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BHP Billiton Iron Ore

**OB29 Hydraulic test 2023- 2024** 

Hydraulic Test Analysis and Per- and Polyfluoroalkyl Substances (PFAS) Mixing Assessment



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OB29 Hydraulic test 2023-2024 Hydraulic Test Analysis and Per- and Polyfluoroalkyl Substances (PFAS) Mixing Assessment

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Rev	Date	Details
2	13-06-2024	Final

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# 1 Project background

#### 1.1 Introduction

BHP Billiton Iron Ore (BHP) engaged WSP Pty Ltd (WSP) to complete groundwater monitoring, sampling, and analyse data collected during a large-scale (seven months) aquifer pumping test at Orebody 29 (OB29). The study site is located southwest of Newman, Western Australia, approximately 12,000 km northeast of Perth. The entire area of the operations comprises the Whaleback Pit, OB29, OB30 and OB35, and the undeveloped area of Western Ridge. The study area is shown on Figure 1.1.

Some areas within the study site have been identified as potentially contaminated, with initial releases anticipated to have occurred several decades ago. Groundwater sampling since 2020 has found perfluorooctane sulfonate (PFOS) and the sum of PFOS and perfluorohexane sulfonate (PFHxS) at levels exceeding the drinking water criteria (NEMP, 2020). A few spatially isolated and small areas contained groundwater with PFOS+PFHxS at levels exceeding the non-potable use guidelines but below the recreational use guidelines (NEMP, 2020).

The project consisted of three main scopes. These were:

- Scope 1: Groundwater monitoring events before and during the pumping test (i.e. hydraulic test)
- Scope 2: Interpretation of monitoring results to inform and update the conceptual site model and hydrogeological understanding
- Scope 3: Update groundwater model and conduct a contaminant mixing assessment to evaluate the validity of the methodology to predict contaminant concentrations at dewatering bores.

This letter provides a summary of the hydraulic test and an interpretation based on the information collected and the results of the groundwater modelling mixing assessment.

#### 1.2 Objectives

The key objectives of this stage of the modelling works are:

- improve the understanding of the hydrogeological conceptual site model (CSM) of the OB29/30/35 model domain, inclusive of PFAS source areas
- assess potential capture zone and preferential flow paths in the vicinity of PFAS source areas and (existing and future) dewatering bores
- predict PFAS concentrations at OB29 scheduled dewatering bores and conduct comparisons of modelled vs. actual
   PFAS concentrations to verify modelling outcomes and inform decisions relating to future modelling approaches
- assess impacts of scheduled/actual groundwater dewatering on PFAS plume concentrations and spatial extent.

#### 1.3 Hydraulic test

The hydraulic test was conducted between June 2023 and January 2024. The three dewatering bores used were HWHB0051P, HWHB0057P and HWHB0060P. The layout of the dewatering bores and OB29 is shown on Figure 1.1. Additional surface water samples were taken at the discharge area of the Ophthalmia Dam (Figure 1.2). The analysis of the results of the hydraulic test supports all these scopes by evaluating the following:

- water level change
- downhole electrical conductivity measurement in selected monitoring bores

- water quality sampling for per- and polyfluoroalkyl substances (PFAS), and major and minor elements
- capture zone assessment from an updated groundwater model and evaluation of the PFAS mixing assessment by comparing the observed PFAS concentrations measured from dewatering bores with the modelled predictions.

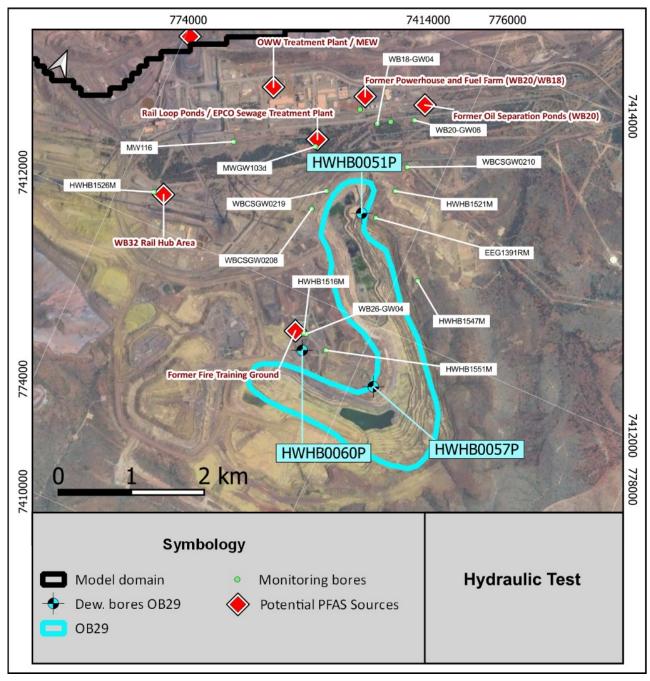


Figure 1.1 Hydraulic test plan view

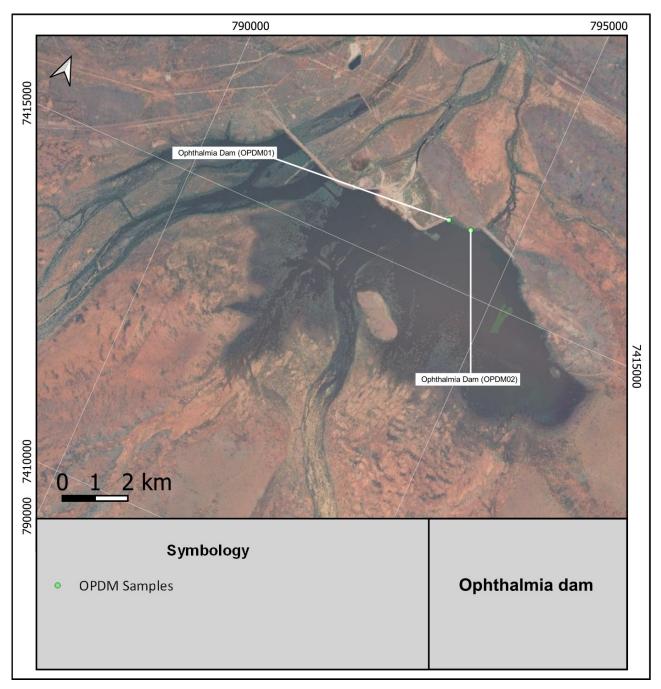


Figure 1.2 Ophthalmia dam sample locations

# 2 Groundwater monitoring

The groundwater monitoring during the hydraulic testing was conducted over 10 groundwater monitoring events (GMEs) between 29 May 2023 to 19 January 2024. Each GME consisted of the following tasks:

- water level measurements and deployment/retrieving of water level dataloggers,
- downhole electrical conductivity profiling in selected monitoring bores
- groundwater sampling using Hydrasleeves®.

GME 1 was used as the baseline to be compared with the later results. This report also incorporated the historical observed concentrations at monitoring bores to provide a more robust analysis.

An overview of these tasks is providing in the following sections.

#### 2.1 Water level measurements

Groundwater levels were measured both manually and with electronic water level loggers. The manual measurements used an electronic 150 m heron dipper T meter. Water level dataloggers were deployed in monitoring bores to capture the groundwater level change during the hydraulic test. The dataloggers used for the GMEs were Insitu Aquatroll rugged 100.

The deployment of dataloggers was done by hanging the loggers on a twine and gently deploying them inside the bores' PVC casing at a specific water level. Retrieval of the logger was done on the following GME to capture the data by gently pulling the twine out of the bore. Dataloggers were deployed back into the monitoring bore once the data was recorded. The list of monitoring bore where dataloggers were installed is in Table 2.1.

The recording frequency was set to 5 seconds (GME 1 and GME 2), 1 minute (GME 4 to GME 7), and 5 minutes (GME 8 to GME 10). Groundwater levels were taken in the monitoring bores listed in Table 2.1.

Table 2.1 Groundwater level monitoring summary

Monitoring bore	Easting	Northing	Manual Measurement (Y) (N)	Datalogger Installed (Y) (N)
MW116	774599	7412755	Y	N
MWGW103D	775124	7412953	Y	Y
WB18-GW05	775527	7413318	Y	Y
WB18-GW04	775448	7413269	Y	Y
WB20-GW06	775670	7413396	Y	Y
WBCSGW0210	775757	7413080	Y	Y
WB18-GW03D	775291	7413312	Y	Y
WB26-GW04	775589	7411752	Y	Y
HWHB1516M	775573	7411748	Y	Y
HWHB1551M	775758	7411704	Y	Y
WBCSGW0208	775275	7412552	Y	Y

Monitoring bore	Easting	Northing	Manual Measurement	Datalogger Installed
			(Y) (N)	(Y) (N)
WBCSGW0219	775318	7412705	Y	Y
EEG1391R	775703	7412673	Y	Y
HWHB1526M	774240	7412217	Y	N
MWGW103D	775124	7412953	Y	Y

#### 2.2 Groundwater quality sampling

Selected groundwater monitoring bores were sampled using high density polyethylene (HDPE) Hydrasleeves® (Table 2.2). The HDPE Hydrasleeves® were set to target the monitoring bore screen interval, at approximately 1 m below the groundwater level when the groundwater level is below the screens. The HDPE Hydrasleeves® were then left for at least a 24-hour period to allow the groundwater to equilibrate. The HDPE Hydrasleeves® were then retrieved and the groundwater samples transferred into laboratory supplied bottles directly using Hydrasleeves® straws. New nitrile gloves were worn while preparing the HDPE Hydrasleeves® for deployment and during retrieval. Additionally, surface water samples from the Ophthalmia Dam were sampled using an extendable sampler attached to the laboratory-supplied bottles, while dewatering bores and XD57 tank were sampled directly from the tap to the laboratory supplied bottles.

Water quality physio-chemical parameters (pH, redox, conductivity, temperature and DO) were measured in the field using calibrated water quality meter. Field groundwater monitoring sheets are provided in Appendix A1. Calibration checks of the water quality meter were conducted twice daily (before and after sampling) to confirm that the calibration was within acceptable ranges. Calibration records are provided in Appendix A2.

Each groundwater sample was collected using new disposable nitrile gloves and dedicated HDPE Hydrasleeve® to minimise the potential for cross contamination. All samples were then collected in laboratory-supplied bottles, labelled, and placed in an ice box. The groundwater samples were then transported, under a Chain of Custody (CoC), to a NATA-accredited environmental testing laboratory (primary laboratory was ALS and secondary laboratory was Eurofins). CoC documentation is provided in Appendix A3. Groundwater sampling equipment were decontaminated between locations with PFAS-free and phosphate-free detergent (Liquinox®) and deionised water.

Table 2.2 Monitoring bores with groundwater quality samples

Monitoring bore	Easting	Northing	Groundwater Quality Sample
			(Y) (N)
MW116	774599	7412755	Y
MWGW103D	775124	7412953	Y
WB18-GW05	775527	7413318	Y
WB18-GW04	775448	7413269	Y
WB20-GW06	775670	7413396	Y
WBCSGW0210	775757	7413080	Y
WB18-GW03D	775291	7413312	Y
WB26-GW04	775589	7411752	Y
HWHB1551M	775758	7411704	Y

Monitoring bore	Easting	Northing	Groundwater Quality Sample
			(Y) (N)
WBCSGW0208	775275	7412552	Y
WBCSGW0219	775318	7412705	Y
EEG1391R	775703	7412673	Y
HWHB1526M	774240	7412217	Y
MWGW103D	775124	7412953	Y

#### 2.2.1 PFAS sampling considerations

Due to the widespread use of PFAS compounds in everyday items, the following considerations were implemented by field staff prior and during the collection of samples:

- no new clothing, or clothing with rain or waterproof coatings/treated fabric
- no food or snack containers wrapped with non-compliant materials
- no teflon® containing or coated field equipment
- no teflon® lined lids on the laboratory supplied sample bottle
- no decon 90 or detergent decontamination solutions. liquinox® was used for decontaminating equipment
- no ice bricks for sample storage
- no pfas containing sun cream.

# 3 Hydraulic test

Groundwater level data gathered during the hydraulic test were analysed to improve the understanding of the hydrogeological CSM in the area around OB29.

#### 3.1 Drawdown analysis

The drawdown analysis presented in this report is a high-level analysis of the measured drawdown in the OB29 monitoring bores. The analysis provided in this report is based on the maximum groundwater level change during the hydraulic test and the spatial distribution to hypothesize of the potential hydraulic connections in OB29. The high-level drawdown analysis was conducted using the measured groundwater levels during the 10 GMEs at the locations listed in Table 2.1 and shown in Figure 3.1.

The drawdowns were not analysed against the dewatering rates as the received monthly rates were not sufficiently detailed to perform a formal drawdown analysis to calculate hydraulic parameters.

The analysis presented in this report allows broad observations on the drawdown spatial distribution due to the hydraulic test, and therefore, to provide potential hypotheses regarding the hydraulic connection in OB29 and the potential PFAS sources to the north.

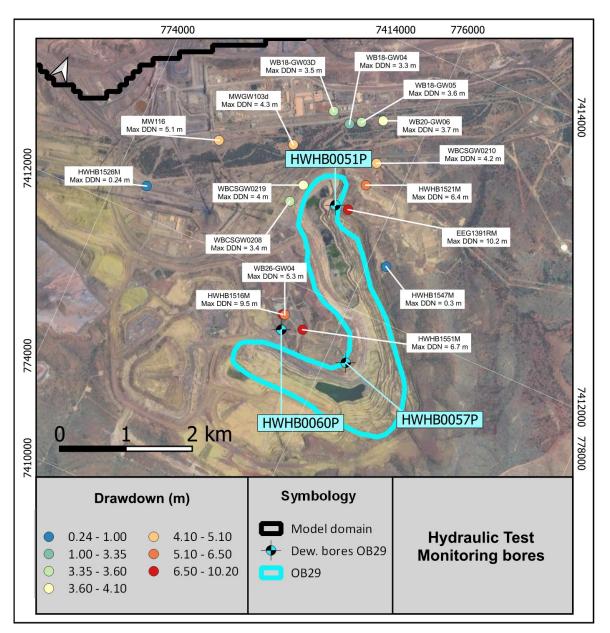


Figure 3.1 Groundwater level monitoring bores and maximum registered drawdown

#### 3.1.1 Time series assessment

The maximum drawdown observed during the hydraulic tests were at the EEG1391RM bore (10.2 m), adjacent to the dewatering bore HWHB0051P, and HWHB1516M (9.5 m), adjacent to the dewatering bore HWHB0060P. The bore HWHB1551M had a drawdown of 6.7 m, as it is located between the dewatering bores HWHB0060P and HWHB0057P (Figure 3.1).

The bores HWHB1521M and WBCSGW0210 showed a smaller drawdown from the dewatering bore HWHB0051P, effectively defining the extension of the cone of depression in the north-east direction (Figure 3.1). In contrast, the cone of depression did not extend far to the south-east direction as the monitoring bore HWHB1547M only had a maximum drawdown of 0.3 m (Figure 3.1).

Similarly, the monitoring bore HWHB1526M located approximately 3 km west from OB29 did not record a notable drawdown (0.24 m, Figure 3.1 and Figure 3.2). More intermediate drawdowns (between 3.3 and 5.1 m) were observed in the PFAS sources area, north of OB29 (bores MW116, MWGW103D, WB18-GW03D, WB18-GW04, WB18-GW05 and WB20-GW06), and west of the dewatering bore HWHB0051P (bores WBCSGW0208 and WBCSGW0219) (Figure 3.1).

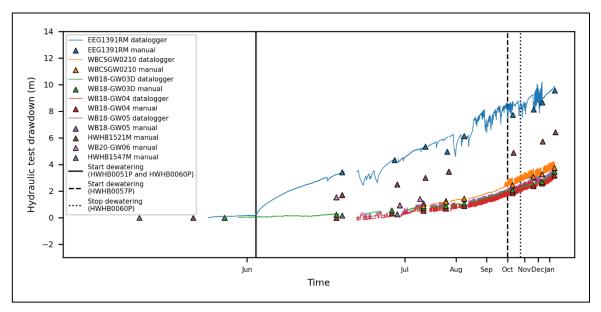


Figure 3.2 Drawdown induced by hydraulic test in the NE part of OB29.

The monitoring bore EGG1391RM, adjacent to the dewatering bore HWHB0051P, registered the descend of the water table at the beginning of June. During the test, this monitoring bore showed the groundwater table recovering, possibly due to the detention of the pumping or a drastic reduction in the dewatering rates (Figure 3.2). Nonetheless, the drawdown seemed to be consistent in the bore, without reaching a stable dynamic level. A similar trend, with slightly lower drawdown, was observed in the manual recordings taken at the monitoring bore HWHB1521M (Figure 3.2), which is located approximately 200 m north-east from EEG1391M (Figure 3.2).

The monitoring bores WB18-GW03D, WB18-GW04, WB18-GW05 and WB18-GW06, located approximately 600 m north from the dewatering bore HWHB0051P in the potential PFAS source area, registered a lower drawdown with maximum values between 3.3 m and 3.7 m (Figure 3.1). The drawdown breakthrough seems to have occurred in this location by the end of June Figure 3.2). This means that the cone of depression took about one month to extend at these locations.

The monitoring bores WBCSGW0208 and WBCSGW0219, located about 300 m west of the dewatering bore HWHB0051P also showed a late drawdown response, with a noticeable drop of the groundwater level after two weeks after the commencement of the hydraulic trial (Figure 3.2). Even though these bores are located nearer to HWHB0051P (Figure 3.1), the observed drawdown was similar to those observed in the monitoring bores north-east of HWHB0051P (Figure 3.2 and Figure 3.3).

This imply that there is either a lower hydraulic connection in this area than to the north-east, or that there is an additional source of water that buffered the drawdown. Both options could be explained by the presence of the OB29 pit lake, which could either prevent a hydraulic connection to the west or to provide an additional source from the pit lake (if existing during the hydraulic test).

The monitoring bore MW116 located about 1 km north-west from the dewatering bore HWHB0051P and the bore MWGW103D at about 600 m, registered a drawdown with maximum values of 5.1 m and 4.3 m, respectively (Figure 3.1). The drawdown in the bore MWGW103D showed that the groundwater drop started before the beginning of the hydraulic test (see drawdown at MWGW103D in comparison to EEG1391RM in Figure 3.3). Accordingly, it is possible that other stresses (e.g., legacy drawdown, OB35 dewatering, a local stress, or a combination of factors) may be affecting this area. This is also observed at MWGW103D showing an important recovery phase from early June to late July (also observed in the manual recordings in MW116) (Figure 3.3), supporting the hypothesis that the groundwater system in this area may be affected by local stresses that do not impact other areas.

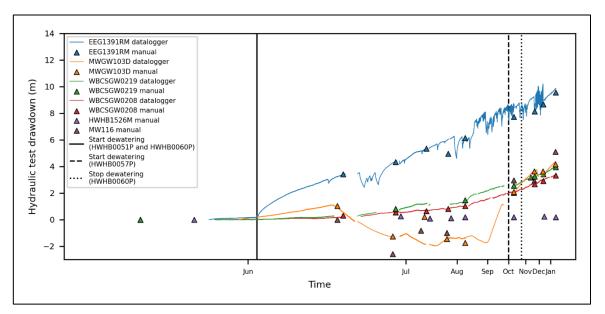


Figure 3.3 Drawdown induced by hydraulic test in the NW part of OB29 (including EEG1391RM for comparison).

The monitoring bores HWHB1516M, WB26-GW04 and HWHB1551M showed similar responses to the dewatering of HWHB0060P and HWHB0057P. The commencement of the hydraulic test (early June) was clearly recorded in the water level change in HWHB1516M (Figure 3.4). This bore registered an important recovery phase in late July, likely due to a change in the dewatering rates of HWHB0060P.

The commencement of the dewatering at HWHB0057P in October 2023 is not evidently registered in the monitoring bores. However, a slight increase in the drawdown slope can be observed at the bore HWHB1551M in October, possibly due the effects of the dewatering at HWHB0057P. On the other hand, the three bores registered the detention of the bore HWHB0060P in late October, showing a drastic recovery (Figure 3.4). It is also observed a slight drop of the groundwater levels since early December, likely because of the continuing dewatering at HWHB0057P (Figure 3.4).

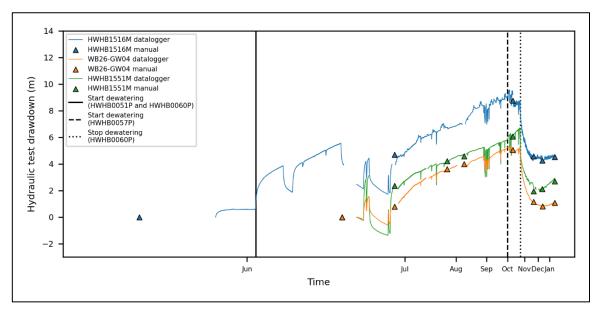


Figure 3.4 Drawdown induced by hydraulic test in the SW part of OB29.

#### 3.2 Laboratory results

Water samples were sent for analysis to the ALS Laboratories. The results are presented in Appendix B. A Mann Kendal statistical analysis was conducted for the PFOS and PFOS+PFHxS to evaluate for potential trends (Appendix C).

#### 3.2.1 PFAS concentrations at HWHB0051P

The measured PFOS concentrations at the dewatering bores HWHB0051P showed all values above the 99% species protection criterion (0.00023  $\mu g/L$ ). None of the samples exceeded the 95% species protection criterion (0.13  $\mu g/L$ ). Furthermore, the observed PFOS concentrations showed a probably decreasing trend (Mann Kendal statistic S = -51) with the most recent value equal to 0.0019  $\mu g/L$ .

All samples showed values of PFOS+PFHxS below drinking water guideline (0.07  $\mu$ g/L). PFOS+PFHxS concentrations at this bore showed stable trends with S = -20, with the most recent values of 0.004  $\mu$ g/L. The trend showed a clear rise in concentrations in November, with concentrations of PFOS and PFOS+PFHxS of 0.0033 and 0.0056  $\mu$ g/L, respectively, but decreasing by the end of the hydraulic test in January 2024 (Figure 3.5). Top plot in Figure 3.5 includes historical samples for comparison. Blue dashed square in the top plot shows the samples taken before and during the hydraulic test as part of this work. This period is illustrated in the bottom plot of Figure 3.5.

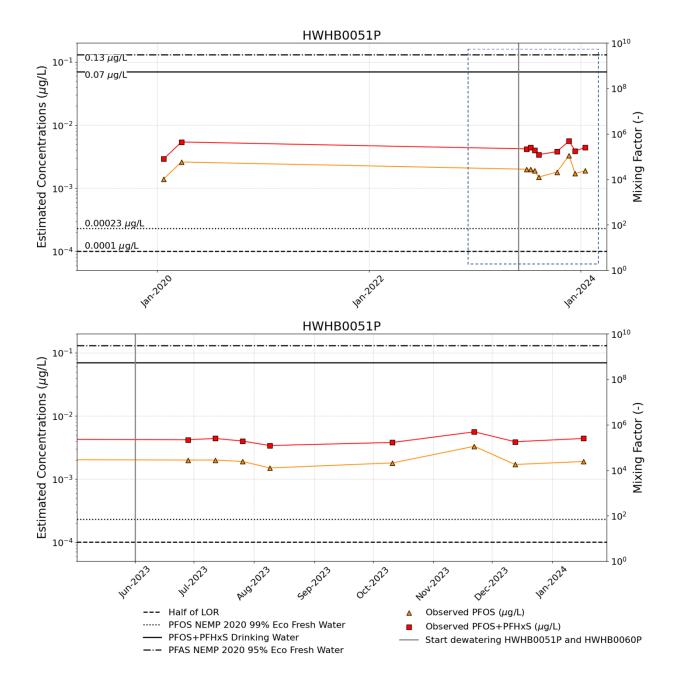


Figure 3.5 PFOS and PFOS+PFHxS at dewatering bore HWHB0051P.

Monitoring bore EEG1391RM, adjacent to dewatering bore HWHB0051P, showed a clear decreasing trend for PFOS and PFOS+PFHxS (S = -27 and -29), with the most recent concentrations below the limit of detection (0.0001  $\mu$ g/L) (Figure 3.6). This bore did not reproduce the observed concentrations at the nearby dewatering bore. This is the result of the capture zone developed by the dewatering bore HWHB0051P as illustrated by the reversed particle traces in Figure 4.6.

The flow paths at the dewatering bore present a radial distribution which can reach north of OB29, to the potential PFAS source areas. The particle traces that reach monitoring bore EEG1391RM come only from east of OB29, where there have been low concentrations of PFAS as illustrated by the plume map (Figure 4.6), thus, effectively diluting the observed concentrations.

Similarly, monitoring bore HWHB1521M also shows a decreasing trend for PFOS and PFOS+PFHxS concentrations (S = -34 for both species) (Figure 3.7 and Appendix C) likely because the flow paths reaching this monitoring bore come from areas of mostly low concentrations of PFAS (Figure 4.6). Monitoring bore WBCSGW0210 shows an increasing

trend for PFOS (S = 25) by the end of the hydraulic test (Appendix C). This is likely due to the withdraw of impacted groundwater to the east as illustrated by the particle traces (high concentrations observed at the bore HWHB1805M with PFOS+PFHxS =  $1.29 \mu g/L$  in March 2020) (Appendix C).

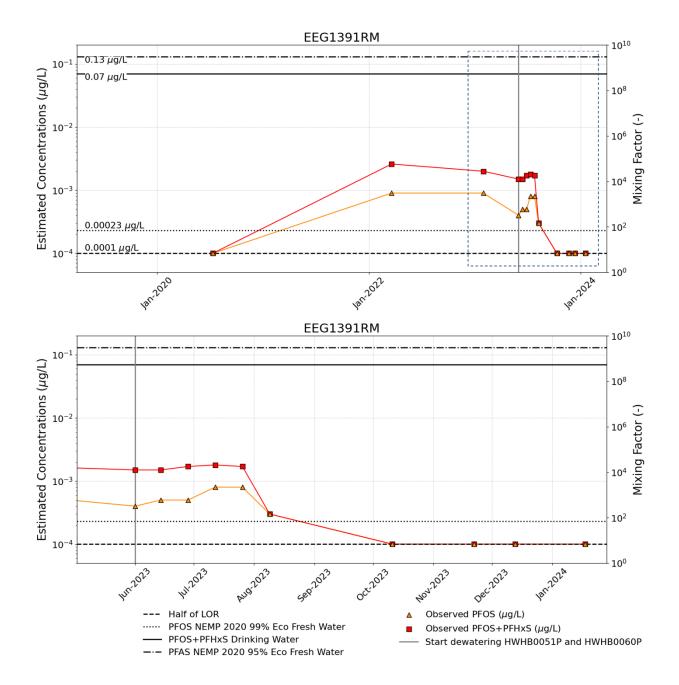


Figure 3.6 PFOS and PFOS+PFHxS at monitoring bore EEG1391RM.

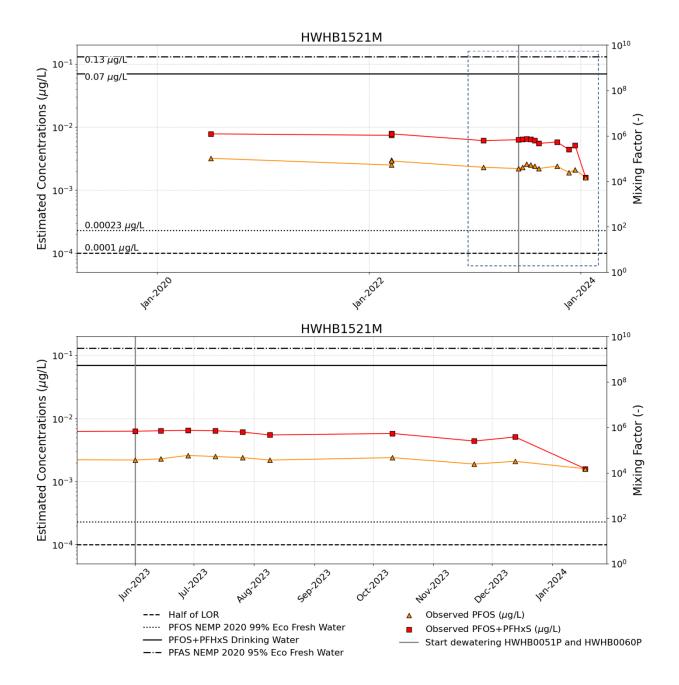


Figure 3.7 PFOS and PFOS+PFHxS at monitoring bore HWHB1521M.

Similar observations can be drawn for the different trends between nearby monitoring bores WBCSGW0208 and WBCSGW0219. Monitoring bore WBCSGW0208 shows a stable trend (S = -1) with concentrations below the limit of detection (Figure 3.8), monitoring bore WBCSGW0219 shows a clear increasing trend of PFOS and PFOS+PFHxS (S = 25 and 27, respectively, see Appendix C) (Figure 3.9), which is markedly rising since the beginning of the hydraulic test in June 2023.

This apparent conflicting observation is explained by the capture zone assessment, which shows that flow paths reaching bore WBCSGW0208 come only from an area where PFAS have not been detected, while the flow paths reaching bore WBCSGW0219 come from the potential PFAS source area to the north of OB29 (Figure 4.6). This is also observed in the NW part of the PFAS source area where MWGW103D and MW116 showed PFAS concentrations to slightly increase since the start of the hydraulic test despite the overall decreasing trend (Appendix C).

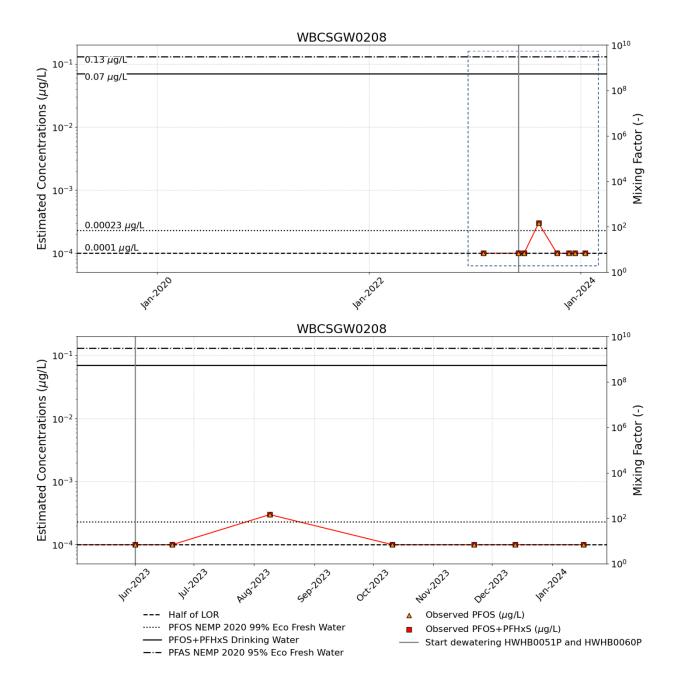


Figure 3.8 PFOS and PFOS+PFHxS at monitoring bore WBCSGW0208.

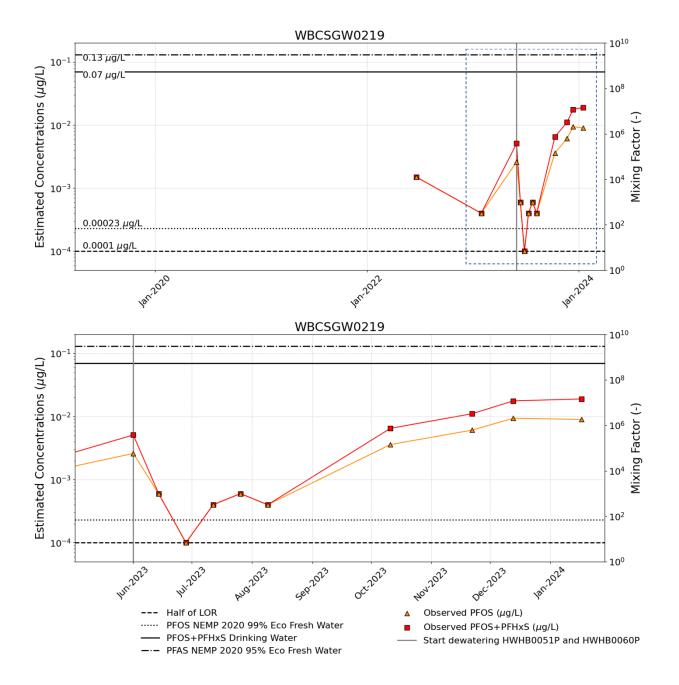


Figure 3.9 PFOS and PFOS+PFHxS at monitoring bore WBCSGW0219.

Additional trend plots for PFOS and PFOS+PFHxS are presented in Appendix C, with the Mann-Kendall statistics and their interpretation for all the samples including the surface water locations X57, OPDM1 and OPDM2.

#### 3.2.2 PFAS concentrations at HWHB0060P

The observed PFOS concentrations at the dewatering bores HWHB0060P showed some values above the 99% species protection criterion (0.00023  $\mu$ g/L) just after the commencement of the hydraulic test in June 2023 (Figure 3.10). However, none of the samples exceeded the 95% species protection criterion (0.13  $\mu$ g/L). On the other hand, all samples showed values of PFOS+PFHxS below drinking water guideline (0.07  $\mu$ g/L).

Observed PFAS concentrations at the dewatering bore HWHB0060P did not showed trend during the hydraulic test for PFOS and PFOS+PFHxS (S = -10 and -24). However, the latest two GMEs results showed values below the detections limit, implying a potential decreasing trend (note the negative values for the Mann-Kendall S-statistic). This is also supported by the capture zone analysis which shows that this bore abstracted diluted groundwater (see Section 4.4).

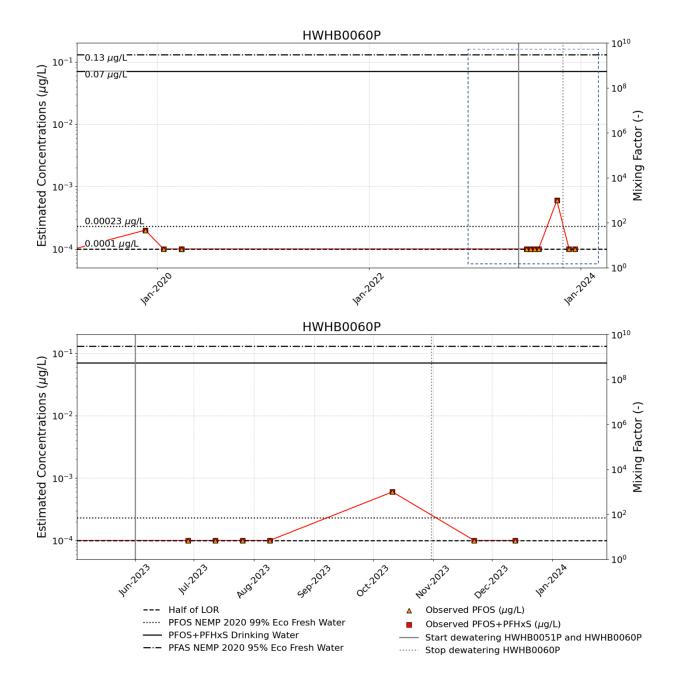


Figure 3.10 PFOS and PFOS+PFHxS at dewatering bore HWHB0060P.

The observed PFOS concentrations at monitoring bore WB26-GW04 showed all values below both the 99% and 95% species protection criterion (0.00023  $\mu$ g/L and 0.13  $\mu$ g/L, respectively) (Figure 3.10). All samples showed values of PFOS+PFHxS below drinking water guideline (0.07  $\mu$ g/L).

Observed PFAS concentrations at monitoring bore WB26-GW04 did not show a trend during the hydraulic test for PFOS and PFOS+PFHxS (S = -27 and -13, respectively).

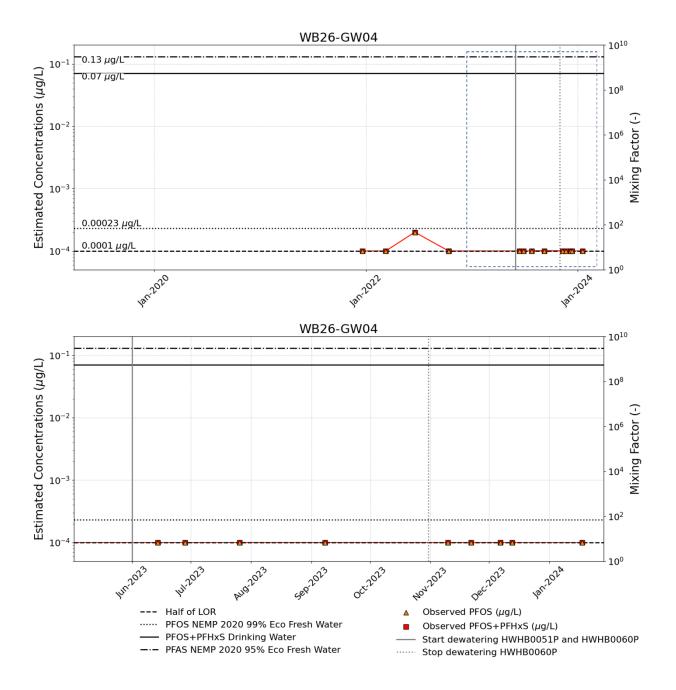


Figure 3.11 PFOS and PFOS+PFHxS at monitoring bore WB26-GW04.

#### 3.2.3 PFAS concentrations at HWHB0057P

The observed PFOS concentrations at the dewatering bores HWHB0057P did not exceed the 99% and 95% species protection criterion (0.00023 and 0.13  $\mu$ g/L). All samples showed values of PFOS+PFHxS below drinking water guideline (0.07  $\mu$ g/L).

Observed PFAS concentrations at dewatering bore HWHB0057P showed a slight increase in December 2023 but returned to stable concentrations of PFOS and PFOS+PFHxS (S = 0 and 9, respectively) to values below the detection limit in January 2024 (Figure 3.12 and Appendix C).

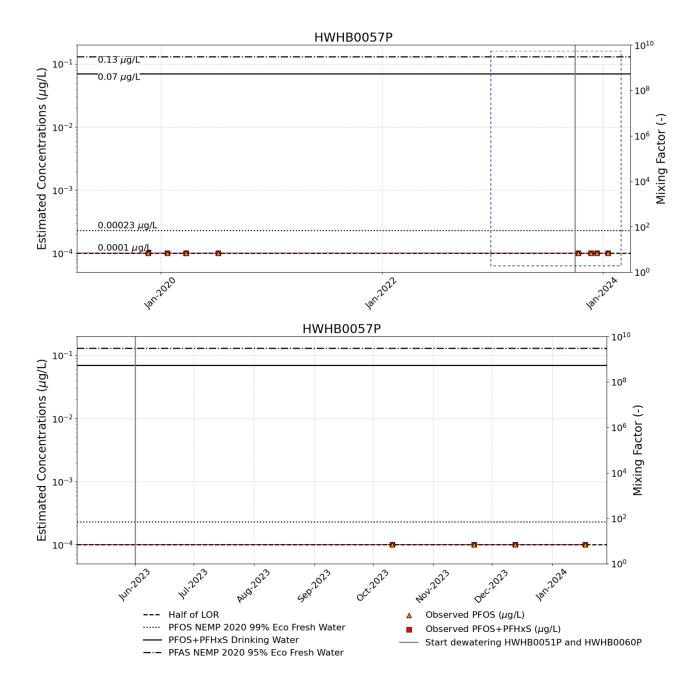


Figure 3.12 PFOS and PFOS+PFHxS at dewatering bore HWHB0057P.

#### 3.2.4 PFAS concentrations at combined dewatering (XD57)

Samples were taken from the combined dewatering groundwater storage at location XD57. Most of the observed PFOS concentrations at this storage facility exceeded the 99% species protection criterion (0.00023  $\mu$ g/L). However, all samples showed values of PFOS below the 95% species protection criterion (0.13  $\mu$ g/L). PFOS+PFHxS concentrations were found below drinking water guideline (0.07  $\mu$ g/L) (Figure 3.13).

Observed PFAS concentrations at location XD57 showed stable concentrations of PFOS and PFOS+PFHxS based on the Mann-Kendall analysis (Appendix C). However, their statistic values were estimated as S = -12 and -13; while their confidence factor as 87% and 89% for PFOS and PFOS+PFHxS, respectively. These results imply that it may be a masked decreasing trend as decreasing trends are defined for S < 0 and confidence levels > 90%).

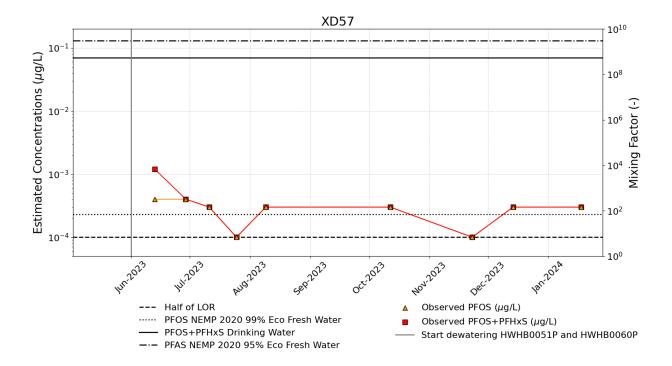


Figure 3.13 PFOS and PFOS+PFHxS at combined dewatering water storage XD57.

#### 3.2.5 PFAS concentrations at discharge points (opdm1 and opdm2)

Samples were taken at the Ophthalmia dam discharge locations OPDM1 and OPDM2. PFOS concentrations at these locations exceeded the 99% species protection criterion (0.00023  $\mu$ g/L). However, all samples showed values of PFOS below the 95% species protection criterion (0.13  $\mu$ g/L). PFOS+PFHxS concentrations were found below drinking water guideline (0.07  $\mu$ g/L). PFAS samples were taken in compliance of the Trigger Action Response Plan (TARP).

Observed PFAS concentrations at location OPDM1 showed stable concentrations of PFOS and PFOS+PFHxS (S = -3, for both species) (Figure 3.14 and Appendix C). On the other hand, observed PFAS concentrations at location OPDM2 showed decreasing concentrations of PFOS and PFOS+PFHxS (S = -18, for both species) (Figure 3.15 and Appendix C).

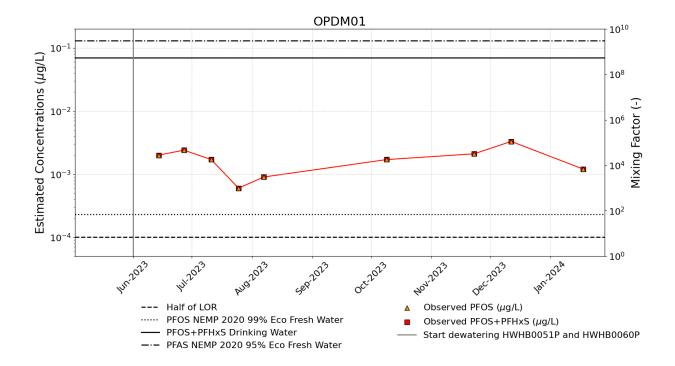


Figure 3.14 PFOS and PFOS+PFHxS at Ophthalmia Dam location 1 (OPDM01).

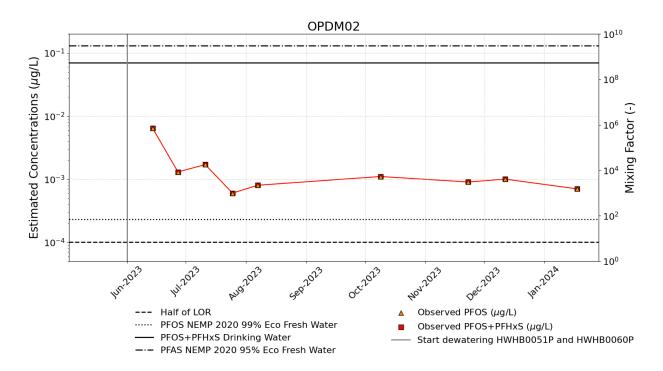


Figure 3.15 PFOS and PFOS+PFHxS at Ophthalmia Dam location 2 (OPDM02).

# 4 Groundwater modelling

#### 4.1 Model setup

The groundwater numerical model used for this report corresponds to an updated version of the MODFLOW 2005 model defined as 'Base Case' by WSP (2022). The groundwater model includes the entire OB29, OB30, OB35 and the undeveloped area of Western Ridge, located to the southwest of OB35 (Figure 4.1). This model version included updates regarding the hydraulic properties during a previous calibration process (WSP, 2022). No other versions considering geological uncertainties were used in this report. This 'Base Case' model was then updated with the observed dewatering rates in addition to the projected rates until June 2025. This model is referred in this report as 'Base Case 2024'. No attempts to calibrate the model were made; however, the observed water heads were compared with the model outputs to evaluate its validity under a low-intensity dewatering scheme. The groundwater modelling has been completed in a staged approach and builds on the previous scopes of work.

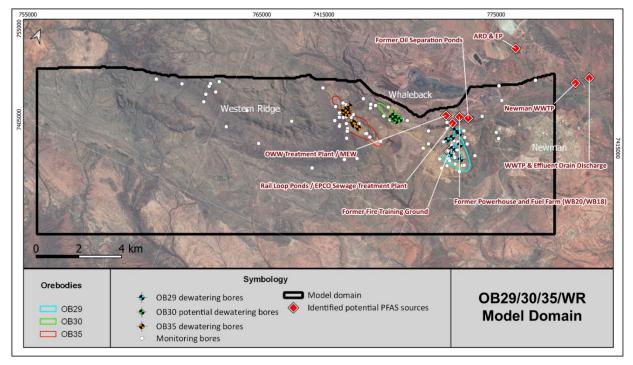


Figure 4.1 Model domain

#### 4.2 Scheduled dewatering rates

The measured and projected dewatering rates for the individual dewatering bores were obtained directly from BHP. Figure 4.2 shows the total dewatering rates at both OB29 and OB35, while Figure 4.3 shows the monthly rates of the dewatering bores at OB29.

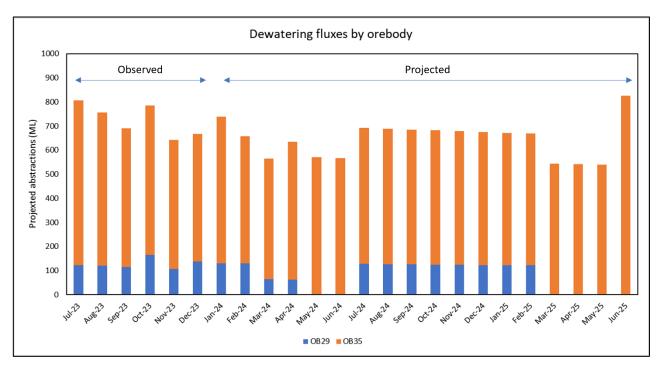


Figure 4.2 Observed and projected dewatering volumes by orebody.

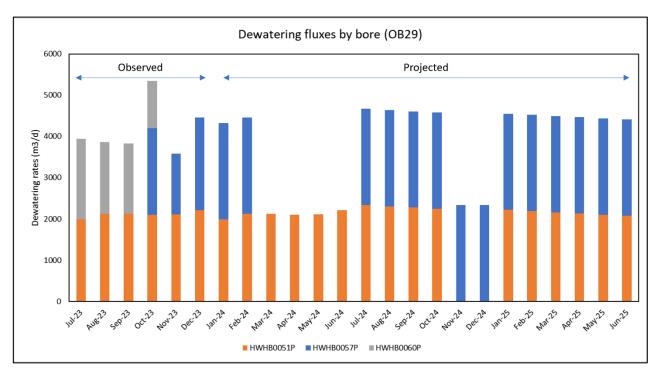


Figure 4.3 Observed and projected dewatering volumes by dewatering bore.

