

Well Sampling Worksheet

WWW RAP Field Data
2020-Q4 - AREA19-GSI-1
Kent County, MI

16.0062961.51

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Well	AREA19-GSI-1 / 1.25 in Diameter Steel
Sample Quarter	2020-Q4
Date	12/08/2020
Weather	Cloudy, High 40s
Sampler Initials	MKM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: GZA-Peri-B, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	Top of Steel Riser
Well Screen (ft bmp)	7.8 - 11.8
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	12/08/2020 09:50
Initial Water Level Depth (ft bmp)	5.43
Pump/Tubing Intake Depth (ft bmp)	10
Tubing Length (ft)	14
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	12/08/2020 09:50
Total Purge Volume (gal)	4.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/08/2020 10:45:00, Bottling-Stop: 12/08/2020 10:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
09:55	5.43	0.00	300	8 +	218	6.5	7.7	60 +	123
10:05	5.43	0.00	300	9 +	376	6.1	7.0	66 +	39
10:15	5.43	0.00	300	9 +	373	6.0	6.9	71 +	19
10:20	5.43	0.00	300	9 +	372	6.0	6.9	73 +	9
10:25	5.43	0.00	300	9 +	372	6.0	6.9	80 +	6
10:30	5.43	0.00	300	9 +	372	6.0	6.9	83 +	<5
10:35	5.43	0.00	300	9 +	372	6.0	6.9	84 +	<5
10:40	5.43	0.00	300	9 +	371	6.0	6.9	85 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.57</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet

WWW RAP Field Data
2020-Q4 - AREA19-GSI-2
Kent County, MI

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Well	AREA19-GSI-2 / 1.25 in Diameter Steel
Sample Quarter	2020-Q4
Date	12/08/2020
Weather	Cloudy, High 30s
Sampler Initials	MKM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: GZA-Peri-B, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	Top of Steel Riser
Well Screen (ft bmp)	7.9 - 11.9
Measured Bottom Depth (ft bmp)	11.8
Sample Comment	Turbidity did not stabilize. Last 3 readings are not 5 minutes apart per the Standard Operating Procedure (SOP); GZA does not believe this impacts data quality.
Initial Water Level Date/Time	12/08/2020 12:55
Initial Water Level Depth (ft bmp)	4.85
Pump/Tubing Intake Depth (ft bmp)	10
Tubing Length (ft)	14
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	12/08/2020 12:55
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/08/2020 13:45:00, Bottling-Stop: 12/08/2020 13:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:05	5.10	0.25	300	8 +	441	0.6	7.1	-107 +	61 +
13:15	5.12	0.27	290	8 +	433	<0.5	7.1	-112 +	20 +
13:25	5.12	0.27	290	9 +	432	<0.5	7.1	-113 +	12 +
13:30	5.12	0.27	290	9 +	432	<0.5	7.1	-102 +	7 +
13:35	5.14	0.29	290	9 +	432	<0.5	7.0	-98 +	5 +
13:38	5.14	0.29	290	9 +	432	<0.5	7.0	-97 +	<5 +
13:41	5.14	0.29	290	9 +	432	<0.5	7.0	-96 +	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.15</u>
Total Drawdown (ft)	<u>0.29</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet

WWW RAP Field Data
2020-Q4 - AREA19-GSI-3
Kent County, MI

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Well	AREA19-GSI-3 / 1.25 in Diameter Steel
Sample Quarter	2020-Q4
Date	12/08/2020
Weather	Cloudy, Windy, Mid-30s
Sampler Initials	MKM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: GZA-PERI-B, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	Top of Steel Riser
Well Screen (ft bmp)	8.0 - 12.0
Measured Bottom Depth (ft bmp)	11.95
Sample Comment	pH did not stabilize. Last three readings are not 5 minutes apart per the Standard Operating Procedure (SOP); GZA does not believe that this impacts data quality.
Initial Water Level Date/Time	12/08/2020 14:05
Initial Water Level Depth (ft bmp)	4.67
Pump/Tubing Intake Depth (ft bmp)	10
Tubing Length (ft)	14
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	12/08/2020 14:05
Total Purge Volume (gal)	4.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/08/2020 14:45:00, Bottling-Stop: 12/08/2020 14:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:15	4.93	0.26	200	8 +	182	1.0	9.1 +	-282 +	61
14:25	4.90	0.23	200	9 +	300	1.9	8.6 +	-294 +	14
14:35	4.90	0.23	200	9 +	350	1.6	7.8 +	-162 +	<5
14:40	4.90	0.23	200	9 +	356	1.6	7.6 +	-171 +	<5
14:43	4.90	0.23	200	9 +	359	1.6	7.5 +	-166 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.33</u>
Total Drawdown (ft)	<u>0.23</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 2020-Q4 - WV-DEQ-MW9-57
 Kent County, MI

