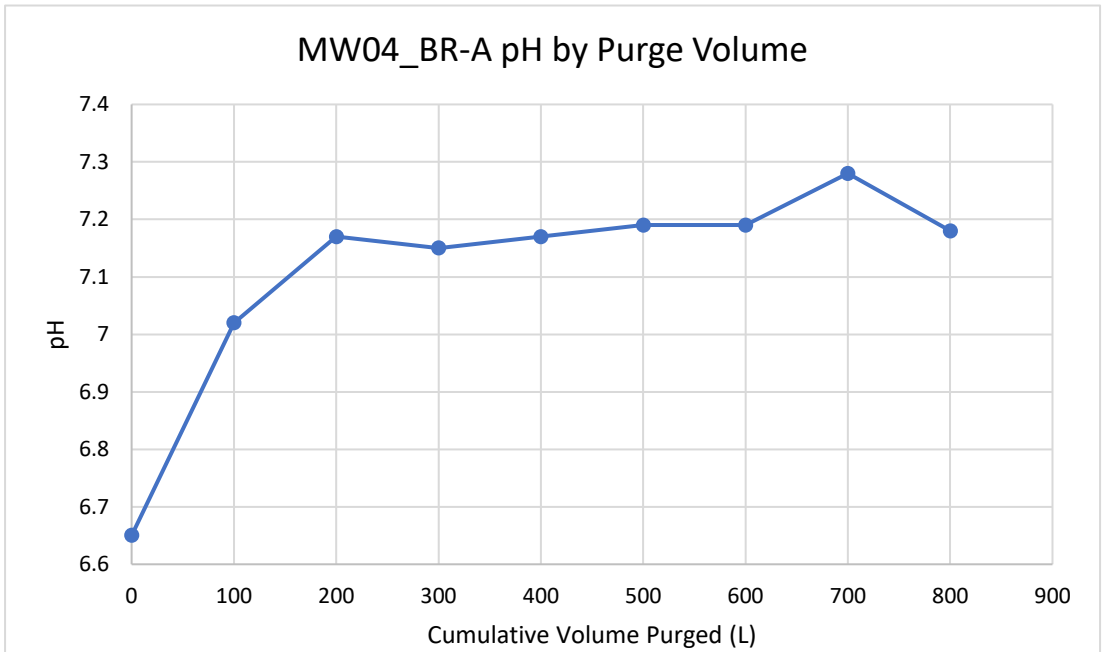
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-13	9:26	JLB/LMB	0	0	Y	6.65	8.14	1.210	38	0.46	120	Y	0.22	N	**Initial measurement**
2022-01-13	9:46	JLB/LMB	100	100	Y	7.02	7.76	1.23	-9	0	38.1	Y	0.051	N	
2022-01-13	10:04	JLB/LMB	100	200	Y	7.17	7.7	1.23	-13	0.13	12.1	Y	0.000	N	
2022-01-13	10:17	JLB/LMB	100	300	Y	7.15	7.78	1.23	-3	0.31	11.8	Y	0.071	N	
2022-01-13	10:34	JLB/LMB	100	400	Y	7.17	7.8	1.23	-8	0	8.2	Y	0.048	N	
2022-01-13	10:50	JLB/LMB	100	500	Y	7.19	7.81	1.23	0	0	5	Y	0.000	N	
2022-01-13	11:07	JLB/LMB	100	600	Y	7.19	7.83	1.23	0	0	5	Y	0.010	N	
2022-01-13	11:26	JLB/LMB	100	700	Y	7.28	7.88	1.23	0	0	5.2	Y	0.002	N	
2022-01-13	11:44	JLB/LMB	100	800	Y	7.18	7.93	1.23	-2	0	3.6	Y	0.000	N	Final measurement, parameters stable, 8 well volumes purged
															`

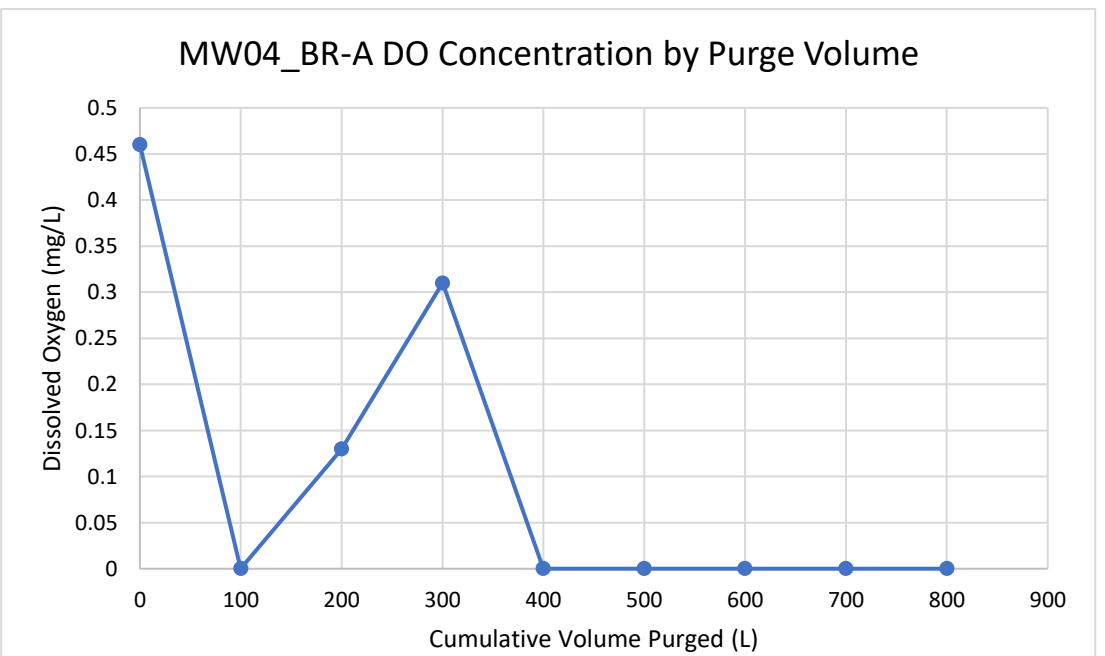
Completed by:	JLB/LMB	Verified by:	AMSC
Date:	2022-01-13	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

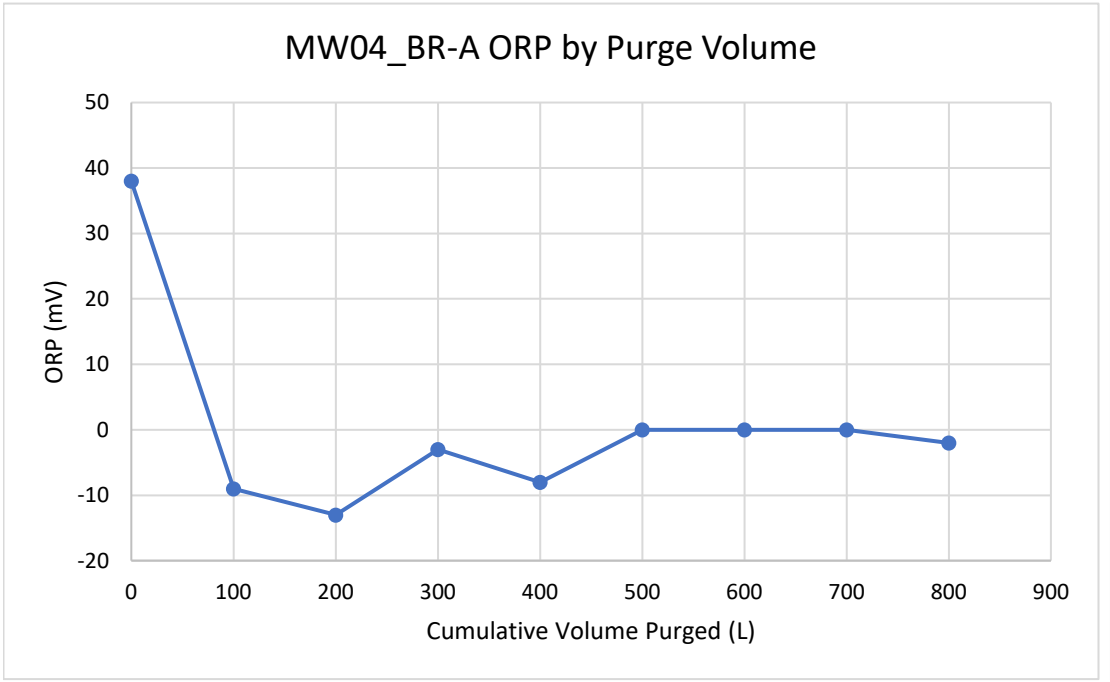


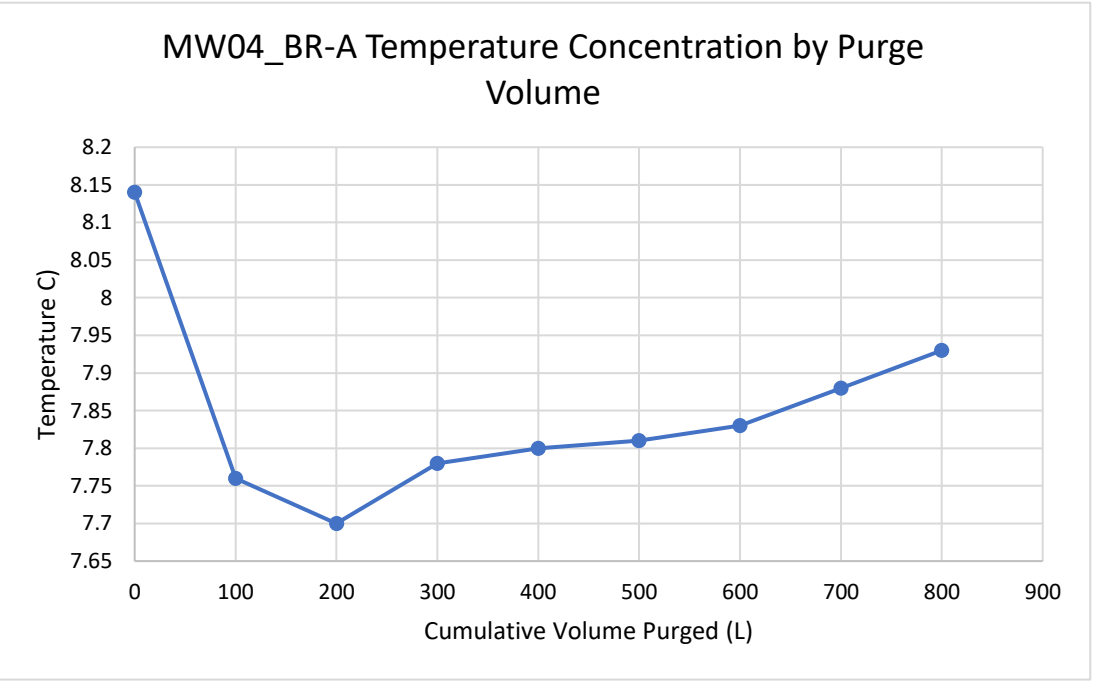


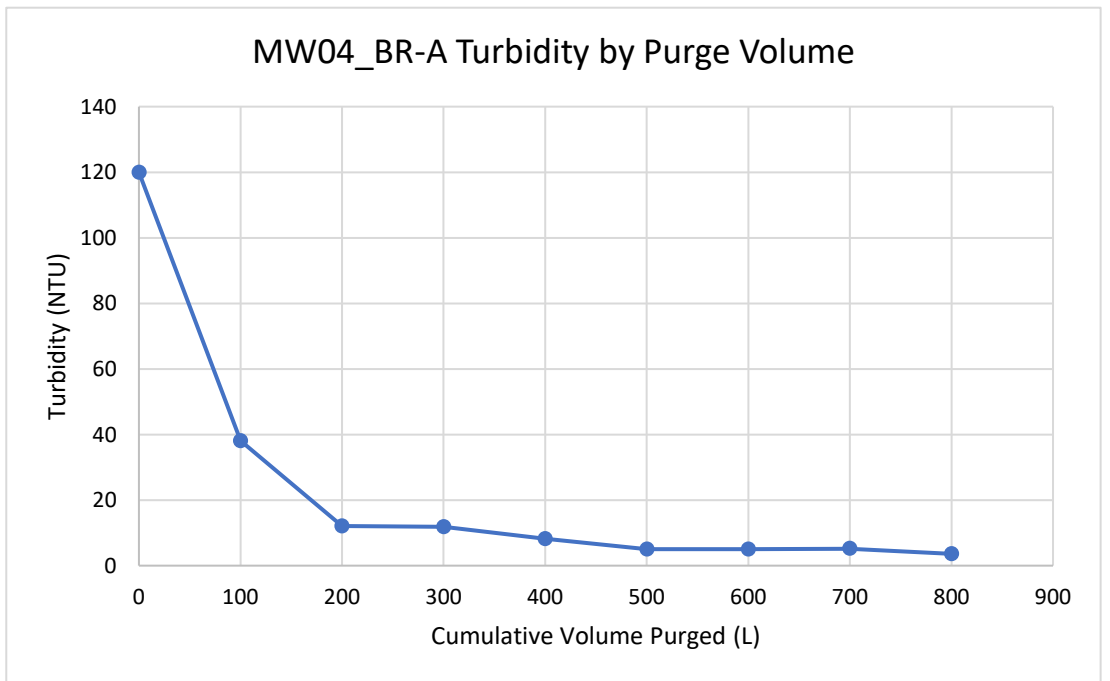




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







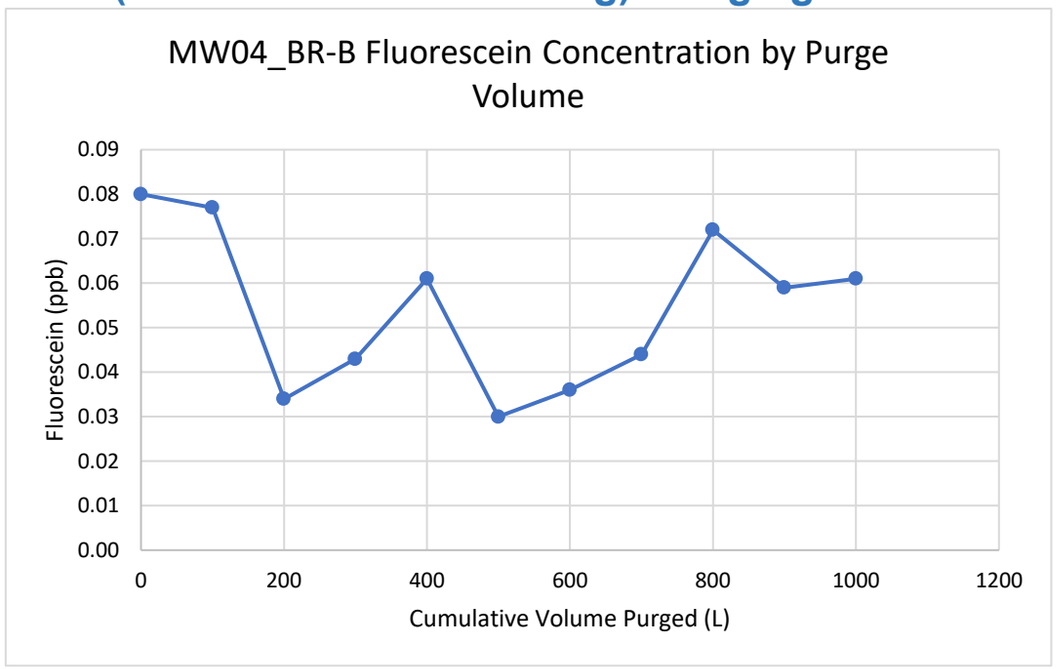
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

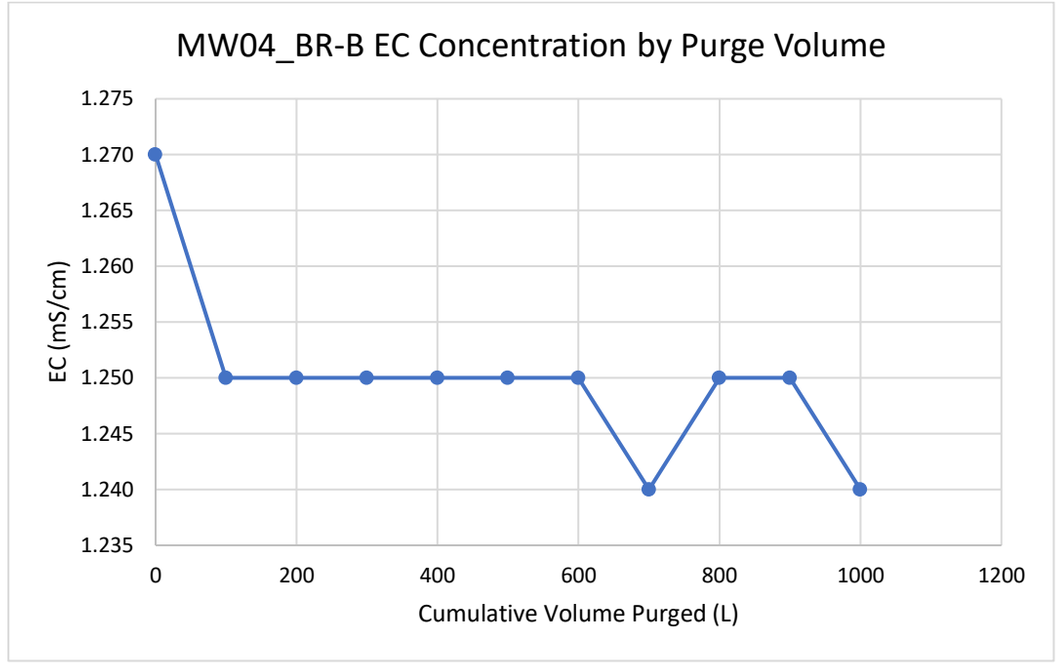
Sample Interval: SB_MW04_BR-B	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: JLB, LMB	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

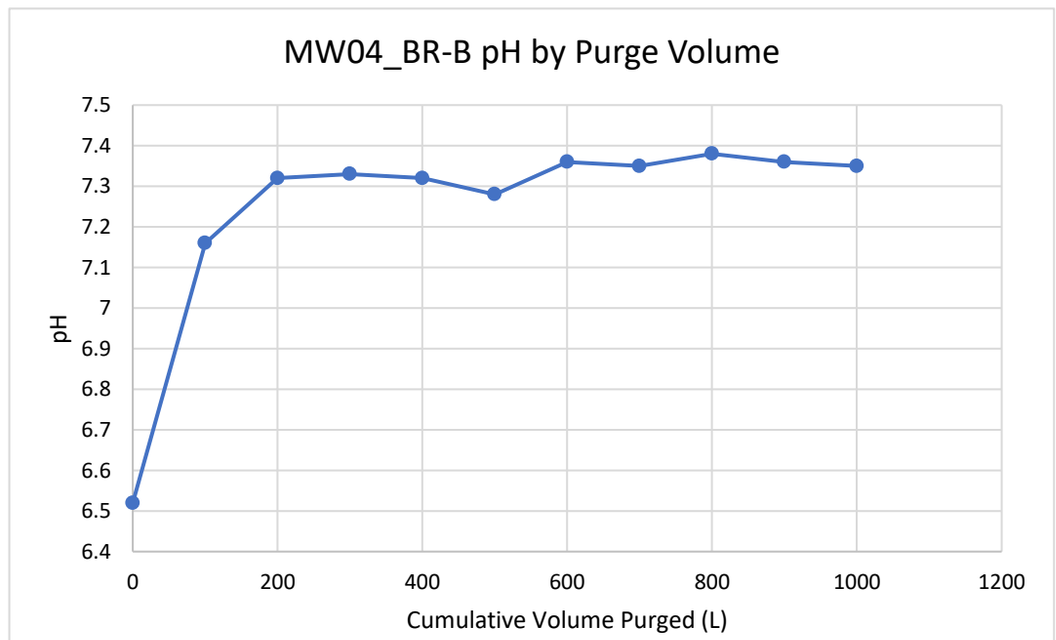
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-12	9:58	JLB/LMB	0	0	Y	6.52	7.75	1.270	144	0.039	660	Y	0.08	N	Initial measurement
2022-01-12	10:20	JLB/LMB	100	100	Y	7.16	7.77	1.25	65	0.11	265	Y	0.077	N	
2022-01-12	10:42	JLB/LMB	100	200	Y	7.32	7.75	1.25	70	0.02	117	Y	0.034	N	
2022-01-12	11:02	JLB/LMB	100	300	Y	7.33	7.79	1.25	33	0	71.1	Y	0.043	N	
2022-01-12	11:20	JLB/LMB	100	400	Y	7.32	7.76	1.25	31	0	59.8	Y	0.061	N	
2022-01-12	11:38	JLB/LMB	100	500	Y	7.28	7.76	1.25	42	0	20.4	Y	0.030	N	
2022-01-12	11:58	JLB/LMB	100	600	Y	7.36	7.82	1.25	38	0	1.5	Y	0.036	N	
2022-01-12	12:15	JLB/LMB	100	700	Y	7.35	7.78	1.24	38	0	0	Y	0.044	N	
2022-01-12	12:38	JLB/LMB	100	800	Y	7.38	7.82	1.25	34	0	39.7	Y	0.072	N	
2022-01-12	12:51	JLB/LMB	100	900	Y	7.36	7.79	1.25	32	0	0	Y	0.059	N	
2022-01-12	13:06	JLB/LMB	100	1000	Y	7.35	7.78	1.24	29	0	0	Y	0.061	N	Final measurement, 10 well volumes purged

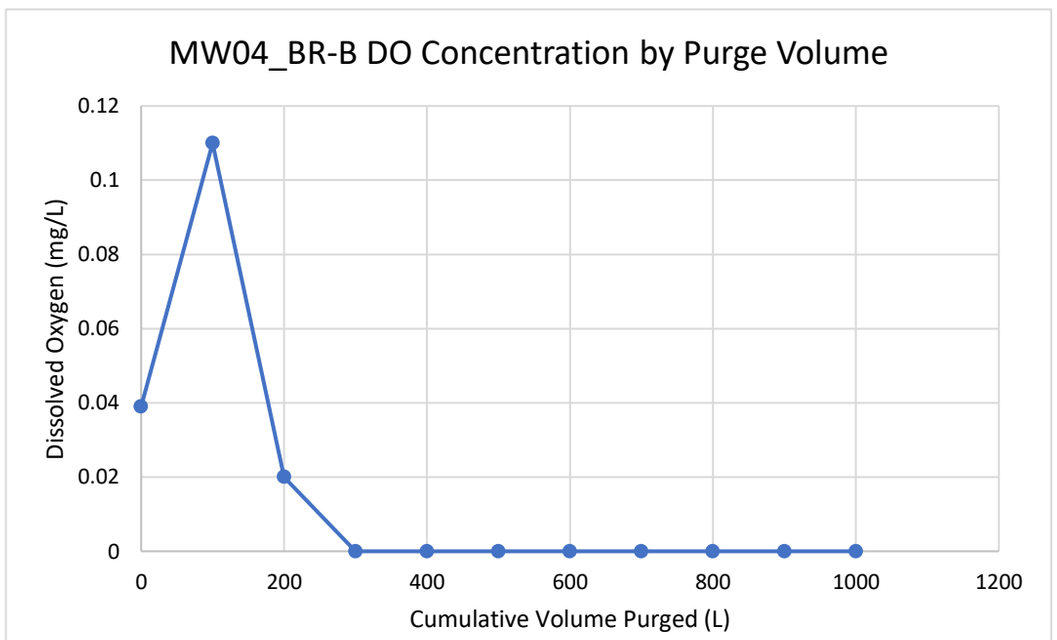
Completed by: JLB, LMB	Verified by: AMSC
Date: 2022-01-12	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

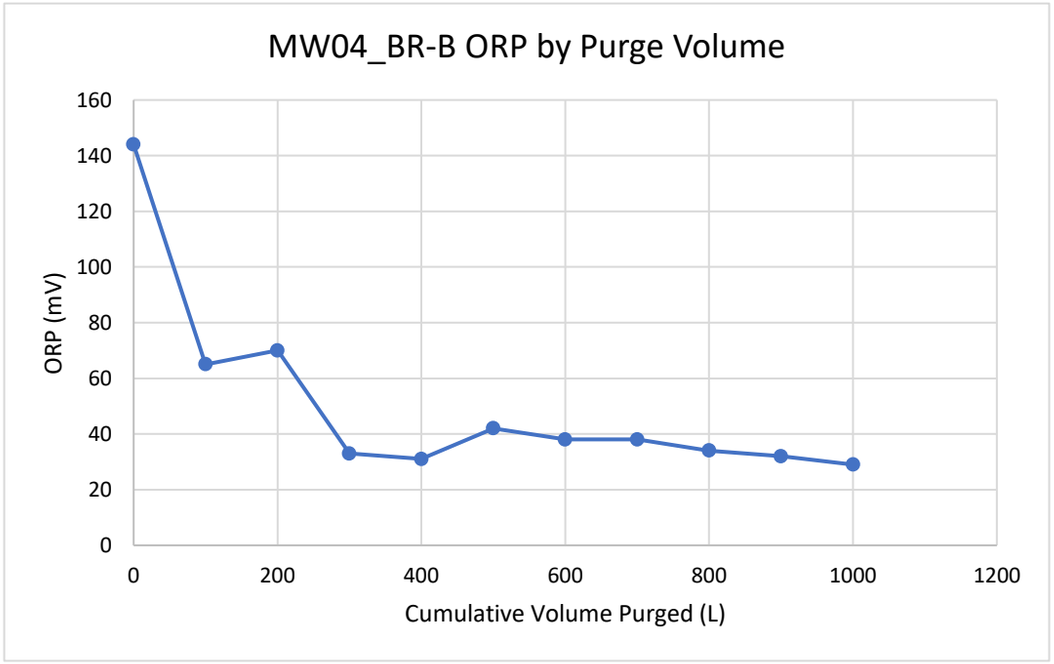


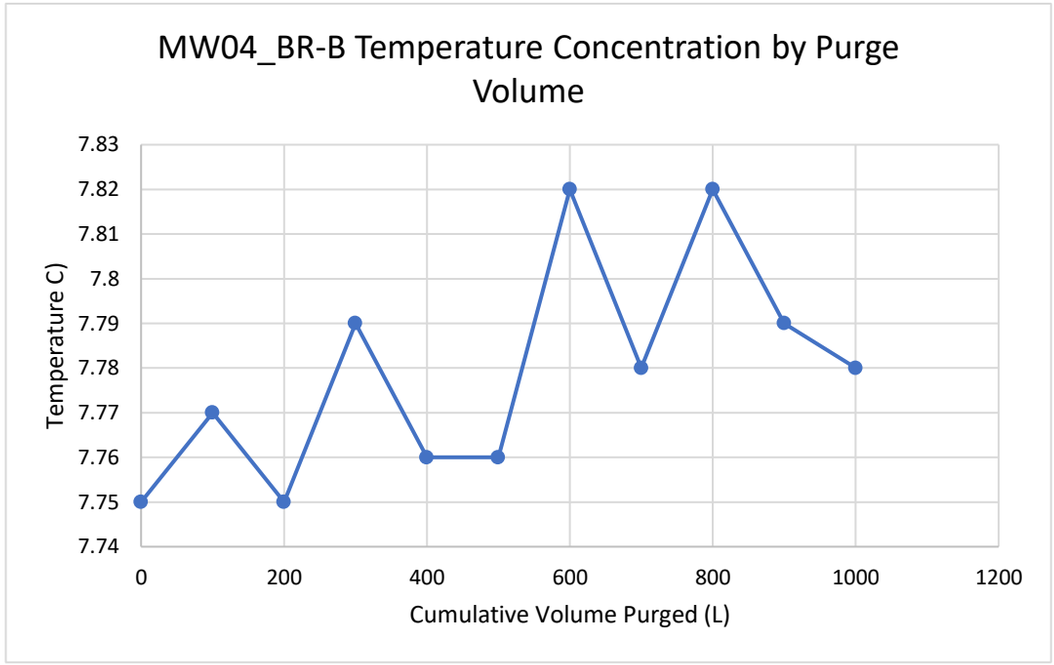


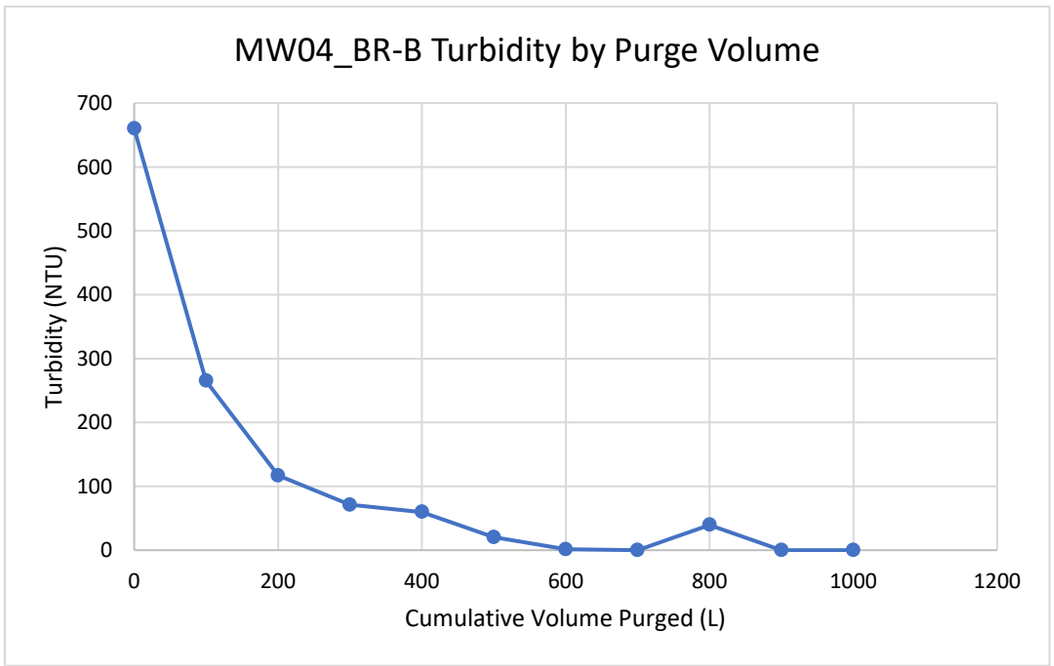




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







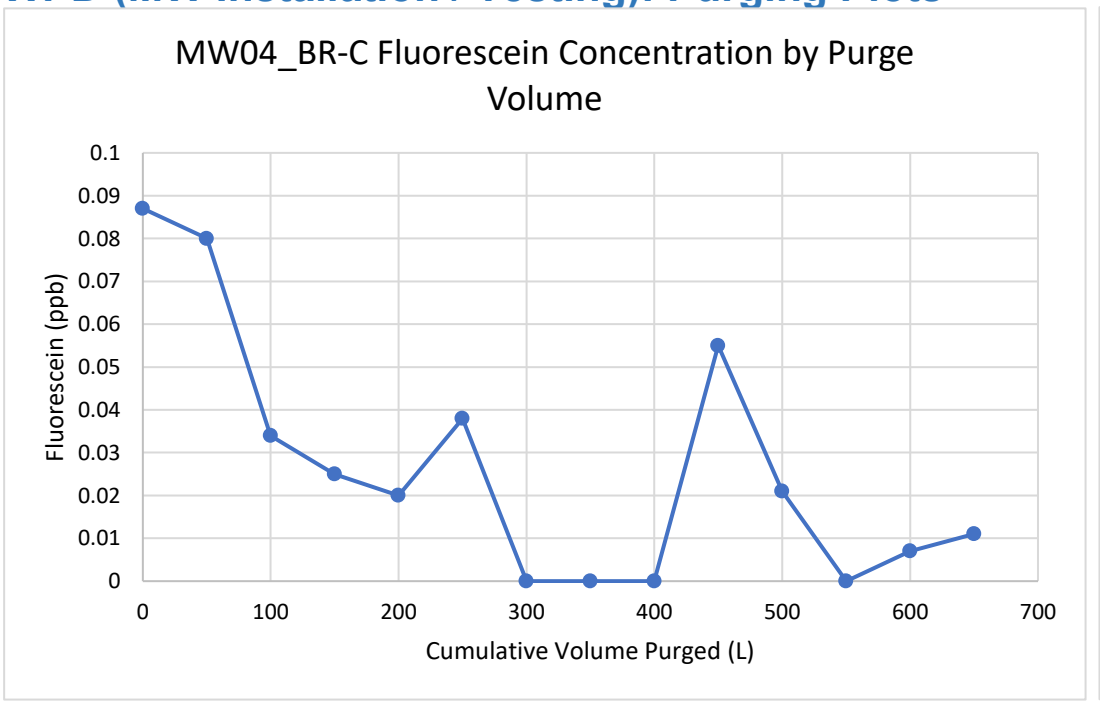
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

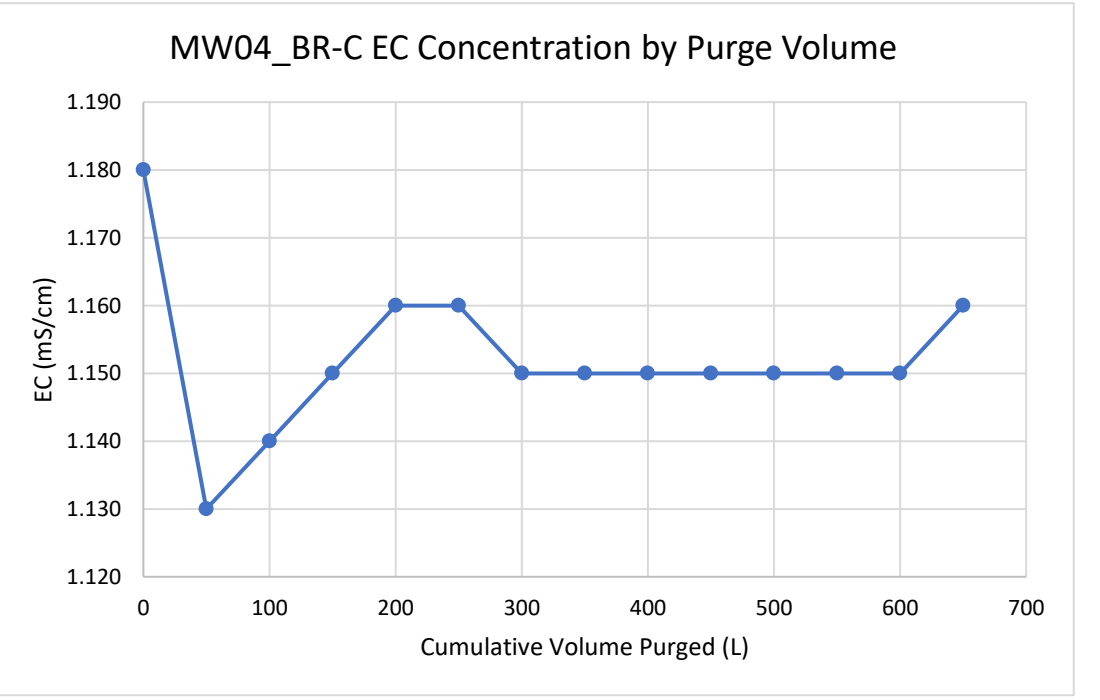
Sample Interval: SB_MW04_BR-C	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: JLB, LMB	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

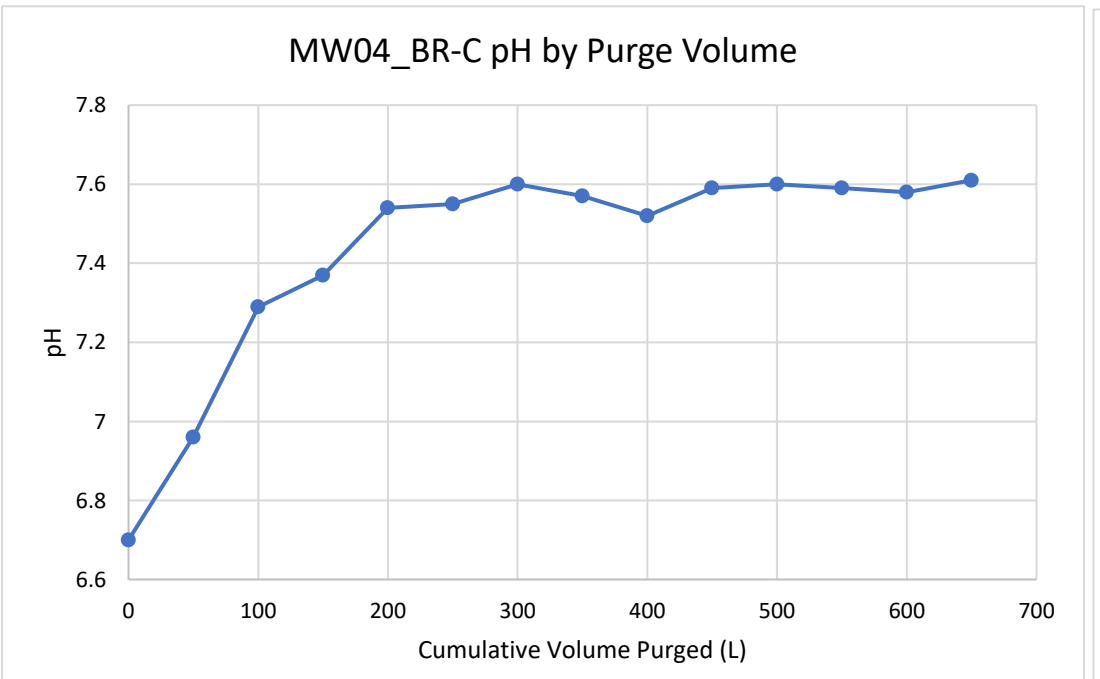
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-11	11:10	JLB.LMB	0	0	Y	6.7	8.37	1.180	346	1.42	>1000	Y	0.087	N	**Initial measurement; pump on @11:10**
2022-01-11	11:34	JLB.LMB	50	50	Y	6.96	7.33	1.13	318	0.73	765	Y	0.080	N	
2022-01-11	11:46	JLB.LMB	50	100	Y	7.29	7.23	1.14	239	0.44	764	Y	0.034	N	
2022-01-11	11:54	JLB.LMB	50	150	Y	7.37	7.27	1.15	190	0.68	344	Y	0.025	N	
2022-01-11	12:05	JLB.LMB	50	200	Y	7.54	7.11	1.16	170	0.14	211	Y	0.020	N	
2022-01-11	12:27	JLB.LMB	50	250	Y	7.55	7.06	1.16	170	0	231	Y	0.038	N	
2022-01-11	12:45	JLB.LMB	50	300	Y	7.6	7.08	1.15	120	0	71.5	Y	0.000	N	
2022-01-11	13:15	JLB.LMB	50	350	Y	7.57	7.03	1.15	148	0	92.3	Y	0.000	N	
2022-01-11	13:28	JLB.LMB	50	400	Y	7.52	7.08	1.15	134	0	147	Y	0.000	N	
2022-01-11	13:45	JLB.LMB	50	450	Y	7.59	6.99	1.15	157	0	104	Y	0.055	N	
2022-01-11	14:03	JLB.LMB	50	500	Y	7.6	6.96	1.15	134	0	55.7	Y	0.021	N	
2022-01-11	14:22	JLB.LMB	50	550	Y	7.59	6.96	1.15	141	0	56	Y	0.000	N	
2022-01-11	14:30	JLB.LMB	50	600	Y	7.58	6.8	1.15	155	0	49.2	Y	0.007	N	
2022-01-11	15:00	JLB.LMB	50	650	Y	7.61	6.98	1.16	125	0	262	Y	0.011	N	Last measurement; pump off @ 15:00, 10 well volumes purged, groundwater visibly more murky than previous few measurements

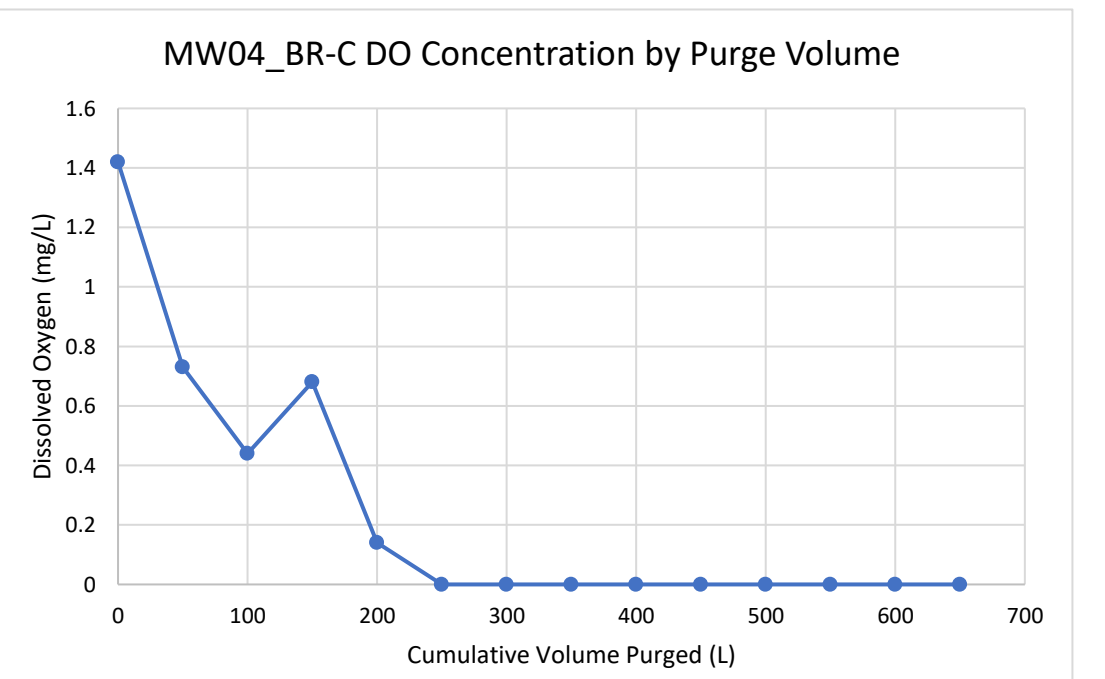
Completed by: JLB, LMB	Verified by: AMSC
Date: 2022-01-12	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

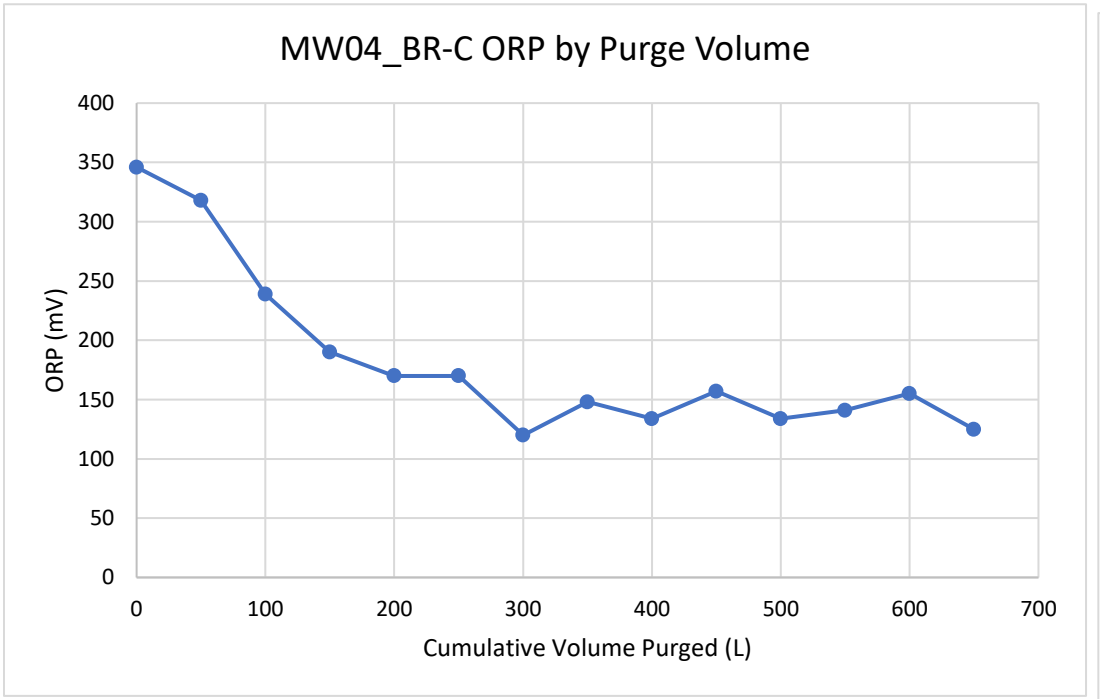


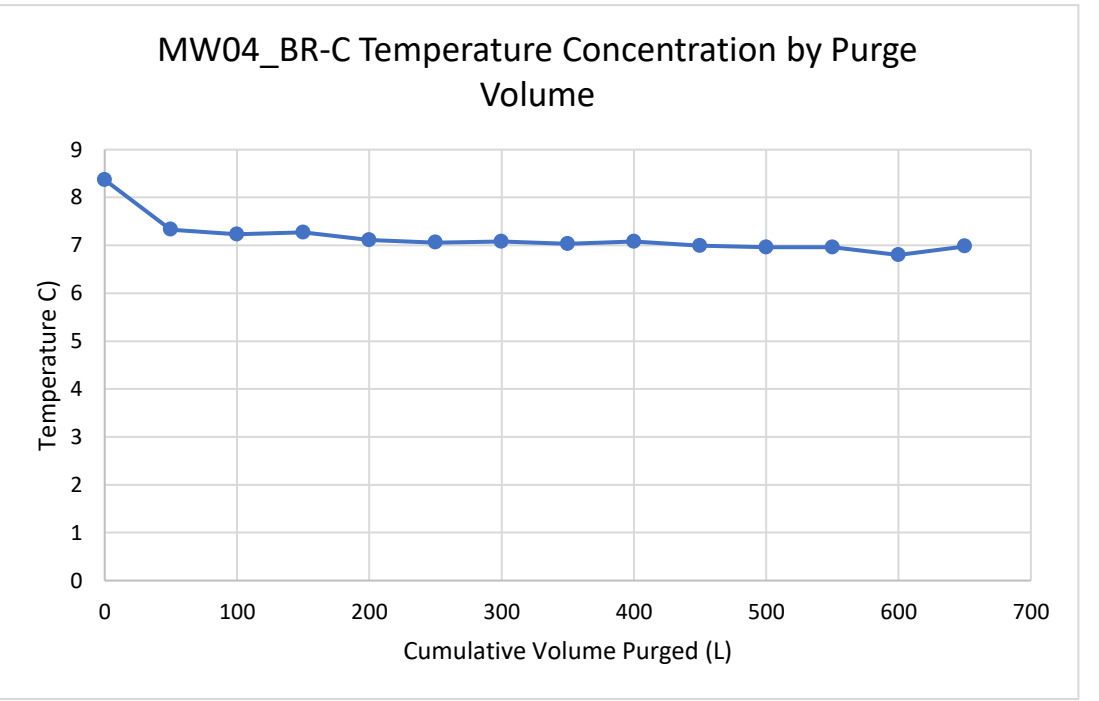


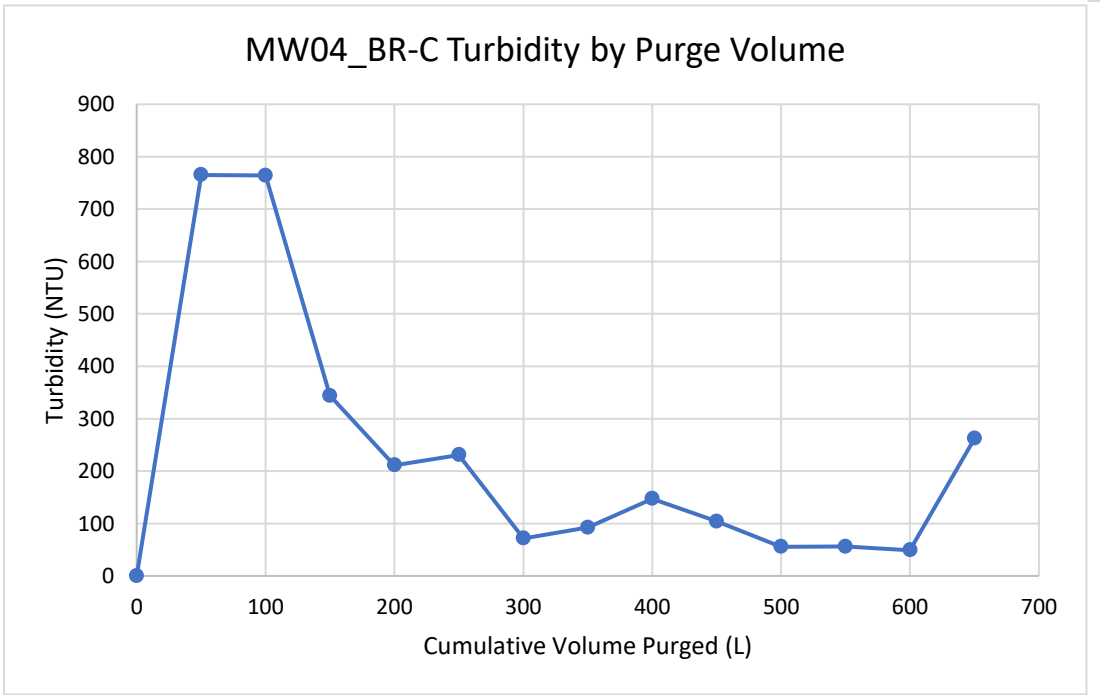




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







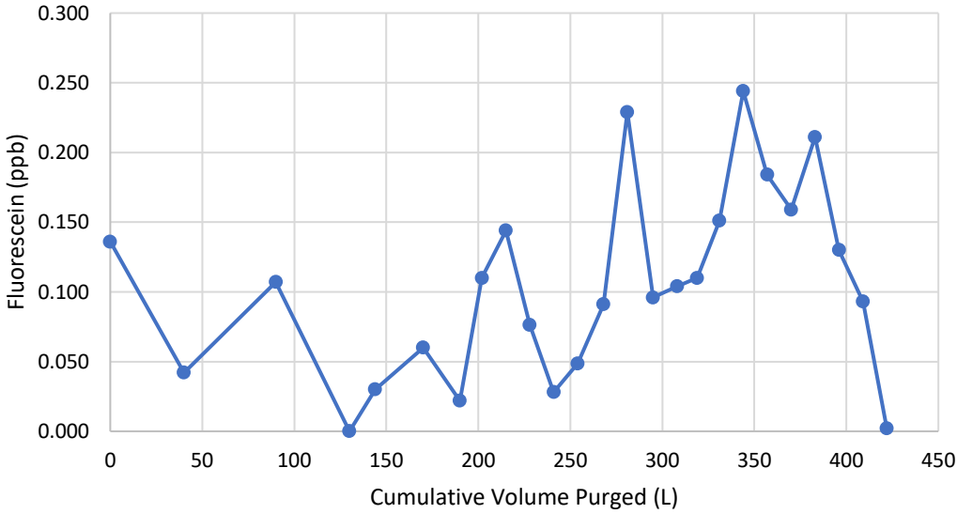
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

