From: Eddie Lanier <Eddie.Lanier@wphome.com>
Sent: Thursday, January 7, 2021 2:25 PM
To: Berresford, James <berresjl@dhec.sc.gov>; Kuhn, Kimberly M. <kuhnkm@dhec.sc.gov>
Cc: Steve Webb <swebb@trccompanies.com>; Lisa Clark <lclark@trccompanies.com>
Subject: RE: [EXTERNAL] FW: WPH Clemson

As you recall, WestPoint Home had requested permission to halt work on the Expanded ABC+ Pilot Study at the Clemson Site last April due to the devastating effects on our business caused by the COVID-19 pandemic. At that time, the samples from the initial semiannual performance monitoring event had been collected and analyzed but all subsequent evaluation of the data was placed on hold. Although the pandemic was still placing a lot of challenges on our business, we were finally in a position to restart the Clemson project in late September and TRC has now completed the evaluation of the results from that initial semiannual monitoring event. I have attached a copy of their report on that work. The report continues to show the positive results from this treatment method and I expect those good results to continue.

The COVID situation has drastically affected the original pilot study schedule and, as a result, we are requesting a sampling schedule modification going forward. Since we are almost a year past the last sampling event and two normal quarterly sampling events have passed, we feel that trying to go back to the quarterly sampling schedule is not necessary, and that it makes more sense to restart the sampling with another site-wide sampling event. Based on TRC's previous experience with ABC+, the efficacy of this technology lasts for several years and we expect even better results from this site-wide event. In addition, the pandemic is still having significant effects on our business and we have been asked to avoid unnecessary expenses. We are requesting that we be allowed to resume sampling with this site-wide sampling event to take place in March 2021. The results from this event will allow TRC to prepare a pilot study report that can compare the results from two sampling events that are twelve months apart.

In addition, TRC has identified two indicator parameters that have not proven useful or beneficial. We are requesting that nitrate and chloride be eliminated from the list of monitoring parameters for the reasons outlined in the TRC report.

WestPoint Home greatly appreciates your willingness to be flexible in this difficult time and hopes that these requests will be acceptable. Let me know if you have any questions or need additional information. I also need to let you know that I officially retired from WestPoint Home at the end of November but will continue to work with them as a consultant on this and other jobs. They have allowed me to keep my company email address so this will continue to be my point of contact going forward.

Best regards,
Eddie Lanier

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Technical Memorandum

To:	Eddie Lanier WestPoint Home	
From:	Steve Webb	Senior Project Manager
	Lisa Clark	Senior Project Hydrogeologist
	Joyce Peterson	Senior Environmental Engineer
Subject:	Expanded ABC+ Pilot Study Evaluation of March 2020 Performance Monitoring Results	
Date:	December 16, 2020	
CC:		
Project No.:	300688.0.0	

The initial semiannual groundwater sampling event for the Expanded ABC+ Pilot Study was conducted in March 2020. As specified in the South Carolina Department of Health and Environmental Control- (SC DHEC) approved pilot study workplan, field sampling activities were conducted at each of the nearby monitoring wells and various direct-push locations located within the area of the Expanded Pilot Study ABC+ injections. The performance monitoring samples were screened in the field for field indicator parameters, and samples were submitted to a SC-certified laboratory for evaluation of laboratory indicator parameters, volatile organic compounds (VOCs), and selected metabolic gases.

As a consequence of the COVID-19 pandemic, subsequent validation of the laboratory data was delayed, and the project was shut down in early April 2020. WestPoint Home (WPH) has now authorized TRC to resume work on the pilot study. This technical memorandum presents an overview of the March 2020 performance monitoring data and TRC's interpretation of the progress that the data reveals regarding the future path forward for the pilot study.

Approximately 8 months following the completion of the ABC+ injections, the effectiveness of the ERD/ZVI treatment method is readily apparent in the groundwater monitoring results from the March 2020 sampling event. In addition to substantial decreases in tetrachloroethene (PCE) concentrations observed in some of the monitoring wells, the performance monitoring results provide solid evidence that migration/dispersion of the ABC+ treatment chemicals is occurring, and that portions of the aquifer are responding as intended to the ABC+ treatment media.

Observations and Trends in Site-Wide Tetrachloroethene Concentrations

Since PCE is the prevailing constituent of concern at the former WPH site (Site), TRC's initial focus has been to examine and evaluate observed changes in PCE concentration across the Site. This was identified as a priority, given SC DHEC's prior concern regarding the 2016 ABC+ pilot study and the Department's desire to observe more robust declines in PCE concentrations during the period of the pilot study. Attachments 1, 2, and 3 to this technical memorandum present TRC's initial findings and interpretations on the treatment efficacy of the ABC+ injections applied during the pilot study.

Attachment 1 includes a summary table of the March 2020 performance monitoring results. For the volatile organic compounds (VOCs), the data table has been prepared as a "hits only" summary, meaning that an

analyzed VOC is included in the table only if it was detected in at least one of the performance monitoring locations. The table in Attachment 1 includes the Maximum Contaminant Level (MCL) for each of the constituents that have an established MCL. To make it easier to discern detected laboratory constituents from non-detect results, the detected results are bolded on the summary table. Results are shaded only if they exceed their respective MCL.

Attachment 2 provides a graphical comparison of the March 2020 PCE concentrations to the baseline (pre-injection) PCE concentrations from groundwater samples collected in January/February 2019. This graphical comparison includes a series of column graphs compiled for three of the depth intervals, including the shallow (water table) zone, intermediate zone, and transition zone. The column graphs are organized from the highest to the lowest PCE concentrations as measured in 2019 – for monitoring wells that were sampled both in 2019 and 2020. Significant decreases in PCE concentration can be observed in those locations that previously exhibited the highest initial PCE concentrations. TRC views these pronounced declines in PCE concentration as a meaningful demonstration of the efficacy of ABC+ treatment. The locations with the most significant decreases in PCE concentration were, not surprisingly, situated nearest the ABC+ injection locations. Such an observation could be reasonably ascribed to the abiotic zero-valent iron (ZVI) component of the ABC+ treatment material. ZVI exerts a pronounced treatment influence on PCE-affected groundwater as it flows directly through the emplaced treatment media. ZVI generally does not migrate very far from the point of injection. As the PCE-affected groundwater migrates further from the injection points, the abiotic influence of the ZVI would begin to be offset by the biotic treatment influences of the lactate-based treatment media. These abiotic and biotic treatment effects are anticipated to become even more apparent and widespread with time and migration of the groundwater past the injection locations.

Attachment 3 to this technical memorandum provides a series of PCE isoconcentration maps. These iso-concentration maps are plan views of the March 2020 data that have been categorized by depth interval. Pre-injection 2019 isoconcentration maps are also included for comparison. Note that the PCE isoconcentration maps for March 2020 use the 2019 data for wells that were not sampled in March 2020 (in particular, the downgradient portion of the Downgradient VOC plume). It is quite useful to be able to examine observed changes in PCE concentration and contaminant distribution across the various depth intervals of the Site. The scope and layout of the Expanded ABC+ Pilot Study was specifically designed to introduce a pronounced and robust application of ABC+ treatment media across the Upgradient PCE plume area in order to aggressively treat the PCE-affected groundwater and promote/enhance readily observable levels of PCE treatment and PCE concentration declines across the Site.

TRC's findings and observations regarding changes in these PCE isoconcentration maps are described below:

- Within the shallow depth interval, the >1 mg/L PCE isocontour area has been significantly reduced in size.
- Within the intermediate depth interval, the >5 mg/L PCE isocontour area was drastically reduced (within the targeted treatment area) and the >1 mg/L PCE isocontour area was significantly reduced in size.
- Across the transition zone depth interval, the >1 mg/L PCE isocontour area was also diminished and both the >1 mg/L and the >0.1 mg/L PCE isocontour areas were shifted downgradient.
- Within the bedrock zone, the PCE isocontour lines appear to be relatively unchanged.

Substantial reductions in PCE concentrations have been observed within the shallow and intermediate depth groundwater intervals for the >1 and > 5 mg/L PCE isocontour lines. These PCE isocontour lines are situated

within the immediate vicinity of the ABC+ treatment areas (i.e., within the targeted treatment zone) and, as expected, exhibit the most positive and pronounced treatment response to the applied ABC+ injections. It is important to bear in mind that these data are reflective of Site conditions during the March 2020 sampling event and ongoing treatment influence has continued and expanded since that time.

The shallow and intermediate depth intervals also have historically exhibited the highest observed groundwater flow rates, which tends to distribute the ABC+ treatment chemicals into the aquifer more readily. For all depth intervals, the PCE isocontour lines that outline the outermost extent of PCE concentrations above the MCL of 0.005 mg/L have not changed much between the baseline sampling event of 2019 and the March 2020 sampling event. This is likely due to these locations being the most distant from the ABC+ injection points and groundwater travel time has not yet distributed the ABC+ injectate to these more remote locations. Horizontal and vertical groundwater flow rates through the transition and the bedrock zones are relatively slow and will require a more extended timeframe for evidence of ABC+ treatment to reach these areas and for meaningful declines in PCE concentrations to be observed. Contact time is an important consideration with an ERD/ZVI groundwater treatment approach like ABC+, so the greater the amount of contact time that the ABC+ treatment chemicals have within the aquifer, the greater the opportunity for injectate migration and treatment response.

Lines of Evidence –ABC+ Distribution and Treatment Conditions

In addition to examining the PCE concentration data, TRC has also evaluated a number of key indicator parameters for evidence that the injected ABC+ materials have been distributed into the subsurface and that signs of biological and abiotic ERD treatment activity are present within the aquifer. These key indicator parameters were previously applied during the 2016 ABC+ pilot study and include the following:

- Dissolved Oxygen (DO) – Less than 0.5 mg/L DO is considered to be a good indication that the ABC+ is exerting a pronounced influence on aquifer conditions. DO levels ranging up to a threshold of 1.0 mg/L are taken as a sign of less pronounced treatment influence.
- Oxidation-Reduction Potential (ORP) – less than 50 mV is considered to provide good evidence of pronounced ABC+ treatment influence. ORP levels ranging up to 100 mV are evidence of less pronounced treatment affects.
- Ferrous Iron – The presence of ferrous iron above a concentration of 1 mg/L is considered good, while iron levels less than 1 mg/L are taken as signs of less pronounced treatment influence. Ferrous iron may be present as a result of native iron becoming reduced by ERD conditions; it may also be present as a result of the ZVI injections. Regardless, the presence of ferrous iron is an indication of reducing conditions that are of considerable importance to effective ABC+ treatment.
- Dissolved Gases – The presence of methane at a concentration above 1000 ug/L is a sign of good ERD conditions, while methane at levels less than 1000 ug/L is taken as a sign of less pronounced treatment influence.
- Dissolved Gases – The presence of ethane/ethene at concentrations above 1 ug/L is considered to be a good sign of either biologically mediated or abiotic treatment influence. When these gases are present at levels less than 1 ug/L, this line of evidence is considered to be weaker.
- cVOC By-Products – For a site where PCE is so pervasive, the observed presence of TCE, cis-1,2-DCE, and vinyl chloride (VC) are signs of daughter-product formation that is occurring as a consequence of biologically mediated ABC+ treatment. Decreases of PCE without observed increases in daughter products may be evidence of a predominance of ZVI treatment processes.

- Lactate By-Products – The presence of methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK), acetone, methyl acetate and/or lactate-related peaks on an ion chromatogram are all good signs of ABC+ treatment influence.

Attachment 4 to this memo provides a table that evaluates these various lines of evidence, with green highlighting what TRC perceives to indicate positive evidence of ABC+ treatment conditions or the migration/distribution of the treatment materials. In Attachment 4, yellow highlights have been applied to those lines of evidence that show less pronounced evidence of positive treatment response to the ABC+ treatment chemicals. Finally, red highlights have been applied to those data indicating poor or no evidence of treatment response at the time the groundwater samples were collected.

In Attachment 4, TRC has also included two figures, one that communicates those areas where more favorable ABC+ treatment conditions seem to have been established and another that depicts the physical extent of areas where there are positive signs of ABC+ distribution and migration. The color coding applied on the figures is based upon the best conditions observed across the four groundwater sampling depth intervals. Because the March 2020 groundwater samples were collected relatively early in the pilot study program, TRC anticipates that the observed extent of pronounced ABC+ treatment influence will continue to expand with time. Similarly, it should also be noted that the ZVI-based component of the ABC+ treatment materials abiotically transform PCE directly to ethane and ethene. Thus, it is possible for abiotic reactions to occur without providing significant lines of evidence other than an observed decrease in PCE concentrations and the ephemeral appearance of some dissolved gases.

ABC+ treatment chemistry consists of two parts. The ABC part of the formulation stands for Anaerobic BioChem and is specifically designed to adjust aquifer conditions and create conditions more suitable for biotic ERD treatment conditions. The "+" part of the formulation refers to ZVI, which promotes abiotic treatment of chlorinated VOCs. During the ABC+ injections anaerobic microorganisms (i.e., KB-1 *Dehaloccoides sp*. inoculum) were introduced along with the ABC+ as a bioaugmentation aide. Bioaugmentation was included in the pilot study to ensure that suitable reducing conditions, electron donor and anaerobic microbes were introduced into the pilot study area and are known to be present.