#### 4.3 simulated drawdown evaluation

A comparison between the measured groundwater levels and the simulated heads using the groundwater model was conducted to evaluate the model under the hydraulic test. The average monthly pumping rates were appended to the simulated dewatering bores in the groundwater model to simulate the effects of the hydraulic test to the surrounding monitoring bores. Overall, the groundwater model results showed that the simulated heads are underestimated by approximately 2 to 10 m (Figure 4.4, Figure 4.5 and Appendix D).

This mismatch is likely due to the use of an initial groundwater level of 522 m AHD in the entire model area, which does not reproduce the initial groundwater heads at the individual bores (e.g. see HWHB1521M in Appendix D). Monitoring bores HWHB1526M and MWGW-103D showed the largest mismatch with simulated groundwater levels, with ~18 and ~28 m lower than the observed values, respectively (Appendix D).

Considering the effects of the initial conditions on this disagreement between model output and observations, a more appropriate comparison was carried out by using the induced drawdown. Overall, the simulated drawdowns did also not match the observed drawdowns at most of the monitoring locations (Figure 4.4, Figure 4.5 and Appendix D). The simulated drawdown showed a lower slope than the observed drawdowns across most of OB29. These results imply that while the model reproduce well the overall groundwater levels, it was not able to reproduce all the aquifer stress during the test.

The results of this comparison are relevant for the evaluation of the predicted PFAS concentrations as the mixing assessment is based on the groundwater fluxes resulting from the model hydraulic parameters, and therefore, the induced hydraulic gradients due to the orebody dewatering.

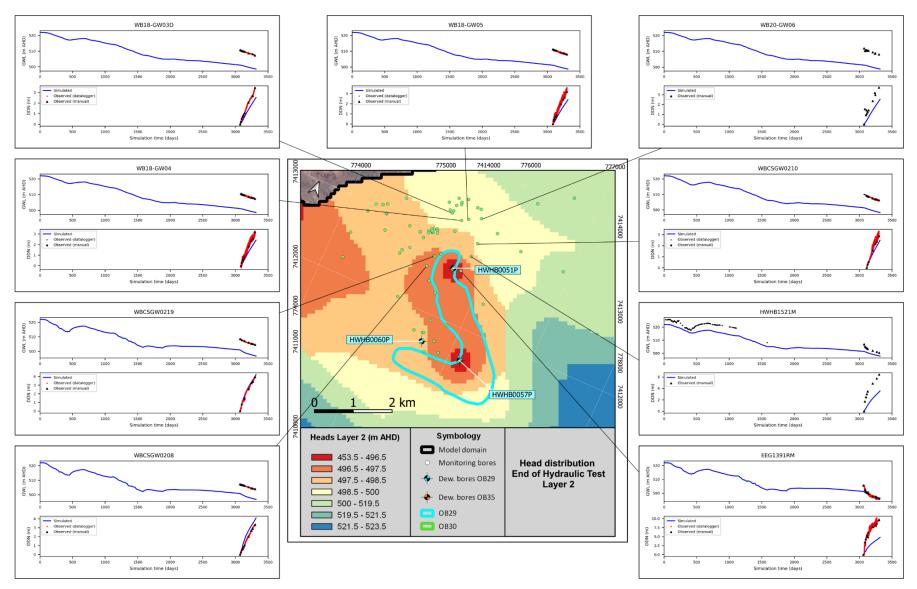


Figure 4.4 Measured vs simulated groundwater levels and drawdowns at selected monitoring bores north of OB29. GWL = Groundwater Levels = and DDN = Drawdown.

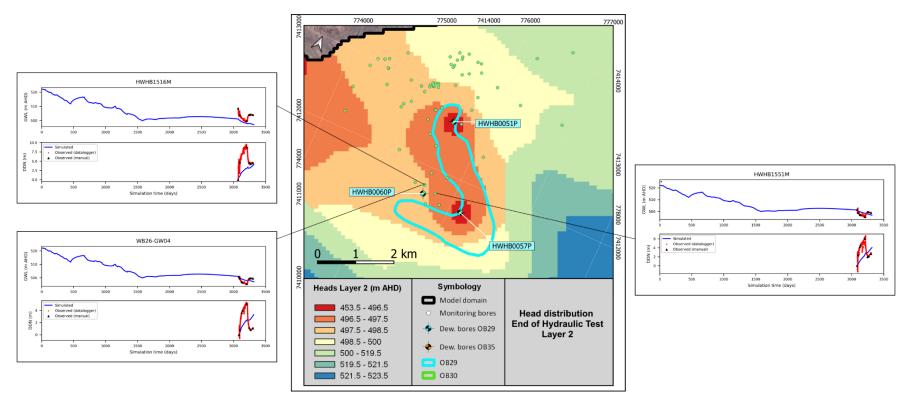


Figure 4.5 Measured vs simulated groundwater levels and drawdowns at selected monitoring bores locations at the southern part of OB29. GWL refers to Groundwater Levels (m AHD) and DDN to Drawdown (m).

#### 4.4 Capture zone assessment

A capture zone is defined as the region from which water is withdrawn by one or more dewatering bores. After pumping is initiated, the capture zone grows with time. Particle tracking analyses are particularly useful for delineating capture zones of dewatering bores. Reverse advective particle tracking is a conventional method for capture zone delineation and is has been used in this assessment. In this current assessment stage, the capture zone analysis will help in the identification of potential pathways should the contaminants reach the monitoring and/or dewatering bores.

A forward simulation with the updated model was run to obtain the groundwater flow field and heads. The simulation period considered for the particle tracks model was from June 2023 to January 2024. Particles were placed at the model cells where dewatering bores HWHB0051P, HWHB0057P and HWHB0060P are located. This process was repeated for each layer where the bores were screened resulting in five particles evenly distributed within each layer from either the water table or the top of the layer to the bottom of the layer. Additional particles were placed at the eight surrounding cells and followed the vertical distribution described above to consider potential uncertainties. The particles were released in every stress period to identify any potential contamination path under the changing hydraulic gradient due to the dewatering.

The results of the reverse particle tracking are shown in Figure 4.6. Particles generally extend within the boundaries of the more transmissive units; however, they were able to cross the hydrogeological barrier that separate the PFAS sources areas and OB29 at some locations. Particles tracks generally showed a radial distribution. Nonetheless, it can be observed that bore HWHB0051P showed a capture zone more elongated to the north-north-east of OB29 than to the north-west. These trajectories support the observations of the PFAS trends at the monitoring locations.

The particle tracks reaching bore HWHB0057P showed a radial distribution elongated to the south-east. This suggests that concentrations of PFAS at this location will dilute due to an increasing capture zone. The particle tracks reaching bore HWHB0060P shows a favourable path to the south-west after the bore is stopped. This implies that while dewatering bore HWHB0057P continues dewatering, concentrations at HWHB0060P will benefit from an additional dilution supported by the capture zones generated by HBHW0057P.

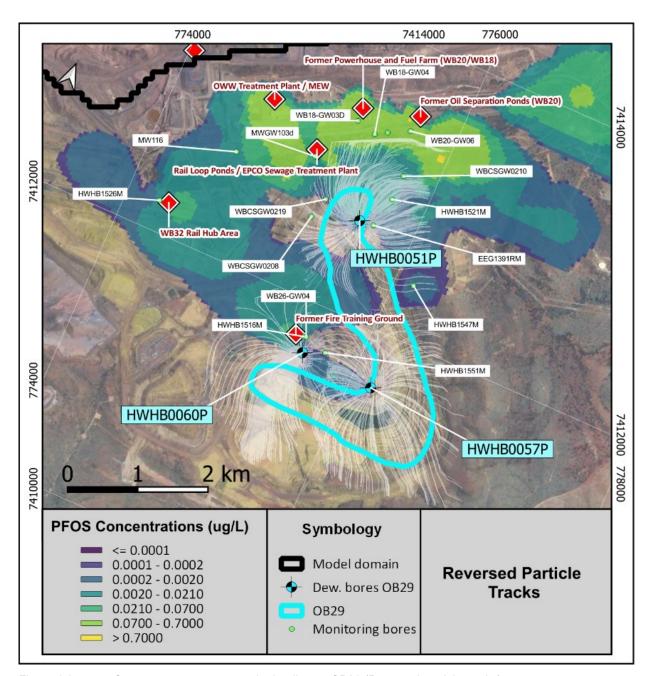


Figure 4.6 Capture zone assessment hydraulic test OB29 (Reversed particle tracks).

#### 4.5 Contaminant plume

The contaminant plume used in the mixing assessment correspond to the plume developed as part of the works presented by WSP (2022). This plume was constructed using geostatistical krigging with the maximum historical concentrations at each sampling location until August 2022. Accordingly, this plume was used as a conservative initial condition for the mixing assessment and its predictions will be compared to the observed concentrations during the hydraulic test.

To compare the differences between the observed concentration and the previous plume maps, an update of the previously developed contaminant plume by WSP (2022) was developed as part of this work by a different approach that attempts to generate a more likely current state of the PFAS contaminant plume. To achieve this, Mann-Kendall statistical analyses (where appropriate) for evaluation of trends were conducted using all the historical samples, including the results from the recent GMEs (Appendix C). This was performed by dividing the time series into three types:

Time series type (1): increasing and decreasing trends (five or more samples).

- Time series type (2) fluctuating trends, no recognised trends and time series with only three available samples (five or more samples).
- Time series type (3) time series with less than five available samples.

Using these types, a "most likely" PFAS concentration was defined at each sampling point to develop the 2D plumes to conduct the mixing assessment. These unique values were defined as follows:

- Latest available sample results for time series type (1).
- Median values for time series type (2).
- Average value for time series type (3).

The original plume maps used by WSP (2022) and the resulting 2D plume maps from this method are presented in Figure 4.7 and Figure 4.8 for PFOS and PFOS+PFHxS, respectively.

The comparisons show that, as a result of the increasing and decreasing trends at certain monitoring bores (e.g., WBCSGW0208, WBCSGE0219, WBCSGW0210, EEG1391RM and HWHB1521M), it seems that the plume has experienced transport. This can be observed in the upper left corner of the black squares illustrated in Figure 4.7 and Figure 4.8, where concentrations of PFOS and PFOS+PFHxS have increased towards OB29. On the other hand, at the right side of the squares, the lower concentrations have extended to the north, which could be due to the withdrawn of cleaner water due to the dewatering at HWHB0051P.

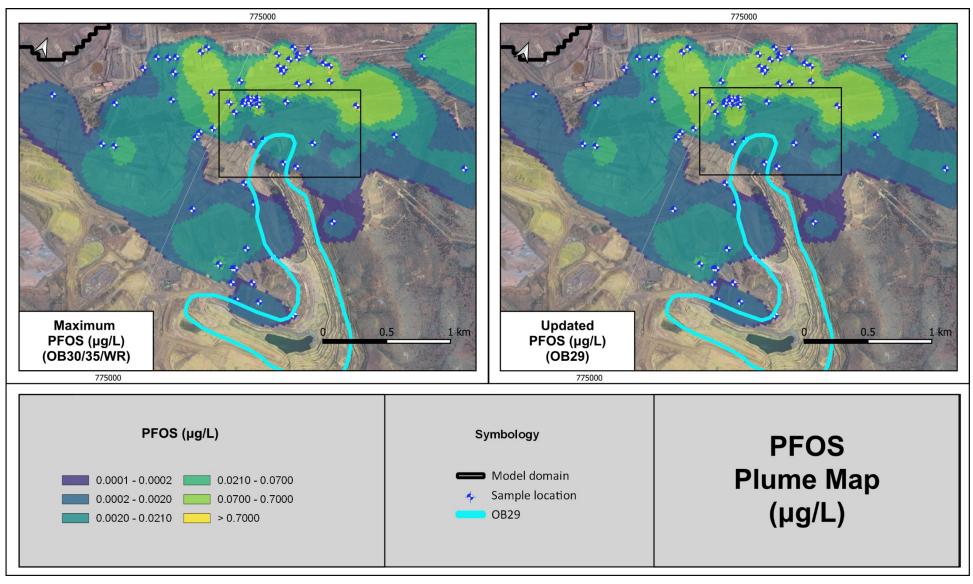


Figure 4.7 PFOS plume map. Black square shows the area with the most notable changes.

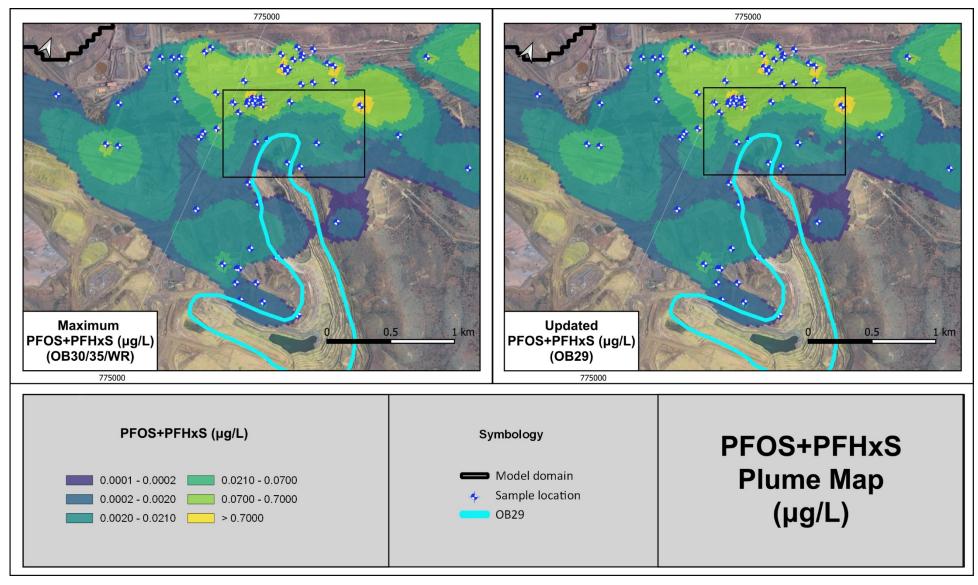


Figure 4.8 PFOS+PFHxS plume map

### 4.6 Mixing assessment

#### 4.6.1 Overview

The mixing assessment method was applied to the 'Base Case 2024' model version to:

- evaluate the fitness of the model and mixing assessment to predict PFAS concentrations
- to provide a prediction of PFAS until June 2024 for dewatering bores HWHB0051P, HWHB0057P and HWHB0060P (OB29).

Overall, this method uses the flow budgets per each cell to calculate its contribution to a predefined destination cell (e.g., dewatering bores). In this way, FlowSource facilitates the calculation of the volumetric contribution for both impacted and clean areas, thus allowing for the assessment of the in-situ mixing. For a detailed description of the FlowSource methodology refer to WSP (2022). This methodology was peer reviewed by a Department of Water and Environmental Regulation accredited Contaminated Sites Auditor. The mixing assessment has been carried out using this method.

A groundwater model for an area containing OB29, OB30, OB35, and WR was developed by BHP to assess the dewatering volumes for the purpose of a 5C application (BHP 2020). The model was subsequently extended to include the latest observed dewatering rates, including the hydraulic test, and the head observations up to January 2024. Forward simulations were carried out to forecast groundwater flow in the region until June 2025. The groundwater model was developed by BHP (BHP, 2020) using MODFLOW 2005 (Harbaugh, 2005).

Geostatistical kriging methodology was used to develop a plume map of PFOS and PFOS+PFHxS. The plumes were developed using the maximum historical concentration for each species at all locations. Additional data was incorporated from recently installed monitoring bores during 2021 and 2022. This corresponds to the contaminant plume maps presented by WSP (2022), which represents a conservative initial condition, previous of the commencement of the hydraulic test. The results of the mixing assessment will represent an approximation of the plume transport and dilution from this initial state.

The mixing assessment assumes that the plume thickness in OB29 is 60 m based on previous results reported by WSP (2022). In this previous report, results from a vertical delineation field campaign in monitoring bores in OB29 during 2022 showed that PFOS and PFOS+PFHxS were detected at depths between 1m to 91 m below the water table (m BWT) in OB29. The deepest detection of PFOS and PFOS+PFHxS has been detected at the bore HWHB1549M (~91 m BWT), west of OB29, where concentrations of both PFOS and PFOS+PFHxS were relatively low (0.0003 μg/L, for both compounds). However, higher concentrations were found in the bore HWHB1521M, northeast of OB29, at a depth of ~54 m BWT (0.0029 and 0.0078 μg/L for PFOS and PFOS+PFHxS, respectively).

The 60 m thickness value was then underpinned by an analysis of data and a simple calibration exercise from the predicted concentrations (WSP, 2022). However, as this definition requires more support, an evaluation of the appropriateness of the use of this value for the plume thickness (and the entire methodology) is provided in this report based on the comparison between observed and simulated concentrations during the hydraulic test.

#### 4.6.2 Assessment criteria

To evaluate the potential risk associated with PFAS in abstracted groundwater, the modelling results were compared to the following PFAS NEMP (2020) criteria:

- the 95% species protection for freshwater for PFOS which is 0.13  $\mu$ g/L
- the 99% species protection for freshwater for PFOS which is  $0.00023 \mu g/L$ .
- the drinking water criterion for PFOS+PFHxS which is 0.07 μg/L.

#### 4.6.3 Results

The estimation of potential concentrations of PFOS and PFOX+PFHxS until June 2025 was completed for each of the dewatering bores at OB29 that were used during the hydraulic test, i.e., HWHB0051P, HWHB0057P and HWB0060P. The dewatering bore locations are showed in Figure 3.1. This process was conducted for the Base Case model defined in Section 4.1.

The assessment was carried out using the plume maps presented in Section 4.5 and assuming a constant source release mechanism. The plume thickness was defined as 60 m for OB29 (refer to Section 4.5 for justification). The results have been screened against the 95% and 99% species protection criterion (0.13  $\mu$ g/L and 0.00023  $\mu$ g/L, respectively) and drinking water guideline (0.07  $\mu$ g/L) (HEPA, 2020). The main objective of this exercise is to evaluate the mixing assessment predictions in comparison to the observed concentrations during the hydraulic test.

The results of the individual bores HWHB0051P, HWHB0057P and HWHB0060P are presented in Figure 4.9, Figure 4.10 and Figure 4.11, respectively.

During the entire period of the hydraulic test and the extended predictive period until June 2025, the simulated concentrations did not exceed the drinking water guideline for PFOS+PFHxS (0.07  $\mu$ g/L) neither the screening value for the 95% species protection for PFOS (0.13  $\mu$ g/L) for the three dewatering bores (HWHB0051P, HWHB0057P and HWHB60P). However, it was simulated (and observed) that PFOS concentration exceeded the screening value for the 99% species protection (0.00023  $\mu$ g/L) in particular for all the simulated period at the dewatering bore HWHB0051P, the predicted period since February 2024 at the dewatering bore HWHB0060P, and during the commencement of the hydraulic test in the dewatering bore HWHB0057P.

The following observations are made for the individual dewatering bores:

- For HWHB0051P (Figure 4.9), PFOS and PFOS+PFHxS concentrations are predicted to increase during the simulated period (until 2025). This is likely the result of an increasing capture zone following towards the north of OB29. PFOS concentrations are predicted above the 99% species protection (0.00023 μg/L) for the entire simulation period but below the value for the 95% species protection for PFOS (0.13 μg/L). The simulated concentrations overestimated the observed concentrations of PFOS and PFOS+PFHxS, which is the results of the conservative approach used by the pseudo-transient capture zones used by FlowSource.
- For HWHB0057P (Figure 4.10), PFOS and PFOS+PFHxS concentrations are predicted to increase during the simulated period (until 2025), particularly after March 2024. This is likely the result of an increasing capture zone and a plume not sufficiently depleted by this stage. PFOS concentrations are predicted above the 99% species protection (0.00023 μg/L) after March 2024 but below the value for the 95% species protection for PFOS (0.13 μg/L) for the entire simulation period. The simulated concentrations mostly overestimated the observed concentrations of PFOS and PFOS+PFHxS.
- For HWHB0060P (Figure 4.11), PFOS and PFOS+PFHxS concentrations are predicted to decrease during the simulated period (until 2025). This is likely the result of an enhanced dilution due to the aid from the dewatering bore HWHB0057P. PFOS concentrations are predicted above the 99% species protection (0.00023 μg/L) during the duration of the hydraulic test but below the value for the 95% species protection for PFOS (0.13 μg/L) for the entire simulation period. The simulated concentrations mostly overestimated the observed concentrations of PFOS and PFOS+PFHxS.

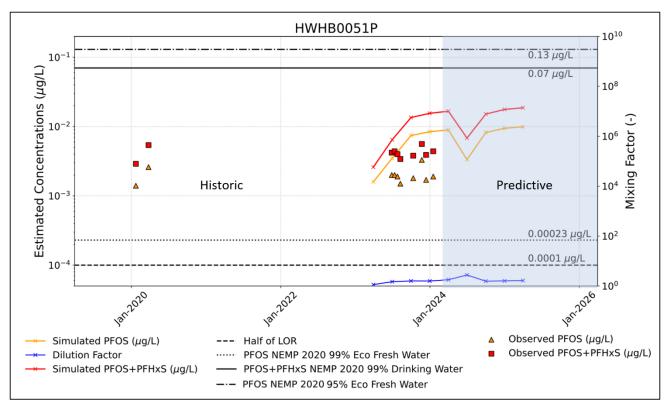


Figure 4.9 Mixing assessment results for PFOS and PFOS+PFHxS for the dewatering bore HWHB0051P.

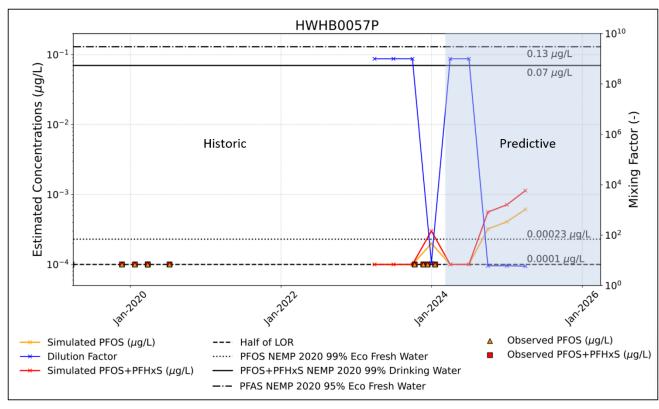


Figure 4.10 Mixing assessment results for PFOS and PFOS+PFHxS for the dewatering bore HWHB0057P.

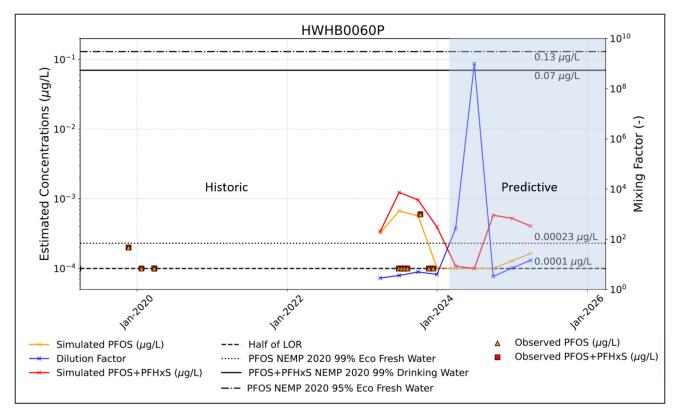


Figure 4.11 Mixing assessment results for PFOS and PFOS+PFHxS for the dewatering bore HWHB0060P.

### 5 Conclusions

BHP engaged WSP to undertake 10 GMEs to evaluate the impacts of a dewatering trial (hydraulic test) in OB29. Three dewatering bores (HWHB0051P, HWHB0057P and HWHB0060) were used for a seven month hydraulic test from June 2023 to January 2024. Drawdown was monitored at specific locations and water samples were taken across the site to evaluate the PFAS concentrations at the dewatering bores. Observed drawdown and concentrations trends were analysed to update the hydrogeological understanding of the site, in particular to identify potential pathways of PFAS from the source area to the north, to the dewatering bores. Additionally, the observed drawdowns and PFAS concentrations were evaluated against the predictions from the modelling outputs to assess the validity of the mixing assessment methodology. To this end, the groundwater model was updated using the observed monthly dewatering rates and the projected rates until June 2025.

The main conclusions drawn from this report are stated as follows:

#### Observed PFAS concentrations

- Observed PFOS+PFHxS concentrations at all the dewatering bores were below the drinking water guideline value  $(0.07 \mu g/L)$  during the hydraulic test.
- Observed PFOS concentrations at individual bores were above the 99% species protection (0.00023 μg/L). However, none of the samples exceeded the 95% species protection criterion (0.13 μg/L). In particular, dewatering bore HWHB0051P, the closest to the main PFAS source area to the north of OB29, showed values above the 99% species protection (0.00023 μg/L) for all its samples during the hydraulic test.
- None of the observed PFOS concentrations at dewatering bore HWHB0057P exceeded the 99% species protection criterion (0.00023 μg/L), while only one sample at HWHB0060P showed values above the 99% species protection criterion (0.00023 μg/L).

#### Simulated PFAS concentrations

- Simulated concentrations at the three dewatering bores overestimated the observed concentrations of PFOS and PFOS+PFHxS.
- Simulated PFOS and PFOS+PFHxS concentrations at dewatering bore HWHB0051P are predicted to increase during the simulated period (until Jun 2025).
- For HWHB0057P, the simulated PFOS and PFOS+PFHxS concentrations are predicted to increase during the simulated period (until Jun 2025), particularly after March 2024.
- For HWHB0060P, the simulated PFOS and PFOS+PFHxS concentrations are predicted to decrease during the simulated period (until 2025).

#### Validity of mixing assessment methodology

- Overall, the mixing assessment provided a slightly overestimated prediction of the PFOS and PFOS+PFHxS
  concentrations in the three dewatering bores. This is the result of the conservative approach delivered by the pseudotransient capture zones used by FlowSource and assuming a constant source.
  - Accordingly, although this method is not a formal contaminant fate and transport assessment, its results are suitable to provide conservative predictions of PFOS and PFOS+PFHxS concentrations in OB29 during dewatering activities at OB29.
- Therefore, the future observed PFAS concentrations at OB29 are likely to be below the values predicted by the mixing assessment.

#### Hydraulic connection between OB29 and PFAS source area

The analysis of the measured groundwater levels showed that most monitoring bores registered drawdown influenced by the hydraulic test. This is a major finding that improves the understanding of the aquifer connectivity.

As it has been hypothesized, the aquifer at OB29 has some hydraulic connection to the north as dewatering bores have detected PFAS, probably coming from the main PFAS source areas to the north of OB29. However, as there is a low permeability formation between OB29 and the sources area to the north, this connection was not clear.

- The hydraulic connection has been evidenced by the drawdown observed in the monitoring bores MW116, MWGW103d (NW of sources area) and WB18-GW03D, WB18-GW04, WB18-GW05 and WB20-GW06 (NE of sources area). All these bores registered maximum drawdowns between 3.3 to 5.1 m during the hydraulic test, with the highest drawdown observed to the NW (MW116 and MWGW103).
- However, monitoring bore MWGW103D registered a drawdown that started before the beginning of the hydraulic trial as well as an important recovery phase from mid-June to mid July 2023, same as monitoring bore MW116. These changes were not observed in any of the other monitoring bores, which suggests that there may be additional stresses to the aquifer in the NW source area that do not affect the rest of the site.
- Accordingly, the drawdown analysis can conclude that there is a hydraulic connection between OB29 and the NE of the sources area.
- The drawdown analysis also showed that dewatering bore HWHB0051P had the highest impact to the east of OB29 than to the west as evidenced by the observed drawdowns in monitoring bores HWHB1521M and WBCSGW0219. There was no indication of the capture zone extending to the west (HWHB1526M) and east of OB29 (HWHB1547M). No monitoring bores were measured to the south of OB29.
- The observed drawdowns were compared to the simulated drawdowns by the groundwater model. In general, while the model tends to reproduce well the groundwater levels, it underestimated most of the drawdowns generated by the hydraulic test except for monitoring bores WBCSGW0208 and WBCSGW219, which showed the best match.

Additional evidence of connectivity and plume transport

- The observed concentrations at monitoring bores showed indications of plume transport between the source area and OB29.
- Monitoring bore WBCSGW0219 showed a clear increasing trend. These observations, in addition to the results of
  the capture zone assessment, suggest that impacted water may have been transported from the Rail Loop Ponds
  (identified as a potential PFAS sources), located 300 m north, towards WBCSGW0219.
- This suggest that some hydraulic connection as well as a PFAS pathway may exist through the NW part of the sources' area.

### 5.1 Limitations

As stated by WSP (2022) and previous mixing assessment reports, the results showed here are controlled by:

- the dewatering bores being active and their dewatering rates;
- the fitness of the groundwater model to reproduce the observations; and
- the PFAS plume maps, assumption of PFAS release at sources and plume depletion rate.

Accordingly, while this analysis is valid under the current dewatering schedule (hydraulic test), a more intense dewatering will likely provide different predictions. Furthermore, the calculated fluxes by the groundwater model probably differ from the reality as the simulated groundwater levels and drawdowns did not match the observations. Finally, the mixing assessment methodology considers that the plume will be depleted (contaminant being removed away from the identified sources, which are treated as constant release sources) during dewatering. This depletion is more evident in the predicted results by WSP (2022) after the simulation of more than two years of full-scale dewatering. However, the predictions presented in this report did not show evidence of a depletion occurring likely because the hydraulic test only last for seven months and that the dewatering rates were lower than the prediction showed by WSP (2022) in a full-scale dewatering schedule.

### 5.2 Recommendations

- It is recommended to continue monitoring the bores showed in this report during any future dewatering activities in OB29 as they can serve as informative sampling locations to anticipate the transport of PFAS compounds towards the dewatering bores. As no major changes were observed fortnightly or monthly, it is recommended to undertake GMEs bimonthly while dewatering occurs in OB29.
- It is recommended to continuously calibrate the groundwater model against the historical and new head and drawdown observations. This will ensure that the flux domain (or several realisations if considering parametric uncertainty) is well constrained by the observations to be used as a base for the mixing assessment.
- Mixing assessment can be appended to every calibration process to evaluate its validity to reproduce the observed PFAS concentrations under future dewatering.
- The mixing assessment results can be validated better under a more aggressive hydraulic test that simulates a full-scale dewatering that aims to reach the dewatering targets.
- Nonetheless, as the mixing assessment has important limitations, it is recommended to start the development of a preliminary fate and transport model. Such a model can provide more robust predictions as it can be run in transient mode in comparison to the conservative pseudo-transient approach of FlowSource. Additionally, a fate and transport model do not need to assume plume depletion rates, as the plume transport and its depletion is directly estimated by the model.

### 6 References

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- Harbaugh, A.W. (1990). A computer program for calculating subregional water budgets using results from the U.S.
   Geological Survey modular three-dimensional ground-water flow model: U.S. Geological Survey Open-File Report 90-392, 46 p., https://doi.org/10.3133/ofr90392.
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   Report No. 21481693-016-L-Rev0.

## Appendix A

Field sheets and records



### A1 Field sheets



Project Information						
Date: 26/06/2	3			Time: Arrive 10:30 Depart 5:00		
Client: BTP				Project Number: PS292 448		
Site Location: Mr.	Wha	leba	W	Personnel: Co TW		
Weather: SWNN			342	3-111-0		
Purpose of Visit						
Cimt -	Dri	١.	Tain	A Andreas Malatti	-	-
CHEE	1+1	10	CIVE	oundwater Modelling	-	
Description of Works						
Andrew-	SIK	SU	per	vicor		
			3	211.707		
			-	(A		
		_				
Sampling Details					751	
Sampling Conducted:	Y	(N)	NA	Summary of samples:	ī	
Matrix;	S	W	0			
COC Form Submitted	Y	N	NA			
Primary Lab:				Intra-Lab QA Pairs:		
Secondary Lab:				Inter-Lab QA Pairs:		
EVWE V 21 V			VI O			
Field Equipment Used	1	ra		hreted/tested:	N.	NA
PID:	Y	W	-	or and ordered	N	NA
FID/Eagle:	Y	(M)	- 100000	Uraleo/toomo.	N	N/
LGA:	Y	(N)		brated/lested.	N	N/
IP:	Y	(N)	2-5/2/02	diater/tented.	N	N/
YSI/TPS:	Y	10		orated/tested.	N	N
Pump:	Y	(M)	-	brated/tested.	N	N
Other: DIPPEY	Q	N		braied/iestou.	Ň	N
Other:	Y	N	Cal	ibrated/tested:		1
Other Outstanding Ac	tions	-				11
Other Outstanding As						1
					1	
	_				B	

### 112)

## Standard Form 1.2.2:

	Detailed record continu	ied		
	Well	DTW	DTB	Comments/
		1122 2		Snick wr
11.45	MB18-GWD3D	48.56	82.28	
17.00	WB18-GW04 WB18-GW05 WWILL	45.25	164, 15	D. 62 Variable gerrand
14:15	MAIR- BMOD	44.49	92.52	0.54 Sum
	The state of the s	46.93	102.92	Stick 4- 0.575
14:50	MIXCEMOSIO	23.45	35.82	ISAT X 47 - 0.495
	MDGGWDZI	50.11	149-61	0.57
(E.				
	Accide to N	No. 12 and 12 an	10	1
-	Arrive at 1 Go to 1GA	deminal air	POUT (N BIL	HO AM
	190 10 1611	MON DIENKENT	t 4 lunu	
	- WRO DICK	up sandm	ch pags	
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	Go to Toll d	1.154MI		
	-collect eq	AT LIVENT		
	Districto to til	4 10-00	Buck the view	
	Arrive to sil		HIM 7 WEE	t with six
	IMPERAGON -	HINDREW		
	FILL DUT	JHA		
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Project Information									
Date: 27/6/23	5.			Time: Arrive 6:00 Depart 4	45	PN			
Client: BMP				Project Number: PSZo 244 8	Project Number: PC26 21111 CV				
Site Location: Mt.	W	1010	Lan	100018					
Weather: SWNW	W	I GOLL	40.00	UC Personnel: CO/TM					
Purpose of Visit	1				1				
	20		-		11				
GME- 6B PFAS	64		_						
LIMZ	_	-	_			1			
Description of Works a	nd Pec	ple M	let						
Pre-start	ar	deu	nr	riva ar bAM					
Se was pi	7 0	SLOV	+	3					
					П				
		100							
Sampling Details									
Sampling Conducted:	KY	N.	NA	Summer of contract	-40				
Matrix:	S	N (8)	0	Day samples: + WBB-GW03D					
COC Form Submitted	100	N	NA	Strategy 1 MPP Class					
Primary Lab: ALS	10		141	Infra-Lab QA Pairs:		_			
Secondary Lab: EUV	obia	c -		Inter-Lab QA Pairs:	(4)	_			
	01175	_		22335-410-4-23-5-4240-2					
Field Equipment Used					701				
PID:	Y	(N)	Call	prated/tested: Y	N	NA			
FID/Engle:	Y	(1)	Calif	orated/tested: Y	N	NA			
LGA:	Y	0	Calif	prated/tested: Y	N	NA			
IP;	Y	0	Cali	prated/tested; Y	N	NA			
YSI/TPS:	(8)	N	Cali	orated/tested:	N	NA			
Pump:	Y	(M)	Call	praled/tested:	N	NA			
Other: Dipply	0	N	Cali	brated/tested: Y	N	(NA			
Other:	Y	N	Call	brated/tested: Y	N	NA			
Other Outstanding Act	lone		÷						
Other Outstanding Act		- 77							
Access to	Χ.	320							

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WELL GWY 68.67 11 WIRESIGN 69.65 WINESSIM 71.535 BESGIND 208 59.855 WELL GWOZIN 62.04 EEG 139112 97.04  THUTIBISZIM 69.34	1.805 95.565 > 150 80.895 87.33 120.77	10.95
128   06/23 Gauging	95.565 > 150 \$0.895 81.33 120.77	
128   06/23 Gauging	95.565 > 150 \$0.895 81.33 120.77	0.95
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Mid Well College how	- + Sah	ripled WBIX-GWUS
6 1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 101-	ALIAN MARCHAN TAIR
were leaving site	to tal	a samples from
The days 6000	7 4 060	M2)
· left the dam at 1		
· Tried to ger acces	c vo X5	1, but no call back
· Itila to get acces		
5		

			77 113 T 1 5 mm	The state of the s
Version: B	Reviewer: C. McKey	Date: 30/03/16	Approver: C. McKay	Date: 30/03/16



Project Information							
Date: 28/6/27	3			Time: Arrive 4:00 Depart	4:5	0	
Client: BMP		-		Project Number: PS202448			
Site Location: TVI-	WING	lev	alle	Paragraph			7
Weather: SUNNY				colTM			
Purpose of Visit							
LIME - PF	24	Cor	LANDAUM	er Modelling	_	-	-
01379	1	VII.	WINCH VOI	(1 1 100x Hr)			-
		_					
Description of Works a		LCTETT DOMAIN					F
Pre-start	0	de	waterin	a @ GAM			
Will was	PIL	Slo	VY WAT	AND FE			T
			200	The state of the s			T
Sampling Details	- 04						
Sampling Conducted:	(3)	N	NA Summar	ry of samples:			
Matrix: Water	S	(W)	v) o Pit samples				
COC Form Submitted	(3)	N	NA .				
Primary Lab: ALS			Intra-La	D QA Pairs: QADI / 28 06 23		-	-
Secondary Lab: EVA	ofins		Inter-La	6 QA Pairs: QA 02   280 6 2	3		Ŧ
Field Equipment Used				100000	,		
PID:	Y	60	Cultivatedita				
FID/Eagle:	Y	EE	Calibrated/tes		Y.	N	NA
LGA:	Y	(2)	I - SIMIRA WAY YOU	12.20	Y	N.	NA
IP:			Calibrated/ter	3.0	Y	N	N/
Little Co. 1	Υ Υ	(1)	Calibrated/tes		Y	N	N/
VSI/TPS	0	N	Calibrated/te:		0	N	N
YSI/TPS:		(10)	Calibrated/te		Y	N	N
Pump:	Y	4.7			N	N	
Pump: Other: Dipper	0	N	Calibrated/tested: Y N		_		
Pump:		N	Calibrated/te	/ ARTICLE	Y	N	N
Pump: Other: Dipper	Ď	- 1	I CONTRACTOR OF A LIBERTY	/ ARTICLE	_		N

Version: B	Reviewer: C. McKay	Date: 30/03/16	Approver: C. McKay	Date: 30/03/16	
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, Will was At escore
· Lunan at IPM
· Tried to call ar 1:45 PM for V57 acres
· Sarupled MWIIG + MWGW103D
· Took pictures of former rail loop points for christian B. · Thed to accers WB20-GWOG - train blocking area
· Arranged X57 access w/ Tom For 29/06/23
· Returned sample pull of got ice 15:30 · YSI calibration of ninsour samples taken OFF of dipper @ 16:00

Version: B	Reviewer: C. McKay	Date: 30/03/16	Approver: C. McKay	Onte: 30/03/16



Date: 29 6/25	Time: Arrive 6 AVM Depart 4:45
Client: BHP	Project Number: PS202448
Site Location: Mt. Whole balk	Personnel
Weather:	Co/Tm

GME-Groundwater PFAS MOO	kling
Description of Works and People Met	X
Pre-Starr or diwatering Quan	
Tom opened onk to x57	

Sampling Details						
Sampling Conducted:	V	) N	NA.	Summary of samples		
Matrix:	S	(W)	0	Summary of samples: X57, WB20-GW06, WB18-GW64,		
COC Form Submitted	4	N	NA	W618-GW65, MYHB 1526M		
Primary Lab: A)	5		1130,510	Intra-Lab QA Pairs: QA 03 24 0623 3 XST		
Secondary Lab: EUVD FINS				Inter-Lab QA Pairs: 04 04/19/0623 7 157		

Field Equipment Used	<u> </u>	10				
PID:	Υ	N	Calibrated/tested;	l Y	N	NA
FID/Eagle:	Y	N	Calibrated/lested:	Y	N	NA
LGA:	Υ	(N)	Calibrated/tested:	Y	N	NA
IP:	Y	(N)	Calibrated/tested:	Y	N	NA
YSI/TPS:	(Y)	N	Calibrated/tested;	TY	N	NA
Pump:	Y	(N)	Calibrated/tested:	$\overline{}$	N	NA
Other: Dipper	(Y)	N	Calibrated/tested:	Y	N.	MA
Other:	Y	N	Calibrated/tested:	Y	N	NA

Other Outstanding Actions	П
	-

Version: B	Reviewer: C. McKay	Date: 30/03/16	Approver: C. McKay	Date: 30/03/16



### Contaminated Land Management Standard Form 1.2.2:

Well	DT.	D. T.O.	55110
- Vocil	DTW	DTB	StickUp
HWHB1526 M	43.34	88.57	0.91
WBZO-GWOL	44.235	100.12	0.55
		199	
L'HE ANA			
0:45 AM			
Tried to samf	le Goma H	WHB/52lel	n, top or
bailer broke	Mary Mary	WALLEY OF	her buller
leaked + 1	ost one	of the b	ailers due
to huine s	map pina	possibly	also due 10
to of bailer	shappine	1)	
		)	
IPM			
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			only brought
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			C Market	Date: 30/03/16
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Project number:	FS202448	Sampler initials:	(0	/m
Client:	BHP	PM initials	E	6
Site location:	Mr. Wwwlebou	le		

Well ID	WBIR- GWO3D		Depth to Groun (Before Sampli	48.56	
Date	27 14/13		Depth to top of sampler (mBTOC)		V0.5
QC sample	-		Well Depth (mBTOC)		82.28
32.25/1/0/2	In situ dow	nhole Parameter		isturbing water colum	in)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
14.40	7.14	25.9	1594	-129.4	1.25
Comments (c	odour, colour,	Sulfur I		ow hurbarhy,	colourless,

Well ID			Depth to Ground (Before Sampling		
Date			Depth to top of s		
QC sample			Well Depth (mBT	roc)	
	In situ dow	nhole Paramete	s (collect prior to dis	turbing water column	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (o					

Well ID			Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC)		
Date					
QC sample			Well Depth (mBT		
	In situ down	nhole Parameter	s (collect prior to dis	turbing water column)	
Time pH		Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (o					



Wall ID	W826 - 6W64		Depth to Groundwater mBTOC (Before Sampling):		68.67
Date	28/1/23	28623		sampler (mBTOC)	70.0
QC sample	DA01 1250623 + BADZ		Well Depth (mBTOC)		111.805
	In aitu dow	nhole Parameter	s (collect prior to di	sturbing water colum	n)
Time	pH	Temp (C)	EC (µ5/cm)	Redax (mV)	DO (mg/L)
7.30	7.26	14.8	1199	229.7	4.98
Comments ( turbidity, sho	odour, colour, cen)	un shren	· PFAS both	medium herb. Les filled with fill rest of	, alburiers, Hydraskeve,

Well ID	HWMB0060 P		Depth to Groundwater mBTOC (Before Sampling):		-
Date	28/4/2	3	Depth to top of	sampler (mBTOC)	-
QC sample	_		Well Depth (mB	Well Depth (mBTOC)	
	in situ dow	nhole Paramete	rs (collect prior to di	sturbing water colum	m)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
8:30	7.50	25.3	982	169.7	6.05
Comments (odour, colour, turbidity, sheen)		Colourless, odourless, low Mrb., no sheen			

Well ID	HWH BISSIM		Depth to Groundwater mBTOC (Before Sampling):		71.535	
Date	28/4/		Depth to top of	sampler (mBTOC)	91.0	
QC sample	-		Well Depth (mBTOC)		7 150	
	In situ dow	nhole Paramete	ra (collect prior to di	sturbing water column	n)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
8:45	7.22	16.6	970	145.8	4.78	
Comments (odour, colour, turbidity, sheen)		Medium hirbiding rodowners				



Project number:	P5202448	Sampler initials:	CO/TM
Client:	BMP	PM initials	ER
Site location:	M+ Whatelon	Cle	

Well ID	WBCS6W0219		Depth to Groundwater mBTOC (Before Sampling):		62.04
Date	28 06/2	3	Depth to top of	sampler (mBTOC)	63.00
QC sample	- 10010		Well Depth (mB	81.33	
	In situ dow	nhole Paramete	rs (collect prior to dis	sturbing water column	)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
9:15	7.15	18.7	1042	135.4	3.12
Comments (odour, colour, turbidity, sheen)		Colourles	s, low turb,	edoniks, ve	sheen

Well ID	HWHBOOSP		Depth to Groundwater mBTOC (Before Sampling):		-
Date	28/06	123	Depth to top of	sampler (mBTOC)	
QC sample		Well Depth (mBTOC)			
	In situ day	nhole Parameter	s (collect prior to di	sturbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
9.45	7.40	27.8	1039	116.7	2.32
Comments (odour, colour, turbidity, sheen)		Colouviess	,odouness,	low turb n	o sheen

Well ID	HWHB1521M		Depth to Groundwater mBTOC (Before Sampling):		69.34
Date	18/6/23		Depth to top of s	ampler (mBTOC)	70.5
QC sample	7.010102		Well Depth (mBTOC)		127.40
-M-12000(1,1/2)	In situ dow	nhole Paramete	rs (collect prior to dist	turbing water colum	nn)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
11:15	7.34	26-9	689.0	89.9	1.60
Comments (odour, colour, turbidity, sheen)		fernoved Caron book	BHP days no	offer	dourless, no

112)

Well ID	EEG1391RM		Depth to Groundwater mBTOC (Before Sampling):		97.04
Date				sampler (mBTOC)	99-00
77.000	28/6/23		Well Depth (mBTOC)		120.77
QC sample	In situ dow	nhole Paramete	rs (collect prior to di	aturbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
11:45	7.32	21.8	1014	64.9	2.44
Comments (odour, colour, turbidity, sheen)		COLOUNC.	ss, bdouries	3, low hirk	. Ino sheen

Well ID	HWHB1547M		Depth to Groundwater mBTOC (Before Sampling):		115.85
Date	28/6/23			sampler (mBTOC)	
QC sample	00 DI 03		Well Depth (mBT	7 150	
ac sample	In situ dow	nhole Parameter	s (collect prior to dis	turbing water column	1)
Time	ρН	Temp (C)	EC (μS/cm)	Redox (mV)	DO (mg/L)
12:15		E			
Comments (odour, colour, turbidity, sheen)		bost the		n Well , th	ine

Well ID	MWII6		Depth to Groundwater mBTOC (Before Sampling):		46.93
Date	28/6/2	3	Depth to top of s	ampler (mBTOC)	48.00
QC sample	20101C2		Well Depth (mBTOC)		102.92
	in situ dov	mhole Paramete	s (collect prior to dis	turbing water colum	n)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
4: 90	7.50	25.5	941507	-121.3	1-10
Comments ( turbidity, she	odour, colour, een)	Hydracert	on war, low	turbilly, C	lear, brown