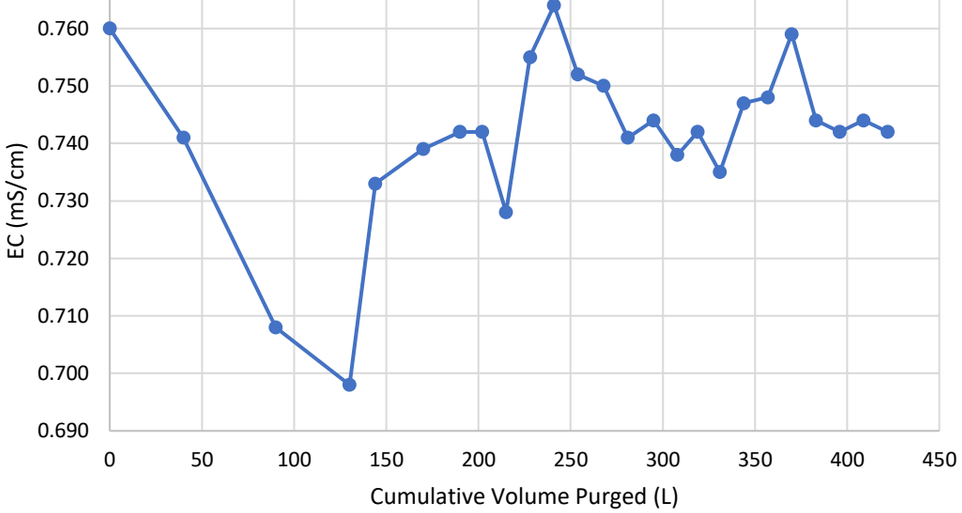
Sample Interval:	SB_MW05_OB-int	Multiparameter Probe:	Horiba U52 (SN.RHE67A2F)	Comments:	
Sampling Personnel:	LIM, BFS, FJH	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

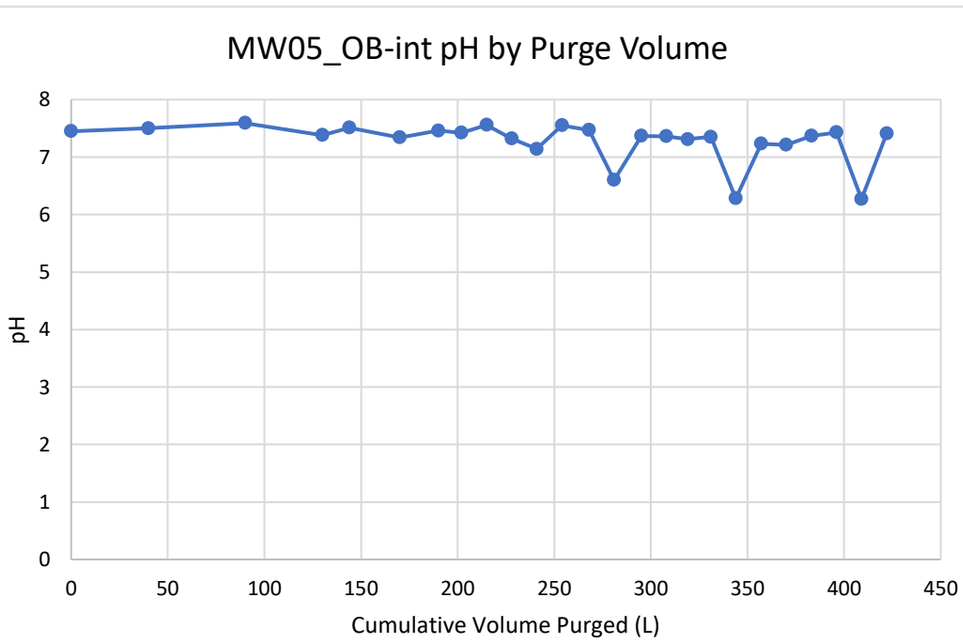
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-23	15:10	LIM/FJH/BFS	0	0	Y	7.45	4.5	0.760	157	6.23	1000	Y	0.136	N	Turbidity >1000NTU. Initial field parameters of brown silty water. Tubing froze shortly after these measurements were taken and blocked flow.
2022-01-24	11:20	LIM/BFS	40	40	Y	7.50	4.94	0.741	66	9.91	1000	Y	0.042	N	Turbidity >1000NTU
2022-01-24	14:50	LIM/BFS	50	90	Y	7.59	8.28	0.708	22	2.89	1000	Y	0.107	N	Turbidity >1000NTU. Tubing froze again after previous measurement and before this measurement (plugged with ice despite insulation efforts)
2022-01-24	16:40	LIM/BFS	40	130	Y	7.38	8.05	0.698	123	5.23	1000	Y	0.000	N	Turbidity >1000NTUTubing froze again after previous measurement and before this measurement
2022-01-25	11:30	LIM/BFS	14	144	Y	7.51	8.39	0.733	21	1.92	1000	Y	0.030	N	Turbidity >1000NTU. Very silty brown water, well ran dry after ~20 L of purging
2022-01-25	16:08	LIM/BFS	26	170	Y	7.34	0.857	0.739	65	3.01	1000	Y	0.060	N	Turbidity >1000NTU. Very silty brown water, well ran dry after ~20 L of purging
2022-01-26	12:30	LIM/BFS	20	190	Y	7.46	8.68	0.742	99	3.23	1000	Y	0.022	N	Turbidity >1000NTU. Previously purged at 10:16 and ran dry after 8L produced. Very silty brown water, well ran dry after 12L of purged
2022-01-26	14:40	LIM/BFS	12	202	Y	7.42	8.67	0.742	119	4.23	1000	Y	0.110	N	Turbidity >1000NTU. Very silty brown water with some very fine sand, well ran dry after 12L of purged
2022-01-26	17:24	LIM/BFS	13	215	Y	7.56	6.31	0.728	143	4.91	1000	Y	0.144	N	Very silty brown water with some very fine sand, well ran dry after 13L of purged. Air temperature significantly dropped as the sunset and wind picked up and likely affected temperature measurement
2022-01-27	8:25	LIM/BFS	13	228	Y	7.32	6.77	0.755	180	3.96	1000	Y	0.076	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-27	11:07	LIM/BFS	13	241	Y	7.14	8.18	0.764	186	4.21	1000	Y	0.028	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-27	14:36	LIM/BFS	13	254	Y	7.55	8.55	0.752	160	4.61	1000	Y	0.049	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-27	17:12	LIM/BFS	14	268	Y	7.47	8.12	0.750	106	3.69	1000	Y	0.091	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 14L purged
2022-01-28	8:01	BFS/FJH/LIM	13	281	Y	6.60	8.84	0.741	150	8.25	1000	Y	0.229	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-28	10:54	FJH/BFS	14	295	Y	7.37	8.40	0.744	-	-	1000	Y	0.096	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 14L purged
2022-01-28	13:24	FJH/BFS	13	308	Y	7.36	9.22	0.738	90	7.51	1000	Y	0.104	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-28	15:40	FJH/BFS	11	319	Y	7.31	9.11	0.742	90	8.71	1000	Y	0.110	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 11L purged
2022-01-28	17:23	FJH/BFS	12	331	Y	7.35	9.12	0.735	96	8.09	1000	Y	0.151	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 12L purged
2022-01-29	7:45	FJH/BFS	13	344	Y	6.28	8.13	0.747	164	4.07	1000	Y	0.244	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-29	10:50	FJH/BFS	13	357	Y	7.23	9.25	0.748	139	6.47	1000	Y	0.184	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-29	13:50	FJH/BFS	13	370	Y	7.21	8.97	0.759	168	4.02	1000	Y	0.159	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-29	16:46	FJH/BFS	13	383	Y	7.37	9.71	0.744	124	3.98	1000	Y	0.211	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-29	18:10	FJH/BFS	13	396	Y	7.43	9.48	0.742	139	4.04	1000	Y	0.130	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-30	7:40	FJH/BFS	13	409	Y	6.27	9.62	0.744	158	4.18	1000	Y	0.093	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged
2022-01-30	10:20	FJH/BFS	13	422	Y	7.41	9.97	0.742	168	4.09	1000	Y	0.002	N	Turbidity >1000NTU. Very silty brown water with some fine sand, well ran dry after 13L purged

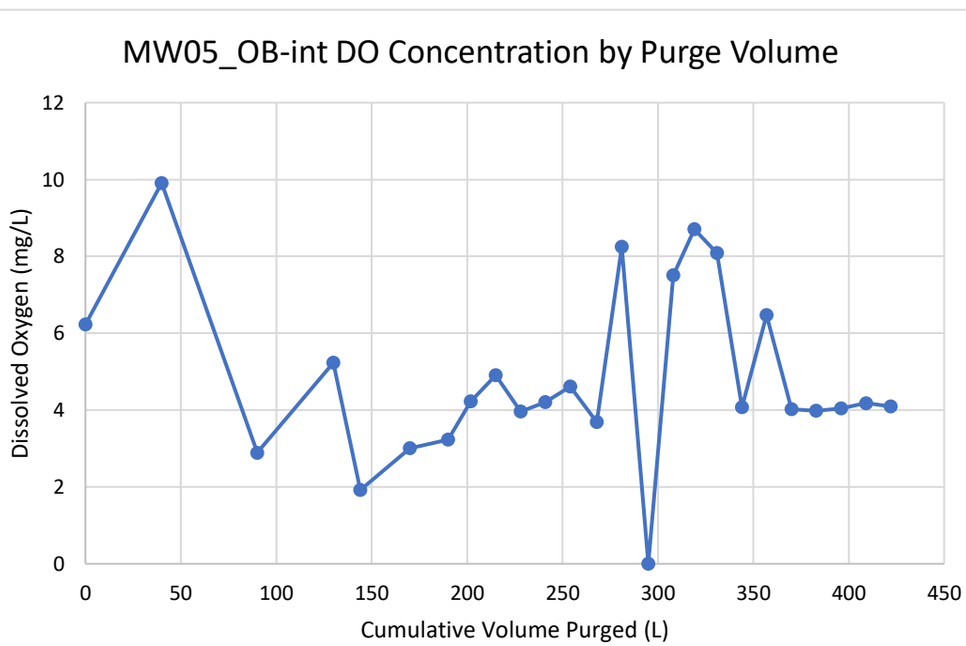
Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-30	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

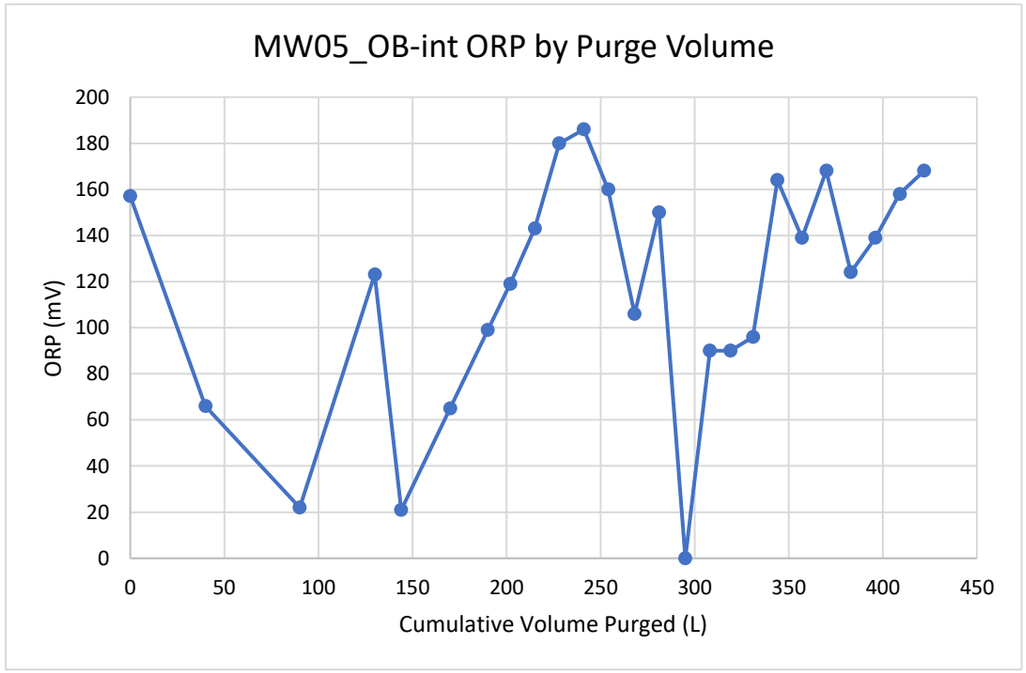


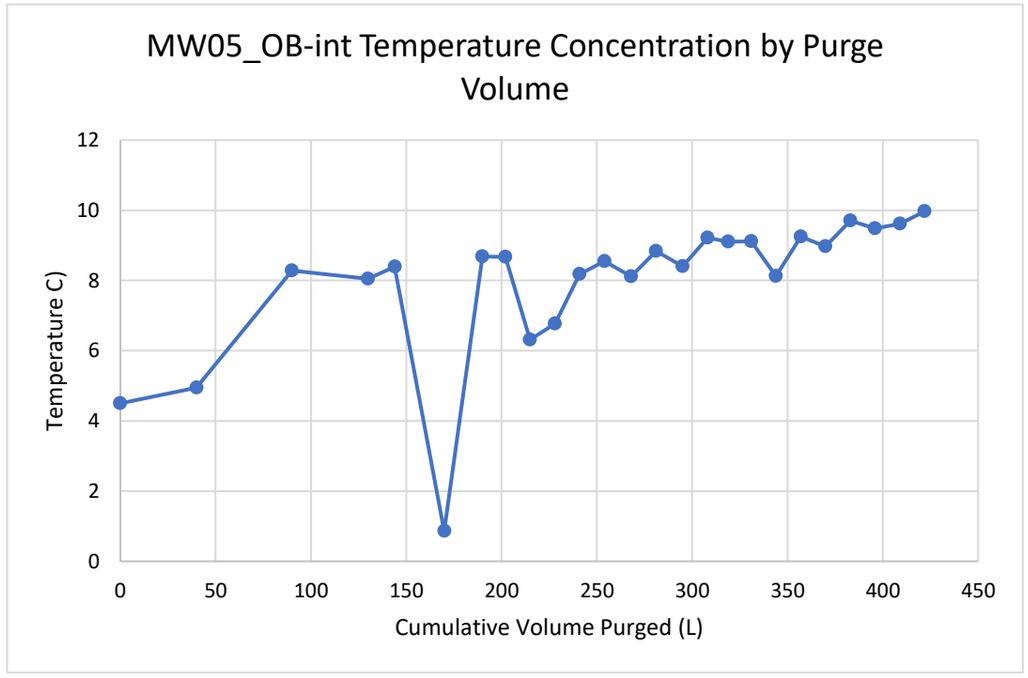


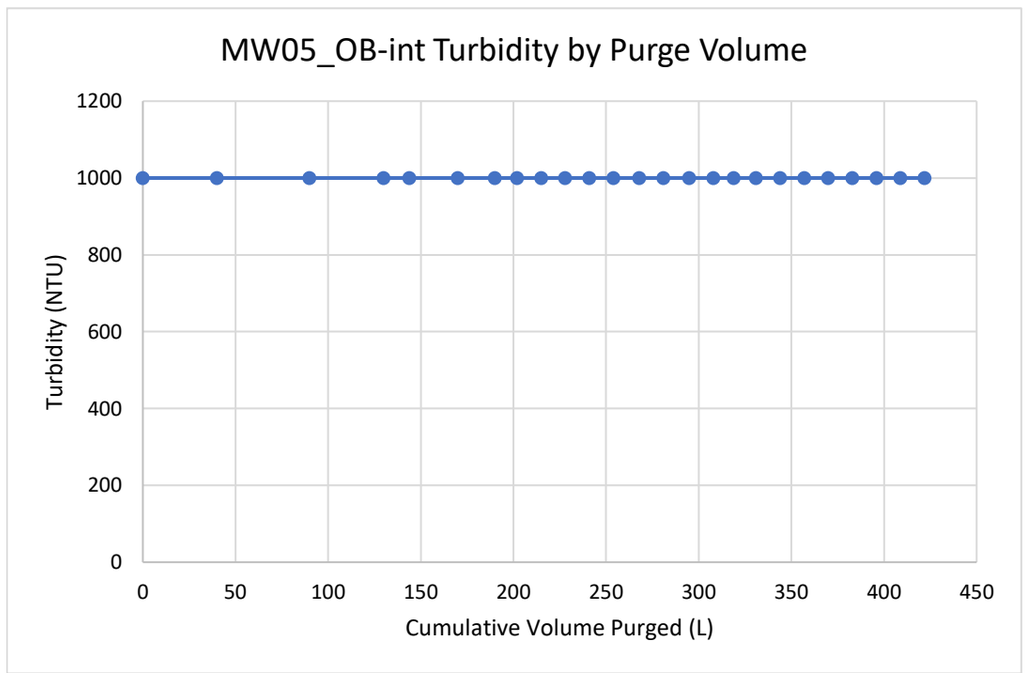




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







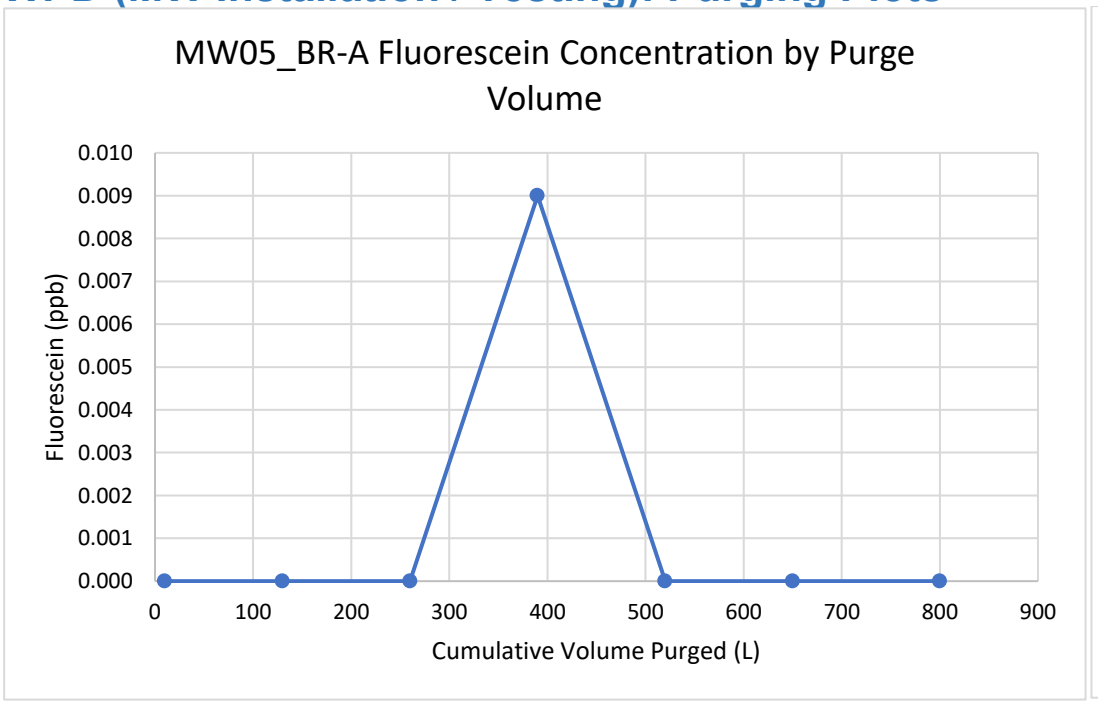
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

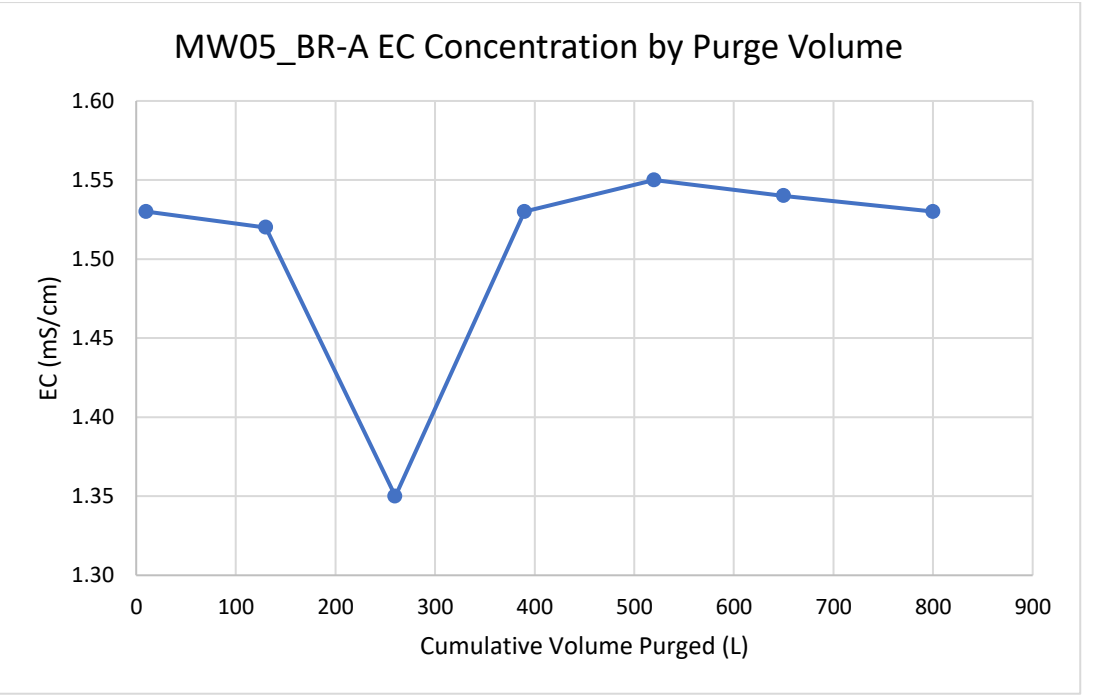
Sample Interval:	SB_MW05_BR-A	Multiparameter Probe:	Horiba U52 (SN.RHE67A2F)	Comments:	
Sampling Personnel:	LIM, BFS	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

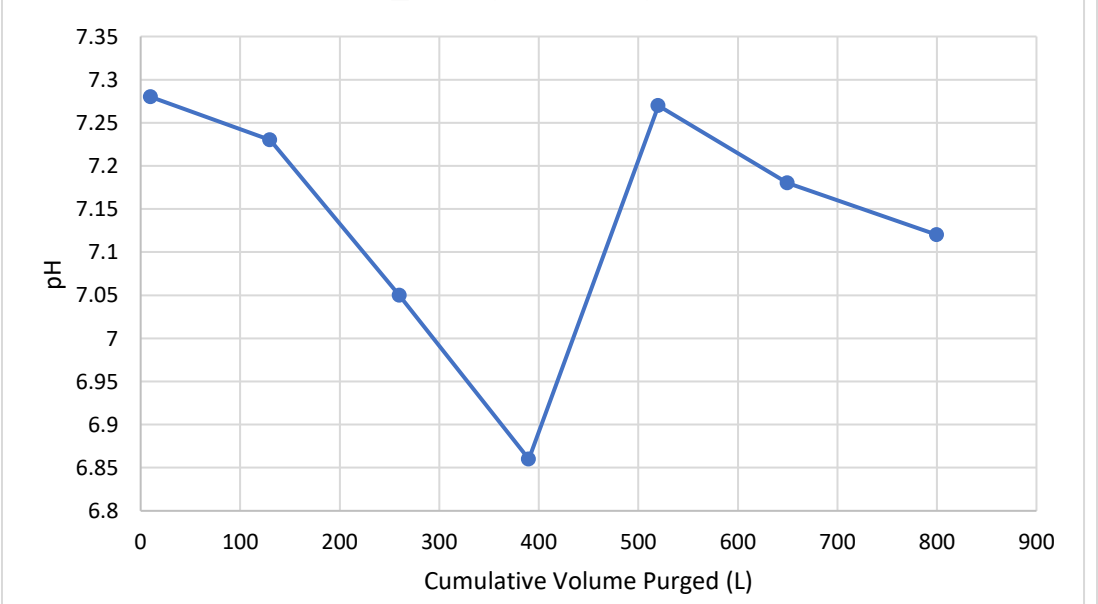
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-25	14:45	LIM/BFS	0	10	Y	7.28	8.66	1.53	-30	0.24	18.0	Y	0.000	N	clear water
2022-01-25	15:35	LIM/BFS	120	130	Y	7.23	9.38	1.52	-24	0.00	0.0	Y	0.000	N	clear water
2022-01-25	16:30	LIM/BFS	130	260	Y	7.05	9.02	1.35	-16	0.01	0.0	Y	0.000	N	clear water
2022-01-26	10:05	LIM/BFS	130	390	Y	6.86	9.21	1.53	-33	0.16	0.0	Y	0.009	N	clear water
2022-01-26	10:55	LIM/BFS	130	520	Y	7.27	9.07	1.55	-45	0.00	0.0	Y	0.000	N	clear water
2022-01-26	11:55	LIM/BFS	130	650	Y	7.18	9.20	1.54	-31	0.00	0.0	Y	0.000	N	clear water
2022-01-26	12:45	LIM/BFS	150	800	Y	7.12	9.02	1.53	-20	0.00	0.0	Y	0.000	N	clear water

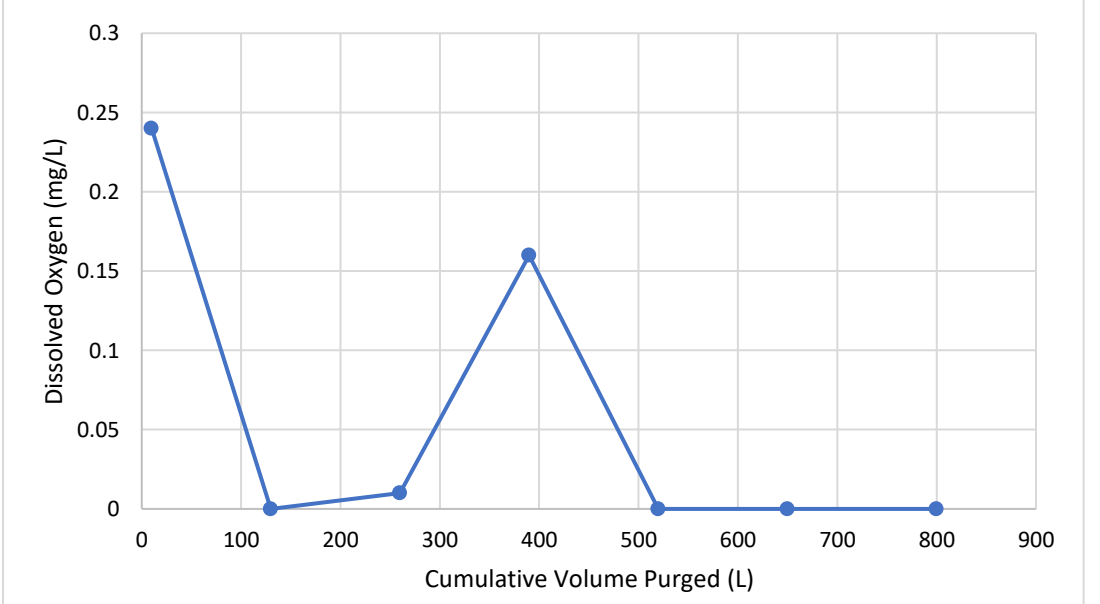
Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-26	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

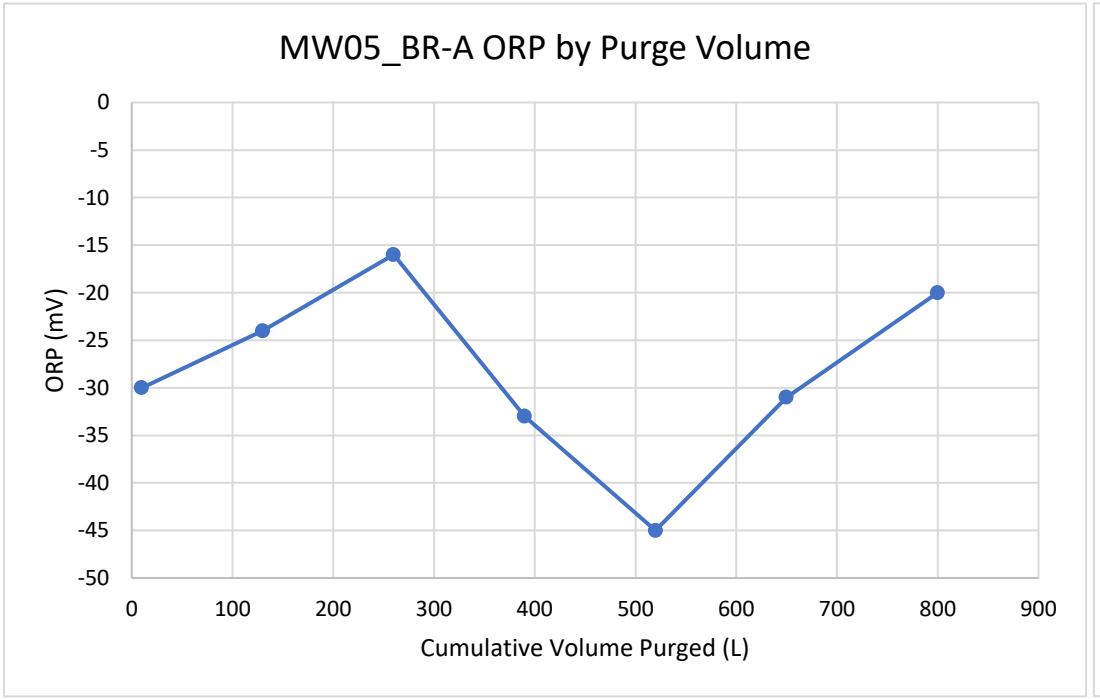


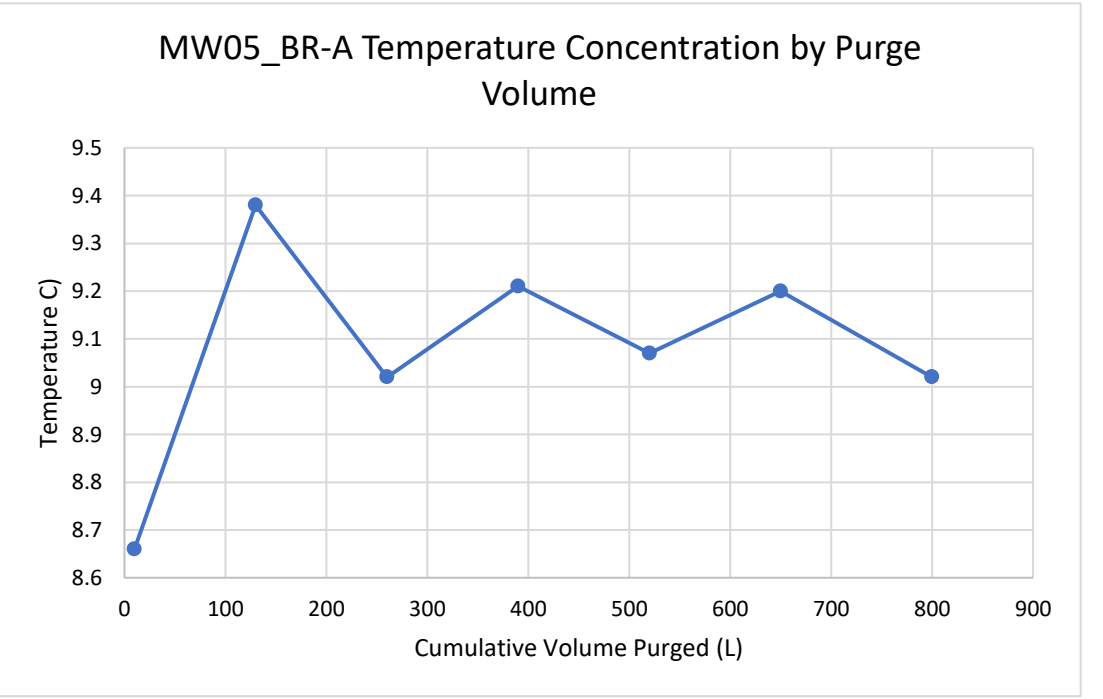


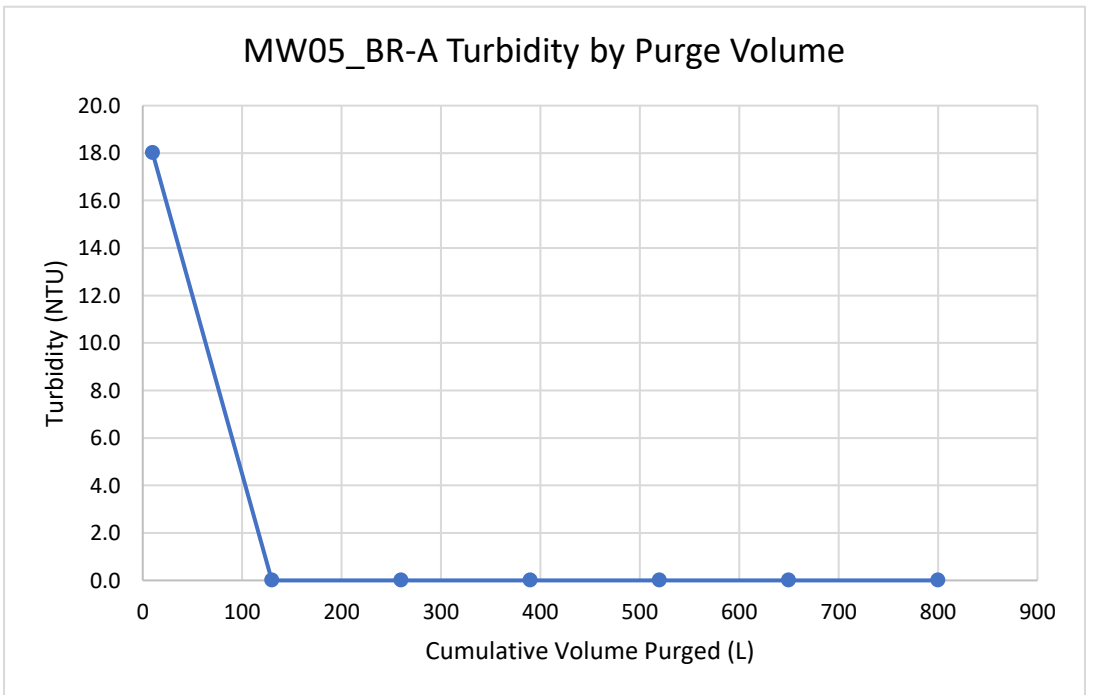




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







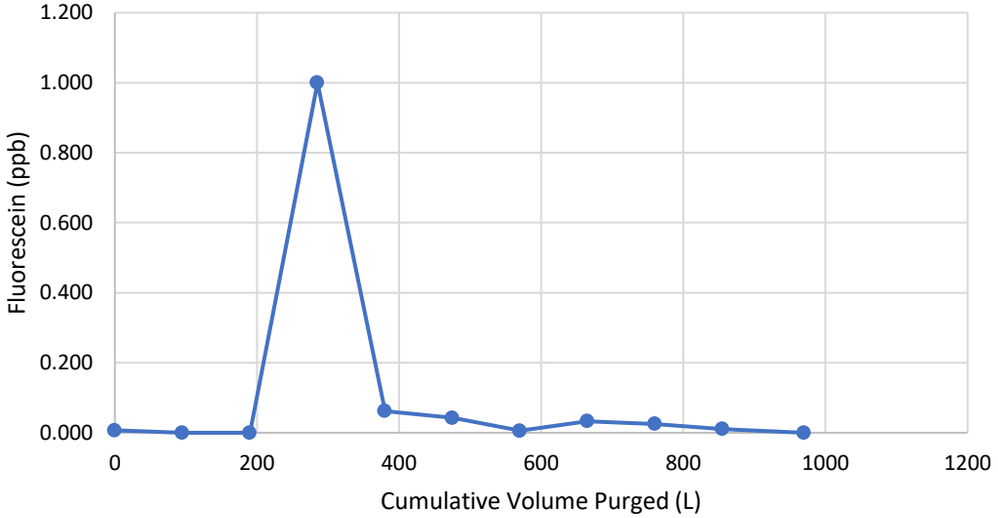
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

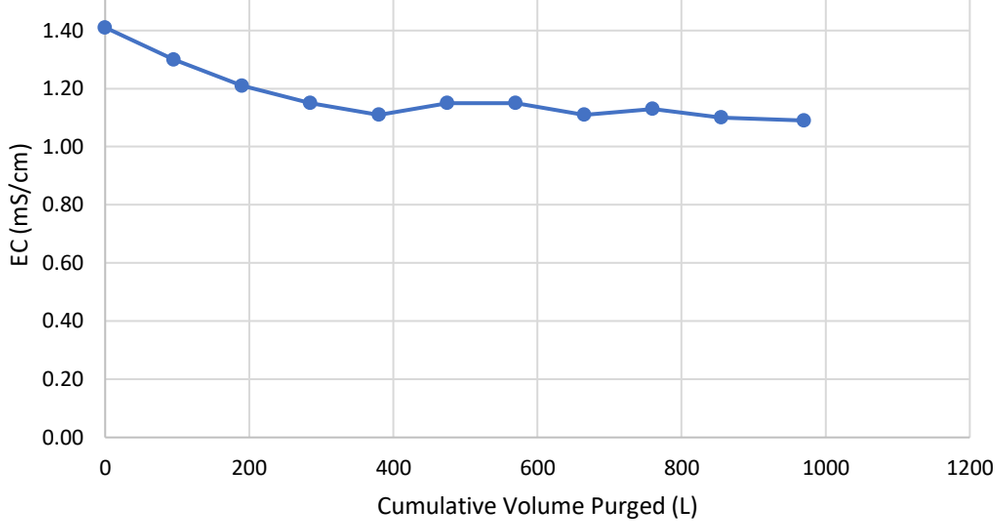
Sample Interval:	SB_MW05_BR-B	Multiparameter Probe:	Horiba U52 (SN.RHE67A2F)	Comments:	
Sampling Personnel:	LIM, BFS	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

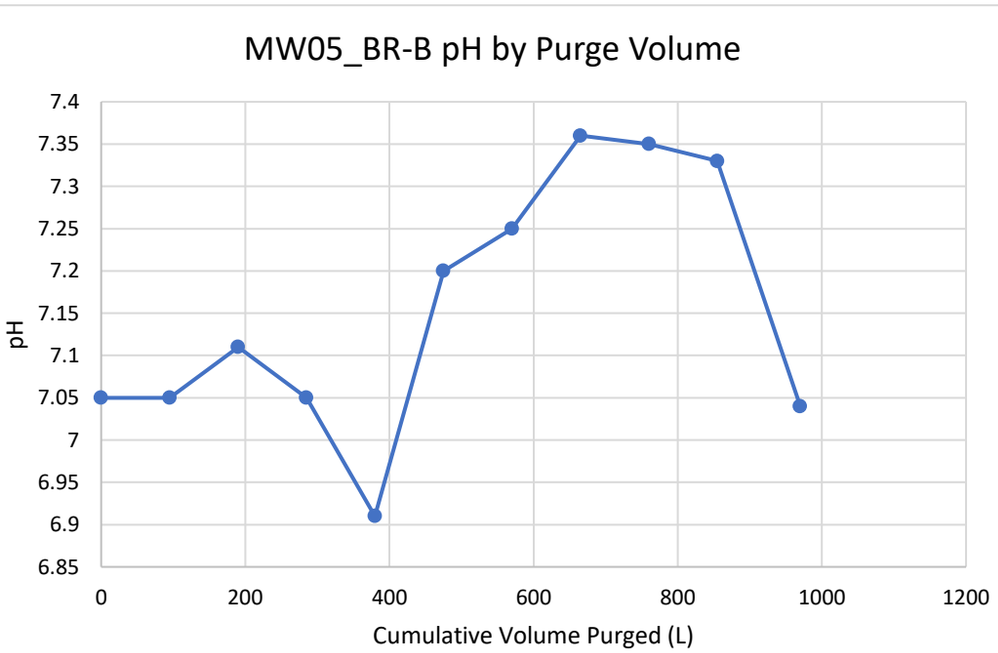
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-24	13:10	LIM/BFS	0	0	Y	7.05	9.26	1.41	-76	0.76	35.9	Y	0.007	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-24	13:50	LIM	95	95	Y	7.05	8.79	1.30	-51	0.60	26.8	Y	0.000	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-24	14:40	LIM/BFS	95	190	Y	7.11	8.83	1.21	-49	0.23	26.4	Y	0.000	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-24	15:30	LIM/BFS	95	285	Y	7.05	8.66	1.15	-41	0.00	37.2	Y	1.000	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	10:15	LIM/BFS	95	380	Y	6.91	9.25	1.11	-66	0.64	1.3	Y	0.062	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	10:40	LIM/BFS	95	475	Y	7.20	9.03	1.15	-52	0.20	13.1	Y	0.042	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	11:05	LIM/BFS	95	570	Y	7.25	9.23	1.15	-44	0.24	26.3	Y	0.006	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	11:40	LIM/BFS	95	665	Y	7.36	9.34	1.11	-40	0.38	15.9	Y	0.033	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	12:20	LIM/BFS	95	760	Y	7.35	9.07	1.13	-36	0.07	7.4	Y	0.025	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	13:10	LIM/BFS	95	855	Y	7.33	9.33	1.10	-37	0.09	0.0	Y	0.011	N	clear with water with some bubbles with a sheen forming on the surface
2022-01-25	13:55	LIM/BFS	115	970	Y	7.04	8.92	1.09	-26	0.016	0.0	Y	0.000	N	clear with water with some bubbles with a sheen forming on the surface

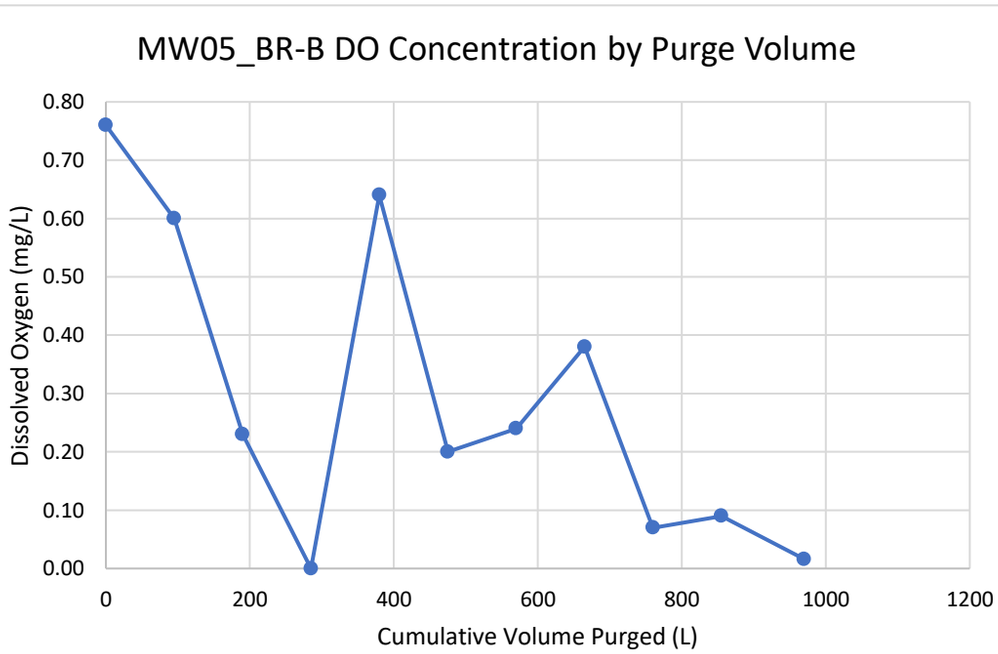
Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-25	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