The presence of reducing conditions is evidenced by low DO measurements, lower ORP readings, and the presence of ferrous iron. These are all useful indicators that reducing conditions, which are essential to a biologically and abiotic mediated reductive dechlorination response, are present. When DO and ORP are measured *in situ* using a field meter, TRC has sometimes experienced mixed results from the instrument readings for these indicator parameters. Since reduced (ferrous) iron cannot exist in an oxidizing environment, the presence of ferrous iron generally supersedes possible spurious meter readings as an indicator of performance response.

Based on the criteria described above, TRC has observed what we would characterize as positive and encouraging ERD treatment conditions and appropriate migration/distribution of the applied ABC+ across much of the ABC+ injection area. A few peripheral areas exhibit less pronounced ERD treatment response, but these data are representative of March 2020 conditions (only 8 months following injection of the ABC+). It is also interesting to note that performance monitoring data from locations around the 2016 pilot study areas continue to reveal evidence of positive and ongoing ERD treatment influence.

ERD migration lines of evidence include the presence of select metabolic gases, the presence of PCE-daughter products, the presence of lactate daughter products, and the presence of a gas chromatogram peak indicative of lactate presence. The metabolic gases include methane (which is evidence of an alternative metabolic pathway to PCE degradation), and ethane/ethene (which are the end-products of full dechlorination of PCE). These gases tend to rapidly dissipate from the groundwater, so large or increasing concentration trends are generally not captured by performance monitoring. The detection of these gases can be indicative of ongoing PCE dechlorination by either biotic or abiotic processes. Lactate is a component of the ABC+ that promotes and supports biotic reductive dechlorination. The biochemical processes tend to decompose both the PCE contaminants and the lactate salts and esters. The presence of lactate daughter products provides evidence that ERD processes are occurring. TRC has identified an ion chromatogram peak that can be correlated with the presence of lactate. This peak provides further qualitative evidence of ongoing migration and distribution of the ABC+ injectate. The physical extent of the observable ABC+ migration is roughly similar to the observed extent of suitable ERD conditions (refer to figures in Attachment 4).

Nitrate and Chloride Monitoring

Nitrate was previously included in the list of laboratory indicator parameters at the request of SC DHEC. This addition was made because nitrate has been known to compete with chlorinated VOCs during biochemical reduction treatment. TRC has carefully reviewed and evaluated the observed changes in nitrate concentration between the 2019 pre-injection conditions and the March 2020 post-injection conditions. Nitrate was detected at all but one monitoring location in both the pre-injection baseline sampling in 2019 and in the March 2020 performance monitoring event. Substantial decreases in nitrate were noted in several wells within the ABC+ treatment zone that also experienced substantial decreases in PCE concentration. It can be surmised that the groundwater underwent some level of reductive denitrification within the aquifer, but that denitrification did not inhibit the reductive dechlorination of the PCE. Since nitrate has now been depleted from its baseline levels, there is a reduced level of concern that the residual nitrate can inhibit reductive dichlorination. For this reason, TRC feels that continued monitoring for nitrate will not provide meaningful data for the overall ABC+ pilot study.

Chloride was included as a laboratory indicator parameter to potentially detect chloride ions released during reductive dichlorination of PCE and its daughter products. TRC has reviewed the chloride data to assess whether increases in chloride concentration correlate to decreases in PCE concentration and the two parameters appear to be very poorly correlated. At sampling locations exhibiting the greatest observed PCE decreases, chloride concentrations actually decreased instead of increasing, as might be predicted. This suggests that natural variations in chloride concentrations dwarf the theoretical increases attributable to reductive dechlorination. For most locations, the potential increase in chloride concentration attributable to dechlorination would be in the same order of magnitude as the sensitivity of the analytical test procedure for chloride. This leads TRC to conclude that continued chloride testing is unlikely to render useful indicator information. Given that the pilot study already has other more useful indicators of reductive dichlorination (including substantial decreases in PCE concentration), continued use of chloride analyses does not appear warranted. On this basis, TRC recommends deletion of both nitrate and chloride as performance monitoring parameters for future performance sampling events.

Pilot Study Monitoring Schedule

Prior to the COVID-19 shutdown, the ABC+ pilot study implementation schedule included quarterly and semiannual performance monitoring events that were intended to occur at roughly 3-month intervals following

completion of the ABC+ injections. The original schedule did not account for the extended project hiatus that began in April 2020 and continues through the present day.

Based on the original pilot study schedule, a quarterly performance monitoring event would have occurred in July 2020 and the second semiannual monitoring event would have been slated to occur in November 2020. At this late stage of the pilot study schedule and in view of the very positive results from the March 2020 sampling event, TRC feels that it would make better sense to delete the remaining quarterly indicator monitoring event and focus our efforts and attention on collecting more meaningful and useful data from another "semiannual" sampling event. Based on the March 2020 sampling results, we have been able to document that suitable treatment performance and influence of the applied ABC+ treatment media is occurring. Thus, there is only limited value in collecting and analyzing additional field and laboratory indicator parameters from another quarterly monitoring event.

Since the Expanded Pilot Study Workplan requires the preparation and submittal of progress reports following each performance monitoring event, TRC recommends that this technical memorandum be forwarded to SC DHEC as a progress report.

In view of the positive and encouraging nature of the March 2020 sampling data, it is our belief that the extended period of additional ABC+ treatment created by the COVID-19 treatment hiatus has essentially provided a more extended period of contact time for the ABC+ treatment chemistry and has allowed the ABC+ to interact more fully with the underlying aquifer, allowing more time for groundwater flow to distribute the treatment media across the injection areas. On this basis, we conclude that it would make more sense for us to consider rescheduling another "semiannual" performance monitoring event that would be slated to occur in March 2021 – a full year following the 2020 performance monitoring event. This recommendation, as well as TRC's suggested adjustments to the analytical parameter list, should be communicated to SC DHEC in this project update.

Conclusions

Based on the performance monitoring data collected from the March 2020 sampling event, it is clear that the ABC+ injections have resulted in the transition of groundwater quality to reducing conditions, demonstrated the initial treatment effectiveness of the applied ERD/ZVI treatment media, and resulted in the pronounced decline of PCE concentrations within the core of the pilot study treatment area. The March 2020 sampling event also provides solid evidence that both migration/dispersion of the ABC+ treatment chemicals and response within the PCE-affected groundwater to the ABC+ treatment chemicals are occurring. While the most significant treatment responses were mainly observed near the core of the targeted treatment area, the March 2020 data reveals that positive ERD treatment conditions and signs of distribution and migration of the ABC+ injectates were observed more than 100 feet downgradient of the furthest downgradient line of ABC+ injections. Based on the evidence seen in the January/February 2019 pre-injection data of continued ERD activity from the 2016 pilot study, the extended timeframe that has occurred since the March 2020 semiannual sampling event will only continue the expansion of the area influenced by the Expanded Pilot Study ABC+ injections. A comparison of 2019 pre-injection and March 2020 post-injection data, as detailed in this memorandum, supports TRC's technical recommendation to delete nitrate and chloride from future use as laboratory indicator parameters.

In view of the circumstances that have been imposed on the pilot study by the ongoing COVID-19 pandemic, TRC believes that it makes good sense for us to delete the remaining quarterly indicator sampling event and

reschedule the remaining "semiannual" sampling event for March 2021. These proposed revisions to the workplan implementation strategy are both reasonable and appropriate in consideration of the 2019 pre-injection sampling data and the March 2020 sampling data. These sampling events reveal the nature and extent of the pervasive treatment influence in and around the areas of the 2016 ABC+ pilot study and across the targeted treatment areas. The Expanded ABC+ Pilot Study has introduced a robust and aggressive mass of ERD/ZVI treatment media into the subsurface of the Site that will continue to exert treatment influence within these treatment areas for several more years. Our prior experience from the 2016 pilot study has demonstrated the importance of patience and perseverance, as the treatment materials are allowed to migrate and distribute through the aquifer.

Attachment 1
Summary Table - March 2020 Performance Monitoring Results

Summary of March 2020 Performance Monitoring Results

PARAMETER	MCL(1)	DP-20	DP-20A	DP-20A (DU-20105)	DP-20B	DP-21	DP-21A	DP-21B	DP-22	DP-22A	DP-22B	DP-23	DP-23A	DP-23A (DUP-20104)
		03/26/2020	03/26/2020	03/26/2020	03/26/2020	03/26/2020	03/26/2020	03/26/2020	03/25/2020	03/25/2020	03/25/2020	03/25/2020	03/25/2020	03/25/2020
Gases (ug/L)														
Methane	--	**260**	**0.37 J**	**0.44 J**	**0.64**	**110**	**5.4**	**0.7**	**85**	**2.4**	**0.40 J**	**0.44 J**	**0.49 J**	**0.34 J**
Ethane	--	**0.14**	**0.059 J**	**0.079 J**	**0.26**	**0.35**	**2.4**	**0.096 J**	**0.97**	**1.2**	**0.096 J**	**0.1**	**0.14**	**0.095 J**
Ethene	--	**0.17**	**0.036 J**	**0.047 J**	**0.13**	**0.98**	**1.5**	**0.052 J**	**1**	**0.48**	**0.060 J**	**0.13**	**0.061 J**	**0.033 J**
Volatile Organic Compounds (mg/L)														
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	**0.014 J**	**0.012 J**
1,1-Dichloroethane	--	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
1,1-Dichloroethene	0.007	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
1,2-Dichlorobenzene	0.6	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
1,2-Dichloroethane	0.005	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
1,4-Dichlorobenzene	0.075	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
2-Butanone (MEK)	--	< 0.050	< 0.050	< 0.050	< 0.010	**0.0046 J**	< 0.20	**0.0037 J**	**0.093**	< 0.50	< 0.10	< 0.010	< 0.20	< 0.20
Acetone	--	< 0.10	< 1.0	< 1.0	< 0.020	**0.0052 J**	< 0.40	**0.0068 J**	**0.036**	< 1.0	< 0.20	< 0.020	< 0.40	< 0.40
Benzene	0.005	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Carbon disulfide	--	< 0.0050	< 0.050	< 0.050	< 0.0010	**0.00041 J**	< 0.020	< 0.0010	**0.00065 J**	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Chlorobenzene	0.1	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Chloroform	0.08[2]	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	**0.00052 J**	< 0.020	< 0.020
cis-1,2-Dichloroethene	0.07	**0.02**	< 0.050	< 0.050	< 0.0010	**0.0011**	< 0.020	< 0.0010	**0.00095 J**	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Cyclohexane	--	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Ethylbenzene	0.7	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Isopropylbenzene	--	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Methyl acetate	--	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Methylcyclohexane	--	< 0.025	< 0.25	< 0.25	< 0.0050	< 0.0050	< 0.10	< 0.0050	< 0.0050	< 0.25	< 0.050	< 0.0050	< 0.10	< 0.10
Styrene	0.1	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Tetrachloroethene	0.005	**0.39**	**3.1**	**3**	**0.2**	**0.02**	**1.7**	**0.042**	**0.23**	**4.1**	**0.94**	**0.064**	**2.3**	**2**
Toluene	1	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
trans-1,2-Dichloroethene	0.1	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Trichloroethene	0.005	**0.0027 J**	< 0.050	< 0.050	**0.00046 J**	**0.0055**	< 0.020	< 0.0010	**0.00071 J**	< 0.050	**0.0065 J**	< 0.0010	< 0.020	< 0.020
Trichlorofluoromethane	--	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	**0.00060 J**	< 0.020	< 0.020
Vinyl chloride	0.002	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
Xylenes, total	10	< 0.0050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.050	< 0.010	< 0.0010	< 0.020	< 0.020
General Chemistry (mg/L)														
Bromide	--	**0.20**	**0.32**	**0.32**	< 0.20	**0.099 J**	**0.94**	< 0.20	**0.15 J**	**3.5**	**0.26**	**0.17 J**	< 0.20	< 0.20
Chloride	--	**40**	**61**	**61**	**20**	**8.4**	**89**	**20**	**27**	**220**	**170**	**11**	**1.3**	**1.4**
Nitrate as N	10	**4.5**	**3.4**	**3.3**	**2.0**	**0.35**	**6.6**	**1.7**	**0.81**	**6.6**	**1.6**	**4.7**	**1.3**	**1.1 J-**
Sulfate	--	**38**	**0.85 J**	**1.1**	**6.6**	**20**	< 1.0	< 1.0	**69**	**0.28 J**	**0.25 J**	**0.87 J**	< 1.0	< 1.0
Field Parameters														
pH, Field (su)	--	6.75	7.51	NA	12.26	6.22	6.20	7.32	6.35	5.68	6.70	6.16	6.44	NA
Temperature, Field (°C)	--	19.48	21.03	NA	21.54	18.86	19.80	19.36	29.34	24.98	25.73	21.68	23.58	NA
Specific Conductivity, Field (uS/cm)	--	292	285	NA	242	116	356	119	259	760	558	96	31	NA
Dissolved Oxygen, Field (mg/L)	--	3.53	3.27	NA	4.43	1.61	2.17	4.14	3.19	1.25	2.87	2.60	5.96	NA
Oxidation Reduction Potential, Field (mV)	--	508	100	NA	-85	112	143	79	234	30	115	154	173	NA
Turbidity, Field (ntu)	--	> 1000	> 1000	NA	> 1000	> 1000	> 1000	> 1000	> 1000	115	> 1000	> 1000	989	NA
Iron, Ferrous, Field (mg/L)	--	0.2	0	NA	0	10	4	0.4	1	3	2	2	0.4	NA

(1) Maximum Contaminant Level; 2018 Edition of the Drinking Water Standards and Health Advisories (USEPA, 2018).