Project number:	PSZD 2448	Sampler Initials:	Co/TM
Client:	BMP	PM initials	EE
Site location:	Mt. Whaleb	alk	

Well ID	MWGW103D		Depth to Ground (Before Samplin	23.45	
Date	28/6/2	3	Depth to top of s	sampler (mBTOC)	24.5
QC sample	-		Well Depth (mBTOC)		35.82
	In situ dov	mhole Parameter	s (collect prior to dis	turbing water colum	n)
Time	pН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
15:15	7.18	23.5	1934	10.3	1.54
Comments (odour, colour, turbidity, sheen)		Coloures,	populas, n	niculates, 10 v	N- medium

Well ID	WBCSGWOZID		Depth to Groundwater mBTOC (Before Sampling):		50.11
Date	29/6/2	3	Depth to top of t	sampler (mBTOC)	91.5
QC sample	-		Well Depth (mBTOC)		67.61
	In situ dow	nhole Parameter	s (collect prior to dis	sturbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
16:40	\$ 7.04	22.2	1218	132.1	1.66
Comments (odour, colour, urbidity, sheen)		Colourless	, brown part	iculates, low-	med, turb

Well ID			Depth to Ground (Before Sampling		
Date		7	Depth to top of sampler (mBTOC)		
QC sample	.5		Well Depth (mBT		
	In situ dow	nhole Parameter	e (collect prior to dis	turbing water column	1
Time	pH	Temp (C)	EC (µS/cm)	Redex (mV)	DO (mg/L)
Comments (ode urbidity, sheen					



## Contaminated Land Management Standard Form 3.2.3

### Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Project number:	185202448	Sampler initials:	60/TM
Client:	BhP	PM initials	ER
Site location:	Mr. Whilebu	4	

Well ID	HWNB1526M		Depth to Ground (Before Samplin	43.34	
Date	29/6/2	3	Depth to top of	sampler (mBTOC)	
QC sample	W. II D II ( PTOC)			88.57	
S-1-10-11-11-11-11-11-11-11-11-11-11-11-1	In situ down	hole Paramete		sturbing water column	n)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
1.45	7.65	5 22.0 1787.50		150.6	4.50
Comments (odour, colour, turbidity, sheen)		ess, rolouse	ni) = MIN 5, low turk	i Mycirasies	

Well ID	257		Depth to Groun (Before Samplin	dwater mBTOC ng);	~
Date	29/6/27	h-	Depth to top of	sampler (mBTOC)	5-2
QC sample	QA 0 3 1250	WAG. ES-	Well Depth (mB	-	
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water column	)
Time	pH	Temp (C)	EC (µS/cm)	, Redox (mV)	DO (mg/t.)
8:40	7.41	22.7	1049	450.1	5.01
Comments (odour, colour, turbidity, sheen)		Colourles	s , oclouricss,	low ture, no	Shoen

Well ID	WB18-GW04			Depth to Groundwater mBTOC (Before Sampling):		
Date	29/6/2	2	Depth to top of	sampler (mBTOC)	46.5	
QC sample	-		Well Depth (mB	гос)	104-15	
	in situ dow	nhole Parameter	rs (collect prior to di	sturbing water colum	n)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
8:50	6.97	697 16.8 1356 297.9	297.9	3.20		
	odour, colour,		d turkdity en , box ww ty drasleeve	particular,	pras both	



Wall ID	MB18-	WB18-GW05		water mBTOC g):	44.49
Date	29/6/			ampler (mBTOC)	Hom
QC sample			Well Depth (mBT		92.52
	In situ dow	nhole Paramete	rs (collect prior to dis	turbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
9:15	6.90	21.3	1461	240.4	230
Comments (odour, colour, turbidity, sheen)			s, odbuness articulares Newye	medium I	urbiding,

Well ID	WB20-6W06		Depth to Ground (Before Samplin	Depth to Groundwater mBTOC (Before Sampling):		
Date	29/6		Depth to top of s	sampler (mBTOC)	DONANTO	
QC sample	-		Well Depth (mB)	10015		
uo sampre	In situ dow	nhole Paramete	rs (collect prior to dis	turbing water colum	n)	
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
10:00	רס.ך	19.8	1943	201.5	3.65	
Comments (o	omments (odour, colour, Lovishvill Colouriers		sample' as hish ,odourless, 11	are a was	Hocked no sheen	

Well ID			Depth to Groundwater mBTOC (Before Sampling):			
Date			Depth to top of s			
QC sample			Well Depth (mBT	oc)		
	In situ dowr	nhole Parameter	s (collect prior to dis	turbing water column)		
Time	рН	Temp (C)	EC (μS/cm) Redox (mV)		DO (mg/L)	
Comments (od						



### Standard Form 3.3: Surface Water Sampling Record

Job. numb	et: (570	2448		7.	Samplin	Date: 2	716/2	3		
Chant: 6	×11/2						Sample			Water Quality Meter ID:
Site Locati		- Jalm	le la L	4			ator bady			Contration Date: 27 /6/23
	Sample	Lagrania -	Water			alit rossili	igg#		Est	Comments: Including turbidity (plankton and/or sediment).
Location	ID,	Time	flow (Mir)	pH	(uth/cm)	Tump.	Redox (mV)	(ppm)	Depth (m)	Comments: Including turbidity (plankton and/or sediment), soluter, scalar plants, water fowl stc.
Pemi	oppmi	16.00		8-25	550-1	15.4	38-1	latita	Sorface	Slightly bown mostly ther, encounted
Small	«PDMZ	16:42		3-18	547.1	15.2	515	1,83	Swhite	
-										
		-								
Sample to	realment an	d preserve	then:				QC San	ples:		
Plaid Sci	entiati						Project	Manager		

Version: B	Reviewer: C McKey	Date: 19/04/19	Approver: C McKay	Date: 15/04/15
The state of the s				



Well ID	MB18-	GW04		Depth to Groundwater mBTOC (Before Sampling):		
Date	13/7/23		Depth to top of	sampler (mBTOC)	46.5	
QC sample			104.70			
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colun	nn)	
Time	рH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
8:15	6.95	19.0	822	69.5	1.69	
Comments (c	odour, colour, een)	Clearico	lourless, odo	isrlen.	T-mark	

Well ID	MWGWIDZO		Depth to Groun (Before Samplin		24.003	
Date	11/2/23		Depth to top of	sampler (mBTOC)	24.00	
QC sample		Well Depth (mBTOC)				
	In situ dow	nhole Paramete	rs (collect prior to di	sturbing water colum	n)	
Time.	pН	Temp (C)	EC (µS/cm) Redox (mV)		DO (mg/L)	
4:00	7:29	23.8	105/	35.2	7.0	
Comments (odour, colour, turbidity, sheen)		clerian	anthrop stor	des very (	ight red	

Well ID	MW116		Depth to Groun (Before Sampli	47.500	
Date			Depth to top of		
QC sample	- 6		Well Depth (mBTOC)		103 050
	In situ dowr	hole Paramete	rs (collect prior to di	sturbing water colum	m).
Time	pH●	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
3.30	7:34	27.9	829	-99.8	0.99
Comments (adour, colour, turbidity, sheen)		clear, a	larten, orga	man hydro.	cerb on-like



Project number:	P3202448	Sampler initials:	197
Client:	BFIP	PM Initials	
Site location:			

Well ID	W1318-LW03D			Depth to Groundwater mBTOC (Before Sampling):		
Date	140005-13	17/23	Depth to top of	sampler (mBTOC)	60.000	
QC sample	12102-12:00	whe aff twine			82.510	
	in situ dow	nhole Parameter	s (collect prior to di	sturbing water colum	ın)	
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
4:30	7.00	27.3	1579	-161.5	1.02	
Comments (odour, colour, turbidity, sheen)		Hydraslaw Lyger serr Logger class	detal-60 (1077/21) pth - 60.00	line smell low-med.		

Well ID	W620- 6WOb		Depth to Groundwater mBTOC (Before Sampling):		44.375
Date	interes 1	3/7/23	Depth to top of sampler (mBTOC)		45.500
QC sample	_		Well Depth (mBTOC)		1043-360
	In situ dow	nhole Paramete	rs (collect prior to d	isturbing water colun	ın)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
9:15	7.12	22.2	1672	29.9	2.97
Comments (odour, colour, turbidity, sheen)		clear, a	elouriers, od	louries	

Well ID	WB18 - GW05		Depth to Groun (Before Sampli	44.705	
Date	13/7/23		Depth to top of	46.000	
QC sample			Well Depth (mBTOC)		92.52
	In situ dow	nhole Paramete	rs (collect prior to d	isturbing water colun	nn)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
8:45	6.90	24.2	1257	45.5	2.06
Comments (odour, colour, turbidity, sheen)		terr, co	the - ch sic	utes, Now +	W.



Project number:	PS202448	Sampler initials:	
Client:	BHIP	PM initials	
Site location:			

Well ID	W1318-LW03D		Depth to Groundwater mBTOC (Before Sampling):		48.740
Date	19d21105-13	17/23	Depth to top of	Depth to top of sampler (mBTOC)	
QC sample	R102-12ing	. whe off twine	we of twine Well Depth (mBTOC)		
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colun	82.510
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
4/30	7.00	27.3	1579	-161.5	1.02
Comments (odour, colour, turbidity, sheen)					nub, brown purk

Well ID	WBZ0-6WOB		Depth to Groundwater mBTOC (Before Sampling):		44.375
Date	13/7/23		Depth to top of sampler (mBTOC)		45.500
QC sample	-		Well Depth (mBTOC)		100.30
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colum	nn)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
9:15	7.12	22.2	1672	29.9	2.99
Comments (odour, colour, turbidity, sheen)		lou-less, od	Lourien,		

Well ID	WB18-	6W05	Depth to Groundwater mBTOC (Before Sampling):		44.705
Date	13/7/23		Depth to top of sampler (mBTOC)		46.000
QC sample			Well Depth (mBTOC)		92.52
In situ downhole Paramete			s (collect prior to disturbing water column)		
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
8:45	6.90	24.2	1257	45.5	2,06
			borless, odo. In - the the	orless, low the	w <b>\</b> o.



Well ID	WBESONOZIU		Depth to Groundwater mBTOC (Before Sampling):		50.445
Date	10/7/23	10/7/23		Depth to top of sampler (mBTOC)	
QC sample			Well Depth (mBTOC)		68.12765
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colun	nn)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
7:30	7.11	19.8	1192	201.6	2.44
Comments (odour, colour, turbidity, sheen)		clear, whomen, adounters, some fine brown find parties			
		Loyse replaced - SN 1004433 - depth - 61 m			

Well ID	HW1181526M		Depth to Groundwater mBTOC (Before Sampling):		43.185
Date	13/7/2	13/7/23		Depth to top of sampler (mBTOC)	
QC sample				Well Depth (mBTOC)	
	ln situ dow	nhole Parameter	s (collect prior to dis	turbing water colum	n)
Time	рH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
10,00	6,99	27.0	1435	39.9	4.28
Comments (odour, colour,		like sample lourless, od	The same of the sa	1S	

Well ID			Depth to Ground (Before Sampling	48-385	
Date			Depth to top of s		
QC sample			Well Depth (mBT		
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water colu	mn)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
	,÷				
Comments (od turbidity, shee				I	



Well ID	HWHB0060P		Depth to Ground (Before Samplin		
Date			Depth to top of	Depth to top of sampler (mBTOC)	
QC sample	Dug-GW100	Trip-GW101	Well Depth (mB		
			s (collect prior to di	sturbing water colum	nn)
Time	pН	Temp (C)	EC (μS/cm)	Redox (mV)	DO (mg/L)
8:30	7.14	28.1	988	7.601	5.32
Comments (odour, colour, turbidity, sheen)		Producto. Cler, (010)	n bose-file	d from tap	· ·

Well ID	HWHBO	51 P		Depth to Groundwater mBTOC (Before Sampling):		
Date	12/7/23		Depth to top of s			
QC sample	Dup-6W103	-Trip-LWIOL	∉ Well Depth (mBไ			
	In situ dowr	hole Parameter	s (collect prior to dis	sturbing water colum	n)	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
10:00	7.19	29.1	1069	68.9	3.00	
Comments ( turbidity, she	odour, colour, een)	Production clear, color	en bore-filke den, no odou	from tap		

Well ID			Depth to Ground (Before Sampling	1	
Date			Depth to top of s		
QC sample			Well Depth (mBT	•	
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water column)	)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (od turbidity, shee					

115])

# Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	EELIZA	18	Depth to Ground (Before Samplin	98.050		
Date	11/7/23		Depth to top of	Depth to top of sampler (mBTOC)		
QC sample	:		Well Depth (mB	121.218		
	In situ dow	nhole Parameter	s (collect prior to dis	sturbing water colum	nn)	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
10:40	7.17	27.8	1079	62.0	3.72	
Comments (c turbidity, she	dour, colour, en)	Logger set	reved.	ourless		

Well ID	HWHB1547M		Depth to Ground (Before Sampling	110-868	
Date	11/7/23		Depth to top of s	1245	
QC sample		Well Depth (mBTOC)			7150
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water colun	nn)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (c	odour, colour, een)	- & Could,	of retrieve sa	mple - wel	his DRY

Benl-C

Well ID	HWH131521M		Depth to Ground (Before Samplir	69.850	
Date			Depth to top of	sampler (mBTOC)	71.00
QC sample			Well Depth (mB		
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colum	n)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
12:30	7.12	28.8	1142	53.6	1.48
Comments (c	odour, colour, en)	Clear, col Suspended	outers odio	rless, fine go	mides



## Contaminated Land Management Standard Form 3.3: Surface Water Sampling Record

	1820.									
Job. numb	per: 95°	20244	K		Samplin	g Date:	1/7/23			
Client:	BAP		<u> </u>		Samplin	g method:	: Tap,	1arab		Water Quality Meter ID:
	ion:ADB	h_ 2/90	amt N	ewman			vater body			Calibration Date:
		1			F	ield readin	ıgs		Est.	Comments: Including turbidity (plankton and/or sediment),
Location	Sample ID.	Time	Water flow (I/s)	рН	EC (uS/cm)	Temp.	Redox (mV)	DO (ppm)	Depth (m)	colour, odour, water plants, water fowl etc.
×957	<i>X</i> 57	2:00 Pm		7.28	1086	27.6	610.8	3.42		inloring-like odour, low tulb, Colonviess fine particles floating, clouders, low turbidity odositess
	ハリュ									Colouriess
	069WJ	3:30		8.53	616	19.8	76.7	7.78		fine particles floating cloudes, low turbidity
	U V V I									odesitess
	088WZ	3:50		8.44	617	14.0	82.8	7.36		few fine partill superded, colorners,
										Ten proprieta, organica.
		:								
										<u> </u>
Sample tr	eatment and	d preservat	ion:			Ì	QC Sam	oles:		
							Project N	/lanager:	-	·
Field Scie	nust:									

	Reviewer: C McKav	Date: 15/04/16	Approver: C McKay	Date: 15/04/16	i
Version: B	Reviewer: C McKay	Date: 10/0-1/10			



Well ID	WB20-6W06		Depth to Ground (Before Samplin	44 533	
Date			Depth to top of	sampler (mBTOC)	46.00
QC sample	_		Well Depth (mB		
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colum	in)
Time	pH.	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
11:20	6.99	27.2	1075	8.6	1.64
Comments (odour, colour, turbidity, sheen)		clear, w	olourters, semple un	alourtees ed-hydrash	en emph

Well ID	WBCSCW0210		Depth to Ground (Before Samplin		50.759
Date			Depth to top of	52.00	
QC sample	/		Well Depth (mB)	roc)	
	In situ dow	nhole Paramete	rs (collect prior to dis	sturbing water colum	nn)
Time	Hq	Temp (C)	C) EC (µS/cm)	Redox (mV)	DO (mg/L)
01:30	7.06	25.3	1065	21.9	1,77
Comments (odour, colour, turbidity, sheen)		clear,	colourless , oc	louriest	

Well ID	MWGWIDT	0	Depth to Ground (Before Sampling	3 247	
Date	17/7/23		Depth to top of s	25.00	
QC sample	_		Well Depth (mBT	oc)	
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water colun	nn)
Time.	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
8-00	7.13	20.3	2075	58.8	2.08
Comments (odour, colour, turbidity, sheen)			d Turbiditu		remais,

1151)

Well ID	WB18- 64		Depth to Ground (Before Sampling	48.883	
Date	27/7/27		Depth to top of	sampler (mBTOC)	60.00
QC sample	_		Well Depth (mB		
	In situ dow	hole Parameter	(collect prior to di	sturbing water colum	nn)
Time	pH.	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
11:45	7.10	25.0	1621	16.0	2.48
Comments (c	odour, colour, een)	Colourte.	ss, odourl	iss, low th	rbiding

Well ID	WB18-GW04		Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC)		45.617	
Date						
QC sample	-		Well Depth (mBTOC)			
	In situ dowr	thole Parameter	rs (collect prior to di	sturbing water colum	m)	
Time	Hq	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
10:35	6.92	27.1	1477	31.2	2.27	
Comments (odour, colour, turbidity, sheen)		the Fell down Well-twine Snapped. Remieved + Sampled Colonners, low turb.				

Well ID	WB18-6W05		Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC)		46.00	
Date						
QC sample			Well Depth (mBTOC)			
	In situ dow	mhole Parameta	s (collect prior to dis	turbing water colum	in)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
10:30	6.88	2810	1565	16.9	1.29	
Comments (odour, colour, turbidity, sheen)		Chans, colov-les solov-lus				



# Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	HWHOIS	1 20m	Depth to Ground (Before Samplin	Iwater mBTOC	70.320	
Date	26/9/23		Depth to top of	sampler (mBTOC)	72.00	
QC sample	-		Well Depth (mB			
	In situ dow	nhole Parameter	rs (collect prior to dis	turbing water colum	n)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
65,5	7.24	27.0	10718	14.2	274	
Comments (o turbidity, she	dour, colour, en)	clear, co	donters, o	dourters yearled.	very dire	

Well ID	HWN B 152	6M	Depth to Ground (Before Samplin	lwater mBTOC g):	43.215		
Date	27/07/23		Depth to top of s	sampler (mBTOC)	44.5		
QC sample			Well Depth (mB7	OC)			
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water colum	n)		
Time	PH	Temp (C)					
7:15	6.97	20.7	4.54				
Comments ( turbidity, sho	Comments (odour, colour, turbidity, sheen)		r' sample	, low tur	5		

Well ID	MWII		Depth to Ground (Before Samplin	dwater mBTOC g):	48.528			
Date	27/7/2	5	Depth to top of sampler (mBTOC) 50					
QC sample			Well Depth (mB)	roc)				
	In situ dow	nhole Parameter	The second secon	iturbing water colum	n)			
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)			
840	7.43	21.3	1506	-92.9	(-65			
Comments (c turbidity, she	odour, colour, sen)	clear,	olourless, hi	ydrocarbon like	e smell			



# Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	HWHBO	9000	Depth to Groun (Before Samplin		
Date	26/7/23		Depth to top of	sampler (mBTOC)	
QC sample	DOS-CHESO	O Trip-GUZO	Well Depth (mB		
730-7-1	In situ dow	nhole Parameters	(callect prior to di	isturbing water colum	n)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
7:45	7.18	28.8	988	3.67	
Comments ( turbidity, sh	odour, colour, een)	Tap (Prov	housely a	dourtess	

Well ID	RODANNH	P	Depth to Ground (Before Sampling			
Date 26/4/2		4	Depth to top of s	ampler (mBTOC)		
QC sample	DUX-6W202	TOP-61203	Well Depth (mBT	R		
=	In situ down	hole Parameters	(collect prior to dis	turbing water colun	in)	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
9:10	7.42	29.7	1114	34.2	2.49	
Comments (	odour, colour, een)	Tap (pradi	when bour	rless		

Well ID	EEGIBA	12	Depth to Ground (Before Samplin	iwater mBTOC g):				
Date 26 ta 12		3	Depth to top of	sampler (mBTOC)				
QC sample			Well Depth (mBTOC)					
	In situ dow	nhole Paramete	rs (collect prior to di	sturbing water colum	in)			
Time .	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)			
9:30	7.72	21.0	1054	21.8	3.78			



# Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	W326-0	W04	Depth to Ground (Before Samplin		71.47
Date	26/7/2	3	Depth to top of	sampler (mBTOC)	72.5
QC sample	-		Well Depth (mB)		
	In situ dow	nhole Paramete	rs (collect prior to dis	sturbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
7:30 6.91		21.8	626	189.1	4.1)
Comments (	odour, colour, een)	cherry	colourless,	odowless	

Well ID	HWHE	551M	Depth to Ground (Before Sampling		73.375	
Date	26/7/2	3	Depth to top of s	ampler (mBTOC)	90.00	
QC sample		J	Well Depth (mBT			
	In situ dowr	hole Parameter	s (collect prior to dis	turbing water colum	in)	
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)	
8:15	7.02	23.5	980	30.1	2.09	
Comments (e	odour, colour,	Colourles	S, low-mag	turbidity,	odourtess	

Well ID	WIBCSCH	00219	Depth to Ground (Before Sampling		62-468	
Date	26/7/2	3	Depth to top of s	sampler (mBTOC)	63.5	
QC sample			Well Depth (mB7			
	In situ dow	nhole Paramete	rs (collect prior to dis	sturbing water colun	nn)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
8:45	7.02	24.8	1171	2.01		
Comments (o	odour, colour, en)	Coloune	s, law turb	rodouries	5	



15/

Standard Form 3.3: Surface Water Sampling Record

Job. number: NS To L-1-14	17975	74 17		Samplin	g Date: 2	Sampling Date: 25/7/23	.3		
Client: Bitt				Samplin	g method	Skmy	Sampling method: Skynyle P. 11		Water Quality Meter ID: 20 K   04050
ation:	MIT. WINIPPAIL	valeba	7	Width of surfa	Surface v	ce water body (m):	(m);		Calibration Date: 25/7/23
		Water		u.	Field readings	Still		Est.	Comments: Including turbidly (planton and/or sadiment)
Location Sample ID.	ple Time	flow (l/s)	Hd	(uS/cm)	Temp.	Redox (mV)	(mdd)	Depth (m)	colour, odour, water plants, water fowl etc.
0PDM1	W.00	V	8.73	140	110	23.6	(0.27)		
DD INT	11:16	1	8.75	919	6.9	25.2	57		Clury, colourates, executess
xst xst	F 4130	0	7,30	7.30 1046	27.8	513.2	4.36		dest, colonders, soull of the
								1	
Sample treatment and preservation:	t and preser	vation:			10	QC Samples:	ples:		
100						Project Manager:	fanager:		

15/04/16 Approver: C McKay D	inwer; C McKay Date: 15/04
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### Standard Form 3.3: Surface Water Sampling Record

Job. numb	per: PS	2020	+48	ok Ber	Samplin	-	7/08/202	-		
Client:	BH	P			Samplin	g method	Sample	pole 3	TAP	Water Quality Meter ID: 20K164650
Site Locat	ion: Lel	Jeleber	4 Simi	le Ber	Width o	surface v	water body (m):			Calibration Date:
			Water			ield readir	igs		Est.	Comments: Including turbidity (plankton and/or sediment).
Location	Sample ID.	Time	flow (l/s)	pH	EC (uS/cm)	Temp. (°C)	Redox (mV)	DO (ppm)	Depth (m)	colour, odour, water plants, water fowl etc.
	LORD4									
	oppmol	3:30		508	701	22.1	79.9	7.38		low turb, ideorless, odourless.
	OPDM02	3:45		8.91	668	20.0	1.4	7.46		low turb, idearless, odourless.
										-low redex value? 751 moved around +
					,					Hew sample " for "SI I laken.
										<u>'</u>
								-		
								-		
				-		-				
					-	_				
					-					
					. 77			-		
	-									
Sample tr	eatment and	preserva	tion:		1		QC Sam	ples:		

Version: B	Reviewer: C McKay	Date: 15/04/16	Approver: C McKay	Date: 15/04/16	
70.01011					

115/1

## Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	W1826-G1404		Depth to Groundwater mBTOC (Before Sampling):		71.87
Date			Depth to top of	sampler (mBTOC)	73.5
QC sample		Well Depth (mBTOC)		TOC)	
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colum	n)
Time	рH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
7:30	6-98	27.3	1188	7.0	1-75
Comments (odour, colour, turbidity, sheen)		(Olourle	ss, no odour	low furb	itely

Well ID	11D HWHB 0060 P		Depth to Groundwater mBTOC (Before Sampling):		_
Date	09-08-	23	Depth to top of	sampler (mBTOC)	
QC sample Triplicate -		C=101			
	In situ dow	nhole Paramete	rs (collect prior to dis	sturbing water column	1)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
8:45	7.27	29.2	982	9.6	3,64
Comments (odour, colour, turbidity, sheen)		Colourles	o), low turb	, odounless	

Well ID	HWH151551M		Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC)		73.75	
Date					75,5	
QC sample			Well Depth (mBTOC)			
In situ downhole Parameters (collect prior to disturbing water column)						
Time	pH Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)		
9:30	6,96	28.2	515	-11.2	1,92	
Comments (odour, colour, turbidity, sheen)		colourle	en, low-turb, odoerten			



### Standard Form 3.2.3

#### Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	WBCSGIN 020		Depth to Groundwater mBTOC (Before Sampling):		60.355
Date	9-8-23		Depth to top of	sampler (mBTOC)	62.5
QC sample	C sample —		Well Depth (mB		
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colum	n)
Time	pH Temp (C)		EC (µS/cm)	Redox (mV)	DO (mg/L)
9:45	6-99	28.0	987	-14.7	1.24
Comments (odour, colour, turbidity, sheen)		Clear b	sleve, no i	e sediment	in turbidit

Well ID	WBCSGW	9219	Depth to Groundwater mBTOC (Before Sampling):		62-71
Date	9-8-23		Depth to top of sampler (mBTOC) Well Depth (mBTOC)		64.5
QC sample					
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colun	nn)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
10:25	6,901	28.9	625	-17.9	1.40
Comments (odour, colour, turbidity, sheen)		colour	less, low-	turb, odou	den.

Well ID	7FW(H00001)		Depth to Ground (Before Samplin	_	
Date			Depth to top of sampler (mBTOC) Well Depth (mBTOC)		-
QC sample Tripluse-		GH104			-
			s (collect prior to dis	sturbing water colum	n)
Time	pН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
11:45	7.13	32.6	1132	-22.2	2.2
Comments (odour, colour, turbidity, sheen)		Colourle	es, low-to	rb, odourles	2



## Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID HWH B152		26M	(Before Sampling):		43.29
Date	Date \$/8/23				Bailer
ac sample Lab dupl		- cate			
	In situ dow	nhole Paramete	rs (collect prior to dis	sturbing water colum	in)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
11:00	6-87	28.9	2504	97.7	3,27
Comments (odour, colour, turbidity, sheen)		"Galer"	Sample, low hirls, or	tourless.	

Well ID	Date \$14/23		(a. a. a		48.693
Date					50.5
QC sample					
	In situ dow	nhole Parameter	rs (collect prior to di	sturbing water colun	nn)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
12:00	7.32	27.9	1364	-131-3	8.77
Comments (odour, colour, turbidity, sheen)		Clear, L	on Jurpide	by, hydrocar	bon odour

Well ID	KAMILLICO	KAMILLGIA103D		Depth to Groundwater mBTOC (Before Sampling):	
Date	**   P. S. L.   1. L. S. L. S. L.   1. L. S.		Depth to top of sampler (mBTOC)		24.0
QC sample	-		Well Depth (mBTOC)		
	In situ dowr	hole Parameters	s (collect prior to di	sturbing water colun	nn)
Time	На	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
12:40	7.01	26.2	2085	-28.8	1.86
Comments (odour, colour, turbidity, sheen)		ne egen.	low fur	bidily, el	eer



# Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	Vell ID WISCSCI		Depth to Groundwater mBTOC (Before Sampling):		50.99
Date	8/8/23		Depth to top of sampler (mBTOC)		52.5
QC sample			Well Depth (mBTOC)		-
	in situ dow	nhole Paramete	rs (collect prior to di	sturbing water colum	n)
Time	pH	pH Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
2:30	6.97	31.9	5%0	-29.4	0.97
Comments (odour, colour, turbidity, sheen)		Colorle	n, low hrb	, odovrters	i.

Well ID	1011 ID 120-GIN106		Depth to Groun (Before Samplin	44.715		
Date	08-03-23	,	Depth to top of sampler (mBTOC) Well Depth (mBTOC)		46.5	
QC sample						
	In situ dow	nhole Parameter	a (collect prior to di	sturbing water colun	n)	
Time	pH	Temp (C) EC (µS/cm) Re		Redox (mV)	DO (mg/L)	
3:30	6,99	28.4	820	-33.7	2.70	
Comments ( turbidity, sh	odour, colour, een)	colorle	no low to	rb, odourle	25	

Well ID	WB13-G121037		Depth to Ground (Before Samplin	49.079		
Date			Depth to top of			
QC sample			Well Depth (mBTOC)			
	In situ dow	nhole Parameter	s (collect prior to di	sturbing water colun	nn)	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
4:00	6-807	29,6	1/60	-44.3	0,75	
Comments (odour, colour, turbidity, sheen)		colouriers, low turb, odowners				



Standard Form 3.2.3

#### Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	WB18-GW04		Depth to Ground (Before Samplin	45.80		
Date			Depth to top of s	Depth to top of sampler (mBTOC)		
QC sample		Well Depth (mBTOC)				
	In situ dow	nhole Paramete	rs (collect prior to dis	turbing water colum	n)	
Time	pĤ	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
3:30	6.85	29.4	736	102.8	101	
Comments (odour, colour, turbidity, sheen)		colourless, low-turb, adourless.				

Well ID	12/1818-GILLOS		Depth to Ground (Before Samplin	45.05		
Date			Depth to top of	sampler (mBTOC)	465	
QC sample			Well Depth (mBTOC)			
	In situ dow	nhole Parameter	s (collect prior to dis	sturbing water colum	n)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
16:00	6-85	28-4	1516	62.2	1.43	
Comments (odour, colour, turbidity, sheen)		Odourless, Medium turbidety, Clear				

Well ID			Depth to Ground (Before Sampling		
Date			Depth to top of sampler (mBTOC)		
QC sample			Well Depth (mBT		
	In situ dow	nhole Parameter	s (callect prior to dis	turbing water column)	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (od turbidity, shee					



## Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Project number:	13201448	Sampler initials:	S,B+C.0
Client:	BHP	PM initials	ER
Site location:	OBLA-NEW	man	

Well ID	HWH151521M 9/8/23		Depth to Ground (Before Samplin		
Date			Depth to top of		
QC sample		Well Depth (mBTOC)			
	in situ dow	mhole Parameter	s (collect prior to di	sturbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
12:15	7.16	30.7	1088	-28.1	194
Comments (odour, colour, turbidity, sheen)		Colourle	eles,		

Well ID	EE G1391R		Depth to Groun (Before Samplin	98.885	
Date			Depth to top of	100-5	
QC sample			Well Depth (mBTOC)		-
	In situ dow	nhole Paramete	rs (collect prior to di	sturbing water colum	n)
Time	Hq	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
13:30	7.03	30.2	1175	-17.2	1.52
Comments (odour, colour, turbidity, sheen)		clear, colourless, low turbidity, odourless			

Well ID	X57 9-8-23		Depth to Ground (Before Samplin	-		
Date			Depth to top of s	,		
QC sample	'	Well Depth (mBTOC)				
	In situ dow	nhole Parameter	s (collect prior to dis	sturbing water colum	n)	
Time	pН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)	
(5:00	7.15	29.8	560	585.9	2.52	
Comments (odour, colour, turbidity, sheen)		clear, edourless, low turbidity			didy	



## Standard Form 3.2.1: Groundwater Gauging Record

Job number:	PS202448 - GME7
Client:	BMP
Site location:	Mr. Whaleback
Date:	9/10/23
Person onsite:	Tm + C0

9/10/2	Well ID	TIME	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m)	Total well depth (mBTOC)	Comments Tlydvalleeve
	18-C1W05	11:30	46.12			93.12	47.5
74.00	15-GW14	and the same of th	46.765	=	_	104.DAS	48.0
		12:20	45.66	===		101.07	47.0
wB	18-6 WO	D 15:20	50.08	45	_	82-49	60.0
	amollo	2:20	52.0L		-	70-12	53.0
	10/10/	43				La IIIar	
W624	- GWD4	8:10	72.93	_	-	113.49	74.0
	BISIOM	8:20	73.73	-		96.42	91.0 ger
HW	1BISSIM		75.24	_	-	7150	
Wass	2010208	9:10	61.33			82.35	63.0
WBL	19150Wp	9 35	63.78		-	93.02	65.0
	39181	10:55	52.465			121.96	111.5
mwi	Ψ	13:20	52.465			103,54	
MWG	U105D	14.20	26.78	7/		35.18	30-0-logger
HWY	iBi SZEM	15:40	43.29			82.13	
	11/10/2	3					
Hu	1461521m	15:05	7172			117.24	
						7	
	-7,7						
	Project m	anager:					

Version: A Reviewe	er: M. Hannan Date:	Approver: C. Faull	Date: II/12/14



### Contaminated Land Management Standard Form 3.2.1:

#### Groundwater Gauging Record

Job numb	er:		PS 202	448					
Client:			BHP						
Site locat	ion:		Whateback						
Date:	Date:			11/10/23					
Person or	isito:		Tm/c	0					
Well ID	Location Time	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m)	Total well depth (mBTOC)	Comments Logger Depth			
Groun	luater	level - pr	nor ho	installing	1 logger	2			
110 - MWEWIND	111:20	26.78			35.18	30.0			
munBISION		73.73			96.42	80.0			
700/		MINIMONO							
10 -WB26-640		73-00				90.0			
4/MUBISSIM		75.30				95.0			
TWIBISIS	M 12:39	83.33	· ·		142.17	100.0			
14.101515	SN 1	004927	1 Stand	DiRe = 0	375m	4300			
WHEREMO	208 12:45	61.32				70.0			
WECSGWO	19 14 . 20	63.78	12-			75.0			
EEGISAIR	16:55	100,505	-			111.5			
- 10 WACSGWOZ	0 1:55	52.105				60.0			
WOIS-GW		50.145				60.0			
W418- 6W	\$ 10:10	40.07				600			
MP18- CHARA		46.80	-1			40,0			
	68								
	120								
Project n	nanager:								

Version: A	Reviewer: M. Hannan	Date:	Approver: C. Faull	Date: 8/12/14
Version: A	CPULATORATE LAND CLIMATION			



### Contaminated Land Management Standard Form 3.2.1: Groundwater Gauging Record

Job number: PSZ62448	
Client: BHP	
Site location: Mr Whate ba	LE
Date: 20 N 23	
Person onsite: TM /CO	

	Well ID	TiME	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	thickness (m)	Total well depth (mBTOC)	Comments
20	11/23						
N	MILE	10:30	52.425		54.0	102-17	
MW	QCOINP	0:55	28.34		29.5	35.15	
Webs	18-4W05	11.30	46.60	(49.0)	- Promotion	92.72	
WB	18-GW04	12:05	49.29		48.5	104.94	
WO	10-6W06	12:20	46.28		47.5	101.17	
NBCSE	W0210	H:10_	52.635		54.0	69.25	
	GWOSD	15:05	50.456		6 D. D	83.24	
211	1123						
HI	326-GKI	4 07.35	69.03		70.5	112.47	
	1B151611	7:35	69.525			95.77	80.0-109
	ribissi m	8-15	71 .12		91.0	7156	
	56,00208		61.99		63.0	80.84	
WAS	446219	4:35	64.485		66.0	88.91	
EEG	13916	12.20	100.83		102.0	120.09	
HWIN	51515 M	15:00	76.725		78.0	140.23	
	31506	15:40	55.05		1	56.285	, 1
)							
	Project m	anager		-			

Version: A	Reviewer: M. Hannan	Date:	Approver: C. Faull	Date: 8/12/14	



### Contaminated Land Management Standard Form 3.2.1: Groundwater Gauging Record

Job number: PS202444	Pre-	LOGILLY	Installation
Client: RMP			
Site location: Mr. Whakkaul		90	
Date: 22/11/23			
Person onsite: Tw-Ic D			

Well ID Loc	cation	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m) Logger Depth	Total well depth (mBTOC)	Commits
11123				10		
HWYBSSIN	1	71.05 76.43 68.93		(0D.0		10:00
14HB15 15M	^	76.43		100 - 0		12:15
326-6WO	4	108.93		90.0		13:20
CEEMO219	1	64.46		75.0		14.00
X56W0 20X				70.0		15:15
MBISLUM		72.21		<b>-</b>		15:40
61391R		100.20		1100		16:30
3/11/23						
WBIS-EWI	53D	50.485		60.0		7:00
WALSOWS	LIO	52.65		60.0		10:00
MW GW1031	)	28.43 47.31		30.0		11:35
WBIS-GW	64	47.31		60.0		12:40
WB18-GL	104	46.62		60.0		13:05
Project manag	er:					

Version: A	Reviewer: M. Hannan	Date:	Approver: C. Faull	Date: 8/12/14	
AGISIOH: W					



### Contaminated Land Management Standard Form 3.2.1:

#### Standard Form 3.2.1: Groundwater Gauging Record

Job number: P5202448	
Client: BHP	
Site location: Nt. Whale back	
Date: \\ / \2  23	
Person onsite: CO/TW	

Well ID	Location TIME	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m)	Total well depth (mBTOC)	Gomments Hydrasterve Depta
11/12/23		1				
MW 116	11:20	52 68			103.02	54.0
MWGWIB3 D	11:50	78.32	-		33.34	29.5
WBI8-GWOS	12:15	46.805			92.65	48.0
V618-GW04	12:45	47.50	-	-	104.23	48 5
NB20-GW06	13:45	46.49	-	_	100.71	97.5
NB18-GW03D	14:45	50.69	_	_	83.20	60.0
NECEDINOSIA	15 - 25	52.87		-		54.0
12/12/23						
MBZ6-61W0		68.69	- \		17/15	70.0
HWILDISIUM	7:30	69.22	7	A	196.23	80.0-1000
WHB1551M	7.50	71.28			7 150	910
NBLSGWO 201		62.22	= 1==1		81-70	63.5
NBLSGWOZIG	8.40	todoorgon 9	_	_	89.79	67.0
		64 66				
EE61391R	10:12	101.37	-	11	5360	102-5
				-	9%	
100						
War	Ahrvsentol	MENNINA				The state of
						70,000
		1				
Project m	anager:					

Version: A Reviewer: M. Hannan Date:	Approver: C. Faull	Date: 8/12/14	
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### Standard Form 3.2.1: Groundwater Gauging Record

Job numb	per: PS	202748				
Client:	BHF		11	e- groun	dwater to	Maer
Site locat	ion: M+	. Whateva	Jk.		-14.45-1	
Date:	1/2/1	3		Ih	Stallano	N
Person or	nsite: 1	MCD				
Well ID	Location Time	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m)	Total well depth (mBTOC)	Comments Logge
12/2/23						300.4
WEIS-GWOSS	13:35	50.71		-	-	70.0
2 la 2						=
2/23 NB 26-6W04	7.30	1.0 1 0				
WIBISSIM	8:10	68.69			-	90.0
WHB 1515M		71.28	:=		Tatu Sala	100.0
1615GNOZOS		62.25			141.72	_
UBLSG WOZI	9 12:05	64.71		_	-	70.0
WHBISLI M	2 20	72.58			7. 2. 1. 62	75.0
EG1391R	10-20	101.40		_	117.18	110.0
CO12-11K	[V] V	101.40			05.48	110.0
2/2 3						
NB18-GW04	6:35	47.565	_		1	60.0
WB18-91NOS	7:00	46.87				60.D
B054W0210	7:50	52.87	2	. 72	_	60.0
JT B1526 M	8:45	43.33	-		83.76	_
NEW103D	12:10	28.38			33.41	30.0
	*					
						3
		46				
Project ma		lie .				

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Version: A	Reviewer: M. Hannan	Date:	Approver: C. Faull	Date: 8/12/14



### Standard Form 3.2.1:

Stan	daru	LOH	11 3.2.1.
Groundwater	Gaug	jing	Record

Jo	ob numb	er:		P52024	48	Pre- ti	HASLEEVE
C	lient:			Brie		1 h	stallanen
Si	ite locati	on:		0829-	Whale bac		
D	ate:			15/01/2	4 4- 14	101/24	
P	erson on	site:		CITM	•		
V	Vell ID	Location ¬i м∈	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m)	Total well depth (mBTOC)	Comments H5 depth
W	WILL	11-20	54.625		-	102.35	560
bedreifter.	WIGD		28.87	_	_	33 35	30.0
	-GWO3		51.47			83.28	60.0
2.1	عاتاها-		47.02		-	100.01	48.0
	GWOS		47 345	4	-	93.72	485
	GW04		48.10	_		10512	49.5
MROSE	140JI0	19.50	53.32		-		545
101							
WBZL	-Gwot	7:25	68.95	-	1	110.87	70.0
HINHBI	SILM	7:40	69.475	-	-	95.845	8D D
TIWITE	31551M	8:00	71.855	_	-	7150	91.0
WBUS	GWOLLY	8.25	65 19	Q	_	88.13	66.5
MBUSE	W0706	7-35	62.64			82-04	640
EEGI	3712	10:15	102.27			120.83	103.5
THATE	1526M	13:15	43.27	_	_	83.16	BAILER
17/01							
TIWHE	2152UM	7-00	44 035	-			BAILER
1							
F	roject m	anager:					

Version: A	Reviewer: M. Hannan	Date:	Approver: C. Faull	Date: 8/12/14



### Contaminated Land Management Standard Form 3.2.1: Groundwater Gauging Record

Job number:	P5202448	Pre-logger
Client:	BMP	Installation
Site location:	Mt. Wholeback	
Date:	0/8/ + 45/10/51	1/24
Person onsite:	COLTM	

1161	Well ID	Location TIVNE	Depth to water (mBTOC)	Depth to LNAPL (mBTOC)	LNAPL thickness (m)	Total well depth (mBTOC)	Comments 100000 Sep
minde	11050	9:50	29.31		-		32
W818	GWOZ		51.5D	-			60
	-GW05	10:30	47.39	-	<u> </u>		60
WB18	- Gwo4	11-15	48.135				(pD)
WELS	GWOUD	12:00	53 35		· -	68.99	60
	4Wp268		62.66				70
WBLS	Phone	16:00	65.185	_	1		75
18/01	_						
T.F.	(91391)	R 9:40	102 34				110.0
	MBISZI		73.27			116.8	-
	6-GW		68 97				90.0
HWH	131551 N		71.89		~ "		100.0
-							
							-
1							
¥ .							
-							
	1						
_							
	Project n	ianager:					

Version: A	Reviewer: M. Hannan	Date:	Approver: C. Fauil	Date: 8/12/14

3//5/23 HWHB ISAM - 7:40 AM - Sunny /cleir Shies + hugy dust (heavy) - hell dept - X - hell dept - X - tegelasticus clepth. - logger present trace in mell can not be accessed CE 4 1307 RGM - 8 MM -Cw level -Logger / telimetry unit inpall FLUHIB 1507 M -8:10 - byglet / telemony pount - well conner be accessed 4W HAIS/6m - 8:20 Total Charles of the Wall - Depth of well = 9534+ - rywhelene (m.1) - 76968

EGG0917.0M - 9:05

- logge/ telementy installed -well connot be accessed

EEG 1048 DW- 9:10

-logger/tlemeng system involled - well content to accorde

WBCSL 0219

Chester - 61.240 Depth of well - 86.66 Hydroslew depte - 65m

WBC510208 - 10:20

60 wel = 59.318 Depth of will = 7730 Hysensteine depor - 80-63.0

Ec 6362- 1032

HWHB 1502M -115 - logges already deployed - LW level - 51 615 - well depth - 87.60 - Mydroslewe depth - 63.3 OLD THE TASK THE HWHB 1527 - Logges believely system install 1 - 6x00000 TM televery system ishallows WBA CSG WASTER WARRED WOZID -GW level - 49.56 Well depth - 68-9 Hydraskum depth - 52 53 \* logger (Ei) - canfo prohonions of (numeral) come through + Ourt

MWMB 1518M - 3:50 - moderate dut hye - longer telementy cypes installed - con not uses well HWHB 1508M - 4:20 - Well is buriel underneath isot gravel - can not be accessed HWHO 1610 M - 7:20 well can not be accepted. EW00050M - 7:45 Telemetry system intulul - well-orn not be accerted - well who damage of (on an angle) CLOOD DM - 9.55 - Teremby system undalled - well can not be allessed - well also danage Lon angle)

1

#### HWH 81521M- 855

Sampling + logger deployments layer already muset.

- Scample - clear + no silt at better

51 field parameters recorded.

Tenye - 26.9°2 DO(1) - 17.8 DO(4/m) - 145 EL - 1/08 (9/c 45/cm) PH-7.14 Rodoxi - 22.8 mV

EEG 1361R = 9.35

-Sampling Hogger deployment not enough sample for X51

-logger not named - not added to name
5/N 1009424
-already tenning.

DEAD for represent used - Strong used igneed church

HWHB 1546M - 10: 20

-logger about motalled -No sam DLE TAICEN -Hydroxlein ded not fill

HUMB1847m - 10:45 simple + logger ormally is 1 - Particular simple etern to 877 at to From - low -> porametes. Temf 28.5 c DO Kg/L-0,95 EL-1029 P4-6,95 Relov- -1326 mV HWHA 1526M - 1130 Depth of well -83-995 But used (due to past vous - Coming equipped) water sample-translucent + sivey well brown) high to bully to fill bottle or for you feel parameter. 

H 500 0360 - 1 30 GT I - Telemeny sayster la stilled - well com not be accersal WISEGWOZI9- 2 125 (ett) - Collected 80 mple ocleptony lagger. 10005 5/N-10044/b - He every 5 min. ST. logger dayor - XDroper 31 m 151 field parenets 7 Tamp- 32.CC Dang/2-1.92 B6-1089 pH-7.00 pedos - - 21.2 n BUSH WOZOS - 2:50 Sample celleren 1 1 yger daplage et 1980 SN-1004951 boro 5N-100 6 9467 depth-80 n I was work thread Edit - - 40.1 751 fill prometer Teny 705°C Dong 1- 1.07 EU-1055

HWHB 1516 m 7:40 - Surry/clair Styles - low dust levels - Builer used to sample unnecenful periors lay. CAUGE WRONG - GW NOT 102METOR WELL-DOY HWHB 1502M - 12110 Sample collections + larger absently merent. mini hydrasteenie otol not fill would Lomin well NO SAMILE COLLECTED mwhw 1030 -12:23 Sample + deploy logger SN-10039188 Depth-45 m

2/6/23 WB186W03D -1:20 logger depth-con - 48,01 aw level 50 mplescher, Lydroca con line 8 mpcs WB My 204 W 86 Trolw luft 981, 37

BHP 6325 EEL 1391: 715 Am-arrive of well - Sunny letter stees photos taken - light dust hope -twee in pit aw pip - 92 705 in 5000 ECHA - successful - proning downloaded 7:50-EC parts, probe deployed - chambonled is - tell equipment deconteminated HWHP 1546M - 5:25 0M - logge whenly present - (ND:0 - 1972 102,450 mb TOC - Botton of vell -- Mydresteun depth - 110 m 1701 - El deployel - 8:35 HWHB1521M-9:15 -logger already present - 801 for of well- 125.8 who TOL - Hydrislew dyrsh - 70 m 57 bl - El deployed - 930

30/5/23 HWHO ISHM : 300FM in w level - DRY logger present bottom of well-49,350 mb TOC 3:20 - MWGW 1030 EN wel-24.708 MOTOL Bettond well. 34.50; int Toc Hydrolline - 28 m 



## Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Project number:	PS 201448	Sampler initials:	YF SB. RG
Client:	BHP INDIONE	PM initials	SH
Site location:	Wholeback	OB29 OB	30

Well ID	HWHB1547M		Depth to Ground (Before Sampling	115.596	
Date	29/5	/ 2   Depth to top of sampler (mBTOC)		121	
QC sample	NIA	<b>₹</b> ⊒ =0	Well Depth (mBT	>150	
	In situ dov	vnhole Paramete	rs (collect prior to dis	turbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/t)-///A
1045	695	28.5	1029	-/029	0.95
Comments (	odour, colour, een)	po sact	to one color.	clear.	ti.