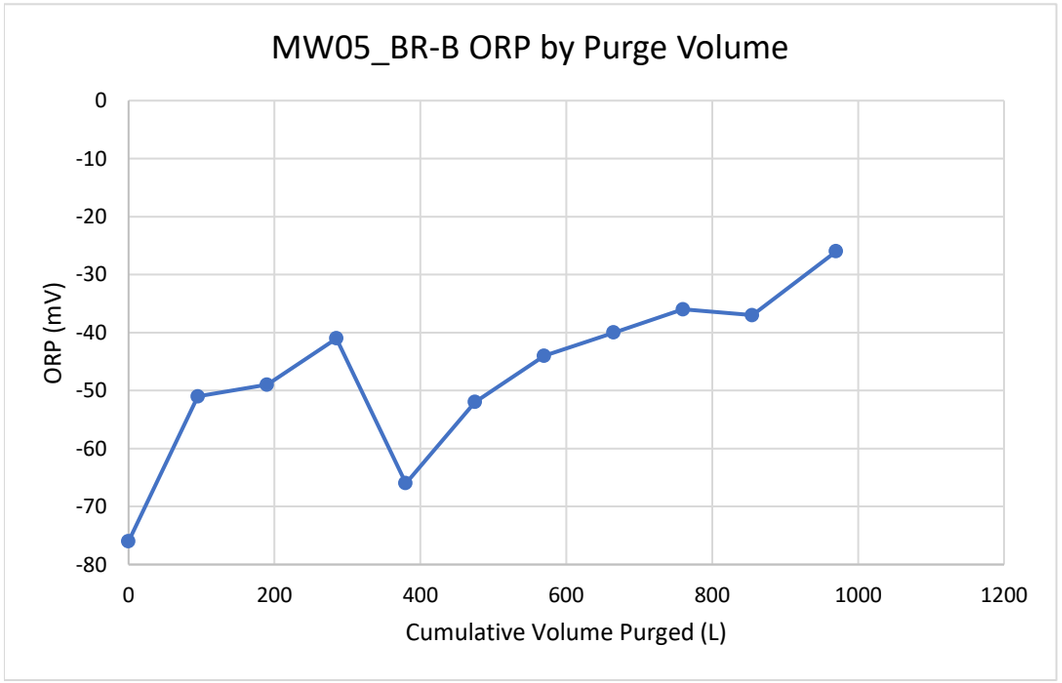


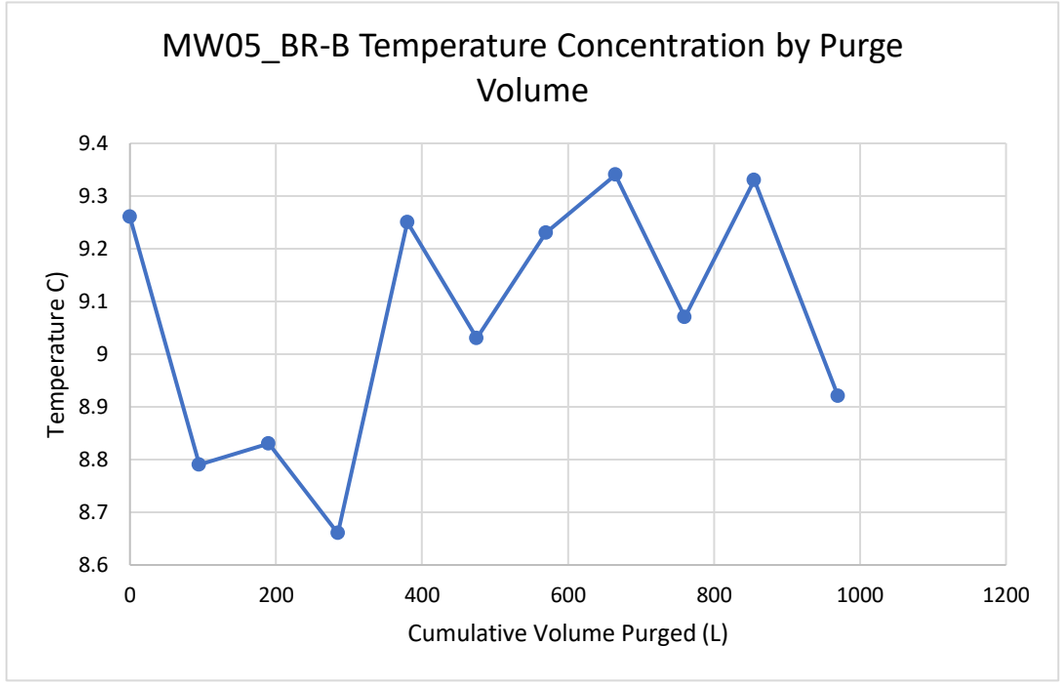


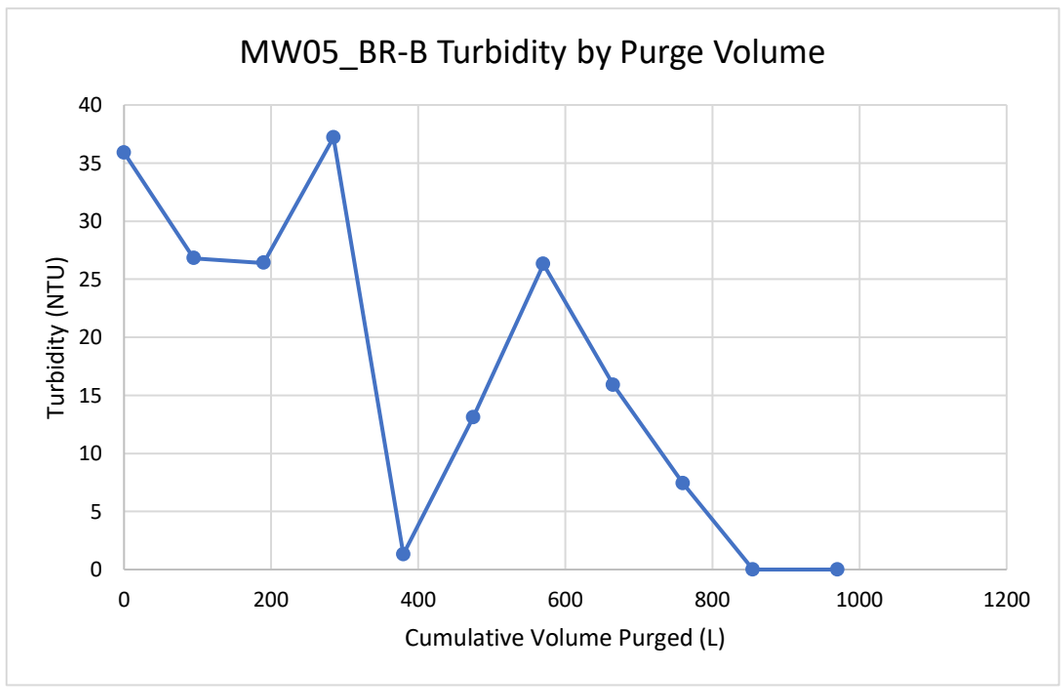




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







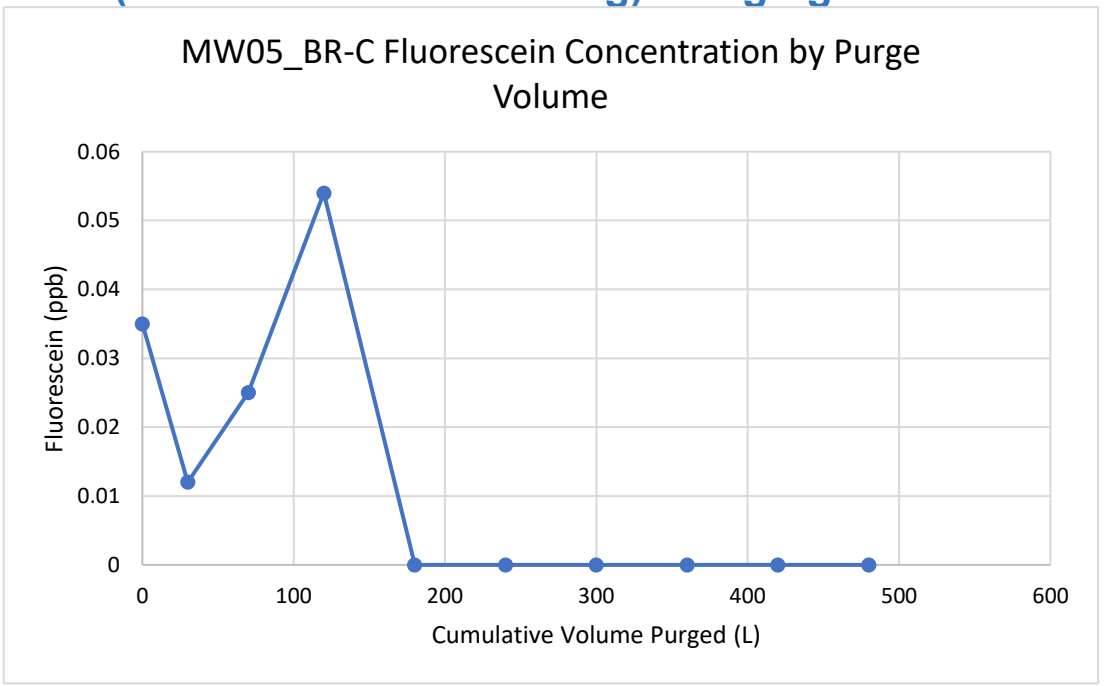
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

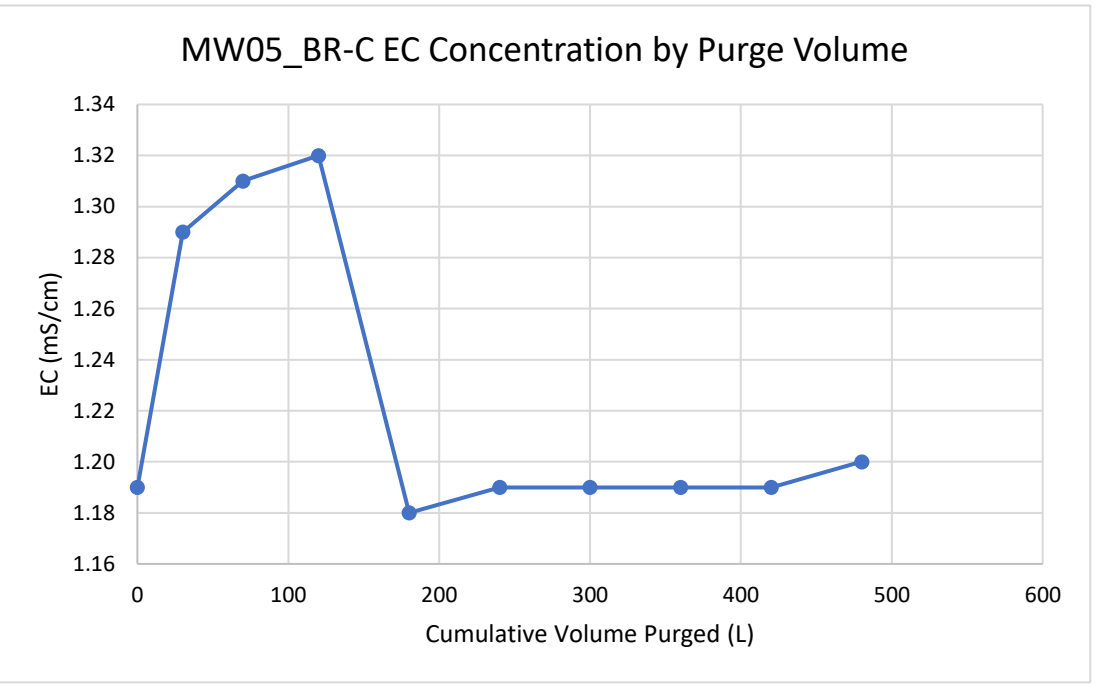
Sample Interval:	SB_MW05_BR-C	Multiparameter Probe:	Horiba U52 (SN.RHE67A2F)	Comments:	
Sampling Personnel:	LIM, BFS	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

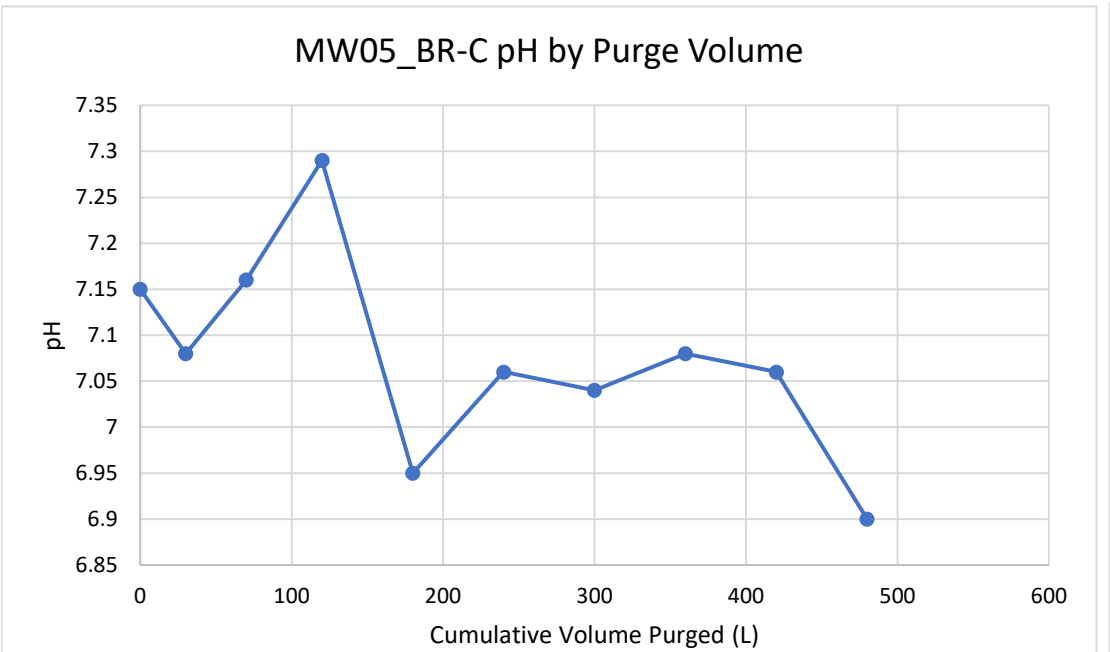
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-23	16:55	LIM/FJH/BFS	0	0	Y	7.15	8.55	1.19	-40	1.28	935	Y	0.035	N	silty light brown water with sulfurous smell
2022-01-23	17:20	LIM/BFS/FJH	30	30	Y	7.08	8.58	1.29	-39	0.7	441	Y	0.012	N	water is more clear but still slightly silty light orangey brown with subtle sulfurous smell
2022-01-23	17:35	LIM/BFS/FJH	40	70	Y	7.16	8.51	1.31	-44	0.77	140	Y	0.025	N	water is only slight silty and quite a bit clearer than previous measurement, light orangey brown colour with slight sulfurous smell
2022-01-23	17:48	LIM/BFS/FJH	50	120	Y	7.29	8.40	1.32	-45	0.78	96.4	Y	0.054	N	clear (no visible silt) with slight orangey tint and subtle sulfurous smell
2022-01-24	9:53	LIM/BFS	60	180	Y	6.95	8.76	1.18	-57	0.74	98.5	Y	0.000	N	slight/subtle sulfurous smell, orangey brown tint to the mostly clear water
2022-01-24	10:13	LIM/BFS	60	240	Y	7.06	8.77	1.19	-56	0.74	58.1	Y	0.000	N	slight/subtle sulfurous smell, orangey brown tint
2022-01-24	10:29	LIM/BFS	60	300	Y	7.04	8.78	1.19	-51	0.69	61.1	Y	0.000	N	slight/subtle sulfurous smell, orangey brown tint
2022-01-24	10:54	LIM/BFS	60	360	Y	7.08	8.98	1.19	-59	0.45	92.3	Y	0.000	N	slight/subtle sulfurous smell, orangey brown tint
2022-01-24	11:15	LIM/BFS	60	420	Y	7.06	8.74	1.19	-49	0.50	62.0	Y	0.000	N	slight/subtle sulfurous smell, orangey brown tint
2022-01-24	11:38	LIM/BFS	60	480	Y	6.9	8.76	1.20	-39	0.36	56.1	Y	0.000	N	slight/subtle sulfurous smell, orangey brown tint

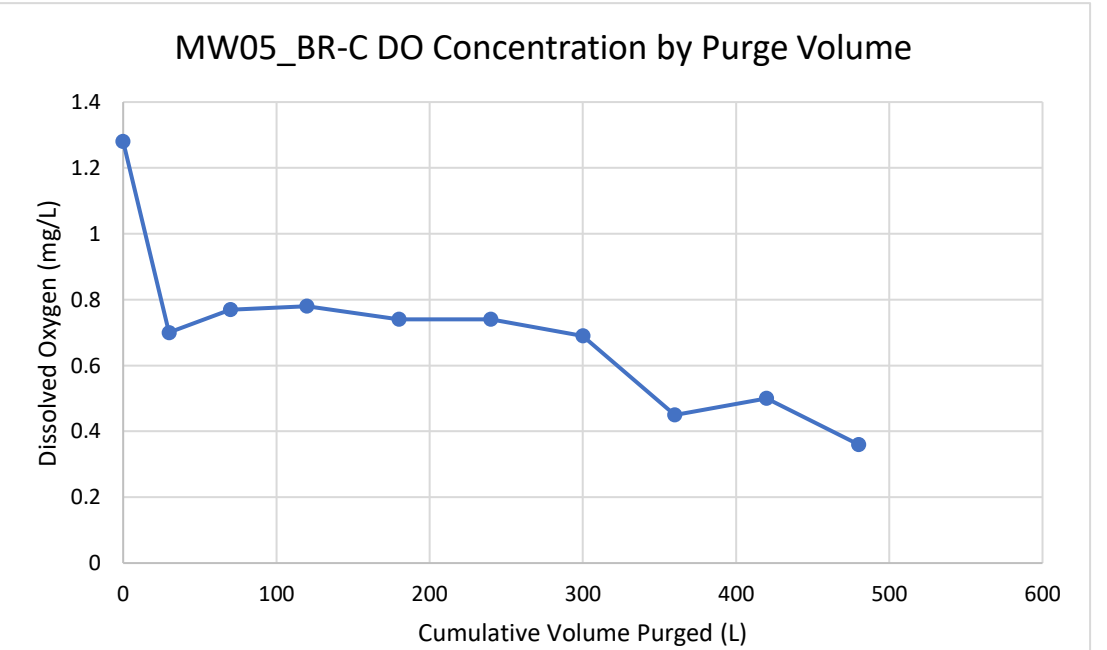
Completed by:	LIM	Verified by:	AMSC
Date:	2022-01-23	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

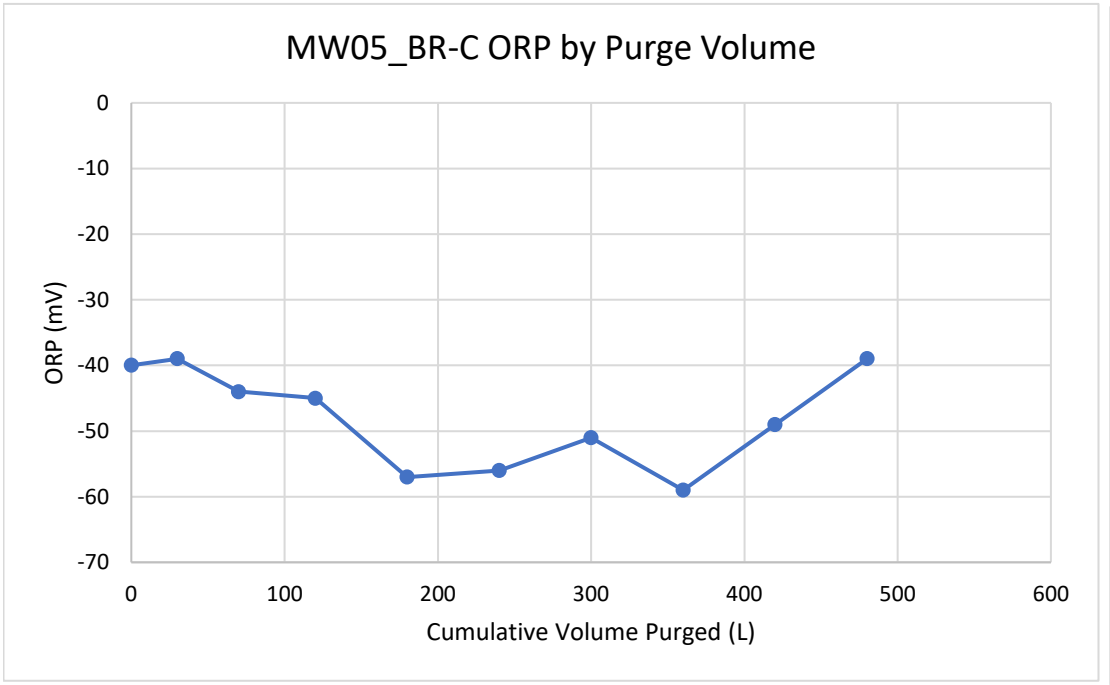


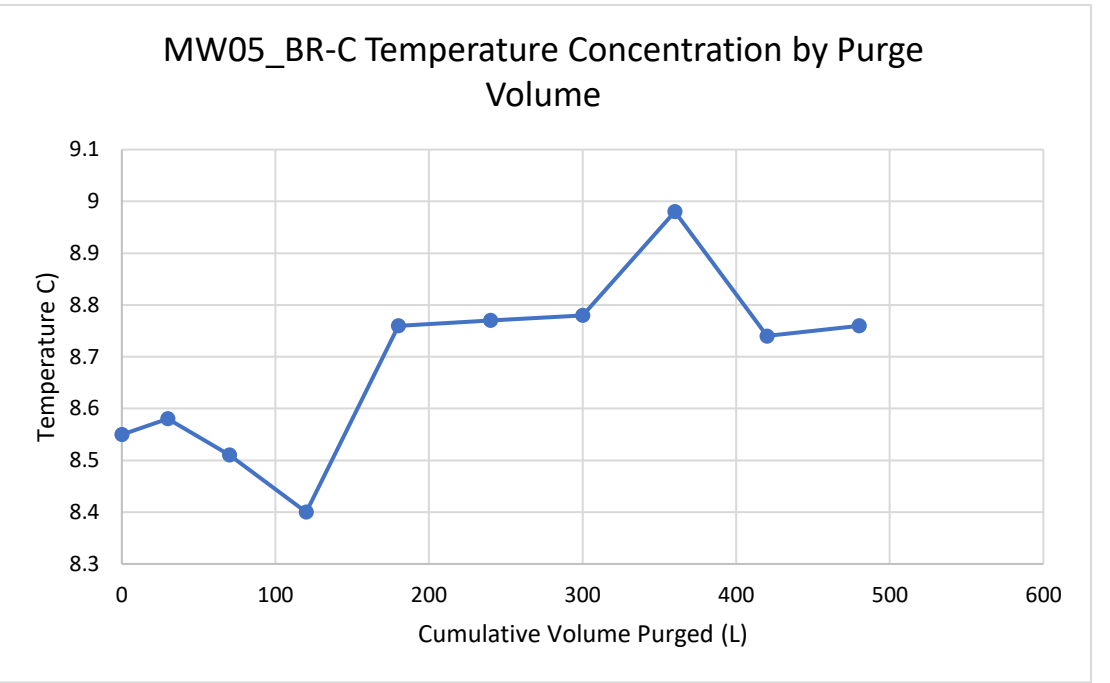


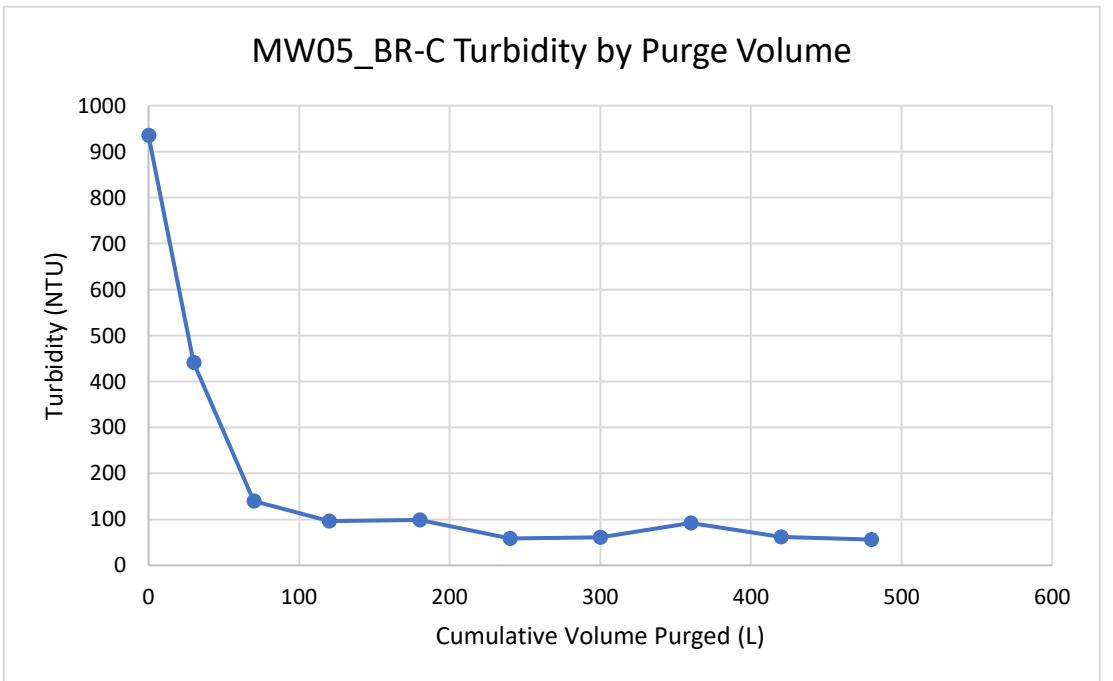




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







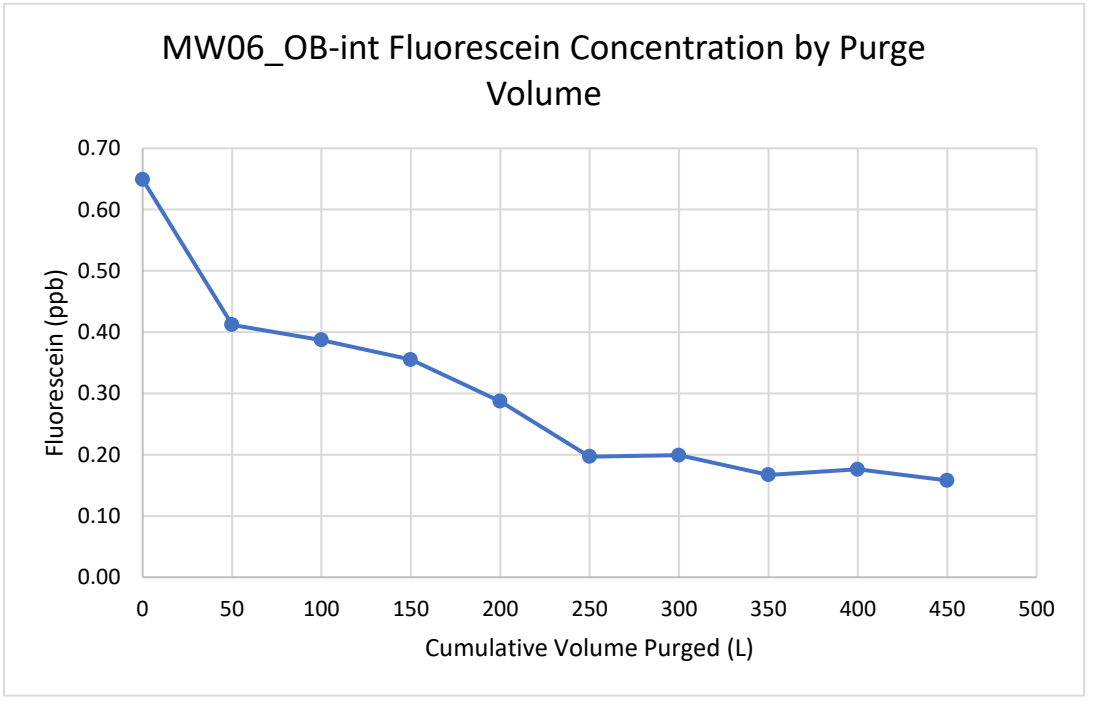
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

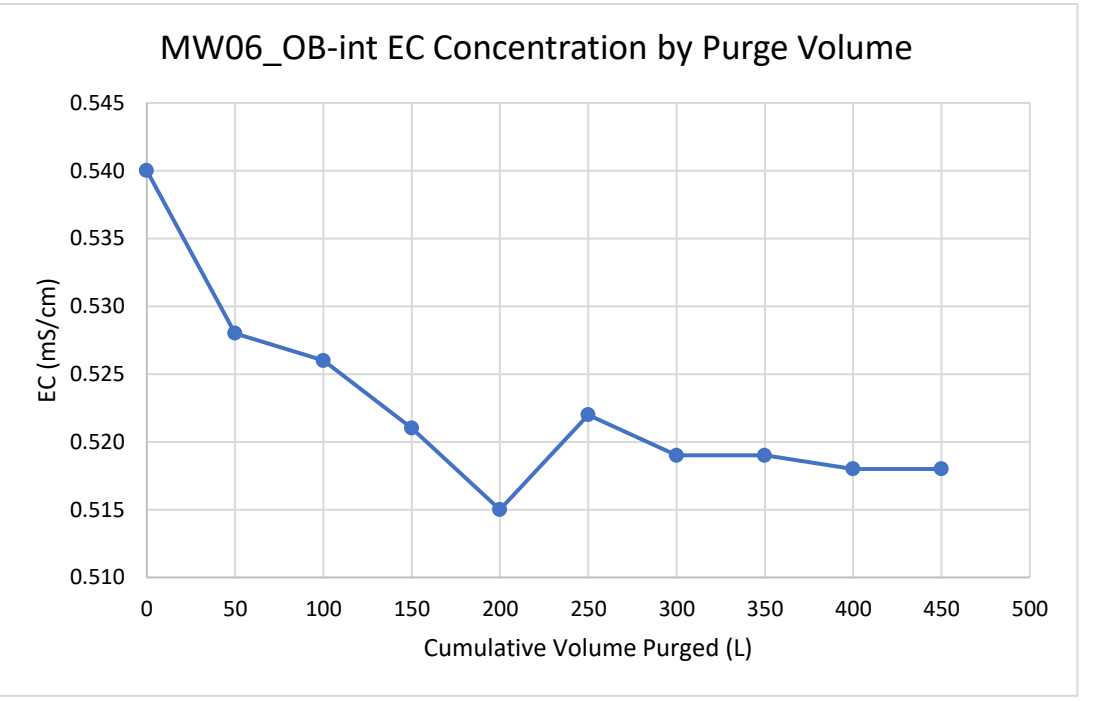
Sample Interval: SB_MW06_OB-int	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: JLB, LMB	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

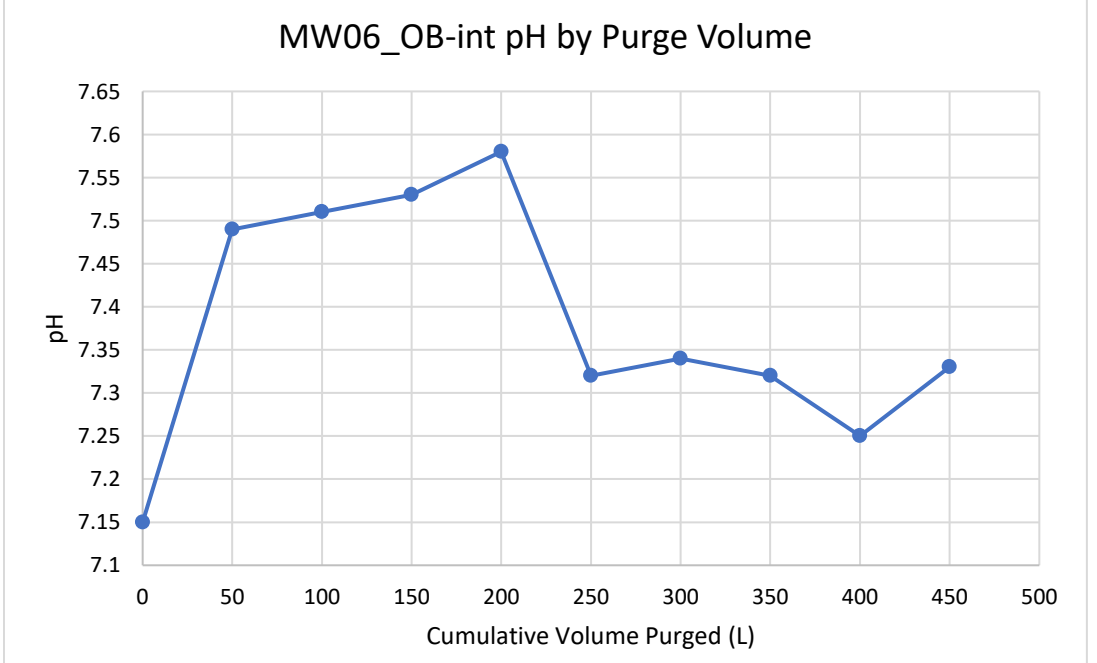
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-18	11:02	JLB/LMB	0	0	Y	7.15	6.75	0.540	267	6.82	1000	Y	0.65	N	Initial measurement, pump on at 10:58, turbidity over 1000 but entered as 1000 for plotting purposes
2022-01-18	12:29	JLB/LMB	50	50	Y	7.49	6.82	0.528	246	5.93	1000	Y	0.412	N	the bottom of the well. Tubing reinstalled with longer stick-up and pumping resumed at 12:05
2022-01-18	13:03	JLB/LMB	50	100	Y	7.51	6.8	0.526	210	6.72	709	Y	0.387	N	
2022-01-18	13:25	JLB/LMB	50	150	Y	7.53	6.44	0.521	271	7.72	1000	Y	0.355	N	
2022-01-18	14:56	JLB/LMB	50	200	Y	7.58	6.99	0.515	298	7.41	1000	Y	0.287	N	pump off at 13:30; well purged dry, waited for recharge, pumping resumed at 14:46. Pump off again at 15:10 because the well was purged dry
2022-01-19	15:33	JLB/LMB	50	250	Y	7.32	6.93	0.522	316	7.58	1000	Y	0.197	N	pump on at 15:15, water still brown and silty
2022-01-19	16:00	JLB/LMB	50	300	Y	7.34	6.88	0.519	329	7.97	1000	Y	0.199	N	
2022-01-19	16:17	JLB/LMB	50	350	Y	7.32	6.99	0.519	334	7.5	831	Y	0.167	N	
2022-01-19	16:37	JLB/LMB	50	400	Y	7.25	6.92	0.518	339	7.38	433	Y	0.176	N	
2022-01-19	16:52	JLB/LMB	50	450	Y	7.33	6.84	0.518	333	0.518	1000	Y	0.158	N	water visibly more brown and murky, pump off at 16:57, ~10 well volumes purged

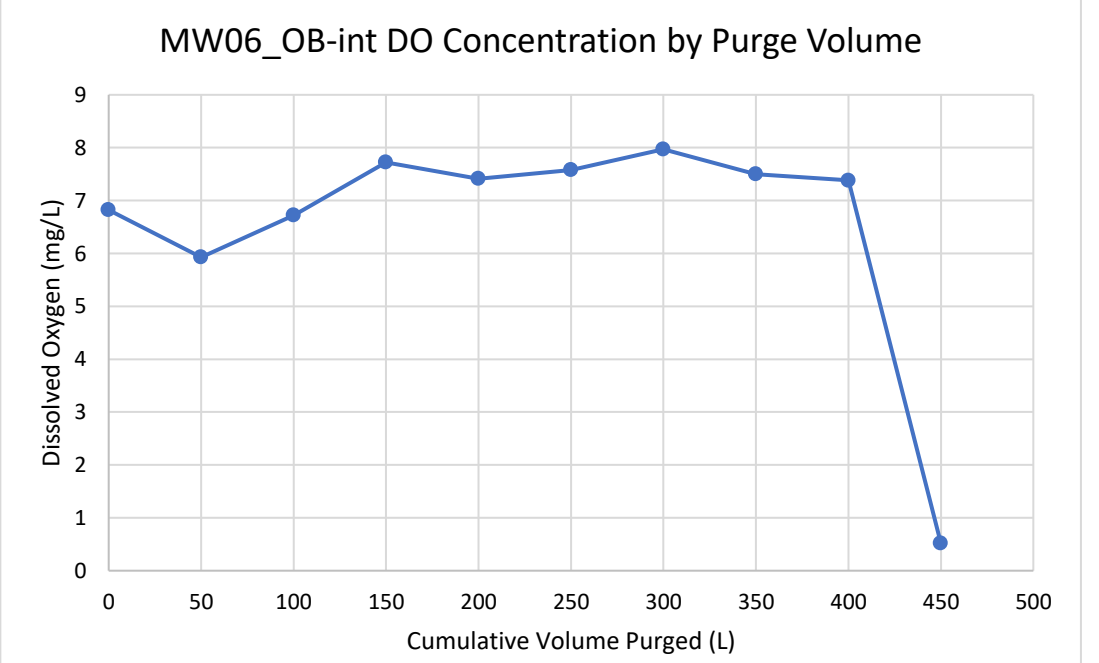
Completed by:	JLB/LMB	Verified by:	AMSC
Date:	2022-01-19	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

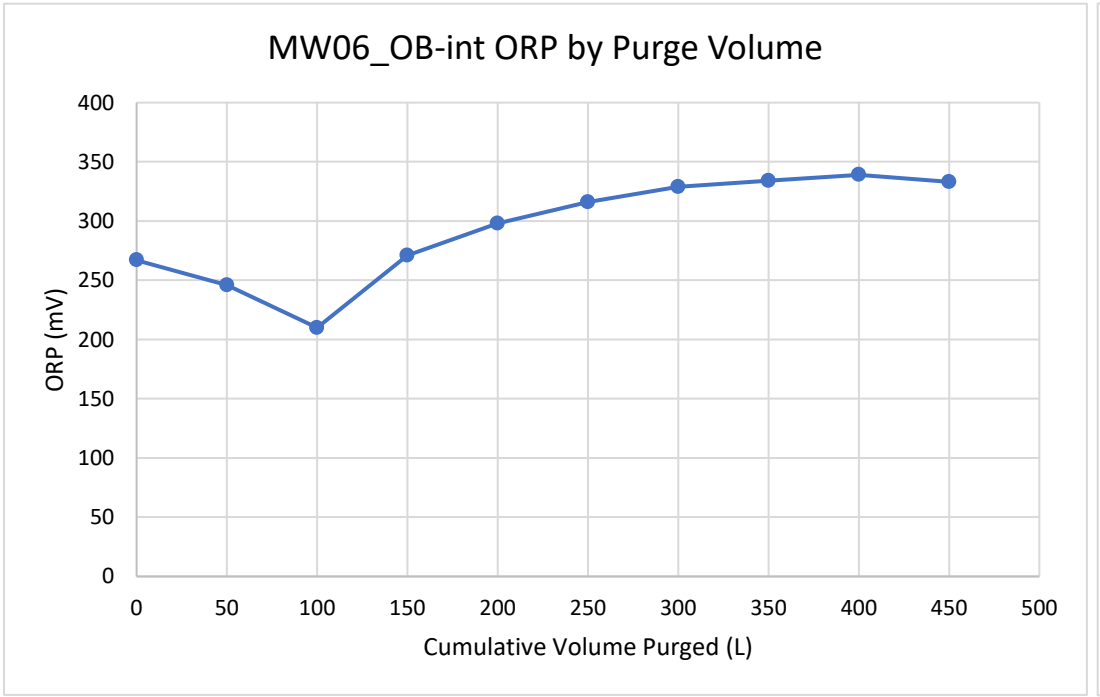


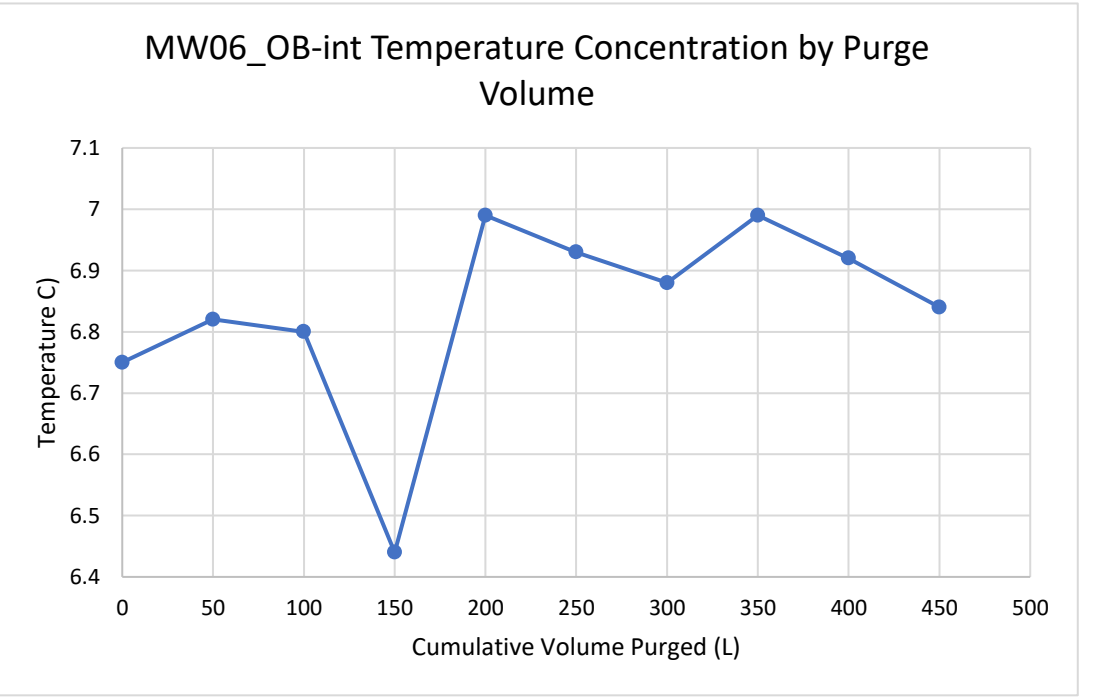


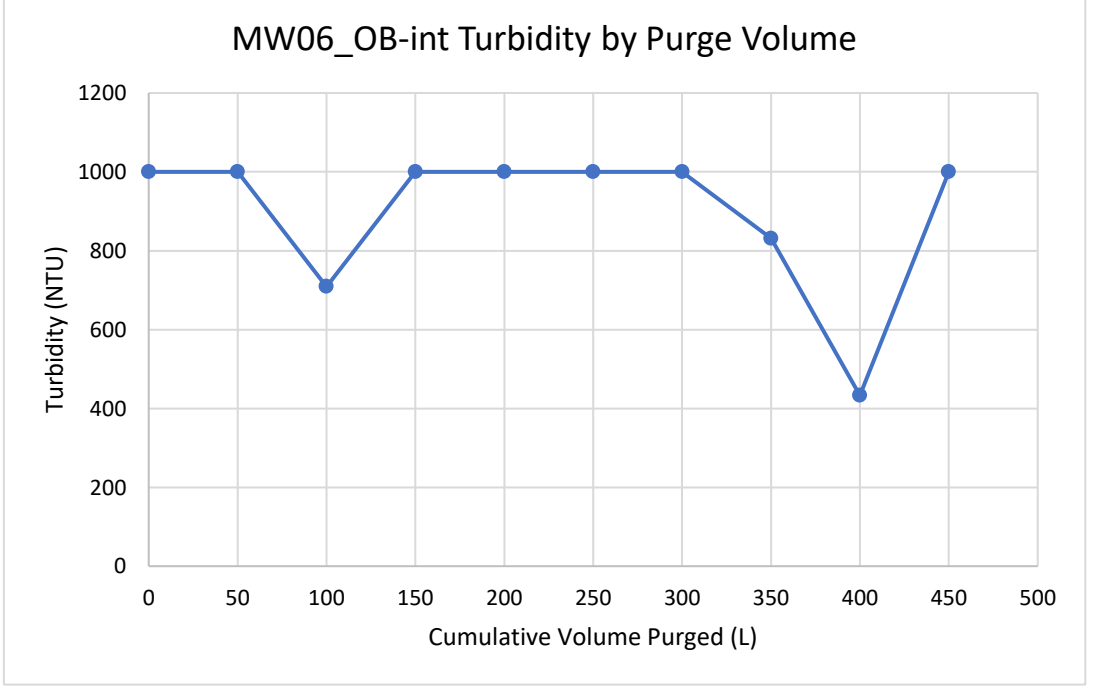




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







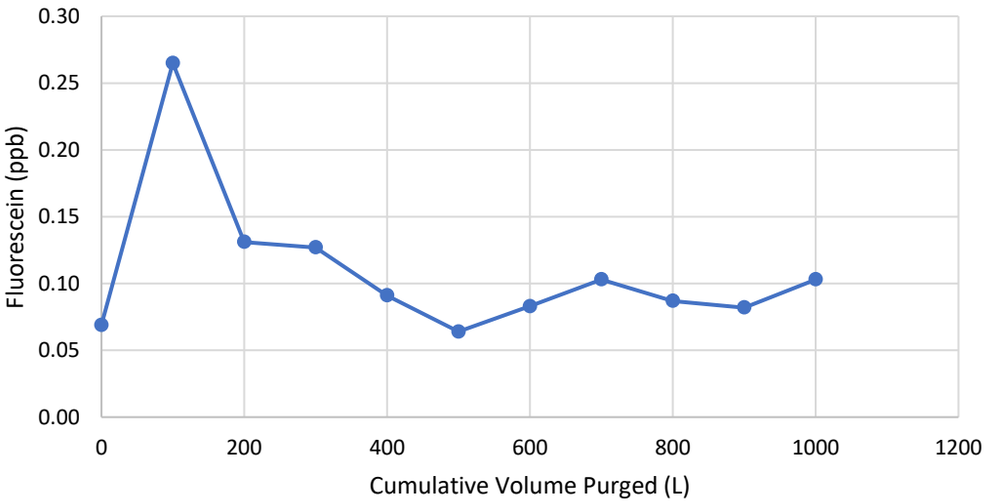
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

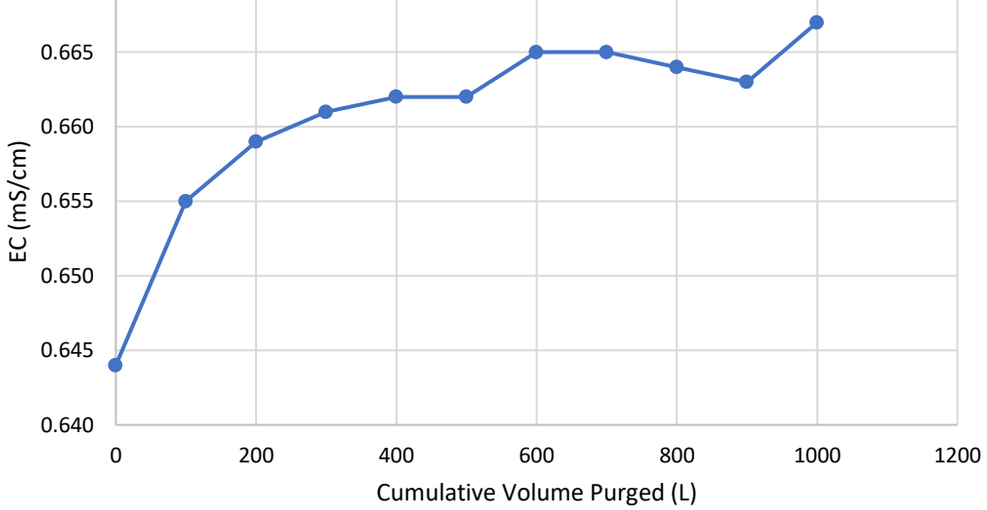
Sample Interval: SB_MW06_BR-A	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: JLB, LMB	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

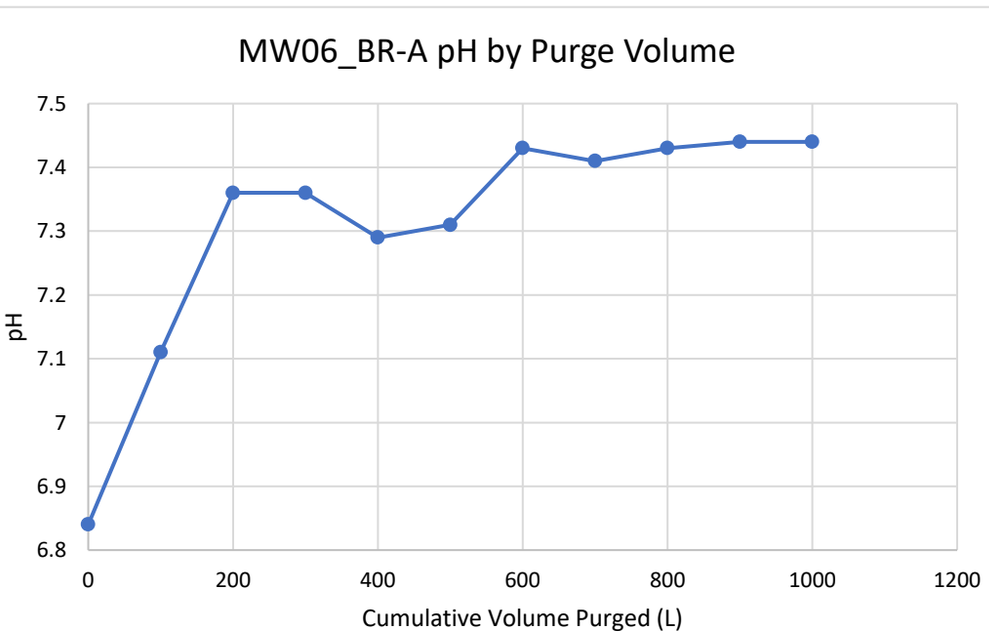
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-19	9:40	JLB/LMB	0	0	Y	6.84	7.44	0.644	86	0.61	766	Y	0.07	N	Initial measurement; pump on 9:34; note water was clear but turned reddish brown after a few minutes of pumping
2022-01-19	10:00	JLB/LMB	100	100	Y	7.11	7.42	0.655	48	0	23.2	Y	0.265	N	
2022-01-19	10:25	JLB/LMB	100	200	Y	7.36	7.23	0.659	27	0	0	Y	0.131	N	
2022-01-19	10:45	JLB/LMB	100	300	Y	7.36	7.26	0.661	20	0	16.7	Y	0.127	N	
2022-01-19	11:11	JLB/LMB	100	400	Y	7.29	7.24	0.662	40	0	0	Y	0.091	N	
2022-01-19	11:34	JLB/LMB	100	500	Y	7.31	7.29	0.662	21	0	0	Y	0.064	N	
2022-01-19	11:55	JLB/LMB	100	600	Y	7.43	7.21	0.665	-3	0	0	Y	0.083	N	
2022-01-19	12:20	JLB/LMB	100	700	Y	7.41	7.33	0.665	4	0	0	Y	0.103	N	
2022-01-19	12:55	JLB/LMB	100	800	Y	7.43	7.14	0.664	0	0	0	Y	0.087	N	
2022-01-19	13:21	JLB/LMB	100	900	Y	7.44	7.28	0.663	0	0	0	Y	0.082	N	
2022-01-19	13:50	JLB/LMB	100	1000	Y	7.44	7.04	0.667	2	0	0	Y	0.103	N	~8 well volumes purged, pump off at 13:54