(2) The total of combined trihalomethanes (bromodichloromethane, dibromochloromethane, bromoform and chloroform) cannot exceed 0.08 mg/L.

J Estimated Concentration

J+ Estimated, high bias indicated

J- Estimated, low bias indicated

UJ Undetected, reporting limit estimated.

NA Not analyzed.

> Greater than

Bolding indicates constituent detection.

Shading indicates concentration exceeds comparison criteria.

Summary of March 2020 Performance Monitoring Results

PARAMETER	MCL(1)	DP-23B 03/25/2020	DP-24 03/25/2020	DP-24A 03/25/2020	DP-24B 03/25/2020	DP-25 03/24/2020	DP-25A 03/24/2020	DP-25B 03/24/2020	DP-26 03/23/2020	DP-26A 03/23/2020	DP-26B 03/23/2020	DP-27 03/23/2020	DP-27A 03/23/2020	DP-27B 03/23/2020
Gases (ug/L)														
Methane	--	**0.18 J**	**170**	**1.2**	**3.2**	**3**	**1**	**1.7**	**8.5**	**1.8**	**4.6**	**0.69**	**0.85**	**1.9**
Ethane	--	**0.051 J**	**2**	**0.28**	**1.2**	**0.31**	**0.36**	**1**	**2.1**	**0.77**	**1.7**	**0.13**	**0.28**	**0.9**
Ethene	--	**0.044 J**	**0.11**	**0.16**	**0.69**	**0.45**	**0.18**	**0.45**	**0.46**	**0.26**	**1.1**	**0.14**	**0.19**	**0.52**
Volatile Organic Compounds (mg/L)														
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	< 0.0010	< 0.0050	**0.019 J**	**0.0052**	**0.00055 J**	**0.0038 J**	**0.0031 J**	< 0.0050	< 0.0050	< 0.050	< 0.010	**0.0032 J**	**0.0025 J**
1,1-Dichloroethane	--	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
1,1-Dichloroethene	0.007	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
1,2-Dichlorobenzene	0.6	< 0.0010	< 0.0050	< 0.020	**0.00061 J**	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
1,2-Dichloroethane	0.005	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
1,4-Dichlorobenzene	0.075	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
2-Butanone (MEK)	--	< 0.010	< 0.050	< 0.20	< 0.010	**0.12**	**0.03 J**	< 0.050	< 0.050	< 0.050	< 0.50	< 0.10 UJ	< 0.050	< 0.050
Acetone	--	< 0.020	< 0.10	< 0.40	**0.0063 J**	**0.18**	**0.075 J**	< 0.10	< 0.10	< 0.10	< 1.0	< 0.20 UJ	< 0.10	< 0.10
Benzene	0.005	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Carbon disulfide	--	< 0.0010	< 0.0050	< 0.020	< 0.0010	**0.0047**	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Chlorobenzene	0.1	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Chloroform	0.08[2]	**0.00064 J**	< 0.0050	< 0.020	**0.00049 J**	< 0.0010	**0.0084**	**0.0027 J**	< 0.0050	< 0.0050	< 0.050	< 0.010	**0.0048 J**	**0.0040 J**
cis-1,2-Dichloroethene	0.07	< 0.0010	**0.1**	< 0.020	< 0.0010	**0.00078 J**	< 0.0050	< 0.0050	**0.019**	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Cyclohexane	--	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Ethylbenzene	0.7	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Isopropylbenzene	--	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Methyl acetate	--	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Methylcyclohexane	--	< 0.0050	< 0.025	< 0.10	< 0.0050	< 0.0050	< 0.025	< 0.025	< 0.025	< 0.025	< 0.25	< 0.050	< 0.025	< 0.025
Styrene	0.1	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Tetrachloroethene	0.005	**0.044**	**0.34 J+**	**2.6**	**0.2**	**0.17**	**0.34**	**0.24**	**0.27**	**0.6**	**3.8**	**0.52**	**0.53**	**0.28**
Toluene	1	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
trans-1,2-Dichloroethene	0.1	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Trichloroethene	0.005	< 0.0010	**0.019 J+**	**0.014 J**	**0.0022**	**0.0024**	< 0.0050	< 0.0050	**0.024**	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Trichlorofluoromethane	--	**0.0020**	< 0.0050	< 0.020	**0.00074 J**	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Vinyl chloride	0.002	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
Xylenes, total	10	< 0.0010	< 0.0050	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.010	< 0.0050	< 0.0050
General Chemistry (mg/L)														
Bromide	--	< 0.20	**0.25**	< 0.20	< 0.20	**0.32**	< 0.20	< 0.20	**0.32**	< 0.20	< 0.20	**0.12 J**	< 0.20	< 0.20
Chloride	--	**0.57 J**	**21**	**0.95 J**	**1.3**	**23**	**1.4**	**1.1**	**44**	**1.0**	**1.6**	**8.9**	**0.66 J**	**1.9**
Nitrate as N	10	**0.41**	**0.70**	**0.51**	**2.1**	**0.11 J-**	**2.7**	**0.85**	**0.019 J**	**0.17**	**1.1**	**2.6**	**0.46**	**0.63**
Sulfate	--	< 1.0	**1.0**	**0.26 J**	**0.58 J**	**130**	**0.84 J**	**1.5**	**10**	**1.2**	**6.8**	**160**	**37**	**12**
Field Parameters														
pH, Field (su)	--	7.31	5.72	6.83	7.40	5.17	5.79	6.50	5.04	6.15	6.92	4.58	5.24	6.50
Temperature, Field (°C)	--	26.83	18.29	17.94	18.82	15.40	15.38	15.30	16.24	17.69	15.93	17.62	14.31	12.73
Specific Conductivity, Field (uS/cm)	--	23	108	31	75	1	69	63	203	34	67	345	104	112
Dissolved Oxygen, Field (mg/L)	--	4.65	1.51	5.28	3.06	2	4.16	2.61	1.58	3.22	2.40	8.65	6.01	3.87
Oxidation Reduction Potential, Field (mV)	--	91	502	101	57	279	42	8	312	116	32	296	205	69
Turbidity, Field (ntu)	--	> 1000	> 1000	> 1000	> 1000	140	> 1000	> 1000	> 1000	> 1000	> 1000	> 1000	> 1000	> 1000
Iron, Ferrous, Field (mg/L)	--	0	1	0.4	0.2	2	2	1	2	1	6	5	3	1

(1) Maximum Contaminant Level; 2018 Edition of the Drinking Water Standar

(2) The total of combined trihalomethanes (bromodichloromethane, dibromoc

J Estimated Concentration

J+ Estimated, high bias indicated

J- Estimated, low bias indicated

UJ Undetected, reporting limit estimated.

NA Not analyzed.

> Greater than

Bolding indicates constituent detection.

Shading indicates concentration exceeds comparison criteria.

Summary of March 2020 Performance Monitoring Results

PARAMETER	MCL(1)	MG-06	MG-06A	MG-06B	RMW-01	RMW-02	RMW-05A	RMW-05B	RMW-06	RMW-06A	RMW-07	RMW-08	RMW-08A	RMW-09
		03/26/2020	03/26/2020	03/26/2020	03/23/2020	03/31/2020	03/23/2020	03/23/2020	03/12/2020	03/12/2020	03/24/2020	03/18/2020	03/18/2020	03/23/2020
Gases (ug/L)														
Methane	--	**0.94**	< 0.046	**0.064 J**	< 0.094	**330**	< 0.094	**0.56**	< 0.046	**0.079 J**	**9.8**	**13**	**0.27 J**	**3**
Ethane	--	< 0.0050	< 0.0050	< 0.0050	< 0.011	**0.026 J**	< 0.011	< 0.011	< 0.0050	**0.0052 J**	**0.25**	**0.1**	**0.019 J**	**0.39**
Ethene	--	**0.022 J**	**0.0073 J**	**0.013 J**	**0.037 J**	**0.13**	< 0.0080	**0.080 J**	**0.018 J**	**0.013 J**	**0.020 J**	**0.024 J**	**0.024 J**	< 0.0080
Volatile Organic Compounds (mg/L)														
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.0011**	< 0.0050	< 0.0010	< 0.0010
1,1-Dichloroethane	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
1,1-Dichloroethene	0.007	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
1,2-Dichlorobenzene	0.6	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
1,2-Dichloroethane	0.005	< 0.0010	< 0.0010	< 0.0010	**0.00047 J**	< 0.010	< 0.0010	< 0.0010	< 0.0010	**0.00046 J**	< 0.0010	< 0.0050	< 0.0010	< 0.0010
1,4-Dichlorobenzene	0.075	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
2-Butanone (MEK)	--	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	**0.025**	< 0.050 UJ	< 0.010	< 0.010
Acetone	--	< 0.020	< 0.020	< 0.020	< 0.020	**0.1 J**	< 0.020	< 0.020	< 0.020	< 0.020	**0.016 J**	< 0.10 UJ	< 0.020	< 0.020
Benzene	0.005	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Carbon disulfide	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.0015**	< 0.0050	< 0.0010	**0.00042 J**
Chlorobenzene	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Chloroform	0.08[2]	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	**0.011**	**0.0081**	**0.00068 J**	**0.00055 J**	< 0.0010	< 0.0050	< 0.0010	< 0.0010
cis-1,2-Dichloroethene	0.07	< 0.0010	< 0.0010	**0.0075**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.0022**	**0.012**	**0.039**	**0.0027**
Cyclohexane	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Ethylbenzene	0.7	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.61**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Isopropylbenzene	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Methyl acetate	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Methylcyclohexane	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.025	< 0.0050	< 0.0050
Styrene	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.012**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Tetrachloroethene	0.005	< 0.0010	**0.013**	**0.13**	**0.0022**	< 0.010	< 0.0010	< 0.0010	**0.078**	**0.087**	**0.22**	**0.35**	**0.11**	**0.2**
Toluene	1	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
trans-1,2-Dichloroethene	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Trichloroethene	0.005	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.00088 J**	**0.0026 J**	**0.0011**	**0.00090 J**
Trichlorofluoromethane	--	< 0.0010	< 0.0010	< 0.0010	**0.00060 J**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.00093 J**	< 0.0050	< 0.0010	< 0.0010
Vinyl chloride	0.002	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
Xylenes, total	10	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**2**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010
General Chemistry (mg/L)														
Bromide	--	< 0.20	< 0.20	< 0.20	**0.16 J**	**0.20**	< 0.20	< 0.20	< 0.20	< 0.20	**0.27**	**0.20**	**0.48**	**0.31**
Chloride	--	**1.2**	**1.6**	**22**	**16**	**17**	**1.8**	**0.93 J**	**12**	**0.97 J**	**23**	**19**	**230**	**27**
Nitrate as N	10	**0.070**	**1.8**	**1.6**	**4.7**	**0.31 J**	**0.54**	**0.94**	**2.7**	**1.9 J-**	**5.5**	**2.8**	**2.7**	**1.7**
Sulfate	--	**25**	**1.4**	**20**	**68**	**11**	**0.76 J**	< 1.0	**10**	< 1.0	**0.83 J**	**7.8**	**1.0**	**7.7**
Field Parameters														
pH, Field (su)	--	4.67	6.01	6.20	5.46	13.89	5.86	6.29	3.93	4.05	4.05	4.60	5.18	4.37
Temperature, Field (°C)	--	16.24	20.50	19.36	19.40	19.54	19.20	19.80	19.78	20.31	18.67	18.62	21.76	17.91
Specific Conductivity, Field (uS/cm)	--	89	88	170	262	3780	24	42	78	32	132	99	752	103
Dissolved Oxygen, Field (mg/L)	--	0	3.43	1.18	0	0	3.15	3.03	5.58	4.71	0	0.35	1.52	0
Oxidation Reduction Potential, Field (mV)	--	235	185	184	231	-211	201	-3	305	430	240	210	141	510
Turbidity, Field (ntu)	--	8.46	0	0	0	0	0	9.18	0	0	0	1.60	0	0
Iron, Ferrous, Field (mg/L)	--	0	0	0	0	0	0	0	0	0	0	1	0	0

(1) Maximum Contaminant Level; 2018 Edition of the Drinking Water Standar

(2) The total of combined trihalomethanes (bromodichloromethane, dibromoc

J Estimated Concentration

J+ Estimated, high bias indicated

J- Estimated, low bias indicated

UJ Undetected, reporting limit estimated.

NA Not analyzed.

> Greater than

Bolding indicates constituent detection.

Shading indicates concentration exceeds comparison criteria.