Well ID	EEG 1391R		Depth to Groundwater mBTOC (Before Sampling):		92.705	
Date	30/5	123	Depth to top of sampler (mBTOC) Well Depth (mBTOC)		95	
QC sample	MA				119.7	
	In situ dow	nhole Parameter	rs (collect prior to dis	turbing water column	יוֹי	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
0940						
Comments (odour, colour, turbidity, sheen)		Not el	wargh samp	necolon	d westward	

Well ID	HWH8 1546M		Depth to Ground (Before Sampling	102.450		
Date	30/5/	123	Depth to top of s	ampler (mBTOC)	1/0	
QC sample	NIA		Well Depth (mBTOC)		7150	
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water colum		
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
102	/	/				
Comments (o turbidity, she	dour, colour, en)	Nonh Wronk	sagre colle	/ in the	empty	



## Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	HWHBM	2111	Depth to Ground (Before Sampling		66.800
Date	30/5/	23	Depth to top of sampler (mBTOC) Well Depth (mBTOC)		70
QC sample	A/A				125.8
	In situ dowr	hole Parameter	rs (collect prior to dis	turbing water column	) pulsa
Time	ρH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/b)
agoo	7.14	26.9.	1108	22.8	17.8
Comments (c turbidity, she	odour, colour,	Clear,	no snell, o	no color	+1.45

Well ID	HWHIS	15/9M	Depth to Ground (Before Sampling	MADn	
Date	30/5/2	5	Depth to top of sampler (mBTOC) Well Depth (mBTOC)		NIA
QC sample	NIA				49.350
	In situ down	hole Paramete	rs (collect prior to dis	turbing water colum	in)
Time	pН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
/	/				
Comments (o turbidity, she	dour, colour, en)		/		

Well ID	MWGW/03D 30/5/23 N/A		Depth to Groundwater mBTOC (Before Sampling):		24.70 27 34.50
Date			Depth to top of		
QC sample			Well Depth (mB		
	In ≤itu dow	nhole Parameter	rs (callect prior to di	sturbing water colum	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
1230	7,07	25.4	2087	W.4	2-8.6
Comments (comments (comments)	odour, colour,				



Contaminated Land Management

## Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	31/0/23 N/A		Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC) Well Depth (mBTOC)		64.964. -95.364
Date					
QC sample					
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water colum	nn)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (od turbidity, shee		Em	oty HS		

Well ID	EEG1307RGM		Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC)		NIA
Date					
QC sample	NIA	+	Well Depth (mBTOC)		NIA
	In situ dowr	hole Parameter	s (collect prior to dis	turbing water column	)
Time	pH Temp (C		EC (µS/am)	Redox (mV)	DO (mg/L)
					100
Comments (c					

Well ID	23+/6/25 NA		Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC) Well Depth (mBTOC)		N/A69.3
Date					N/A >/o
QC sample					
	în situ down	hole Parameter	rs (collect prior to dis	turbing water colum	n)
Time	рН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
0835	6.99	23.9	930	21	8.80
Comments (odour, colour, turbidity, sheen)		clou	r no odas	t.	



Contaminated Land Management

### Standard Form 3.2.3

Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

DIMEN . Depth to Groundwater mBTOC Well ID HWHB1502M (Before Sampling): Depth to top of sampler (mBTOC) Date Well Depth (mBTOC) QC sample In situ downhole Parameters (collect prior to disturbing water column) EC (µS/cm) Redax (mV) DO (mg/L) Time pH Temp (C) Mini-HS. ompey Comments (odour, colour, turbidity, sheen)

Well ID	HWH18 1727 M		Depth to Ground (Before Sampling	NIA	
Date	31/07	23	Depth to top of sampler (mBTOC)		NIA
QC sample	NIP		Well Depth (mBT	OC)	NIA
	In situ dow	nhole Parameter	rs (collect prior to dis	turbing water column	)
Time	PH	Temp (C)	EC. (µS/cm)	Redox (mV)	DO (mg/L)
Comments (c	odour, colour,				

Well ID EXD 008		08	Depth to Ground (Before Sampling	NA		
Date	31/51	3//5/25 Depth to top of sampler (mBTOC)		Depth to top of sampler (mBTOC)		
QC sample	NA	-87.	Well Depth (mBTOC)		NA	
	In situ dow	nhole Paramete	rs (collect prior to dis	turbing water column	)	
Time	РHq	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)	
Comments (or turbidity, shee						



# Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	EEG 1048RM		Depth to Groundwater mBTOC (Before Sampling):		NIA
Date	31/5	125	Depth to top of sampler (mBTOC) Well Depth (mBTOC)		NIF
QC sample	NIA				NIA
	In situ dow	nhole Paramete	rs (collect prior to dis	turbing water column	),
Time	pH.	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (o					

				No casing	
Well ID	WBCSGWOLF9		Depth to Ground (Before Samplin		6/240
Date	31/5/	23	Depth to top of s	sampler (mBTOC)	86.66 63
QC sample	NIA		Well Depth (mB1	roc)	86-66
	In situ down	nhole Parameter	rs (collect prior to dis	turbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mgil.)
1420	7.00	30.6	1089	-21.I.	1.42
Comments (comments (comments)	odour, colour, en)	no color	r clear-	tow tests	

				Maring	
WELLID WECSAWOZOS		Depth to Groundwater mBTOC (Before Sampling):		59.318	
Date	31/0	123	/ 2 } Depth to top of sampler (mBTOC) Well Depth (mBTOC)		63
QC sample	NIA	6			17.30
	In situ dowr	hole Paramete	rs (collect prior to dis	turbing water colum	n)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (9994-)
200	10-5	20.5	055	-401	1.07
Comments (eturbidity, she	odour, colour, een)	no or	dour clear	r, foin tu	nb



# Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	WBCSGWOU-		Depth to Groundwater mBTOC (Before Sampling):		49.56
Date	31/5	Depth to top of sampler (mBTOC)		th to top of sampler (mBTOC)	53
QC sample	NI	A	Well Depth (mBT	oc)	68 -9
		The second second	rs (collect prior to dis	turbing water column	1)
Time	ρΗ	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
1630	6.99	291	1065	63.2	0.89
Comments (o turbidity, she		cle	ar no odou	no col	on

Well ID	HWHB 1518M		Depth to Ground (Before Sampling	NA	
Date	31/5	Depth to top of sampler (mBTOC)		NIT	
QC sample	NI	A	Well Depth (mBT	OC)	NIA
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water column	)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
				10	
Comments (o					

Well ID	HWBW 1526M		HWBW 1526 M Depth to Groundwater mBTOC (Before Sampling):		43.095
Date			Depth to top of s	ampler (m8TOC)	NIA baile
QC sample	NI	4	Well Depth (mBTOC)		83.991
	In situ down	nhole Paramete	rs (collect prior to dis	turbing water colum	n)
Time	pH	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
1130/		/	/		1
Comments (c	odour, colour, en)	Silty	high lark	yellon s	



Contaminated Land Management

# Standard Form 3.2.3

# Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well (D	INR18-	GWOSD	Depth to Ground (Before Samplin		48.01
Date	2/6/	25	Depth to top of	sampler (mBTOC)	61
QC sample	NIA	Well Depth (mBTOC)		69.165	
	In situ down	hole Parameter	s (collect prior to dis	sturbing water colum	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
1330	7.15	28.8	1490	-196.4	1.90
Comments (o turbidity, she		1.50	ic well.	clear,	low tunb

Well ID	WB20-GW06 2//6/23		Depth to Groundwater mBTOC (Before Sampling):		43.30
Date			Depth to top of s	45	
QC sample	NI	A	Well Depth (mBT	oc)	99.37
	in situ dow	nhole Parameter	s (collect prior to dis	turbing water column	).
Time	pH	Temp (C)	EC (µB/cm)	Redax (mV)	DO (mg/L)
1330	7.24	268	1753	2-8	12.77
Comments (c	odour, colour, een)	lo odi	our to co	dos cles	ar.

Well ID	(Before Sampling):				
Date			ampler (mBTOC)		
QC sample			Well Depth (mBTOC)		
	In situ down	hole Parameter	s (collect prior to dis	turbing water column)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (od turbidity, shee			5 1		



## Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	W320-6WD6		Depth to Groundwater mBTOC (Before Sampling):		44.835
Date	12/6/2	3 12:30	Depth to top of s	sampler (mBTOC)	a
QC sample	C sample		Well Depth (mBTOC)		100 3cg
	In situ dow	nhole Parameters	(collect prior to dis	sturbing water colum	in)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
12:15	699	27.9	1729	-42.7	0.97
Comments (c	odour, colour, en)	Hydrolen Clea	a deptr-	tom.	

Well ID Depth to Groundwater mBTOC 44,169 WB186405 (Before Sampling): 12/6/23 Date 12:53 Depth to top of sampler (mBTOC) 44 25 HAQ 4-93.41 QC sample Well Depth (mBTOC) In situ downhole Parameters (collect prior to disturbing water column)

EC (µS/cm) Time Temp (C) Redox (mV) DO (mg/L) 6.87 28.2 812 -226 1.34 11.50

Hydroslewie depth- 45.5 10 fer cleployed-sn-1004392-65 m Comments (odour, colour, turbidity, sheen)

Suleup 0.56 m - cleer, nosmell

Well ID	W318-GW04		Depth to Groun (Before Samplin	44.925	
Date	12/6/23	3 1:21	Depth to top of	sampler (mBTOC)	
QC sample			Well Depth (mB	TOC)	104.43
	In situ dow	nhole Paramete	rs (callect prior to di	sturbing water colum	ın)
Time	рH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
11:20	6.89	27.9	1443	-48,1	083
Comments (odour, colour, turbidity, sheen)		Hydro	deen dep	th - 46.5-	Clear, low turns,

Stickup-0.59 - cleve, no smed

15/4/23



# Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	MWGWI	030	Depth to Groundwater mBTOC (Before Sampling):		25 734	
Date	e \\2/6/23 \.48 Depth to top of sampler (mBTO		sampler (mBTOC)			
QC sample	C sample		Well Depth (mBTOC)		34,50	
In situ dow		nhole Parameter	s (collect prior to disturbing water colum		an)	
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
9:15	7.03	20-4	1995	200-5	1.97	
Comments ( turbidity, she	odour, colour, een)	Logger	missing - for	27 5 (+a)	olgur, high fur Lour helow	

	Well ID	mwill	0	Depth to Groun (Before Samplin	49.519	
	Date	12/4/23	2:11	Depth to top of	sampler (mBTOC)	
	QC sample			Well Depth (mBTOC)		102,90
	In situ downhole Parame			rs (collect prior to d	sturbing water colum	n)
	Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
14/42	2:10	7.32	27.8	1513	-142.8	1.17
			M. Do sho	Su di dadi	e \ -	Mas hoder

Comments (odour, colour, turbidity, sheen)

Hydrasteene depth - 51 Paternened 14/6/23 #2 10

sticle up - 0.56m

Well ID	HWHB	1524 M Depth to Groundwater mBTOC (Before Sampling):			44.921
Date	12/6/23	230	Depth to top of		
QC sample			Well Depth (mB	тос)	83.995
	In situ dow	nhole Paramete	rs (collect prior to di	sturbing water colum	nn)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
2130	6.93	28.0	2757	-157	4.86
Comments (comments (commen	odour, colour,	- BAIL			

1440

STOKUP- 0.501



# Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	WB18-6W03D		Depth to Groundwater mBTOC (Before Sampling):		48.236
Date コルンド		3.30	Depth to top of		
QC sample			Well Depth (mB	тос)	69.165
	In situ dow	nhole Parameter	s (collect prior to d	sturbing water colum	in)
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
9:10	7.10	23.4		-111-0	1-92
Comments (odour, colour, turbidity, sheen)		Hydrorteen depth ton Clear		r, law turb	

8hill up-0.52 m

Well ID	Vell ID		Depth to Groundwater mBTOC (Before Sampling):		
Date			Depth to top of s	ampler (mBTOC)	
QC sample			Well Depth (mBT	oc)	
	In situ dow	nhole Parameter	rs (collect prior to dis	turbing water column)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (od turbidity, shee					1

Well ID			Depth to Ground (Before Sampling		
Date			Depth to top of s	ampler (mBTOC)	
QC sample			Well Depth (mBT	oc)	
	In situ dow	nhole Parameter	s (collect prior to dis	turbing water column)	
Time	рН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)
Comments (od					



## Contaminated Land Management

# Standard Form 3.2.3

# Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

1	Well ID	WBCSC	0219	Depth to Ground (Before Sampling		62.710	
	Date	0/6/21 9:0		Depth to top of s	ampler (mBTOC)		
4	QC sample			Well Depth (mBTOC)		86.66	
	4	In situ dow	nhole Parameter	rs (callect prior to dis	nn)		
	Time	pН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)	
4/4/23	10,20	7.07	26.0	215 6	15.8	2.37	
	Comments (odour, colour, turbidity, sheen)		Mydreslegick dept - 64.5 retrieved 14/6/23 - 10:20 clacking				

Well ID	MANNE	SUPER		Depth to Groundwater mBTOC (Before Sampling):		
Date	13/6/28 9:5% Depth to top of sa		f sampler (mBTOC)			
QC sample			Well Depth (mBT	14 - 1919/18	119.70	
	In situ dow	nhole Paramete	rs (collect prior to dis	turbing water colum		
Time	pН	Temp (C)	EC (µS/cm)	Redax (mV)	DO (mg/L)	
11700	701	20,0	1090	913	143	
Comments ( turbidity, she	odour, colour, een)	hydrostics H	imadep 171-	- 10 - 25 - E	mell, low to	

	Well ID	Bulgabaga		Depth to Groun (Before Samplin		115.746
Date	Date	13/6/23	1038	Depth to top of sampler (mBTOC)		
	QC sample		100	Well Depth (mB	TOC)	mm 102.45
	In situ downhole Parame			eters (collect prior to disturbing water column)		
	Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
416/25	11:30	6:08	29.6	2.0	122.5	2.33
	Comments (e	odour, colour,	hydrodu	ne depth 1 ed - 14/6/2	17.5	clear, Soffer like

Strok up -0.57 m



# Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	D W326-GW		Depth to Groundwater mBTOC (Before Sampling):		67.876
Date 13/6/23  QC sample QAOI (000)		7115	Depth to top of	sampler (mBTOC)	
		QAVELTRIP)	Well Depth (mB	112 63	
	In situ dow	nhole Parameters	(callect prior to di	sturbing water colum	in)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
7.50	7.67	24.4	709	38.5	2.64.
Comments (odour, colour, turbidity, sheen)		hydrolan dept 69,5 setrieved 9:44 14/6/23 = Prince			Le-CAOI

Sich up- 0.5

- clock, Hashall

Well ID	Flw+15N	SS I IV	Depth to Groundwater mBTOC (Before Sampling):		69.175	
Date	13/6/23	13/6/23 7:50		Depth to top of sampler (mBTOC)		
QC sample	Chos (Pup)	QAY (Top)	Well Depth (mB	roc)	7150m	
In situ downhole Parameters			(collect prior to dis	sturbing water colum	in)	
Time	pH	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	
541	7.02	25.8	1161	16.5	2.91	
Comments (odour, colour, turbidity, sheen)		Hydrust Cu	cuiphin scales = 91 m ener 8 40 14/42 = 20 Thillette - and			

Well ID	WBCSG0208		Depth to Ground (Before Sampling	59.621	
Date	13/6/23 8	1.18	Depth to top of sampler (mBTOC)		
QC sample			Well Depth (mBT	OC)	77.3
	In situ dow	nhole Parameter	rs (collect prior to dis	turbing water colur	
Time - pH		pH Temp (C)		EC (µS/cm) Redox (mV)	
/	1	/	/		
Comments (odour, colour, turbidity, sheen)		Hydresl	un depar	L-19261	.5

Shick up- 0.48 m NO SAM PLETAKEN - water could not



## Contaminated Land Management Standard Form 3.2.3 Passive Diffusion Bag (PDB)/Hydrasleeve Sampling Record

Well ID	HWHE	1521M	Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC) Well Depth (mBTOC)		68.541
Date	5/6/23	9:50			
QC sample					1258m
	In situ dow	nhole Parameter	a (collect prior to dis	turbing water colum	n)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
12.00	7.05	30.6	1096	-35.6	1.13
Comments ( turbidity, sh	odour, colour, een)	Hydron	ym depth d-14/6/23	-70	

Well ID WISCSGWOZID Depth to Groundwater mBTOC 49.70 (Before Sampling): 1:07 Date Depth to top of sampler (mBTOC) QC sample Well Depth (mBTOC) 68.9 In situ downhole Parameters (collect prior to disturbing water column) Redax (mV) DO (mg/L) Time Temp (C) EC (µS/cm) 6.97 586 1:30 r, hydrorllen depth - 51.5 - retrieved = 14/2/23 1:30

logges retrieved. - clock with some

Stick up - 0.58 m Sediments out but form

+ suspended ud/brown smiles. Comments (odour, colour, turbidity, sheen)

Well ID			Depth to Groundwater mBTOC (Before Sampling): Depth to top of sampler (mBTOC) Well Depth (mBTOC)		
Date					
QC sample					6883
	In situ dow	nhole Parameter	rs (collect prior to dis	turbing water colum	in)
Time	pН	Temp (C)	EC (µS/cm)	Redox (mV)	DO (mg/L)
Comments (od turbidity, sheet					

# **A2** Calibration records

dot

PS202448

Date and time

26/7/23

7:15 WQ meter make/model

Name

5.B T.M

WQ meter serial number 20 K104050

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	10°С	12.6	± 0.5°C	. N	
На	4	4.05	3.9 - 4.1	N	
	7	7.04	6.9 - 7.1	N	
Conductivity	2.76 mS/cm@25 <sup>0</sup> C	2.755	± 5 %	N	
	35 mS/cm@25°C	33.1	± 5 %	N	
Dissolved Oxygen	0% saturation solution	0.04	± 0 ppm	N	
	Ambient Air	10.8	± 0.5 ppm of value on Table A overleaf	N	
Redox	240 mV@ 20°C	247.7	± 10 mV	N	

Table A: Change in Dissolved Oxygen with Temperature at 100% Relative Humidity (Altitude: sea level)

Temperature	DO (100% R.H.)
(Celsius)	(ppm, mg/L)
0	14.6
1	14.19
2	13.81
3	13.44
4	13.09
- 5	12.75
6	12.43
7	12.12
8	11.83
9	11.55
10	11.27
-11	11.01
12	10.76
13	10.52
14	10.29
15	10.07
16	9.85
17	9,65
18	9.45
19	9.26
20	9.07
21	8.9
22	8.72
23	8.56
24	8.4
25	8.24
26	8,09
27	7.95
28	7.81
29	7.67
30	7.54
31	7.41
32	7,28

Job

PS 202448

Date and time

7:00

WQ meter make/model

451 Professional Plus

Name

TM

WQ meter serial number 2015 104 050

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	6.7	± 0.5°C	N	
рН	4	4.02	3.9 - 4.1	N	
	7	7.07	6.9 - 7.1	N	
	2.76 mS/cm@25°C	2.77	± 5 %	N	
Conductivity	35 mS/cm@25°C	34.0	± 5 %	И	
Dissolved Oxygen	0% saturation solution	11.43	± 0 ppm	N	-
	Ambient Air	0.05	± 0.5 ppm of value on Table A overleaf	N	
Redox	240 mV@ 20°C	246.1	± 10 mV		

Job

Name

75202448

Date and time

28/7/23 7:00

WQ meter make/model

451 Professional Plus

WQ meter serial number

20K104050

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	10.9	± 0.5"C	N	
рН	4	3.99	3.9 - 4.1	N	
	7	4.99	6.9 - 7.1	N	
	2.76 mS/cm@25°C	2.81	± 5 %	7	
Conductivity	35 mS/cm@25°C	33.30	± 5 %	2	
Dissolved Oxygen	0% saturation solution	0.09	± 0 ppm	N	
	Ambient Air	10-61	± 0.5 ppm of value on Table A overleaf	N	
Redox	240 mV@ 20°C	245.2	± 10 mV	7	





Job:	PS202448	Phase/Task Number:	
Date and time:	8/8/23 10:50	WQ meter make/model:	
Name:	5.6 C.O	WQ meter serial number:	20K104050

Signature: Certificate Number\*:

		* use unique identifier (e.g YYYYMMDD_"technician's initials*)			
Parameter	Standard Solution	Pre-calibration reading	Acceptable range	Calibration Required (Y/N)	Post Calibration Reading
Temperature	16.7 °C		± 0.5 °C		
	4	3.97	3.9 - 4.1	2	
рН	7	7.01	6.9 - 7.1	1)	
	10		9.9 – 10.1	_	
	0	0	0.0 - 0.1 mS/cm		
Conductivity	276_mS/cm@°C	2.71	± 5%	5	
	°C		± 5%		
Dissolved	0% Saturation Solution	0.05	± 0.1 ppm	N	7
Oxygen	Ambient Air	971	± 0.5 ppm of value on Table A overleaf	N	
Redox	22 <b>6</b> 9 mv@°c	2291.2	± 10 MV	2	



Job:	95202448	Phase/Task Number:	<u> </u>
Date and time:	9/8/23 7:10	WQ meter make/model:	
Name:	S.5 C.0	WQ meter serial number:	2010104050

Signature: Certificate Number\*:

· u			use unique identifier (e.g YYYYMMDD_"technician's initials")			
Parameter	Standard Solution	Pre-calibration reading	Acceptable range	Calibration Required (Y/N)	Post Calibration Reading	
Temperature	_13.6 °c		± 0.5 °C			
	4	4.02	3.9 - 4.1	N		
рН	7	7.01	6.9 - 7.1	$\sim$		
	- 10		9.9 – 10.1			
T No.	0		0.0 - 0.1 mS/cm			
Conductivity	2.76 mS/cm@°C	2.83	± 5%	N	91	
	35 mS/cm @°C	35.12	± 5%	N		
Dissolved	0% Saturation Solution	0.02	± 0.1 ppm	$\omega$		
Oxygen	Ambient Air	10.49	± 0.5 ppm of value on Table A overleaf	N		
Redox	220\_mV@°C	B 230.1	± 10 MV	N		

Comments (including any additional repairs or services performed



Job:	PS202448	Phase/Task Number:	
Date and time:	7/8/23 2:15	WQ meter make/model:	No.
Name:	5.B C.O	WQ meter serial number:	20K104050

Signature: Certificate Number\*:

* use	unique	identifier	(e.g	YYYYMMDD	"technician's	initials"

Parameter	Standard Solution	Pre-calibration reading	e unique identifier (e.g YYYYMMDD_"technician's in Acceptable range	Calibration Required (Y/N)	Post Calibration Reading
Temperature	24.9 °C		'± 0.5 °C		
197	4	4.01	3.9 - 4.1	N	TOP
рН	7	7.00	6.9 - 7.1	N.	
	10		9.9 – 10.1	_	
	0		0.0 - 0.1 mS/cm	12 /	
Conductivity	2.76 ms/cm@24.4 °C	2.79	± 5%	N	
4 4	35 ms/cm@24.0 °C	34.72	± 5%	N	4
Dissolved	0% Saturation Solution	0.03	± 0.1 ppm	N	14-5-7
Oxygen	Ambient Air	431	± 0.5 ppm of value on Table A overleaf	N	
Redox	229 mv@25 °c	219.8	± 10 MV	N	

Comments (including any additional repairs or services performed)

Job

75202448

Date and time

9/10/23

wq meter serial number 2 | F105631

Name

CO/TM

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	*c	39.6	± 0.5°C	N	
	4	4.10	3.9 - 4.1	N	
pH	7	7.08	. 6.9 - 7.1	7	-
	2.76 mS/cm@25°C	2.74	± 5 %	N	
Conductivity	35 mS/cm@25°C	24.0	± 5 %	N	
Direct of E	0% saturation solution	0.04	± 0 ppm	N	•
Dissolved Oxygen	Ambient Air	5.13	± 0.5 ppm of value on Table A overleaf	N	
Redox	mv@ 20°C	2.06	± 10 mV		

Water Quality M	leter Calibration Sheet		VQ meter make/model \\SI \\Pro		<b>SI</b> )
ob	75202448		vic. o		
Date and time	10-10-23 11:	40 v	VQ meter make/model	Quatro	
Name	China Ognom	ر . د	VQ meter serial number 21 F 10 5 6	31	
	J		-		
Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	35	± 0.5°C	N	
Sea 1	4	4.05	3.9 - 4.1	1	
Н	7	7.05	6.9 - 7.1	М	5.5
- L	2.76 mS/cm@25°C	2.96	± 5 %	1	
Conductivity	35 mS/cm@25°C	35.01	± 5 %	N	
	0% saturation solution	0.1	± 0 ppm	N	
		7	THE PERSON OF TH		
Dissolved Oxygen	Ambient Air 25	18.02	± 0.5 ppm of value on Table A overleaf	N	

RENOX 218 MV@ 30°C

Job

Date and time

11/10/23 8:10

115 Wameter make/model Pro Quatro

Name

Tm/CO

WQ meter serial number 21F105631

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	23.7	±0.5°C	N	
	4	4.00	3.9 - 4.1	7	
pH	7	7.09	6.9 - 7.1	7	
	2.76 mS/cm@25°C	2.76	± 5 %	N	
Conductivity	35 mS/cm@25°C	33.7	± 5 %	7	
	0% saturation solution	0.10	± 0 ppm	N	
Dissolved Oxygen	Ambient Air	9.11	± 0.5 ppm of value on Table A overleaf	N	
Redox	<del>240 mV@ 20°C</del>	217.5	± 10 mV	N	

218 2 2001

dot

15202 448

Date and time

6:30

WQ meter make/model 151 Pro Questo
WQ meter serial number 21 F105 631

Name

China

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	21.4	± 0.5°C	N	
	4	4.10	3.9 - 4.1	1	
рH	7	7.10	6.9 - 7.1	^(	
#1000 Number	2.76 mS/cm@25°C	2.69	± 5 %	N	
Conductivity	35 mS/cm@25°C	52.5	± 5 %	N	
	0% saturation solution	0.09	± O ppm	N	
Dissolved Oxygen	Ambient Air		± 0.5 ppm of value on Table A overleaf	N	
Redox	240 mV@ 20°C	226	± 10 mV	1	

Relox 226@ 23°C Conductivity 35 ms/cm @ 23 - 32.5





Job: PS202448 Phase/Task Number: \_\_\_\_\_

Date and time: 22-11-2023 6:30 WQ meter make/model: ProQuatro

Name: China Oguoma WQ meter serial number: 21F105631

Signature: CO Certificate Number\*:

		* u:	se unique identifier (e.g YYYYMMDD_"technician's ini	tials")	
Parameter	Standard Solution	Pre-calibration reading	Acceptable range	Calibration Required (Y/N)	Post Calibration Reading
Temperature	°C		± 0.5 °C		
	4	4.03	3.9 - 4.1	N	
рН	7	7.07	6.9 - 7.1	N	
	10		9.9 – 10.1		
	0		0.0 - 0.1 mS/cm		
Conductivity	2.7mS/cm @25°C	2.85	± 5%	N	
	35 mS/cm @°C	34.87	± 5%	N	
Dissolved	0% Saturation Solution	0.08	± 0.1 ppm	N	
Oxygen	Ambient Air	_	± 0.5 ppm of value on Table A overleaf	_	
Redox	mV @°C	182.5	± 10 MV	Y	229

Comments (including any additional repairs or services performed)

Table A: Change in Dissolved Oxygen with Temperature at 100% Relative Humidity (Altitude:sea level)

Temperature	DO (100%
(Celsius)	(ppm, mg/L)
0	14.6
<u> </u>	14.19
2	13.81
2 3 4 5 6 7	13.44
4	13.09
5	12.75
6	12.75 12.43
7	12.43 12.12 11.83 11.55
8	11.83
8 9	11.55
10	11.27
11	11.01
11 12	10.76
13	10.52
14	10.29
15	10.07
16	9.85
13 14 15 16 17 18 19 20	9.65
18	9.45 9.26 9.07
19	9.26
20	9.07
21	8.9
22	8.72
23	8.56
24	8.4
21 22 23 24 25	8.24
26 27	8.09
27	7.95
28	7.81
29	7.67
30	7.54
31	7.41
32	7.28

Values are for pressure = 760 mm Hg for measurements at sea level.

For a given temperature, the concentration of dissolved oxygen concentration decreases by 0.3 mg/L with every 500 ft (152.4 m) increase in altitude.



1115

Job

PSZ02448

Date and time

12/12/23

WQ meter make/model

Pro Quatro

Name

TIM

WQ meter serial number

21F105631

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°C	18.0	± 0.5°C	N	
	4	4.13	3.9 - 4.1	4 4	4.02
pН	7	6.96	6.9 - 7.1	N	
	2.76 mS/cm@25°C	2.81	± 5 %	N.	
Conductivity	35 mS/cm@25 <sup>0</sup> C	34.9	± 5 %	N	1
	0% saturation solution	0.02	± 0 ppm	N	
Dissolved Oxygen	Ambient Air	8.19	± 0.5 ppm of value on Table A overleaf	N	
Redox	A 340 mV@20°C	225.6	± 10 mV	N	

· 218 mV @ 30°C

1115

Job

P5202448

Date and time

6:45AM-13/12/23

WQ meter make/model

Pro Quatro

Name

TM

WQ meter serial number

21F105631

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°C	18.9	± 0.5°C	N	
-11	4	3.96	3.9 - 4.1	N	
pН	7	6.95	6.9 - 7.1	N	
Condition to	2.76 mS/cm@25°C	2.69	± 5 %	N	
Conductivity	35 mS/cm@25 <sup>0</sup> C	34.4	± 5 %	N	
Sizzal and Owners	0% saturation solution	0.10	± 0 ppm	N	
Dissolved Oxygen	Ambient Air	9.62	± 0.5 ppm of value on Table A overleaf	N	
Redox	240 mV@ 20°C	246.3	± 10 mV	N	



dol

75202448

Date and time

0:10 14/12/23

WQ meter make/model

Pro Quatro

Name

TM

WQ meter serial number

21F105631

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	24.3	± 0.5°C	N	
	4	4.02	3.9 - 4.1	N	
pH	7	7.01	6.9 - 7.1	N	
	2.76 mS/cm@25 <sup>0</sup> C	2,70	± 5 %	N	
Conductivity	35 mS/cm@25 <sup>0</sup> C	33.8	± 5 %	N	
	0% saturation solution	0.10	± 0 ppm	N	
Dissolved Oxygen	Ambient Air	8.72	± 0.5 ppm of value on Table A overleaf	N	
Redox	g -240.mV@ 20°C	221-3	± 10 mV	N	

-229 mV @ 25°C

115)

Top

P5202448

Date and time

10/01/24 16:20

WQ meter make/model

Pro Quatro

Name

TM

WQ meter serial number

22H102060

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°C	34.1	± 0.5°C	N	_
	.4	4.04	3.9 - 4.1	N	
pН	7	.6.98	6.9 - 7.1	N	_
u v sam	2.76 mS/cm@25 <sup>0</sup> C	2.80	± 5 %	N	_
Conductivity	35 mS/cm@25 <sup>0</sup> C	34.3	± 5 %	N	5
#	0% saturation solution	0.01	± 0 ppm	N	_
Dissolved Oxygen	Ambient Air V	h 1	± 0.5 ppm of value on Table A overleaf	N	
Redox	-240 mV@ 20°C	225.0	± 10 mV	N	-

229 MV @ 20°C

115)

Date and time PS202448

Date and time 17-01-24 6-50 Am WQ meter make/model Pro Quatro

Name TM WQ meter serial number 72 H 10 Z 0 C 0

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	26.5	± 0.5°C	N	-
	4	4.02	3.9 - 4.1	N	-
рН	7	6.96	6.9 - 7.1	N	-
C. d. division	2.76 mS/cm@25 <sup>0</sup> C	2.78	± 5 %	N	_
Conductivity	35 mS/cm@25 <sup>0</sup> C	34.0	± 5 %	N	_
Sincelland Courses	0% saturation solution	0.01	± O ppm	N	-
Dissolved Oxygen	Ambient Air		± 0.5 ppm of value on Table A overleaf	N	
Redox	-240 mV@ 20°C	227.6	± 10 mV	, N	-

229@ 25°C

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°C	32.7	± 0.5°C	N	
	4	MANAGA	MAG 6.95 3.9 - 4.1	∌ ¥	ERROR
pH	7	6.98	6.9 - 7.1	N	_
	2.76 mS/cm@25°C	2.81	.± 5 %	N	_
Conductivity	35 mS/cm@25 <sup>0</sup> C	33.3	± 5 %	N	
-1.1.1	0% saturation solution	0.05	± 0 ppm	N	
Dissolved Oxygen	Ambient Air		± 0.5 ppm of value on Table A overleaf	N	
Redox	- <del>240 mV@ 20°C</del>	219.4	± 10 mV	N	_

229 mV (25°C

117)

PS 20 2448

Date and time 16 01 24 xyman 6:45 way meter make/model Professional Plus

Name WQ meter serial number 19L 102 399

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°C	29.0	± 0.5°C	N	
	4	Failed	3.9 - 4.1	N	
	7	7.01	6.9 - 7.1	N	- 17
Condition to the	2.76 mS/cm@25°C	W. 800 2 79	± 5 %	N	_
Conductivity	35 mS/cm@25 <sup>0</sup> C	BA1/10 35	± 5 %	N	_
Di 1 10	0% saturation solution	0100.00	± 0 ppm	N	
2.76 mS/cm@ onductivity 35 mS/cm@2 0% saturation so	Ambient Air		± 0.5 ppm of value on Table A overleaf	N	
Redox	229 240 mV@ 25°C	222-4	± 10 mV	N	and to

- Fried to calibrate USI but was not able to as reading was foo different

Job

Date and time

13-66-23 14:20 Wameter make/model YSI Pro Quatro

Name

WQ meter serial number 21C102770

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	"C	13-5	± 0.5°C	N	
pH .	4	3.99	3.9 - 4.1	N	
pri	7	6.94	6.9 - 7.1	XI -	_
Conductivity	2.76 mS/cm@25°C	2.626	± 5 %	H	-
Conductivity	35 mS/cm@25°C	33.68	± 5 %	N	
Dissolved Oxygen	0% saturation solution	-0.01	± 0 ppm	N	
Dissolved Dxygen	Ambient Air	9.38	± 0.5 ppm of value on Table A overleaf	N	_
Redox	240 mV@ 20°C	207	± 10 mV	Y	240

Job

Date and time

WQ meter make/model 151 10 QUARO

Name

China Ogusma

WQ meter serial number 21 C 10 27 70

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	°c	BA 5.1	± 0.5°C	N	
pH	4	406	3.9 - 4.1	М	
7	7	7.04	6.9 - 7.1	1/	
y	2.76 mS/cm@25°C 5°C	1.84	± 5 %	1	Failes
Conductivity	35 mS/cm@25°C 5°C	22.67	± 5 %	Y	Failed
20 V V	0% saturation solution	0-1	± 0 ppm	N	_
Dissolved Oxygen	Ambient Air	12.76	$\pm0.5$ ppm of value on Table A overleaf	N	
Redox	240 mV@ 20°C 5°C	263	± 10 mV	1	_

Terry = 5. C. Conductivity colibrations failed

75202448

Date and time

15-06-23

WQ meter make/mod

151 Pro Quatro

Name

China Oguoma

WQ meter serial number

210102770

Parameter	Standard Solution	Pre-sampling reading	Acceptable range	Calibration Required (y/n)	Post-sampling Reading
Temperature	*c	916	± 0.5°C	N	
217 *0	4	3.99	3.9 - 4.1	Н	
рH	7	6.90	6.9 - 7.1	H	
	2.76 mS/cm@25°C 7.9	2.87	± 5 %	Y	Failed
Conductivity	35 mS/cm@25°C 7-4	24.5	± 5 %	7	Failed
	0% saturation solution	0-1	± 0 ppm	N	-
Dissolved Oxygen	Ambient Air	11.50	± 0.5 ppm of value on Table A overleaf	N	-
Redox	240 mV@ 20°C	262	± 10 mV	N	

# A3 Chain of custody records

eurofins mgt	4 1	Phon	13 - 6 Date m +012:30	dney Ingili, 16 Mars I 00 8400 Ingiahiti Migaw	Stad Lave Cov					100	Brit Und 1-21 Smalle Plane -417 200 Small Energia	2.4800					Dhar	gsten Tiwer C w: +813 2384	1000	lege, VIC 3188 Fax. 403 81 rates comato	B4 \$500)	
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ALS Laboratory:

DIADELAIDE 21 Burms Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

DBRISBANE 32 Shand Street Stafford OLD 4053 Ph: 07 3243 7222 E. samples, brisbane@alsglobal.com GCLADSTONE 48 Cellemondan Drive Cirison OLD 4680 Ph: 07 7471 5500 E: gladstone@alsglobal.com

DMACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

DMELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9606 E. samples, melbourne@alsglobal.com DMUDGEE 27 sydney Road Mudgea NSW 2850 Ph: 02 8572 6735 E: mudgee mai@alsglobal.com

Ph: 02 4014 2500 E: samples newcastle@alsglobal.com

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INEWCASTLE 5/585 Makkand Rd Mayfield West NSW 2394 INSY DNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8566 E; samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmentat@alsglobal.com

□WOLLONGONG 99 Kenny Street Wellongeng NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AF - Amreight Unpreserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AF - Amreight Unpreserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AF - Amreight Unpreserved; AF - Amreig Water Container Codes: P = Unpreserved Plastic; N = Nitting Preserved Plastic; URG = Nitting Preserved CHC; SH = Socium HydroxiderCorreserved; S = Socium Hydroxider Preserved Plastic; AG = Amber Glass Unpreserved; AF - Amtreight Unpreserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VIA Vial Amber Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; F = Formaldehyde Preserved Glass; V = VIA Vial Formaldehyde Preserved Plastic; V = VOA Vial Sodium Bisulphate Preserved Plastic; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



ALS Laboratory:

FIADELAIDE 21 Burma Road Pooraka \$A 5095 Ph: 08 8359 0890 E: adelaido@alsglobal.com

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FIGLADSTONE 46 Callamondab Drive Clinton €£D 4680 Ph; 07 7471 5600 E: gladstone@alsglobal.com.

DMACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

□MELBOURNE 2-4 Westall Road Springvale VIC 3171 Phr 03 8549 9600 Er samples, melbourne @alsglobal.com □MUDGEE 27 Sydney Road Mudgoe NSW 2850 Phr 02 6372 6735 Er mudgee.mail@alsglobal.com

ONEWCASTLE 5/585 Mailland Rd Mayfield West NSW 2304 USYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 4014 2500 E: samples newcastle@alsglobal.com

CINOWRA 4/13 Geary Place North Nowra NSW 2541

Ph; 02 8784 8555 E: samples.sydney@alsglobel.com QTOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph; 07 4796 0600 E: townsville.environmental@alsglobal.com

□WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

Ph: 024423 2063 F. newras@alsglobal.com DPERTH 10 Hod Way Malage WA 6090 Ph: 08 9209 7655 E; samples, perth@alsglobal.com

please tick →												parameter grade		
LIENT:	TURNAROUND REQUIREMENTS:	Standard TAT (List due date):					,				FOR LABORATORY USE ONLY (	Circle)		
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mail Reports to (will default to PM if no other addresses are listed): s ablo.ortega@wsp.com, eduardo.ruther@wsp.com / カバル・w	sachin.brennan@wsp.com, daniel.kriel@wsp.com, 〜〜とらの、いらり、こっい	\ O( \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	DATE	/TIME	:				D,	ATE	/TIME:	DATE/TIME:		
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#### COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DET MATRIX: SOLID (S) V			CONTAINER INFO	RMATION	-	ANAL' Where N	YSIS REQUIR letais are req	RED including uired, specify 1	SUITES (NB. Fotal (unfiltere requi	d bottle requir	nust be listed to a ed) or Dissolved	attract suite price) I (field filtered bottle	Additional Information
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CAVIDLE CRISCING 169 Karrey Sheet Wolkingung NEW 2000 Pix go 4225 3125 E. portkenhie@alepiohet.com

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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved CRC; SH = Sodium Hydroide/Cd Preserved Plastic; AS = Amber Class: Unpreserved Plastic; AP - Airheight Unpreserved Plastic; AS = Amber Class: H = Nitric Preserved Plastic; ORC = Nitric Preserved Plastic; ORC = Nitric Preserved Plastic; AS = Amber Class: H = Nitric Preserved Plastic; AS = Amber Class: H = Nitric Preserved Plastic; ORC = Nitric P

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Z = Zinc Acetale Preserved Bottle; E = EDTA Preserved Bottler; ST = Starile Bottler, ASS = Plastic Bay for Acid Sulphate Soile; B = Unpreserved Bag.



# CHAIN OF CUSTODY

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DIGI ADSTONE AT Culturarian Dina Chroning Disassi Ph. 07 7471 5800 E. glatianov@atogonec.com

TURNAROUND REQUIREMENTS:

(Standard TAT may be kinger for some tests - -

DMACKAY 7E Harbour Risell Meeting GLD 4740 Ftt. 07-0944 0177 E. medicy@atisjiofal.com

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DMELBOURNIT 3-4 Westell fitted Surprivate VIC 2171 Fir (1) their 9600 E. samples mellocate (College to tra-LBA3/SGEE 27 Sydney Road Micigae NOW 2056 Ftv 02 6572 5725 E. mutgee mail@allgiobet.com

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CIPERTH 16 Hot Way Millings, WA 0000 Pir. 66 5200 7656 E. samples puth @alsointel.com

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FOR LABORATORY USE ONLY (Circle)

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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Pre V = VOA Vial HCl Preserved: VB = VOA Vial Sodium Bisulphate Preserved: VB = VOA Vial Sudium Bisulphate Preserved Plastic; F = Formaldehyde Preserved Glass; H = HCl preserved Plastic; HS = HCl preserved Plastic; HS = HCl preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Abetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plustic Bag for Acid Sulphate Soits: B = Unpreserved Bag

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OSYDNEY 277-289 Woodpark Road Smithfield NSW 2164-Ph. 92 8784 8565 E. sompler, sydney@alsglobal.com Ph. 02 or 64 oces E: sumpers symmetry galactic and CTOWNSVILLE 14-15 Desma Court Boble QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com DWOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph. 02 4225 3125 E: portkemble@alsglobal.com □PERTH 10 Hod Way Malaga WA \$000 Ph 08 9209 7655 E. samples perth@alsglobal.com

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en wise	DETICETACION ALS Laboratory: please tick →	Pn 07 7471 5600	Egladst	one@aisgiotal com	Ph. 02 6372 61		nail@elsglobal.com					FOR LABORATORY USE OF	NLY (Circle)
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ALS
Environmente

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(AL) En⊍ironi	nontal ALS Laboratory:	□GLADSTONE 46 Ph: 07 7471 5600 B	Callemonda E-gladstone(	h Drive Clinton QLD 4680 @alsglobal.com	Ph 02 5372 678	5 E. mudgee.ma	i@alsglobal.com	P	h: 08 9209 7655 E	samples perth@alsgk	FOR LABORA	TORY USE ONL	Y (Circle)
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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Plastic; N = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved Plastic; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved Speciation bottle; SP = Sulfuric Preserved Glass; V = VOA Vial HCl Preserved

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Ph. 024423 2063 E. nowra@atsglobal.com □PERTH 10 Hod Way Malaga WA 6090
Ph. 08 9209 7655 E. samples perth@alsglobal.com

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AL: nutroni	mentel ALS La	boratory:	□GLADSTONE 46 C Ph 07 7471 5600 E	allemondah gladatone (	h Drive Clinton QLD 4680 @alsglobal.com	Ph: 02 6372 6735				Ph. 00 9208 1000			FOR LABORATORY USE	ONLY (Circle)
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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial Notice Preserved Plastic; N = Nitric Preserved Plastic; P = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Sulfuric Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Glass; V = VOA Vial Sodium Bisulphate Preserved Plastic; P = Formaldehyde Preserved Plastic; P = Formal

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CLIENT DETAILS	
	WSP
Company Name:	

Sydney

Unit F3 - 6 Building F. 16 Mars Road, Larse Core Phone +812 9000 8400 Email: Emmiliare and Hilliage and records

Brisbane Limit 1-21 Broadwood Place, Municipe Ffwee: +817 3903 4800 Ereal Energlamps G.Dignarchis comits

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USYDNEY 277-289 Woodpark Road Smitbfield NSW 2164 Phr 02 8784 8555 E; samples.sydney@alsglobal.com DTOWNSVILLE 14-15 Desma Court Boble QL0 4818 Ph: 07 4796 0600 E townsville, environmental@alsglobal.com

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DPERTH 10 Hod Way Malaga WA 6090 Ph. 08 9209 7655 E. samples perth@alsglobal.com

DSYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Db: 02 8784 8555 F samples.sydney@alsqlobal.com ETI UZ 0704 0000 E. satitples.syuftey@alsglobal.com ETOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph; 07 4798 0600 E. townsville.environmental@alsglobal.com

UWOLLONGONG 99 Kenny Street Wollangong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Plastic; F = Formaldehyde Preserved Glass; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VB = VOA Vial Sodium Bisulphate Preserved; AV = Airfreight Unpreserved Bag.

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils: B = Unpreserved Bag.



ALS Laboratory: please tick →

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DWOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E portkembla@alsglobal.com ( Terr

CLIENT:	<del></del>		RNAROUND REQUIREMENTS		ist due date):		_	_		FOR LABORATORY	(USE ONLY (Circle)	-
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FOR LABORATORY USE ONLY (Circle)

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TURNAROUND REQUIREMENTS:

QUINCIANY 78 Hartour Roser Messay Co.D 41/6. Ph. 07 4544 (177 E. meckay@alogistal.com

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FOR LABORATORY USE ONLY (Circle)

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Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Anther Class Unpreserved; AP - Arthreight Unpreserved Plastic V = VOA Visit HCI Preserved; VB = VOA Visit Sodium Bouldhate Preserved; VS = VOA Visit Sulfuric Preserved Flastic; F = Formaldahyde Preserved Glass; H = HCI preserved Plastic; HS = HCI preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldahyde Preserved Glass; Z = Zinc Acritate Preserved Bottle: E = EDTA Preserved Bottles: ST = Startie Bottle: ASS = Piestic Bag for Acid Sulphate Solts: B = Unpreserved Bag.