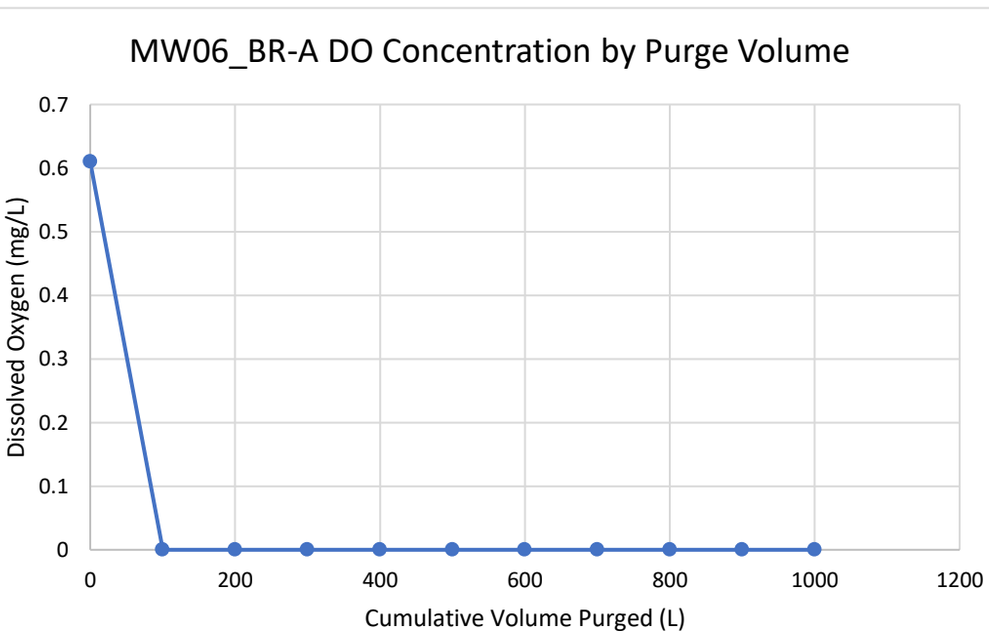
Completed by:	JLB/LMB	Verified by:	AMSC
Date:	2022-01-19	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

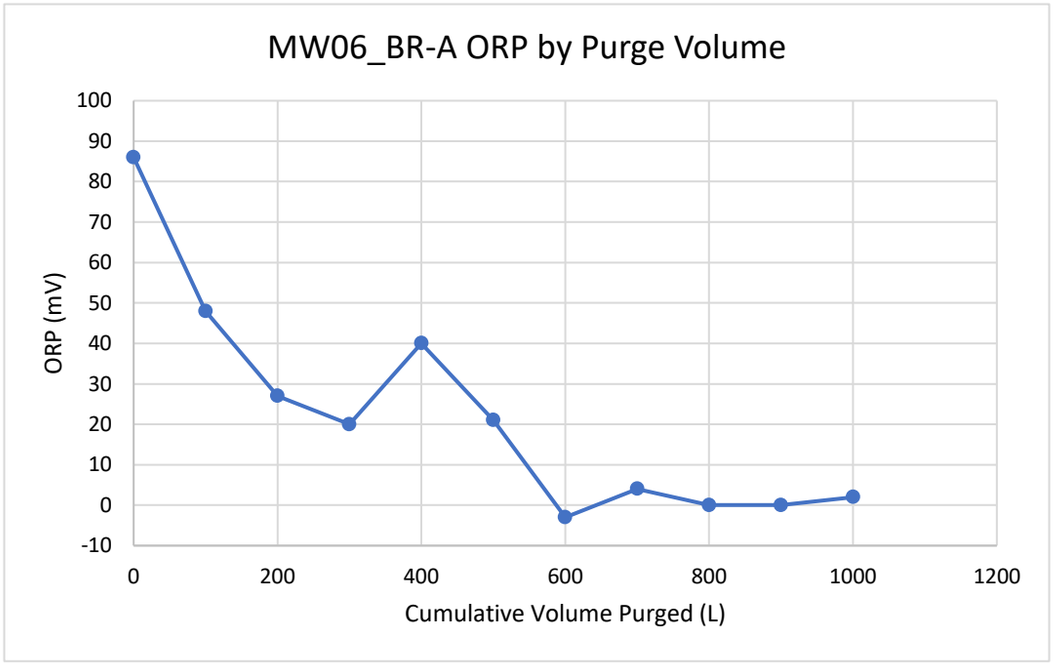


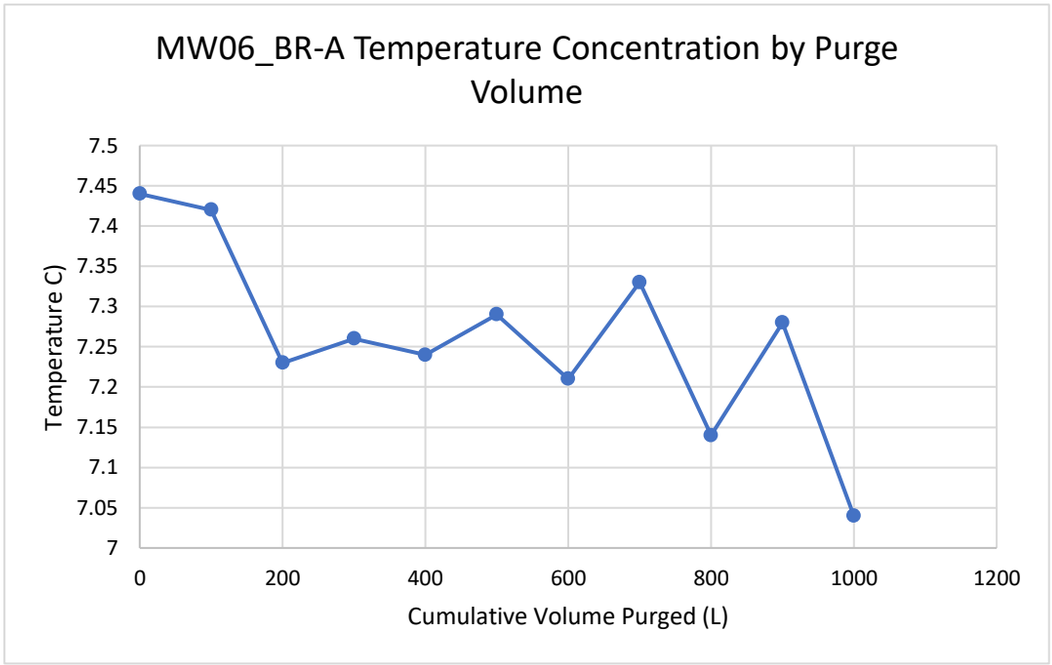


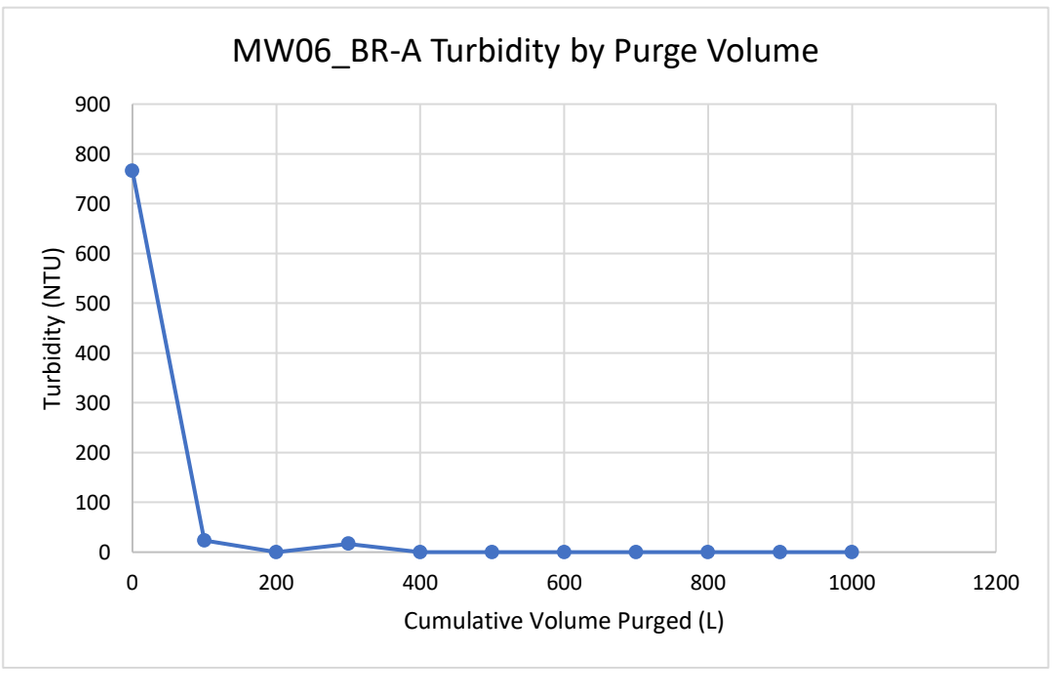




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







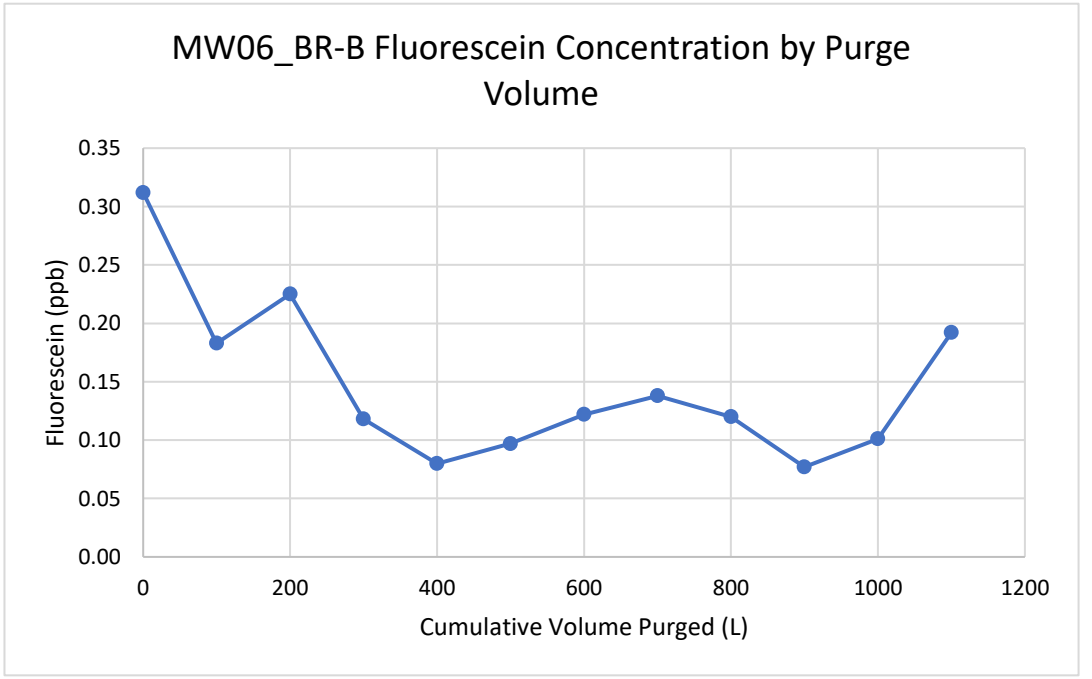
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

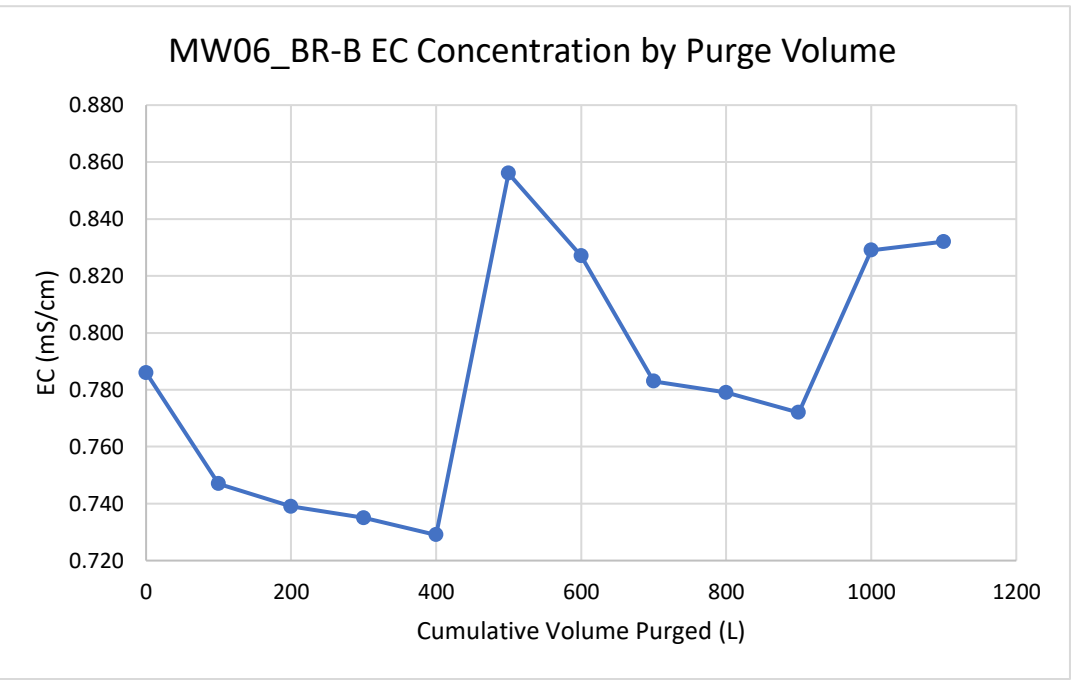
Sample Interval:	SB_MW06_BR-B	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	JLB, LMB	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

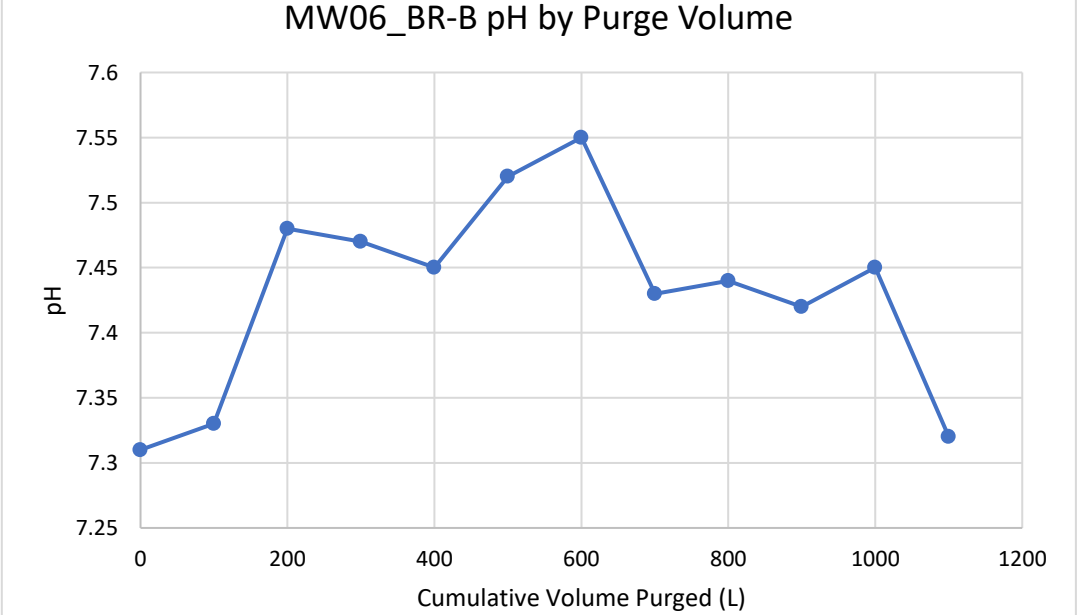
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-18	11:37	JLB/LMB	0	0	Y	7.31	6.82	0.786	228	0.51	1000	Y	0.31	N	Initial measurement, pump on at 11:33, turbidity over 1000 but entered as 1000 for plotting purposes
2022-01-18	12:20	JLB/LMB	100	100	Y	7.33	7.31	0.747	169	0.17	98	Y	0.183	N	
2022-01-18	12:57	JLB/LMB	100	200	Y	7.48	7.3	0.739	174	0	86.5	Y	0.225	N	
2022-01-18	13:34	JLB/LMB	100	300	Y	7.47	7.21	0.735	153	0	113	Y	0.118	N	
2022-01-18	14:03	JLB/LMB	100	400	Y	7.45	7.26	0.729	199	0	122	Y	0.080	N	
2022-01-18	14:35	JLB/LMB	100	500	Y	7.52	7.22	0.856	244	0.1	1000	Y	0.097	N	Visibly more grey and murky
2022-01-18	15:08	JLB/LMB	100	600	Y	7.55	7.04	0.827	249	0	1000	Y	0.122	N	
2022-01-18	15:38	JLB/LMB	100	700	Y	7.43	7.21	0.783	235	0	1000	Y	0.138	N	
2022-01-18	16:11	JLB/LMB	100	800	Y	7.44	7.03	0.779	159	0	1000	Y	0.120	N	
2022-01-18	16:43	JLB/LMB	100	900	Y	7.42	7	0.772	200	0	1000	Y	0.077	N	pump off at 16:50
2022-01-19	14:35	JLB/LMB	100	1000	Y	7.45	7.2	0.829	146	0	1000	Y	0.101	N	pump on at 14:03, water still grey and murky
2022-01-19	14:59	JLB/LMB	100	1100	Y	7.32	7.08	0.832	176	0	1000	Y	0.192	N	pump off at 15:05, ~10 well volumes purged,

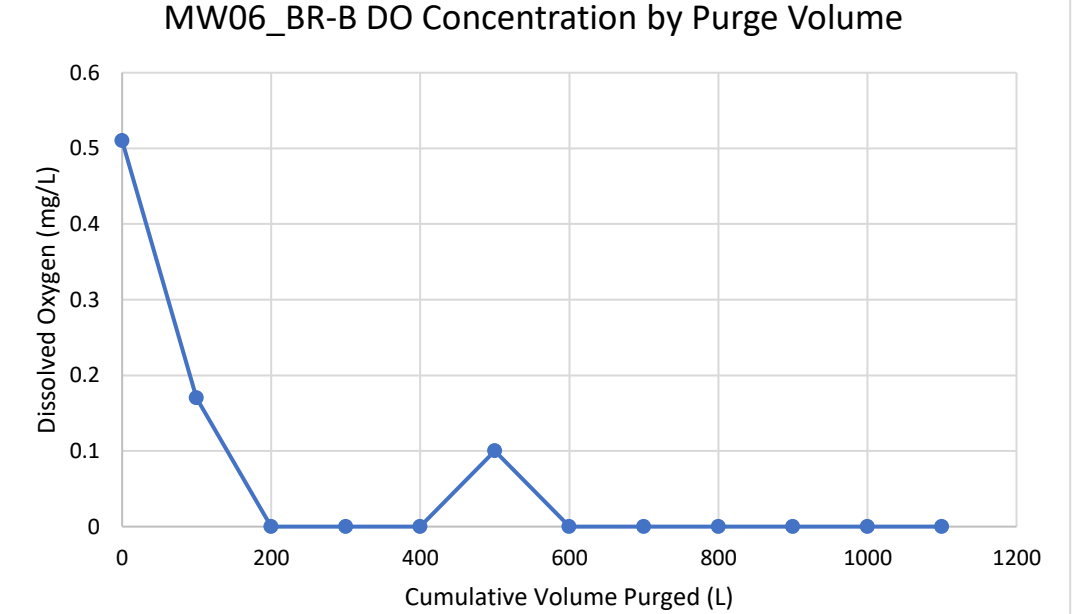
Completed by:	JLB/LMB	Verified by:	AMSC
Date:	2022-01-19	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

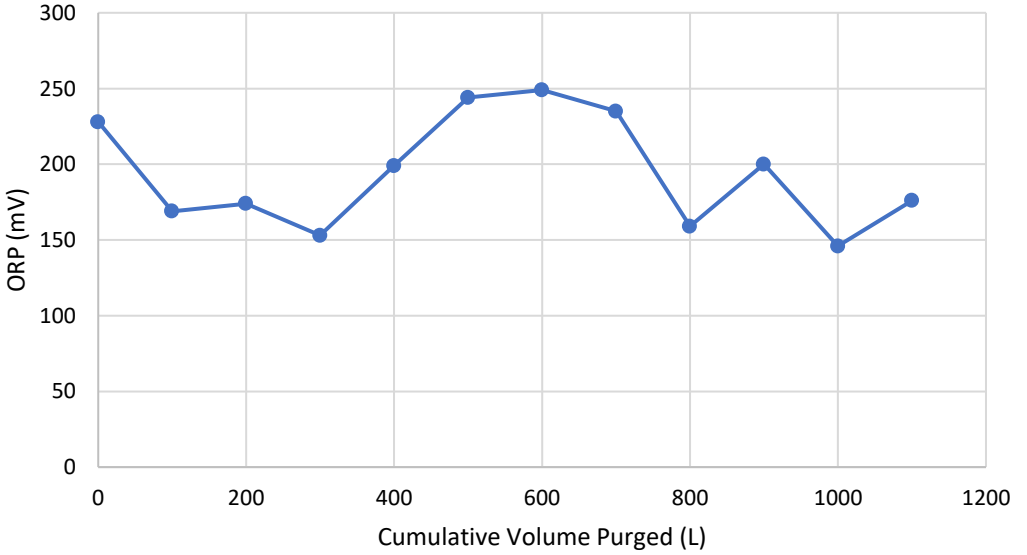


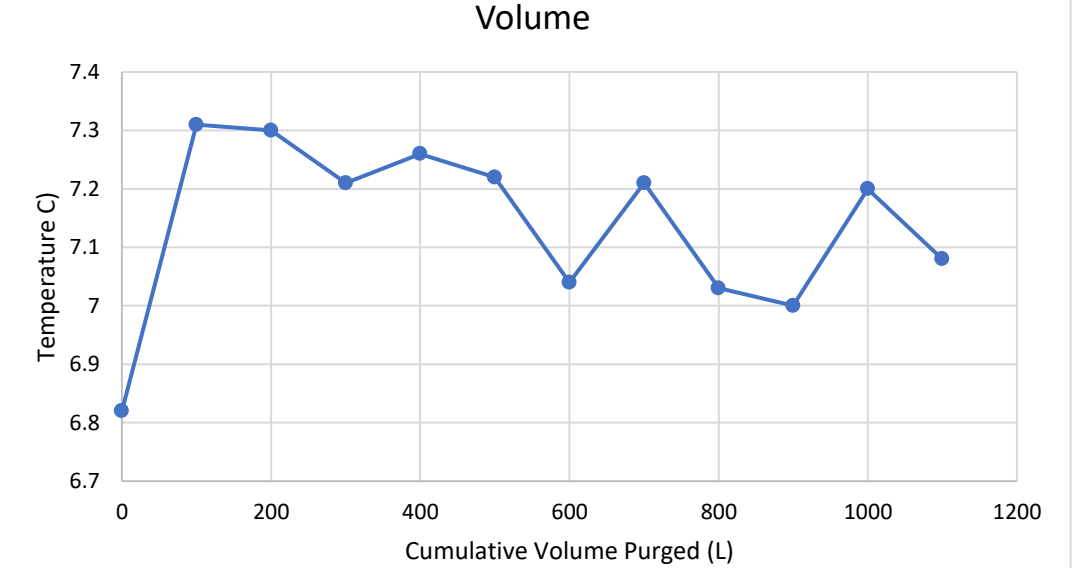


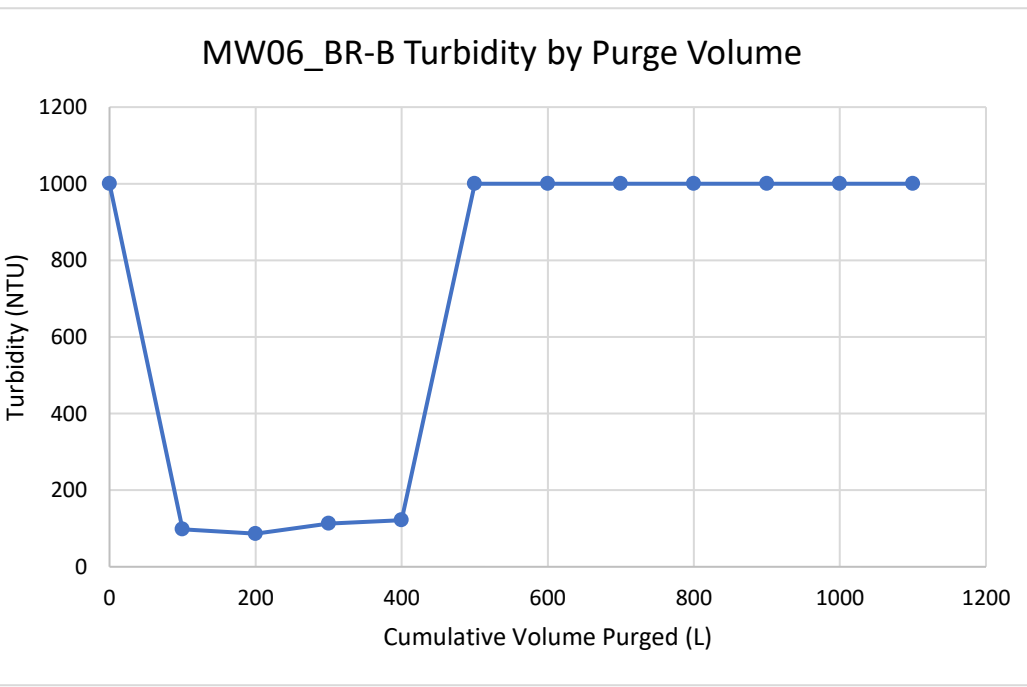




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







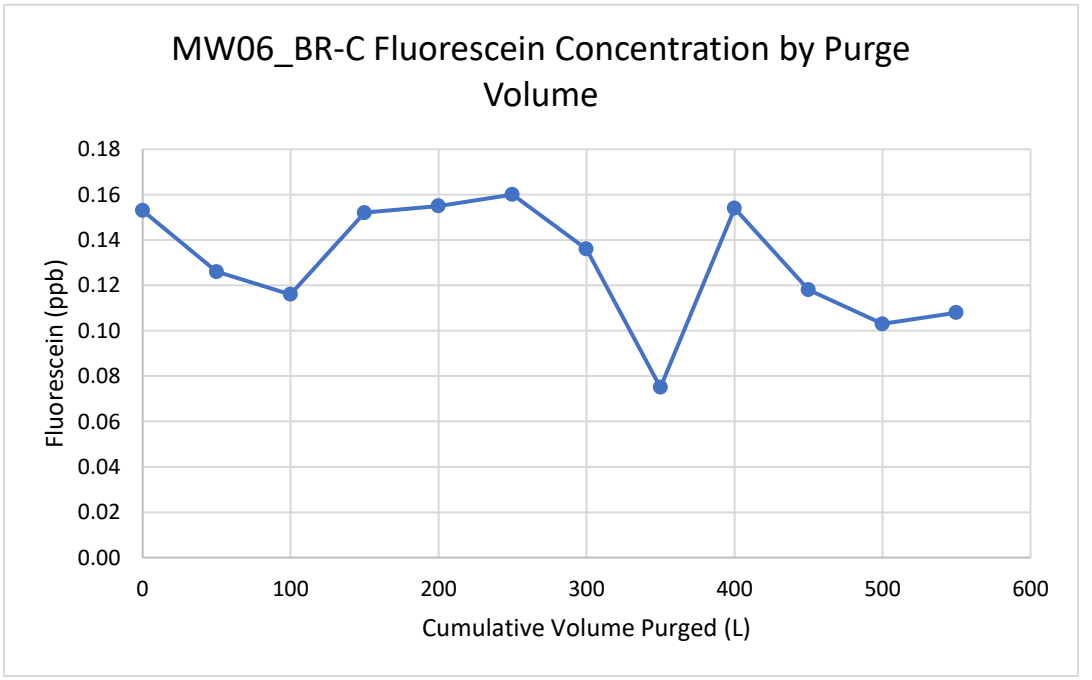
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

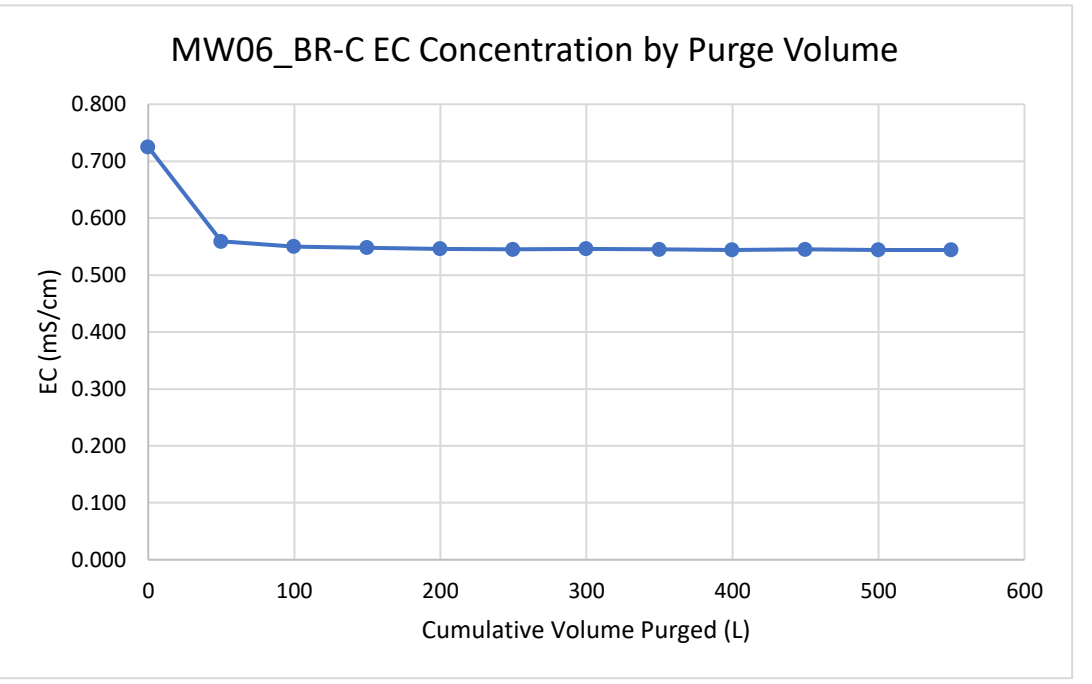
Sample Interval: SB_MW06_BR-C	Multiparameter Probe: Horiba U52 (SN. P1RCDHHU)	Comments:
Sampling Personnel: JLB, LMB	Fluorometer: TurnerDesigns AquaFluor (SN. 807513)	

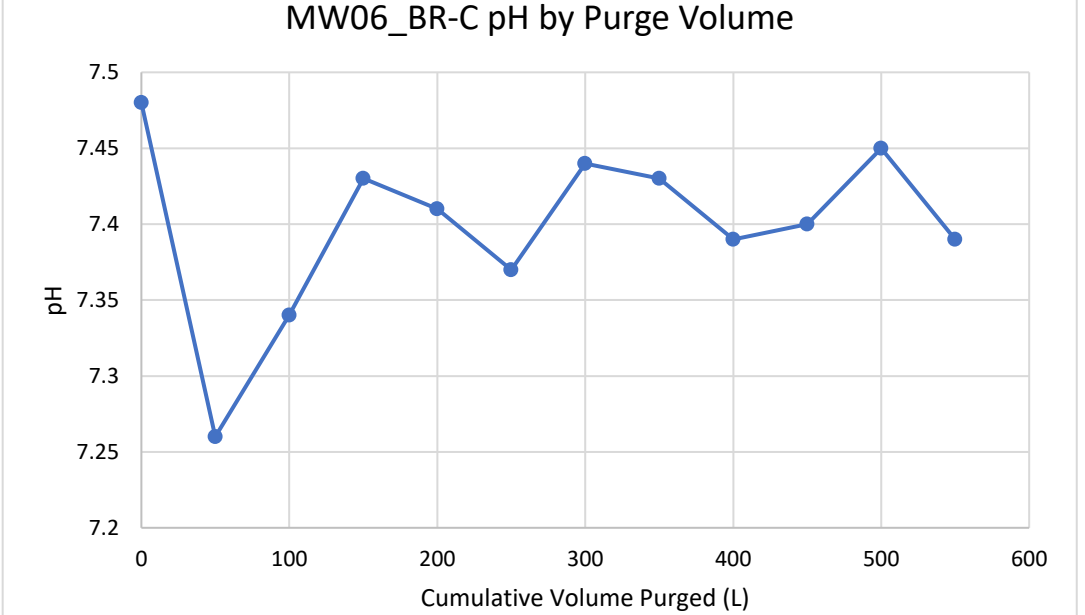
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-19	9:55	JLB/LMB	0	0	Y	7.48	7.18	0.725	264	0.61	1000	Y	0.15	N	Initial measurement; pump on 9:48; note water was grey and murky; turbidity >1000 but entered as 1000 for plotting purposes
2022-01-19	10:15	JLB/LMB	50	50	Y	7.26	6.9	0.559	97	0.12	297	Y	0.126	N	
2022-01-19	10:35	JLB/LMB	50	100	Y	7.34	6.9	0.55	92	0	175	Y	0.116	N	
2022-01-19	11:17	JLB/LMB	50	150	Y	7.43	6.88	0.548	60	0	59.1	Y	0.152	N	
2022-01-19	11:40	JLB/LMB	50	200	Y	7.41	6.9	0.546	41	0	44.5	Y	0.155	N	
2022-01-19	11:51	JLB/LMB	50	250	Y	7.37	6.97	0.545	56	0	35.9	Y	0.160	N	
2022-01-19	12:03	JLB/LMB	50	300	Y	7.44	6.9	0.546	26	0	35.7	Y	0.136	N	
2022-01-19	12:28	JLB/LMB	50	350	Y	7.43	6.94	0.545	29	0	32.2	Y	0.075	N	
2022-01-19	12:45	JLB/LMB	50	400	Y	7.39	6.97	0.544	34	0	0	Y	0.154	N	
2022-01-19	12:58	JLB/LMB	50	450	Y	7.4	6.87	0.545	22	0	9.1	Y	0.118	N	
2022-01-19	13:28	JLB/LMB	50	500	Y	7.45	6.92	0.544	2	0	0	Y	0.103	N	
2022-01-19	13:43	JLB/LMB	50	550	Y	7.39	6.82	0.544	42	0	5	Y	0.108	N	~7.5 well volumes purged, pump off at 13:49

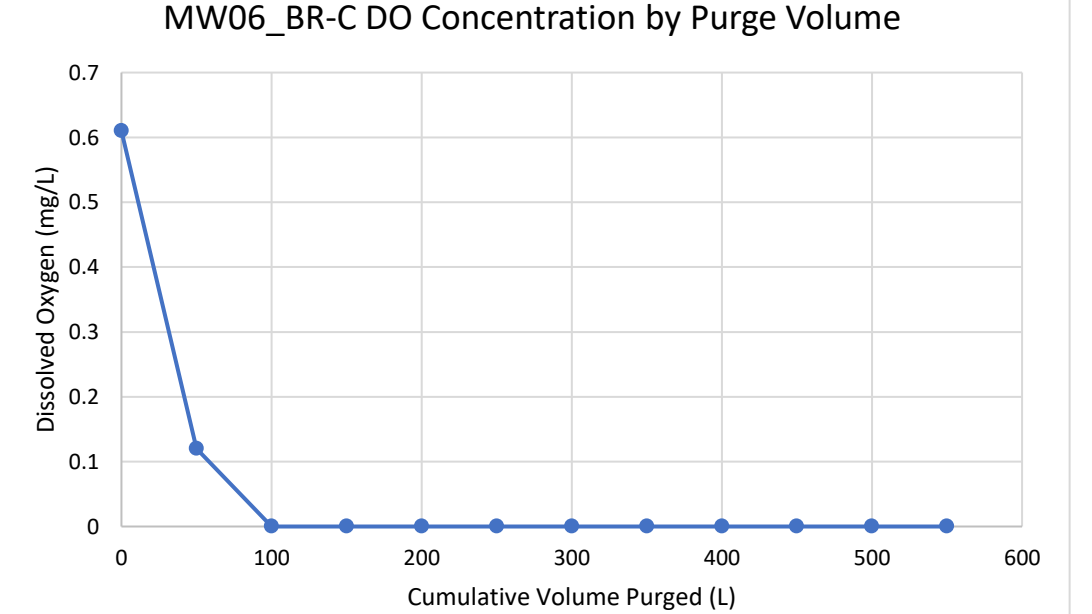
Completed by:	JLB/LMB	Verified by:	AMSC
Date:	2022-01-19	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

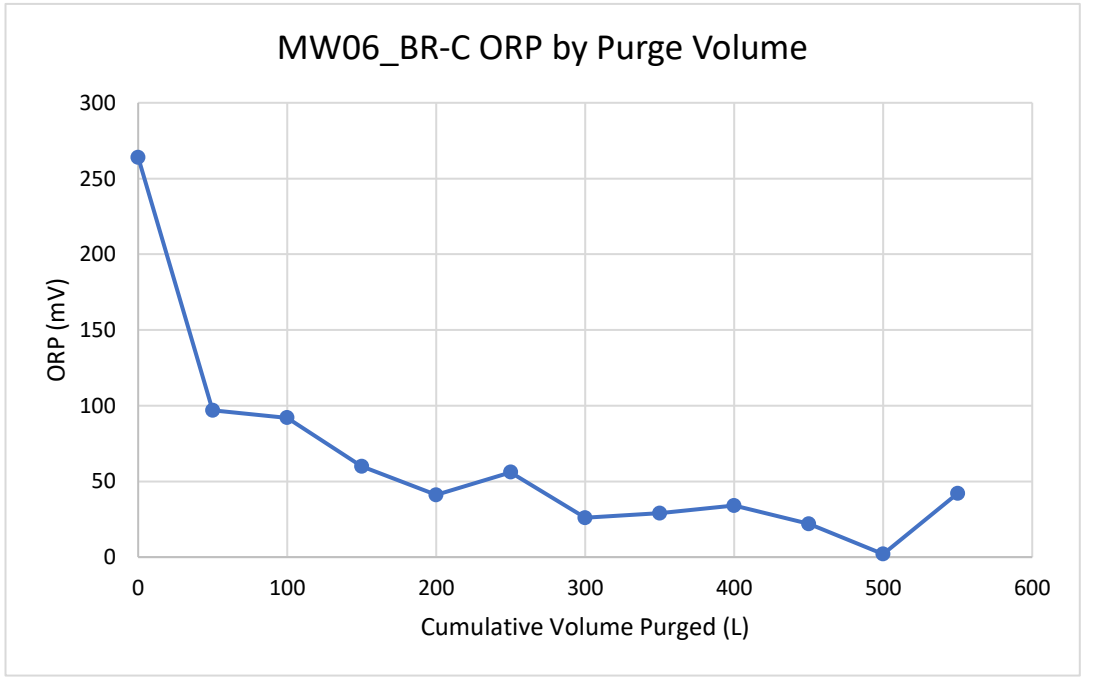


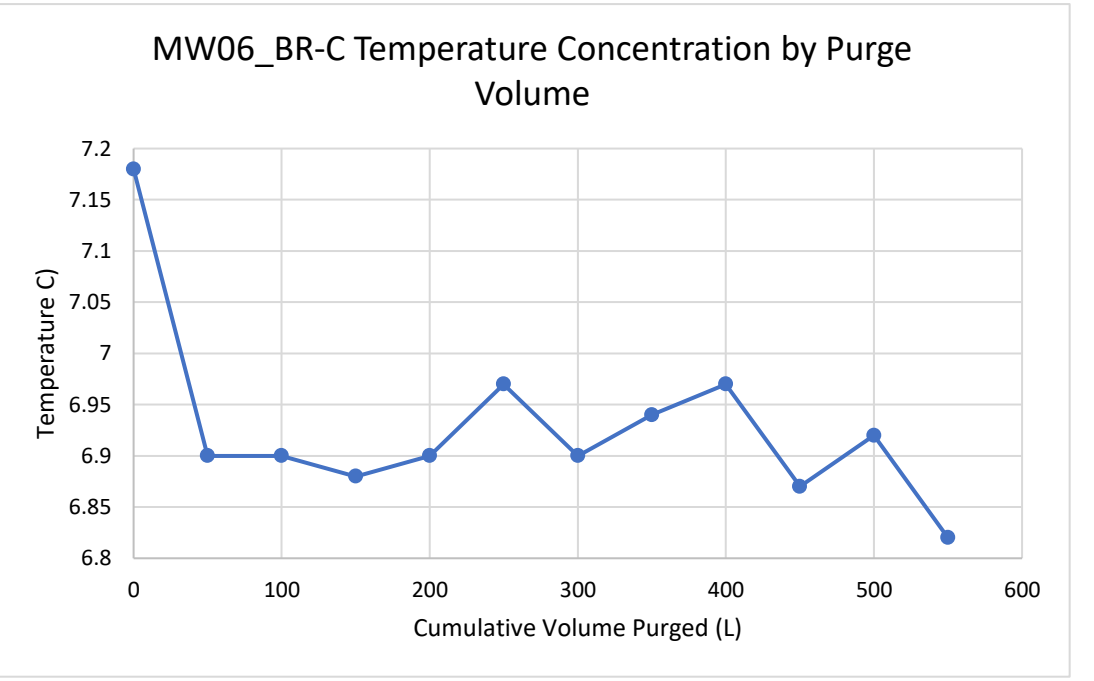


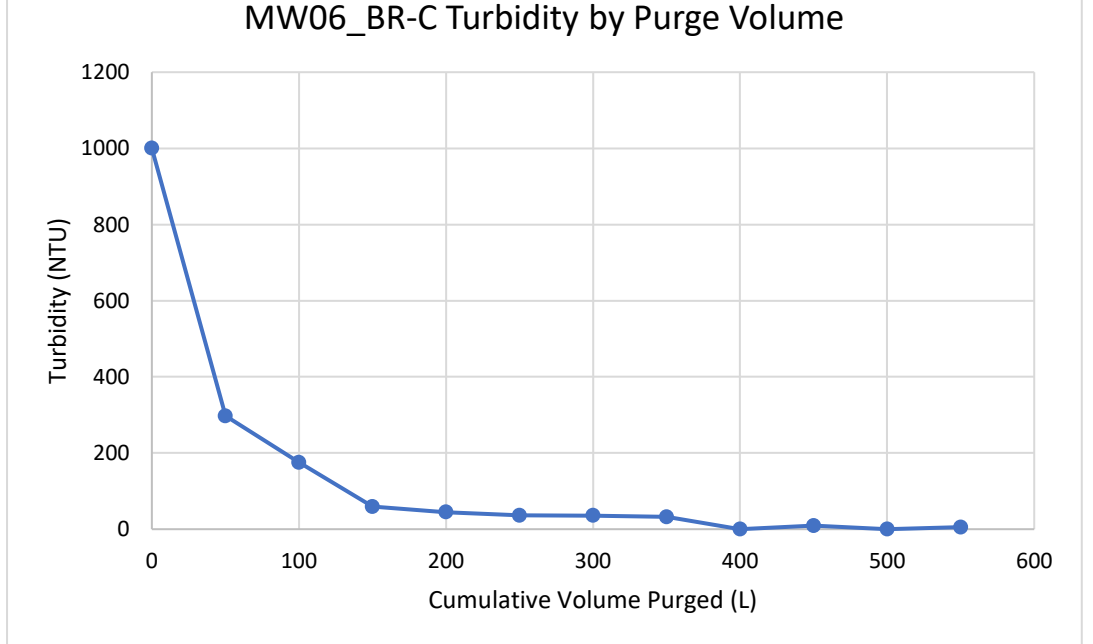




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







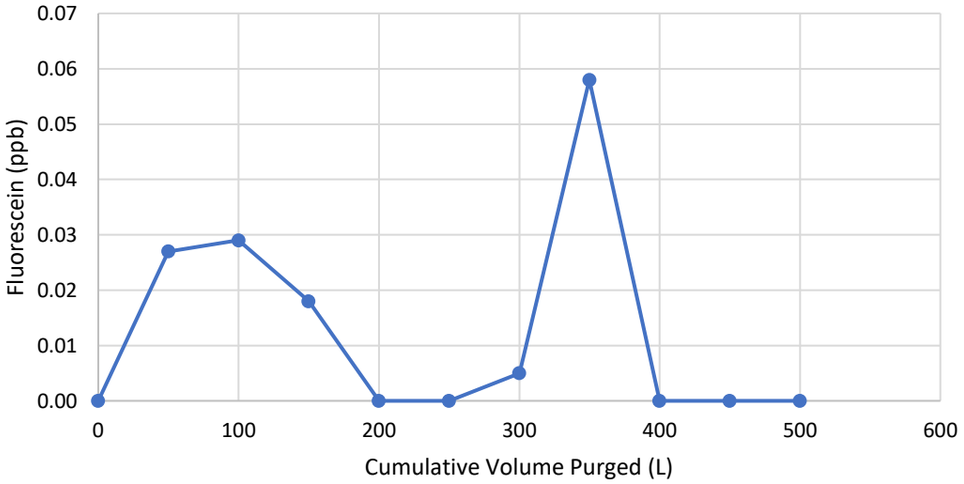
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

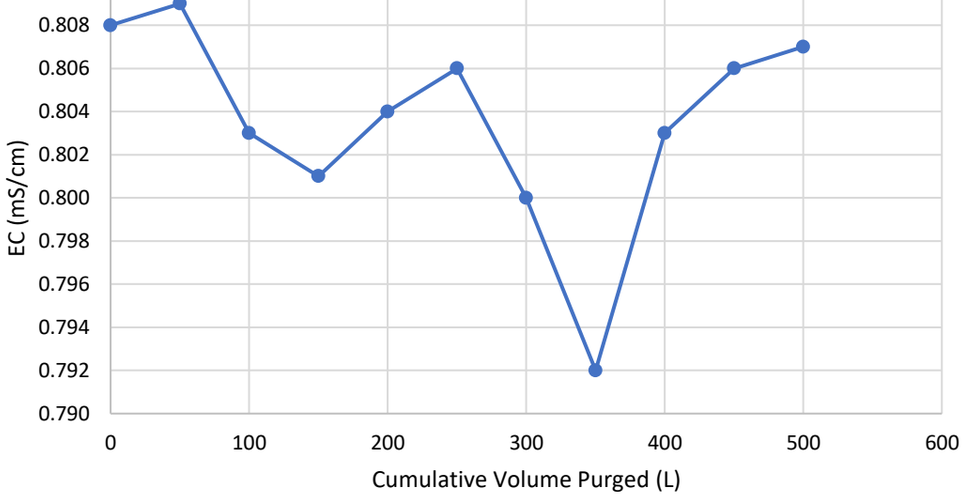
Sample Interval:	SB_MW07_OB-int	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	JLB, LMB	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

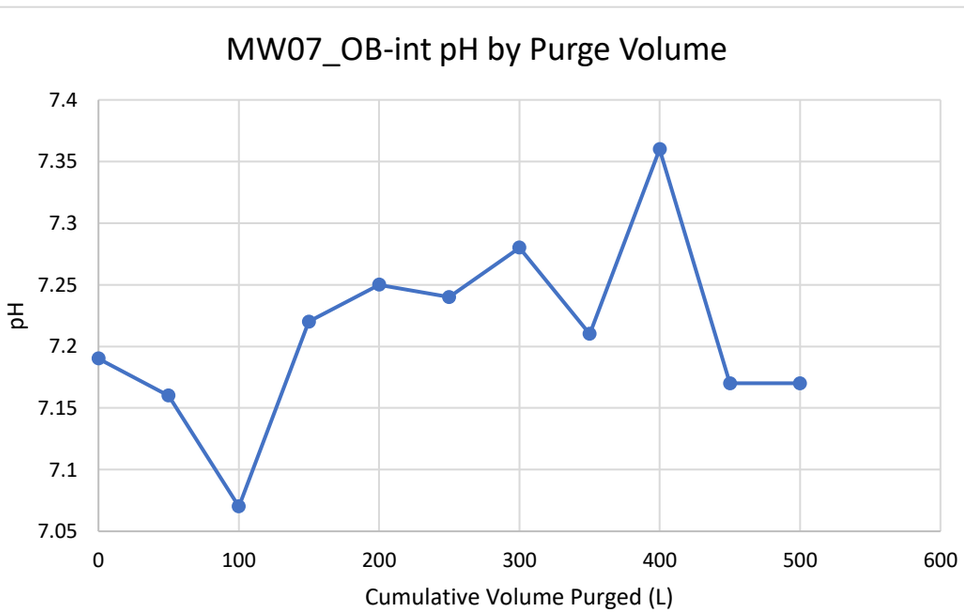
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-13	14:25	JLB/LMB	0	0	Y	7.19	8.8	0.808	271	12.44	1000	Y	0.00	N	Initial measurement; NTU >1000 but entered as 1000 for plotting purposes
2022-01-13	15:02	JLB/LMB	50	50	Y	7.16	8.53	0.809	270	11.07	1000	Y	0.027	N	NTU >1000 but entered as 1000 for plotting purposes
2022-01-13	15:27	JLB/LMB	50	100	Y	7.07	8.61	0.803	293	11.83	1000	Y	0.029	N	NTU >1000 but entered as 1000 for plotting purposes
2022-01-13	15:43	JLB/LMB	50	150	Y	7.22	8.54	0.801	286	11.03	1000	Y	0.018	N	NTU >1000 but entered as 1000 for plotting purposes
2022-01-13	16:03	JLB/LMB	50	200	Y	7.25	8.61	0.804	299	10.63	1000	Y	0.000	N	NTU >1000 but entered as 1000 for plotting purposes
2022-01-13	16:23	JLB/LMB	50	250	Y	7.24	8.5	0.806	298	10.19	1000	Y	0.000	N	NTU >1000 but entered as 1000 for plotting purposes
2022-01-13	16:47	JLB/LMB	50	300	Y	7.28	8.08	0.8	309	10.65	1000	Y	0.005	N	NTU >1000 but entered as 1000 for plotting purposes; well purged dry
2022-01-15	15:35	JLB/LMB	50	350	Y	7.21	8.02	0.792	324	8.47	1000	Y	0.058	N	purging resumed; NTU >1000 but entered as 1000 for plotting purposes
2022-01-15	16:00	JLB/LMB	50	400	Y	7.36	8.35	0.803	333	8.15	953	Y	0.000	N	
2022-01-15	16:25	JLB/LMB	50	450	Y	7.17	7.24	0.806	339	7.03	837	Y	0.000	N	
2022-01-15	16:50	JLB/LMB	50	500	Y	7.17	7.57	0.807	336	8.27	726	Y	0.000	N	