Summary of March 2020 Performance Monitoring Results

PARAMETER	MCL(1)	RMW-10	RMW-10A	RMW-10B	RMW-10C	RMW-11	RMW-13	RMW-13A	RMW-14	RMW-14A	RMW-14B	RMW-14B (DU-20101)	RMW-14C	RMW-18
		03/19/2020	03/19/2020	03/19/2020	03/19/2020	03/09/2020	03/12/2020	03/12/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020	03/30/2020
Gases (ug/L)														
Methane	--	**4.8**	**0.12 J**	**1.5**	**0.082 J**	< 0.094	**0.071 J**	**0.054 J**	**0.046 J**	**0.14 J**	**0.051 J**	**0.055 J**	**0.098 J**	**750**
Ethane	--	**0.75**	**0.0056 J**	**0.0079 J**	< 0.0050	< 0.011	< 0.0050	< 0.0050	< 0.0050	**0.0075 J**	< 0.0050	< 0.0050	< 0.0050	**0.39**
Ethene	--	**0.65**	**0.014 J**	**0.032 J**	**0.031 J**	**0.015 J**	**0.059 J**	**0.0098 J**	**0.015 J**	**0.0084 J**	< 0.0040	< 0.0040	< 0.0040	**0.021 J**
Volatile Organic Compounds (mg/L)														
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.0021 J**	< 0.0010	< 0.0010	< 0.0010	< 0.010
1,1-Dichloroethane	--	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
1,1-Dichloroethene	0.007	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.0057**	< 0.0010	< 0.0010	< 0.0010	< 0.010
1,2-Dichlorobenzene	0.6	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
1,2-Dichloroethane	0.005	< 0.0050	< 0.0050	< 0.0010	< 0.0010	**0.00079 J**	**0.00046 J**	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
1,4-Dichlorobenzene	0.075	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
2-Butanone (MEK)	--	**0.21**	< 0.050 UJ	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.050	< 0.010	< 0.010	< 0.010	< 0.10
Acetone	--	**0.19**	< 0.10 UJ	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.10	< 0.020	< 0.020	< 0.020	< 0.20
Benzene	0.005	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Carbon disulfide	--	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Chlorobenzene	0.1	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Chloroform	0.08(2)	< 0.0050	< 0.0050	< 0.0010	< 0.0010	**0.0020**	**0.00051 J**	< 0.0010	< 0.0010	**0.0068**	< 0.0010	< 0.0010	< 0.0010	< 0.010
cis-1,2-Dichloroethene	0.07	**0.019**	< 0.0050	**0.031**	**0.00083 J**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	**0.00045 J**	**0.019**
Cyclohexane	--	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050 UJ	< 0.0010	< 0.0010	< 0.0010	< 0.010
Ethylbenzene	0.7	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Isopropylbenzene	--	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Methyl acetate	--	< 0.0050	< 0.0050 UJ	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050 UJ	< 0.0010	< 0.0010	< 0.0010	< 0.010
Methylcyclohexane	--	< 0.025	< 0.025	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.025	< 0.0050	< 0.0050	< 0.0050	< 0.050
Styrene	0.1	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Tetrachloroethene	0.005	**0.58**	**0.26**	**0.044**	**0.065**	**0.091**	**0.17**	< 0.0010	**0.034**	**0.53 J**	**0.00087 J**	**0.00096 J**	**0.0046**	**1**
Toluene	1	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
trans-1,2-Dichloroethene	0.1	< 0.0050	< 0.0050	**0.00041 J**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Trichloroethene	0.005	**0.0079**	< 0.0050	**0.0025**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Trichlorofluoromethane	--	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Vinyl chloride	0.002	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
Xylenes, total	10	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0050	< 0.0010	< 0.0010	< 0.0010	< 0.010
General Chemistry (mg/L)														
Bromide	--	**0.44 J**	< 0.20	< 0.20	< 0.20	**0.14 J**	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20	< 0.20	**0.19 J**
Chloride	--	**14**	**0.94 J**	**0.92 J**	**0.99 J**	**7.4**	**4.6**	**0.86 J**	**2.8**	< 5.0	**0.85 J**	**0.81 J**	**0.82 J**	**45**
Nitrate as N	10	**0.32**	**0.73**	**1.1**	**1.2**	**5.3**	**1.4**	**0.18**	**1.5**	**0.70**	**0.36**	**0.37**	**0.44**	**3.3**
Sulfate	--	**1300**	**1.1**	**0.59 J**	**1.0**	**100**	**79**	**1.1**	**120**	**150**	**0.63 J**	**0.34 J**	**0.29 J**	**49**
Field Parameters														
pH, Field (su)	--	3.61	5.64	6.23	8.56	4.02	3.65	5.16	3.69	5.03	6.66	NA	6.79	5.38
Temperature, Field (°C)	--	18.99	19.75	19.98	20.31	20.25	19.41	20.88	18.76	19.31	19.65	NA	19.43	21.88
Specific Conductivity, Field (uS/cm)	--	1650	14	86	107	300	170	16	208	292	65	NA	70	329
Dissolved Oxygen, Field (mg/L)	--	0	5.27	4.31	4.03	4.82	7.23	5.18	4.91	6.71	6.34	NA	6.97	1.17
Oxidation Reduction Potential, Field (mV)	--	192	244	-8	83	441	294	304	296	225	202	NA	241	165
Turbidity, Field (ntu)	--	63.10	0	57.8	0	1.84	0	1.97	0	0	5.38	NA	0	0
Iron, Ferrous, Field (mg/L)	--	> 10	0	0.3	0	0	0	0	0	0	0.05	NA	0	0.5

(1) Maximum Contaminant Level; 2018 Edition of the Drinking Water Standar

(2) The total of combined trihalomethanes (bromodichloromethane, dibromoc

J Estimated Concentration

J+ Estimated, high bias indicated

J- Estimated, low bias indicated

UJ Undetected, reporting limit estimated.

NA Not analyzed.

> Greater than

Bolding indicates constituent detection.

Shading indicates concentration exceeds comparison criteria.

Summary of March 2020 Performance Monitoring Results

PARAMETER	MCL(1)	RMW-18A 03/31/2020	RMW-19 03/16/2020	RMW-19 (DU-20102) 03/16/2020	RMW-19A 03/16/2020	RMW-20 03/11/2020	RMW-20A 03/11/2020	RMW-20B 03/31/2020	RMW-20C 03/12/2020	RMW-21 03/17/2020	RMW-21A 03/17/2020	RMW-22 03/18/2020	RMW-22A 03/18/2020	RMW-23 03/09/2020
Gases (ug/L)														
Methane	--	**55**	< 0.094	< 0.094	**0.54**	**16**	**8300**	**24000**	**920**	**5.7**	**9.7**	**150**	**0.080 J**	**20000**
Ethane	--	**0.36**	< 0.011	< 0.011	**0.015 J**	**0.63**	**5**	**0.39**	**0.31**	**0.072 J**	**0.031 J**	**2.5**	**0.046 J**	**0.64**
Ethene	--	**0.051 J**	**0.033 J**	**0.037 J**	**0.021 J**	**0.053 J**	**1.8**	**0.16**	**0.7**	**0.019 J**	**0.015 J**	**0.015 J**	< 0.0040	**0.25**
Volatile Organic Compounds (mg/L)														
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	--	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethene	0.007	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
1,2-Dichlorobenzene	0.6	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	0.005	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	0.075	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
2-Butanone (MEK)	--	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	**0.2**	**0.011**	**0.0091 J**	< 0.050	< 0.50	**0.0058 J**	**0.011**	< 0.010
Acetone	--	**0.0059 J**	< 0.020	< 0.020	< 0.20	< 0.020	< 0.40	**0.0084 J**	**0.0081 J**	< 0.10	< 1.0	< 0.020	**0.04**	< 0.020
Benzene	0.005	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	**0.0020 J**	< 0.050	< 0.0010	< 0.0010	< 0.0010
Carbon disulfide	--	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	**0.0022**	< 0.0010	< 0.0010
Chlorobenzene	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Chloroform	0.08[2]	< 0.0010	< 0.0010	< 0.0010	**0.013**	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
cis-1,2-Dichloroethene	0.07	< 0.0010	< 0.0010	< 0.0010	< 0.010	**0.0010**	**1.6**	< 0.0010	< 0.0010	**0.0042 J**	< 0.050	**0.01**	< 0.0010	**0.0093**
Cyclohexane	--	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	0.7	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Isopropylbenzene	--	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Methyl acetate	--	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	**0.0013**	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	**0.00052 J**
Methylcyclohexane	--	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.0050	< 0.10	< 0.0050	< 0.0050	< 0.025	< 0.25	< 0.0050	< 0.0050	< 0.0050
Styrene	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Tetrachloroethene	0.005	**0.18**	**0.015**	**0.015**	**0.68**	**0.029**	**0.021**	< 0.0010	**0.0035**	**0.22**	**3.8**	**0.16**	**0.17**	**0.017**
Toluene	1	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
trans-1,2-Dichloroethene	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Trichloroethene	0.005	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	**0.011**	< 0.050	**0.013**	**0.00094 J**	**0.0024**
Trichlorofluoromethane	--	< 0.0010	**0.0029**	**0.0030**	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Vinyl chloride	0.002	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	**0.011 J**	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
Xylenes, total	10	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.020	< 0.0010	< 0.0010	< 0.0050	< 0.050	< 0.0010	< 0.0010	< 0.0010
General Chemistry (mg/L)														
Bromide	--	< 0.20	**0.17 J**	**0.17 J**	**0.058 J**	**0.15 J**	< 0.20	< 0.20	< 0.20	**0.19 J**	**0.29 J**	**0.62**	**0.099 J**	**0.12 J**
Chloride	--	**54**	**9.6**	**9.6**	**1.0**	**13**	**2.3**	**3.0**	**2.5**	**17**	**190**	**56**	**4.8**	**5.6**
Nitrate as N	10	**0.34**	**8.1**	**7.8**	**1.9**	**5.7**	**0.90**	**0.14**	**1.2**	**3.8**	**6.9**	**0.43**	**1.2**	**0.063**
Sulfate	--	**130**	**17**	**17**	< 1.0	**83**	< 1.0	< 5.0	**0.48 J**	**21**	**99**	**1.6**	< 1.0	**50**
Field Parameters														
pH, Field (su)	--	5.42	4.33	NA	4.36	4.45	7.78	7.39	9.40	4.71	4.61	3.98	5.68	6.58
Temperature, Field (°C)	--	21.32	18.79	NA	20.99	19.83	21.79	21.13	22.03	19.23	21.74	18.30	21.39	19.14
Specific Conductivity, Field (uS/cm)	--	521	145	NA	33	239	220	371	243	131	882	155	65	427
Dissolved Oxygen, Field (mg/L)	--	1.39	1.91	NA	5.63	1.21	1.56	0	1.02	0.10	1.90	0.12	3.50	0
Oxidation Reduction Potential, Field (mV)	--	-227	260	NA	246	392	-305	-161	37	496	253	513	69	-137
Turbidity, Field (ntu)	--	0	0	NA	0	3.9	11	182	0	0	0	0	0	26.20
Iron, Ferrous, Field (mg/L)	--	2	0	NA	0	2	3	> 10	0	0	0	0	0	> 10

(1) Maximum Contaminant Level; 2018 Edition of the Drinking Water Standar

(2) The total of combined trihalomethanes (bromodichloromethane, dibromoc

J Estimated Concentration

J+ Estimated, high bias indicated

J- Estimated, low bias indicated

UJ Undetected, reporting limit estimated.

NA Not analyzed.

> Greater than

Bolding indicates constituent detection.

Shading indicates concentration exceeds comparison criteria.