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FOR LABORATORY USE ONLY (Circle)

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	T: PS202448  NUMBER: T MANAGER: Eduardo Ruther R: Tara Meyers & China Oguoma aliled to ALS? ( YES / NO) ports to (will default to PM if no other address ers@wsp.com, china.oguoma@wsp.com, croice to (will default to PM if no other address roice to (will default to PM if no other address NTSISPECIAL HANDLINGISTORAGE OR DIS  SAMPLE DE MATRIX: SOLID (S)  SAMPLE ID  GW100/170124   C  GW100/170124   C  GW101/180124   C  CW102/180124   C  CW102/18	TO PS202448  NUMBER: T MANAGER: Eduardo Ruther R: Tara Meyers & China Oguoma SAMPLERI SAMPLE IO (Will default to PM if no other addresses are listed): eduardo.rul ers@wsp.com, china.oguoma@wsp.com, claudio.vergara@wsp.com roice to (will default to PM if no other addresses are listed): AU. Account NTSISPECIAL HANDLINGISTORAGE OR DISPOSAL:  SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE ID  DATE / TIME  GW100/170124   6:30   17/01/2  RESTORAGE OR DISPOSAL:  SAMPLE DETAILS  MATRIX: SOLID (S) WATER (W)	T: PS202448  NUMBER:  TT MANAGER: Eduardo Ruther  R: Tara Meyers & China Oguoma  Rided to ALS? ( YES / NO)  EDD FORMAT (or de prorts to (will default to PM if no other addresses are listed): eduardo.ruther@wara@wap.com, china.oguoma@wap.com, claudio.vergara@wap.com voice to (will default to PM if no other addresses are listed): AU. Accounts Payable NTSISPECIAL HANDLING/STORAGE OR DISPOSAL:  SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)  SAMPLE ID  DATE / TIME  E  GW100/170124   6:30   17/01/24   W  RT 02/170124   6:30   17/01/24   W  RT 02/170124   6:30   17/01/24   W  CW102/180124   TIS   18/01/24   W  WWB26-GW04   TIS   18/01/24   W  AWWB26-GW04   TIS   TIS	Dira Trace Organics    ALS QUOTE NO.:     NUMBER:   T MANAGER: Eduardo Ruther   CONTACT PH: +61 8 9213 4849     R: Tara Meyers & China Oguoma   SAMPLER MOBILE: 0410268727, 0434585693     Billed to ALS? (YES / NO)   EDD FORMAT (or default):	Contact 12   Con	WSP Spring Street, Perth  (Estander TAT may be larger for some teets e.g.   Non Standard or IT PS202448  ALS QUOTE NO.:  TO WANAGER: Eduardo Ruther  CONTACT PH: +61 8 9213 4849  RI: Tara Meyers & China Oguoma  SAMPLER MOBILE: 0410268727, 0434586693  RELINQUISHED BY:  POPTS to (will default to PM in other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other addresses are inited; eduardo.ruther@wsp.com, ports)  POPTS to (will default to PM in o other address	WSP Spring Street, Perth  (Standard TAT may be larger for some leath e.g.   Non Standard or urgent TAT (it. The 202448   ALS QUOTE NO.: NUMBER:  IT WANAGER: Eduardo Ruther		MOST Spring Street  Perth	Try   Test Opening



N OF TODY

.aboratory:

Z = Zinc Acetais Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Flastic Bag for Acid Sulphate Sols: B = Unpreserved Bag.

Descende 2º Borna Rose Pomine DA 1000 Promise DA 1000 Promise

TURNAROUND REQUIREMENTS:

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GIMACKAT 75 Herbour Road Veckey GLD 4740 the CV Philadest F. House will registed annual

☐ Standard TAT (List due date):

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DINOL ONDONG SE Harry Small Violenging NAV 2500

FOR LABORATORY USE ONLY (Circle)

OFFICE:	WSP. Spring Street, Purth		(Standar Ultra Tra	d TAT may be longer for some tests e.g.   ce Organics)	Non Star	idard or urg	ant TAT (Lis	t due date)				Custody Seal Intact?	Yes No No.
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ORDERN	UMBER:	7 3 1 2 1						000:	1 2	3 4		7. Random Sample Temperature or	Receipt. 'C
PROJECT	MANAGER: Eduardo Ruther	CONTACT P	H: +61 8					OF		3 4		7 Other comment:	RECEIVED BY:
SAMPLER	t: Tara Meyers & China Oguoma	5AMPLER M	OBILE:	0410268727, 0434585693 RE	LINQUISH	D BY:		REC	EIVED BY:		R	ELINQUISHED BY:	RECEIVED BY:
	iled to ALS? ( YES / NO)	EDD FORMA			ana	1.(		2.403	- Carrier 5				DATE/TIME:
Email Rep	oorts to (will default to PM if no other address rs@wsp.com, china.oguoma@wsp.com, c	es are listed); eduardo.ruti laudio.vergara@wsp.com	ner@ws	p.com,	3PM	181	01/2	# DATE	E/TIME:		D	АТЕЛТИЕ:	DATE/TIME
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COMMEN	TS/SPECIAL HANDLING/STORAGE OR DIS	SPOSAL:						-					
ALS USE	SAMPLE DE MATRIX: SOLID (5)			CONTAINER INFORMA	ATION		ANALY Where Me	SIS REQUIR Itals are req	ED including Si uired, specify To	UITES (NB. 5 tal (unfiltered requir	bottle required	st be listed to attract suite price) () or Disselved (field filtered bottle	Additional Information
LABID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	(refer to	CONTAINERS	PFAS Ultra Trace	Water Quality Parameters NT 01 & 62 & pH	Dissolved Metals W-				Comments on likely contaminant levels, dilusions, or samples requiring specific QC analysis etc.
11	MWII6 19	5:30 16/0:/24	W			4	X	X	X				
12	WB20-6W06	16:10 16/01/29	W	h		4	X	X	X				
13	RI 01/160124	16:25 16/01/1	4 4			2	X						
14	HWHB1526M 7	00 17/01/22	W			4	×	X	×				
15	MWGW103D 8	40 17/01/24	N			4	X	X	X	-			Additional bottles
16	W818-GW03D	10:00 17/01/2	IW			6	X	X	×				for lab QA/Q
17	5NB18-GW05 1	0-30 17/01/29	N			4	X	×	×				Addition tottles for
18	200	19 17/01/15		V		6	X	×	×				1-10 1841/00
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				28586	TOTAL	52							
Water Cor	station Codes: P = Unpreserved Plastic; N = Nitrio fall HOI Preserved; VB = VOA Vial Sodium Bloulpha	: Preserved Plastic: ORC = No is Preserved; VS = VOA Vial Sc	nc Preser ulfuric Pre	ved ORC: SH = Sodium Hydroxide/Cd Presen- served; AV = Aidraight Unpreserved Vial SG =	vect. 5 = 50 = Sulfunic Pr	dum Hydrox reserved An	ios Preserved ber Glass; In	Plastic; AG × HCI presi	= Amber Gass erved Plastic, H	Unpreserved 5 = HCI pres	AP - Airfreight erved Speciatio	Unpreserved Plastic n bottle; SP = Sulfunc Preserved Plas	tic, F = Formaldehyde Preserved Glass;



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QWQU, CRISQ NG No Naming Street Wintergrang NGW 2665 Inn SQ 4515 ST 155 E. and Renting Street (SW)

FOR LABORATORY USE ONLY (Circle)

PROJECT: ORDER NU	WSP Spring Street, Porth PS202448	CONTACT	(Standard Ultra Tra ALS Q			ndard or urg	ent TAT (List	COC:	1 2	3 4	ER (Circle) 5 6 5 6	7 Random Sample Tempera	Yes No N s present upon Yes No N
SAMPLER:	Tara Meyers & China Oguoma	EDD FORM	IAT (or de	0410268727, 0434585693 fault):	RELINQUIS	M	kg (	RECE	EIVED BY:			DATE/TIME:	DATE/TME:
Email Repo	orts to (will default to PM if no other address@wsp.com, china.oguoma@wsp.com, ice to (will default to PM if no other address	, Claudio. vol gar algrandia.	41-17-	p.com, @wsp.com	DATE/TIME	3 PM	101/2	4 DATE	TIME:			ONTS/TORCE	2 2 2 2
111-11-11-11-11-11-11-11-11-11-11-11-11	IS/SPECIAL HANDLING/STORAGE OR D								ED including	SUITES IN	I. Suite Code	to must be fixted to attract suite pric	(e)
ALS USE	SAMPLE D MATRIX: SOLID (S			CONTAINER INF	ORMATION		Where Mr	etais are rec	uired, specify	Total (unlite	ered bottle res suived).	gured) or Dissolved (field litered b	Additional Information
LABID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	(refer to	CONTAINERS	PFAS Ultra Trace	Water Quality Parameters NT 01 & 02 & pH	Dissolved Metals W.		- /-		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
23	HWHB0057P PI03/180124 TBW167	12:00 18/01/	24 W			4	X	X	χ		-		
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Water Container Codes: P = Unpreserved Plastic; N = Natic Preserved Plastic; ORC = Natic Preserved ORC: SH = Sodium Hydroxide Preserved; 5 = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic V = VOA Vial HCI Preserved; VB = VOA Vial Sodium Bouldhafe Preserved; AV = Arrivinght Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCI preserved Plastic: HS = HCI preserved Speciation bottle: SP = Sulfuric Preserved; VB = VOA Vial Sodium Bouldhafe Preserved; AV = Arrivinght Unpreserved Vial SG = Sulfuric Preserved; VB = VOA Vial Sodium Bouldhafe Preserved; AV = Arrivinght Unpreserved; AV = Arrivinght Unpreserved; VB = VOA Vial Sodium Bouldhafe Preserved; AV = Arrivinght Unpreserved; AV = Arr Z = Zinc Apelato Preserved Bottle: E = EDTA Preserved Bottle; ST = Sterile Bottle: ASS = Plantic Bag for Acid Subnate Soite: B = Unpreserved Bag.

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ALS Laboratory: please tick >

DADELAIDE 21 Burma Road Pooraka SA \$095 Ph; 08 8359 0890 E; adelaide:@alsolobal.com

DBRISBANE 2 Byth Sheet Stafford QLD 4053
Ph. 07 3243 7222 E. samples brisbane@alsglobal.com

DIGLADSTONE 46 Callemondsh Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com DMACKAY 78 Harbour Road Mackay OLD 4740 Ph. 07 4944 0177 E: mackay@atsolobal.com

EMELBOURNE 2-4 Westall Road Springvale VIC 3171
Phr 03 8549 9600 E. samples methourne @alzofobsl.com

DMUDGEE 1/29 Sydney Road Mudgee NSW 2650 Ph. 02 6372 6735 E. mudgee.mai@alsglobel.com DNEWCASTLE 5 Rose Gum Road Warabrock NSW 2304 Ph; 02 4968 9433 E. samples newcaste@a/sglobal.com

DNOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E\_nowra/Galsolobal.com

©PERTH 10 Hod Way Malaga, WA 8090 Ph: 08 9209 7655 E: samples perth@alsglobal.com DSYDNEY 277-289 Woodpark Road Smithfeld NSW 2164 Phr 02 8784 8555 E. samples sydney@alsolobal.com

ČTOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07-4796 0600 E. towneswike.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong ∑alsglobal.com



CLIENT: Golder Associat	es WA		1	TURNAROUND REQUIREMEN	πs: ☐ Standard - 5 d	ay TAT						FOR	ABGRATORY USE C	NLY (Circ	la)				
OFFICE/Site: Mount Wha	leback Mine	SITE CODE: (104	sve blank) (Standa	ard TAT may be longer for som Ultra Trace Organics)	e tests eg.	TAT (List due d	ate);					Custo	dy Seal Infact?			Yes	No	N/A	
PROJECT Program Gode	= +3134766 PS2024	48 (Not for EDM:	s)	ALS QUOTE NO.:					COC SEQUE	NCE NUMBER	(Circle)	Free is	ce / frozen icebricks pr	ssent upon	receipt?	Yes	No	N/A	
PURCHASE ORDER:	•		_	ALS Project Manager:	Kelly Schafer +61 7 4978 7944			coc:	O 2	3 4	5 6	7 Rando	om Sample Temperatu	re on Recei	pt		'C		
PROJECT MANAGER:	Christian Budinsulfono Should	hrde con	ITACT PH: 08 9213 7	7414 shave-hyde	Qusp com			OF:	<u>)</u> 2	3 4	5 6	7 Other	comment:	•			•		
SAMPLER:	Shina Ogazonia: Tara Mayera Yvelte	Feng SAM	IPLER MOBILE: 043	45 <del>36635,</del> US107 <del>83727 (***</del> <del>121673164</del> ———		JISHEO BY:	_	/	EBBY:		RE	LINQUIS	HED BY:			RECEIVED BY	<b>'</b> :		
COC emailed to ALS? ()			FORMAT for default	tt): BMA Envirosys	[ve	ette t	eng	6/	7										
Email Reports: christian.	budimuljano@wsp.com; <del>china ogusmat</del>	21/sp.com, tare meyer	e@wsp.com 5hl	ane.hyde or w	DATE/TH	ME:		DATE	iýe: //	127		телпме:				DATE/TIME:			
Email Involce: auaccount	Is@golder.com.au	Feng &	usp.wa	•	7/6	123	1650	<u>' 161</u>	<u> </u>	124	(0								
COMMENTS/SPECIAL H.	ANDLING/STORAGE OR DISPOSAL:					•		- 1					75						
ALS USE ONLY			SAMPLE	DETAILS				ANALYSIS	REQUIRED	includ <b>ing</b> Si	UITES		S Reference	i Data		Additiona	I Information		
, LAB ID	SAMPLE ID	DATE / TIM	ИЕ МАТІ	RIX SUBMATRIX [Do not change this column)	CONTAINER TYPE & PRESERVATIVE (refer to codes below)	TOTAL NO. CONTAINERS	PFAS Extended Suite (Ultra Trace)	WYCEU (5	TRH (Cb.C40) (EPOSQUETT)	Natural Attendation Indicators (Ne. 20)	Nutrioning (DEATS)	Total Colifornia (E.	physical phy	pH (pH units)	Free Chlorino (mg/L)	- Comments on I dilutions samples	kely contamin for QC analys	ation. is etc.	
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3	EEG 0917DM/5 HWHB 1547M NUGW 103D	00201,22	46/23099	25 ADHOC		4	X	Х					Х				·		
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Water Container Codes: P = Unpreserved Plastic; N = Ninc Preserved Plastic: ORC = Ninc Preserved ORC; SH = Sodium Hydroxide/Cd Preserved Plastic S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic

V = VOA Vial HCI Preserved; VB = VOA Vial Socikum Bisulphate Preserved; VS = VOA Vial Sulphate Preserved VB = VOA Vial Sulphate Preserved Plastic; F = Formaldehyde Preserved Dissis; F = Forma

Z = Zine Acetate Preserved Bottler, E = EDTA Preserved Bottles: ST = Sterile Bottle: ASS = Plastic Bag for Acid Sulphate Solls: B = Unpreserved Bag.



ALS Laboratory: please tick →

DADELAIDE 21 Burma Road Pooraka SA 5095 Pn: 08 8359 0890 E: adolaide@alsglobal.com

DRISBANE 32 Shand Sireot Stafford O.D. 4.063 Ph. 07 3243 7222 E. samples.brisbane@alsglobal.com GBLAQSTONE 46 Callemordal Drive Cirilon QLD 4680 Ph. 07 7471 5600 E. gladstone@alsglobal.com

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ФМЕLBOURNE 2-4 Westall Rood Springvale VIC 3171 Ptr 03 8549 9000 E: samples melbourne@alaylobal.com В мирове 27 Sydney Road Mudgee NSW 2500 Ptr 02 6372 6735 E: mudgee.mai@alaylobal.com

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Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
DSYDNEY 277-289 Woodpark Road Smithfield NSW 2164
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CINOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

DTOWNSVILLE 14-15 Desma Court Boble QLD 4818 Ph: 07 4796 0600 E: townsville environmental@alsg/obal.com □WOLLONGONG 99 Kenny Street Wollongong N\$W 2500 Ph: 02 4225 3125 E; portkembla@alsgfobal.com

CLIENT: 1	7 7471 5600 E: gladstene@afsglobal.com	⊔MUDGEE 27 Sydney Road Mudgee NSW 2 Ph: 02 6372 6735 E: mudgee mail@alsglobal	2850 J.com		<b>□</b> PEF	TH 10 H	nd Way t	Mafana	MATA ROY	obal.com p 90 Isglobal.com
OFFICE: Spring 57 Perth PROJECT: PS202448	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)  ALS QUOTE NO.:	Standard TAT (List due date):     Non Standard or urgent TAT (List due	e date):							FOR LABORAT Custody Seal Intac
ORDER NUMBER:	ALO GOOTE NO.:	<u>.                                    </u>	coc:	COC SEC	QUENCE	NUMBI	ER (C	ircle)		Free ice / frozen ic receipt?
PROJECT MANAGER: Eduardo Ruther  SAMPLER: Sachin Brennan SAMPLER:			OF:	1 (2	, (	4	5 #	6		Random Sample 1
COC emailed to ALS? ( YES ) NO) EDD FORMA	T for defects For the	RELINQUISHED BY: Sachin Brennan	RECE	IVED BY				<del>-</del>		Other comment: NQUISHED BY:
Email Reports to (will default to PM if no other addresses are listed): sachin.bren pablo.ortega@wsp.com, eduardo.ruther@wsp.com, Chika bquar Email Invoice to (will default to PM if no other addresses are listed): AU.Accounts	nnan@wsp.com, daniel.kriel@wsp.com,	DATE/TIME:	DATE	TIME:	<i>(</i>	11		1	DATE	/TIME:
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:			1	16/6	·	1/9.	<u>~</u>			<del></del>

Environmental Division Perth Work Order Reference EP2308079



ALS USE	SAMPLE D MATRIX: SOLID (	DETAILS S) WATER (W)	· ——	CONTAINER INFOR	MATION		AN Wher	ALYSIS REQ	UIRED includi required, specil	y rotal (um	NB. Suite Cod Itered bottle re equired).	es must be liste quired) or Disse		elephone: 61-8-9466 1301
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE codes below)	(refer to	TOTAL	PFAS ultra trace fong suite (EP231X-SUT)	Anter quality parameters NT- M & 02 and pH (EA005; pH).	ital metal W-03T					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
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We VOA Vial HCI Preserved Plastic; New Hinder reserved Plastic; Once Nitrochreserved Once; Shield Sulfuric Preserved Vial Sodium Bisulphate Preserved Plastic; Once Nitrochreserved Once; Shield Sulfuric Preserved Vial Sodium Bisulphate Preserved Plastic; Once Nitrochreserved Once Shield Sulfuric Preserved Vial Sodium Bisulphate Preserved Plastic; Once Nitrochreserved Vial Sodium Bisulphate Preserved Vial Sodium Bisulphate Vial Sodium Bisulphat



1013 CSG120219 BFG1391R

**CHAIN OF** CUSTODY

QADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 F: adelaide@alsolobal.com

10,20 1

BRISBANE 32 Shand Street Stafford OLD 4053

DMACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

DMELBOURNE 2-4 Westall Road Springvate VIC 3171 Ph. 03 8549 9800 E. samples, melbourne@alsolobal.com

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Phy 07 4014 2506 F : samples newcastle@alsolobal.com
Phy 07 4014 2506 F : samples newcastle@alsolobal.com
Phy 02 6784 8555 E: samples sydney@alsolobal.com Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

QNOWRA 4/13 Geary Place North Nowra NSW 2541

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Ph: 07 4796 0600 E: townsville.environmental@alsolobal.com

	(ALS) ronmental			6 Callemondah Drive Clinton OLD 4680 E: gladstone@alsglobal.com	ОМU <b>С</b> Рн: 02	DGEE 27 Sydney 2 6372 6735 E: m	Road Mudgee NS rudgee.mail@alsgl	SW 2850 lobal.com		PERTH 10 Hoo h: 08 9209 765	Way Malaga E: samples.p	WA 6090 erth@alsglobal.com	DWOLLONG Ph: 02 4225	GONG 99 Kenny Street Wollongong NSW 2500 3126 E: portkernbla@alsglobal.com
CLIENT:	Idsp			AROUND REQUIREMENTS :	⊠ Stand	lard TAT (List	t due date):					FOR LABO	RATORY USE OF	VLY (Circle)
OFFICE:	Springs	Street Pert	(Standa Ultra Tri	rd TAT may be longer for some tests e.g ace Organics)	□ Non S	tandard or un	gent TAT (List	due dat	te):			Custody Seel	Intact? zen ice bricks present	Yes No N/A
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ORDER N		(					·	co	C: 1 🗿	3 4	5 6	18 1 1943	iple Temperature on I	Receipt. C
PROJECT	MANAGER: Eduardo Ruthe	·						Of		3 4	5 6	7 Other comme		
SAMPLER	: Sachin Brennan			0409 707 059	RELINQUI	SHED BY: S	achin Brenna	an RE	CEIVED BY:			RELINQUISHED	BY:	RECEIVED BY:
	led to ALS? ( YES / NO)		•	efault): ESDAT	4	_	1 ~	- I		-				
pablo.orte	ga@wsp.com, eduardo.ruth	other addresses are listed): sachin er@wsp.com / Chr.R-09W	011/4@	wsp. com	DATE/TIME	E: 15~	56-2	DA C	TE/TIME:			DATE/TIME:		DATE/TIME: .
Email Invo	ice to (will default to PM if no	other addresses are listed): AU.Acco	untsPayabl	e@wsp.com	<u> </u>							<u> </u>		
COMMENT	rs/special handling/sto	RAGE OR DISPOSAL:												
ALS USE		SAMPLE DETAILS IX: SOLID (S) WATER (W)		CONTAINER INFO	RMATION		ANALYS Where Me	SIS REQU etals are r	JIRED Including equired, specify t	SUITES (NB. otal (unfiltere requi	d bottle requi	must be listed to attra red) or Dissolved (fig	act suite price) eld filtered bottle	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE cades below)	(refer to	TOTAL	PFAS ultra trace long sulfa (EP231X-SuT)	Water quality parameters NT- 01 & 02 and pN (EA005; pH)	Total metal W-03T					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
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16	MADI	14/6/23 7:	50 W			4	×	<u>×</u>	X					
17	HWHB1551		40 W			4	Х	木	×					
18	QA03		40 KJ			4	<u>'</u> ×	~	×					Extra AGAS \$100

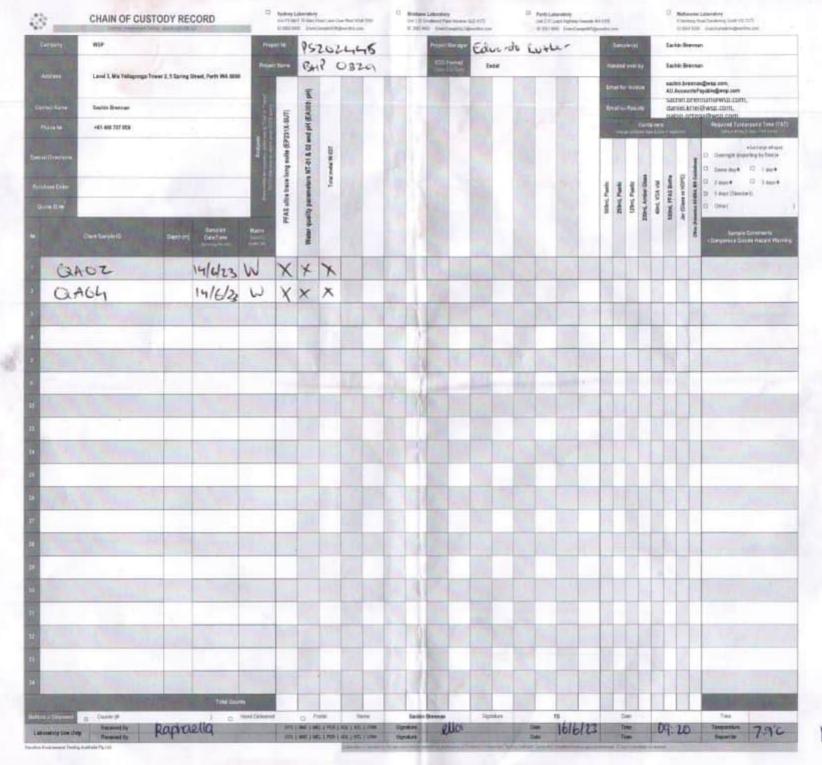
42 TOTAL Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Pre Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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X



ALS
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ALS Laboratory: please tick →

Email Reports to (will default to PM if no other addresses are listed): eduardo.ruther@wsp.com,

tara.meyers@wsp.com, china.oguoma@wsp.com, daniel.kriel@wsp.com Pablo.Ortega@wsp.com

Email Invoice to (will default to PM if no other addresses are listed); AU.AccountsPayable@wsp.com

□ADELAIDE 21 Burma Road Pooraka \$A 5095 Ph: 08 8350 0900 E: adelaide@alsglobal.com □BRISBANE 32 Shand Street Stafford OLD 4053 Ph: 07 3243 7222 E: samples.bisbone@alsglobal.com

□GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph; 07 7471 5600 E: gladstone@alsglobal.com DMACKAY 78 Herbour Road Mackay QLD 4740
Ph: 07 4944 0177 E. mackay@alsglobal.com

EIMELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E; samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com □NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph; 02 4014 2500 E: samples newcastle@alsglobel.com

□NOWRA 4/13 Geary Place North Nowra
Ph: 024423 2063 F: nowra@alsglobal.cor

□PERTH 10 Hod Way Mataga, WA 6090° Ph. 08 9209 7655 E: samples, perth@atag

DATE/TIME:

2:00

Environmental Division Perth

Work Order Reference EP2308844



Telephone - -- 61-8-9406 1301

\* Bohle QLD 4818 mental@alsglobal.com Wollongong NSW 2500

	1
No	N/A
No	· N/A
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D BY:

IE:

□SYDNEY 277-289 Woodpork Road Smithfield NSW 2164 Ph; 02 8784 8555 E; samples.sydney@plsglobal.com

TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date): CLIENT: WSP (Standard TAT may be longer for some tests e.g., ☐ Non Standard or urgent TAT (List due date): OFFICE: WSP Spring Street, Perth Ultra Trace Organics) COC SEQUENCE NUMBER (Circle) PROJECT: PS202448 ALS QUOTE NO.: GOC: 1: 2 3 4 ORDER NUMBER: CONTACT PH: +61 8 9213 4849 PROJECT MANAGER: Eduardo Ruther RELINQUISHED BY: RECEIVED\_BY: SAMPLER MOBILE: 0410268727, 0434585693 SAMPLER: Tara Meyers & China Oquoma EDD FORMAT (or default): COC emailed to ALS? ( YES / NO)

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETA MATRIX: SOLID (S) W			CONTAINER INFORMATION	÷	ANAL Where N	YSIS REQUIR letals are requ	ED including ared, specify	SUITES (NB. Suite Codes must Total (unfiltered bottle required) of required).	be listed to attract suite price) or Dissolved (field filtered bottle	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL	PFAS Ultra Trace	Water Quality Parameters NT 01 & 02 & pH	Dissolved Metals W-			Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
${I}$	WB15-6W030 2	16/23 14:40	W		4_	χ	Χ	X		<u> </u>	
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9	R101/270623 27/6	123 16-30	W		2	X	<u> </u>	. <u>.</u>			
	WB26-GW04 28/6		W		14	×	X	×_			
6	QX01/280623	28/6/23	M		4	<u> </u>	<u> </u>	$\prec$			Add notal bottler for
7	HWMB00608 28/6/	13 8.30	W		4	×	入				Jah QA/QC
8	MW MB 1551M 28/6	123, 8:45	W		6	_X	X	<u>X</u>			η , η
	WBC5GW0219 28/0		W		4		X	メ			1034.50° 21.41 12.450.60
	MWMB00518 28/0		W		6	X	X	X			Additional bottles for
11	HWHBISZIM 28/6	0/23 11-15	W		i.		X	X			
12	EEG1391 RM 28/06/		I		14	X	X	X			
				TOTAL	52						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved; AP - Airfreight Unpreserved Plastic; N = Nitric Preserved Plastic; N = N

	-	<b>A</b>
		(ALS)
124	nr:	ಚನದ ಗಾಗಾ ಅಗತವಿಸಿ

ALŚ Laboratory: please tick → DADELAIDE 21 Burma Road Pooraka SA 5095
Ph: 08 8359 0890 E: adalaide@alsglobal.com
DRISBANE 32 Shand Street Stafford OLD 4053

Ph: 07 3243 7222 E; samples brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Clinton CLD 4680

Bb: 07 7471 5500 E; oladstone@alsglobal.com

DMACKAY 78 Harbour Road Mackay QLD 4740
Ph: 07-4944-0177 E; mackay@alsqlobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph; 03 8549 9600 E: samples.melbourne@atsglobal.com

DMUDGEE 27 Sydney Road Mudgee NSW 2850 Ph; 02 6372 6735 E; mudgee.mat@alsglobal.com DNEWCASTLE 5/655 Mailtand Rd Mayfield West NSW 2904 Ph: 02 4014 2500 E. samples.nowcastle@alsgobat.com DNOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2058 E; nowr@alsgobat.com

©PERTH 10 Hod Way Malege WA 6090 Ph; 08 9209 7655 E; samples.perth@alsglobal.com DISYONEY 277-280 Woodpark Road Smithfield NSW 2184
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
DTOWNSVILLE 14-15 Dösma Court Bohle QLD 4818
Ph: 07 4798 0600 E: townsville environmental@alsglobal.com

DWOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E; porlkembla@alsglobal.com

	please tick →	FII. 07 743 1 304		ROUND REQUIREMENTS:	☐ Stendar	d TAT (List	due date):						FO	R LABORATO	RY USE ONL	Y (Circle)	
LIENT:			(Standard	TAT may be longer for some tests e.g	-	· -		t due date):						tody Seal Intact?		Yes	No N/A
	WSP Spring Street, Perth			ce Organics)				T	COC SEQU	ENCE NUM	ABER (	(Circle)		e ice / frozen ice i cipt?	bricks present up	pon Yes	No N/A
	: PS202448		<u> </u>					coc:	1 2	3 4	1 5	6	1	ndom Sample Ter	mperature on Re	ceipt:	·C·
RDERN		CONTACT PH	1: +61 8	9213 4849		<u> </u>		OF:	. 1 2	3 4	4 5	6	7 Oth	er comment:			
	MANAGER: Eduardo Ruther			0410268727, 0434585693	RELINQUIS	HED BY:		RECE	IVED BY:				RELINQ	VISHED BY:		RECEIVED BY	r:
	t: Tara Meyers & China Oguoma	EDD FORMAT			tin	$\alpha \gamma \gamma$	h										
	iled to ALS? ( YES / NO) orts to (will default to PM if no other addresses	are listed); eduardo ruth	er@wst	o.com.	DICTE/TIME:	· , ,		DATE	TIME:				DATE/TI	ME:		DATE/TIME:	•
ara meve	rs@wsp.com, china.oguoma@wsp.com, da	niel.kriel@wsp.com Pabl	o.urteg	a@wsp.com	191	4/2	3:	00									
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OMMEN	TS/SPECIAL HANDLING/STORAGE OR DISF	POSAL:	_						·		_						
ALS USE	SAMPLE DETA MATRIX: SOLID (S) W			CONTAINER INFO	ORMATION		ANALY Where Me	SIS REQUIRI etals are requ	ED including ired, specify	Total (unfil	NB, Suite Itered bo equired).	attie requ	must be lis ired) or Dis	ted to attract suite solved (field filter	red bottle	Additional	Information
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			v	,		TOTAL	PFAS Ultra Trace	Water Quality Parameters NT 01 8 02 & pH	Dissolved Metals W				ļ		c	omments on likely cor	ntaminant levels.
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVAŢIVE codes below)	(refer to	TAIN	Itra	tualii ters I	N pa							lutions, or samples re nalysis etc.	quiring specific QC
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24	HWHB1526m 291	6/23 12:45	W			4		_X_	×-	_	-	_					
7.00			Ne (34/5) 200		TOTAL	42					-				<u> </u>		<u> </u>

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; N = Nitric Preserved Plastic; F = Formeldehyde Preserved Glass; V = VOA Vial HCi Preserved; VS = VOA Vial Sodium Bisulphate Preserved Plastic; F = Formeldehyde Preserved Glass; N = HCI preserved Plastic; HS = HCI preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formeldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

# Appendix B

Laboratory results



Table - Analytical Results- GM01-GM10\_Corrected\_052024

BHP. Whaleback



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EQL PFAS NEMP 2.0 2020 95%	Eco Erech Water			1	1	1	1	1	1	0.0005	0.0002	0.0005	0.0002	0.0002	0.0002	0.002	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001 0.	05 (	0.05 0.0001	
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Location Code EEG0917DM	Field ID EEG0917DM/50020623	Date 02 Jun 2023	Lab Report Number FP2307401	42	70	4	39	32	94	<0.0005	0.0003	<0.0005	0.0003	0.0003	0.0003	<0.0020	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	0.021	<0.001	<0.001 0	15 (	0.18 <0.0001	11
		01 Jun 2023	EP2307401010	59	72	5	65	57	75	<0.0005	0.0004	0.0011	0.0015	0.0042	0.0042	<0.002	0.0012	<0.0005	0.001	<0.0005	<0.001	< 0.001	<0.001	<0.001	<0.001	<0.001	0.01	0.009	<0.001	<0.001 0.	19 (	0.19 <0.0001	1
		14 Jun 2023 28 Jun 2023	EP2308079020 EP2308844012	49 66	62 69	5 4	39 62	42 58	56 88	<0.0005 <0.0005	0.0005 0.0005	0.001	0.0015 0.0017	0.003	0.003	<0.002	0.0007	<0.0005	0.0008	<0.0005 <0.0005	<0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.008		<0.001		0.16	-
		12 Jul 2023	EP2309615012	62	74	5	66	63	85	<0.0005	0.0008	0.001	0.0018	0.0028	0.0028	< 0.002	< 0.0005	<0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	<0.001	<0.001		<0.001		0.008		<0.001	(	0.17	
EEG1391RM	EEG1391RM	26 Jul 2023 09 Aug 2023	EP2310242012 EP2311014020	78 85	72 74	5	70 70	64 64	89 124	<0.0005 <0.0005	0.0008	<b>0.0009</b> <0.0005	0.0017	0.0031	0.0031	<0.002	<b>0.0007</b> <0.0005	<0.0005 <0.0005	<b>0.0007</b> <0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.008		<0.001		0.18	-
		11 Oct 2023 22 Nov 2023	EP2314412018 EP2316729010	37.5 84	79 77	4 5	72 68	63 68	139 136	<0.0005 <0.0005	<0.0002 <0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002 <0.002	<0.0005 <0.0005	<0.0005	<0.0005 <0.0005	<0.0005 <0.0005	<0.001 <0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.009		<0.001		0.14 0.18	_
		13 Dec 2023	EP2317978016	78	75	5	72	68	136	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	< 0.001		<0.001		0.009		<0.001		0.19	_
		18 Jan 2024 28 Jun 2023	EP2400745007 EP2308844010	79 67	73 70	5	71 65	68 61	136 97	<0.0005	<0.0002 0.002	<0.0005 0.0022	<0.0002 0.0042	<0.0002 0.0064	<0.0002 0.0069	<0.002	<0.0005 0.0008	<0.0005	<0.0005 0.0008	<0.0005 0.0006	<0.001	< 0.001	<0.001	<0.001		<0.001		0.011		<0.001		0.21	_
		12 Jul 2023	EP2309615010	63	72	4	66	62	94	<0.0005	0.002	0.0024	0.0044	0.0062	0.0062	<0.002	0.0009	<0.0005	0.0009	< 0.0005	< 0.001	<0.001	<0.001	<0.001		<0.001		0.013		<0.001	(	0.17	
		26 Jul 2023 09 Aug 2023	EP2310242010 EP2311014017	75 73	70 70	4	65 64	62 62	91 98	<0.0005	0.0019	0.0021	0.004	0.0058	0.0058	<0.002	0.0009	<0.0005	0.0009	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.011		<0.001		0.16	-
HWHB0051P	HWHB0051P	11 Oct 2023	EP2314412015	30.5	74	4	69	59	106	<0.0005	0.0018	0.002	0.0038	0.0069	0.0069	<0.002	0.001	0.0007	0.0009	< 0.0005	<0.001	< 0.001	<0.001	<0.001		<0.001		0.012		<0.001	(	0.14	
		22 Nov 2023 13 Dec 2023	EP2316729008 EP2317978014	70 64	73 71	5	63 66	66 64	103 95	<b>0.0011</b> <0.0005	0.0033	0.0023	0.0056	0.0226	0.0238	<0.002 <0.002	0.0066 0.0011	<b>0.0025</b> <0.0005	0.0061	0.0007	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		<0.001		0.014		<0.001 <0.001		0.19	$\dashv$
		17 Jan 2024	EP2400745022	61	70 68	4	67 58	63 47	103	<0.0005	0.0019	0.0025	0.0044	0.0081	0.0081	<0.002	0.0012	0.0006	0.0013	0.0006	<0.001	<0.001	<0.001	<0.001		<0.001		0.013		<0.001	(	0.22	4
HWHB0057P	HWHB0057P	11 Oct 2023 22 Nov 2023	EP2314412013 EP2316729005	24 52	68 62	5	58 51	49	118 109	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005 <0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.024 0.023		<0.001	(	0.18 0.22	$\exists$
		13 Dec 2023 18 Jan 2024	EP2317978010 EP2400745023	49 52	62 62	5	52 55	49 49	106 108	<0.0005	<0.0002 <0.0002	<0.0005 <0.0005	<0.0002	<0.0002	<0.0002	<0.002 <0.002	<0.0005 <0.0005	<0.0005 <0.0005	<0.0005 <0.0005	<0.0005	<0.001 <0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.024		<0.001		0.22 0.26	$\dashv$
		28 Jun 2023	EP2308844007	60	80	5	60	49	110	<0.0005	<0.0002	<0.0005	0.0005	0.0005	0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.021		<0.001	(	0.18	_
		12 Jul 2023 26 Jul 2023	EP2309615006 EP2310242006	56 64	78 77	5	55 60	48 49	107 106	<0.0005 <0.0005	<0.0002 <0.0002	<0.0005 <0.0005	<0.0002 <0.0002	<0.0002 <0.0002	<0.0002 <0.0002	<0.002 <0.002	<0.0005 <0.0005	<0.0005 <0.0005	<0.0005 <0.0005	<0.0005 <0.0005	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		<0.001		0.021		<0.001 <0.001		0.16	$\dashv$
HWHB0060P	HWHB0060P	09 Aug 2023	EP2311014012	61	73	5	54	46	108	<0.0005	<0.0002	<0.0005	< 0.0002	<0.0002	< 0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	< 0.001	<0.001	<0.001		<0.001		0.02		<0.001	(	0.11	
		11 Oct 2023 22 Nov 2023	EP2314412010 EP2316729006	23.5 54	75 63	5	56 54	45 50	112	<0.0005 <0.0005	<b>0.0006</b> <0.0002	<0.0005	<b>0.0006</b> <0.0002	0.0006 <0.0002	<b>0.0006</b> < 0.0002	<0.002	<0.0005	<0.0005 <0.0005	<0.0005 <0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.018		<0.001 <0.001		0.15	$\dashv$
104/10445484	HWHB1151M	13 Dec 2023	EP2317978008 EP2308079	51 72	62 84	5	53 54	48 52	108 135	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	< 0.0002	< 0.002	<0.0005	<0.0005	<0.0005	<0.0005	< 0.001	< 0.001	<0.001	< 0.001		<0.001		0.024		<0.001		0.22	_
HWHB1151M	HMHBIISIM	14 Jun 2023 01 Jun 2023	EP2307401008	53	72	4	67	58	73	0.0006	0.0022	0.0041	0.0063	0.0227	0.0236	0.004	0.0046	0.0021	0.0039	0.0012	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	0.016	0.009	<0.001	<0.001 0.		0.24	/1
		14 Jun 2023 28 Jun 2023	EP2308079022 EP2308844011	56 62	72 71	4	68 70	61 61	75 90	0.0006	0.0023	0.0041	0.0064	0.0217	0.0226 0.0236	0.0035	0.0039	0.0018	0.0044	0.0011 0.0011	<0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.009		<0.001 <0.001		0.18	4
		12 Jul 2023	EP2309615013	58	74	4	70	65	75	0.0007	0.0025	0.0039	0.0064	0.0219	0.0226	0.0034	0.0041	0.002	0.0047	0.0011	<0.001	<0.001	<0.001	<0.001		<0.001		0.01		<0.001	(	0.18	
HWHB1521M	HWHB1521M	26 Jul 2023 09 Aug 2023	EP2310242013 EP2311014019	68 70	71 71	4	68	63 62	88 90	0.0006 <0.0005	0.0024	0.0037	0.0061	0.0216 0.0186	0.0224	0.0036	0.004	0.0017 0.0016	0.0045	0.0011	<0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.012		<0.001		0.19	-
		11 Oct 2023	EP2314412017	27	73	4	68	58	97	<0.0005	0.0024	0.0034	0.0058	0.0185	0.0192	0.0033	0.0036	0.0017	0.0031	0.001	<0.001	< 0.001	<0.001	<0.001		<0.001		0.013		<0.001	(	0.16	_
		22 Nov 2023 13 Dec 2023	EP2316729009 EP2317978017	52 56	72 71	4	63 66	66 64	91 87	<0.0005 0.0006	0.0019 0.0021	0.0025	0.0044 0.0051	0.0166 0.0169	0.0174 0.0175	0.0024	0.0032	0.0013 0.0013	0.0036 0.0025	0.0012 0.0011	<0.001	<0.001	<0.001	<0.001		<0.001		0.014 0.012		<0.001		0.2	$\dashv$
		18 Jan 2024 01 Jun 2023	EP2400745008 EP2307401013	56	68	4	66	62	88	0.0032	0.0032	0.0032	0.0032	0.0024	0.003	0.0024	0.0032 0.0571	0.0032	0.0032	0.0032	0.003	0.003	<0.001	<0.001	-0.001	<0.001	0.05	0.014	-0.001	<0.001	_	0.24 0.48 <0.0001	
		14 Jun 2023	EP2308079003	338 325	258 256	4	144 144	118 120	552 534	0.0029	0.0021 0.0016	0.0292	0.0421	0.198 0.129	0.212	0.0111	0.0371	0.011	0.0256 0.0174	0.0161	<0.001	0.017	<0.001	<0.001	<0.001	<0.001	0.05	0.038	<0.001	<0.001		0.44	
		29 Jun 2023 13 Jul 2023	EP2308844024 EP2309615022	319 312	256 266	4	146 142	124 125	522 520	0.0026	0.0011 0.0012	0.0257 0.0243	0.0268 0.0255	0.116 0.111	0.127 0.122	0.0066 0.0078	0.0296 0.0257	0.006	0.0162 0.0162	0.0146 0.0132	<0.001	0.014	<0.001	<0.001		<0.001		0.033		<0.001		0.45	-
HWHB1526M	HWHB1526M	27 Jul 2023	EP2310242015	340	252	4	144	121	536	0.0021	0.0018	0.0212	0.023	0.109	0.119	0.0074	0.0276	0.0064	0.0166	0.0128	<0.001	0.013	<0.001	< 0.001		<0.001		0.035		<0.001	(	0.46	_
		08 Aug 2023 10 Oct 2023	EP2311014004 EP2314412006	330 157.5	244 254	4	132	118	558 553	0.0017	0.0008	0.0177	0.0185	0.0816	0.0891	0.0056	0.0216 0.0185	0.0049	0.0112	0.0101	<0.001	0.008	<0.001	<0.001		<0.001		0.032		<0.001		0.44	-
		14 Dec 2023	EP2317978023	346	247	4	129	116	500	0.0022	0.0011	0.0178	0.0189	0.0764	0.089	0.0056	0.0181	0.0045	0.0097	0.0094	<0.001	0.008	<0.001	<0.001		<0.001		0.031		<0.001		0.5	
		17 Jan 2024 01 Jun 2023	EP2400745014 EP2307401	315 137	237 70	4 5	126 44	113 18	494 92	0.0024 0.0191	0.001	<b>0.0208</b> <0.0005	0.0218	0.0849	0.0924	0.0066 0.0173	0.0189	0.0054	0.0138	0.009	<0.001	0.007	<0.001	<0.001	0.004	<0.001 0.002	0.036	0.034	<0.001	<0.001 <0.001 <b>0.</b>	_	0.53 0.47 <0.0001	1
HWHB1547M	HWHB1547M	14 Jun 2023	EP2308079	112	51	5	43	17	74	0.015	0.0012	<0.0005	0.0012	0.052	0.0541	<0.002	0.0067	0.0044	0.0087	<0.0090	<0.001	0.016	<0.001	< 0.001		0.004		0.03		<0.001		0.62	
		28 Jun 2023 12 Jul 2023	EP2308844008 EP2309615008	68 61	78 74	6	60 56	52 50	119 109	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.009		<0.001 <0.001		0.24	$\dashv$
		26 Jul 2023 09 Aug 2023	EP2310242008 EP2311014014	64 61	70 68	5	57 52	49 47	99 108	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005 <0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.011		<0.001 <0.001		0.18	_
HWHB1551M	HWHB1551M	11 Oct 2023	EP2314412012	39.5	69	5	57	45	108	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.012		< 0.001	(	0.17	
		22 Nov 2023 13 Dec 2023	EP2316729003 EP2317978009	71 72	77 84	5	54 55	53 55	121 137	<0.0005 0.0035	<0.0002	<0.0005	<0.0002	<0.0002 0.0084	0.001	<0.002	<0.0005 0.0007	<0.0005	<0.0005 0.0006	<0.0005 <b>0.0006</b>	<0.001	<0.001	<0.001	<0.001		<0.001		0.012		<0.001 <0.001		0.25	-
		18 Jan 2024	EP2400745010	76	82	6	56	53	143	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	< 0.0002	<0.002	<0.0005	<0.0005	< 0.0005	< 0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.003		<0.001	(	0.31	コ
		14 Jun 2023 28 Jun 2023	EP2308079002 EP2308844013	66 87	188 182	14 14	47 49	54 54	220	0.0006 0.0009	0.0051 0.0052	0.0026 0.0024	0.0077	0.01 0.0124	0.01 0.0124	<b>0.012</b> <0.002	<0.0005 0.0007	<0.0005 0.0016	0.001 0.001	0.0007 0.0006	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	+	<0.001		0.282		<0.001 <0.001		0.39	_
		12 Jul 2023 27 Jul 2023	EP2309615014 EP2310242017	77 83	201 179	15 15	49 47	56 53	236 230	0.0007 0.0006	0.0049 0.0048	0.0028 0.0023	0.0077	0.0114 0.0108	0.0114 0.0108		0.0006	0.0006 0.0006	0.0012 0.0013	0.0006 0.0007	<0.001	<0.001	<0.001	<0.001		0.002 0.002		0.261 0.331		<0.001	(	0.42	7
MW116	MW116	08 Aug 2023	EP2311014005	94	181	14	46	54	246	0.0008	0.005	0.0009	0.0059	0.009	0.009	0.0078	<0.0005	0.0006	0.0012	< 0.0005	<0.001	< 0.001	<0.001	<0.001		0.002		0.339		<0.001	(	0.34	コ
		10 Oct 2023 23 Nov 2023	EP2314412004 EP2316729013	41 93	187 197	14 14	51 46	55 59	237 248	<0.0005 0.0012	0.0046 0.0061	0.002	0.0066	0.0084	0.0084		<0.0005 0.0012	0.0005	0.0007 0.0026	0.0006	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		0.003		0.149		<0.001 <0.001		0.4	$\dashv$
		14 Dec 2023	EP2317978024	102	197	16	48	61	239	0.0014	0.0055	0.0028	0.0083	0.0252	0.0262	0.0059	0.0029	0.0023	0.0035	0.0009	<0.001	<0.001	<0.001	<0.001		0.004		0.212		<0.001	(	0.48	コ
	1	16 Jan 2024 02 Jun 2023	EP2400745011 EP2307401005	99 87	178 63	16 2	48 183	59 106	232 464	0.0014 0.0308			_	0.0211 1.96	0.0211 2.06		0.0018 0.502	0.0016	0.0032 0.561	0.0008	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001	<b>0.005</b> < 0.001	0.043	0.183	<0.001	<0.001 <0.001 <b>0.</b>		0.5 0.14 <0.0001	/1
		15 Jun 2023 28 Jun 2023	EP2308079007 EP2308844014	89 101	60 59	2 2	182 169	109 104	435 422	0.0303 0.032	0.0167	0.327		2.33 2.12	2.42	0.246	0.63 0.446	0.255 0.234	0.735 0.731	0.087	<0.001	<0.001	<0.001	<0.001		<0.001		0.037		<0.001 <0.001	(	0.12 0.14	7
		12 Jul 2023	EP2309615015	96	62	2	179	111	425	0.032	0.0171			2.12	2.23	0.237	0.446	0.234	0.699	0.0689	<0.001	<0.001	<0.001	<0.001		<0.001		0.042		<0.001		0.14	
MWGW103d	MWGW103d	27 Jul 2023 08 Aug 2023	EP2310242016 EP2311014006	99 96	62 60	2	179 173	107 107	460 457	0.0234 0.0275	0.0166 0.0169			2.32 2.06	2.42	0.273 0.236	0.598 0.598	0.263 0.257	0.74 0.544	0.0791	<0.001	<0.001	<0.001	<0.001 <0.001		<0.001		0.038		<0.001 <0.001		0.11	-
		10 Oct 2023	EP2314412005	48.5	62	2	188	106	470	0.0316	0.0178	0.248	0.266	1.8	1.91	0.186	0.485	0.269	0.467	0.0959	<0.001	< 0.001	<0.001	<0.001		<0.001		0.056		<0.001		0.1	_
		23 Nov 2023 12 Dec 2023	EP2316729020 EP2317978001	127 133	59 56	2	159 163	110 104	428 404	0.0381	0.022 0.0128	0.301	0.323	2.26	2.4	0.235	0.617 0.603	0.28	0.642	0.121 0.0648	<0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		<0.001		0.042		<0.001 <0.001		0.13	-
		17 Jan 2024	EP2400745015 EP2308079005	130 44	55	2	157	100	378	0.0465	0.0187	0.342	0.361	2.4	2.5	0.306	0.514	0.364	0.735	0.0711	< 0.001	< 0.001	<0.001	< 0.001		<0.001		0.043		<0.001	(	0.16	_
		14 Jun 2023 27 Jun 2023	EP2308844002	53	43	8	33	25 25	65 84	<0.0005	0.002	<0.0005	0.002	0.0176 0.0024	0.0176 0.0024	0.0102	0.0016	<0.0005	0.0054 0.0016	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.042		<0.001		0.12	
		11 Jul 2023 25 Jul 2023	EP2309615002 EP2310242002	52 62	49 48	8	35 33	27 28	84 87	<0.0005	0.0017 0.0006	<0.0005	0.0017 0.0006	0.0065 0.0049	0.0065 0.0049	<0.002 0.0081	<0.0005 <0.0005	<0.0005 <0.0005	0.0048	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.039		<0.001		0.14	-
OPDM01	OPDM01	07 Aug 2023	EP2311014001	64	52	8	31	30	102	<0.0005	0.0009	<0.0005	0.0009	0.0009	0.0009	0.0078	0.0016	0.0016	0.0016	<0.0005	0.002	<0.001	<0.001	<0.001		<0.001		0.02		<0.001	(	0.14	_
		09 Oct 2023 23 Nov 2023	EP2314412001 EP2316729017	29 78	68 87	6 8	14 16	32 44	134 177	<0.0005 <0.0005	0.0017 0.0021	<0.0005 <0.0005	0.0017 0.0021	0.0029 0.0021	0.0029 0.0021		0.0012 0.0016	<b>0.0005</b> <0.0005	0.0016 0.0016	<0.0005 <0.0005	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		<0.001		0.014 0.018		<0.001 <0.001		0.14	$\dashv$
		12 Dec 2023	EP2317978004	80	106	11	18	50	217	<0.0005	0.0033	<0.0005	0.0033	0.0033	0.0033	0.0081	<0.0005	<0.0005	0.0016	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.026		<0.001	(	0.22	コ
-	1	18 Jan 2024 14 Jun 2023	EP2400745005 EP2308079006	108 44	130 42	14 8	18 33	64 24	272 65	<0.0005 <0.0005	0.0012 0.0064	<0.0005 <0.0005	0.0012 0.0064	0.0012 0.0154	0.0012 0.0154		<0.0005 <0.0005	<0.0005 <0.0005	<0.0005 <b>0.005</b>	<0.0005 <0.0005	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	+	<0.001	+	0.027		<0.001 <0.001	_	0.28	$\dashv$
		27 Jun 2023 11 Jul 2023	EP2308844003 EP2309615003	52	43	8	34	24	84	<0.0005	0.0013	<0.0005	0.0013	0.0013	0.0013		0.0016	<0.0005	0.0016	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001		0.044		<0.001	(	0.13	7
		25 Jul 2023	EP2310242003	53 60	48 49	8	36 34	28 28	86 88	<0.0005	0.0006	<0.0005 <0.0005	0.0006	0.0066 0.0049	0.0049	0.0082	<0.0005	<0.0005 <0.0005	0.0043	<0.0005 <0.0005	<0.001 <0.001	<0.001 <0.001	<0.001	<0.001		<0.001		0.032		<0.001 <0.001	(	0.13 0.13	$\exists$
OPDM02	OPDM02	07 Aug 2023 09 Oct 2023	EP2311014002 EP2314412002	63 28.5	53 67	8	30 15	30 33	102 131	<0.0005 <0.0005	0.0008 0.0011	<0.0005 <0.0005	0.0008 0.0011	0.0008 0.0025	0.0008 0.0025	0.0078	0.0016 0.0014	<0.0005 <0.0005	0.0016 0.0016	<0.0005 <0.0005	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		<0.001		0.022		<0.001 <0.001		0.14	$\dashv$
		23 Nov 2023	EP2316729018	70	86	8	16	45	177	<0.0005	0.0009	< 0.0005	0.0009	0.0009	0.0009	0.0078	0.0016	< 0.0005	0.0016	0.001	< 0.001	< 0.001	<0.001	< 0.001		<0.001		0.019		< 0.001		0.2	_
		12 Dec 2023 18 Jan 2024	EP2317978005 EP2400745006	61 104	130 126	43 13	19 17	63 62	282 267	<0.0005 <0.0005	0.001	<0.0005 <0.0005	0.001	0.001 0.0007	0.001 0.0007		<0.0005 <0.0005	<0.0005 <0.0005	<b>0.0033</b> <0.0005	<0.0005 <0.0005	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001 <0.001		<0.001		0.047		<0.001 <0.001		0.28	$\dashv$
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	Inorganics	1		Major Ions								P	er- and polyfl	inrnalkyl subs	tances (PFAS	3														
	3 Sulfate as SO4 - P. Turbidimetric (filtered)	a Sodium (filtered)	B Potassium (filtered)	M Calcium (filtered)	3 Magnesium (filtered) T	mg/L	E Perfluorooctanoic Acid ¬ (PFOA)	Perfluorooctane	ြာ Perfluorohexane ကို sulfonic acid (PFHxS)	୍ଲ Sum of PFHxS and PFOS ୮ (lab reported)	Sum of WA DER PFAS (n=10)	7/8 Sum of PFAS	E Perfluorobutanoic acid 기 (PFBA)	е Perfluorohexanoic acid ↑ (РЕНХА)	© Perfluoroheptanoic ¬ acid (PFHpA)	ଳ Perfluoropentanoic ୮ acid (PFPeA)	ြာ Perfluorobutane က sulfonic acid (PFBS)	සු 4:2 Fluorotelomer ි sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer ි sulfonic acid (6:2 FTSA)	B:2 Fluorotelomer 內 sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer 🕾 sulfonic acid (10:2 FTSA)	Arsenic Arsenic	ন্ত্ৰ স্ব Arsenic (filtered)	mg/L	3 Rarium (filtered)	J/8w Peryllium	3 Reryllium (filtered)	mg/L	M Boron (filtered)	Cadmium Mg/L
EQL	1	1	1	1	1	1	0.0005	0.0002	0.0005	0.0002	0.0002	0.0002	0.002	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.05	0.05	0.0001
PFAS NEMP 2.0 2020 95% Eco Fresh Water							220	0.13																						
PFAS NEMP 2.0 2020 99% Eco Fresh Water							19	0.00023																						
PFAS NEMP 2.0 2020 Drinking Water							0.56	0.07	0.07	0.07																				
PFAS NEMP 2.0 2020 Recreational Water							10	2	2	2																				