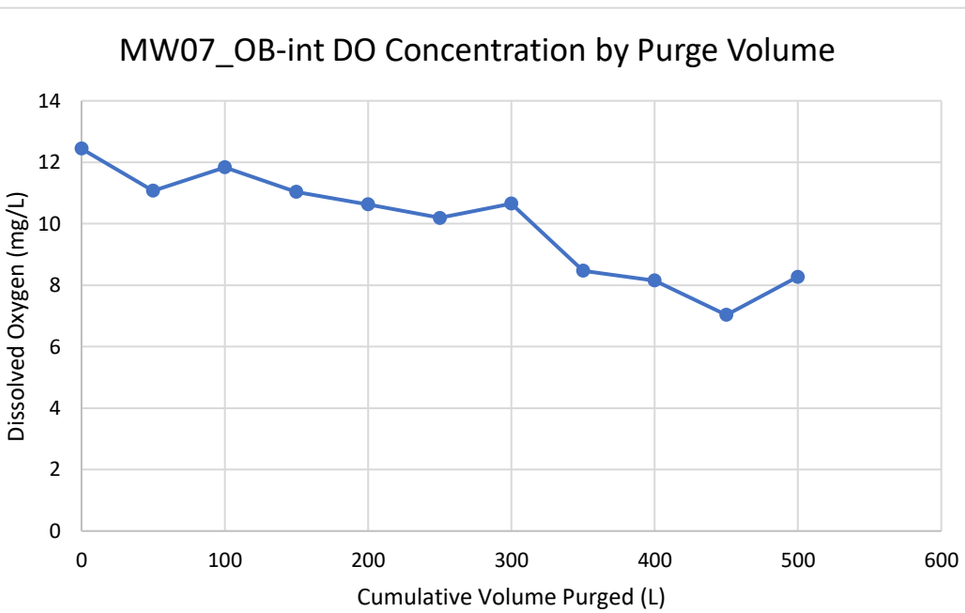
Completed by:	JLB, LMB	Verified by:	AMSC
Date:	2022-01-15	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

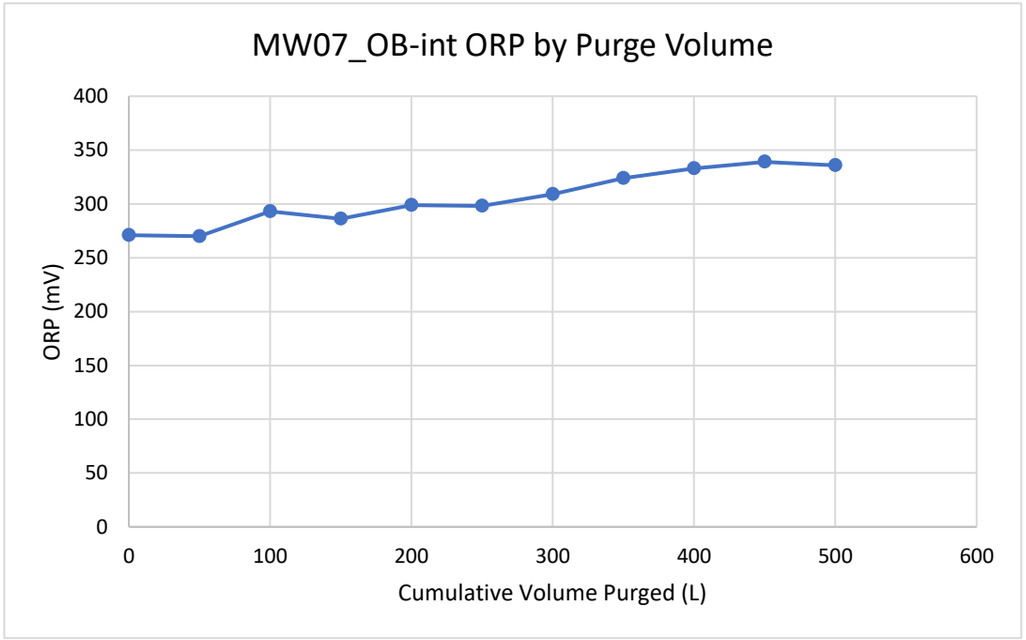


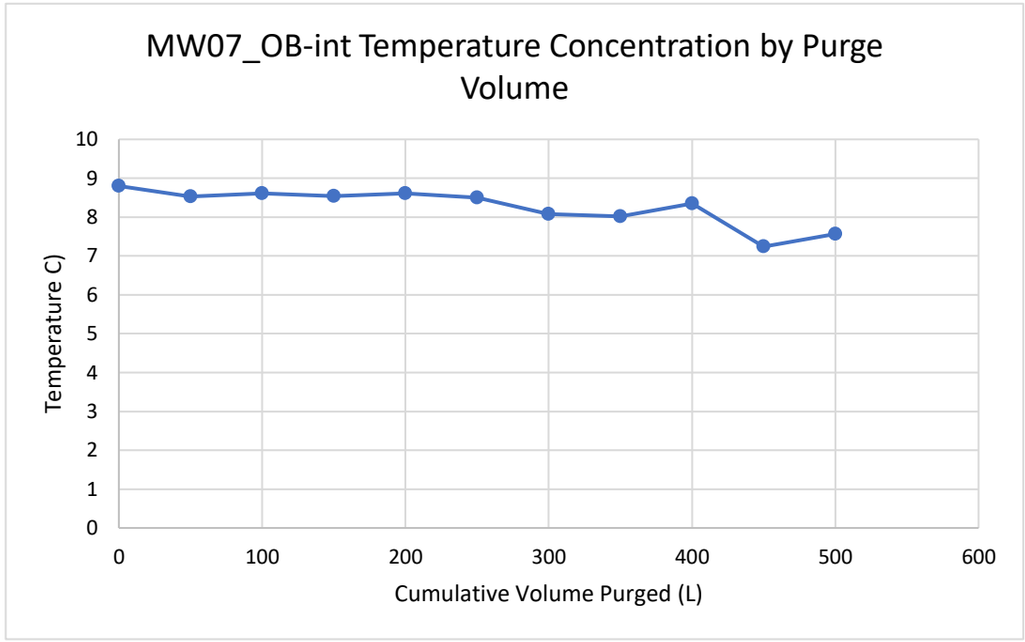


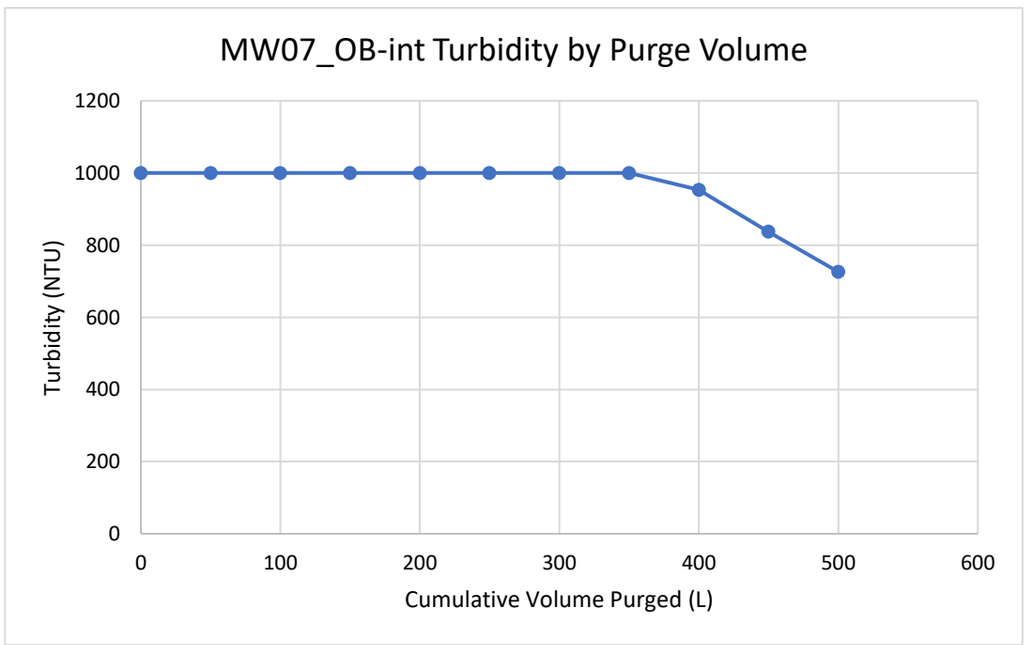




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







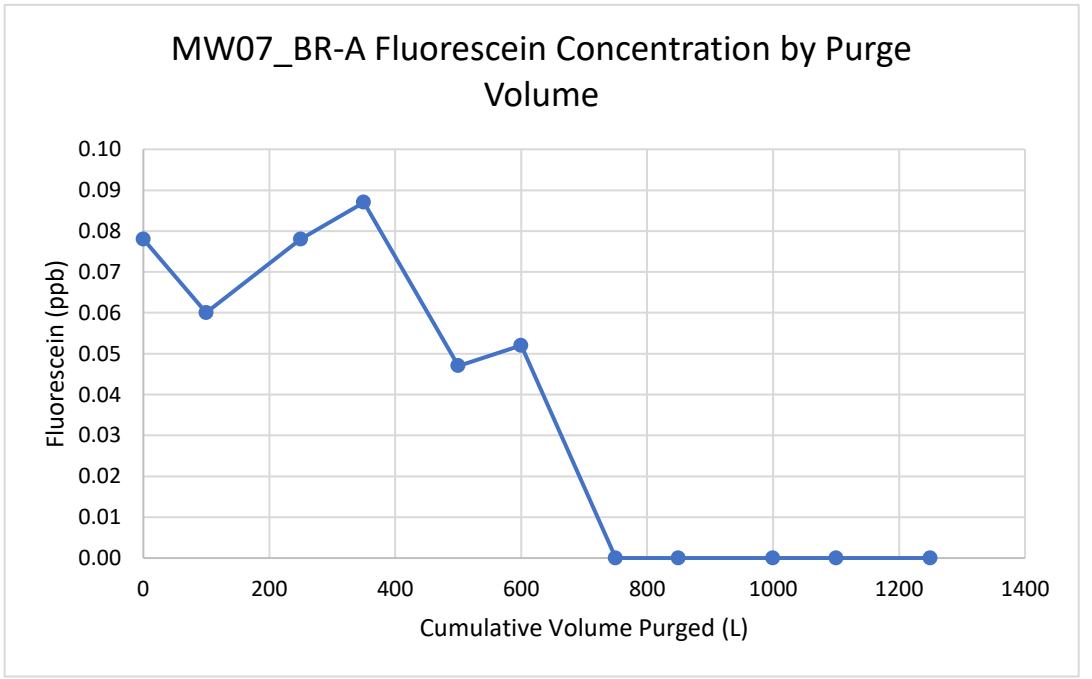
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

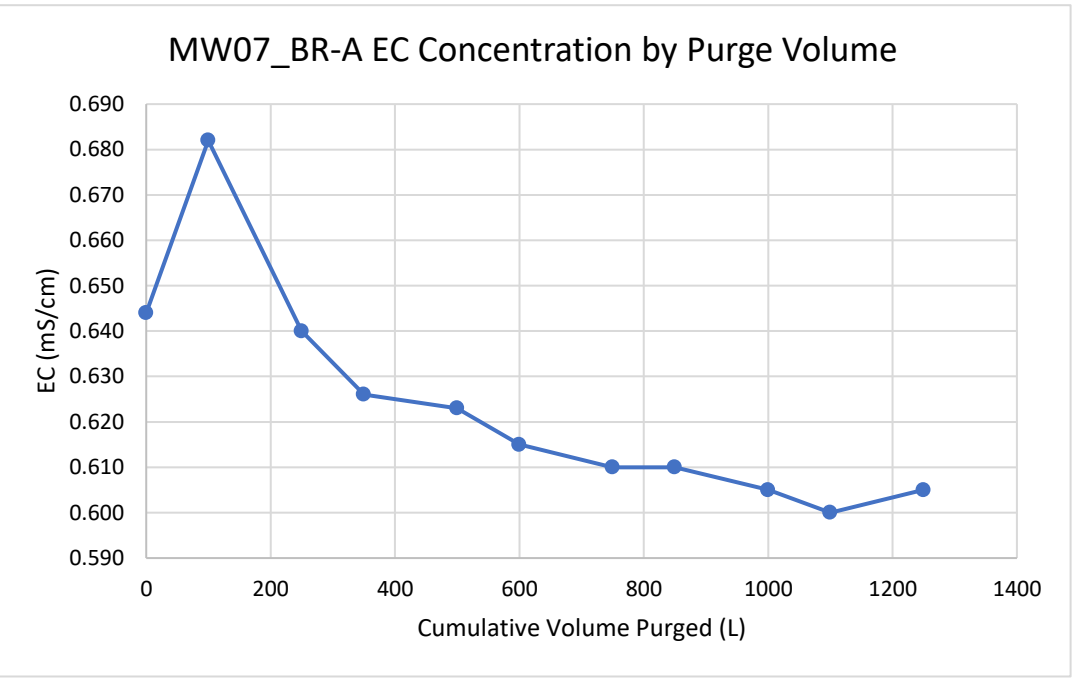
Sample Interval:	SB_MW07_BR-A	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	JLB,LMB	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

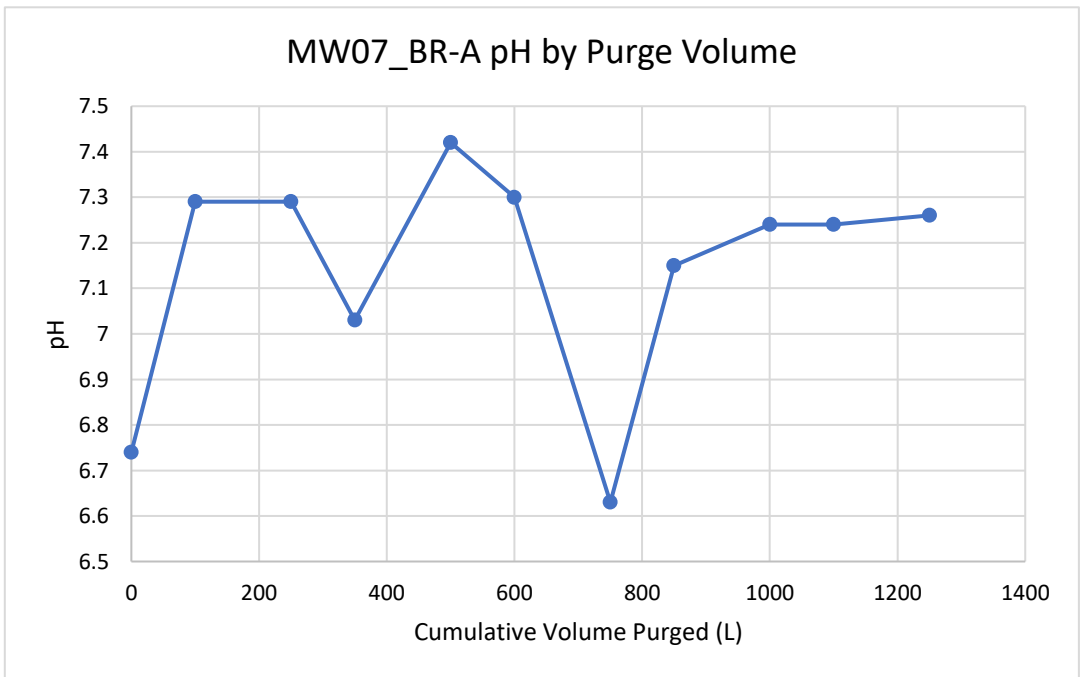
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-14	10:58	JLB/MEOR	0	0	Y	6.74	7.42	0.644	370	4.66	20.5	Y	0.08	N	Initial measurement; water initially clear then changed to more turbid
2022-01-14	11:40	JLB/MEOR	100	100	Y	7.29	7.45	0.682	298	3.02	672	Y	0.060	N	
2022-01-14	12:55	JLB/MEOR	150	250	Y	7.29	7.33	0.64	332	2.6	648	Y	0.078	N	
2022-01-14	13:44	JLB/MEOR	100	350	Y	7.03	6.93	0.626	375	2.46	590	Y	0.087	N	
2022-01-14	14:45	JLB/LMB	150	500	Y	7.42	7.03	0.623	309	2.64	495	Y	0.047	N	
2022-01-14	15:25	JLB/LMB	100	600	Y	7.3	7.378	0.615	348	2.4	685	Y	0.052	N	pump stopped at 15:37 for the day
2022-01-15	10:20	JLB/LMB	150	750	Y	6.63	7.59	0.61	399	2.65	786	Y	0.000	N	pump started at 09:18
2022-01-15	11:00	JLB/LMB	100	850	Y	7.15	7.48	0.61	322	2.23	768	Y	0.000	N	
2022-01-15	12:01	JLB/LMB	150	1000	Y	7.24	8.23	0.605	347	2.35	841	Y	0.000	N	
2022-01-15	12:43	JLB/LMB	100	1100	Y	7.24	8.18	0.6	344	2.12	682	Y	0.000	N	
2022-01-15	13:58	JLB/LMB	150	1250	Y	7.26	7.99	0.605	317	2.01	651	Y	0.000	N	Note: all purged water was milky/cloudy (white-grey) in colour

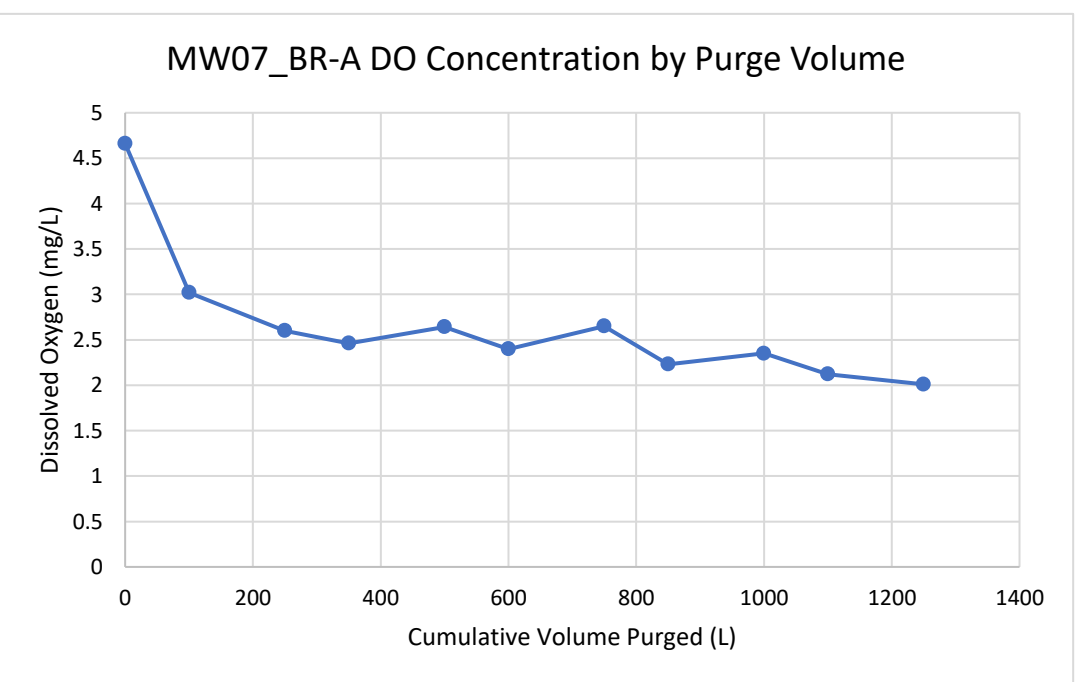
Completed by:	JLB,LMB	Verified by:	AMSC
Date:	2022-01-15	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

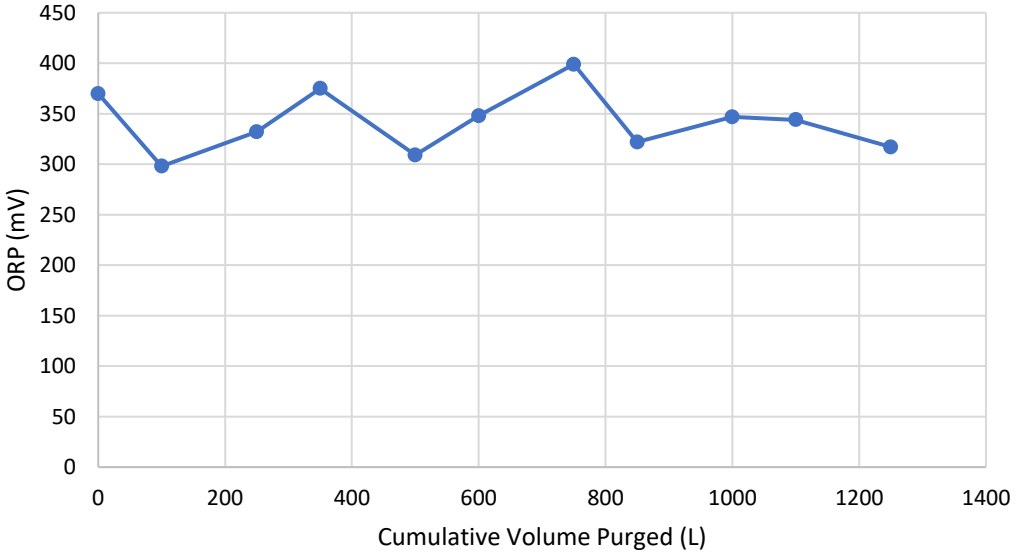


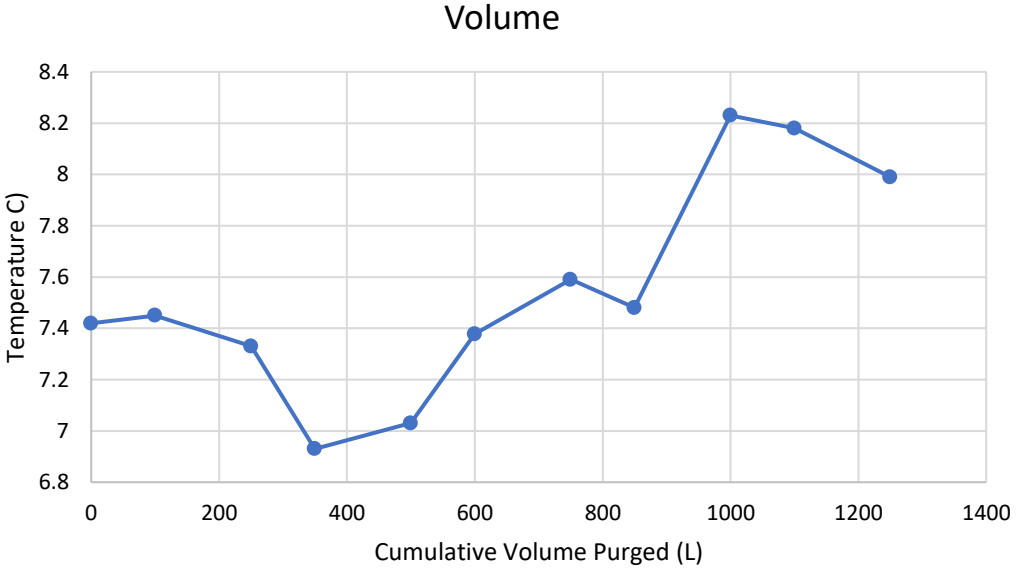


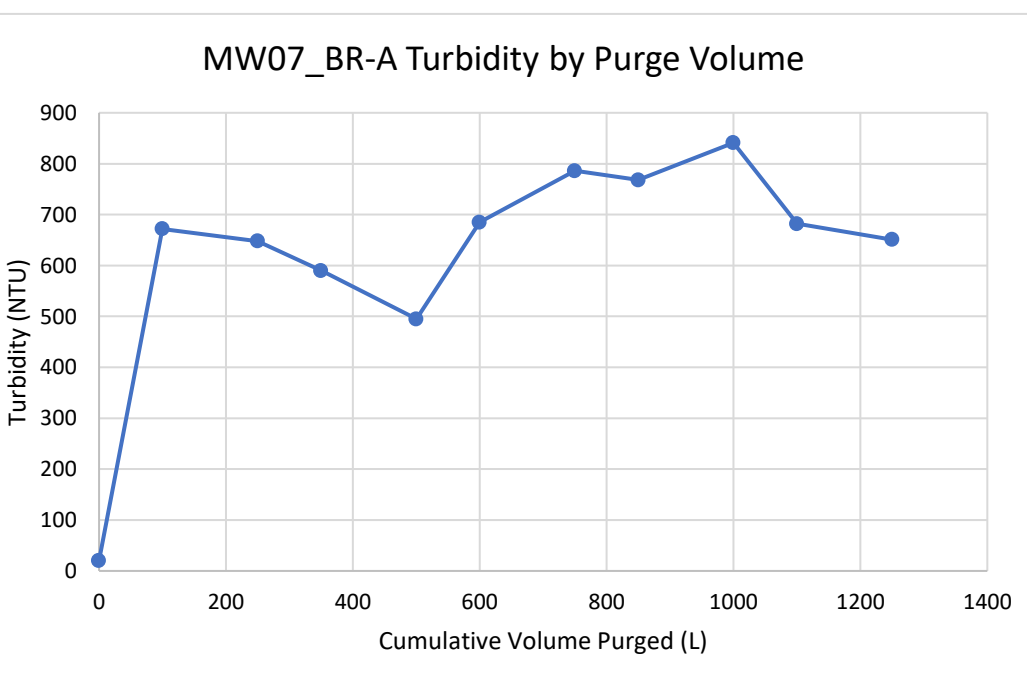




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







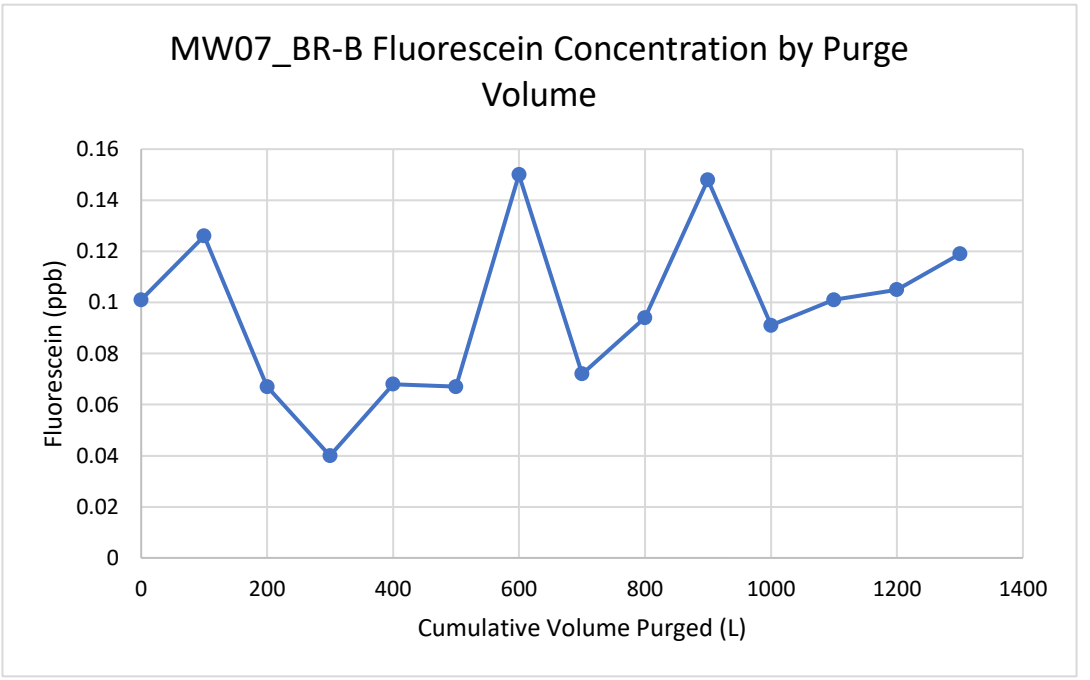
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

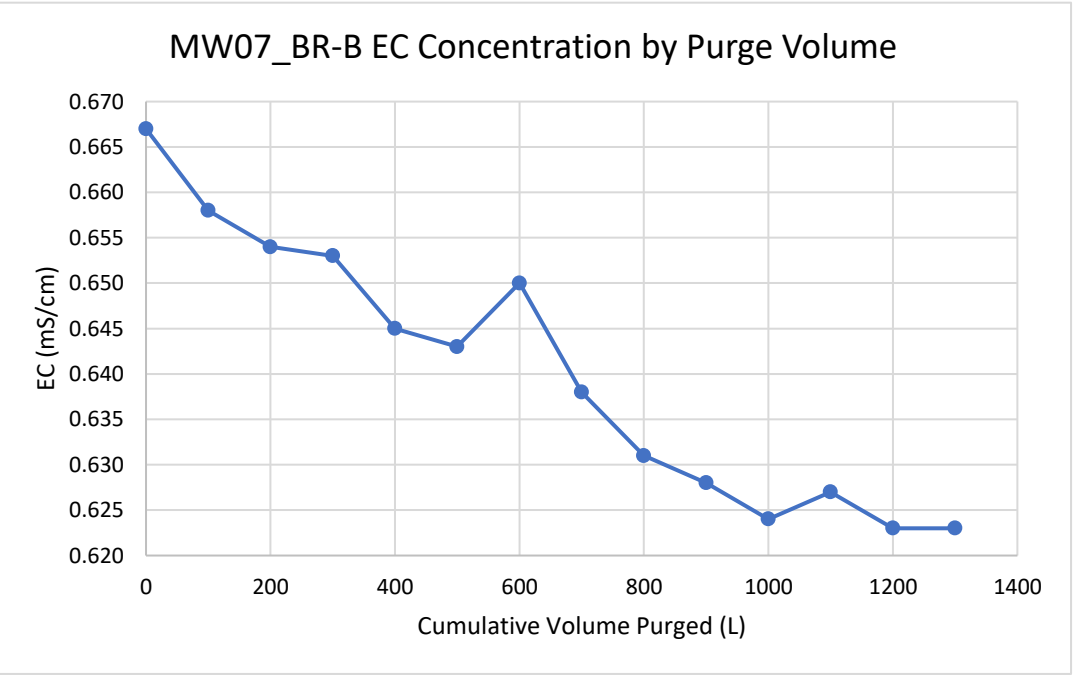
Sample Interval:	SB_MW07_BR-B	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	JLB,LMB	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

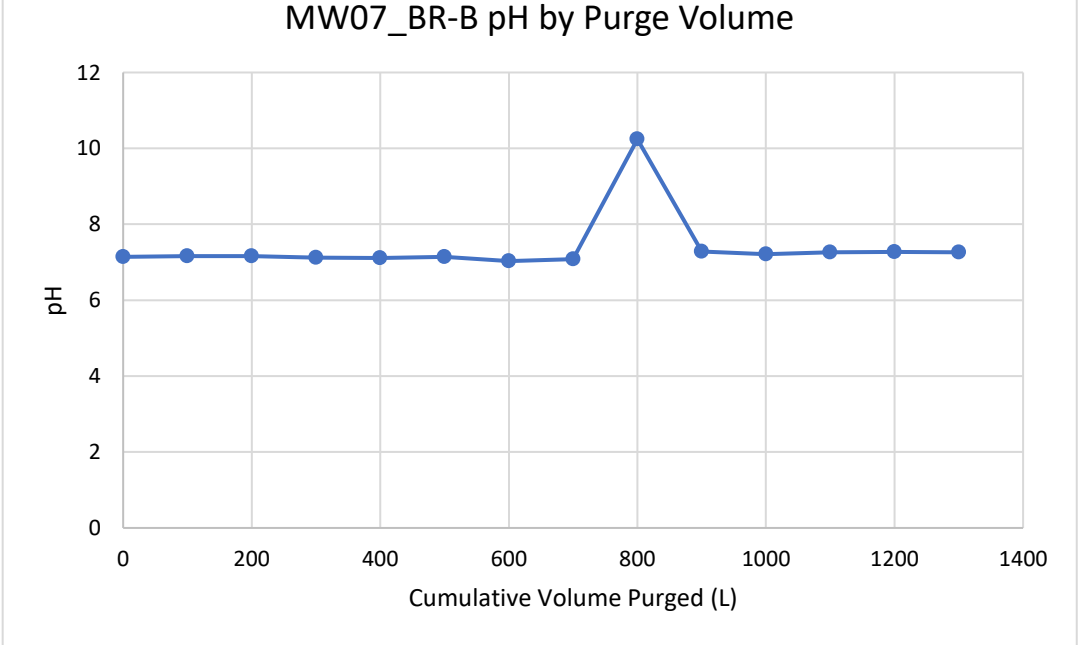
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-16	11:10	JLB/LMB	0	0	Y	7.14	7.93	0.667	336	1.82	1000	Y	0.101	N	Initial measurement, pump on at 11:06, water grey and murky, turbidity over 1000 but entered as 1000 for plotting purposes
2022-01-16	11:27	JLB/LMB	100	100	Y	7.16	7.64	0.658	310	0.31	243	Y	0.126	N	
2022-01-16	12:05	JLB/LMB	100	200	Y	7.16	7.92	0.654	346	0	9.2	Y	0.067	N	
2022-01-16	12:35	JLB/LMB	100	300	Y	7.12	7.46	0.653	306	0	7.5	Y	0.040	N	
2022-01-16	13:45	JLB/LMB	100	400	Y	7.11	7.67	0.645	311	0	2.68	Y	0.068	N	
2022-01-16	15:37	JLB/LMB	100	500	Y	7.14	7.42	0.643	300	0	1.9	Y	0.067	N	Generator ran out of gas; pump down for ~20 min, pump off for the day at 15:42
2022-01-17	10:03	JLB/LMB	100	600	Y	7.03	7.99	0.65	294	0.47	4.5	Y	0.150	N	Resume purging; pump on 9:05
2022-01-17	10:35	JLB/LMB	100	700	Y	7.08	8.04	0.638	340	0	38	Y	0.072	N	Water visibly more murky
2022-01-17	10:55	JLB/LMB	100	800	Y	10.24	8.12	0.631	326	0	30.2	Y	0.094	N	
2022-01-17	11:10	JLB/LMB	100	900	Y	7.28	8.05	0.628	327	0	85.8	Y	0.148	N	
2022-01-17	11:28	JLB/LMB	100	1000	Y	7.21	8.07	0.624	336	0	42.8	Y	0.091	N	
2022-01-17	11:55	JLB/LMB	100	1100	Y	7.26	7.95	0.627	339	0	14	Y	0.101	N	
2022-01-17	12:26	JLB/LMB	100	1200	Y	7.27	7.84	0.623	323	0	7.2	Y	0.105	N	
2022-01-17	12:53	JLB/LMB	100	1300	Y	7.26	7.94	0.623	330	0	6.5	Y	0.119	N	pump off at 13:00

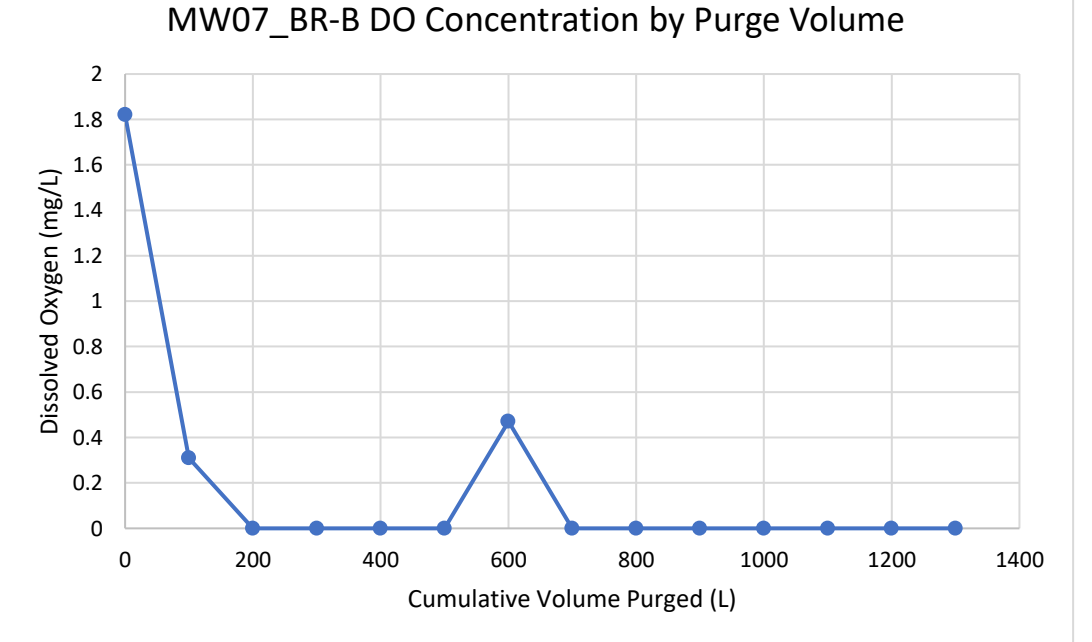
Completed by:	JLB/LMB	Verified by:	AMSC
Date:	2022-01-17	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

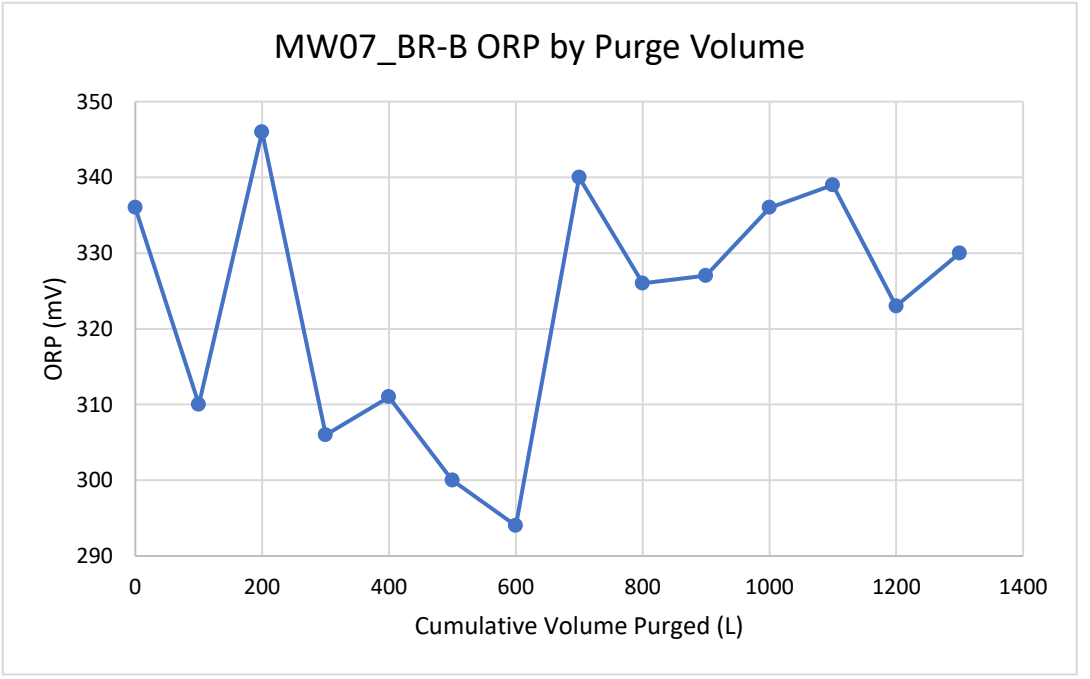


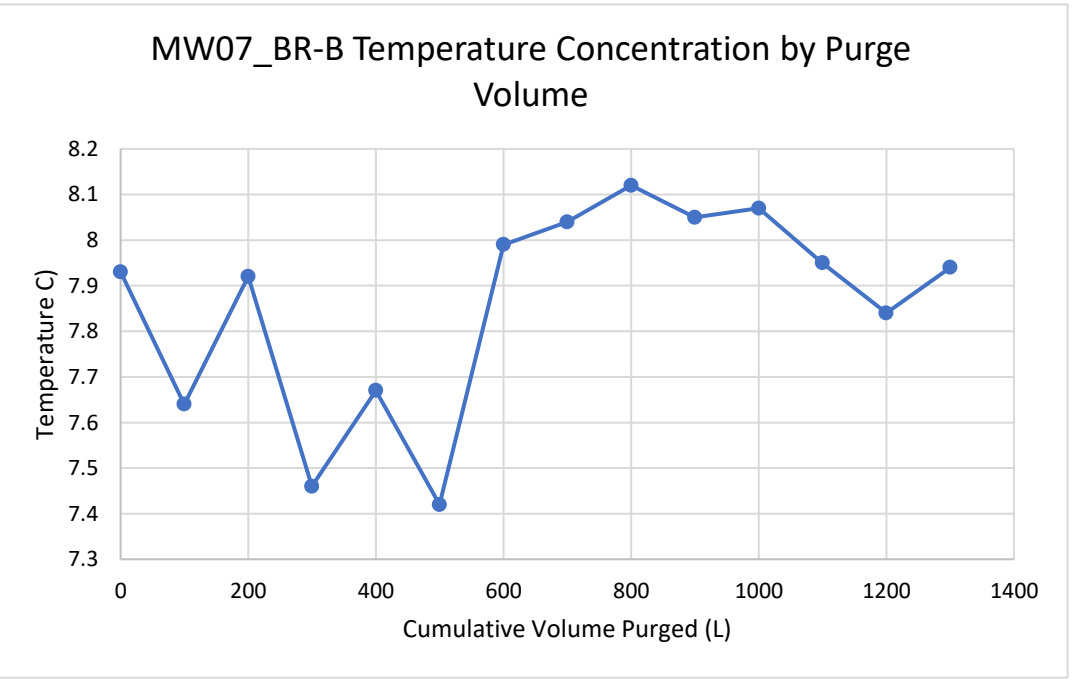


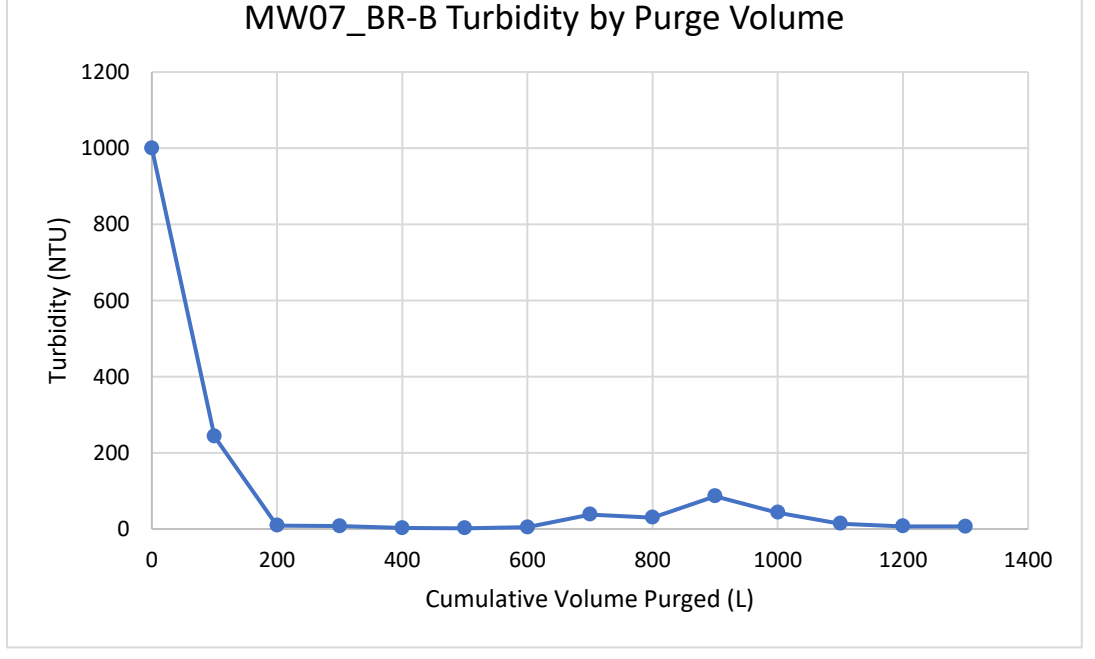




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







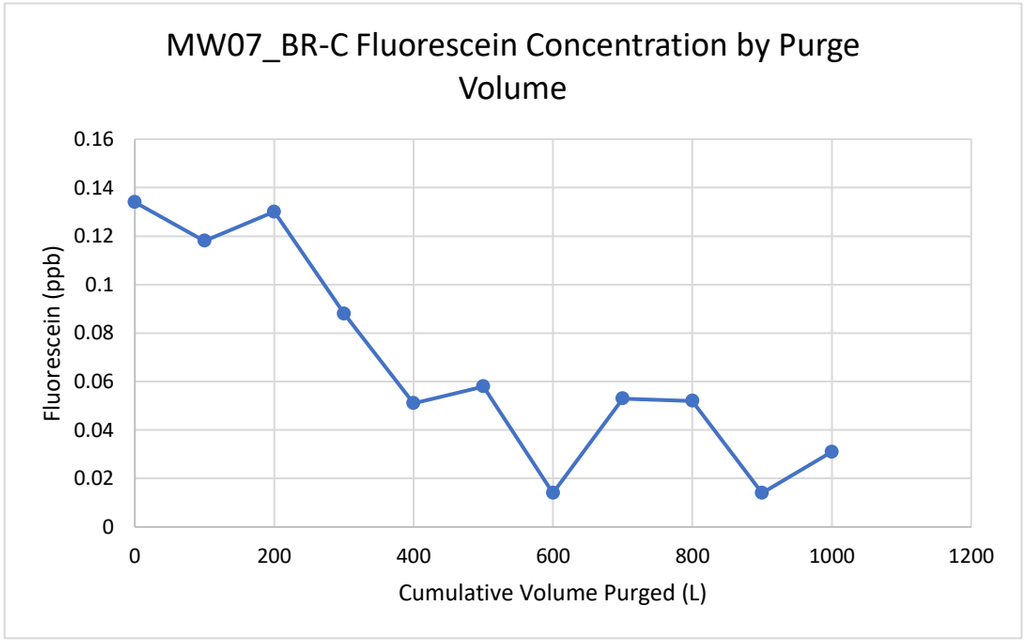
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

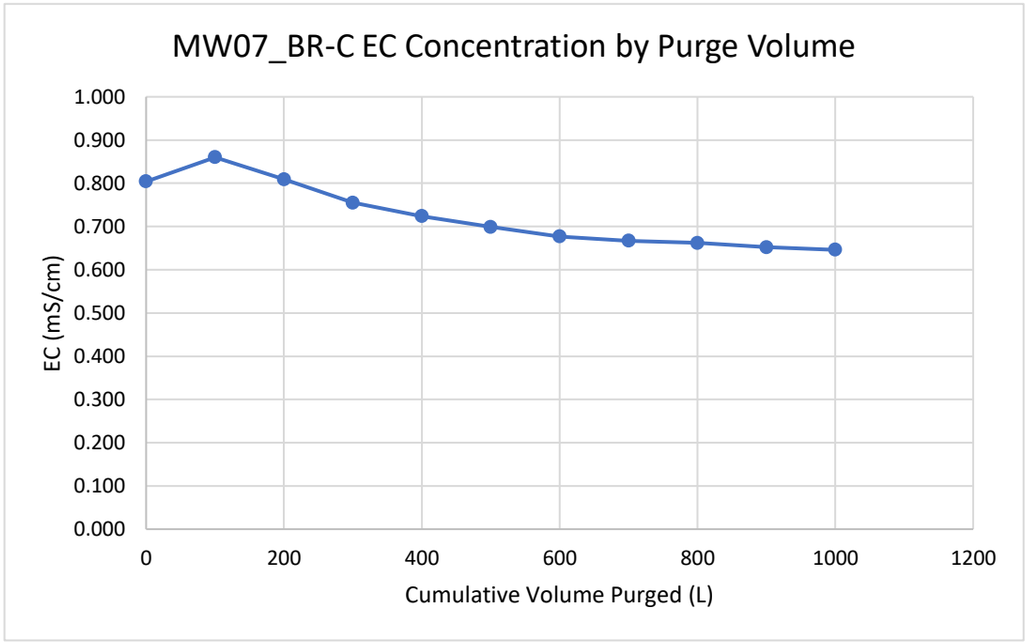
Sample Interval:	SB_MW07_BR-C	Multiparameter Probe:	Horiba U52 (SN. P1RCDHHU)	Comments:	
Sampling Personnel:	JLB, LMB	Fluorometer:	TurnerDesigns AquaFluor (SN. 807513)		