Summary of March 2020 Performance Monitoring Results

PARAMETER	MCL(1)	RMW-23A 03/10/2020	RMW-23B 03/09/2020	RMW-23C 03/10/2020	RMW-24 03/30/2020	RMW-26 03/24/2020	RMW-27 03/31/2020	RMW-27A 03/25/2020	RMW-27B 03/25/2020	RMW-28A 03/25/2020	RMW-28B 03/25/2020	RMW-28B (DU-20103) 03/25/2020
Gases (ug/L)												
Methane	--	**8200**	**2900**	**18000**	**13**	**210**	**10000**	**20000**	**1.2**	**1.3**	**0.79**	**0.82**
Ethane	--	**390**	**0.041 J**	**2.2**	**0.27**	< 0.0050	**2.9**	**0.37**	**0.035 J**	< 0.011	**0.016 J**	**0.018 J**
Ethene	--	**50**	**0.67**	**2.2**	**0.29**	**0.39**	**3.3**	**0.074 J**	**0.31**	< 0.0080	**0.031 J**	**0.028 J**
Volatile Organic Compounds (mg/L)												
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	< 0.020	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	**0.00050 J**	< 0.020	< 0.020
1,1-Dichloroethane	--	< 0.020	< 0.0050	< 0.0050	< 0.0010	**0.0028**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
1,1-Dichloroethene	0.007	< 0.020	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
1,2-Dichlorobenzene	0.6	< 0.020	< 0.0050	< 0.0050	**0.0066**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
1,2-Dichloroethane	0.005	< 0.020	< 0.0050	< 0.0050	**0.0028**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
1,4-Dichlorobenzene	0.075	< 0.020	< 0.0050	< 0.0050	**0.00075 J**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
2-Butanone (MEK)	--	< 0.20	< 0.050	< 0.050	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.20	< 0.20
Acetone	--	< 0.40	< 0.10	< 0.10	**0.026**	< 0.020	< 0.20	< 0.020	< 0.020	< 0.020	< 0.40	< 0.40
Benzene	0.005	< 0.020	< 0.0050	< 0.0050	**0.074**	**0.0052**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Carbon disulfide	--	< 0.020	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Chlorobenzene	0.1	< 0.020	< 0.0050	< 0.0050	**0.0016**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Chloroform	0.08(2)	< 0.020	< 0.0050	< 0.0050	**0.0017**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
cis-1,2-Dichloroethene	0.07	**1.2**	**0.66**	**0.75**	< 0.0010	**0.00049 J**	**0.74**	< 0.0010	**0.03**	< 0.0010	< 0.020	< 0.020
Cyclohexane	--	< 0.020	< 0.0050	< 0.0050	**0.093**	**0.00056 J**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Ethylbenzene	0.7	< 0.020	< 0.0050	< 0.0050	**0.12**	**0.051**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Isopropylbenzene	--	< 0.020	< 0.0050	< 0.0050	**0.088**	**0.0023**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Methyl acetate	--	< 0.020	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Methylcyclohexane	--	< 0.10	< 0.025	< 0.025	**0.029**	**0.00082 J**	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.10	< 0.10
Styrene	0.1	< 0.020	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Tetrachloroethene	0.005	**0.21**	**0.056**	**0.1**	< 0.0010	**0.00040 J**	**0.33**	< 0.0010	**0.081**	**0.17**	**2.3**	**2.1**
Toluene	1	< 0.020	< 0.0050	< 0.0050	**0.026**	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
trans-1,2-Dichloroethene	0.1	< 0.020	**0.0021 J**	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Trichloroethene	0.005	**0.011 J**	< 0.0050	< 0.0050	< 0.0010	**0.00051 J**	**0.14**	< 0.0010	**0.0062**	< 0.0010	< 0.020	< 0.020
Trichlorofluoromethane	--	< 0.020	< 0.0050	< 0.0050	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Vinyl chloride	0.002	**0.01 J**	< 0.0050	**0.0029 J**	< 0.0010	**0.0017**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
Xylenes, total	10	< 0.020	< 0.0050	< 0.0050	**0.085**	**0.064**	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.020	< 0.020
General Chemistry (mg/L)												
Bromide	--	**0.24**	**0.11 J**	**0.11 J**	**0.45**	**1.2**	**0.34**	< 0.20	< 0.20	**0.070 J**	< 0.20	< 0.20
Chloride	--	**7.1**	**7.6**	**4.5**	**120**	**32**	**82**	**1.0**	**1.6**	**3.0**	**0.94 J**	**0.94 J**
Nitrate as N	10	**0.15**	**0.66**	**0.54**	**1.3**	**2.6**	**0.15**	**0.063**	**1.3**	**3.5**	**0.99**	**1.0**
Sulfate	--	< 1.0	< 1.0	**0.42 J**	**74**	**17**	**85**	< 1.0	**2.8**	**3.4**	< 1.0	< 1.0
Field Parameters												
pH, Field (su)	--	7.02	6.79	6.20	6.73	6.08	6.47	6.36	6.59	4.79	6.53	NA
Temperature, Field (°C)	--	19.81	19.65	18.94	20.96	19.46	20.31	23.52	23.39	20.20	19.78	NA
Specific Conductivity, Field (uS/cm)	--	277	84	133	970	244	688	321	87	72	38	NA
Dissolved Oxygen, Field (mg/L)	--	0	0	0	0	0	0	0	0.31	0.32	2.14	NA
Oxidation Reduction Potential, Field (mV)	--	-435	-82	-40	-22	54	-80	-169	14	169	163	NA
Turbidity, Field (ntu)	--	55.50	8	0.10	0	4.70	0	6.71	0	0	0	NA
Iron, Ferrous, Field (mg/L)	--	> 10	> 10	7	0.7	2	3.5	> 10	0.1	0.5	0	NA

(1) Maximum Contaminant Level; 2018 Edition of the Drinking Water Standar

(2) The total of combined trihalomethanes (bromodichloromethane, dibromoc

J Estimated Concentration

J+ Estimated, high bias indicated

J- Estimated, low bias indicated

UJ Undetected, reporting limit estimated.

NA Not analyzed.

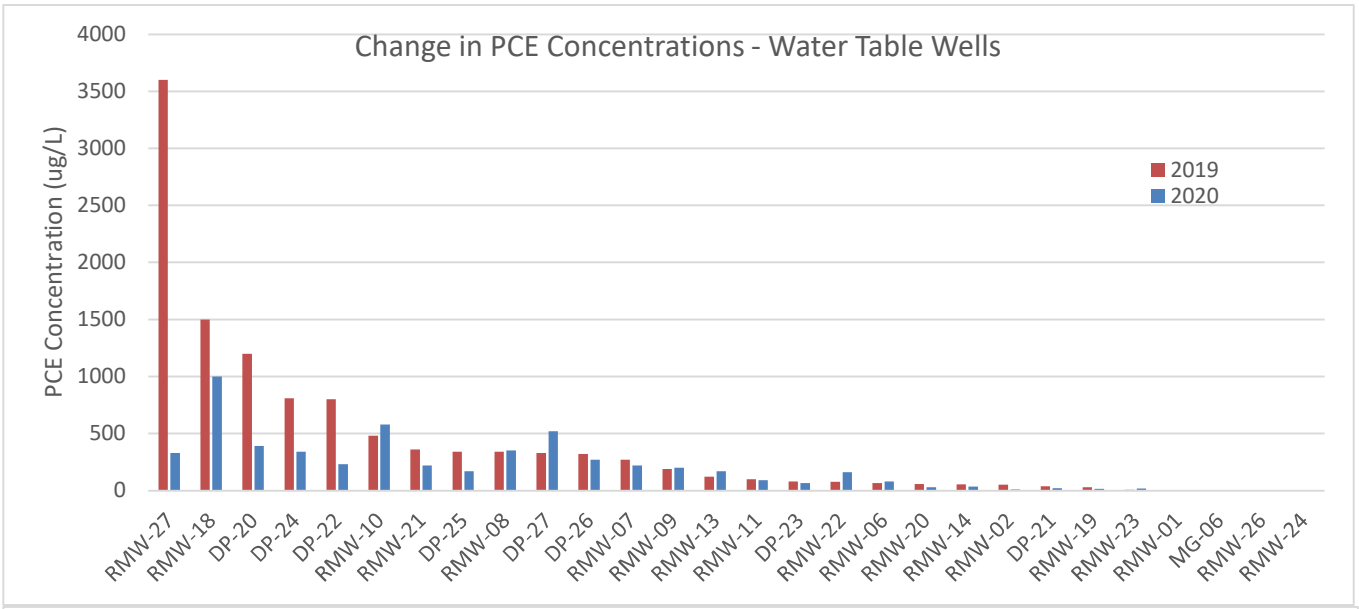
> Greater than

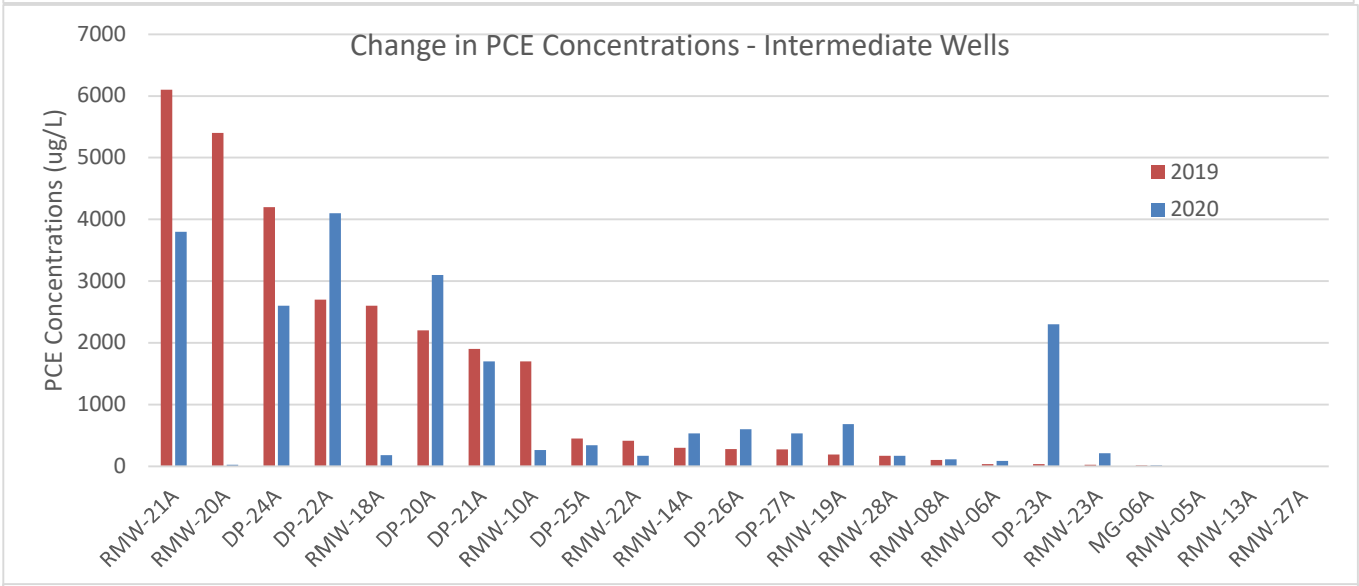
Bolding indicates constituent detection.

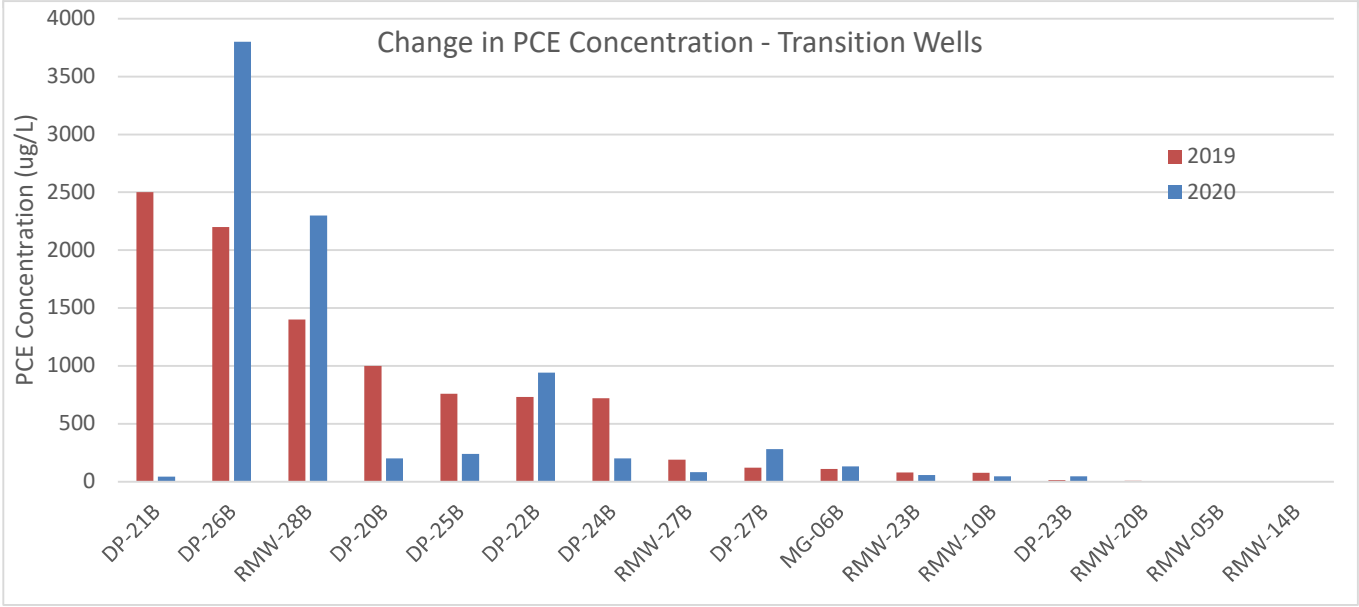
Shading indicates concentration exceeds comparison criteria.