PFAS NEMP 2.0 2020 D										0.56	0.07	0.07	0.07																	
PFAS NEMP 2.0 2020 R	tecreational Water									10	2	2	2																	
Location Code	Field ID	Date	Lab Report Number	1																										
		02 Jun 2023	EP2307401009	92	117	3	93	74	254	0.0151		0.152	0.258	0.61	0.697	0.0758	0.06	0.0598		0.0229	< 0.001	0.051	< 0.001	< 0.001	<0.001	<0.001 0.009				0.31 <0.0001
		15 Jun 2023	EP2308079008 EP2308844001	68	114	3	93	77	216	0.0174		0.159	0.287	0.705	0.803	0.0846	0.0687	0.0735	0.0985	0.0281	<0.001	0.047	<0.001	<0.001 <0.001		<0.001 <0.001	0.003	<0.003	_	0.28
		27 Jun 2023 12 Jul 2023	EP2309615016	100 86	111 119	3	93 100	75 82	249 255	0.0157	0.101	0.162 0.15	0.263	0.559	0.739	0.0782	0.0683	0.068	0.0897	0.0222	<0.001	0.042	<0.001	<0.001		<0.001	0.003	<0.00		0.29
		27 Jul 2023	EP2309615016 EP2310242022	105	106	3	93	76	248	0.0143	0.108	0.15	0.238	0.559	0.651	0.0697	0.0439	0.0517	0.0707	0.0221	< 0.001	0.029	<0.001	<0.001		<0.001	0.002	<0.00:		0.27
WB18-GW03D	WB18-GW03D	08 Aug 2023	EP2311014009	96	108	3	92	76	253	0.0113	0.0994	0.125	0.244	0.544	0.633	0.0004	0.0427	0.054	0.0636	0.0233	< 0.001	0.02	< 0.001	<0.001		<0.001	0.002	<0.00		0.22
		12 Oct 2023	FP2314412022	45	121	3	105	77	262	0.0144	0.111	0.132	0.243	0.586	0.686	0.0974	0.0478	0.0575	0.0818	0.0239	<0.001	0.02	<0.001	< 0.001		< 0.001	0.004	< 0.00		0.26
		22 Nov 2023	EP2316729012	96	112	3	87	80	269	0.0134	0.106	0.111	0.217	0.534	0.623	0.0636	0.0526	0.0494	0.0855	0.038	<0.001	0.014	<0.001	<0.001		<0.001	0.003	< 0.00		0.29
		12 Dec 2023	EP2317978002	86	113	3	92	78	256	0.0176	0.101	0.151	0.252	0.61	0.718	0.0862	0.06	0.0675	0.0746	0.0264	< 0.001	0.026	< 0.001	< 0.001		< 0.001	0.004	< 0.00		0.29
		17 Jan 2024	EP2400745016	100	107	2	95	79	262	0.0171	0.0966	0.193	0.29	0.691	0.81	0.0946	0.0578	0.0724	0.112	0.0288	< 0.001	0.019	< 0.001	< 0.001		< 0.001	0.002	< 0.00		0.32
		15 Jun 2023	EP2308079009	76	82	3	102	77	154	0.0049	0.11	0.0904	0.2	0.274	0.312	0.0092	0.0176	0.0126	0.0155	0.0139	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.004	< 0.00		0.2
		29 Jun 2023	EP2308844019	90	82	3	104	77	168	0.0051	0.0802	0.084	0.164	0.239	0.277	0.0085	0.0181	0.0119	0.0151	0.0131	< 0.001	0.003	< 0.001	< 0.001		< 0.001	0.003	< 0.00		0.22
		13 Jul 2023	EP2309615019	82	85	3	105	80	171	0.005	0.102	0.0888	0.191	0.258	0.298	0.0089	0.0148	0.011	0.0153	0.0124	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.002	< 0.00		0.2
		27 Jul 2023	EP2310242020	111	91	3	105	82	192	0.009	0.197	0.13	0.327	0.54	0.598	0.0233	0.0564	0.0375	0.0644	0.0219	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.002	< 0.00		0.18
WB18-GW04	WB18-GW04	09 Aug 2023	EP2311014022	92	81	3	99	77	173	0.0043	0.0922	0.0772	0.169	0.23	0.264	0.0076	0.015	0.011	0.0113	0.0119	< 0.001	< 0.001	<0.001	< 0.001		<0.001	0.002	< 0.00	_	0.14
		12 Oct 2023	EP2314412024	47.5	84	3	105	73	169	0.0052		0.0665	0.132	0.208	0.24	0.0149	0.0139	0.0132		0.0116	<0.001	<0.001	<0.001	<0.001		<0.001	0.003	< 0.00		0.18
		23 Nov 2023 14 Dec 2023	EP2316729021 EP2317978019	87 84	81 82	2	92	80	177 167	0.0054	0.0938	0.0868	0.181	0.254	0.294	0.0094	0.0167	0.0141		0.0134	<0.001	<0.001	<0.001	<0.001		<0.001 <0.001	0.002	<0.003		0.21
		14 Dec 2023	EP2317978019 EP2400745018	68	64	3	98	73	147		0.0816	0.0811	0.159	0.23		0.0101	0.0181					< 0.001	<0.001	<0.001		<0.001	0.006	<0.00:	_	0.22
		15 Jun 2023	EP2308079010	94	99	3	100	80	189	0.0105	0.0.0	0.171	0.343	0.558			0.0581	0.0123			< 0.001	<0.001	< 0.001	<0.001		<0.001	0.002	<0.00		0.23
1		29 Jun 2023	EP2308844020	108	99	3	100	80	195	0.0103	0.172	0.171	0.343	0.545	0.61	0.0233	0.0579	0.0337	0.0575	0.0252	< 0.001	0.002	< 0.001	<0.001		<0.001	0.002	<0.00	_	0.24
		13 Jul 2023	EP2309615020	97	103	3	105	84	196	0.0101	0.178	0.176	0.354	0.558	0.624	0.0224	0.0523	0.0337		0.0252	< 0.001	< 0.001	< 0.001	<0.001		<0.001	0.002	<0.00	_	0.22
		27 Jul 2023	EP2310242019	114	96	3	102	80	198	0.0098	0.188	0.153	0.341	0.551	0.616	0.0229	0.0571	0.0355		0.0261	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.004	<0.00		0.2
WB18-GW05	WB18-GW05	09 Aug 2023	EP2311014023	113	97	3	96	80	198	0.0094	0.182	0.157	0.339	0.514	0.572	0.0212	0.0512	0.0303	0.0385	0.0232	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.002	< 0.00		0.14
1		12 Oct 2023	EP2314412023	49.5	106	3	110	83	191	0.0099	0.182	0.15	0.332	0.543	0.609	0.0339	0.0527	0.0335	0.0541	0.0265	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.004	< 0.00		0.2
1		23 Nov 2023	EP2316729022	110	98	3	93	85	205	0.0124	0.167	0.179	0.346	0.549	0.621	0.0227	0.0547	0.0372	0.0489	0.0274	< 0.001	<0.001	<0.001	< 0.001		<0.001	0.005	< 0.00		0.23
1		14 Dec 2023	EP2317978020	103	98	3	100	85	205	0.011	0.162	0.152	0.314	0.505	0.568	0.0274	0.0509	0.0318	0.0438	0.0258	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.005	< 0.00		0.26
		17 Jan 2024	EP2400745017	104	92	2	96	78	194	0.0127	0.185	0.205	0.39	0.621	0.703	0.0288	0.0554	0.0405	0.0674	0.0265	< 0.001	< 0.001	<0.001	<0.001		<0.001	0.005	< 0.00	_	0.27
		02 Jun 2023	EP2307401006	116	112	4	121	91	208	0.0056	0.0493	0.0757	0.125	0.301	0.325	0.0345	0.0451	0.0317	0.0456	0.0136	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 <b>0.005</b>		<0.003	0.22	0.22 <0.0001
		15 Jun 2023	EP2308079011 EP2308844021	104 109	107 108	3	113	93	190	0.005	0.0453	0.0746	0.119	0.272	0.297	0.0279	0.0357	0.0258	0.0414	0.0175	<0.001	<0.001	<0.001	<0.001		<0.001	0.005	<0.003		0.19
		29 Jun 2023 13 Jul 2023	EP2308844021 EP2309615021	105	108	3	119 117	93 94	182 209	0.0054	0.0625	0.0746	0.137 0.122	0.305	0.336	0.0266	0.0438	0.0266 0.021	0.0487	0.0168	<0.001	<0.001	<0.001	<0.001		<0.001	0.006	<0.00		0.21 0.18
		27 Jul 2023	EP2310242021	125	106	3	118	93	210	0.0045	0.0595	0.0655	0.125	0.289	0.23	0.0253	0.0323	0.0268	0.0501	0.0166	<0.001	<0.001	<0.001	<0.001		<0.001	0.006	<0.00		0.17
WB20-GW06	WB20-GW06	08 Aug 2023	EP2311014008	108	92	3	102	83	192	0.004	0.0434	0.0633	0.107	0.212	0.237	0.0156	0.0272	0.0179		0.0145	<0.001	< 0.001	<0.001	<0.001		<0.001	0.006	<0.00	_	0.13
		12 Oct 2023	EP2314412025	61.5	100	3	111	80	198	0.0044	0.045	0.0724	0.117	0.236	0.265	0.0174	0.0332	0.0218	0.026	0.0154	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.013	< 0.00		0.16
		23 Nov 2023	EP2316729023	152	129	3	116	105	296	0.0078	0.0595	0.0852	0.145	0.383	0.416	0.0388	0.0651	0.0443	0.0643	0.0177	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.004	< 0.00		0.21
		14 Dec 2023	EP2317978021	143	128	4	124	107	291	0.0053		0.0664	0.102	0.265	0.292	0.0295	0.0418	0.024	0.0391	0.02	< 0.001	0.003	< 0.001	< 0.001		<0.001	0.006	< 0.00		0.22
		16 Jan 2024	EP2400745012	141	114	3	117	97	265	0.0069	0.0574	0.102	0.159	0.358	0.399	0.0249	0.0447	0.0358	0.0678	0.0188	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.007	< 0.00		0.25
		14 Jun 2023	EP2308079015	54	103	8	60	53	168	<0.0005	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.002	< 0.0005	<0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.006	< 0.00		0.25
		28 Jun 2023	EP2308844005	64	86	7	58	53	154	<0.0005	<0.0002	< 0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.004	< 0.00	_	0.26
		12 Jul 2023	EP2309615005	64	107	8	61	55	178	<0.0005		<0.0005	<0.0002	<0.0002		<0.002	<0.0005	<0.0005		<0.0005	< 0.001	<0.001	<0.001	<0.001		<0.001	0.009	<0.00	_	0.27
WB26-GW04	WB26-GW04	26 Jul 2023 09 Aug 2023	EP2310242005 EP2311014011	68 70	89 97	8	58 56	57 51	152 181	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001 <0.001	<0.001	<0.003	_	0.24 0.21
	11020 01104	11 Oct 2023	EP2311014011 EP2314412009	29	89	7	62	51	191	<0.0003	<0.0002	<0.0003	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0003	<0.0003	<0.0003	<0.001	<0.001	< 0.001	<0.001		<0.001	0.007	<0.00		0.23
		22 Nov 2023	EP2316729002	62	87	7	53	54	177	< 0.0005	< 0.0002	< 0.0005	< 0.0002	0.005	0.005	< 0.002	0.0017	0.0015	0.0013	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.005	< 0.00		0.26
		13 Dec 2023	EP2317978007	64	103	8	55	54	180	< 0.0005	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.006	< 0.00		0.27
		18 Jan 2024	EP2400745009	62	99	7	55	54	186	< 0.0005	< 0.0002	< 0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.007	< 0.00		0.31
		01 Jun 2023	EP2307401011	66	75	4	65	55	74	< 0.0005	< 0.0002	< 0.0005	< 0.0002	<0.0002	< 0.0002	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001 0.004	0.004 <0.001	< 0.00	0.17	0.18 <0.0001
		09 Aug 2023	EP2311014015	78	74	4	60	58	90	< 0.0005	0.0003	< 0.0005	0.0003	0.0003	0.0003	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.006	< 0.00		0.11
WBC5GWD208	WBC5GWD208	11 Oct 2023	EP2314412008	33	77	4	67	56	96	<0.0005	0.001	< 0.0005	0.001	0.001	0.001	< 0.002	< 0.0005	<0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.006	< 0.00		0.14
		22 Nov 2023	EP2316729001	73	74	4	60	60	92	<0.0005	<0.0002	< 0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	< 0.001	< 0.001	<0.001	< 0.001		<0.001	0.008	< 0.00	_	0.22
		13 Dec 2023 17 Jan 2024	EP2317978012 EP2400745020	71	74	4	64	61	86	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001	0.006	<0.00		0.18
				76		4	64	58	90	<0.0005		<0.0005	<0.0002			<0.002	<0.0005	<0.0005		<0.0005		< 0.001	<0.001	<0.001	-0.001	<0.001		<0.00		
		01 Jun 2023 14 Jun 2023	EP2307401012 EP2308079001	53 54	69 66	4	68 67	59 60	83 79	<0.0003	<0.0003	0.0033		0.0108		< 0.002	0.0021	0.0018		0.0022	< 0.001	< 0.001	< 0.001	<0.001	VU.UU1	<0.001 <b>0.16</b>	0.154 <0.001 0.131	<0.003		0.18 <0.0001 0.14
		28 Jun 2023	EP2308844016	67	64	4	64	58	89	<0.0005	0.0004	0.0024	0.0024	0.0063		<0.002	0.0017	0.0013	0.0003	0.0010	< 0.001	< 0.001	< 0.001	<0.001		<0.001	0.099	<0.00		0.17
		13 Jul 2023	EP2309615018	56	68	4	69	62	91	< 0.0005	<0.0002	0.0024	0.0024	0.0067	0.0076	<0.002	0.0011	0.0011		0.0014	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.091	<0.003	_	0.15
WBCSGW0210	WBCSGW0210	27 Jul 2023	EP2310242018	66	65	4	68	60	88	< 0.0005	0.0003	0.002	0.0023	0.0076	0.0083	< 0.002	0.0014	0.0013		0.0016	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.087	< 0.00		0.14
.75030440210	***************************************	08 Aug 2023	EP2311014007	66	63	4	64	59	96	< 0.0005	0.0005	0.0021	0.0026	0.0082	0.0089	< 0.002	0.0018	0.0014	0.0009	0.0015	< 0.001	< 0.001	< 0.001	< 0.001		0.002	0.075	< 0.00		0.12
I		12 Oct 2023	EP2314412021	26.5	69	4	71	59	102	<0.0005	0.0006	0.0021	0.0027	0.0077	0.0084	< 0.002	0.0015	0.0011	0.0008	0.0016	< 0.001	<0.001	<0.001	<0.001		0.001	0.055	< 0.00		0.13
		23 Nov 2023	EP2316729016	54	68	4	63	65	97	<0.0005	0.0004	0.0021	0.0025	0.0084	0.0098	<0.002	0.0016	0.0011	0.0009	0.0023	< 0.001	< 0.001	<0.001	< 0.001		<0.001	0.054	< 0.00		0.17
		12 Dec 2023	EP2317978003	54	67	4	65	64	98	<0.0005	0.0004	0.0026	0.003	0.0099	0.0112	<0.002	0.0018	0.0014	0.0007	0.003	< 0.001	< 0.001	<0.001	< 0.001		<0.001	0.062	< 0.00		0.17
		17 Jan 2024	EP2400745019 EP2307401007	58	64	3	67	61 57	100	<0.0005	0.0004	0.0031	0.0035	0.0112	0.0128	< 0.002	0.0022	0.0019	0.0015	0.0021	< 0.001	< 0.001	< 0.001	< 0.001	0.004	<0.001 <0.001 0.008	0.044	<0.00:	_	0.2
		01 Jun 2023 14 Jun 2023	EP2308079019	74 66	74	4	70 64	59	72 74	<0.0005	0.0026	0.0025	0.0051	0.0051	0.0051	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 <b>0.008</b>	0.007 <0.001 0.007	<0.00	0.10	0.19 <0.0001 0.15
		28 Jun 2023	EP2308844009	74	79	4	73	65	88	< 0.0005	< 0.0000	< 0.0005	< 0.0000	< 0.0000	< 0.0000	< 0.002	< 0.0005	< 0.0005	<0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.006	< 0.00		0.19
		12 Jul 2023	EP2309615009	72	77	4	69	63	85	< 0.0005	0.0004	< 0.0005	0.0004	0.0004	0.0004	<0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	<0.001	< 0.001	<0.001	<0.001		<0.001	0.005	< 0.00	_	0.16
WRCSGW0210	WBCSGW0219	26 Jul 2023	EP2310242009	87	73	4	70	61	83	< 0.0005	0.0006	< 0.0005	0.0006	0.0006	0.0006	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.005	< 0.00		0.16
WBCSGW0219	WBC3GW0219	09 Aug 2023	EP2311014016	80	73	4	63	60	92	< 0.0005	0.0004	< 0.0005	0.0004	0.0004	0.0004	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.006	< 0.00		0.12
		11 Oct 2023	EP2314412014	33	76	4	70	59	95	< 0.0005	0.0036	0.0029		0.0065			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	0.006	< 0.00		0.14
		22 Nov 2023	EP2316729007	76	73	4	62	62	94	< 0.0005	0.0061	0.005	0.0111	0.013			< 0.0005	< 0.0005	< 0.0005	0.0014	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.007	< 0.00	_	0.18
		13 Dec 2023	EP2317978013	65	74	4	65	63	89	0.0007	0.0094	0.0083	0.0177	0.021			0.0006			0.0014	< 0.001	<0.001	<0.001	< 0.001		<0.001	0.008	< 0.00		0.2
		17 Jan 2024	EP2400745021	67	69	4			91	_	0.009		_	_	0.0271	_	0.0007		0.0006			< 0.001	< 0.001	< 0.001		<0.001	0.009	< 0.00	_	0.22
		13 Jun 2023	EP2308079013	50	68	6		58	93	<0.0005	0.0004	0.0008		0.0012			<0.0005	<0.0005	<0.0005	<0.0005	< 0.001	< 0.001	<0.001	< 0.001		<0.001	0.005	<0.00		0.2
		29 Jun 2023	EP2308844017	59	66	6	71	58	106	<0.0005	0.0004	<0.0005	0.0004	0.0004			<0.0005	<0.0005		<0.0005	<0.001	< 0.001	<0.001	<0.001		<0.001	0.006	<0.00		0.21
		11 Jul 2023 25 Jul 2023	EP2309615001 EP2310242001	55	68 62	6		59 56	97	<0.0005	<b>0.0003</b> <0.0002	<0.0005	<0.0003	0.0003 <0.0002		<0.002 <0.002	<0.0005 <0.0005	<0.0005	<0.0005 <0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001 <0.001		<0.001 <0.001	0.005	<0.003		0.23
XD57	XD57	09 Aug 2023	EP2310242001 EP2311014021	63	64	6	69 64	55	106	<0.0005	0.0002	<0.0005	0.0003	0.0002			<0.0005	<0.0005		<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001	0.004	<0.003		0.18 0.14
1		12 Oct 2023	EP2311014021 EP2314412020	23.5	68	6	72	55	112	<0.0005	0.0003	<0.0005	0.0003	0.0003		<0.002	<0.0005	<0.0005		<0.0005	<0.001	<0.001	<0.001	<0.001		<0.001	0.005	<0.00		0.14
1		23 Nov 2023	EP2316729014	61	71	6	65	63	117	<0.0005	<0.0003	< 0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005		<0.0005	< 0.001	<0.001	<0.001	<0.001		<0.001	0.006	<0.00		0.22
		14 Dec 2023	EP2317978022	51	62	6	65	57	100	< 0.0005	0.0003	< 0.0005	0.0003	0.0003	0.0003		< 0.0005	< 0.0005		<0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.007	<0.00		0.22
L		18 Jan 2024	EP2400745003	53	61	6			102	< 0.0005	0.0003	< 0.0005	0.0003	0.0003			< 0.0005			< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001		<0.001	0.006	< 0.00		0.25
		_																												



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1	leoi.								ed do O O //L mg/L	Mg/gm Copper (filtered)																Bicarbonate Alkalinity 7 as (HCO3)		Bu Hydroxide Alkalinity (as 7/2 CaCO 3)	Total Alkalinity (as	med/r					
1					0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.00	0.0001	0.0001	0.001	0.001	0.01	0.01	0.01	0.01	0.003	0.01		-			-		0.01	0.01	0.01	0.01	0.01	0.01
Marche   M	PFAS NEMP 2.0 2020 Dr	inking Water																																	
Part	Location Code	***************************************			<0.0001	<0.001	<0.001	c0.001 c0.0	01 0.004	<0.001	<0.001	-0.001 0	067 000	01 -0.0001	<0.0001	<0.001	<0.001	<0.01	-0.01	<0.01	c0.01 c0.00	E <0.00E	7 50		202	245.26	-1	-1	202	0.19	0.19	7 72	7 72	0.6	0.6
**************************************	EEG0517DIWI	EEG0917DIW/3002002	01 Jun 2023	EP2307401010	<0.0001	<0.001	<0.001	<0.001 <0.0	01 <0.004	< 0.001	<0.001	-0.001	017 <0.00	01 <0.0001	<0.0001	<0.001	< 0.001	<0.01	<0.01	<0.01	40.00	-0.003	7.68	59	404	492.88	<1	<1	404	11.4	11.4	11.2	11.2	0.98	0.98
			28 Jun 2023	EP2308844012	<0.0001					< 0.001			<0.00	01			< 0.001		<0.01				7.73	66	391	477.02	<1	<1	391	11.7	11.7	11	11	3.08	3.08
Part	EEG1391RM	EEG1391RM	26 Jul 2023		<0.0001 <0.0001					< 0.001							< 0.001							78	398		<1 <1	<1 <1	398		12.1	12	12		0.28
**************************************			22 Nov 2023	EP2316729010	< 0.0001		<0.001	<0.0	01	< 0.001	<	0.001	<0.00	01	<0.0001		<0.001		<0.01		< 0.01	< 0.005	8.06	84	366	215.94	<1	<1	366	12.9	12.9	12.5	12.5	1.7	1.7
*** *** *** *** *** *** *** *** *** **			18 Jan 2024	EP2400745007	<0.0001			<0.0	01	< 0.001	<	0.001	<0.00	01	< 0.0001		<0.001						7.3	79	358	472.14	<1	<1	358	12.6	12.6	12.4	12.4	0.76	0.76
			12 Jul 2023	EP2309615010	<0.0001 <0.0001 <0.0001			<0.0	01	0.002	<	0.001	0.01	13	<0.0001		<0.001		<0.01				7.73	63	391	477.02	<1	<1	391	11.8	11.8	11.6	11.6	0.62	0.62
	HWHB0051P	HWHB0051P	11 Oct 2023	EP2314412015	<0.0001 <0.0001		< 0.001	<0.0	01	0.003	<	0.001	0.01	11	< 0.0001		<0.001		<0.01		<0.01	<0.005		30.5	376		<1 <1	<1 <1	376	11.8	11.8	11.6	11.6	0.65	0.65
**************************************			13 Dec 2023	EP2317978014	<0.0001		<0.001	<0.0	01	< 0.001	<	0.001	0.01	11	< 0.0001		< 0.001		<0.01		<0.01	< 0.005	7.92	64	402		<1	<1	402	12	12	11.8	11.8	1.23	1.23
**************************************			11 Oct 2023	EP2314412013	<0.0001		<0.001	<0.0	01	< 0.001	<	(0.001 (0.001 (0.001	0.00	14	<0.0001		< 0.001		<0.01		<0.01 <0.01	0.005	7.59	24	274	167.14	<1	<1	274	9.8	9.8	9.85	9.85	0.23	0.23
**************************************	HWHB0057P	HWHB0057P	13 Dec 2023	EP2317978010	<0.0001 <0.0001		<0.001 <0.001	<0.0	01	< 0.001	<	<0.001 <0.001	0.00	)2	<0.0001 <0.0001		< 0.001		<0.01 <0.01		<0.01 <0.01	0.021	7.99	49	292		<1 <1	<1 <1	292	9.84	9.84	9.45	9.45	2.03	2.03
TAME STATE S					<0.0001 <0.0001		<0.001 <0.001	<0.0 <0.0	01 01		<	(0.001 (0.001							<0.01 <0.01		<0.01 <0.01		1				<1 <1	<1 <1							1.65
*** *** ******************************	нwнвоо60Р	HWHB0060P	09 Aug 2023	EP2311014012	<0.0001		<0.001	<0.0	01	< 0.001	<	0.001	<0.00	01	<0.0001		<0.001		<0.01		<0.01	<0.005		61	309	376.98	<1	<1	309	10.5	10.5	9.78	9.78	3.48	3.48
THING WELL WELL WELL WELL WELL WELL WELL WEL			22 Nov 2023	EP2316729006	10.0001		<0.001	<0.0	01	< 0.001	<	0.001	0.00	14	<0.0001		< 0.001		10.01		<0.01	<0.005	7.82	54	280	180.56	<1		280	9.91	9.91	9.68	9.68	1.16	1.16
**************************************	HWHB1151M	HWHB1151M	14 Jun 2023	EP2308079	<0.0001	<0.001	0.004	<0.00 <0.001 <0.0	01	<0.001	<0.001		< 0.00	01		<0.001		<0.01	<0.01	<0.01	<0.01 <0.01 <0.01 <0.00	<0.005 5 <0.005	7.61		289		<1	<1	289	11.1	11.1	10.8	10.8	1.25	1.25
94.00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			28 Jun 2023	EP2308844011	10.0002			<0.0	01	< 0.001	<	0.001	0.29 0.13	93 32	< 0.0001		<0.001		10.02				7.61	56 62	403 413	503.86	***	<1 <1	413	11.3 12.1	11.3 12.1	11.6 11.7	11.7	1.58	1.37 1.58
14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	HWHB1521M	HWHB1521M	26 Jul 2023	EP2310242013	<0.0001		<0.001	<0.0	01	< 0.001	<	0.001	0.25	5	<0.0001		<0.001		<0.01		<0.01	<0.005		68	422	514.84	<1	<1	422	12.3	12.3	11.8	11.8	2.33	2.33
**************************************			11 Oct 2023	EP2314412017	<0.0001		<0.001	<0.0	01	<0.001	<	0.001 0.001	0.26	56	<0.0001		<0.001 <0.001 <0.001		<0.01		<0.01 <0.01 <0.01	<0.005		27	394		<1	<1	394	11.7	11.7	11.4	11.4	1.24	1.24
**************************************			13 Dec 2023	EP2317978017	<0.0001 <0.0001 <0.0001		<0.001 <0.001	<0.0 <0.0	01 01	<0.001	<	(0.001 (0.001	0.29	97	<0.0001 <0.0001 <0.0001		<0.001 <0.001 <0.001		<0.01		<0.01 <0.01 <0.01	<0.005 <0.005	7.65	56	423		<1	<1 <1	423	12.1	12.1	11.8	11.8	1.34	1.34
**************************************			14 Jun 2023	EP2308079003	<0.0001 <0.0001	0.017	0.003		01	< 0.001		:0.001	<0.00	01		0.009	< 0.001	<0.01	<0.01 <0.01	<0.01			7.47	325	306	373.32	<1 <1	<1 <1	306	27.9	27.9	28.3	28.3	0.63	0.63
Hand Many Many Many Many Many Many Many Many			13 Jul 2023	EP2309615022	<0.0001		0.003	<0.0	01	< 0.001	<	:0.001	<0.00	01	< 0.0001		< 0.001		<0.01		<0.01	0.006	7.69	312	321	391.62	<1	<1	321	27.6	27.6	29	29	2.59	2.59
Part	HWHB1526WI	HWHB1526WI	08 Aug 2023	EP2311014004	<0.0001		0.003	<0.0	01	< 0.001	<	0.001	<0.00	01	< 0.0001		< 0.001		<0.01		<0.01	<0.005		330	318	387.96			318	29	29	27	27	3.48	3.48
Marchane			14 Dec 2023	EP2317978023	<0.0001		0.003		_	< 0.001	<						< 0.001		<0.01				7.71	346	332	107.00	<1 <1	<1	332	27.9	27.9	26.8	26.8	2.03	2.03
HATTINE STATE STAT	HWHB1547M	HWHB1547M	01 Jun 2023	EP2307401	<0.0001 <0.0001	0.006	< 0.001			0.002	<0.001 <					0.009		<0.01		<0.01			6.95		97		<1 <1	<1 <1	97	7.38	7.38		6.85	3.76	3.76
MATINE MATINE STREET ALL STREET STREE			12 Jul 2023	EP2309615008	<0.0001 <0.0001		0.002	<0.0 <0.0	01 01	< 0.001	<	<0.001 <0.001	<0.00	01	< 0.0001		<0.001		<0.01 <0.01		<0.01 <0.01	<0.005 <0.005	7.51	61	306	373.32	<1	<1 <1	306	10.4	10.4	10.3	10.3	0.85	0.85
Property	HWHB1551M	HWHB1551M	09 Aug 2023	EP2311014014	<0.0001		0.002	<0.0	01	< 0.001	<	0.001	<0.00	01	< 0.0001		< 0.001		<0.01			<0.005		61	294	358.68	<1	<1	294	10.2	10.2	9.55	9.55	3.25	3.25
MATIS BLAZZES PROMERSON GROWN			22 Nov 2023	EP2316729003	<0.0001		0.003	<0.0	01	< 0.001	<	0.001	<0.00	01	< 0.0001		<0.001		<0.01		<0.01	<0.005	7.95	71	293	170.3		<1	293	10.7	10.7	10.5	10.5	1	1
MATINE MATINE PROPERTY AND A STATE OF THE PROPERTY AND A S			18 Jan 2024 14 Jun 2023	EP2308079002	<0.0001		0.005 <0.001	<0.0	01	<0.001	<	0.001	<0.00	01	< 0.0001		<0.001		<0.01		<0.01	<0.005	7.35 7.84	76 66	286 377			<1 <1	286 377	11.3 15.1	11.3 15.1	10.9 15.3	10.9 15.3	2.04 0.7	2.04 0.7
MOLE MUSE PROPERTY OF THE PROP			12 Jul 2023	EP2309615014	<0.0001		<0.001	<0.0	01	<0.001	<	(0.001	0.59	92	<0.0001		<0.001		<0.01		<0.01 <0.01	<0.005	7.87	77	392	478.24	<1	<1	392	16.1	16.1	16.2	16.2	0.27	0.27
The NATE   PSISE PROBLEM   Column   C	MW116	MW116	08 Aug 2023	EP2311014005	<0.0001 <0.0001 <0.0001		<0.001 <0.001 <0.001	<0.0	01	< 0.001	<	(0.001 (0.002	0.58	39	< 0.0001		<0.001		<0.01		<0.01 <0.01 <0.01	<0.005 <0.005		94	375	457.5	<1	<1	375	16.4	16.4	15	15	4.52	4.52
## P21-P723			23 Nov 2023	EP2316729013 EP2317978024				<0.0	01	< 0.001	<		0.56	58										93 102	393 414		<1 <1	<1 <1	393	16.8	16.8	16.1	16.1	2.15	2.15
Part			02 Jun 2023	EP2307401005	<0.0001	<0.001	<0.001	<0.001 <0.0	01 <0.001	<0.001	<0.001 <	0.001 0	.03 <0.00	01 <0.0001	<0.0001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01 <0.00	5 <0.005	7.42	87	287				287	20.6	20.6	20.6	20.6	0.03	0.03
## PAINON NO.   PA			28 Jun 2023	EP2308844014	<0.0001		< 0.001	<0.0	01	< 0.001	<	:0.001	0.00	05	< 0.0001		< 0.001		<0.01		< 0.01	< 0.005	7.59	101	293	357.46	<1	<1	293	19.9	19.9	19.6	19.6	0.64	0.64
POMONI   P	MWGW103d	MWGW103d	27 Jul 2023	EP2310242016	<0.0001 <0.0001 <0.0001		< 0.001	<0.0	01	< 0.001	<	:0.001	0.00	04	< 0.0001		< 0.001		<0.01		<0.01	< 0.005		99	278	339.16		<1	278	20.6	20.6	20.5	20.5	0.26	0.26
POMOI 1 1000 4001 4001 4001 4001 4001 4001 4			10 Oct 2023	EP2314412005	<0.0001 <0.0001			<0.0	01	<0.001 <0.001	<		0.01	18	<0.0001 <0.0001		< 0.001						1	48.5 127	296 355	180.56	<1 <1	<1 <1	296		21.2	20.8	20.8	0.8	0.8
POMMI PERSONNELOGY - COUNTY -			12 Dec 2023 17 Jan 2024	EP2400745015	10.0001					< 0.001	<		0.00	06	<0.0001		0.002						7.41	130	315 305	45:-		<1 <1	305	20.4 19.5	20.4 19.5	19.2 18.5	19.2 18.5	2.52	3.22 2.52
PPM01			27 Jun 2023	EP2308844002	<0.0001		<0.001 <0.001			10.002		(U.001 (0.001 (0.001	0.02	24	<0.0001		<0.001		<0.01 <0.01		<0.01 <0.01 <0.01	<0.005 <0.005	8.21	53	134	163.48	<1 <1 <1	<1 <1 <1 <1	134	6.15	6.15	5.78	5.78	3.11	3.11
90 01 2023	OPDM01	OPDM01	25 Jul 2023	EP2310242002	<0.0001 <0.0001		<0.001 <0.001 <0.001	<0.0	01	<0.001 <0.001		(0.001 (0.001	<0.00	01	< 0.0001		< 0.001		<0.01		<0.01 <0.01	<0.005 <0.005		62	126	153.72		<1 <1	138	6.5	6.5	6.24	6.24	2.03	2.03
15   15   15   15   15   15   15   15			09 Oct 2023 23 Nov 2023	EP2314412001 EP2316729017	<0.0001 <0.0001		<0.001 <0.001	<0.0	01	< 0.001	<	:0.001 :0.001	<0.00	01	< 0.0001		< 0.001		<0.01 <0.01		<0.01 <0.01		9.41	29	40		56 41	<1 <1	96 115	6.9 8.91	6.9 8.91	6.44 8.41	6.44 8.41	3.46	3.46 2.92
PDM02 PDM02 PDM02 EP310844003 < 0.0001			18 Jan 2024	EP2400745005	<0.0001		<0.001	<0.0	01	< 0.001	<	0.001	0.00	05	<0.0001		<0.001		<0.01		<0.01	< 0.005	9.1	108	116	455.5	33		148	12.9	12.9	12.2	12.2	2.79	2.79
DPDM02 PDM02			27 Jun 2023	EP2308844003	< 0.0001		<0.001	<0.0	01	< 0.001	<	0.001	0.03	38	< 0.0001		< 0.001		< 0.01		<0.01	< 0.005	8.2	52	133	162.26	<1	<1	133	6.11	6.11	5.75	5.75	3.06	3.06
99 Oct 2023	OPDM02	OPDM02	25 Jul 2023	EP2310242003		L	< 0.001	<0.0	01	< 0.001	<	0.001	< 0.00	01	< 0.0001		< 0.001				<0.01	< 0.005		60	125	152.5	12		137	6.47	6.47	6.34	6.34	1.03	1.03
			09 Oct 2023 23 Nov 2023	EP2314412002 EP2316729018	< 0.0001		< 0.001	<0.0 <0.0	01	<0.001 <0.001	<	:0.001	<0.00	01 01	<0.0001 <0.0001		<0.001 <0.001		<0.01		<0.01	<0.005	9.82	28.5 70	12 47		86	<1 <1	99 116	6.86 8.77	6.86 8.77	6.53 8.45	6.53 8.45	2.45 1.86	2.45 1.86
					<0.0001 <0.0001																						<1 57	<1							

						Heavy	Metals																				Samp	le Quality Para	ameters					
	Cadmium (filtered)	Chromium	Chromium (filtered)	Cobalt	Cobalt (filtered)	Copper	Copper (filtered)	Lead	Lead (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Selenium	Selenium (filtered)	Vanadium	Vanadium (filtered)	Zinc	Zinc (filtered)	рн (Lab)	Sulphate (as SO4)	Bicarbonate Alkalinity (as CaCO3)	Bicarbonate Alkalinity ™ as (HCO3)	Carbonate Alkalinity (as CaCO3)	Hydroxide Alkalinity (as	Total Alkalinity (as CaCO3)		Total Anions	Teast		Ionic Balance (Lab)	Ionic Balance (Lab)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH_Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	meq/L	meq/L	%	%
EQL	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.01	0.01	0.01	0.01	0.005	0.005	0.01	1	1		1	1	1	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2.0 2020 95% Eco Fresh Water																																		
PFAS NEMP 2.0 2020 99% Eco Fresh Water																																		í
PFAS NEMP 2.0 2020 Drinking Water																																		1
PFAS NEMP 2.0 2020 Recreational Water																																		