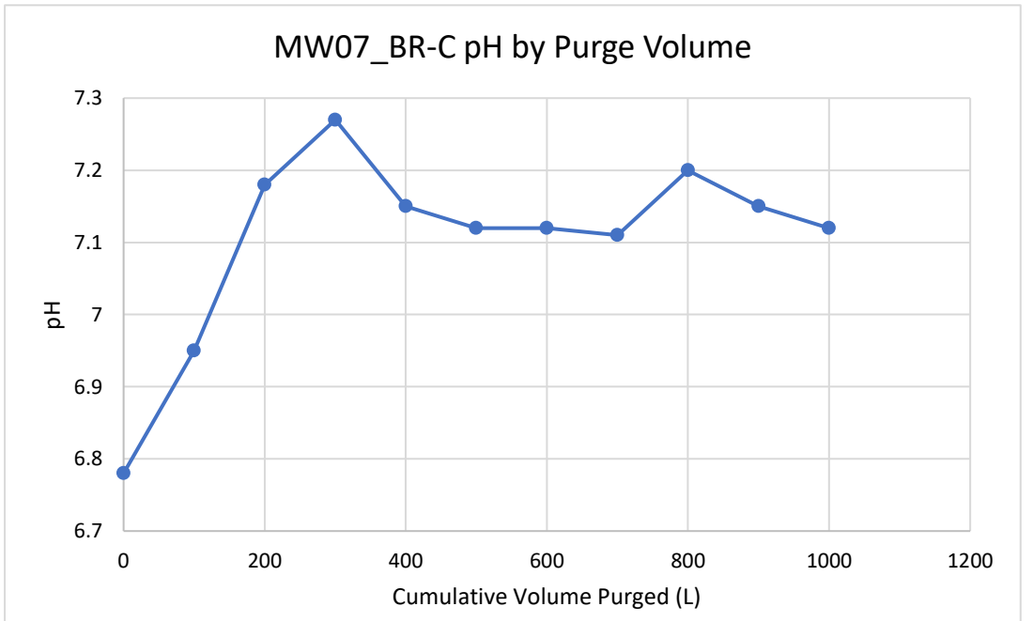
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-01-16	9:48	JLB/LMB	0	0	Y	6.78	7.99	0.804	376	0.34	1000	Y	0.134	N	Initial measurement, pump on at 09:45, water grey and murky, turbidity over 1000 but entered as 1000 for plotting purposes
2022-01-16	10:15	JLB/LMB	100	100	Y	6.95	7.74	0.86	368	0	192	Y	0.118	N	
2022-01-16	10:35	JLB/LMB	100	200	Y	7.18	7.75	0.809	356	0	140	Y	0.130	N	
2022-01-16	11:15	JLB/LMB	100	300	Y	7.27	8.03	0.755	314	0	669	Y	0.088	N	
2022-01-16	11:47	JLB/LMB	100	400	Y	7.15	8.13	0.724	312	0	94.5	Y	0.051	N	
2022-01-16	12:23	JLB/LMB	100	500	Y	7.12	7.93	0.699	313	0	60.8	Y	0.058	N	
2022-01-16	13:10	JLB/LMB	100	600	Y	7.12	8.08	0.677	320	0	42.8	Y	0.014	N	
2022-01-16	13:36	JLB/LMB	100	700	Y	7.11	7.93	0.667	324	0	41	Y	0.053	N	
2022-01-16	14:01	JLB/LMB	100	800	Y	7.2	8.02	0.662	300	0	29.5	Y	0.052	N	
2022-01-16	14:35	JLB/LMB	100	900	Y	7.15	8.13	0.652	323	0	11.6	Y	0.014	N	
2022-01-16	15:22	JLB/LMB	100	1000	Y	7.12	8.13	0.646	310	0	11.3	Y	0.031	N	

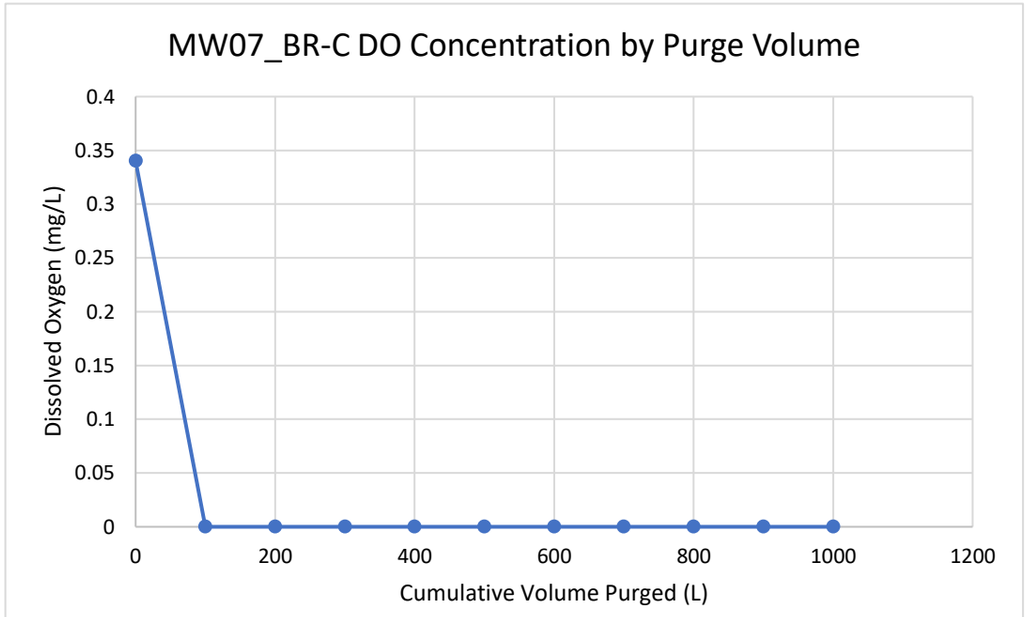
Completed by:	JLB, LMB	Verified by:	AMSC
Date:	2022-01-16	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

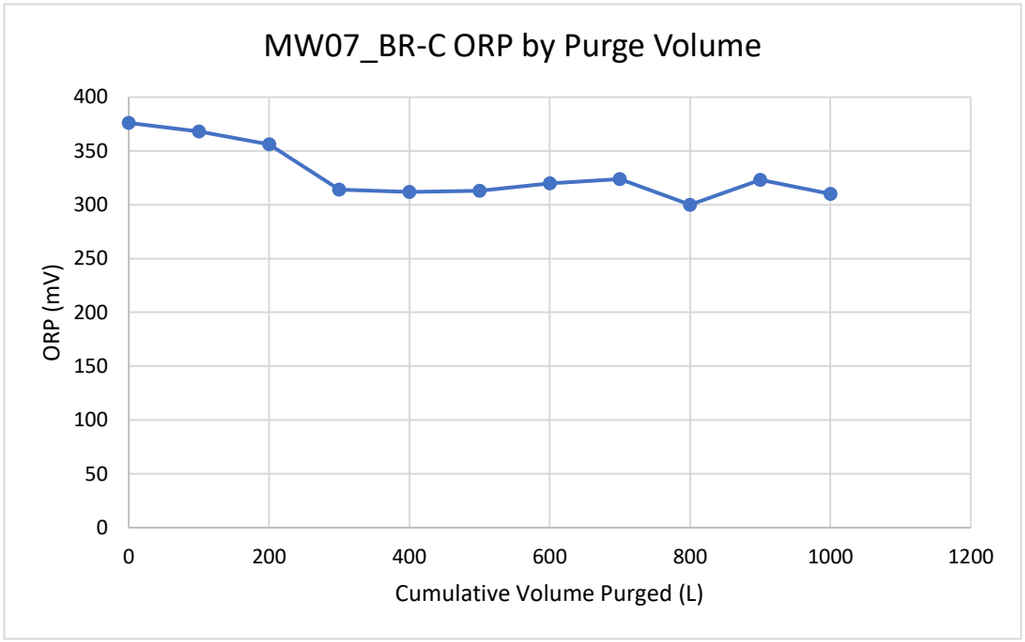


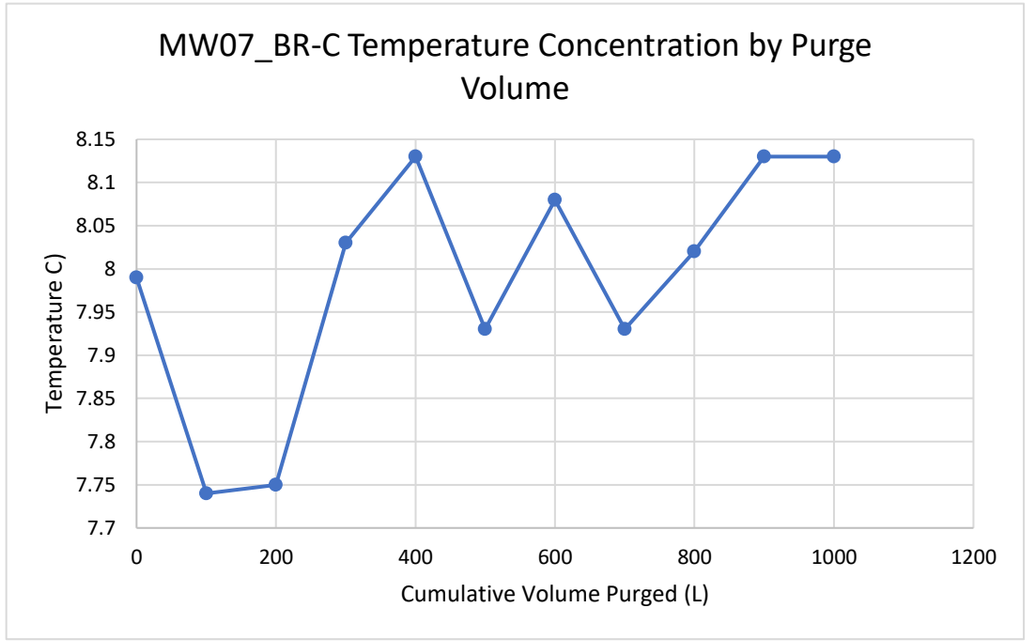


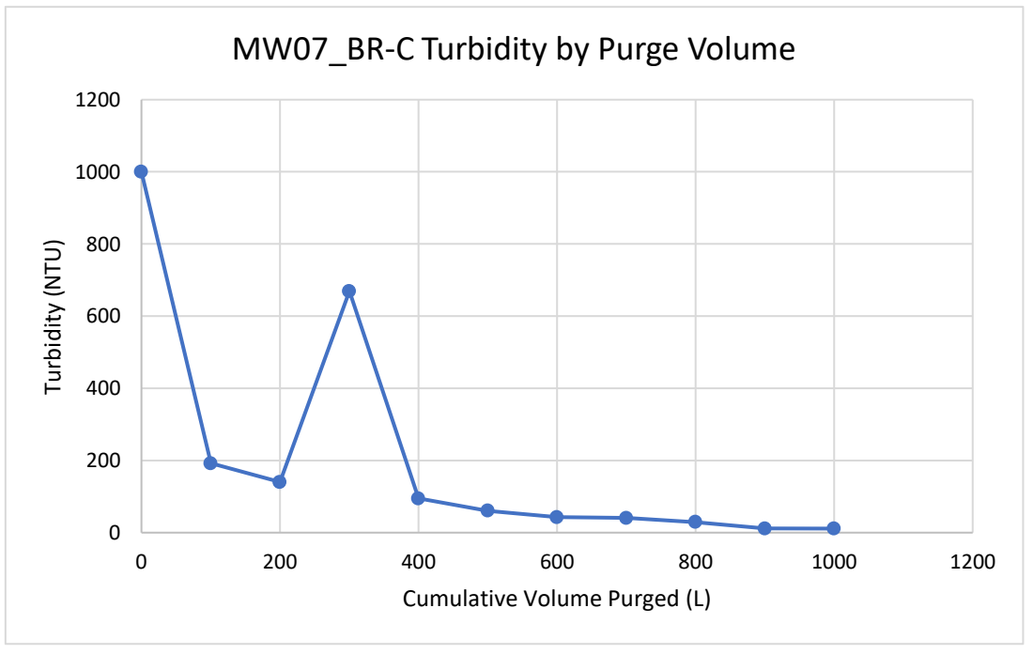




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







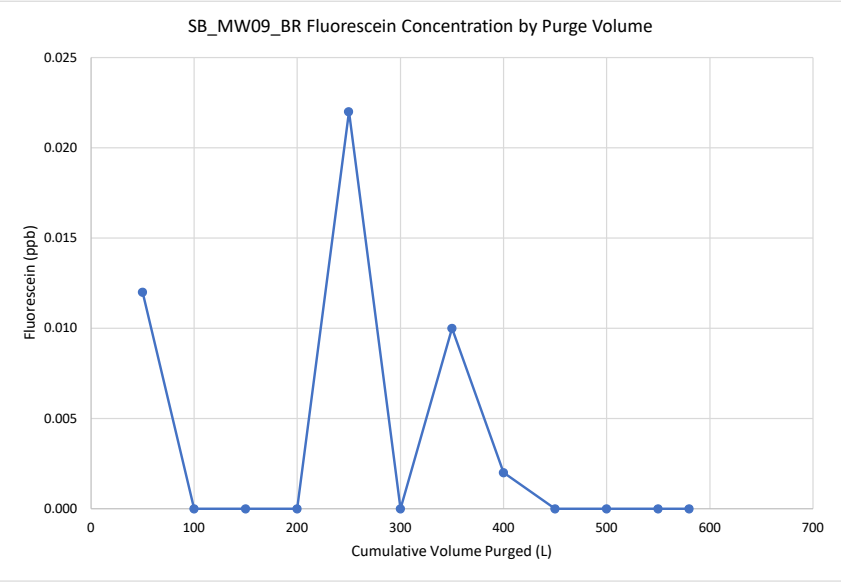
Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Field Parameters

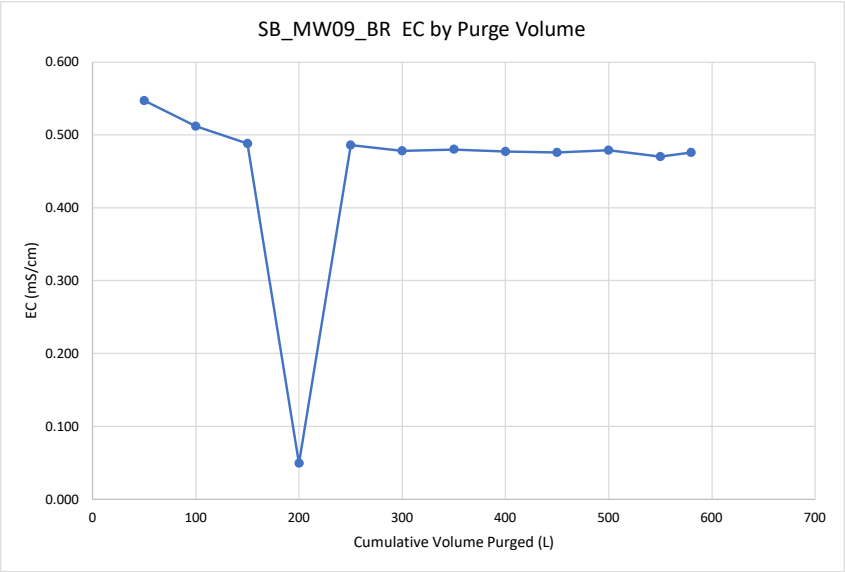
Sample Interval:	SB_MW09_BR-B	Multiparameter Probe:	Horiba U52 (SN. RUOWKNST)	Comments:	
Sampling Personnel:	TKG	Fluorometer:	TurnerDesigns AquaFluor (SN. 801434)		

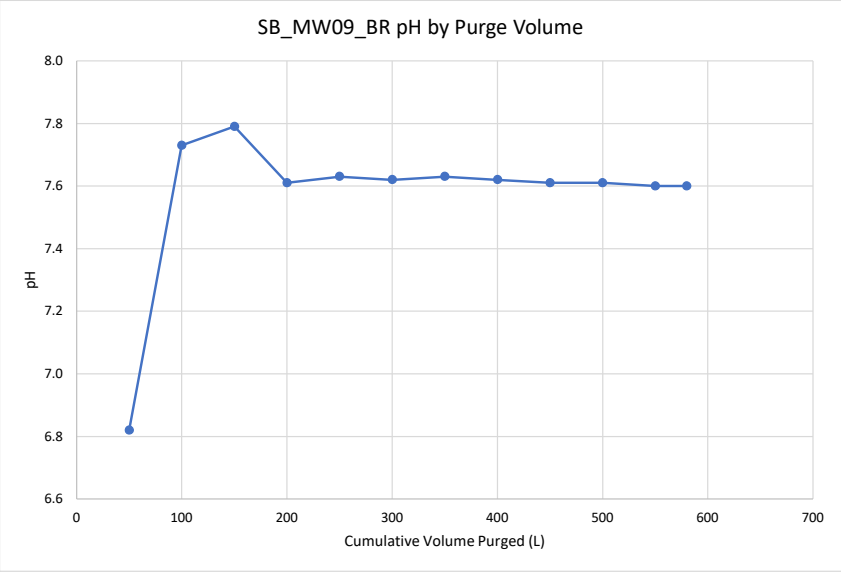
Date	Time	Measured by (Initials)	Volume Purged (L)		Multiparameter Probe							Fluorometer		Purge Water Archive Sample Collected (Y/N) If Yes, also record parameters on "Sample Collection Data Sheet"	Comments (sample ID, sample collection method, odour, etc.)
			Since Last Measurement	Cumulative	Calibrated	pH	Temp (°C)	EC (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Calibrated	Fluorescein (ppb)		
2022-12-15	9:25	TKG	50	50	Y	6.8	5.4	0.547	-13	2.58	89.2	Y	0.012	N	Water continuously purged through flow through cell into 1000L graduated tote using waterra hydrolift. Temperature values impacted by cold conditions during purging.
2022-12-16	9:55	TKG	50	100	Y	7.7	6.0	0.512	-68	5.20	52.2	Y	0.000	N	
2022-12-17	10:20	TKG	50	150	Y	7.8	6.0	0.488	-42	3.89	89.4	Y	0.000	N	
2022-12-18	10:45	TKG	50	200	Y	7.6	6.0	0.049	-65	2.04	79.6	Y	0.000	N	
2022-12-19	11:10	TKG	50	250	Y	7.6	6.0	0.486	-62	0.02	16.9	Y	0.022	N	
2022-12-20	11:35	TKG	50	300	Y	7.6	6.1	0.478	-32	0.00	5.0	Y	0.000	N	
2022-12-21	12:00	TKG	50	350	Y	7.6	4.1	0.480	-22	0.00	3.9	Y	0.010	N	
2022-12-22	12:25	TKG	50	400	Y	7.6	4.7	0.477	-24	0.00	5.0	Y	0.002	N	
2022-12-23	12:50	TKG	50	450	Y	7.6	6.1	0.476	-29	0.00	6.9	Y	0.000	N	
2022-12-24	13:15	TKG	50	500	Y	7.6	6.8	0.479	-25	0.00	3.4	Y	0.000	N	
2022-12-25	13:40	TKG	50	550	Y	7.6	6.9	0.470	-31	0.00	5.1	Y	0.000	N	
2022-12-26	14:05	TKG	30	580	Y	7.6	6.5	0.476	-29	0.00	3.1	Y	0.000	N	

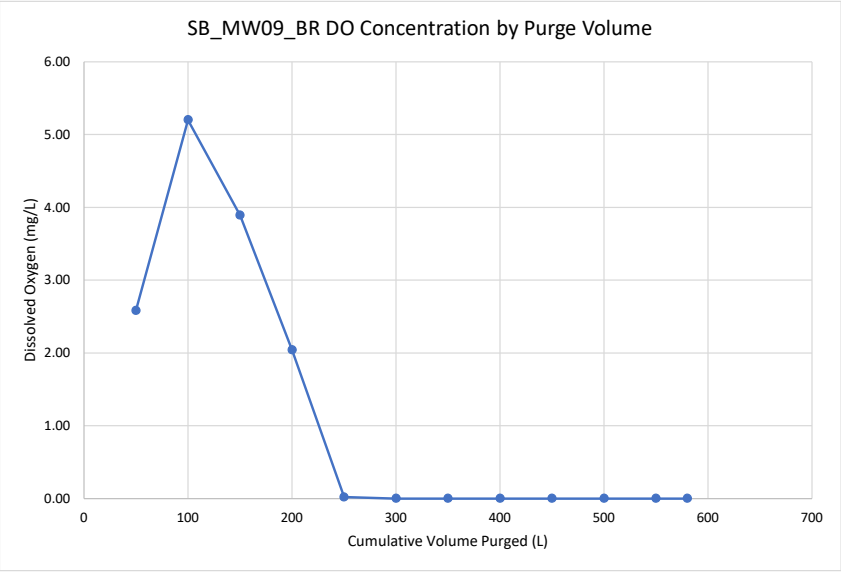
Completed by:	TKG	Verified by:	GDB
Date:	2022-12-15	Date:	2022-12-16

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots

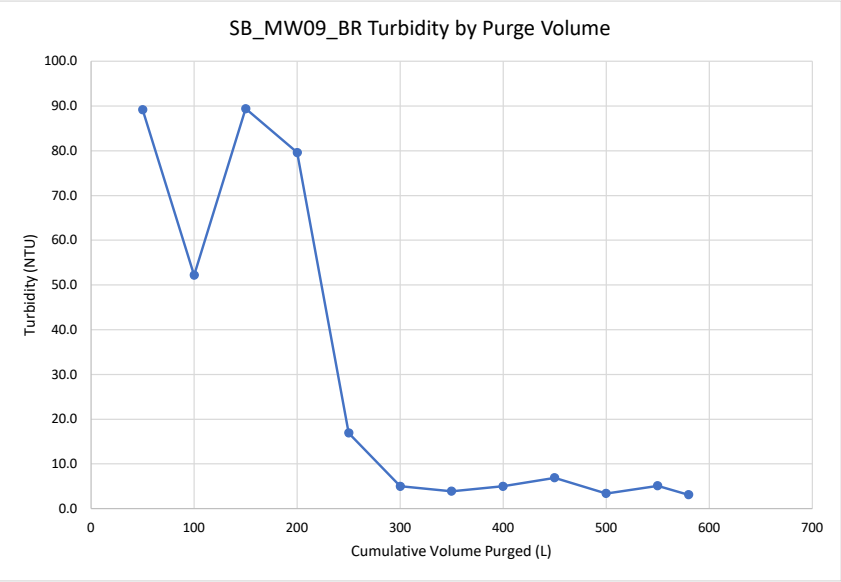


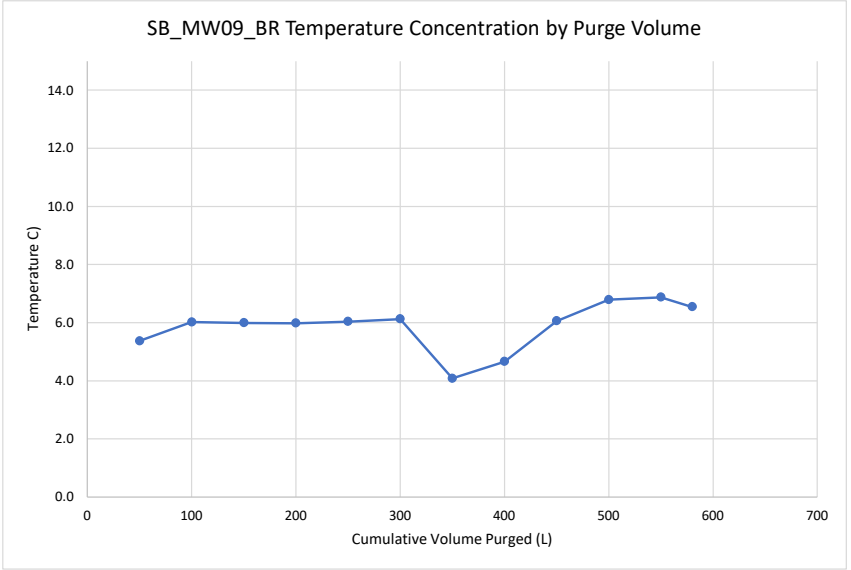


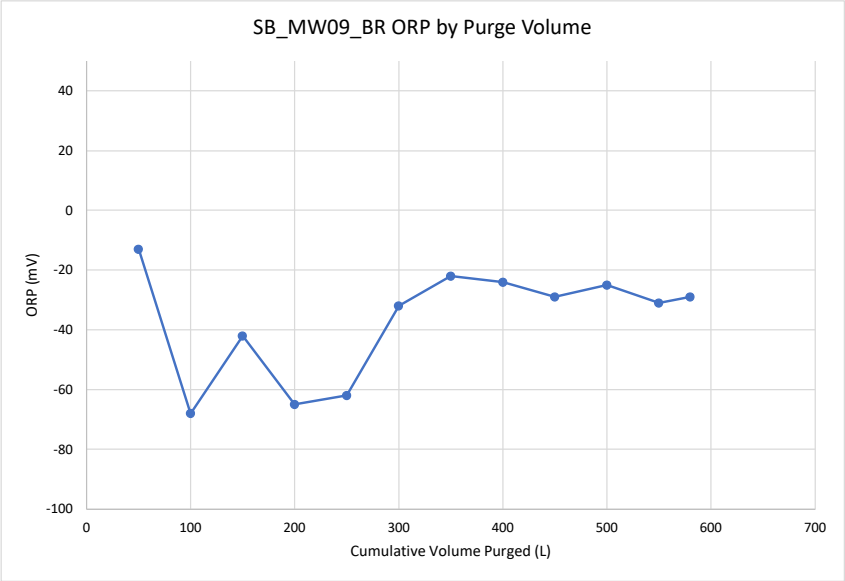




Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Purging Plots







Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Tranducer Installation Depth (m)	Depth Reference	Comments
LIM	2022-02-15 11:00	Surface	Solinst Barologger 5 Model 3001	2148898	0	at surface	Barologger is within a bin strapped to MW01-02 casing
LIM	2022-03-25 15:15	SB_MW01-01	Solinst Levelogger 5 Model 3001 M10	2148698	6.32	TOC	Well is too shallow to install transducer 5 m below static water level. Transducer deployed 7.50mBTOC, approximately 3.0 m below static water level. Two readings taken at surface and one taken 6.0 mBTOC to ensure tansducer was working prior to deployment.
LIM	2022-03-25 15:20	SB_MW01-02	Solinst Levelogger 5 Model 3001 M30	2148999	20.14	TOC	WL = 10.170 mBTOC; approximately 10.0 m below static water level. Two readings taken at surface and one taken 15.0 mBTOC to ensure tansducer was working prior to deployment.

Completed by: LIM	Verified by: AMSC
Date: 2022-03-25	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Transducer Installation Depth (m)	Depth Reference	Comments
Corbin S.	2022-02-15 16:45	SB_MW02_OB-int	Solinst Levelogger 5 Model 3001 M10	2148681	10	TOC	
Corbin S.	2022-02-15 16:30	SB_MW02_BR-A	Solinst Levelogger 5 Model 3001 M30	2148966	15	TOC	
Corbin S.	2022-02-15 16:30	SB_MW02_BR-C	Solinst Levelogger 5 Model 3001 M30	2148958	15	TOC	
JLB/LMB	2022-04-04 11:20	SB_MW02_BR-B	Solinst Levelogger 5 Model 3001 M30	2148969	13.54	TOC	~10m below water level

Completed by:	JLB/LMB/CJS	Verified by:	AMSC
Date:	2022-02-16	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Transducer Installation Depth (m)	Depth Reference	Comments
Corbin S.	2022-02-15	SB_MW03_OB-int	Solinst Levelogger 5 Model 3001 M10	2148686	7	m BTOC	
Chris M.	2022-02-24	SB_MW03_BR-C	Solinst Levelogger 5 Model 3001 M30	2148970	10	m below bottom of Margo plug	
Chris M.	2022-02-24	SB_MW03_BR-B	Solinst Levelogger 5 Model 3001 M30	2148968	10	m below bottom of Margo plug	
LMB/JLB/CAM	2022-04-03	SB_MW03_BR-A	Solinst Levelogger 5 Model 3001	2148963	10	m below bottom of Margo plug	

Completed by:	Paul Trudell	Verified by:	AMSC
Date:	2022-02-17	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Transducer Installation Depth (m)	Depth Reference	Comments
Corbin S.	2022-02-15 16:45	SB_MW04_OB-int	Solinst Levelogger 5 Model 3001, M10	2148689	15	TOC	
Corbin S.	2022-02-15 16:45	SB_MW04_BR-A	Solinst Levelogger 5 Model 3001, M30	2148975	18	TOC	
Corbin S.	2022-02-15 16:45	SB_MW04_BR-B	Solinst Levelogger 5 Model 3001, M30	2148973	18	TOC	
Corbin S.	2022-02-15 16:45	SB_MW04_BR-C	Solinst Levelogger 5 Model 3001, M30	2148971	18	TOC	

Completed by: CJS	Verified by: AMSC
Date: 2022-02-15	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Transducer Installation Depth (m)	Depth Reference	Comments
Corbin S.	2022-02-15 17:30	SB_MW05_OB-int	Solinst Levelogger 5 Model 3001 M10	2148691	10	TOC	
Corbin S.	2022-02-15 17:30	SB_MW05_BR-A	Solinst Levelogger 5 Model 3001 M30	2148979	18	TOC	
Corbin S.	2022-02-15 17:45	SB_MW05_BR-B	Solinst Levelogger 5 Model 3001 M30	2148977	18	TOC	
Corbin S.	2022-02-15 17:45	SB_MW05_BR-C	Solinst Levelogger 5 Model 3001 M30	2148976	18	TOC	

Completed by: Paul T.	Verified by: AMSC
Date: 2022-02-16	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Transducer Installation Depth (m)	Depth Reference	Comments
Corbin S.	2022-02-15 13:20	SB_MW06_OB-int	Solinst Levelogger 5 Model 3001 M10	2148692	13.5	TOC	
Corbin S.	2022-02-15 13:20	SB_MW06_BR-A	Solinst Levelogger 5 Model 3001 M30	2148987	20	TOC	
Corbin S.	2022-02-15 13:30	SB_MW06_BR-B	Solinst Levelogger 5 Model 3001 M30	2148983	20	TOC	
Corbin S.	2022-02-15 13:30	SB_MW06_BR-C	Solinst Levelogger 5 Model 3001 M30	2148981	20	TOC	

Completed by:	Paul Trudell	Verified by:	AMSC
Date:	2022-02-16	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
WPD (MW Installation / Testing): Transducer Installation Data Sheet

Project Number: 21-223-1

Installation By:	Date and Time	Monitoring Interval	Transducer Make and Model	Transducer Serial Number	Transducer Installation Depth (m)	Depth Reference	Comments
Corbin S.	2022-02-15 14:15	SB_MW07_OB-int	Solinst Levelogger 5, Model 3001, M10	2148694	9.5	TOC	
Corbin S.	2022-02-15 14:15	SB_MW07_BR-A	Solinst Levelogger 5, Model 3001, M30	2148995	19	TOC	
Corbin S.	2022-02-15 14:30	SB_MW07_BR-B	Solinst Levelogger 5, Model 3001, M30	2148993	18	TOC	
Corbin S.	2022-02-15 14:30	SB_MW07_BR-C	Solinst Levelogger 5, Model 3001, M30	2148988	19	TOC	

Completed by:	CJS	Verified by:	AMSC
Date:	2022-02-16	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
Well inspections

Project Number: 21-223-1

Well ID	Date and Time	Inspected by	Tagged depth (mBTOC)	Video recorded (Y/N)	Depth interval recorded (mBTOC)	Joints in good condition? (Y/N)	Comments
SB_MW02_BR-A	2022-03-29 14:33	LIM/BFS	82.5	N	N/A	N/A	
SB_MW02_BR-B	2022-03-29 14:50	LIM/BFS	63.6	N	N/A	N/A	No tubing in this well.
SB_MW02_BR-C	2022-03-29 14:48	LIM/BFS	19.4	N	N/A	N/A	Grey silt and clay in tubing
SB_MW02_OB-int	2022-03-29 14:55	LIM/BFS	11.1	N	N/A	N/A	Brown fine sand and silt in footvalve.
SB_MW02_BR-A	2022-04-03 10:30	JLB/LMB	N/A	Y	82.2	Y	Water Level taken with WL-11: 4.39m BTOC. Joints (mBTOC) and Timestamp (m:s): 0.36(00:28), 3.41(01:29), Water Level @ 4.40(02:10), 6.44(03:08), 9.50(04:17), 12.57(05:33), 15.60(06:42), 18.68(07:49), 21.71(08:53), 25.76(09:54), 27.82(11:00), 30.87(12:15), 33.92(13:38), 36.98(15:02), 40.03(16:34), 43.08(18:00), 46.14(19:27), 49.18(21:19), 52.22(23:43), 55.30(25:05), 58.34(26:20), 61.38(27:34), 64.46(28:55), 67.57(30:08), 70.56(31:46), 73.62(33:10), 76.68(34:19), 79.74(35.39), 81.21(36:45). Bottom of well @ 82.20 mBTOC (37:40)
SB_MW02_BR-B	2022-04-02 16:39	JLB/LMB	N/A	Y	62.89	Y	Water Level taken with WL-11: 3.63m BTOC. Joints (mBTOC) and Timestamp (m:s): 1.39(00:49), Water Level @ 3.64(02:15), 4.42(03:09), 7.49(04:42), 10.55(06:02), 13.60(07:16), 16.66(08:40), 19.71(10:03), 22.77(11:09), 25.82(12:20), 28.89(13:38), 31.92(14:49), 34.98(15:57), 38.02(16:57), 41.07(18:03), 44.12(19:39), 47.20(20:47), 50.23(21:49), 53.30(23:00), 56.36(24:31), 59.40(26:08), 62.45(27:52). Bottom @ 62.89 (28:23)
SB_MW02_BR-C	2022-04-02 17:26	JLB/LMB	N/A	Y	19.36	Y	Water Level taken with WL-11: 3.78m BTOC. Joints (mBTOC) and Timestamp (m:s): 1.13(00:47), 3.73(02:08), Water Level @ 3.79 (02:18), 4.18(02:50), 7.25(04:01), 10.30(05:09), 13.35(06:21), 16.40(07:47), 17.91(08:51). Bottom @ 19.36 (10:00)
SB_MW02_OB-int	2022-04-02 17:45	JLB/LMB	N/A	Y	11	Y	Water Level taken with WL-11: 4.44m BTOC. Joints (mBTOC) and Timestamp (m:s): 0.94(00:17), 2.45(01:15), Water Level @ 4.45 (02:15), 5.47(03:08), 8.52(04:25). Bottom @ 11.00(06:15)

Completed by:	LIM/JLB/LMB	Verified by:	AMSC
Date:	2022-04-02	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
Well inspections

Project Number: 21-223-1

Well ID	Date and Time	Inspected by	Tagged depth (mBTOC)	Video recorded (Y/N)	Depth interval recorded (mBTOC)	Joints in good condition? (Y/N)	Comments
SB_MW03_OB-int	2022-03-29	LIM/BFS	11.3	N	N/A	N/A	Brown fine sand and silt in foot valve
SB_MW03_OB-int	2022-04-03	JLB/LMB	N/A	Y	11.26	Y	Water level taken with WL-11: 1.49m BTOC. Joints (mBTOC) and Timestamp (m:s): Water Level @1.51(01:30), 2.27(02:31), 5.33(04:13), 8.38(06:03). Bottom @ 11.26(07:35).
SB_MW03_BR-A	2022-04-03	JLB/LMB	53.74	Y	53.55	Y	Water Level taken with WL-11: 0.41m BTOC. Joints (mBTOC) and Timestamp (m:s): Water Level @ 0.42(00:30), 1.95(03:03), 4.94(05:25), 8.03(07:27), 11.09(09:00), 13.16(10:18), missed joint, missed joint, missed joint, missed joint, 29.40(21:05), 32.44(22:23), 35.50(23:52), 38.56(25:10), missed joint, missed joint, missed joint, missed joint. Bottom @53.55(34:28). Water very visibly murky and silty so difficult to see the exact location of joints.
SB_MW03_BR-B	2022-04-03	JLB/LMB	40.4	Y	40.25	Y	Water Level taken with WL-11: 0.96m. Joints (mBTOC) and Timestamp (m:s): 0.66(00:54), Water Level @0.97(01:19), 3.71(03:44), 6.74(04:58), 9.81(06:35), 12.88(07:43), 15.93(08:50), 18.97(09:52), 22.03(11:09), 25.11(12:21), 28.15(13:32), 31.19(14:43), 34.21(16:00), 37.26(18:02), 38.77(19:00). Bottom @40.25(20:13).
SB_MW03_BR-C	2022-04-03	JLB/LMB	23.1	Y	22.9	Y	Water Level taken with WL-11: 2.20m. Joints (mBTOC) and Timestamp (m:s): 1.66(01:04), 2.19(01:25), 4.71(03:17), 7.75(05:60), 10.82(06:50), 13.81(08:05), 16.86(09:12), 19.91(10:30), 21.40(11:45). Bottom @22.90(13:00).

Completed by: JLB/LMB	Verified by: AMSC
Date: 2022-04-03	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
Well inspections

Project Number: 21-223-1

Well ID	Date and Time	Inspected by	Tagged depth (mBTOC)	Video recorded (Y/N)	Depth interval recorded (mBTOC)	Joints in good condition (Y/N)	Comments
SB_MW04_OB-int	2022-03-27 11:22	LIM/BFS	11.30	Y	TOC to 10.95mBTOC	Y	Well appears to be in good condition with all joints intact
SB_MW04_BR-C	2022-03-27 16:37	LIM/BFS	30.50	Y	TOC to 30.15mBTOC	Y	Well appears to be in good condition with all joints intact
SB_MW04_BR-B	2022-03-27 14:41	LIM/BFS	49.40	Y	TOC to 49.05mBOTC	Y	Well appears to be in good condition with all joints intact
SB_MW04_BR-A	2022-03-27 14:10	LIM/BFS	80.25	Y	TOC to 79.90mBTOC	Y	Well appears to be in good condition with all joints intact
SB_MW04_BR-A	2022-03-31 8:49	LIM/BFS	bottom of well not tagged	Y	TOC to 80.37mBTOC	Y	Joints at 1.20, 4.25, 7.30, 10.35, 13.40, 16.45, 19.50, 22.55, 25.60, 28.65, 31.70, 34.75, 37.80, 40.85 (pipe dirty near this joint), 43.90, 46.95 (some dark stain around this joint), 50.00, 53.05, 56.10, 59.15, 62.20, 65.25, 68.30, 71.35, 74.40, 77.45, 79.00 mBTOC. Bottom of well ~ 80.37
SB_MW04_BR-B	2022-03-31 9:26	LIM/BFS	bottom of well not tagged	Y	TOC to 49.54mBTOC	Y	Joints at 0.85, 3.90, 6.95,10.00, 13.05, 16.10, 19.15, 22.20, 25.25, 28.30, 31.35, 34.40, 37.45, 40.50, 43.55 (slits visible below this joint), 46.60 (slits visible below this joint),48.10 (slits visible below this joint) mBTOC. Bottom ~49.54mBTOC.
SB_MW04_BR-C	2022-03-31 8:49	LIM/BFS	bottom of well not tagged	Y	TOC to 30.29mBTOC	Y	Joints at 3.15, 6.20, 9.25, 12.30, (green streak below this joint), 15.35, 18.40 (green streak below this joint), 21.45, 24.50, 27.55, 29.03 (slits visible below this joint). Well bottom ~30.29 mBTOC.
SB_MW04_OB-int	2022-03-31 8:49	LIM/BFS	bottom of well not tagged	Y	TOC to 11.30mBTOC	Y	Joints at 2.25, 5.30, 8.35 mBTOC. Bottom of well ~11.30mBTOC.

Completed by: LIM	Verified by: AMSC
Date: 2022-03-31	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
Well inspections

Project Number: 21-223-1

Well ID	Date and Time	Inspected by	Tagged depth (mBTOC)	Video recorded (Y/N)	Depth interval recorded (mBTOC)	Joints in good condition (Y/N)	Comments
SB_MW05_OB-int	2022-03-27 11:22	LIM/BFS	9.55	Y	TOC to 9.20 mBTOC	Y	Well appears to be in good condition. Lowering of camera stopped and reversed between 7mBTOC as depths were confirmed to ensure camera did not run into bottom of well. Silt and sand within bottom 40cm of Waterra tubing was cleared out while re-deploying tubing and transducer after well inspection.
SB_MW05_BR-C	2022-03-26 15:55	LIM/BFS	29.00	Y	TOC to 28.70mBTOC	Y	Well appears to be in good condition. Camera ran to bottom of well (not 10cm off bottom as most other recordings)
SB_MW05_BR-B	2022-03-26 16:37	LIM/BFS	51.30	Y	TOC to 50.90 mBTOC	Y	Well appears to be in good condition. Some dark staining below joint at 23.9mBTOC
SB_MW05_BR-A	2022-03-27 10:28	LIM/BFS	75.90	Y	TOC to 75.15mBTOC	Y	Sediment-rich water(?) encountered with tag line at 75.50mBTOC so camera was only run to 75.15mBTOC. Well appears to be in good condition with all joints intact.
SB_MW05_BR-A	2022-03-29 13:54	LIM/BFS	not tagged on this date	Y	TOC to 75.61mBTOC	Y	Joints at 2.50, 5.55, 8.60, 11.65, 14.70, 17.75, 20.80, 23.85, 26.90, 29.95, 33.00, 36.05, 39.10, 42.15, 45.20, 48.25, 51.30, 54.65, 57.40, 60.45, 63.55 mBTOC. At 69.60mBTOC slowed camera down to inspect screen. Joint at 74.70 mBTOC (must be 1-2 joints above but missed collecting accurate depths). Stopped video with camera at 75.61mBTOC.
SB_MW05_BR-B	2022-03-29 15:34	LIM/BFS	not tagged on this date	Y	TOC to 51.00mBTOC	Y	Joints at 2.70, 5.75, 8.80, 11.85, 14.50, 17.95, 21.00, 24.05, 27.10, 30.15, 33.20, 36.25, 39.30, 42.35, 45.40, 48.45 mBTOC. Some dirtiness in side casing from 45.20 to 45.50mBTOC. Bottom of well ~51.00mBTOC
SB_MW05_BR-C	2022-03-29 13:54	LIM/BFS	not tagged on this date	Y	TOC to 28.93mBTOC	Y	Joints at 4.70, 7.75 (two black streaks below joint), 10.80, 13.85 (one black streak below joint), 16.90, 19.95, 23.00, 26.05, (slits visible below this joint in screen interval), 27.58, 28.60 mBTOC. Bottom of wells appears to be ~28.93mBTOC.
SB_MW05_OB-int	2022-03-29 13:54	LIM/BFS	not tagged on this date	Y	TOC to 9.43mBTOC	Y	Joints at 0.65, 3.70, 6.80mBTOC. Gently ran camera into bottom of well 9.43mBTOC.

Completed by:	LIM	Verified by:	AMSC
Date:	2022-03-29	Date:	2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
Well inspections

Project Number: 21-223-1

Well ID	Date and Time	Inspected by	Tagged depth (mBTOC)	Video recorded (Y/N)	Depth interval recorded (mBTOC)	Joints in good condition (Y/N)	Comments
SB_MW06_OB-int	2022-03-29 16:58	LIM/BFS	13.90	N	N/A	N/A	
SB_MW06_BR-C	2022-03-29 16:53	LIM/BFS	45.25	N	N/A	N/A	
SB_MW06_BR-B	2022-03-29 16:42	LIM/BFS	73.15	N	N/A	N/A	
SB_MW06_BR-A	2022-03-29 16:21	LIM/BFS	86.40	N	N/A	N/A	
SB_MW06_OB-int	2022-04-02 11:20	LMB/JLB	N/A	Y	13.85	Y	Water level taken with WL-11: 10.49mBTOC. Joints (mBTOC) and timestamp (m:s): 2.98 (02:25), 6.05 (04:00), 9.11 (05:10), water level @ 10.49 (06:00), 12:14 (07:20). Bottom @ 13.85 (8:31)
SB_MW06_BR-C	2022-04-02 14:08	LMB/JLB	N/A	Y	44.31	Y	Water level taken with WL-11: 9.69mBTOC. Joints (mBTOC) and timestamp (m:s): 2.64 (02:06), 5.71 (03:50), 8.78 (05:20), water level @ 9.69 (05:57), 11.82 (07:02), missed joint, 17.90 (10:32), 20.97 (12:06), missed joint, 27.08 (15:30), 30.14 (17:10), 33.19 (18:47), 36.25 (20:13), 39.28 (21:3), 43.82 (24:53). Bottom @
SB_MW06_BR-B	2022-04-02 13:00	LMB/JLB	N/A	Y	72.1	Y	Water level taken with WL-11: 9.71mBTOC. Joints (mBTOC) and timestamp (m:s): 3.16 (2:22), 6.23 (4:43), 9.30 (6:11), water level @ 9.70 (6:30), missed joint, 15.37 (10:03), 18.47 (12:00), 21.46 (14:52), 24.53 (16:45), 27.57 (18:23), 30.65 (20:15), missed joint, 36.78 (24:13), 39.80 (25:50), 42.84 (27:05), 46.86 (28:40), 48.95 (30:14), 52.04 (31:47), 55.10 (33:41), 58.09 (35:12), 61.17 (37:00), 64.22 (38:30), 67.28 (40:08), 71.84 (43:53). Bottom @ 72.10 (44:50)
SB_MW06_BR-A	2022-04-02 10:22	LMB/JLB	N/A	Y	86.35	Y	Water level taken with WL-11: 9.70mBTOC. Joints (mBTOC) and timestamp (m:s): 1.25 (1:16), 4.30 (2:44), 7.36 (4:35), 10.39 (05:45), 13.45 (07:08), 16.51 (08:30), 19.55 (09:40), 22.61 (10:47), 25.69 (11:58), 28.75 (12:58), 31.79 (13:52), 34.85 (14:50), 37.90 (15:38), 40.95 (16:35), 44.00 (17:32), 47.06 (18:33), 50.06 (19:39), 53.13 (20:43), 56.19 (21:43), 59.28 (22:47), 62.31 (23.37), 65.36 (25:00), 68.40 (25:45), 71.47 (26:45), 74.50 (27:47), 77.56 (28:46), 79.59 (30:08), missed joint, 83.63 (32:38), 85.15 (33:23). Bottom @ 86.35 (34:03).