Attachment 2
Graphical Comparison between 2019 and 2020 PCE Concentrations

Comparison between 2019 and 2020 PCE Concentrations

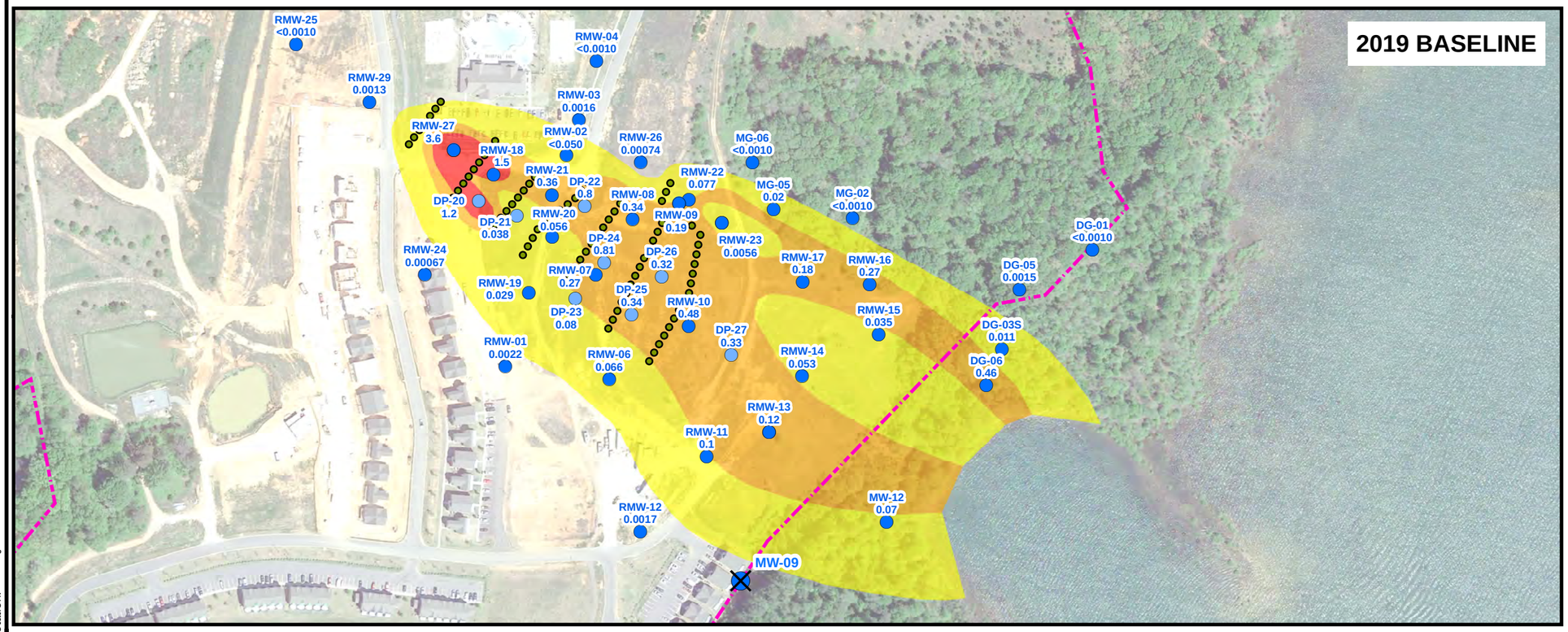






Attachment 3
PCE Isoconcentration Maps – 2019 and 2020

- Shallow Zone
- Intermediate Zone
- Transition Zone
- Bedrock Zone



LEGEND

- Water Table Monitoring Well
- Direct-Push Groundwater Sample
- Destroyed Water Table Monitoring Well
- Property Boundary (Approximate)
- ABC+ Injection Locations
- > 0.005 to 0.1 mg/L
- > 0.1 to 1.0 mg/L
- > 1.0 mg/L

NOTES

Aerial Photograph Source: Google Earth (2018).

PCE concentrations are posted in mg/L.

PCE - Tetrachloroethene

NS - Not Sampled

J - Estimated Concentration

J+ - Estimated, high bias indicated

For wells not sampled in March 2020 the PCE configuration is presumed to remain unchanged from the 2019 sampling event.

N

0 225 450 Feet

1 " = 250 '

1:3,000

PROJECT:

FORMER WESTPOINT HOME, INC.
CLEMSON, SOUTH CAROLINA

TITLE:

TETRACHLOROETHENE DISTRIBUTION IN SHALLOW GROUNDWATER

DRAWN BY:	SZYNAL D	PROJ. NO.:	300688.0.0.4
CHECKED BY:	CLARK L		
APPROVED BY:	WEBB S		**FIGURE 6**
DATE:	NOVEMBER 2020		

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Greenville, SC 29615
Phone: 864.281.0030
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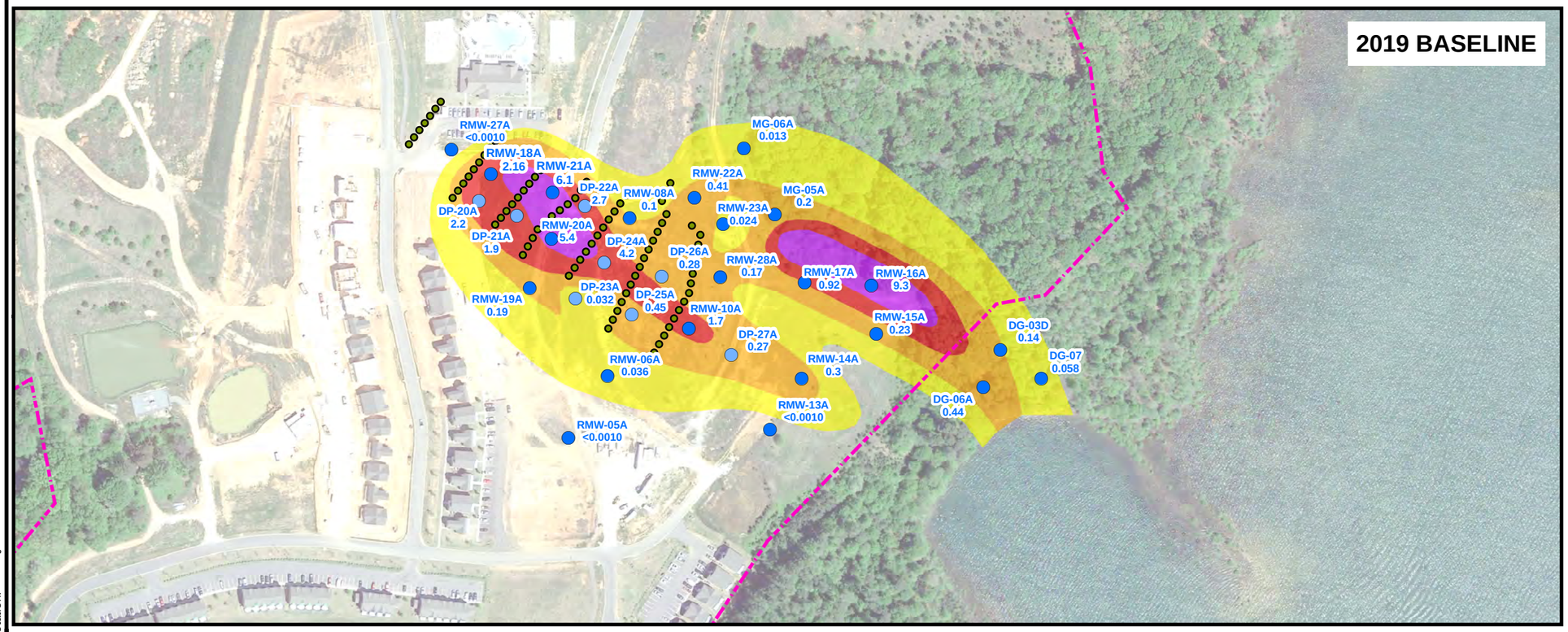
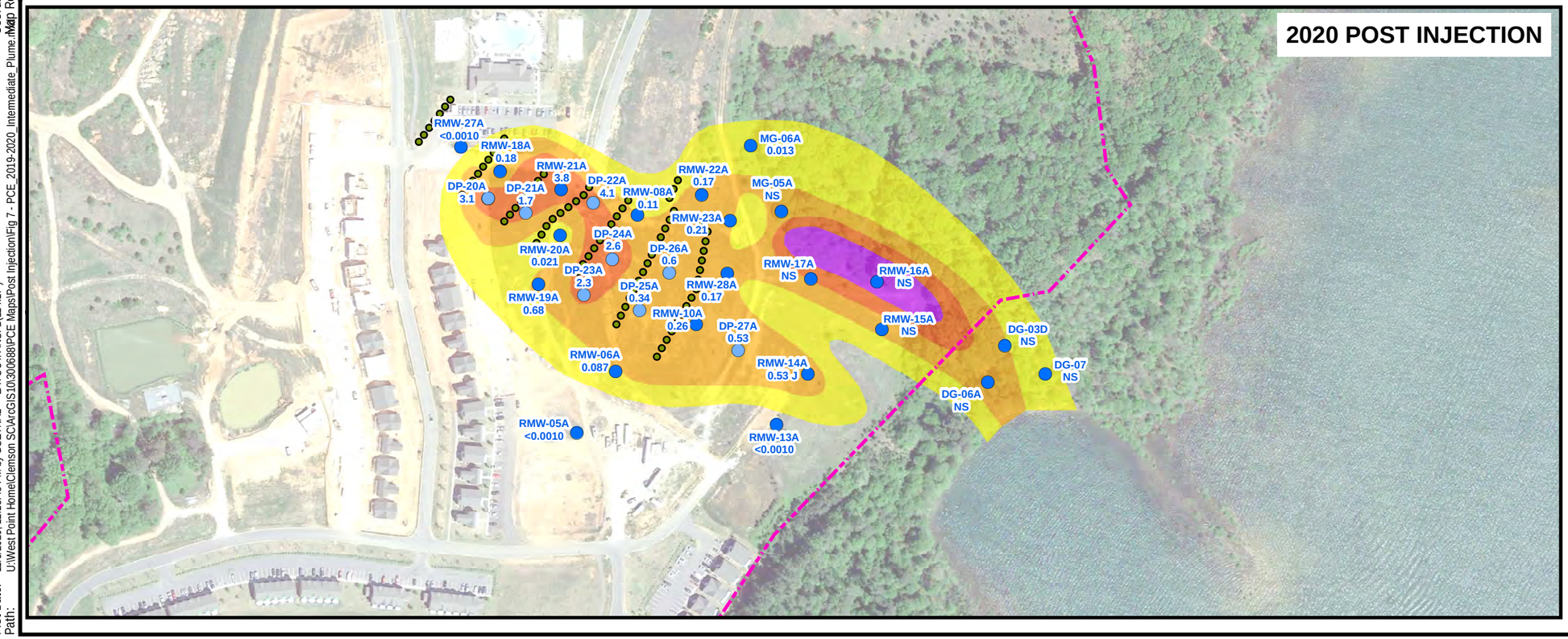
FILE NO.: Fig 6 - PCE_2019-2020_Shallow_Plume.mxd

Plot Date: 11/6/2020, 12:10:36 PM by DSZYNAL -- LAYOUT: ANSI B (11"x17")
Path: U:\West Point Home\Clemson SC\ArcGIS\0300688\PCE Maps\Post Injection\Fig 6 - PCE_2019-2020_Shallow_Plume.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

TRC - GIS





LEGEND

- Water Table Monitoring Well
- Direct-Push Groundwater Sample
- Property Boundary (Approximate)
- ABC+ Injection Locations
- > 0.005 to 0.1 mg/L
- > 0.1 to 1.0 mg/L
- > 1.0 to 5.0 mg/L
- > 5.0 mg/L

NOTES

Aerial Photograph Source: Google Earth (2018).

PCE concentrations are posted in mg/L.

PCE - Tetrachloroethene

NS - Not Sampled

J - Estimated Concentration

For wells not sampled in March 2020 the PCE configuration is presumed to remain unchanged from the 2019 sampling event.

N

0 225 450 Feet

1 " = 250 '

1:3,000

PROJECT:

FORMER WESTPOINT HOME, INC.
CLEMSON, SOUTH CAROLINA

TITLE:

TETRACHLOROETHENE DISTRIBUTION IN INTERMEDIATE AQUIFER WELLS

DRAWN BY:	SZYNAL D	PROJ. NO.:	300688.0.0.4
CHECKED BY:	CLARK L		
APPROVED BY:	WEBB S		**FIGURE 7**
DATE:	NOVEMBER 2020		

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Phone: 864.281.0030
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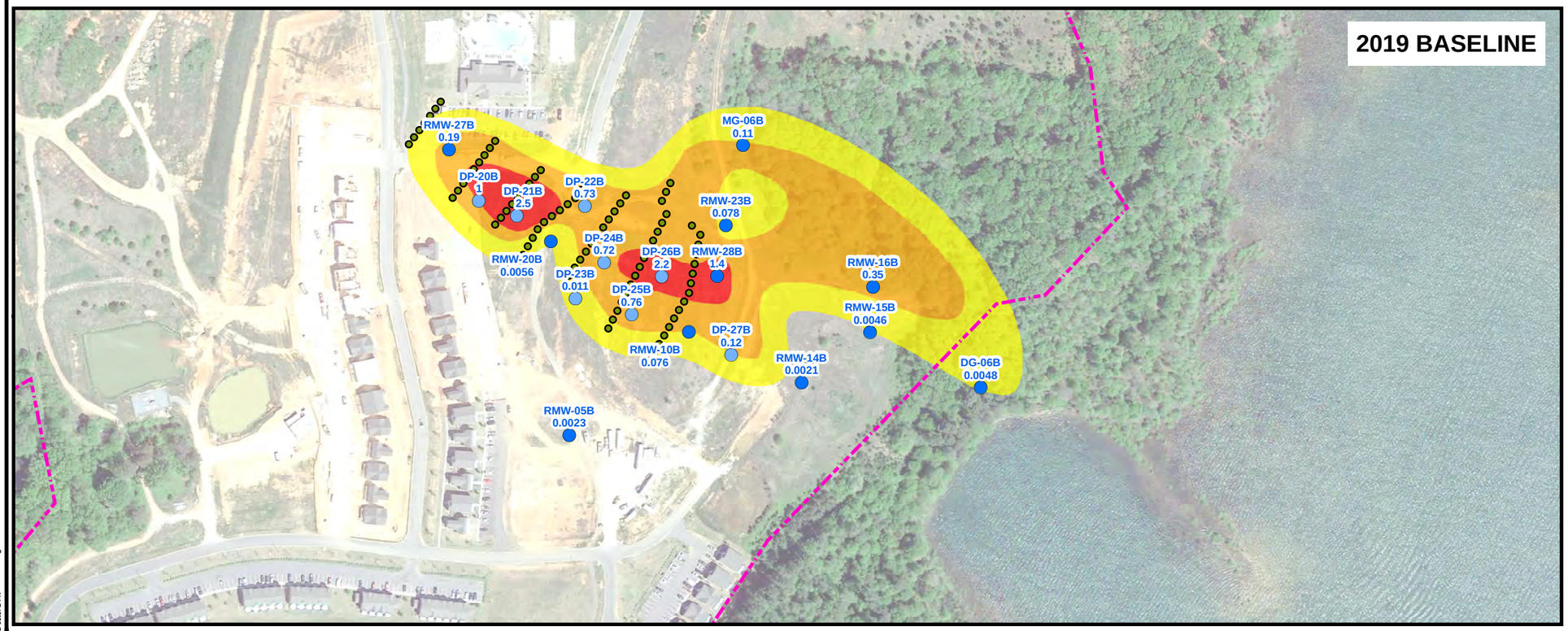
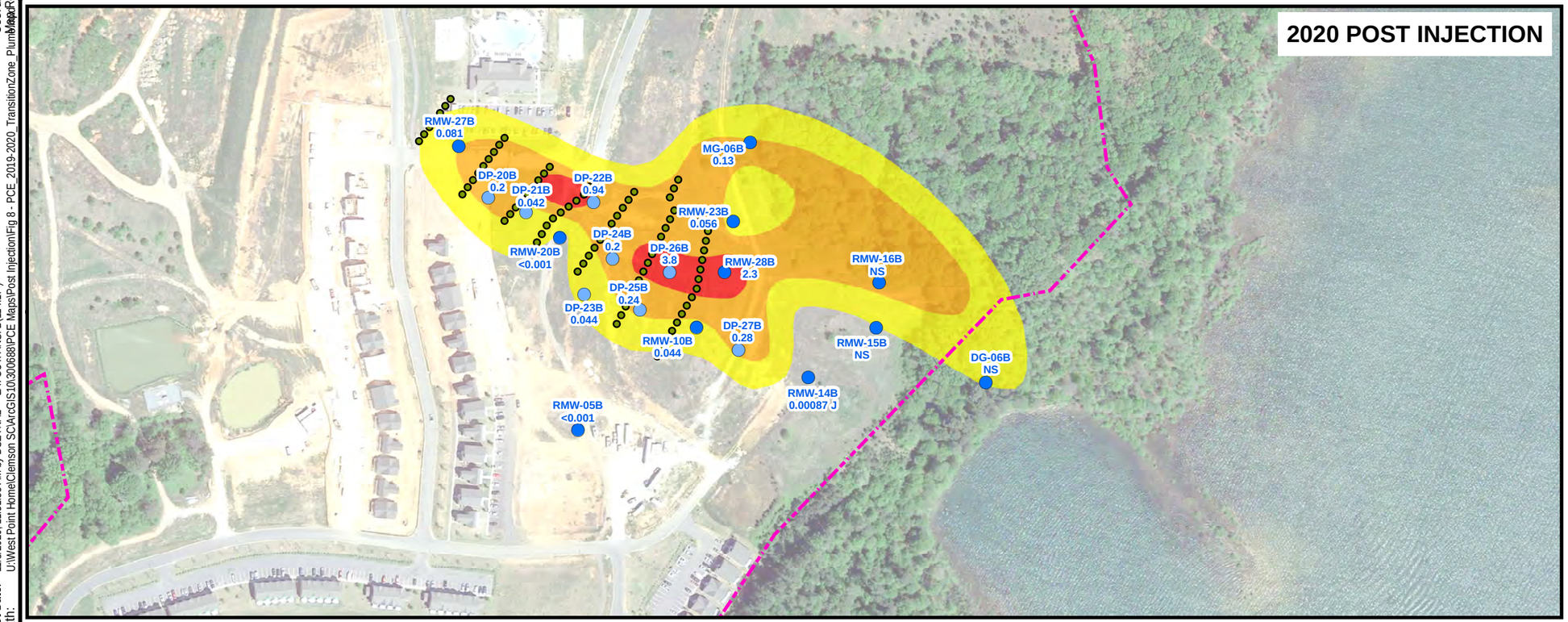
FILE NO.: Fig 7 - PCE_2019-2020_Intermediate_Plume.mxd

Plot Date: 11/6/2020, 12:18:48 PM by DSZYNAL - LAYOUT: ANSI B (11"x17")
Path: U:\West Point Home\Clemson SC\ArcGIS\0300688\PCE Maps\Post Injection\Fig 7 - PCE_2019-2020_Intermediate_Plume.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

TRC - GIS





LEGEND

- Water Table Monitoring Well
- Direct-Push Groundwater Sample
- Property Boundary (Approximate)
- ABC+ Injection Locations
- > 0.005 to 0.1 mg/L
- > 0.1 to 1.0 mg/L
- > 1.0 mg/L

NOTES

Aerial Photograph Source: Google Earth (2018).

PCE concentrations are posted in mg/L.

PCE - Tetrachloroethene

NS - Not Sampled

J - Estimated Concentration

For wells not sampled in March 2020 the PCE configuration is presumed to remain unchanged from the 2019 sampling event.

N

0 230 460 Feet

1 " = 252 '

1:3,027

PROJECT:
FORMER WESTPOINT HOME, INC.
CLEMSON, SOUTH CAROLINA

TITLE:
TETRACHLOROETHENE DISTRIBUTION IN TRANSITION ZONE WELLS

DRAWN BY:	SZYNAL D	PROJ. NO.:	300688.0.0.4
CHECKED BY:	CLARK L		
APPROVED BY:	WEBB S		**FIGURE 8**
DATE:	NOVEMBER 2020		

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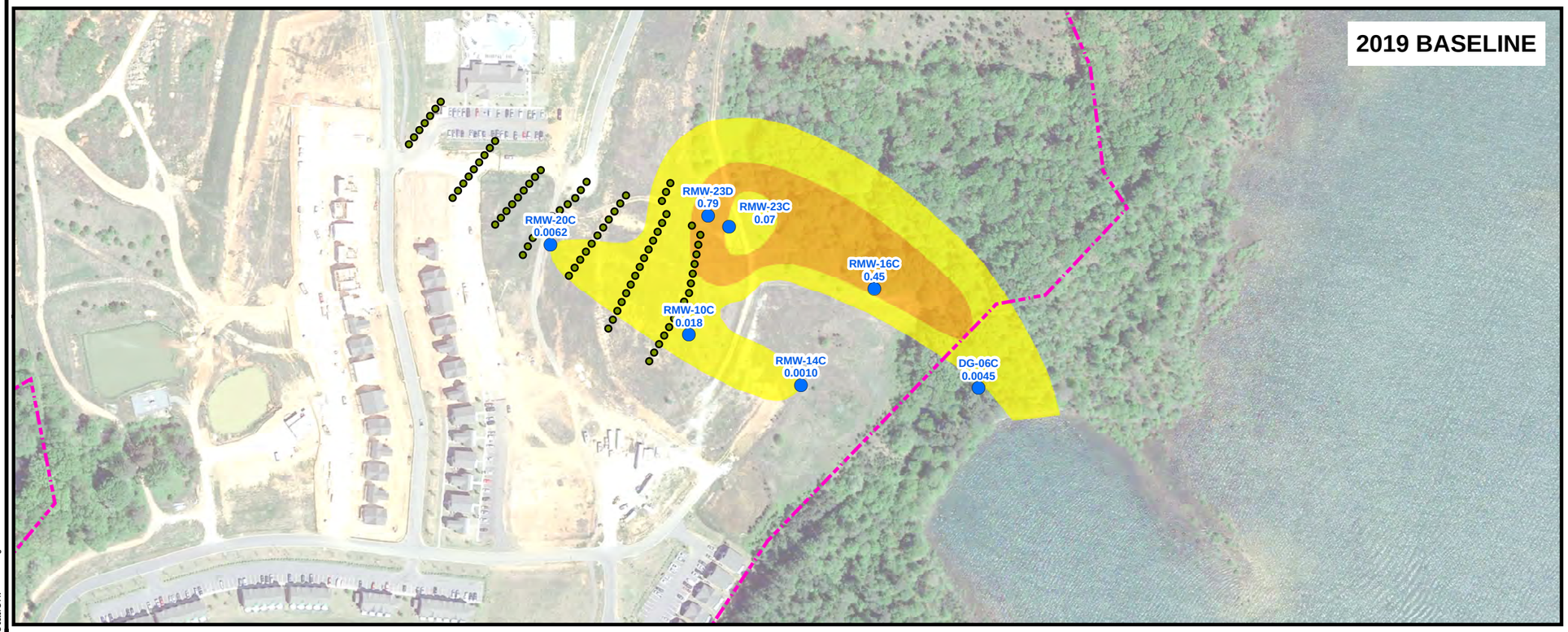
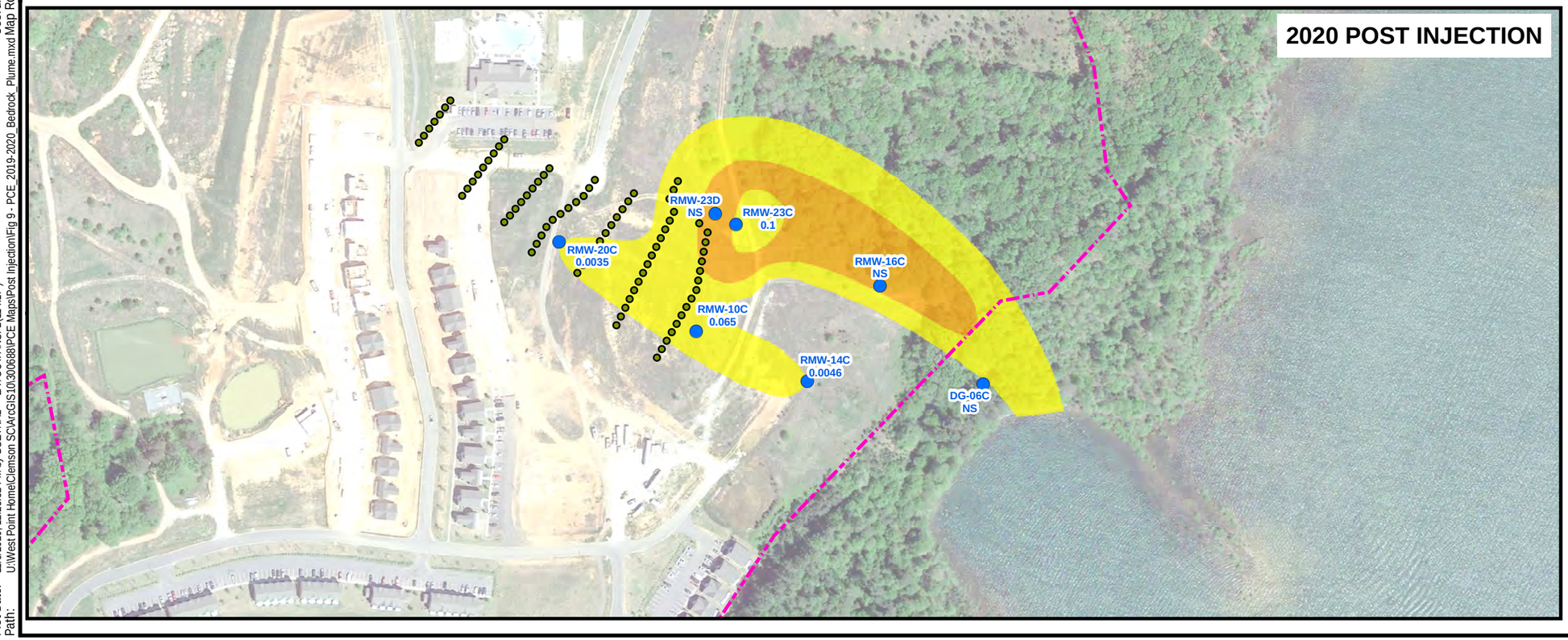
FILE NO.: Fig 8 - PCE_2019-2020_TransitionZone_Plume.mxd

Plot Date: 11/8/2020, 11:31:55 AM by DSZYNAL -- LAYOUT: ANSI B (11"x17")
Path: U:\West Point Home\Clemson SC\ArcGIS\10\300688\PCE Maps\Post Injection\Fig 8 - PCE_2019-2020_TransitionZone_Plume.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0
TRC - GIS





LEGEND

- Water Table Monitoring Well
- Property Boundary (Approximate)
- ABC+ Injection Locations
- > 0.005 to 0.1 mg/L
- > 0.1 mg/L

NOTES

Aerial Photograph Source: Google Earth (2018).

PCE concentrations are posted in mg/L.