PFAS NEMP 2.0 2020 Re	ecreational water																														
Location Code	Field ID	Date	Lab Report Number																												
Eccusion code	Ticle 15	02 Jun 2023	EP2307401009	<0.0001	<b>&lt;0.001</b> <0.001	<0.001	<0.001	<0.001	<0.001	<0.001 <0.0	0.072	0.01	<0.0001 <0	0.0001	<0.001 <0.001	<0.01	<0.01 <0.0	<b>1</b> <0.01	<0.005 <0.0	05 <b>7.54</b>	92	386	470.92	<1	<1	386	16.8	16.8	15.9	15.9	2.74 2.7
Ī		15 Jun 2023	EP2308079008	<0.0001	<0.001	10.001	<0.001	10.001	<0.001	<0.0		0.069		0.0001	<0.001	10.01	<0.01	<0.01	<0.0	05 7.53	68	325	396.5	<1	<1	325	14	14	16	16	6.7 6.
		27 Jun 2023	EP2308844001	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0>	01	0.066		0.0001	< 0.001		< 0.01	< 0.01	<0.0		100	376	458.72	<1	<1	376	16.6	16.6	15.7	15.7	2.78 2.7
		12 Jul 2023	EP2309615016	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	0.051	<0	0.0001	< 0.001		< 0.01	< 0.01	<0.0	05 7.41	86	379	462.38	<1	<1	379	16.6	16.6	17	17	1.3 1.
WB18-GW03D	WB18-GW03D	27 Jul 2023	EP2310242022	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.035		0.0001	< 0.001		<0.01	< 0.01	<0.0		105	376	458.72	<1	<1	376	16.7	16.7	15.6	15.6	3.44 3.4
		08 Aug 2023	EP2311014009	<0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.083		0.0001	< 0.001		<0.01	< 0.01			96	363	442.86	<1	<1	363	16.4	16.4	15.6	15.6	2.4 2.
		12 Oct 2023	EP2314412022	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		0.069		0.0001	<0.001		<0.01	< 0.01	<0.0			356	217.16	<1	<1	356	16.4	16.4	16.9	16.9	
		22 Nov 2023 12 Dec 2023	EP2316729012 EP2317978002	<0.0001	<0.001	_	<0.001		<0.001 <0.001	<0.0		0.063		0.0001	<0.001		<0.01 <0.01	<0.01	<0.0			368 387		<1	<1	368 387	16.9 16.7	16.9 16.7	15.9 16	15.9 16	3.25 3.: 2.26 2.:
		17 Jan 2024	EP2317978002 EP2400745016	<0.0001	<0.001	+	<0.001		<0.001	<0.0	01	0.075		0.0001	<0.001		<0.01	<0.01	<0.00	05 7.28		365		<1	<1	365	16.8		15.9		2.5 2.
		15 Jun 2023	EP2308079009	<0.0001	< 0.001		< 0.001		<0.001	<0.0	01	0.008		0.0001	<0.001		<0.01	<0.01	<0.0	_	76	_	517.28	<1	<1	424		14.4	15.1		
		29 Jun 2023	EP2308844019	<0.0001	<0.001		<0.001		<0.001	<0.0		0.002		0.0001	<0.001		<0.01	<0.01				434		<1	<1	434	15.3	15.3	15.2	15.2	0.37 0.3
		13 Jul 2023	EP2309615019	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	<0.00	1 <0	0.0001	< 0.001		< 0.01	< 0.01	<0.0	05 7.44	82	442	539.24	<1	<1	442	15.4	15.4	15.6	15.6	0.76 0.7
		27 Jul 2023	EP2310242020	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	< 0.00	1 <0	0.0001	< 0.001		< 0.01	< 0.01	<0.0	05 7.47	111	418		<1	<1	418	16.1	16.1	16	16	0.17 0.3
WB18-GW04	WB18-GW04	09 Aug 2023	EP2311014022	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	0.002	<0	0.0001	< 0.001		< 0.01	< 0.01	<0.0	05	92	431	525.82	<1	<1	431	15.4	15.4	14.9	14.9	1.75 1.7
		12 Oct 2023	EP2314412024	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.007		0.0001	< 0.001		<0.01	< 0.01					255.59	<1	<1	419		15.1	15		0.46 0.4
		23 Nov 2023	EP2316729021	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		<0.00		0.0001	< 0.001		<0.01	< 0.01				431		<1	<1	431	15.4	15.4	14.7		
		14 Dec 2023	EP2317978019	<0.0001	<0.001		<0.001		< 0.001	<0.0		0.007		0.0001	<0.001		<0.01	< 0.01						<1	<1	452	15.5		15.1		
		17 Jan 2024	EP2400745018	<0.0001	<0.001		10.001		< 0.001	<0.0		<0.00		0.0001	-0.001		<0.01	<0.01		7.24		421	500.05	<1	<1	421	14		13.5		
		15 Jun 2023	EP2308079010 EP2308844020	<0.0001	<0.001	_	<0.001		<0.001	<0.0 <0.0		<0.00		0.0001	<0.001 <0.001		<0.01	<0.01		05 7.51		413 423	503.86 516.06	<1	<1	413	15.5 16.2		16	16 16	1.32 1.3 0.44 0.4
		29 Jun 2023 13 Jul 2023	EP2308844020 EP2309615020	<0.0001	<0.001		<0.001		<0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01			108	439		<1	<1	423 439	16.3	16.2 16.3	16 16.7	16.7	
		27 Jul 2023	EP2310242019	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01				432	527.04	<1	<1	432	16.6	16.6	15.9	15.9	
WB18-GW05	WB18-GW05	09 Aug 2023	EP2311014023	<0.0001	<0.001		< 0.001		< 0.001	<0.0		<0.00	1 <0	0.0001	< 0.001		<0.01	<0.01	<0.0		113	415	506.3	<1	<1	415	16.2	16.2	15.7	15.7	1.75 1.7
		12 Oct 2023	EP2314412023	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	<0.00	1 <0	0.0001	< 0.001		< 0.01	<0.01	<0.0	05 7.41		405		<1	<1	405	15.5	15.5	17	17	4.51 4.5
		23 Nov 2023	EP2316729022	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	0.002	<0	0.0001	< 0.001		< 0.01	< 0.01	<0.0			423		<1	<1	423		16.5	16	16	
		14 Dec 2023	EP2317978020	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.003		0.0001	< 0.001		< 0.01	< 0.01	<0.0			454		<1	<1	454		17	16.3	16.3	2.02 2.0
]		17 Jan 2024	EP2400745017	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	< 0.00	1 <0	0.0001	<0.001		< 0.01	< 0.01	<0.0	05 7.2	104	420		<1	<1	420	16	16	15.3	15.3	2.45 2.4
		02 Jun 2023	EP2307401006	< 0.0001	<0.001 <0.001	<0.001	< 0.001	<0.001	< 0.001	<0.001 <0.0		0.008		0.0001	<0.001 <0.001	<0.01	<0.01 <0.0		<0.005 <0.0	05 7.5	116	542	661.24	<1	<1	542		19.1	18.5	18.5	1.62 1.0
		15 Jun 2023	EP2308079011	<0.0001	<0.001		<0.001		<0.001	<0.0		0.003		0.0001	< 0.001		<0.01	< 0.01	<0.0			490		<1	<1	490	17.3	17.3	18	18	2.08 2.0
		29 Jun 2023 13 Jul 2023	EP2308844021 EP2309615021	<0.0001	<0.001		< 0.001		< 0.001	<0.0		0.008		0.0001	<0.001		<0.01	< 0.01				477	002.0	<1	<1	477			18.4	18.4	
		27 Jul 2023	FP2309615021	< 0.0001	<0.001		<0.001		<0.001	<0.0		<0.002		0.0001	<0.001 <0.001		<0.01 <0.01	<0.01				486 467	592.92 569.74	<1	<1	486 467	17.8 17.8	17.8 17.8	18.3 18.2	18.3 18.2	1.42 1.4 1.03 1.4
WB20-GW06	WB20-GW06	08 Aug 2023	EP2311014008	< 0.0001	< 0.001		< 0.001		<0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01			108			<1	<1	446		16.6	16	16	1.77 1.7
		12 Oct 2023	EP2314412025	<0.0001	<0.001		< 0.001		< 0.001	<0.0		<0.00	1 <0	0.0001	<0.001		<0.01	<0.01		05 7.42	_	435		<1	<1	435		16.8	16.5	16.5	0.86 0.8
		23 Nov 2023	EP2316729023	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.002		0.0001	< 0.001		< 0.01	< 0.01						<1	<1	465			20.1	20.1	
		14 Dec 2023	EP2317978021	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0>	01	0.004	<0	0.0001	< 0.001		< 0.01	< 0.01	<0.0	05 7.64	143	481		<1	<1	481			20.7		
		16 Jan 2024	EP2400745012	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	0.003	<0	0.0001	< 0.001		<0.01	< 0.01	<0.0	05 7.16	141	446		<1	<1	446	19.3	19.3	18.8	18.8	1.22 1.3
		14 Jun 2023	EP2308079015	< 0.0001	0.004		< 0.001		< 0.001	<0.0>		< 0.00		0.0001	< 0.001		<0.01	< 0.01		05 <b>7.64</b>		292		<1	<1	292		11.7	12	12	1.45 1.4
		28 Jun 2023	EP2308844005	< 0.0001	0.003		< 0.001		< 0.001	<0.0		0.003		0.0001	< 0.001		<0.01	< 0.01	<0.0		64	297	362.34	<1	<1	297	11.6	11.6	11.2	11.2	1.91 1.9
		12 Jul 2023	EP2309615005	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		0.036		0.0001	<0.001		<0.01	< 0.01				309	376.98	<1	<1	309	12.5	12.5	12.4	12.4	0.39 0.
WB26-GW04	WB26-GW04	26 Jul 2023	EP2310242005 EP2311014011	<0.0001	0.004		<0.001		<0.001	<0.0		0.002		0.0001	<0.001 <0.001		<0.01	<0.01			68 70	311		<1	<1	311		11.9	11.7	11.7	1.08 1.0
WB20-GW04	WB26-GW04	09 Aug 2023 11 Oct 2023	EP2311014011 EP2314412009	< 0.0001	<0.001	_	<0.001	_	<0.001	<0.0		1.035		0.0001	<0.001		<0.01	<0.01			29	293 285	357.46 173.85	<1	<1	293 285	12.4	12.4 12.3	11.4 11.3	11.4 11.3	4.2 4. 4.01 4.0
		22 Nov 2023	EP2314412003 EP2316729002	<0.0001	0.003		<0.001		<0.001	<0.0		0.003		0.0001	<0.001		<0.01	<0.01		7.40		296	1/3.03	<1	<1	296	12.3 12.2	12.3	11.5	11.5	
		13 Dec 2023	EP2317978007	<0.0001	0.003		<0.001		<0.001	<0.0	01	<0.00		0.0001	0.005		<0.01	<0.01	<0.0		64	303		<1	<1	303	12.5	12.5	11.9	11.9	2.42 2.4
		18 Jan 2024	EP2400745009	< 0.0001	0.004		< 0.001		< 0.001	<0.0>	01	<0.00		0.0001	< 0.001		< 0.01	< 0.01	<0.0					<1	<1	285	12.2	12.2	11.7	11.7	2.33 2.3
		01 Jun 2023	EP2307401011	< 0.0001	<0.001 <0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001 <0.0	0.088	0.021	<0.0001 <0	0.0001	<0.001 <0.001	<0.01	<0.01 <0.0	1 <0.01	<0.005 <0.0	05 7.56	66	385	469.7	<1	<1	385	11.2	11.2	11.1	11.1	0.08 0.0
		09 Aug 2023	EP2311014015	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	0.308	<0	0.0001	< 0.001		< 0.01	< 0.01	<0.0	05	78	365	445.3	<1	<1	365	11.4	11.4	11.1	11.1	1.63 1.6
WBC5GWD208	WBC5GWD208	11 Oct 2023	EP2314412008	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	0.351		0.0001	< 0.001		<0.01	< 0.01	<0.0		33	365	222.65	<1	<1	365	11.4	11.4	11.4		
		22 Nov 2023	EP2316729001	< 0.0001	< 0.001	_	< 0.001		< 0.001	<0.0		0.366		0.0001	< 0.001		<0.01	< 0.01				372		<1	<1	372		11.5	11.2		1.29 1.3
		13 Dec 2023	EP2317978012	<0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.334		0.0001	< 0.001		<0.01	< 0.01				393		<1	<1	393		11.8	11.5		
		17 Jan 2024	EP2400745020	<0.0001	<0.001		< 0.001	0.004	< 0.001	<0.0		0.432		0.0001	<0.001	0.04	<0.01	<0.01	-0.0	7.33		372	404.55	<1	<1	372	11.6	11.6	11.1		1.94 1.9
		01 Jun 2023 14 Jun 2023	EP2307401012 EP2308079001	<0.0001	<0.001 <0.001 <0.001	<0.001	<0.001		<0.001	<0.001 <0.0	0.479	0.298		0.0001	<0.001 <0.001 <0.001	<0.01	<0.01 <0.0 <0.01	1 <0.01 <0.01		05 <b>7.42</b> 05 <b>7.55</b>		403 371	491.66 452.62	<1	<1	403 371	11.5 10.8	11.5 10.8	11.4 11.2	11.4 11.2	0.63 0.0 2.22 2.3
		28 Jun 2023	EP2308075001	<0.0001	<0.001		< 0.001		<0.001	<0.0		0.380		0.0001	<0.001		<0.01	<0.01		_		382	466.04	- 1	<1	382	11.5	11.5	10.8	10.8	3.06 3.0
		13 Jul 2023	EP2309615018	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		0.085		0.0001	<0.001		<0.01	<0.01				385	469.7	<1	<1	385	11.4		11.6	11.6	
WBCSGW0210	WBCSGW0210	27 Jul 2023	EP2310242018	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		0.048		0.0001	<0.001		<0.01	<0.01				379	462.38	<1	<1	379	11.4	11.4	11.3	11.3	0.74 0.7
WBC3GWUZIU	WBC3GWUZIU	08 Aug 2023	EP2311014007	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0>	01	0.04		0.0001	<0.001		< 0.01	< 0.01	<0.0		66	377	459.94	<1	<1	377	11.6	11.6	10.9	10.9	3.21 3.3
		12 Oct 2023	EP2314412021	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	0.1	0.003	<0	0.0001	< 0.001		< 0.01	< 0.01	10.0	7.54	26.5	365	222.65	<1	<1	365	11.3	11.3	11.5	11.5	1 1
		23 Nov 2023	EP2316729016	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.002		0.0001	< 0.001		< 0.01	< 0.01	<0.0			379		<1	<1	379	11.4	11.4	11.6	11.6	0.52 0.5
		12 Dec 2023	EP2317978003	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.002		0.0001	<0.001		<0.01	< 0.01				399		<1	<1	399	11.9	11.9	11.5	11.5	1.42 1.4
<b></b>	_	17 Jan 2024	EP2400745019	< 0.0001	<0.001	0.00	< 0.001	0.00	< 0.001	<0.0	01	<0.00		0.0001	<0.001	0.04	<0.01	<0.01	V0.0	7.33		377	402.00	<1	<1	377	11.6	11.6	11.2	11.2	1.48 1.4
		01 Jun 2023 14 Jun 2023	EP2307401007 EP2308079019	<0.0001	<0.001 <0.001	<0.001	<0.001	< 0.001	<0.001	<0.001 <0.0 <0.0	0.339	0.297		0.0001	<0.001 <0.001 <0.001	<0.01	<0.01 <0.0	1 <0.01	<0.005 <0.0 <0.0	05 <b>7.61</b> 05 <b>7.77</b>		404 381	492.88 464.82	<1	<1	404 381		11.6 11.1	11.5 11.4	11.5 11.4	0.6 0. 1.32 1.3
		28 Jun 2023	EP2308079019 EP2308844009	< 0.0001	<0.001		<0.001		<0.001	<0.0		0.213		0.0001	<0.001		<0.01 <0.01	<0.01		_		388	473.36	<1	<1	388	11.1	11.1	12.5	12.5	3.11 3.
		28 Jun 2023 12 Jul 2023	EP2308844009 EP2309615009	< 0.0001	<0.001		<0.001		<0.001	<0.0		0.183		0.0001	<0.001		<0.01	<0.01		_	_	396	_	<1	<1	396	11.8 11.8	11.8	12.5	12.5	
		26 Jul 2023	EP2310242009	< 0.0001	<0.001		< 0.001		<0.001	<0.0		0.327		0.0001	<0.001		<0.01	<0.01				399	486.78	<1	<1	399		12.1	11.8	11.8	
WBCSGW0219	WBCSGW0219	09 Aug 2023	EP2311014016	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		0.331		0.0001	<0.001		<0.01	<0.01			80	382	466.04	<1	<1	382		11.9	11.4	11.4	2.29 2.3
		11 Oct 2023	EP2314412014	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	_	0.129		0.0001	<0.001		< 0.01	< 0.01	<0.0	05 7.49	_	381	232.41	<1	<1	381			11.8	11.8	0.39 0.3
		22 Nov 2023	EP2316729007	< 0.0001	< 0.001		< 0.001	_	< 0.001	<0.0		0.058	<0	0.0001	< 0.001		< 0.01	< 0.01		05 <b>7.74</b>	76	388		<1	<1	388	12	12	11.5	11.5	2.18 2.1
		13 Dec 2023	EP2317978013	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.285		0.0001	<0.001		< 0.01	< 0.01						<1	<1	412			11.7		
		17 Jan 2024	EP2400745021	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0		0.696		0.0001	< 0.001		<0.01	< 0.01						<1	<1		11.7		11.3		1.47 1.4
		13 Jun 2023	EP2308079013	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		< 0.00		0.0001	<0.001		<0.01	< 0.01					436.76	<1	<1	358			11.3		
		29 Jun 2023	EP2308844017	< 0.0001	<0.001		< 0.001		< 0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01					442.86	<1	<1	363		11.5	11.3		0.57 0.5
		11 Jul 2023	EP2309615001	<0.0001	<0.001 <0.001		<0.001		<0.001	<0.0		<0.00		0.0001	<0.001 <0.001		<0.01	<0.01					451.4	<1	<1	370		11.3	11.5		1.04 1.0
XD57	XD57	25 Jul 2023 09 Aug 2023	EP2310242001 EP2311014021	<0.0001	<0.001		<0.001		<0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01			63	379 368	462.38 448.96	<1	<1	379 368	11.6	11.6 11.6	10.9 10.8	10.9	3.19 3.1 3.52 3.1
		12 Oct 2023	FP2311014021	< 0.0001	<0.001		< 0.001		<0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01						<1	<1	346			11.2		
		23 Nov 2023	EP2316729014	< 0.0001	<0.001		<0.001		<0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01			61		222.00	<1	<1	363		11.8	11.7	11.7	
		14 Dec 2023	EP2317978022	<0.0001	<0.001		<0.001		<0.001	<0.0		<0.00		0.0001	<0.001		<0.01	<0.01						<1	<1				10.8		
		18 Jan 2024	EP2400745003	< 0.0001	< 0.001		< 0.001		< 0.001	<0.0	01	<0.00	1 <0	0.0001	< 0.001		< 0.01	<0.01	<0.0		53			<1	<1						0.61 0.6
	•			•																											

# Appendix C

Historical trends and Mann-Kendall analyses



#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: EX305 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Sep-18 0.179 29-Sep-18 0.097 0.179 19-Dec-21 0.158 0.378 19-Dec-21 0.130 0.354 19-Dec-21 0.220 0.430 15-Jun-22 0.217 0.450 15-Jun-22 0.189 0.390 31-Jan-23 0.163 0.362 6-Jun-23 0.523 10 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Increasing Increasing Concentration (µg/L) PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

#### Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

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### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1514M Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 25-Mar-19 0.06 0.07 26-Mar-19 0.06 0.07 0.0768 0.0922 1-Jul-20 1-Feb-23 0.0259 0.0358 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Stable Concentration (µg/L) PFOS PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

#### Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

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# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1815 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.251 13-Jul-20 0.213 18-Dec-21 0.229 0.271 15-Jun-22 0.272 0.307 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFH: 0.1 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: MWGW001 aka WBCSGW173 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS Sum of Total CONCENTRATION (µg/L) 0.052 29-Sep-18 0.047 6-Jul-20 0.0882 0.1100 0.0648 0.0821 6-Jul-20 17-Dec-21 0.0632 0.1200 10-Mar-22 0.0641 0.0854 19-Jun-22 0.1170 0.1520 31-Jan-23 0.0951 0.1070 0.0954 0.1090 9 31-Jan-23 0.0880 0.0980 10 6-Jun-23 0.0806 0.1330 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend No Trend 1 Concentration (µg/L) PFOS+PFHxS Sum of Total PFAS 0.01 10/95 04/01 04/12 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: MWGW003 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.632 25-Sep-18 0.811 17-Dec-21 0.046 0.385 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFH: 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: MWGW004 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.336 26-Sep-18 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 10 Concentration (µg/L) PFOS+PFH: 0.1 07/09 10/95 07/98 04/01 01/04 10/06 04/12 12/14 09/17 06/20 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: MWGW102d Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.028 0.45 26-Sep-18 6-Jun-23 0.042 0.33 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: MWGW103d Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 26-Sep-18 0.074 8-Jul-20 0.048 0.457 0.0425 0.392 8-Jul-20 15-Jun-22 0.0378 0.566 0.024 0.444 31-Jan-23 2-Jun-23 0.019 0.356 2-Jun-23 0.019 0.356 15-Jun-23 0.0167 0.344 9 28-Jun-23 0.0171 0.325 10 12-Jul-23 0.0149 0.329 27-Jul-23 0.0166 0.344 11 8-Aug-23 0.0169 0.326 13 10-Oct-23 0.0178 0.2660 0.3230 23-Nov-23 0.022 15 12-Dec-23 0.0128 0.3020 0.3610 17-Jan-24 0.0187 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing Concentration (µg/L) PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB18-GW01D Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 25-Jan-20 0.16 0.44 19-Nov-21 0.384 0.759 17-Mar-22 0.238 0.501 17-Mar-22 0.214 0.459 0.381 13-Jun-22 0.722 29-Jan-23 0.341 0.712 4-Jun-23 0.257 0.504 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend No Trend Concentration (µg/L) PFOS PFOS+PFHxS 0.1 10/95 04/01 04/12 09/17 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB18-GW01S Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 24-Jan-20 0.37 25-Jan-20 0.4 0.92 25-Jan-20 0.3 0.71 19-Nov-21 0.382 0.852 17-Mar-22 0.259 0.567 17-Mar-22 0.256 0.582 17-Mar-22 0.34 0.72 13-Jun-22 0.26 0.612 29-Jan-23 0.243 0.608 10 4-Jun-23 0.158 0.448 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing Concentration (µg/L) PFOS+PFHxS 0.1 10/95 04/01 04/12 09/17 03/23 10/06 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB18-GW03D Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 30-Mar-20 0.36 0.62 19-Nov-21 0.188 0.379 0.425 19-Nov-21 0.22 14-Jun-22 0.173 0.346 29-Jan-23 0.148 0.338 2-Jun-23 0.106 0.258 02-Jun-23 0.106 0.258 15-Jun-23 0.128 0.287 9 27-Jun-23 0.101 0.263 10 12-Jul-23 0.108 0.258 27-Jul-23 0.102 0.228 11 8-Aug-23 0.0994 0.244 13 12-Oct-23 0.1110 0.243 23-Nov-23 0.1060 0.217 15 12-Dec-23 0.1010 0.252 17-Jan-24 0.0966 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 1 Concentration (µg/L) PFOS+PFHxS 0.01 09/17 10/95 04/01 04/12 10/06 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB18-GW03S Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 30-Mar-20 0.13 0.25 19-Nov-21 0.125 0.266 13-Jun-22 0.269 0.107 29-Jan-23 0.132 0.331 0.154 4-Jun-23 0.0564 9 10 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend Concentration (µg/L) PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
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   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB18-GW04 Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 29-Mar-20 0.190 0.320 20-Nov-21 0.196 0.350 10-Mar-22 0.166 0.309 16-Jun-22 0.149 0.290 12-Oct-22 0.158 0.300 12-Oct-22 0.147 0.285 12-Oct-22 0.189 0.356 0.440 12-Oct-22 0.260 9 0.190 0.359 10 29-Jan-23 0.158 0.280 0.137 11 0.253 29-Jan-23 12 0.160 0.270 0.209 13 4-Jun-23 0.132 15-Jun-23 0.110 0.20 15 29-Jun-23 0.0802 0.164 13-Jul-23 0.102 0.191 16 27-Jul-23 0.197 0.327 18 9-Aug-23 0.0922 0.169 12-Oct-23 0.066 0.132 19 20 23-Nov-23 0.0938 0.181 14-Dec-23 0.0816 21 0.163 17-Jan-24 0.0716 0.159 23 Coefficient of Variation: Mann-Kendall Statistic (S): -111 Confidence Factor **Concentration Trend:** Decreasing Decreasing Concentration (µg/L) - PFOS PFOS+PFHxS 0.1 0.01 04/12 09/17 10/95 04/01 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB18-GW05 Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 29-Mar-20 0.3 0.5 20-Nov-21 0.188 0.381 0.368 20-Nov-21 0.178 10-Mar-22 0.129 0.287 0.459 19-Jun-22 0.224 0.233 0.466 28-Jan-23 0.21 0.403 15-Jun-23 0.172 0.343 9 29-Jun-23 0.16 0.34 10 13-Jul-23 0.178 0.354 27-Jul-23 0.188 0.341 11 9-Aug-23 0.182 0.339 13 12-Oct-23 0.1820 0.33 23-Nov-23 0.0938 0.346 15 14-Dec-23 0.1620 0.314 0.390 17-Jan-24 0.1850 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Stable Concentration (µg/L) PFOS+PFHxS 0.01 09/17 10/95 04/01 04/12 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB20-GW01 Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 25-Jan-20 0.38 0.75 21-Nov-21 0.368 0.768 17-Mar-22 0.254 0.532 17-Mar-22 0.403 0.685 13-Jun-22 0.209 0.513 29-Jan-23 0.208 0.496 4-Jun-23 0.16 0.384 0.159 0.391 4-Jun-23 0.14 0.36 10 4-Jun-23 0.14 0.36 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 1 PFOS+PFHxS Concentration (µg/L) PFOS+PFHxS 0.1 07/50 10/95 07/09 03/23 11/36 04/64 12/77 08/91 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB20-GW02 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.57 26-Jan-20 0.29 17-Dec-21 0.0542 0.184 14-Jun-22 0.194 0.407 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB20-GW03 Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 27-Mar-20 0.005 0.005 27-Mar-20 0.005 0.005 30-Mar-20 0.005 0.005 8-Jul-20 0.001 0.0039 8-Jul-20 0.0008 0.0008 20-Nov-21 0.001 0.0035 20-Nov-21 0.0001 0.0001 9 16-Jun-22 0.0001 0.0001 10 20-Jun-22 0.0012 0.0039 28-Jan-23 0.0009 0.0032 11 0.0016 0.0033 13 28-Jan-23 0.0009 0.0029 29-Jan-23 0.0004 15 4-Jun-23 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 04/12 10/95 04/01 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB20-GW04 Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 24-Jan-20 0.005 0.005 7-Jul-20 0.0013 17-Dec-21 0.0001 0.0001 16-Jun-22 0.0001 0.0001 0.0001 0.0001 16-Jun-22 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: Concentration Trend: Prob. Decreasing Prob. Decreasing 1 Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/12 04/01 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB20-GW05 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 30-Mar-20 0.005 0.005 8-Jul-20 0.0008 0.0008 20-Nov-21 0.0001 0.0001 16-Jun-22 0.0001 29-Jan-23 0.0004 0.0004 4-Jun-23 9 10 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend No Trend 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 03/23 10/06 09/17 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WB20-GW06 Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 29-Mar-20 0.12 0.23 20-Nov-21 0.111 0.193 18-Mar-22 0.0892 0.181 18-Mar-22 0.0855 0.171 18-Mar-22 0.0796 0.156 19-Jun-22 0.0827 0.177 29-Jan-23 0.0513 0.127 2-Jun-23 0.0493 0.125 9 2-Jun-23 0.0493 0.125 10 15-Jun-23 0.0453 0.119 29-Jun-23 0.0625 11 0.137 13-Jul-23 0.0489 0.122 13 27-Jul-23 0.0595 0.125 8-Aug-23 0.0434 0.107 15 12-Oct-23 0.0450 0.117 23-Nov-23 0.0595 0.145 16 14-Dec-23 0.0356 0.102 18 16-Jan-24 0.0574 0.159 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing Concentration (µg/L) PFOS+PFHxS 0.01 09/17 10/95 04/01 04/12 10/06 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBAQRT017 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 27-Mar-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFH: 04/12 10/95 07/98 01/04 10/06 07/09 12/14 03/23 04/01 09/17 06/20 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBCSGW159 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 27-Mar-20 0.005 0.005 8-Jul-20 0.0004 0.0004 0.0001 8-Jul-20 0.0005 0.0001 0.0001 20-Nov-21 20-Jun-22 0.0001 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: Concentration Trend: Prob. Decreasing Prob. Decreasing 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBCSGW171 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Sep-18 0.038 1.28 6-Jul-20 0.076 0.992 6-Jul-20 0.0902 1.15 19-Dec-21 0.0591 0.502 15-Jun-22 0.171 0.665 6-Jun-23 0.187 0.556 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Increasing Prob. Decreasing 10 Concentration (µg/L) PFOS+PFHxS 0.1 0.01 04/01 10/06 04/12 10/95 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBCSGW173 aka MWGW001 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Sep-18 0.047 6-Jul-20 0.0882 0.1100 0.0648 0.0821 6-Jul-20 17-Dec-21 0.0632 0.1200 10-Mar-22 0.0641 0.0854 19-Jun-22 0.1170 0.1520 31-Jan-23 0.0951 0.1070 0.0954 0.1090 9 31-Jan-23 0.0880 0.0980 10 6-Jun-23 0.0806 0.1330 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend No Trend 1 Concentration (µg/L) PFOS+PFHxS 0.01 09/17 10/95 04/01 10/06 04/12 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBCSGW191 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 26-Mar-19 0.08 0.31 8-Jul-20 0.13 0.332 8-Jul-20 0.12 0.36 20-Nov-21 0.227 0.483 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend Increasing Concentration (µg/L) PFOS+PFH: 0.01 04/12 10/95 07/98 04/01 01/04 10/06 07/09 12/14 09/17 06/20 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBGW003 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.04 26-Sep-18 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFH: 0.01 10/95 07/09 07/98 04/01 01/04 10/06 04/12 12/14 06/20 09/17 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBGW006 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 8-Jul-20 1.08 1.86 9-Jul-21 0.292 0.57 21-Dec-21 0.454 0.883 14-Jun-22 0.23 0.438 28-Jan-23 0.0972 0.162 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 10 Concentration (µg/L) PFOS+PFH: 0.1 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WBGW053d Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Sep-18 0.451 0.671 0.951 8-Jul-20 1.02 0.536 0.608 3 8-Jul-20 0.551 0.47 0.437 17-Dec-21 0.742 5 0.294 0.512 19-Jun-22 6 19-Jun-22 0.3 0.53 8 6-Jun-23 0.616 0.782 10 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) Confidence Factor **Concentration Trend:** Stable Stable 10 Concentration (µg/L) PFOS PFOS+PFHxS 0.1 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.</p>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEX0745M** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.442 7-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFH: 0.1 01/04 04/12 10/95 07/98 10/06 07/09 12/14 03/23 04/01 09/17 06/20 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEOP0384M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 25-Mar-19 0.005 6-Jul-20 0.0011 0.0011 0.0018 6-Jul-20 0.0001 0.0014 12-Oct-22 0.0001 0.0013 12-Oct-22 0.0001 0.0014 12-Oct-22 0.0005 0.0005 0.0001 0.0013 12-Oct-22 9 10 11 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Stable 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes:

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0637M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0003 6-Jul-20 1-Feb-23 0.0004 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 09/17 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WBGW007 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 25-Mar-19 0.07 0.11 0.0888 1-Jul-20 0.138 1-Feb-23 0.0508 0.1 3 6 8 10 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Concentration (µg/L) PFOS PFOS+PFHxS 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

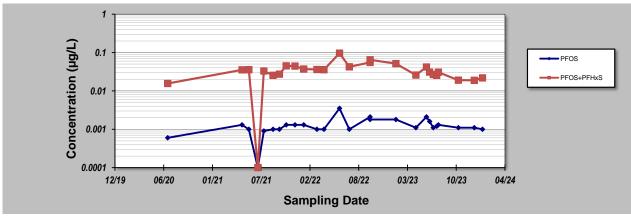
## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date:	Job ID:		
Facility Name: HWHB1526M Primary samples only	Constituent:		
Conducted By:	Concentration Units:	μg/L	
Sampling Point ID: PFOS PFOS+PFHx	S		

Samp	oling Point ID:	PFOS	PFOS+PFHxS						
Sampling	Sampling		CONCENTRATION (µg/L)						
Event	Date 4-Jul-20	0.0000	0.0156				ı		
2	1	0.0006 0.0013	0.0156						
3	5-May-21 2-Jun-21	0.0013	0.0356						
4	9-Jul-21	0.001	0.0001						
5	2-Aug-21	0.0009	0.0330						
6	9-Sep-21	0.001	0.0256						
7	5-Oct-21	0.001	0.0274						
8	2-Nov-21	0.0013	0.0450						
9	8-Dec-21	0.0013	0.0443						
10	13-Jan-22	0.0013	0.0371						
11	8-Mar-22	0.001	0.0361						
12	6-Apr-22	0.001	0.0356						
13	9-Jun-22	0.004	0.0961						
14	19-Jul-22	0.001	0.0426						
15	12-Oct-22	0.002	0.0551						
16	12-Oct-22	0.002	0.0645						
17	26-Jan-23	0.002	0.0516						
18	18-Apr-23	0.001	0.0259						
19	1-Jun-23	0.0021	0.0421						
20	14-Jun-23	0.0016	0.031						
21	29-Jun-23	0.0011	0.0268						
22	13-Jul-23	0.0012	0.0255						
23	20-Jul-23	0.0013	0.0307						
24	27-Jul-23	0.0018	0.023						
25	8-Aug-23	0.0008	0.0185						
26	10-Oct-23	0.0011	0.0190						
27	<b>.</b>								
28	14-Dec-23	0.0011	0.0189						
29	17-Jan-24	0.0010	0.0218						
30		0.40	0.54						
Coefficient of Variation:		0.48	0.51 7						
Mann-Kendall Statistic (S):		113							
Confidence Factor:		99.4%	55.2%						
Concentration Trend:		Increasing	No Trend						



## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: EEG1391R Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 11-Jul-20 0.0001 0.0001 0.0009 20-Mar-22 0.0026 0.0009 0.002 30-Jan-23 3 0.0004 0.0015 1-Jun-23 0.0005 0.0015 14-Jun-23 28-Jun-23 0.0005 0.0017 6 0.0008 0.0018 12-Jul-23 8 26-Jul-23 0.0008 0.0017 9-Aug-23 0.0003 0.0003 10 11-Oct-23 0.0001 0.0001 22-Nov-23 0.0001 0.0001 12 13-Dec-23 0.0001 0.0001 13 18-Jan-24 0.0001 0.0001 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor** Concentration Trend Decreasing Decreasing Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: HWHB0051P Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 28-Jun-23 0.002 0.0042 0.0044 0.002 12-Jul-23 0.0021 0.0045 0.0019 0.004 26-Jul-23 0.0018 0.0038 26-Jul-23 5 09-Aug-23 0.0016 0.0034 6 11-Oct-23 0.0018 0.0038 8 22-Nov-23 0.0033 0.0056 13-Dec-23 0.0017 0.0039 10 17-Jan-24 0.0019 0.0044 12 13 14 15 16 17 18 19 4/04/2018 4/04/2025 Coefficient of Variation Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Stable Stable 0.1 Concentration (µg/L) 0.01 PFOS+PFHxS PFOS -0.001 03/23 05/23 06/23 08/23 10/23 11/23 01/24 02/24 04/24 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: HWHB0057P Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS **NEMP 2020** PFOS (Eco CONCENTRATION (µg/L) 21-Mar-19 0.0001 0.0001 0.0001 0.0001 21-Nov-19 0.0001 0.0001 23-Jan-20 25-Mar-20 0.0001 0.0001 0.0001 9-Jul-20 0.0001 5 11-Oct-23 0.0001 0.0001 6 0.0001 0.0001 22-Nov-23 8 13-Dec-23 0.0001 0.0001 18-Jan-24 0.0001 0.0001 10 11 12 13 14 15 16 17 18 19 Coefficient of Variation Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Stable Stable 0.1 Concentration (µg/L) 0.01 PFOS PFOS+PFHxS 0.001 - PFOS (Eco Freshwater 95%) 0.0001 04/21 10/21 05/22 08/19 03/20 09/20 12/22 06/23 01/24 07/24 02/19 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: HWHB0060P Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 21-Mar-19 0.0005 0.0002 0.0002 21-Nov-19 0.0001 0.0001 3 23-Jan-20 25-Mar-20 0.0001 0.0001 0.0001 0.0001 5 28-Jun-23 12-Jul-23 0.0001 0.0001 6 26-Jul-23 0.0002 0.0002 8 09-Aug-23 0.0001 0.0001 11-Oct-23 0.0001 0.0001 10 13-Dec-23 0.0001 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) Confidence Factor Stable Concentration Trend: Decreasing Concentration (µg/L) 0.1 PFOS 0.01 PFOS+PFHxS 0.001 0.0001 0.00001 01/21 10/18 05/19 12/19 06/20 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: HWHB1521M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 4-Jul-20 0.0032 0.0078 20-Mar-22 0.0074 0.0025 0.0079 20-Mar-22 0.003 3 20-Mar-22 0.0029 0.0078 0.0023 0.0061 30-Jan-23 1-Jun-23 0.0022 0.0063 6 14-Jun-23 0.0023 0.0064 8 28-Jun-23 0.0026 0.0065 12-Jul-23 0.0025 0.0064 10 26-Jul-23 0.0024 0.0061 09-Aug-23 0.0022 0.0055 11 12 11-Oct-23 0.0024 0.0058 13 22-Nov-23 0.0019 0.0044 14 13-Dec-23 0.0021 0.0051 15 18-Jan-24 0.0016 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor** Concentration Trend Decreasing Decreasing Concentration (µg/L) PFOS 0.1 0.01 0.001 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WB26-GW04 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 20-Dec-21 0.0001 0.0001 0.0001 0.0001 10-Mar-22 0.0002 0.0002 3 18-Jun-22 0.0002 0.0002 18-Jun-22 13-Oct-22 0.0001 0.0001 5 13-Oct-22 0.0001 0.0001 6 30-Jan-23 0.0003 0.0003 8 5-Jun-23 0.0001 0.0001 0.0001 0.0001 10 5-Jun-23 0.0009 0.0005 0.0001 11 0.0001 12 14-Jun-23 0.0001 0.000 13 0.0001 0.0001 14 0.0001 0.000 28-Jun-23 15 0.0001 0.0001 16 28-Jun-23 0.00005 0.000 17 12-Jul-23 0.0001 0.0001 18 26-Jul-23 0.0001 0.0001 19 9-Aug-23 0.0001 0.0001 20 11-Oct-23 0.0001 0.0001 21 0.0001 22-Nov-23 0.0001 22 13-Dec-23 0.0002 0.0002 23 18-Jan-24 0.000 0.000 24 Coefficient of Variation Mann-Kendall Statistic (S): 75.2° 62.3% Confidence Factor **Concentration Trend:** No Trend Stable Concentration (µg/L) 0.1 0.01 PFOS+PFHxS 0.001 0.0001 0.00001 10/21 02/22 05/22 08/22 12/22 03/23 06/23 10/23 01/24 04/24 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: HWHB1551M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 0.0001 5-Jun-23 0.0001 11-Jul-20 0.0001 0.0001 3 18-Jun-22 0.0001 0.0001 19-Dec-21 0.0001 0.0001 5 14-Jun-23 0.0001 0.0001 6 14-Jun-23 0.0002 0.0005 8 28-Jun-23 0.0002 0.0002 12-Jul-23 0.0001 0.0001 10 26-Jul-23 0.0001 0.0001 9-Aug-23 0.0001 0.0001 11 12 11-Oct-23 0.0001 0.0001 13 22-Nov-23 0.0001 0.0001 14 13-Dec-23 0.0001 0.0001 15 18-Jan-24 0.0001 0.0001 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor** Stable Stable Concentration Trend: Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: MWGW103D Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 26-Sep-18 0.074 0.685 0.048 0.457 8-Jul-20 0.0425 0.392 3 8-Jul-20 15-Jun-22 0.0378 0.566 0.444 31-Jan-23 0.024 2-Jun-23 0.019 0.356 6 0.019 0.356 2-Jun-23 8 15-Jun-23 0.0167 0.344 28-Jun-23 0.0171 0.325 10 12-Jul-23 0.0149 0.329 27-Jul-23 0.0166 0.344 12 8-Aug-23 0.0169 0.326 13 10-Oct-23 0.0178 0.2660 14 23-Nov-23 0.022 0.3230 15 12-Dec-23 0.0128 0.3020 16 17-Jan-24 0.0187 0.3610 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Decreasing Decreasing Concentration (µg/L) PFOS PFOS+PFHxS 0.01 09/17 02/19 06/20 10/21 03/23 07/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WB18-GW03D Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 30-Mar-20 0.36 0.62 19-Nov-21 0.188 0.379 0.22 0.425 3 0.346 14-.lun-22 0.173 0.338 0.148 29-Jan-23 0.106 0.258 2-Jun-23 6 0.106 0.258 02-Jun-23 8 15-Jun-23 0.128 0.287 27-Jun-23 0.101 0.263 10 12-Jul-23 0.108 0.258 27-Jul-23 0.102 0.228 11 12 8-Aug-23 0.0994 0.244 13 12-Oct-23 0.1110 0.243 14 23-Nov-23 0.1060 0.217 15 12-Dec-23 0.1010 0.252 16 17-Jan-24 0.0966 0.290 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor** Concentration Trend Decreasing Decreasing Concentration (µg/L) PFOS PFOS+PFHxS 0.1 0.01 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WB18-GW04 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Mar-20 0.190 0.320 20-Nov-21 0.196 0.350 10-Mar-22 0.166 0.309 3 16-Jun-22 0.149 0.290 12-Oct-22 0.158 0.300 5 12-Oct-22 0.147 0.285 6 0.189 0.356 12-Oct-22 8 12-Oct-22 0.260 0.440 0.190 0.359 10 29-Jan-23 0.158 0.280 0.137 11 0.253 12 29-Jan-23 0.160 0.270 13 0.132 0.209 14 15-Jun-23 0.110 0.20 15 29-Jun-23 0.0802 0.164 16 13-Jul-23 0.102 0.191 17 27-Jul-23 0.197 0.327 18 9-Aug-23 0.0922 0.169 19 12-Oct-23 0.066 0.132 20 21 23-Nov-23 0.0938 0.181 0.0816 14-Dec-23 0.163 22 17-Jan-24 0.0716 0.159 23 24 Coefficient of Variation Mann-Kendall Statistic (S): -111 -103 Confidence Factor >99.9% >99.9% **Concentration Trend:** Decreasing Decreasing Concentration (µg/L) PEOSTPEHA 0.1 0.01 07/21 02/22 12/19 06/20 01/21 08/22 03/23 10/23 04/24 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WB18-GW05 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Mar-20 0.3 0.5 0.646 20-Nov-21 0.188 0.381 0.368 0.178 3 20-Nov-21 10-Mar-22 0.287 0.129 0.459 19-Jun-22 0.224 5 0.233 0.466 19-Jun-22 6 28-Jan-23 0.403 0.21 8 15-Jun-23 0.172 0.343 29-Jun-23 0.16 0.34 10 13-Jul-23 0.178 0.354 27-Jul-23 0.188 0.341 11 12 9-Aug-23 0.182 0.339 13 12-Oct-23 0.1820 0.33 14 23-Nov-23 0.0938 0.346 15 14-Dec-23 0.1620 0.314 16 17-Jan-24 0.1850 0.390 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) Confidence Factor Stable Stable Concentration Trend: Concentration (µg/L) PFOS PFOS+PFHxS 0.1 0.01 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.</p>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WB20-GW06 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 29-Mar-20 0.12 0.23 20-Nov-21 0.111 0.193 18-Mar-22 0.0892 0.181 3 18-Mar-22 0.0855 0.171 0.0796 18-Mar-22 0.156 19-Jun-22 0.0827 0.177 6 0.0513 29-Jan-23 0.127 8 2-Jun-23 0.0493 0.125 2-Jun-23 0.0493 0.125 10 15-Jun-23 0.0453 0.119 29-Jun-23 0.0625 0.137 12 13-Jul-23 0.0489 0.122 13 27-Jul-23 0.0595 0.125 14 8-Aug-23 0.0434 0.107 15 12-Oct-23 0.0450 0.117 16 23-Nov-23 0.0595 0.145 17 14-Dec-23 0.0356 0.102 18 16-Jan-24 0.0574 0.159 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor** Concentration Trend Decreasing Decreasing Concentration (µg/L) PFOS 0.1 0.01 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: MW116 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 9-Jul-20 0.0094 0.0123 0.0094 0.0122 9-Jul-20 0.0087 20-Nov-21 0.0111 3 0.0108 0.0145 14-Jun-22 0.0057 0.009 12-Oct-22 5 12-Oct-22 0.0066 0.0098 6 13-Oct-22 0.0078 0.0123 8 28-Jan-23 0.0085 0.0102 2-Jun-23 0.0071 0.0088 10 14-Jun-23 0.0051 0.0077 0.0052 0.0076 11 28-Jun-23 12 12-Jul-23 0.0049 0.0077 13 27-Jul-23 0.0048 0.0071 14 8-Aug-23 0.005 0.0059 15 10-Oct-23 0.0046 0.0066 16 23-Nov-23 0.0061 0.008 17 14-Dec-23 0.0055 0.0083 18 16-Jan-24 0.0044 0.0071 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor** Concentration Trend Decreasing Decreasing Concentration (µg/L) PFOS 0.1 PFOS+PFHxS 0.01 0.001 12/19 06/20 01/21 07/21 02/22 08/22 03/23 10/23 04/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WBCSGW0219 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 20-Jun-22 0.0015 0.0015 0.0004 0.0004 30-Jan-23 0.0026 0.0051 3 1-Jun-23 0.0006 0.0006 14-Jun-23 0.0001 0.0001 28-Jun-23 12-Jul-23 0.0004 0.0004 6 26-Jul-23 0.0006 0.0006 9-Aug-23 8 0.0004 0.0004 11-Oct-23 0.0036 0.0065 10 22-Nov-23 0.0061 0.0111 13-Dec-23 0.0094 0.0177 12 17-Jan-24 0.009 0.019 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Increasing Increasing Concentration (µg/L) 0.1 PFOS 0.01 0.001 0.0001 05/22 08/22 12/22 03/23 06/23 10/23 01/24 04/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WBCSGW0210 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 20-Jun-22 0.0003 0.0024 0.0002 0.003 30-Jan-23 0.0004 0.0034 3 30-Jan-23 0.0003 0.0036 1-Jun-23 0.0024 0.0001 14-Jun-23 28-Jun-23 0.0004 0.0022 6 13-Jul<u>-23</u> 0.0001 0.0024 27-Jul-23 8 0.0003 0.0023 8-Aug-23 0.0005 0.0026 10 12-Oct-23 0.0006 0.0027 23-Nov-23 0.0004 0.0025 12 12-Dec-23 0.0004 0.0030 13 17-Jan-24 0.0004 0.0035 14 15 16 17 18 19 Coefficient of Variation Mann-Kendall Statistic (S) **Confidence Factor** Concentration Trend: Prob. Increasing No Trend Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 05/22 08/22 12/22 03/23 10/23 01/24 04/24 06/23 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: X57 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 13/06/2023 0.0004 0.0012 0.0004 29/06/2023 0.0004 0.0003 0.0003 11/07/2023 3 25/07/2023 0.0001 0.0001 0.0003 0.0003 9/08/2023 12/10/2023 0.0003 0.0003 6 0.0001 23/11/2023 0.0001 8 14/12/2023 0.0003 0.0003 18/01/2024 0.0003 0.0003 10 11 12 13 14 15 16 17 18 19 Coefficient of Variation Mann-Kendall Statistic (S) **Confidence Factor** Stable Stable Concentration Trend: Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 03/23 05/23 06/23 08/23 10/23 11/23 01/24 02/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: OPDM1 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS **NEMP 2020** PFOS (Eco CONCENTRATION (µg/L) 14-Jun-23 0.002 0.002 0.0024 0.0024 27-Jun-23 0.0017 0.0017 3 11-Jul-23 25-Jul-23 0.0006 0.0006 0.0009 0.0009 7-Aug-23 0.0017 9-Oct-23 0.0017 6 23-Nov-23 0.0021 0.0021 8 12-Dec-23 0.0033 0.0033 18-Jan-24 0.0012 0.0012 10 11 12 13 14 15 16 17 18 19 4/04/2018 0.0002 0.0700 0.0700 4/04/2025 0.0002 Coefficient of Variation Mann-Kendall Statistic (S) **Confidence Factor** Stable Stable Concentration Trend 0.1 Concentration (µg/L) 0.01 PFOS (Eco Fresh) 0.001 0.0001 03/23 05/23 06/23 08/23 10/23 11/23 01/24 02/24 04/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: OPDM2 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS PFOS (Eco **NEMP 2020** CONCENTRATION (µg/L) 14-Jun-23 0.0064 0.0064 0.0013 27-Jun-23 0.0013 0.0017 0.0017 11-Jul-23 3 25-Jul-23 0.0006 0.0006 0.0008 0.0008 7-Aug-23 9-Oct-23 0.0011 0.0011 6 0.0009 23-Nov-23 0.0009 0.0010 8 12-Dec-23 0.0010 18-Jan-24 0.0007 0.0007 10 11 12 13 14 15 16 17 18 0.0700 19 4/04/2018 0.0002 0.0700 4/04/2025 0.0002 Coefficient of Variation Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend** Decreasing Decreasing 0.1 Concentration (µg/L) 0.01 PFOS (Eco Freshy 0.001 0.0001 03/23 05/23 06/23 08/23 10/23 11/23 01/24 02/24 04/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Evaluation Date: 0-Jan-00 Facility Name: HWHB1805M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.916 0.668 25-Jan-20 0.888 1.29 24-Mar-20 0.888 1.29 24-Mar-20 3 0.344 19-Mar-22 0.634 19-Mar-22 0.682 1.02 5 6 8 10 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) Confidence Factor **Concentration Trend:** Stable Stable 10 Concentration (µg/L) PFOS PFOS+PFHxS 0.1 10/19 05/20 11/20 06/21 12/21 07/22 02/23 08/23 03/24 **Sampling Date**

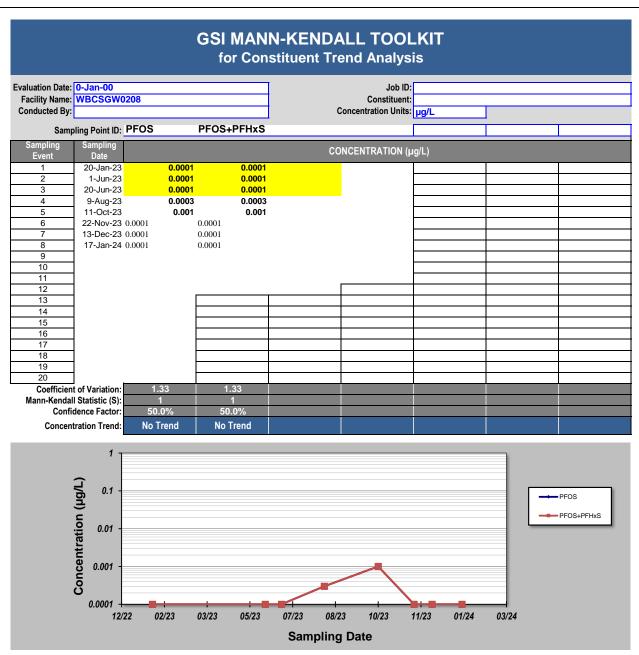
# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Evaluation Date: 0-Jan-00 Facility Name: HWHB1805M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.916 0.668 25-Jan-20 0.888 1.29 24-Mar-20 0.888 1.29 24-Mar-20 3 0.344 19-Mar-22 0.634 19-Mar-22 0.682 1.02 5 6 8 10 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) Confidence Factor **Concentration Trend:** Stable Stable 10 Concentration (µg/L) PFOS PFOS+PFHxS 0.1 10/19 05/20 11/20 06/21 12/21 07/22 02/23 08/23 03/24 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.



# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEK0003P Constituent: Concentration Units: µg/L Conducted By: NT Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 22-Mar-19 0.005 0.005 0.005 0.005 22-Mar-19 0.0001 4-Jul-20 0.0001 3 25-Jan-23 0.0001 0.0001 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor Concentration Trend: No Trend No Trend Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Job ID: **Evaluation Date:** Facility Name: HEK0004P Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 9-Jul-20 0.0001 0.0001 0.0001 0.0001 3-May-21 31-May-21 0.0002 0.0002 3 8-Jul-21 0.0001 0.0001 4 3-Aug-21 0.0001 0.0001 5 0.0001 0.0001 10-Sep-21 6 0.0001 5-Oct-21 0.0001 0.0001 2-Nov-21 0.0001 8 7-Dec-21 0.0001 0.0001 9 0.0001 0.0001 12-Jan-22 10 8-Feb-22 0.0001 0.0001 11 0.0001 0.0001 12 9-Mar-22 7-Apr-22 0.0001 0.0001 13 0.0001 9-Jun-22 0.0001 14 0.0001 15 18-Jul-22 0.0001 11-Oct-22 0.0001 0.0006 16 17 25-Jan-23 0.0001 0.0001 0.0001 0.0001 18 20-Apr-23 19 . 19-Jul-23 0.0001 0.0001 0.0001 0.0001 20 25-Oct-23 21 23 24 Coefficient of Variation: Mann-Kendall Statistic (S): -16 Confidence Factor: 56.4% Concentration Trend: Stable Stable 0.001 Concentration (µg/L) PFOS PFOS+PFHxS 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEK0005P Constituent: Concentration Units: mg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (mg/L) 9-Jul-20 0.0001 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor Concentration Trend: 0.001 Concentration (mg/L) PFOS PFOS+PFHxS 0.0001 10/95 07/98 01/04 07/09 04/12 12/14 09/17 06/20 03/23 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEK0006P Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 22-Mar-19 0.005 0.005 0.0001 0.0001 4-Jul-20 0.0001 31-May-21 0.0001 3 0.0001 0.0001 8-Jul-21 4 5-Oct-21 0.0001 0.0001 5 0.0001 0.0001 2-Nov-21 6 0.0001 0.0001 7-Dec-21 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor 40.8% Concentration Trend: Stable Stable Concentration (µg/L) 0.1 PFOS PEOS+PEHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Job ID: **Evaluation Date:** Facility Name: HEL0101M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 3-Nov-21 0.0001 0.0001 4-Nov-21 0.0001 8-Dec-21 0.0001 3 0.0001 12-Jan-22 0.0001 4 11-Feb-22 0.0001 0.0001 5 0.0001 0.0001 10-Mar-22 6 0.0001 0.0001 7-Apr-22 0.0001 0.0001 9-Jun-22 8 19-Jul-22 0.0001 0.0001 9 0.0001 0.0001 13-Oct-22 10 26-Jan-23 0.0002 0.0002 11 12 20-Apr-23 0.0001 0.0001 19-Jul-23 0.0001 0.0001 13 25-Oct-23 0.0004 0.0004 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): 86.0% Confidence Factor 6.0% No Trend Concentration Trend: No Trend Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Job ID: **Evaluation Date:** Facility Name: HEL0102M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0328 0.0419 3-Nov-21 0.0484 0.0597 4-Nov-21 0.0122 0.0174 7-Dec-21 3 0.0280 0.0358 12-Jan-22 11-Feb-22 0.0010 0.0016 5 0.0052 0.0091 10-Mar-22 6 0.0042 0.0042 7-Apr-22 0.0056 0.0118 9-Jun-22 8 19-Jul-22 0.0053 0.0084 9 13-Oct-22 0.0046 0.0058 10 0.0103 13-Oct-22 0.0064 11 0.0076 12 26-Jan-23 0.01 19-Apr-23 0.0057 13 0.01 19-Jul-23 0.0056 0.0105 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): -18 Confidence Factor 82.1% No Trend Concentration Trend: Prob. Decreasing Concentration (µg/L) PFOS 0.1 PEOS+PEHxS 0.01 0.001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEL0103M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0007 0.0007 3-Nov-21 0.0005 0.0005 4-Nov-21 0.0006 0.0006 9-Dec-21 3 0.0004 0.0004 12-Jan-22 9-Mar-22 0.0011 0.0011 5 0.0004 0.0004 6-Apr-22 6 0.0002 0.0002 9-Jun-22 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor Concentration Trend: Prob. Decreasing Prob. Decreasing Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Job ID: **Evaluation Date:** Facility Name: HEL0104M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 4-Nov-21 0.0003 0.0003 4-Nov-21 9-Dec-21 0.0001 0.0001 3 0.0001 12-Jan-22 0.0001 4 0.0001 0.0001 5 11-Feb-22 0.0001 11-Feb-22 0.0001 6 0.0001 0.0001 11-Feb-22 0.0001 10-Mar-22 0.0001 8 0.0001 0.0001 6-Apr-22 9 0.0001 8-Jun-22 0.0001 10 0.0001 19-Jul-22 0.0001 11 0.0001 12 12-Oct-22 0.000 0.0001 0.000 13 26-Jan-23 0.0001 0.000 14 26-Jan-23 0.0001 15 0.0001 26-Jan-23 0.0001 0.000 16 26-Jan-23 17 19-Apr-23 0.0001 0.000 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): 60.5% Confidence Factor Concentration Trend: Stable Stable Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Job ID: **Evaluation Date:** Facility Name: HEL0105M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 0.0001 3-Nov-21 0.0001 0.0001 4-Nov-21 8-Dec-21 0.0003 0.0003 3 12-Jan-22 0.0001 0.0001 11-Feb-22 0.0001 0.0001 5 0.0001 0.0001 10-Mar-22 6 0.0001 0.0001 7-Apr-22 0.0001 26-Jan-23 0.0001 8 0.0001 0.0001 19-Apr-23 9 . 19-Jul-23 0.0001 0.0001 10 25-Oct-23 0.0002 0.0002 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): 56.9% Confidence Factor No Trend Concentration Trend: No Trend Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis Job ID: **Evaluation Date:** Facility Name: HWHB0802M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0097 0.0143 1-Jun-21 0.0665 0.0817 10-Jul-21 5-Aug-21 0.0098 0.0153 3 5-Aug-21 0.0062 0.0152 4 0.0070 0.0114 5 9-Sep-21 0.0067 0.0110 6 0.0067 0.0111 6-Oct-21 0.0078 0.0127 8 6-Oct-21 4-Nov-21 0.0051 0.0095 9 0.0049 0.0093 10 4-Nov-21 0.0048 0.0090 11 8-Dec-21 0.0062 0.0104 12 8-Dec-21 12-Jan-22 0.0079 0.0134 13 0.0074 14 12-Jan-22 0.0134 0.0096 15 11-Feb-22 0.0145 0.0094 16 11-Feb-22 0.0151 17 10-Mar-22 0.0089 0.0130 0.0086 18 10-Mar-22 0.0134 19 19-Jul-23 0.0088 0.0244 20 21 23 24 Coefficient of Variation: Mann-Kendall Statistic (S): 65.1% Confidence Factor **Concentration Trend** No Trend Stable Concentration (µg/L) PFOS 0.1 PEOS+PEHxS 0.01 0.001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0802M D Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0644 0.0798 10-Jul-21 0.0261 0.0354 5-Aug-21 3 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor Concentration Trend: Concentration (µg/L) PFOS PFOS+PFHxS 0.1 0.01 10/95 07/98 01/04 10/06 07/09 04/12 12/14 09/17 06/20 03/23 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0802M I Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0572 0.0707 10-Jul-21 0.0361 0.0476 5-Aug-21 3 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor Concentration Trend: Concentration (µg/L) PFOS PEOS+PEHxS 0.1 0.01 10/95 07/98 01/04 10/06 07/09 04/12 12/14 09/17 06/20 03/23 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0802M S Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0457 0.0577 10-Jul-21 0.0093 0.015 5-Aug-21 3 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor Concentration Trend: Concentration (µg/L) PFOS 0.1 PFOS+PFHxS 0.01 0.001 10/95 07/98 01/04 10/06 07/09 04/12 12/14 09/17 03/23 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1607M Constituent: Conducted By: Concentration Units: µg/L PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 1-Jun-21 10-Jul-21 0.0001 0.0001 4-Aug-21 0.0004 0.0004 4 9-Sep-21 0.0001 0.0001 5 6-Oct-21 0.0003 0.0003 6 4-Nov-21 0.0001 0.0001 0.0005 0.0005 9-Dec-21 0.0004 8 12-Jan-22 0.0004 0.0004 0.0004 9 11-Feb-22 0.0006 9-Mar-22 0.0006 10 11 7-Apr-22 0.0001 0.0001 9-Jun-22 0.0008 0.0008 12 13 14 15 16 19 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor **Concentration Trend:** Increasing Increasing Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 06/20 09/20 01/21 04/21 07/21 10/21 02/22 05/22 08/22 **Sampling Date**

# Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

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# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EL0006DM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 11-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 03/23 04/01 09/17 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEL0104M Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 4-Nov-21 4-Nov-21 0.0003 0.0027 0.0001 9-Dec-21 0.0001 0.0011 12-Jan-22 0.0001 0.0001 0.0001 0.0001 0.0001 11-Feb-22 0.0001 11-Feb-22 0.0001 0.0001 0.0001 11-Feb-22 0.0001 0.0001 0.0001 10-Mar-22 0.0001 0.0001 0.0001 9 6-Apr-22 0.0001 0.0001 0.0001 10 8-Jun-22 0.0001 0.0001 0.0001 19-Jul-22 0.0001 0.0001 0.0001 11 12-Oct-22 0.0001 12 0.0001 0.0001 13 0.0001 0.0005 26-Jan-23 0.002 26-Jan-23 0.0001 15 0.0001 0.0001 26-Jan-23 0.0001 0.0001 0.0001 16 0.0001 19-Apr-23 0.0001 0.0001 0.0001 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Stable Decreasing 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 03/23 04/12 09/17 10/95 04/01 10/06 09/28 **Sampling Date**

# Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1608M Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 5-May-21 2-Jun-21 0.0004 0.0004 0.00005 4-Aug-21 0.0005 0.0001 0.0001 4-Aug-21 0.0001 0.0001 9-Sep-21 0.0002 0.0002 6-Oct-21 0.0001 0.0001 4-Nov-21 0.0001 0.0001 9 9-Dec-21 0.0002 0.0002 10 12-Jan-22 0.0003 0.0003 7-Apr-22 0.0001 11 9-Jun-22 0.0001 0.0001 13 19-Jul-23 0.0001 25-Oct-23 0.0001 0.0001 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Stable 1 Concentration (µg/L) 0.1 0.01 PFOS+PFH: 0.001 0.0001 0.00001 04/01 04/12 10/95 10/06 09/17 03/23 09/28 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1609M Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 11-Jul-20 0.0001 0.0001 5-May-21 0.0001 0.0001 0.0001 2-Jun-21 0.0001 0.0012 4-Aug-21 0.0018 9-Sep-21 0.0001 0.0001 6-Oct-21 0.0001 0.0001 2-Nov-21 0.0001 0.0001 9-Dec-21 0.0001 0.0001 9 12-Jan-22 0.0001 0.0001 10 11-Feb-22 0.0001 0.0001 10-Mar-22 0.0001 0.0001 11 7-Apr-22 0.0001 0.0001 12 13 8-Jun-22 0.0001 0.0001 14 19-Jul-22 0.0001 0.0001 15 0.0001 0.0001 13-Oct-22 0.0001 0.0001 16 14-Oct-22 0.0001 0.0001 18 26-Jan-23 0.0001 0.0001 19-Apr-23 0.0001 19 0.0001 20 0.0001 0.0001 19-Jul-23 0.0001 0.0005 21 19-Jul-23 0.0001 23 25-Oct-23 0.0001 0.0001 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: Concentration Trend: No Trend 0.1 Concentration (µg/L) -PFOS 0.01 PFOS+PFHxS 0.001 0.0001 0.00001 04/12 10/95 04/01 10/06 09/17 03/23 09/28 **Sampling Date**

# Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1610M Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 11-Jul-20 0.0001 0.0001 4-Aug-21 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 09/17 03/23 04/01 06/20 **Sampling Date**

# Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1616M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 3-Jul-20 0.0003 5-May-21 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 01/04 10/06 07/09 04/12 12/14 03/23 07/98 04/01 09/17 06/20 **Sampling Date**

# Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1631M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 3-Jul-20 0.0006 0.0006 4-Aug-21 0.0001 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 01/04 10/06 07/09 04/12 07/98 04/01 12/14 09/17 06/20 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WBCSGW0216 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 3-May-22 0.0001 0.0024 3 6 8 10 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1524M Primary samples only Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 9-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 04/01 09/17 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1526M Primary samples only Constituent: Concentration Units: µg/L Conducted By Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 26-Mar-19 0.0001 4-Jul-20 0.0006 5-May-21 0.0013 0.0355 2-Jun-21 0.0356 0.001 9-Jul-21 0.0001 0.0001 2-Aug-21 0.0009 0.0330 9-Sep-21 0.001 0.0256 5-Oct-21 0.001 0.0274 9 2-Nov-21 0.0013 0.0450 10 8-Dec-21 0.0013 0.0443 13-Jan-22 0.0013 0.0371 11 8-Mar-22 0.001 0.0361 12 13 6-Apr-22 0.001 0.0356 14 9-Jun-22 0.004 0.0961 15 19-Jul-22 0.001 0.0426 12-Oct-22 0.002 0.0551 16 0.0645 12-Oct-22 0.002 18 26-Jan-23 0.002 0.0516 18-Apr-23 0.001 19 0.0259 0.0421 20 1-Jun-23 0.0021 14-Jun-23 0.0016 21 0.031 29-Jun-23 0.0011 0.0268 23 13-Jul-23 0.0012 0.0255 0.0013 0.0307 24 20-Jul-23 0.0018 25 27-Jul-23 0.023 8-Aug-23 0.0008 27 10-Oct-23 0.0011 0.0190 28 14-Dec-23 0.0011 0.0189 17-Jan-24 0.0010 29 0.0218 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor **Concentration Trend:** Increasing No Trend 1 Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 04/01 10/06 04/12 09/17 10/95 03/23 09/28

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

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**Sampling Date** 

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1528 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 9-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 04/01 09/17 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBSGW183 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 26-Mar-19 0.005 0.005 6-Jul-20 0.0001 0.0001 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 04/12 10/95 01/04 10/06 07/09 07/98 04/01 12/14 09/17 06/20 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1526M Primary samples only Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 26-Mar-19 0.020 0.020 26-Mar-19 0.005 0.005 0.0085 0.0271 7-Jul-20 0.461 0.545 7-Jul-20 0.0002 0.001 28-Jan-23 0.0004 0.0004 9 10 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend No Trend 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 09/17 10/06 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBCSGW0214 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.004 24-Apr-22 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: WBCSGW0215 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0343 24-Apr-22 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFH: 0.01 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WBCSGW0218 Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 24-Apr-22 0.0009 0.0009 3 4 6 8 10 12 13 14 15 16 17 18 19 Coefficient of Variation: Mann-Kendall Statistic (S) **Confidence Factor Concentration Trend:** Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 10/06 04/12 03/23 09/28 **Sampling Date**

## Notes:

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG0917DM** Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 11-Jul-20 0.0006 18-Jun-22 0.0007 0.0007 30-Jan-23 0.0007 2-Jun-23 0.0003 0.0003 9-Jun-23 0.0003 0.0003 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1391RM** Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 11-Jul-20 20-Mar-22 0.0009 0.0026 30-Jan-23 0.0009 0.002 1-Jun-23 0.0004 0.0015 14-Jun-23 0.0005 0.0015 28-Jun-23 0.0005 0.0017 12-Jul-23 8000.0 0.0018 26-Jul-23 0.0008 0.0017 9 9-Aug-23 0.0003 0.0003 10 11-Oct-23 0.0001 0.0001 22-Nov-23 0.0001 0.0001 13-Dec-23 0.0001 0.0001 13 18-Jan-24 0.0001 0.0001 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 04/12 10/95 04/01 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1451RM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 12-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 03/23 04/01 09/17 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1460RM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 12-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS PFOS+PFHxS 0.0001 10/95 01/04 04/12 07/98 10/06 07/09 12/14 03/23 04/01 09/17 06/20 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1469RM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 12-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 03/23 04/01 09/17 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1494RM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 12-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 03/23 04/01 09/17 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1572RM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 7-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 03/23 04/01 09/17 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: **EEG1577RM** Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 5-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 03/23 04/01 09/17 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: EXD0008M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0027 5-Jul-20 14-Oct-22 0.0044 0.007 14-Oct-22 0.0044 0.0069 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HEOP0808P Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0087 14-Apr-20 0.0044 14-Apr-20 0.0044 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 04/12 10/95 01/04 10/06 07/09 12/14 03/23 07/98 04/01 09/17 06/20 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0052P Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 22-Mar-19 24-Mar-19 0.0001 0.0001 24-Mar-19 0.0001 0.0001 23-Jan-20 0.0158 0.0172 25-Mar-20 0.0037 0.0037 25-Mar-20 0.0048 0.0058 17-Jun-22 0.0989 0.155 9 10 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Increasing Increasing 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0058P Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 21-Mar-19 3-May-20 0.0045 0.0096 0.0001 5-May-21 0.0001 2-Jun-21 0.0001 0.0001 8-Jul-21 0.0001 0.0001 4-Aug-21 0.0002 0.0002 9-Sep-21 0.0001 0.0001 5-Oct-21 0.0001 0.0001 9 4-Nov-21 0.0001 0.0001 10 9-Dec-21 0.0001 0.0001 12-Jan-22 0.0001 18-Jul-22 0.0001 0.0001 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing 1 Concentration (µg/L) 0.1 0.01 PFOS+PFH: 0.001 0.0001 0.00001 04/01 04/12 03/23 10/95 10/06 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB0059P Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 21-Mar-19 0.00005 0.0005 26-Mar-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 0.01 PFOS+PFH: 0.001 0.0001 0.00001 04/12 10/95 04/01 01/04 10/06 07/09 12/14 03/23 07/98 09/17 06/20 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1502M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0005 4-Jul-20 0.0005 20-Jun-22 0.0003 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 04/12 09/17 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
   < 90% and S>0 = No Trend;
   < 90%, S≤0, and COV ≥ 1 = No Trend;</li>
   < 90% and COV < 1 = Stable.</li>
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1516M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 21-Nov-19 10-Dec-19 0.0005 24-Jan-20 0.0002 0.0002 25-Mar-20 0.0008 0.0016 25-Mar-20 0.0011 0.0011 30-Jan-23 0.0004 0.0004 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Stable 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 10/06 09/17 03/23 09/28 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1517M Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0213 0.0213 23-Jan-20 0.83 1.14 0.0312 0.0328 26-Mar-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Concentration (µg/L) PFOS+PFHxS 0.01 04/12 10/95 07/98 04/01 01/04 10/06 07/09 12/14 09/17 06/20 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1518M Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0001 11-Jul-20 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/12 07/98 01/04 10/06 07/09 12/14 06/20 04/01 09/17 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1521M Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 4-Jul-20 0.0032 20-Mar-22 0.0025 0.0074 20-Mar-22 0.003 0.0079 20-Mar-22 0.0029 0.0078 30-Jan-23 0.0023 0.0061 1-Jun-23 0.0022 0.0063 14-Jun-23 0.0023 0.0064 28-Jun-23 0.0026 0.0065 9 12-Jul-23 0.0025 0.0064 10 26-Jul-23 0.0024 0.0061 09-Aug-23 0.0055 11 0.0022 11-Oct-23 0.0024 13 22-Nov-23 0.0019 0.0044 13-Dec-23 0.0021 0.0051 15 18-Jan-24 0.0016 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 1 Concentration (µg/L) PFOS 0.1 PFOS+PFHxS 0.01 0.001 04/12 10/95 04/01 10/06 09/17 09/28 03/23 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1527M Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 25-Mar-19 0.05 0.05 0.05 0.06 6-Jul-20 0.0721 0.0885 15-Mar-22 0.03 0.03 18-Mar-22 0.0304 0.045 0.0323 0.0467 18-Mar-22 0.0513 0.0664 31-Jan-23 0.0034 0.0034 9 1-Jun-23 0.0022 0.0063 10 14-Jun-23 0.0023 0.0064 28-Jun-23 0.0026 0.0065 12-Jul-23 0.0025 0.0064 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** Decreasing Decreasing 1 Concentration (µg/L) PFOS 0.1 PFOS+PFHxS 0.01 0.001 04/01 04/12 09/17 10/95 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1547M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 5-Jul-20 0.0004 0.0004 30-Jan-23 0.0001 0.0001 0.0006 0.0006 1-Jun-23 14-Jun-23 0.0012 0.0012 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend No Trend 1 Concentration (µg/L) 0.1 PFOS PFOS+PFHxS 0.01 0.001 0.0001 10/95 04/01 04/12 10/06 09/17 09/28 03/23 **Sampling Date**

## Notes

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

## **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1549M Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 0.0004 11-Jul-20 19-Mar-22 0.0004 0.0004 19-Mar-22 0.0003 0.0003 9 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 1 Concentration (µg/L) 0.1 PFOS+PFH: 0.01 0.001 0.0001 10/95 04/01 04/12 09/17 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1551M Constituent: Concentration Units: µg/L Conducted By: PFOS+PFHxS Sampling Point ID: PFOS CONCENTRATION (µg/L) 5-Jun-23 0.0001 0.0001 11-Jul-20 0.0001 0.0001 18-Jun-22 19-Dec-21 0.0001 0.0001 30-Jan-23 0.0001 0.0001 20-Dec-21 0.00005 0.0005 14-Jun-23 0.0001 0.0001 0.0001 0.0001 9 14-Jun-23 0.0002 0.0005 10 28-Jun-23 0.0002 0.0002 12-Jul-23 0.0001 0.0001 11 26-Jul-23 0.0001 0.0001 13 9-Aug-23 0.0001 0.0001 11-Oct-23 0.0001 0.0001 15 22-Nov-23 0.0001 0.0001 13-Dec-23 0.0001 0.0001 16 18-Jan-24 0.0001 0.0001 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend Stable 1 Concentration (µg/L) 0.1 0.01 PFOS+PFH: 0.001 0.0001 0.00001 04/12 09/17 10/95 04/01 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

# **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: HWHB1811M Constituent: Conducted By: Concentration Units: µg/L Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 11-Jul-20 0.0001 0.0001 21-Jun-22 10 13 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** 0.001 Concentration (µg/L) PFOS+PFH: 0.0001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Job ID: Facility Name: MW118 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 5-May-20 9-Jul-20 0.0001 0.0001 0.00005 9-Jul-20 0.0005 20-Nov-21 0.0001 0.0006 8-Mar-22 0.0003 0.0009 14-Jun-22 0.0001 28-Jan-23 0.0001 0.0009 2-Jun-23 9 10 11 13 15 16 18 Coefficient of Variation: Mann-Kendall Statistic (S): Confidence Factor: **Concentration Trend:** No Trend Prob. Increasing 1 Concentration (µg/L) 0.1 0.01 PFOS+PFHxS 0.001 0.0001 0.00001 04/01 04/12 09/17 10/95 10/06 03/23 09/28 **Sampling Date**

## Notes

- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- 2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- 3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

#### **GSI MANN-KENDALL TOOLKIT** for Constituent Trend Analysis **Evaluation Date:** Facility Name: WB26-GW04 Constituent: Concentration Units: µg/L Conducted By: Sampling Point ID: PFOS PFOS+PFHxS CONCENTRATION (µg/L) 19-Nov-19 0.0050 0.0050 0.0050 0.0050 29-Mar-20 29-Mar-20 0.0001 0.0001 3 0.0001 0.0001 11-Jul-20 4 0.0001 0.0005 5 20-Dec-21 0.0001 0.0001 20-Dec-21 6 0.0001 0.0001 10-Mar-22 8 18-Jun-22 0.0002 0.0002 0.0002 0.0002 10 13-Oct-22 0.0001 0.0001 0.0001 13-Oct-22 11 12 30-Jan-23 0.0003 0.0003 13 5-Jun-23 0.0001 0.0001 14 0.0001 0.0001 15 5-Jun-23 0.0009 0.0005 16 0.0001 0.0001 17 14-Jun-23 0.0001 0.0005 18 14-Jun-23 0.0001 0.0001 19 28-Jun-23 0.0001 0.0001 20 21 12-Jul-23 0.0001 0.0001 0.0001 26-Jul-23 0.0001 22 9-Aug-23 0.0001 0.0001 11-Oct-23 0.0001 23 0.0001 0.000 22-Nov-23 24 0.000 25 13-Dec-23 0.0002 0.0002 26 18-Jan-24 0.0001 27 28 Coefficient of Variation: Mann-Kendall Statistic (S) Confidence Factor **Concentration Trend** No Trend Prob. Decreasing 1 Concentration (µg/L) 0.1 0.01 PFOS+PFHxS 0.001 0.0001 0.00001 10/95 04/01 10/06 04/12 09/17 03/23 09/28 **Sampling Date**

## Notes

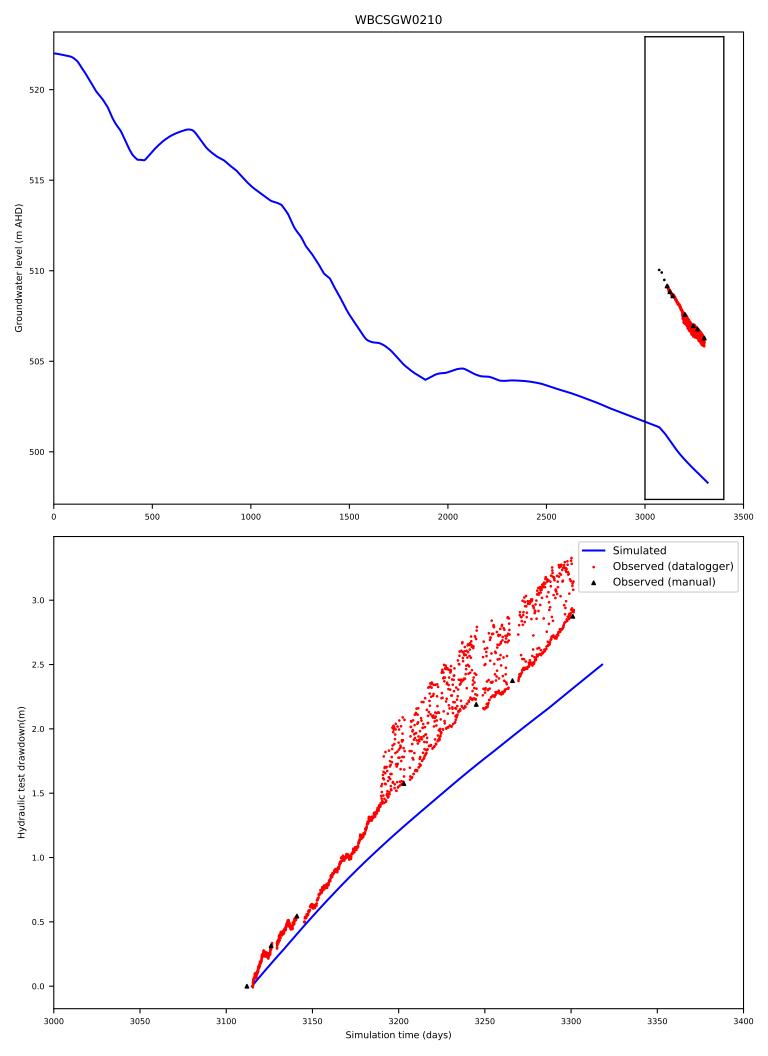
- 1. At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing;
   ≥ 90% = Probably Increasing or Probably Decreasing;
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- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, Ground Water, 41(3):355-367, 2003.

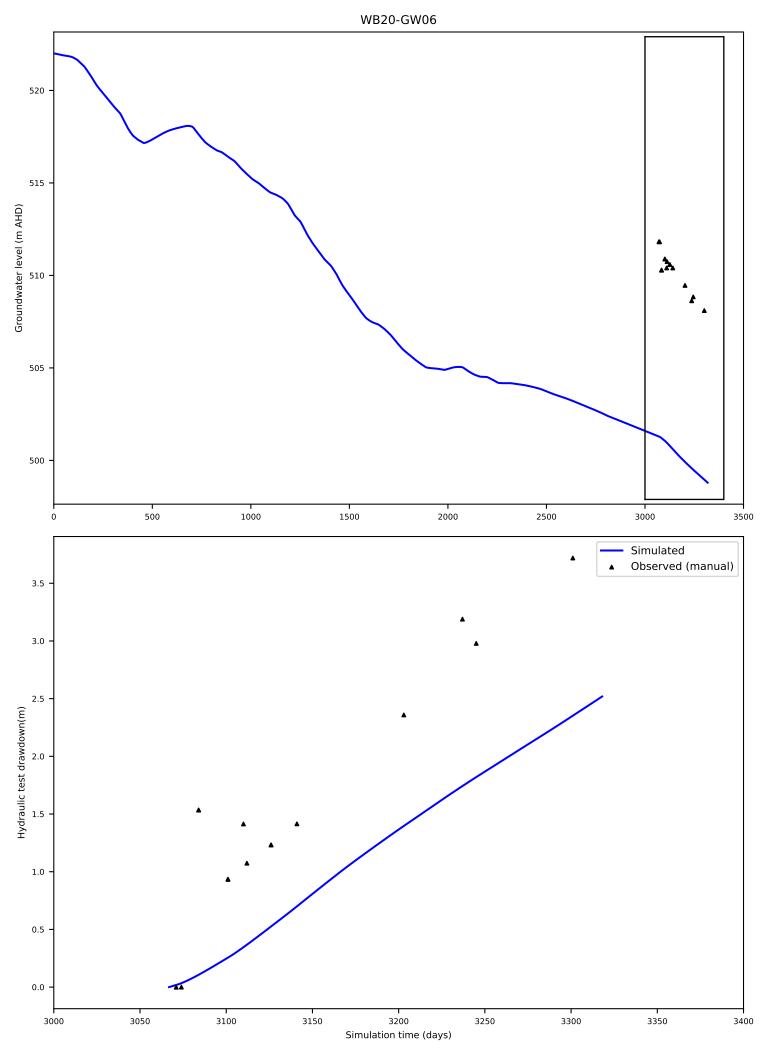
# Appendix D

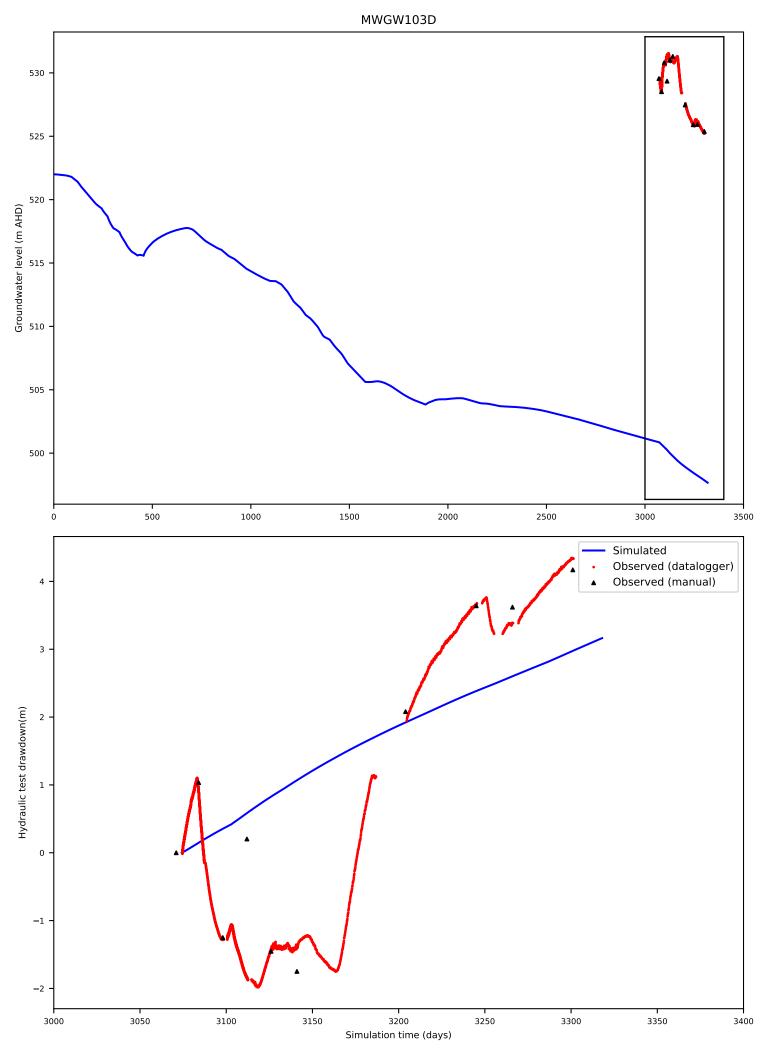
Simulated vs observed drawdown

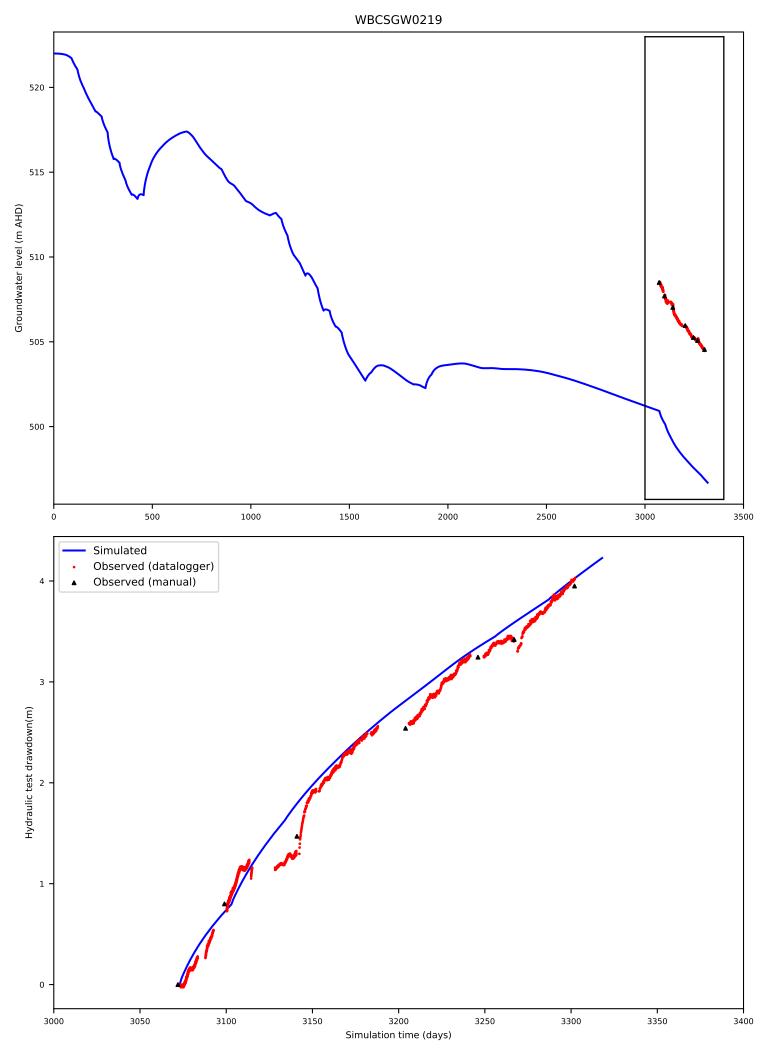


Simulation time (days)

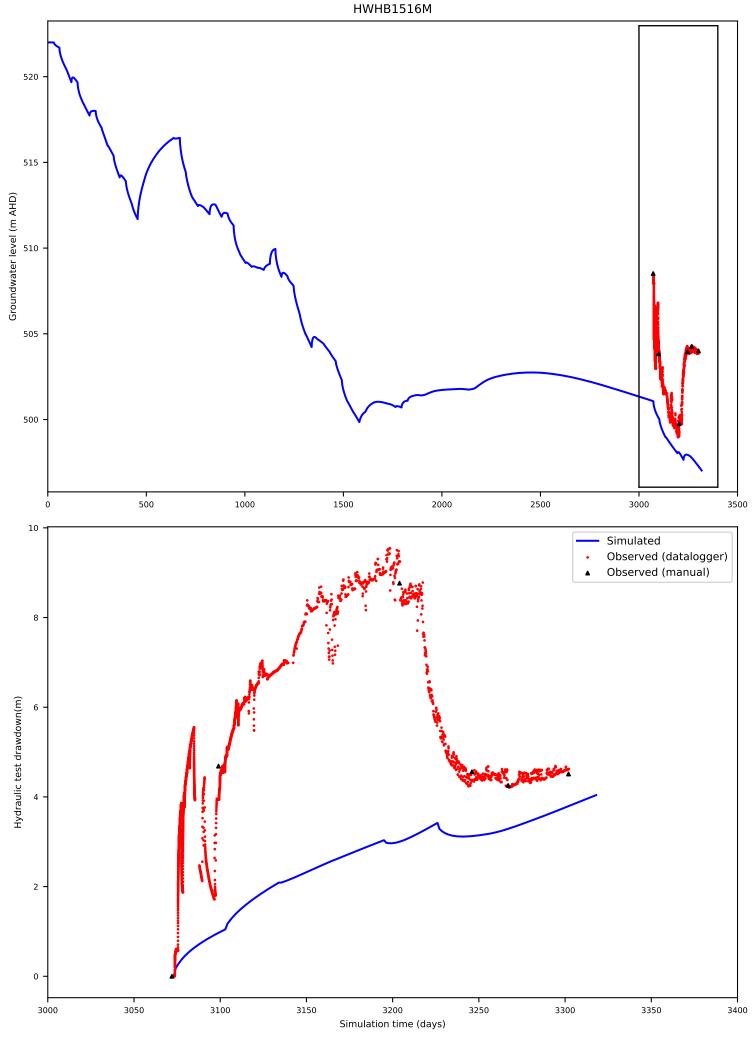
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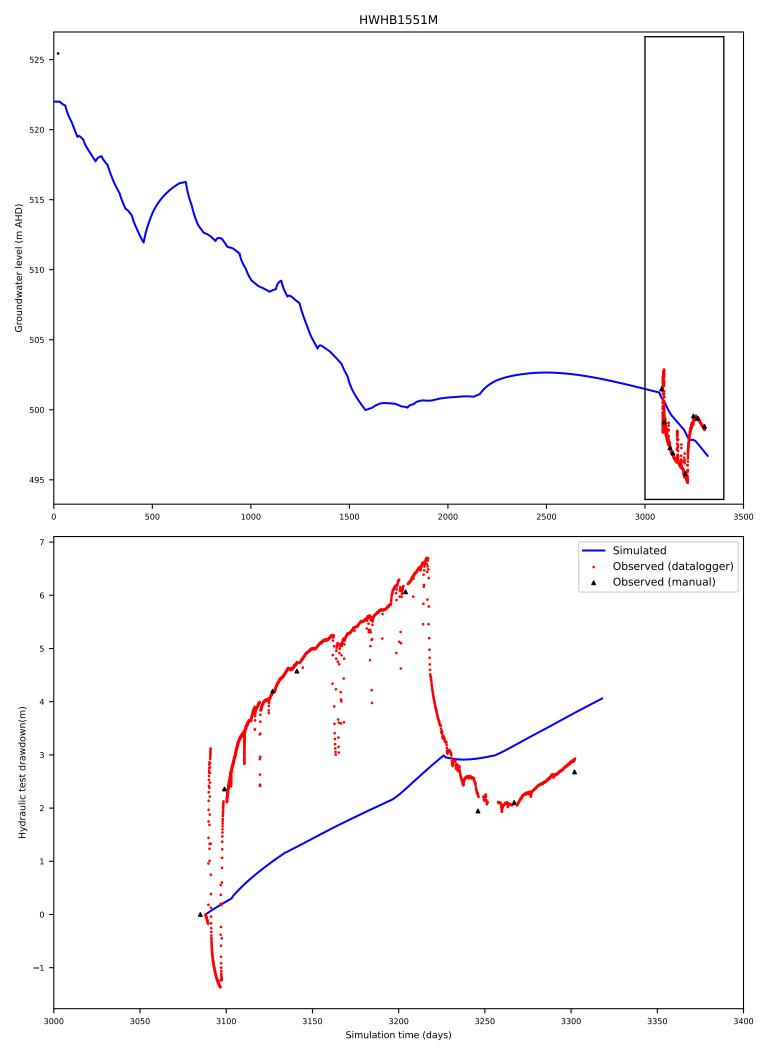


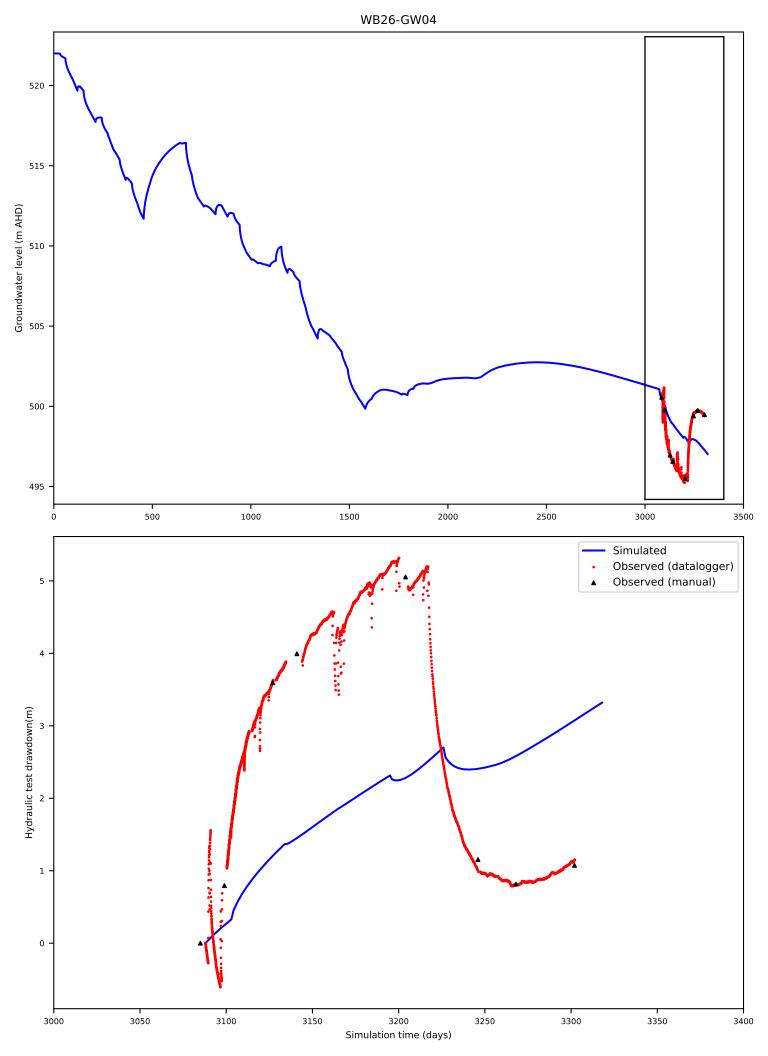












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