Completed by: LMB, JLB	Verified by: AMSC
Date: 2022-04-02	Date: 2022-04-07

Geofirma DATA QUALITY CONFIRMATION (DQC) Form
Well inspections

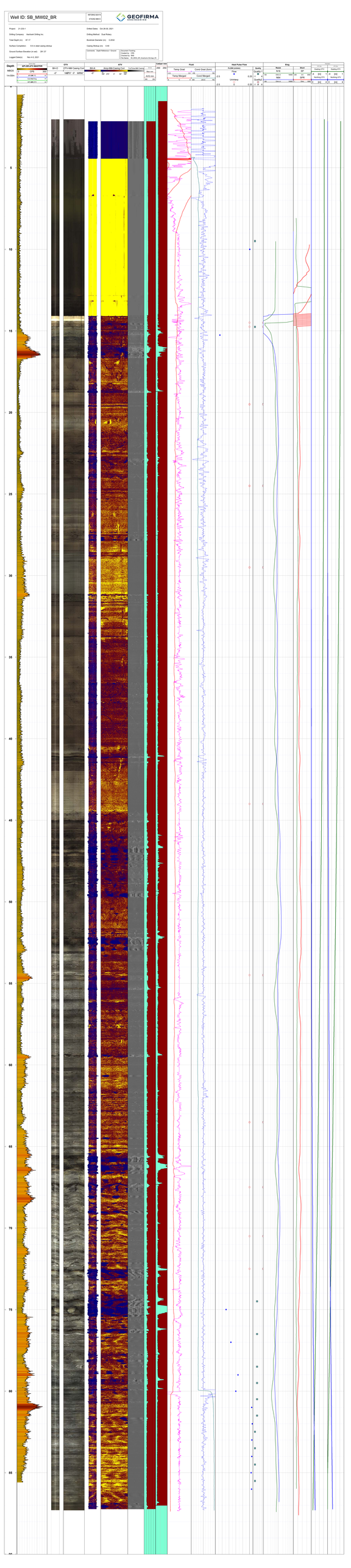
Project Number: 21-223-1

Well ID	Date and Time	Inspected by	Tagged depth (mBTOC)	Video recorded (Y/N)	Depth interval recorded (mBTOC)	Joints in good condition (Y/N)	Comments
SB_MW07_OB-int	2022-03-26 8:46	LIM/BFS	10.20	Y	TOC to 10.10 mBTOC	Y	Well appears to be in good condition with joints intact. Camera moved up and down when water level was reached, otherwise video is continuously recording moving downwards. Water was slightly silty.
SB_MW07_BR-C	2022-03-26 14:52	LIM/BFS	37.60	Y	TOC to 37.50 mBTOC	Y	Well appears to be in good condition with joints intact. Water was translucent milky grey in colour.
SB_MW07_BR-B	2022-03-26 14:04	LIM/BFS	69.15	Y	TOC to 68.50 mBTOC	Y	Tagged bottom at 69.15mBTOC, however, dense sediment-rich(?) water was encountered at 68.60mBTOC so video was stopped below this point to avoid damage to the camera or coating obscuring the lens with silt. Well appears to be in good condition with joints intact. Water was milky grey translucent.
SB_MW07_BR-A	2022-03-26 10:08	LIM/BFS	92.60	Y	TOC to 92.50 mBTOC	Y	Well appears to be in good condition with joints intact. Water was slightly milky grey in colour and became noticeably a bit murkier below 77mBTOC. When re-installing the Waterra tubing downhole, it was found that the footvalve was clogged with grey silt (same colour as the water). The foot valve was cleared before re-installing the tubing.
SB_MW07_OB-int	2022-03-31 14:10	LMB/JLB	N/A	Y	10.14	Y	Water Level taken with WL-11: 7.64m BTOC. Joints (mBTOC): 3.44, 5.50, 8.54
SB_MW07_BR-C	2022-01-04 17:30	LMB/JLB	N/A	Y	37.52	Y	Water Level taken with WL-11: 8.00m BTOC. Joints (mBTOC) and Timestamp (m:s): 1.16 (01:18), 4.20 (03:28), 7.25 (04:55), water level @ 7.99 (05:25), 10.30 (06:45), 13.36 (08:25), 16.42 (09:52), 19.35 (11:08), 22.51 (12:39), 25.56 (14:15), 28.61 (16:52), 31.66 (19:30), 33.15 (21:00), 34.66 (22:50), 36.16 (24:35). Bottom @ 37.52 (25:44)
SB_MW07_BR-B	2022-03-31 17:04	LMB/JLB	N/A	Y	68.64	Y	Water Level taken with WL-11: 7.83m BTOC. Joints (mBTOC) and Timestamp (m:s): 1.72 (00:48), 4.77 (02:25), 7.73 (03:30), 10.86 (05:15), 13.91 (06:56), 16.96 (08:54), 20.00 (11:03), 23.06 (12:39), 26.10 (14:19), 29.17 (16:01), 32.22 (17:28), 35.27 (18:44), 38.32 (19.47), 41.36 (21:20), 44.43 (23:08), 47.48 (24:37), 50.53 (25:50), 53.58 (27.03), 56.63 (28:13), 59.69 (29.26), 62.73 (31:03), 64.24 (31:48), 65.72 (32:58), 67.25 (34:08). Bottom @ 68.64 (35:11)
SB_MW07_BR-A	2022-03-31 15:02	LMB/JLB	N/A	Y	92.84	Y	Water Level taken with WL-11: 8.20m BTOC. Joints (mBTOC): 1.38, 4.34, 7.45, 10.53, 13.58, 16.64, 19.69, 22.80, 25.76, 28.82, 31.87, 34.93, 37.98, 41.05, 44.11, 47.13, 50.18, 53.24, 56.29, 59.34, 62.41, 65.34, 68.51, 71.55, 74.60, 77.66, 80.71, 83.75, 87.81, 89.86, 91.38. Bottom @ 92.84

Completed by:	LMB/JLB	Verified by:	AMSC
Date:	2022-03-31	Date:	2022-04-07

Appendix D

Borehole Geophysical Logs


Well ID: SB_MW02_BR
4872842.924 N
474282.988 E
GEOFIRMA
Project: 21-233-1
Drilling Company: Aardvark Drilling Inc.
Total Depth (m): 87.17
Surface Completion: 6.3 in steel casing stickup
Ground Surface Elevation (m asl): 201.37
Logged Date(s): Nov 4-5, 2021
Drilled Dates: Oct 28-30, 2021
Drilling Method: Dual Rotary
Borehole Diameter (m): 0.2032
Casing Stickup (m): 0.40
Comments: Depth Reference = Ground
Recorded / Tracking
Created by: GRN
Checked by: JDB
File Name: SB_MW02_BR_GeoFirma Borehole Plot_...
Depth
MBGS
Geology
Geophysical Log
Fluid
Heat Pulse Flow
Ring
Temperature
Cement
Bentonite
Grout
Backfill
Sand Pack
Screen
Bedrock
Water Level
Temp Grad
Cond Grad (Nom)
Temp Marigold
Cond Marigold
Pulse (Electric)
Pulse
Unidirectional
Quality
Quality2
Noise
SNR
Noise
SNR
Temp
SPR
Heating DTV
Heating ATV
Cooling DTV
Cooling ATV

Well ID: SB_MW03_BR

4873717.727 N
474161.819 E

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilling Company: Aardvark Drilling Inc.

Total Depth (m): 62.10

Surface Completion: 8.5 in steel casing stickup

Ground Surface Elevation (m asl): 282.30

Logged Date(s): Nov 9-14, 2021

Drilled Dates: Oct 31 - Nov 3, 2021

Drilling Method: dual rotary

Borehole Diameter (m): 0.2032

Casing Stickup (m): 2.58

Comments: Depth Reference = Ground

Document Tracking
Created by: CPR
Checked by: SKG
File Name: 06_BH03_BR_GeophysicsWorkings_R0

Depth
MBGS
1m:50m

API-GR_OTV Master
0 CPS 400
API-GR-ATV
Caliper
6 in Avg 288
APLGR Temp

OTV
30 OTV
Image-NM CasCorr

ATV
3D ANIP
Acou Mtn Cor_Amp
Travel Time Mtn Coef
0 90 180 270 360

Caliper mm
150 450
Max mm
Avg mm
150 450

Fluid
T Grad
0.5 1.5 2
Temp
6.4 9.5 380
FI Grad
-100 100
Cond
dS/cm 275

Heat Pulse Flow
FLOW (L/min)
Upward 0.05
Downward 0.035

Quality
0 1
0.1 1
0.1 1

Elog
Resist
N16
Ohm-m 1000
N64
Ohm-m 1000
SP
200 mV 200
SPR
mV 200
Ohm-m 1000

OTV Dev
Easting-OTV
Northing-OTV
0.5 [m] 1.5
ATV Dev
Easting-ATV
Northing-ATV
0.5 [m] 1.5

0
5
10
15
20
25
30
35
40
45
50
55
60

Well ID: SB_MW04_BR

NAD83(CSRS) 3MTM-1 472754.072 E

GEOFIRMA ENGINEERING

Project: 21-233-1

Drilling Company: Aardvark Drilling Inc.

Total Depth (m): 84.72

Surface Completion: 8.5in steel casing stickup

Ground Surface Elevation (m asl): 284.66

Logged Date(s): Nov. 19-20, 2021

Drilled Dates: Nov. 16-18, 2021

Drilling Method: dual rotary

Borehole Diameter (m): 0.2032

Casing Stickup (m): 0.90

Comments: Depth Reference = Ground
Core Diameter (reverse circ.) (in mm):

Grouted Tooling
Logged By: MB
Checked By: MB
File Name: 04_MW04_BR_Instrument Borehole_PP_

Depth MBGS 1m:50m

APLGR CPV Measur
APLGR (API)
APLGR (CPV)
APLGR (ATV)

CPV
OTV
APLGR (CPV)

OTV
Image MA CasCon

ATV
ATV
APLGR (ATV)
Image MA CasCon

Caliper mm
Grout
Fluid
Temp
Grout
Cond(EC)
Water Level
Max mm
Min mm

HydroPulse Flowmeter
Flow (L/min)
Velocity (m/s)
Velocity Dir
Velocity Mag

Rising
Rate
Total
Stuck
Rate
Total

ETV Dev
Existing ETV
Northing (m)
Easting (m)

ATV Dev
Existing ETV
Northing (m)
Easting (m)

0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85

Well ID: SB_MW05_BR

4874139.15 N
472429.797 E

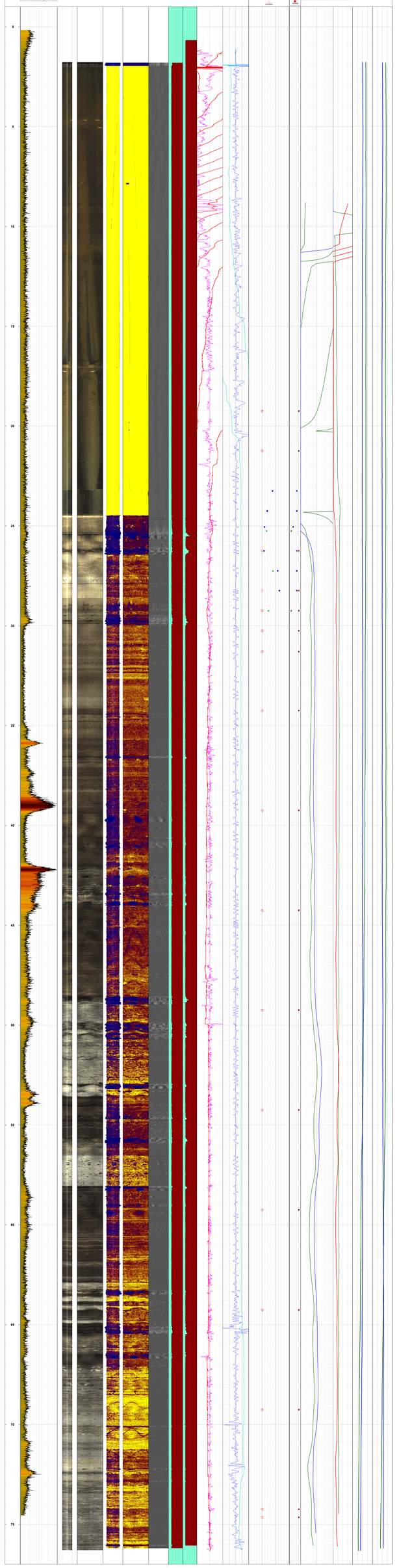
GEOFIRMA ENGINEERING

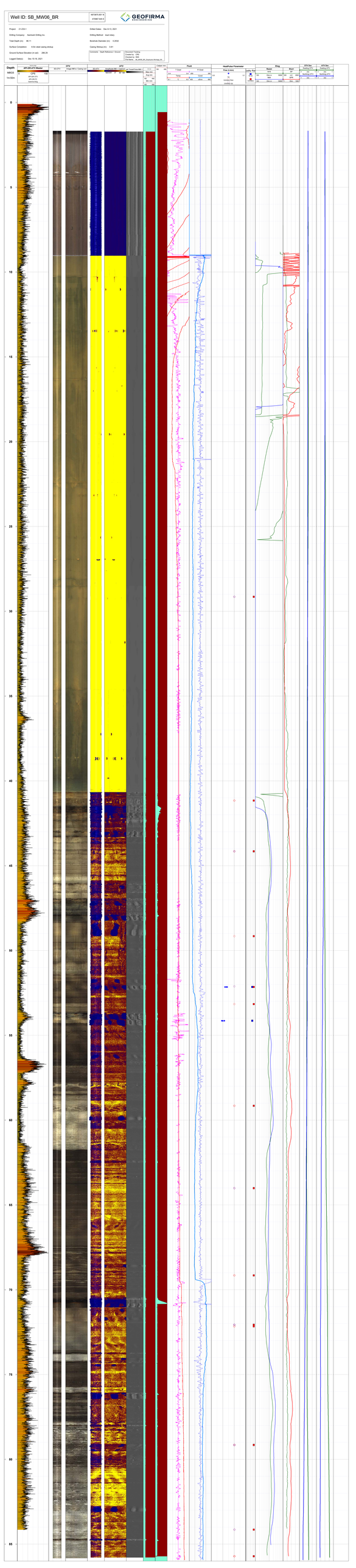
Project	21-233-1	Drilled Dates	Nov 8-9, 2021
Drilling Company	Aardvark Drilling Inc.	Drilling Method	dual rotary
Total Depth (m)	76.10	Borehole Diameter (in)	0.2032
Surface Completion	6.5in steel casing stickup	Casing Stickup (m)	0.69
Ground Surface Elevation (m asl)	277.78	Comments	Depth Reference = Ground
Logged Date(s)	Nov 10-11, 2021	Document Tracking: Created by: DM; Checked by: DM; File Name: 06_BWS_05_Greyhorse Mirage_R0	

Depth
MBGS
1m:50m

API-GR-ATV-WATER
GR
GPS
API-GR-CCL
API-GR-Temp
Gamma-Ring

OTV
ATV
Caliper (cm)
Fluid
Heat Pulse Flow
Ring
OTV Dev
ATV Dev




Well ID: SB_MW06_BR
4073875.901 N
419567.645 E
GEOFIRMA ENGINEERING
Project: 21-233-1
Drilling Company: Aardvark Drilling Inc.
Total Depth (m): 89.11
Surface Completion: 6.5in steel casing stickup
Ground Surface Elevation (m ast): 288.29
Logged Date(s): Dec 13-14, 2021
Drilled Dates: Dec 8-13, 2021
Drilling Method: dual rotary
Borehole Diameter (m): 0.2032
Casing Stickup (m): 0.81
Comments: Depth Reference = Ground
Document Tracking
Created by: MAH
Checked by: MAH
Last Revise... SI_2022_05_03_Geophysics Write_SI
Depth
MBGS
1m:50m
APLUS (PS) Waves
GRN
APLUS (PS) Density
APLUS (PS) Gamma Ray
OTV
3513751
Image AM w. Casing Ins
ATV
3513751
Acoustic AM - Image
Acoustic AM - Amplitude
Acoustic AM - Travel Time
Caliper
Tool (m)
Avg (m)
Bit (m)
Caliper (m)
Fluid
T (Low)
PH (Low)
Flowmeter
Flow (Low)
Flow (Low) Inverted
Inverted (Low)
Temp
Ambient Temp
Fluid Temp
Elog
Resist
Short
Long
Spont
Normal
Gradient (Ohm/m)
Gradient (mV/m)
GTU Sec
Gamma (CPS)
Gamma (CPS)
Gradient (CPS)
Gradient (CPS)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85

Well ID: SB_MW07_BR

497588.09 N
4005143.42 E

GEOFIRMA ENGINEERING

Project: 21-2324-1

Drilling Company: Aardvark Drilling Inc.

Total Depth (m): 92.68

Surface Completion: 6.5in steel casing stickup

Ground Surface Elevation (m asl): 381.65

Logged Date(s): Dec 16-19, 2021

Drilled Dates: Dec 17, 2021

Drilling Method: Air-rotary

Borehole Diameter (m): 0.2032

Casing Stickup (m): 0.51

Comments: Depth Reference = Ground

Geophysical Tooling
Created by: CRA
Checked by: BGA
File Path: ...\01_Field\01_GPL\Geophysics Records_Pu...

Depth
MBGS
feet BGM

GPL
APLUX-PX Washer
Gamma (cps)

ATV
Image 000 1 Cal Dir
Image 090 1 Cal Dir
Amplitude (Cal 1)
Travel Time (Cal 1)

Fluid
Temperature (°C)
Conductivity (mS/cm)
Resistivity (ohm-m)

HeadForce Pressure
Quality Run
Head (m asl)
Head (m bgs)
Velocity (m/s)

Flow
Rate (L/min)
Total (L)

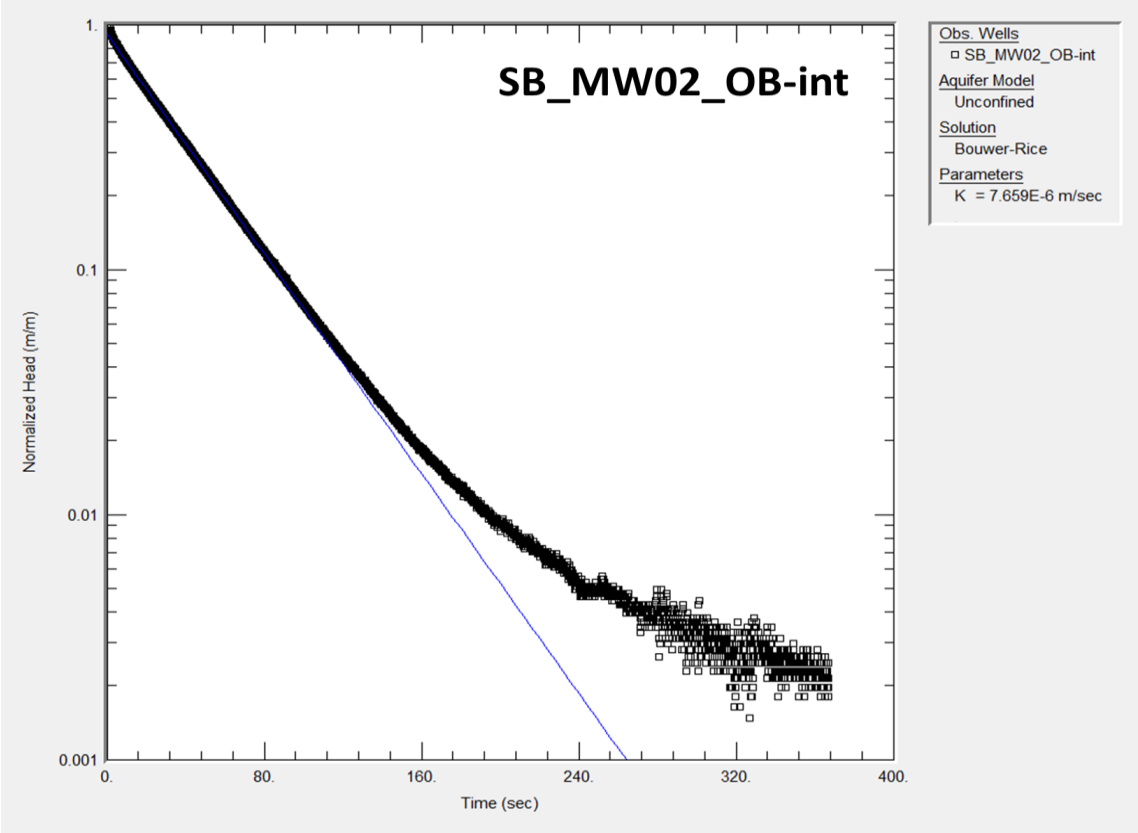
ATV Dev
Borehole ATV
Casing ATV

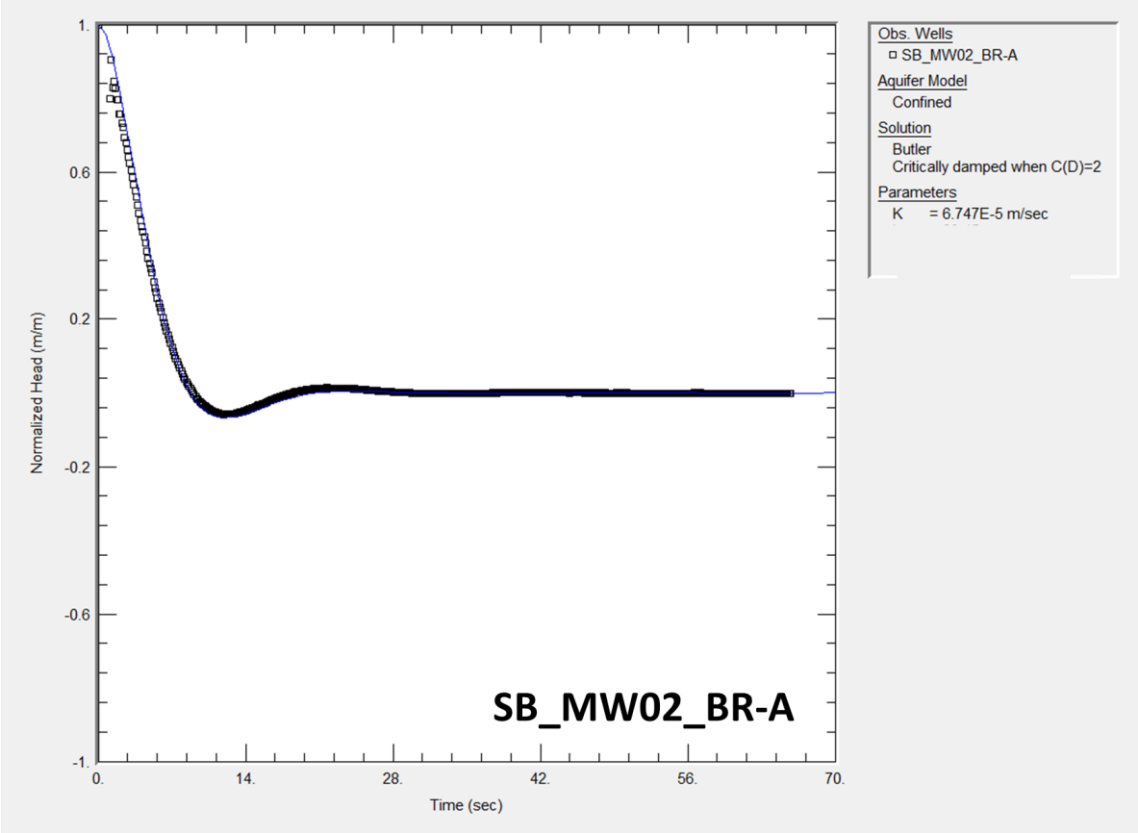
ATV Dev
Borehole ATV
Casing ATV

TOC

Appendix E

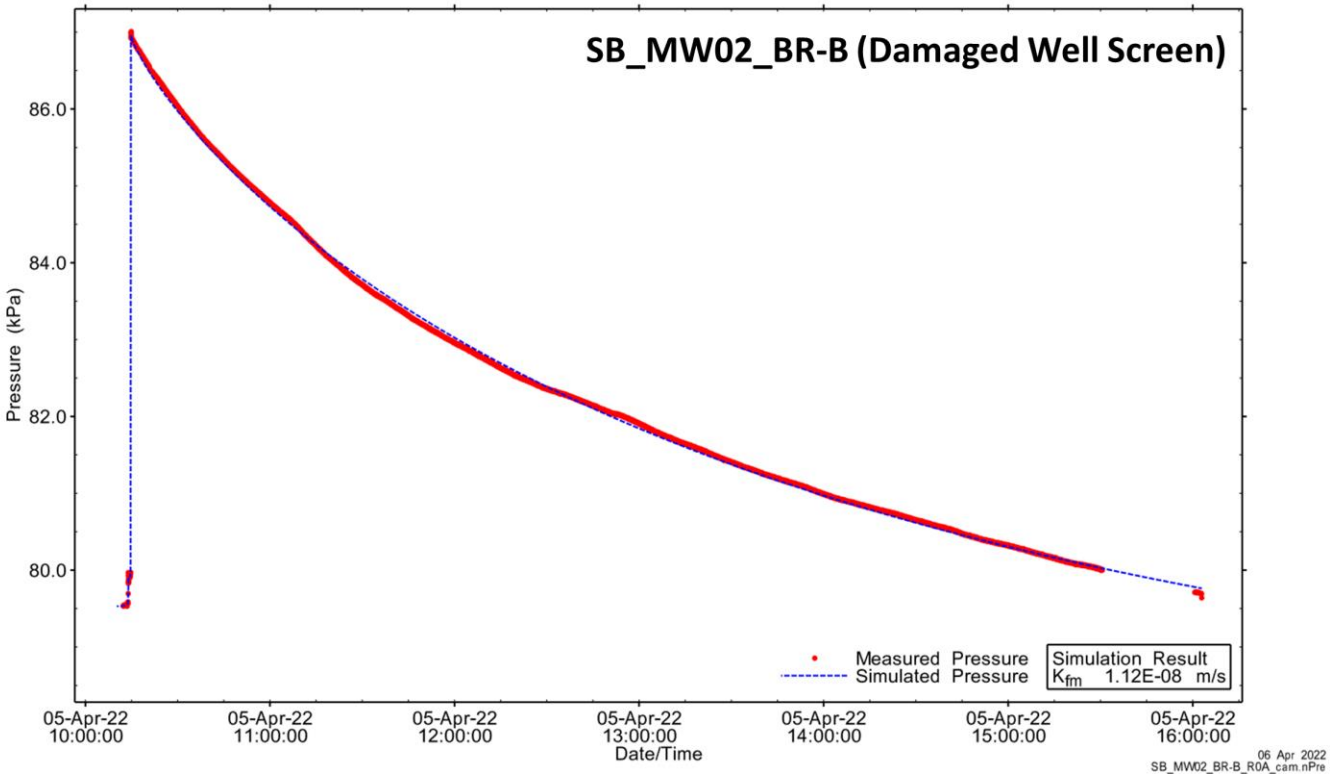
Hydraulic Testing Analysis Figures

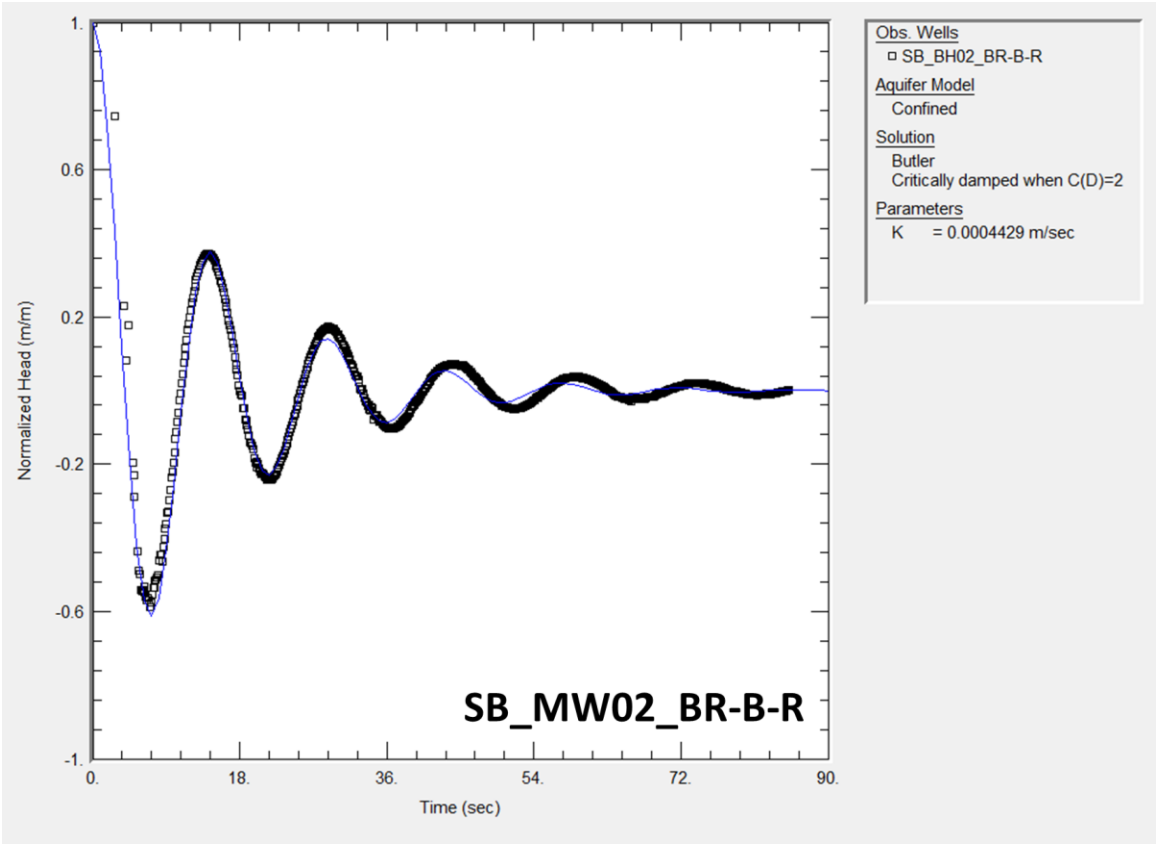




Appendix E: Hydraulic Testing Analysis Figures

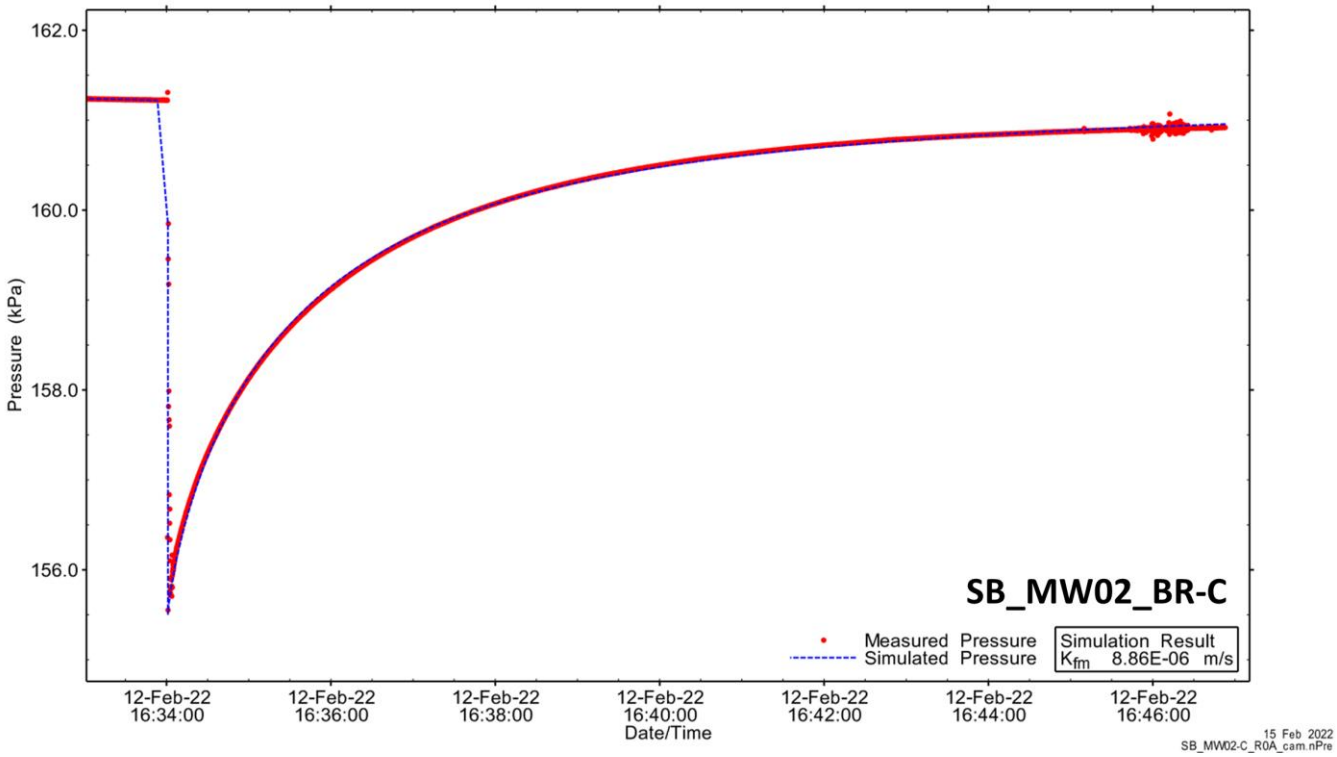
GEOFIRMA ENGINEERING





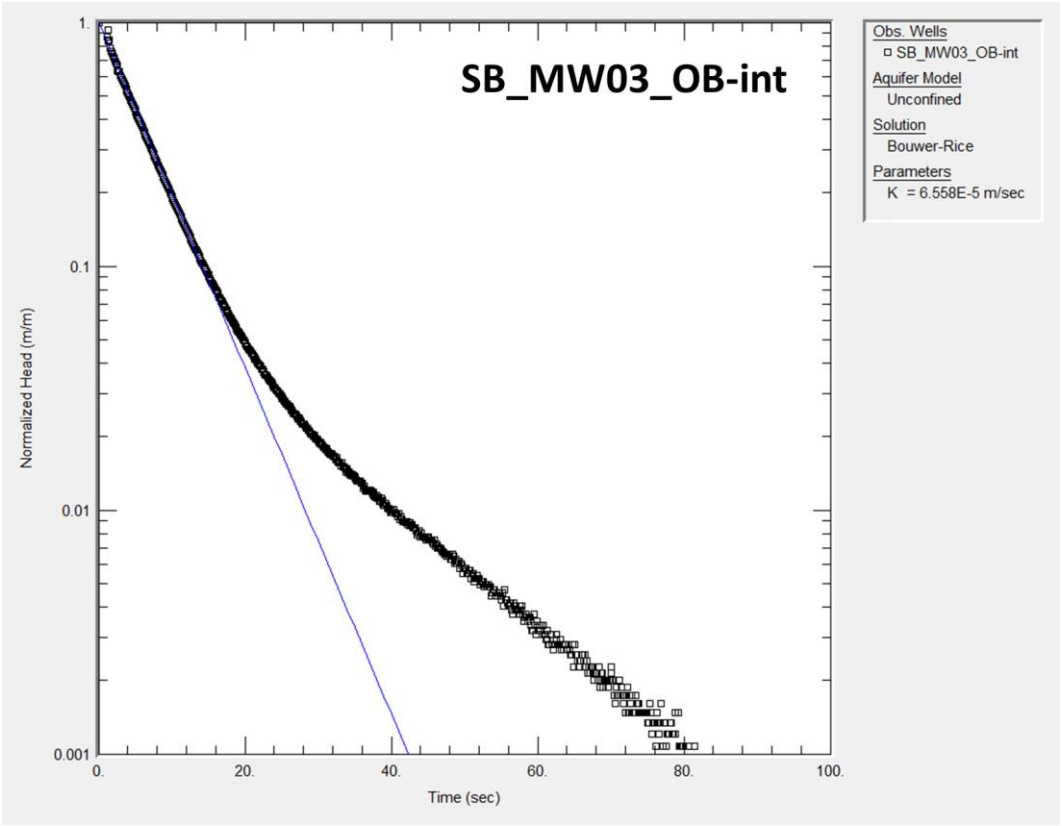
Appendix E: Hydraulic Testing Analysis Figures

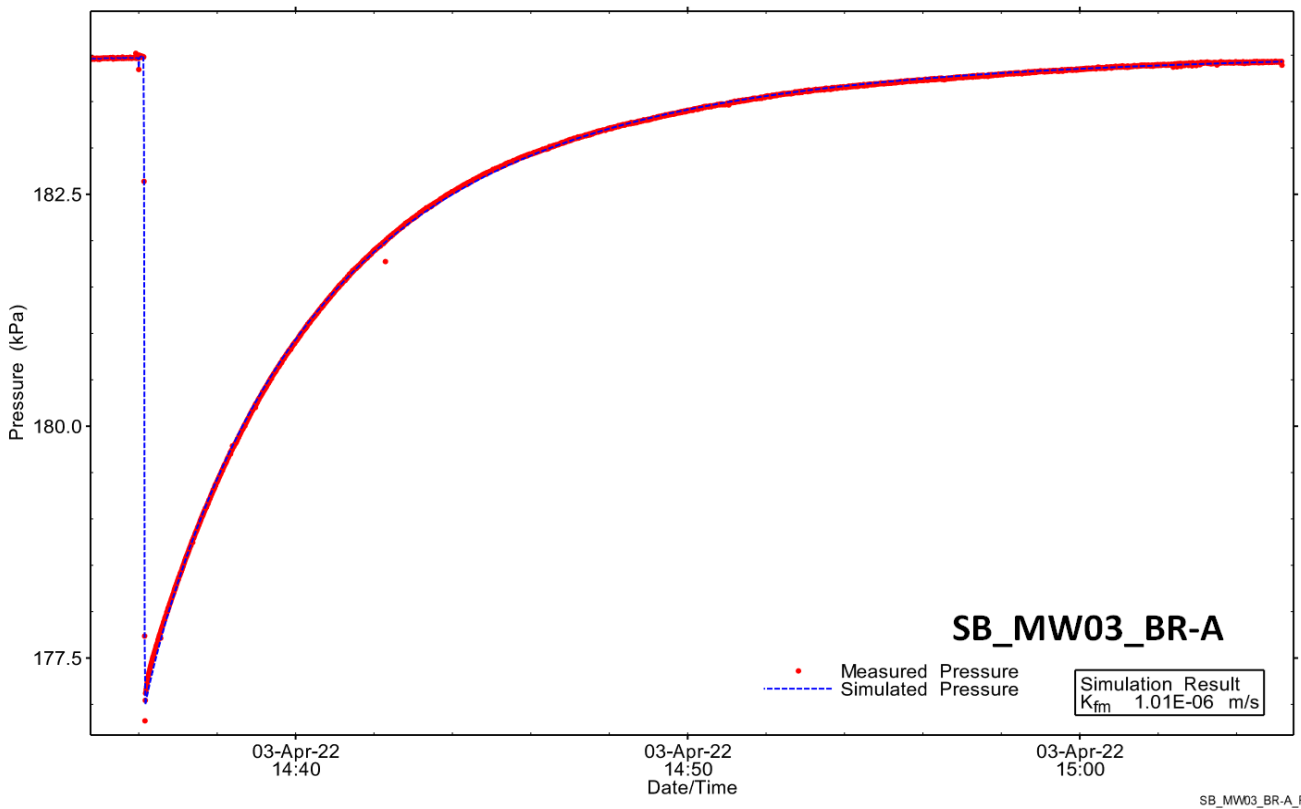
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Appendix E: Hydraulic Testing Analysis Figures

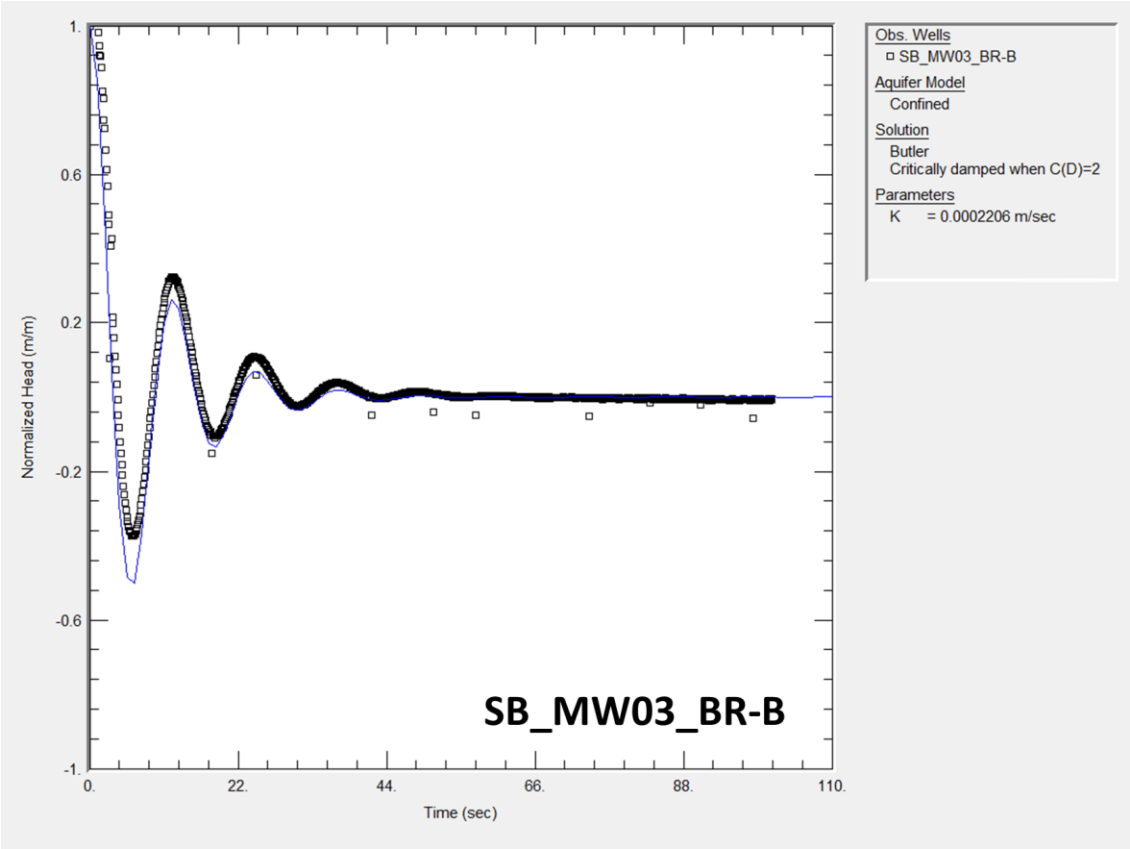
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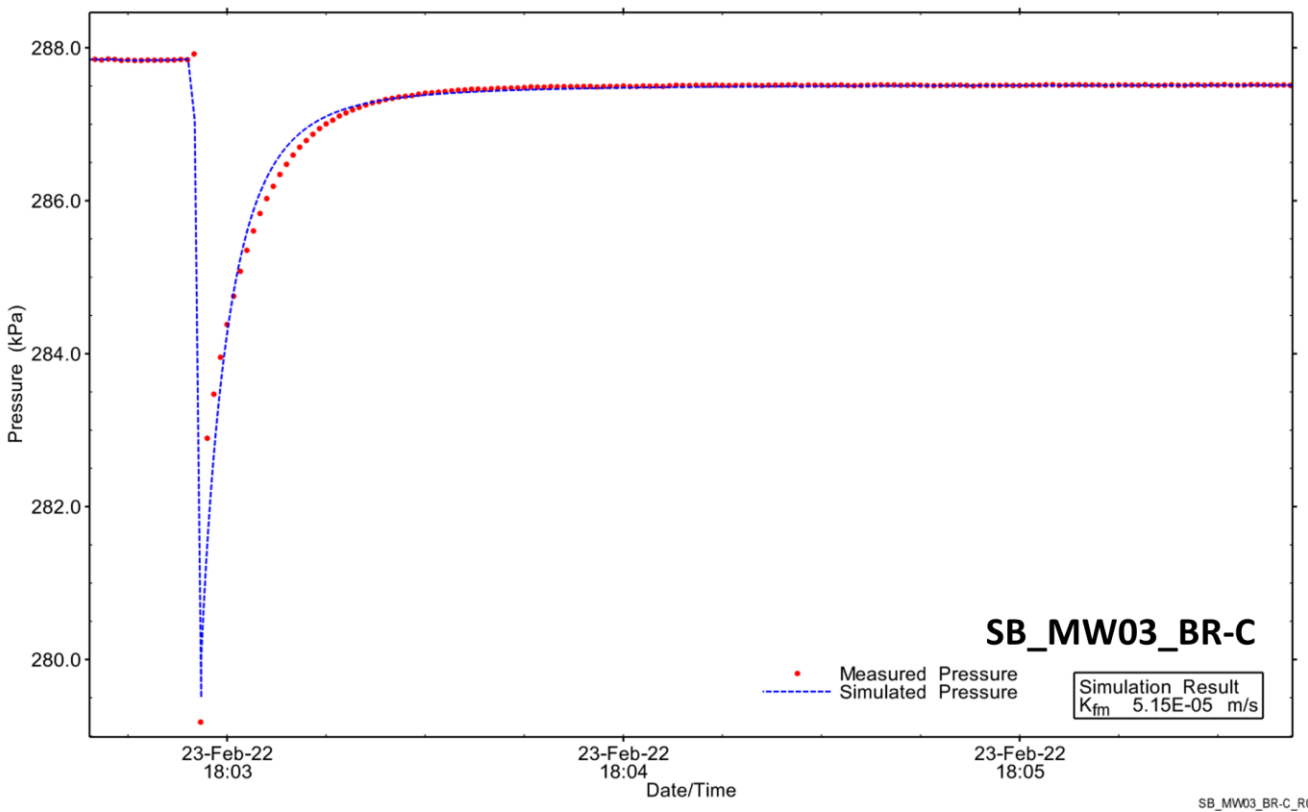