PCE - Tetrachloroethene

NS - Not Sampled

For wells not sampled in March 2020 the PCE configuration is presumed to remain unchanged from the 2019 sampling event.

N

0 225 450 Feet

1 " = 250 '

1:3,000

PROJECT:

FORMER WESTPOINT HOME, INC.
CLEMSON, SOUTH CAROLINA

TITLE:

TETRACHLOROETHENE DISTRIBUTION IN BEDROCK WELLS

DRAWN BY:	SZYNAL D	PROJ. NO.:	300688.0.0.4
CHECKED BY:	CLARK L		
APPROVED BY:	WEBB S		**FIGURE 9**
DATE:	NOVEMBER 2020		

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Greenville, SC 29615
Phone: 864.281.0030
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FILE NO.: Fig 9 - PCE_2019-2020_Bedrock_Plume.mxd

Plot Date: 11/6/2020, 12:23:52 PM by DSZYNAL - LAYOUT: ANSI B (11"x17")
Path: U:\West Point Home\Clemson SC\ArcGIS\0300688\PCE Maps\Post Injection\Fig 9 - PCE_2019-2020_Bedrock_Plume.mxd
Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0
TRC - GIS

Attachment 4
Lines of Evidence

- Lines of Evidence Table
- Extent of Lines of Evidence Figures
  - ERD Conditions
  - ERD Migration

ERD and Migration Lines of Evidence March 2020

WELL	PCE BY-PRODUCTS DETECTED	ERD CONDITIONS			ERD MIGRATION			
		FERROUS IRON DETECTED	LOW DISSOLVED OXYGEN	LOW ORP	LACTATE BY-PRODUCTS DETECTED	ETHANE, ETHENE > 1 PPB	METHANE > 1PPM	GC LACTATE PEAK
Water Table Wells								
DP-20	yes	slight	no	no	no	slight	slight	no
DP-21	yes	yes	no	no	slight	slight	slight	slight
DP-22	slight	yes	no	no	yes	yes	slight	yes
DP-23	no	yes	no	no	no	slight	slight	no
DP-24	yes	yes	no	no	no	yes	slight	no
DP-25	yes	yes	no	no	yes	slight	slight	yes
DP-26	yes	yes	no	no	no	yes	slight	slight
DP-27	no	yes	no	no	no	slight	slight	no
MG-06	no	no	yes	no	no	slight	slight	no
RMW-01	no	no	yes	no	no	slight	no	no
RMW-02	no	no	yes	yes	slight	slight	slight	slight
RMW-06	no	no	no	no	no	slight	no	no
RMW-07	yes	no	yes	no	yes	slight	slight	no
RMW-08	yes	yes	yes	no	no	slight	slight	slight
RMW-09	yes	no	yes	no	no	slight	slight	no
RMW-10	yes	yes	yes	no	yes	slight	slight	yes
RMW-11	no	no	no	no	no	slight	no	no
RMW-13	no	no	no	no	no	slight	slight	no
RMW-14	no	no	no	no	no	slight	slight	no
RMW-18	yes	slight	no	no	no	slight	slight	yes
RMW-19	no	no	no	no	no	slight	no	no
RMW-20	yes	yes	no	no	no	slight	slight	slight
RMW-21	yes	no	yes	no	no	slight	slight	slight
RMW-22	yes	no	yes	no	slight	yes	slight	no
RMW-23	yes	yes	yes	yes	slight	slight	yes	no
RMW-24	no	slight	yes	yes	yes	slight	slight	no
RMW-26	yes	yes	yes	slight	no	slight	slight	no
RMW-27	yes	yes	yes	yes	no	yes	yes	no
Intermediate Wells								
DP-20A	no	no	no	slight	no	slight	slight	no
DP-21A	no	yes	no	no	no	yes	slight	no
DP-22A	no	yes	no	yes	no	yes	slight	no
DP-23A	no	slight	no	no	no	slight	slight	no
DP-24A	slight	slight	no	no	no	slight	slight	yes
DP-25A	no	yes	no	yes	slight	slight	slight	yes
DP-26A	no	yes	no	no	no	slight	slight	yes

ERD and Migration Lines of Evidence March 2020

WELL	PCE BY-PRODUCTS DETECTED	ERD CONDITIONS			ERD MIGRATION			
		FERROUS IRON DETECTED	LOW DISSOLVED OXYGEN	LOW ORP	LACTATE BY-PRODUCTS DETECTED	ETHANE, ETHENE > 1 PPB	METHANE > 1PPM	GC LACTATE PEAK
DP-27A	no	yes	no	no	no	slight	slight	slight
MG-06A	no	no	no	no	no	slight	no	no
RMW-05A	no	no	no	no	no	no	no	no
RMW-06A	no	no	no	no	no	slight	slight	no
RMW-08A	yes	no	no	no	no	slight	slight	no
RMW-10A	no	no	no	no	no	slight	slight	no
RMW-13A	no	no	no	no	no	slight	slight	no
RMW-14A	no	no	no	no	no	slight	slight	slight
RMW-18A	no	yes	no	yes	slight	slight	slight	yes
RMW-19A	no	no	no	no	no	slight	slight	no
RMW-20A	yes	yes	no	yes	yes	yes	yes	yes
RMW-21A	no	no	no	no	no	slight	slight	no
RMW-22A	slight	no	no	slight	yes	slight	slight	yes
RMW-23A	yes	yes	yes	yes	no	yes	yes	yes
RMW-27A	no	yes	yes	yes	no	slight	yes	yes
RMW-28A	no	slight	yes	no	no	no	slight	slight
Transition Wells								
DP-20B	slight	no	no	yes	no	slight	slight	no
DP-21B	no	slight	no	slight	slight	slight	slight	slight
DP-22B	slight	yes	no	no	no	slight	slight	no
DP-23B	no	no	no	slight	no	slight	slight	slight
DP-24B	yes	slight	no	slight	slight	yes	slight	slight
DP-25B	no	yes	no	yes	no	yes	slight	yes
DP-26B	no	yes	no	yes	no	yes	slight	yes
DP-27B	no	yes	no	slight	no	slight	slight	yes
MG-06B	yes	no	no	no	no	slight	slight	no
RMW-05B	no	no	no	yes	no	slight	slight	no
RMW-10B	yes	slight	no	yes	no	slight	slight	no
RMW-14B	no	slight	no	no	no	no	slight	yes
RMW-20B	no	yes	yes	yes	yes	yes	yes	yes
RMW-23B	yes	yes	yes	yes	no	yes	yes	no
RMW-27B	yes	slight	yes	yes	no	slight	slight	slight
RMW-28B	no	no	no	no	no	slight	slight	slight
Bedrock Wells								
RMW-10C	slight	no	no	slight	no	slight	slight	no
RMW-14C	slight	no	no	no	no	no	slight	no
RMW-20C	no	no	no	yes	yes	slight	slight	yes

ERD and Migration Lines of Evidence March 2020

WELL	PCE BY-PRODUCTS DETECTED	ERD CONDITIONS			ERD MIGRATION			
		FERROUS IRON DETECTED	LOW DISSOLVED OXYGEN	LOW ORP	LACTATE BY-PRODUCTS DETECTED	ETHANE, ETHENE > 1 PPB	METHANE > 1PPM	GC LACTATE PEAK
RMW-23C	yes	yes	yes	yes	no	yes	yes	yes

KEY

cVOC By-Products - includes TCE, cis-1,2-DCE, VC (>RL is good; <RL=slight)
DO - Less than 0.5 mg/L is good, Less than 1.0 mg/L is slight evidence
ORP - less than 50 mV is good, Less than 100 mV is slight evidence
Ferrous Iron - Present above 1 mg/L is good, present less than 1 mg/L is slight
Dissolved Gases - Ethane/ethene present above 1 ug/L is good, present less than 1 ug/L is slight
Dissolved Gases - Methane present above 1000 ug/L is good, present less than 1000 ug/L is slight
Lactate By-Products - MEK, MIBK, acetone, methyl acetate (>RL is good; <RL=slight) OR Lactate-related peak on chromatogram

Green - good evidence for ERD conditions or distribution
Yellow - slight evidence for ERD conditions or distribution
Red - poor evidence for ERD conditions or distribution

TRC - GIS

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

Plot Date: 12/16/2020, 15:15:00 PM by DSZYNAL -- LAYOUT: ANSI B(11"x17")
Path: U:\West Point Home\Clemson SC\ArcGIS\10\300688\2020\Figure 4-1.mxd

RMW-25
RMW-29
RMW-04
RMW-03
RMW-27/27A/27B
RMW-02
RMW-26
MG-06/06A/06B
RMW-18/18A
RMW-21/21A
RMW-22/22A
RMW-23B/23C
RMW-23/23A
RMW-23D
RMW-09
MG-05/05A
MG-02
DP-20/20A/20B
DP-21/21A/21B
DP-22/22A/22B
RMW-08/08A
OW-4
OW-6A
OW-5
RMW-20/20A
RMW-20B/20C
DP-24/24A/24B
DG-01
RMW-24
DP-26/26A/26B
RMW-17/17A
RMW-16/16A/16B/16C
RMW-19/19A
RMW-07
RMW-28A/28B
DG-05
DP-23/23A/23B
DP-25/25A/25B
RMW-15/15A/15B
RMW-10/10A/10B/10C
DG-03S/03D
DP-27/27A/27B
RMW-01
RMW-06/06A
RMW-14/14A/14B/14C
DG-06/06A/06B/06C
DG-07
RMW-05A/05B
RMW-13/13A
RMW-11
RMW-12
MW-12
MW-09
MW-11

LEGEND

- Water Table Aquifer Monitoring Well
- Intermediate Aquifer Monitoring Well
- Transition Zone Aquifer Monitoring Well
- Bedrock Aquifer Monitoring Well
- Observation Well (Previous Pilot Study)
- Direct-Push Groundwater Sample Location
- Destroyed Water Table Monitoring Well
- Pilot Study Injection Point
- Pilot Study Injection Point with Bromide Tracer
- Property Boundary (Approximate)
- ERD Condition Good
- ERD Condition Weak

NOTES

Aerial Photograph Source: Google Earth (2018).

N

0 120 240 Feet

1 " = 133 '
1:1,600

PROJECT:
FORMER WESTPOINT HOME
CLEMSON, SOUTH CAROLINA

TITLE:
ERD CONDITIONS
MARCH 2020

DRAWN BY:	SZYNAL D	PROJ. NO.:	300688.0.0.4
CHECKED BY:	PETERSON J		
APPROVED BY:	CLARK L		**FIGURE 4-1**
DATE:	DECEMBER 2020		

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Greenville, SC 29615
Phone: 864.281.0030
www.TRCcompanies.com

FILE NO.: Figure 4-1.mxd

TRC - GIS

Coordinate System: NAD 1983 StatePlane South Carolina FIPS 3900 Feet (Foot US)
Map Rotation: 0

Plot Date: 12/16/2020, 15:17:37 PM by DSZYNAL -- LAYOUT: ANSI B (11"x17")
Path: U:\West Point Home\Clemson SC\ArcGIS10.3\00688\2020\Figure 4-2.mxd

RMW-25
RMW-29
RMW-04
RMW-03
RMW-27/27A/27B
RMW-02
RMW-26
MG-06/06A/06B
RMW-18/18A
RMW-21/21A
RMW-22/22A
RMW-23B/23C
RMW-23/23A
DP-20/20A/20B
DP-21/21A/21B
DP-22/22A/22B
RMW-09
RMW-23D
MG-05/05A
MG-02
RMW-08/08A
OW-4
OW-5
OW-6A
RMW-20/20A
RMW-20B/20C
DP-24/24A/24B
DG-01
RMW-24
DP-26/26A/26B
RMW-17/17A
RMW-16/16A/16B/16C
RMW-19/19A
RMW-07
RMW-28A/28B
DG-05
DP-23/23A/23B
DP-25/25A/25B
RMW-15/15A/15B
RMW-10/10A/10B/10C
DG-03S/03D
DP-27/27A/27B
RMW-01
RMW-06/06A
RMW-14/14A/14B/14C
DG-06/06A/06B/06C
DG-07
RMW-13/13A
RMW-05A/05B
RMW-11
MW-12
RMW-12
MW-09
MW-11

LEGEND

- Water Table Aquifer Monitoring Well
- Intermediate Aquifer Monitoring Well
- Transition Zone Aquifer Monitoring Well
- Bedrock Aquifer Monitoring Well
- Observation Well (Previous Pilot Study)
- Direct-Push Groundwater Sample Location
- Destroyed Water Table Monitoring Well
- Pilot Study Injection Point
- Pilot Study Injection Point with Bromide Tracer
- Property Boundary (Approximate)
- ERD Condition Good
- ERD Condition Weak

NOTES

Aerial Photograph Source: Google Earth (2018).

N

0 120 240
Feet

1 " = 133 '
1:1,600

PROJECT:
FORMER WESTPOINT HOME
CLEMSON, SOUTH CAROLINA

TITLE:
ERD MIGRATION
MARCH 2020

DRAWN BY:	SZYNAL D	PROJ. NO.:	300688.0.0.4
CHECKED BY:	PETERSON J		
APPROVED BY:	CLARK L		**FIGURE 4-2**
DATE:	DECEMBER 2020		

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FILE NO.: Figure 4-2.mxd