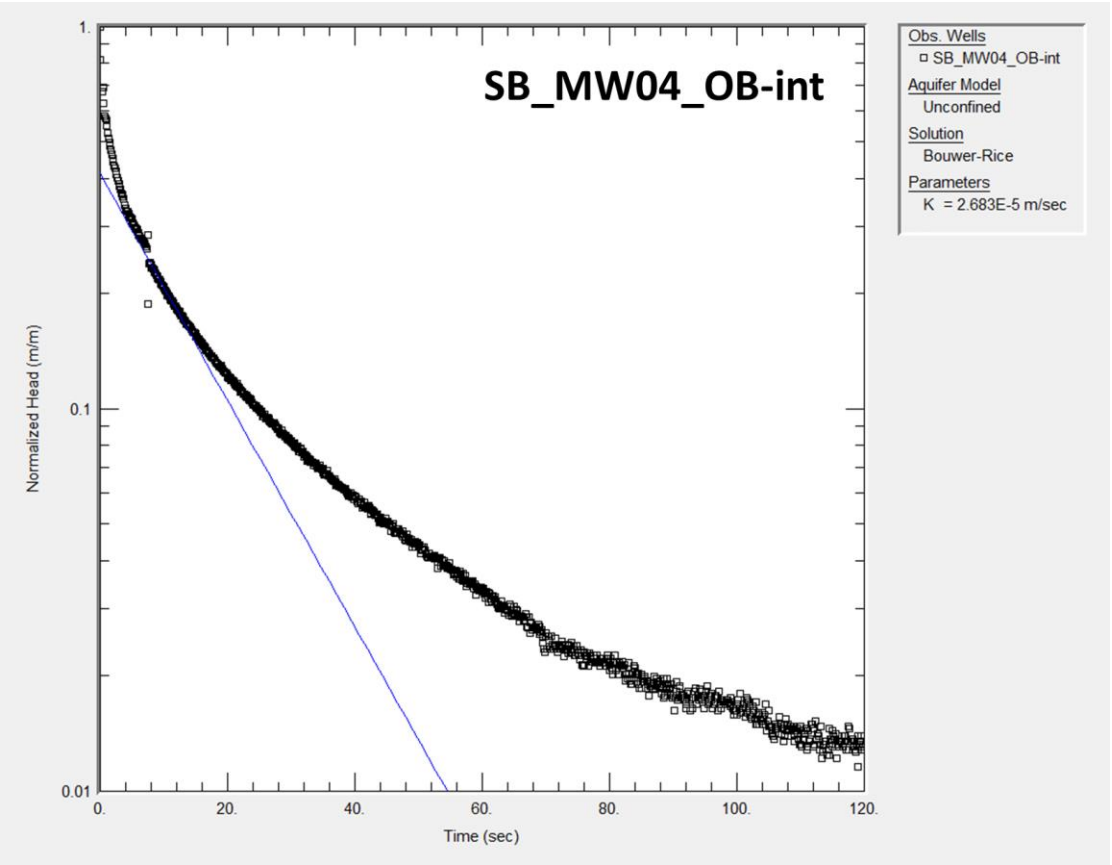
04 Apr 2022
SB_MW03_BR-A_R0A_cam.nPre

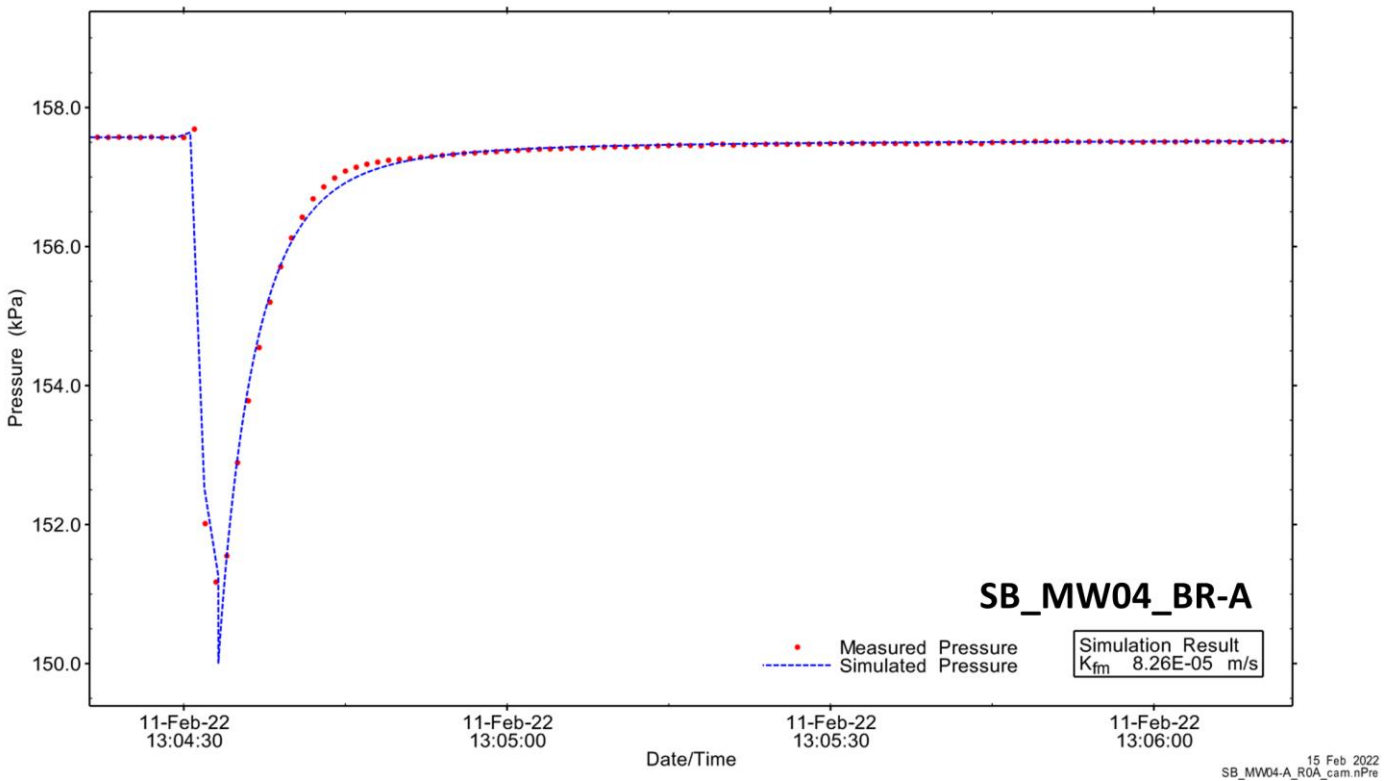
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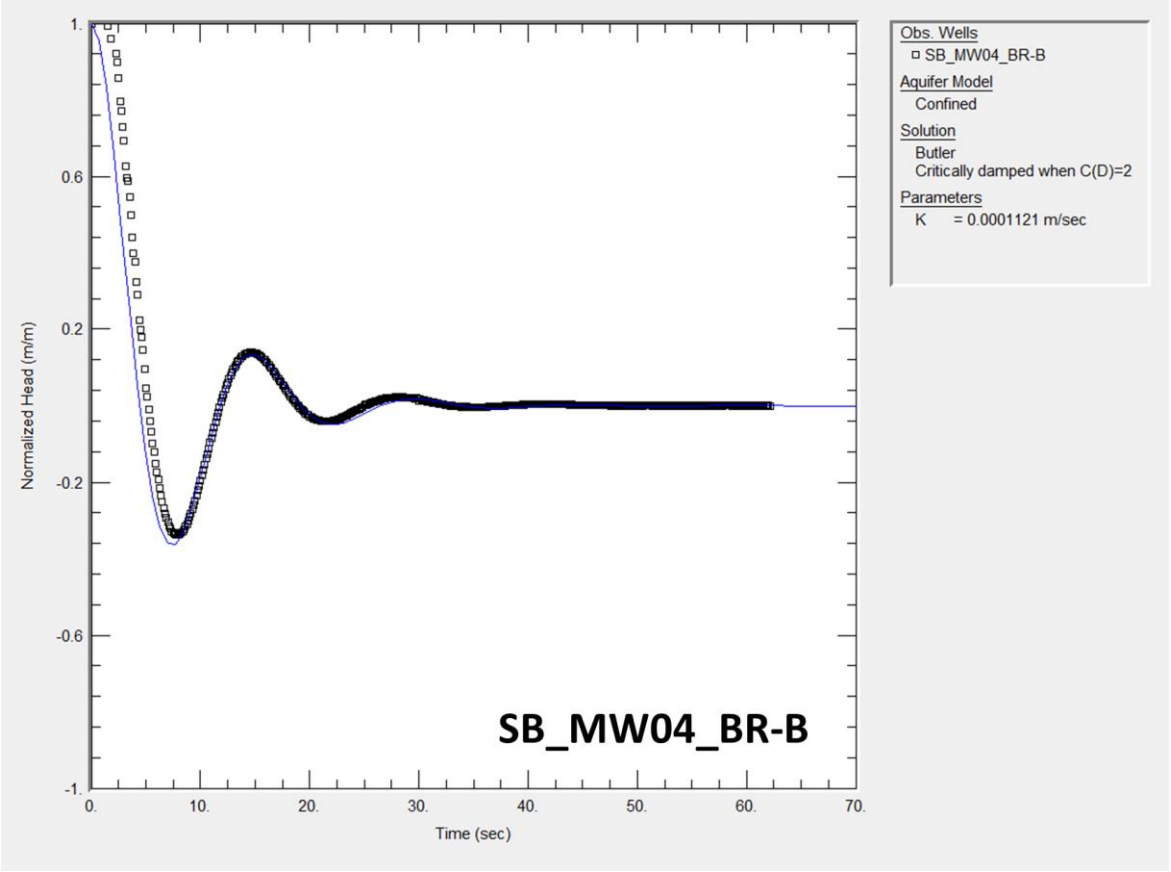
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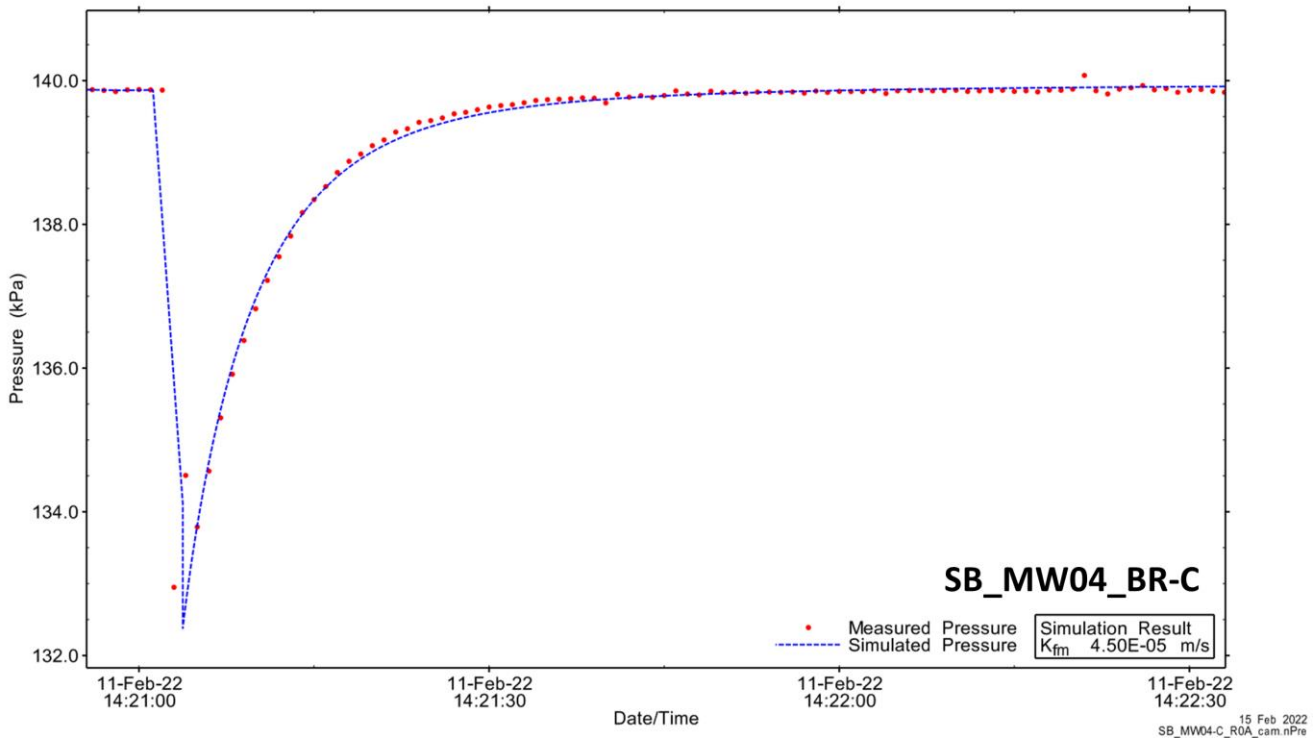




Appendix E: Hydraulic Testing Analysis Figures

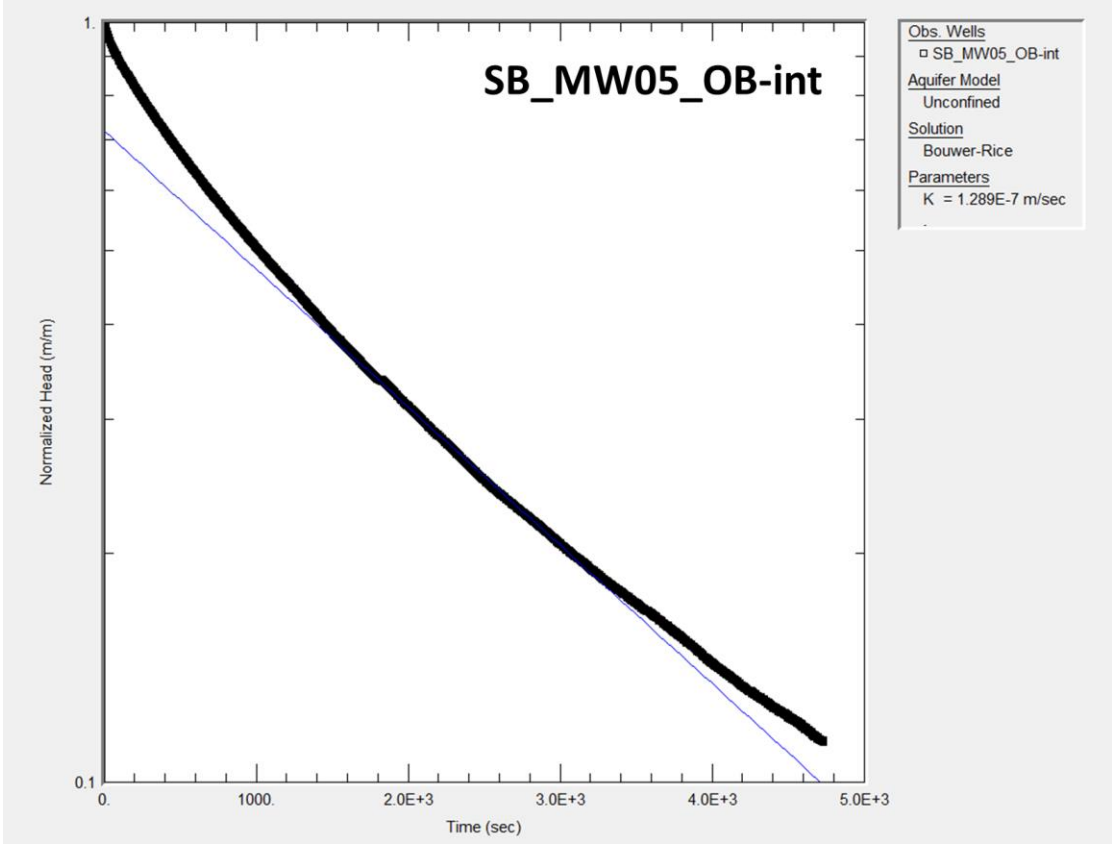
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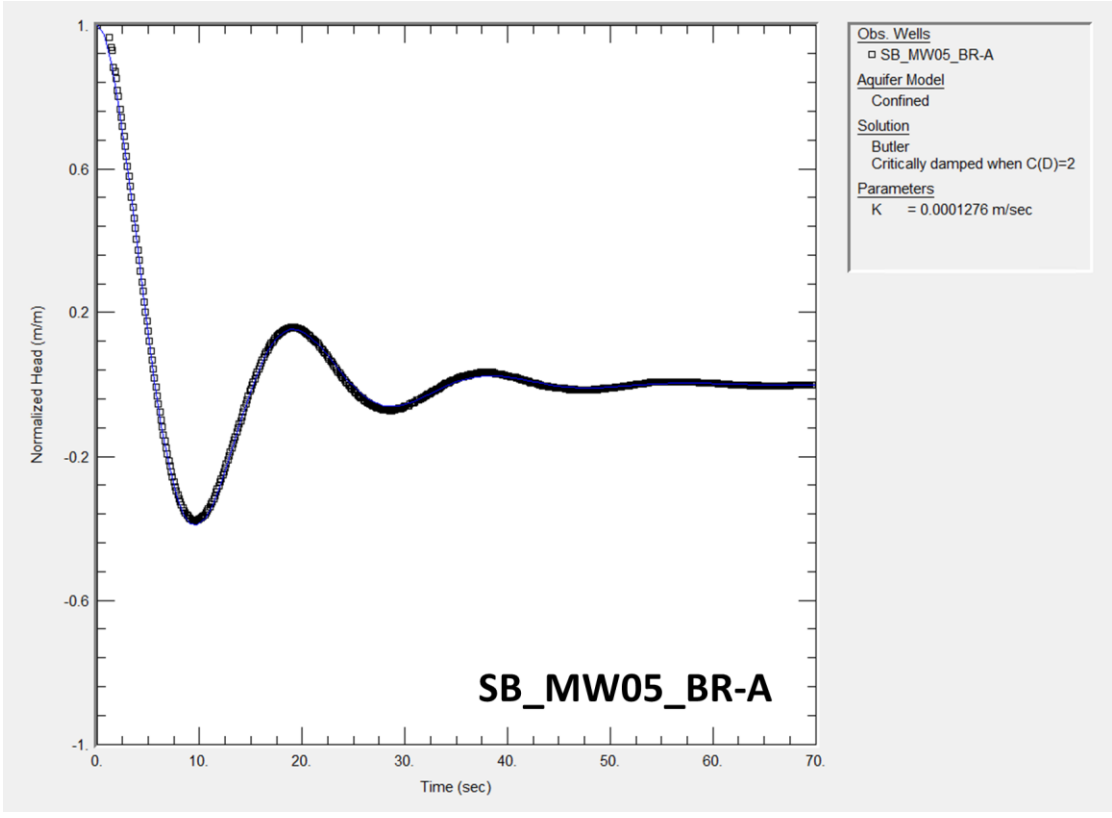




Appendix E: Hydraulic Testing Analysis Figures

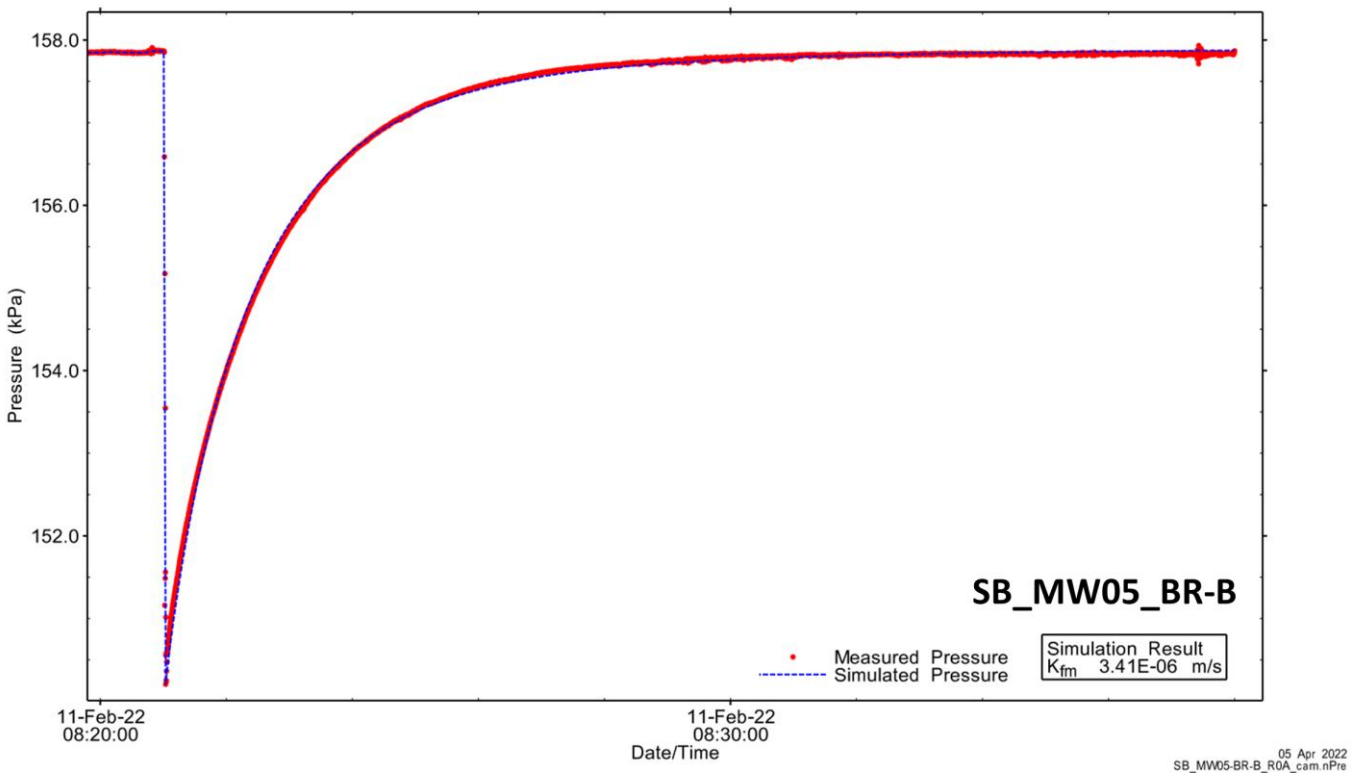
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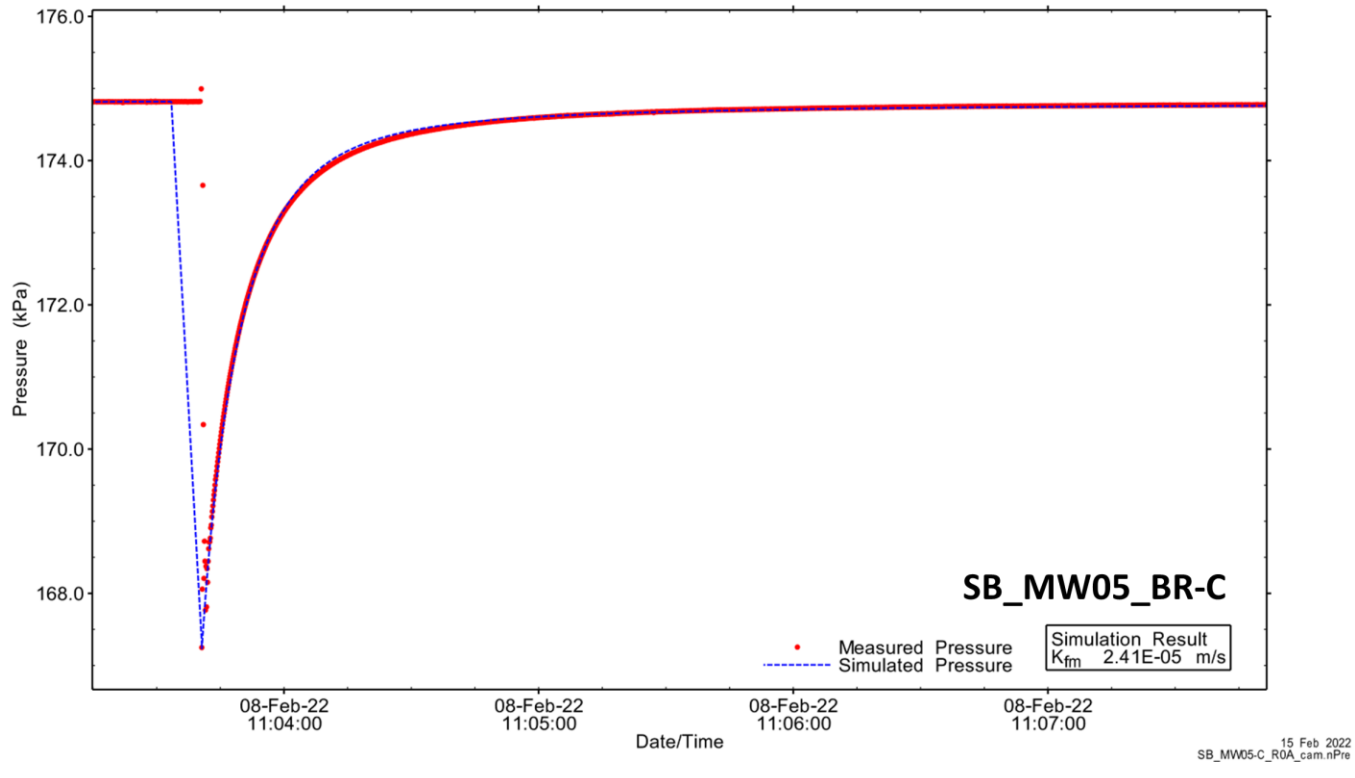


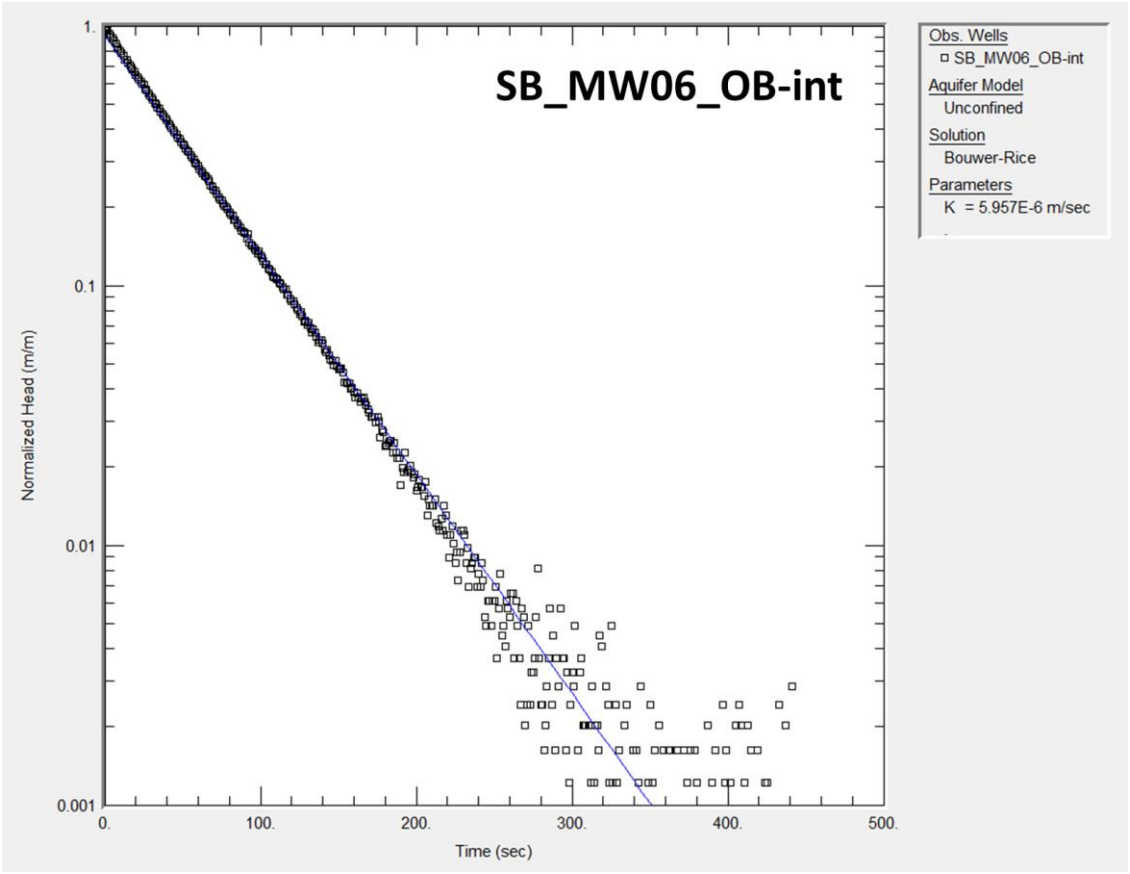


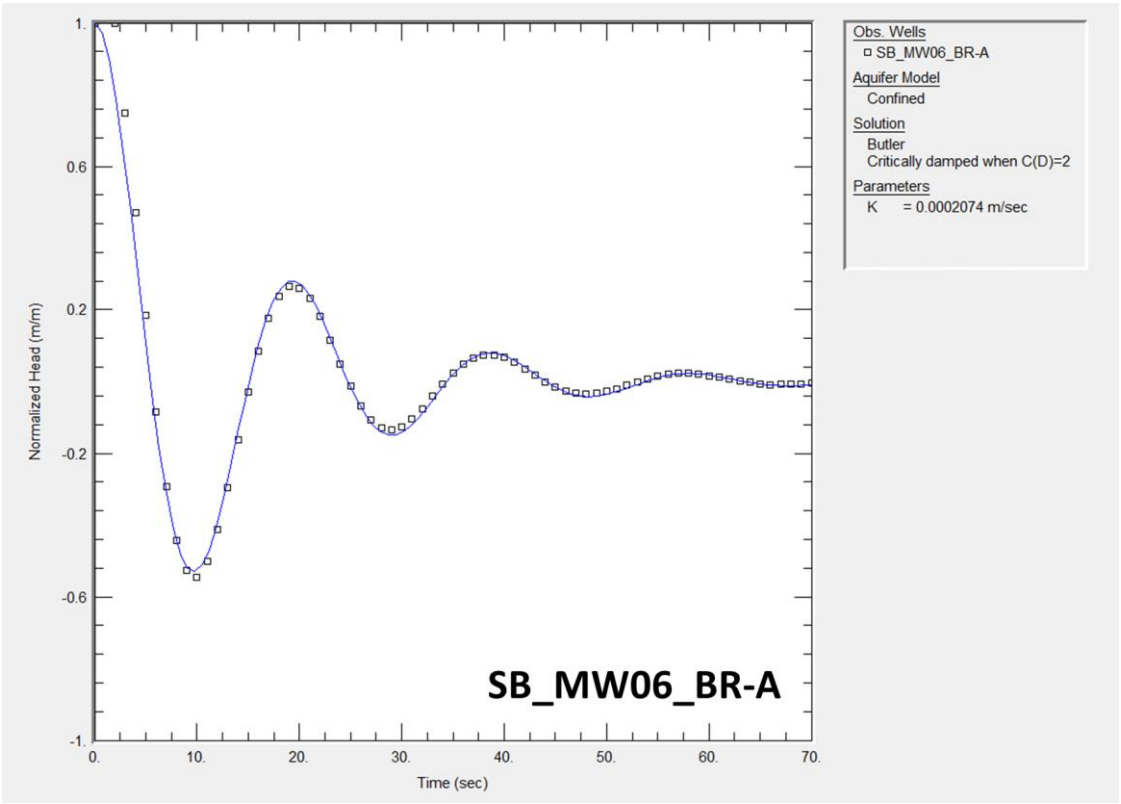
Appendix E: Hydraulic Testing Analysis Figures

GEOFIRMA ENGINEERING


158.0
156.0
154.0
152.0
Pressure (kPa)
SB_MW05_BR-B
Measured Pressure
Simulated Pressure
Simulation Result
Kfm 3.41E-06 m/s
11-Feb-22
08:20:00
11-Feb-22
08:30:00
Date/Time
05 Apr 2022
SB_MW05-BR-B_R0A_cam.nPre

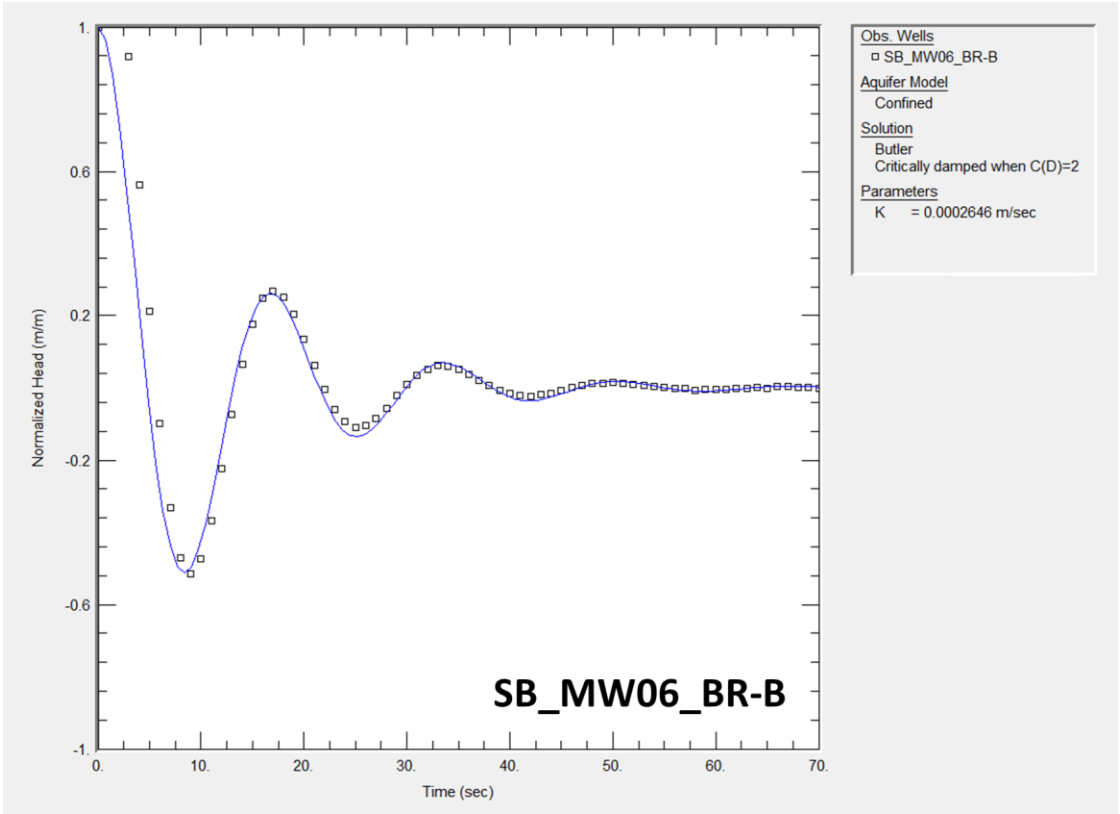

176.0
174.0
172.0
170.0
168.0
Pressure (kPa)
SB_MW05_BR-C
Measured Pressure
Simulated Pressure
Simulation Result
Kfm 2.41E-05 m/s
08-Feb-22
11:04:00
08-Feb-22
11:05:00
08-Feb-22
11:06:00
08-Feb-22
11:07:00
Date/Time
15 Feb 2022
SB_MW05-C_R0A_cam.nPre

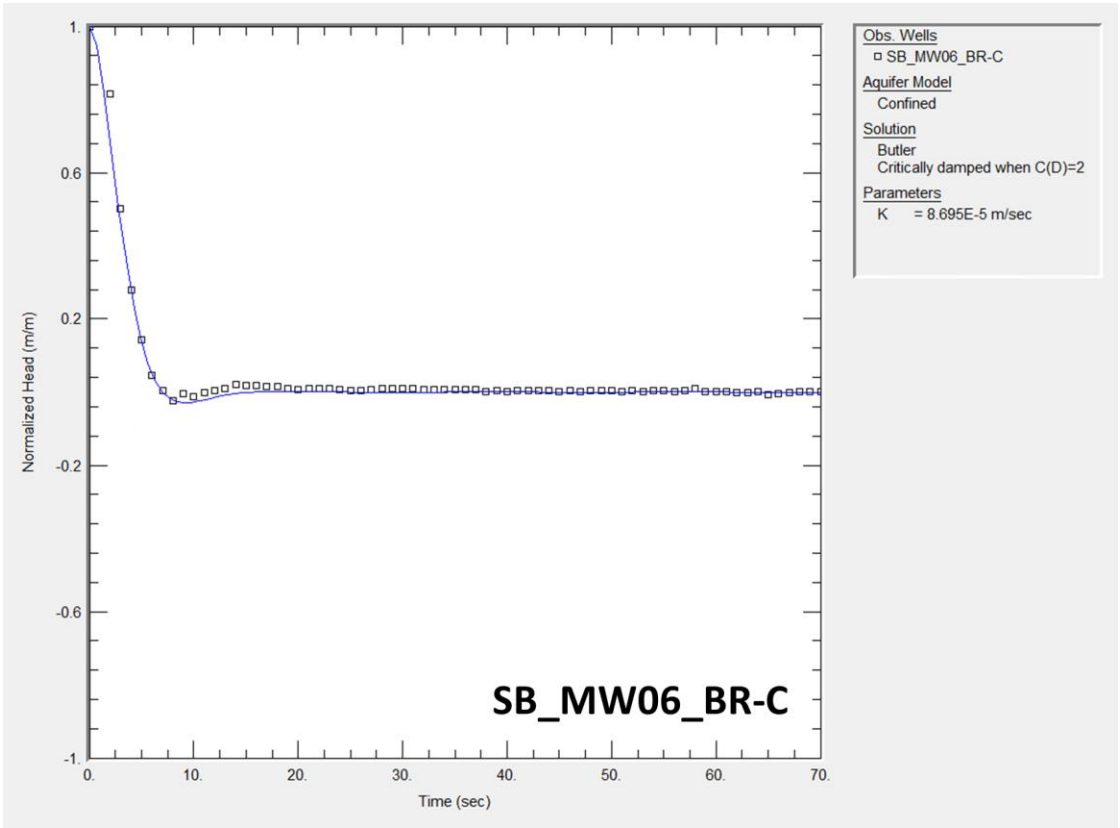




Appendix E: Hydraulic Testing Analysis Figures

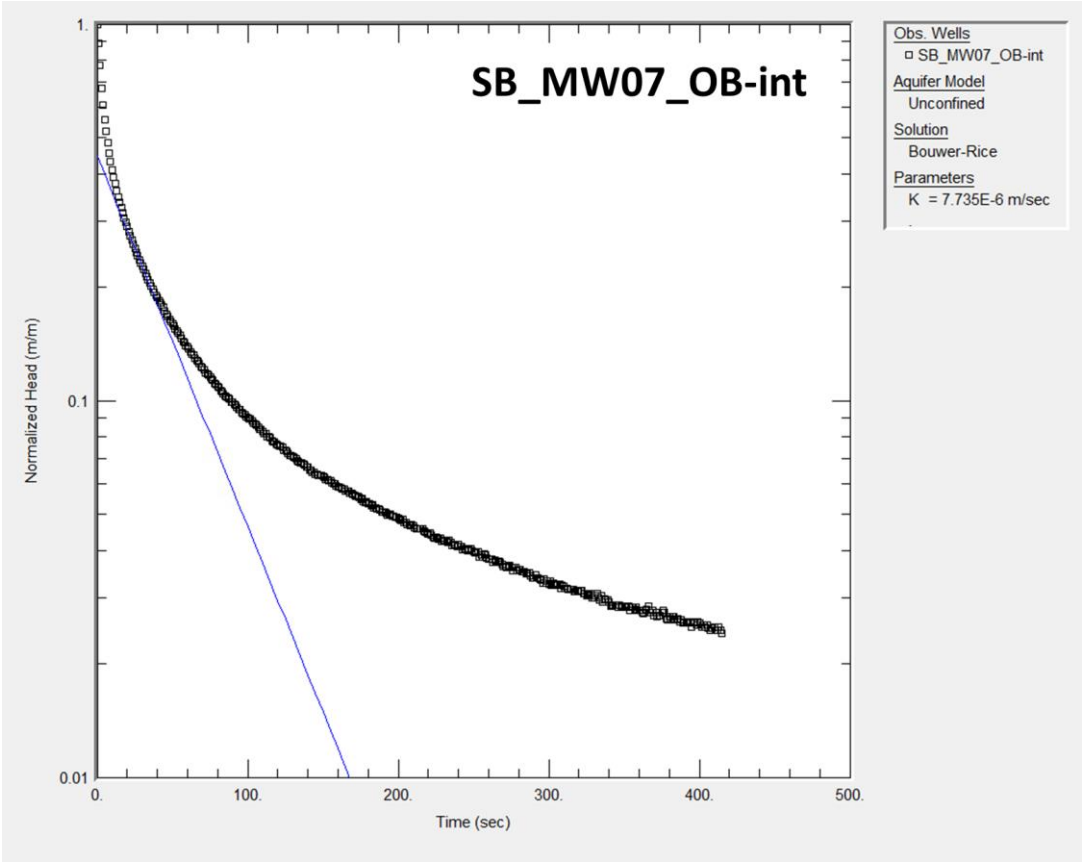
GEOFIRMA ENGINEERING

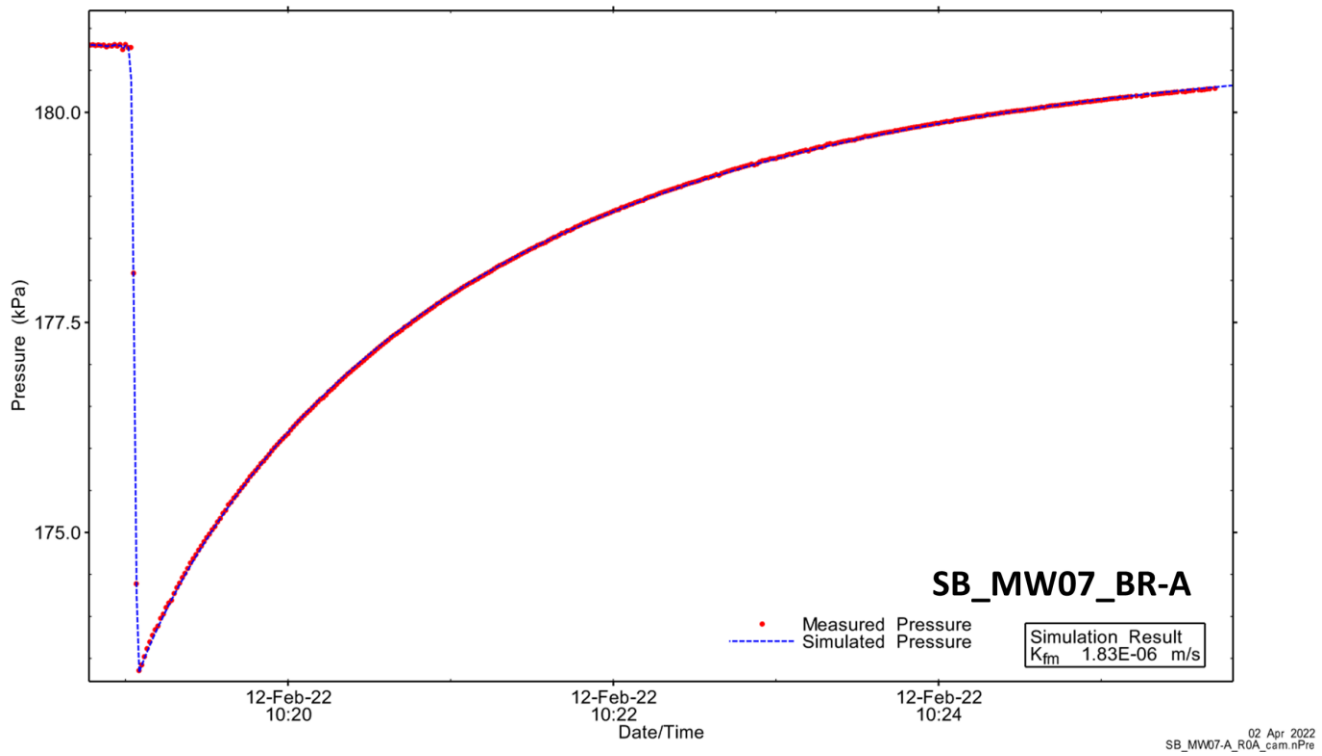




Appendix E: Hydraulic Testing Analysis Figures

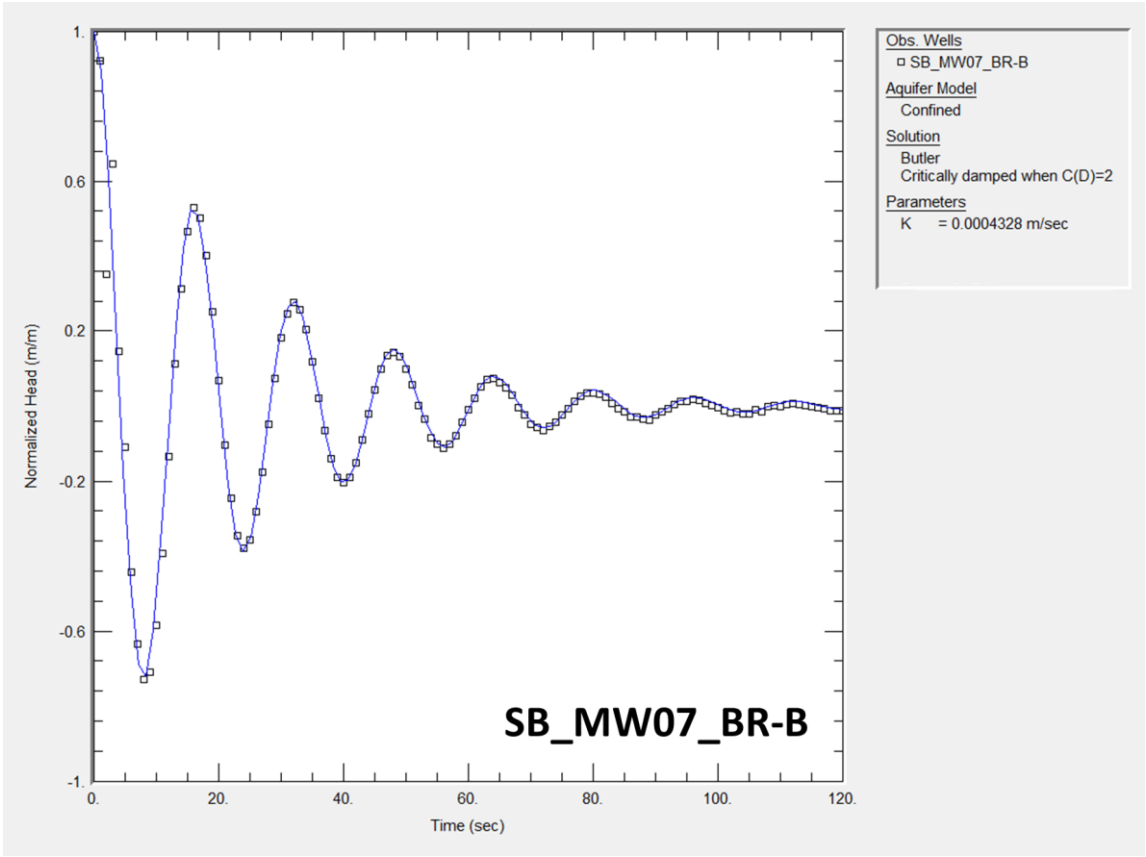
GEOFIRMA ENGINEERING

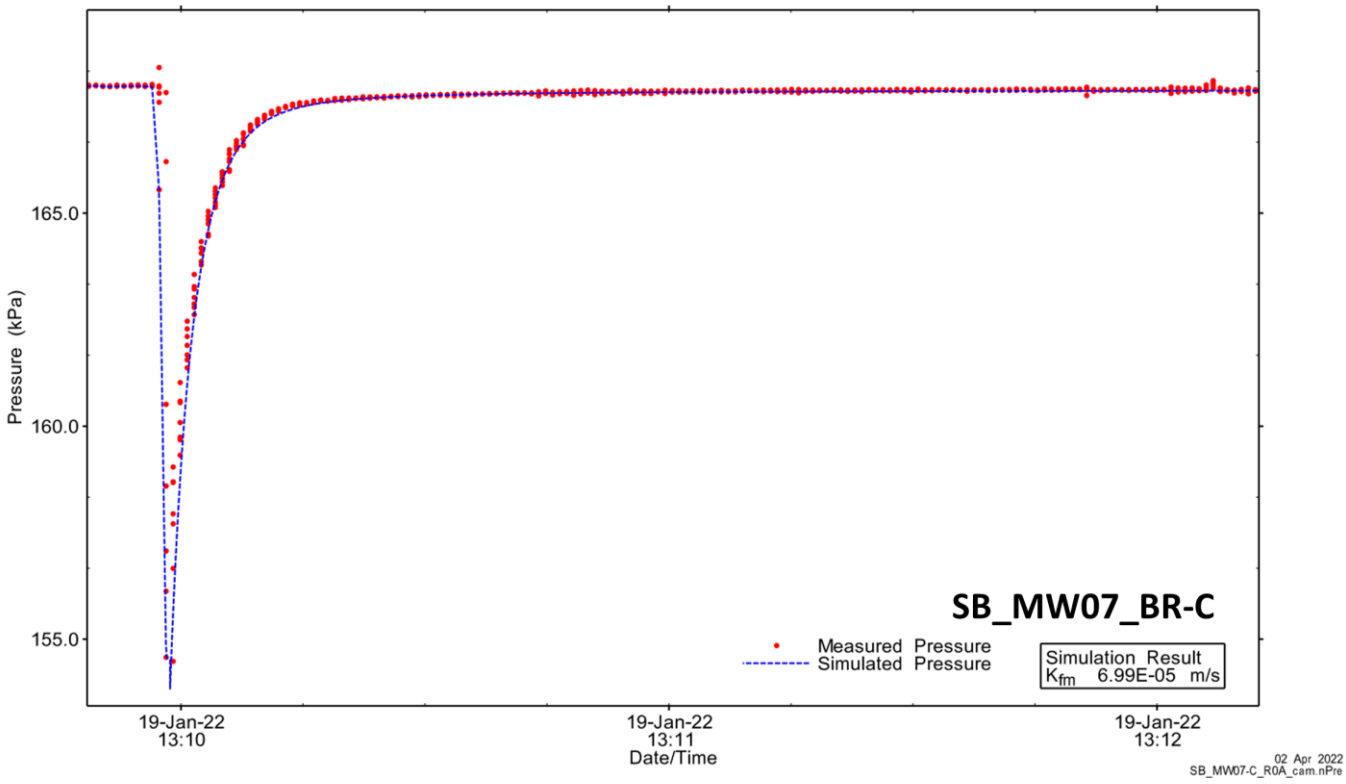




Appendix E: Hydraulic Testing Analysis Figures

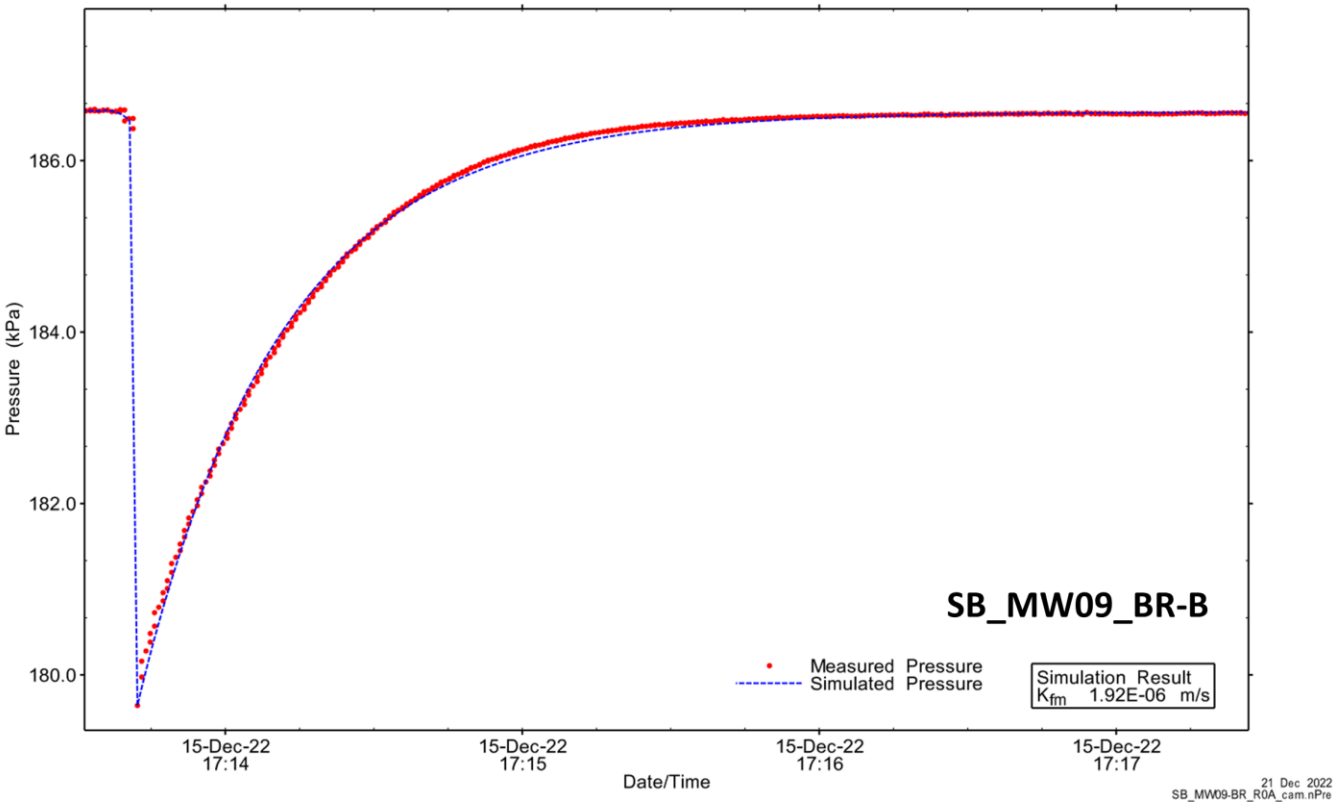
GEOFIRMA ENGINEERING





Appendix E: Hydraulic Testing Analysis Figures

GEOFIRMA ENGINEERING



Appendix E: Hydraulic Testing Analysis Figures

GEOFIRMA ENGINEERING