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Well	WV-DEQ-MW9-57 / 2 in Diameter PVC
Sample Quarter	2020-Q4
Date	12/09/2020
Weather	Cloudy, 40s
Sampler Initials	MKM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: GZA-PER-3, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	PVC
Well Screen (ft bmp)	51.4 - 56.4
Measured Bottom Depth (ft bmp)	56.7
Sample Comment	Bubble noted on DO probe at 12:03. Last 3 readings are not 5 minutes apart per the Standard Operating Procedure (SOP); GZA does not believe this impacts data quality.
Initial Water Level Date/Time	12/09/2020 11:00
Initial Water Level Depth (ft bmp)	10.85
Pump/Tubing Intake Depth (ft bmp)	54.5
Tubing Length (ft)	58
Tubing Inner Diameter (in)	0.375
Purging Initiation Date/Time	12/09/2020 11:00
Total Purge Volume (gal)	6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/09/2020 12:15:00, Bottling-Stop: 12/09/2020 12:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:15	10.95	0.10	275	10 +	842 +	1.4	7.5	-38 +	87
11:25	10.95	0.10	275	10 +	842 +	1.2	7.5	-82 +	44
11:40	10.95	0.10	275	11 +	846 +	1.5	7.5	-96 +	13
11:55	10.95	0.10	275	11 +	845 +	1.9	7.5	-109 +	9
12:00	10.95	0.10	275	11 +	843 +	2.1	7.5	-93 +	6
12:03	10.95	0.10	275	10 +	844 +	0.7	7.5	-107 +	5
12:06	10.95	0.10	275	10 +	846 +	<0.5	7.5	-113 +	<5
12:09	10.95	0.10	275	10 +	850 +	<0.5	7.5	-115 +	<5
12:12	10.95	0.10	275	10 +	851 +	<0.5	7.5	-116 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>43.65</u>
Total Drawdown (ft)	<u>0.10</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet

WWW RAP Field Data
2020-Q4 - HS-MW-19S
Kent County, MI

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Well	HS-MW-19S / 2 in Diameter PVC
Sample Quarter	2020-Q4
Date	12/09/2020
Weather	Partly Sunny, 40s
Sampler Initials	MKM
Purging Device	Bladder-Pump: GZA-BPC-2, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	PVC
Well Screen (ft bmp)	61.4 - 64.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Pump shut off between 14:15 and 14:20. Bubble on DO probe noted at 14:25. Depth to water and DO did not stabilize. Last 3 readings are not 5 minutes apart per the Standard Operating Procedure (SOP); GZA does not believe this impacts data quality.
Initial Water Level Date/Time	12/09/2020 13:45
Initial Water Level Depth (ft bmp)	30.01
Pump/Tubing Intake Depth (ft bmp)	63.9
Tubing Length (ft)	67
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	12/09/2020 13:45
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/09/2020 14:40:00, Bottling-Stop: 12/09/2020 14:45:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:00	37.35 +	7.34	300	10 +	762 +	1.9 +	7.7	-41 +	128
14:15	38.10 +	8.09	150	10 +	759 +	1.7 +	7.7	-54 +	88
14:20	38.43 +	8.42	200	10 +	756 +	1.0 +	7.7	-68 +	81
14:25	38.50 +	8.49	200	10 +	753 +	0.7 +	7.7	-78 +	67
14:35	38.45 +	8.44	150	10 +	751 +	0.7 +	7.6	-90 +	47
14:45	38.29 +	8.28	150	10 +	749 +	0.8 +	7.6	-93 +	35
14:50	38.28 +	8.27	150	10 +	748 +	0.6 +	7.6	-99 +	33
14:53	38.49 +	8.48	150	10 +	747 +	0.6 +	7.6	-103 +	31
14:56	38.50 +	8.49	150	10 +	747 +	<0.5 +	7.6	-105 +	30

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>33.89</u>
Total Drawdown (ft)	<u>8.49</u>
Calculated Final Purge Volume (gal)	<u>1.53</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet

WWW RAP Field Data
2020-Q4 - HS-MW-19D
Kent County, MI

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Well	HS-MW-19D / 2 in Diameter PVC
Sample Quarter	2020-Q4
Date	12/09/2020
Weather	Partly sunny, 40s
Sampler Initials	MKM
Purging Device	Bladder-Pump: GZA-BPC-2, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	PVC
Well Screen (ft bmp)	89.0 - 99.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Last 3 readings are not 5 minutes apart per the Standard Operating Procedure (SOP). GZA does not believe this impacts data quality.
Initial Water Level Date/Time	12/09/2020 15:10
Initial Water Level Depth (ft bmp)	32.80
Pump/Tubing Intake Depth (ft bmp)	91.5
Tubing Length (ft)	101
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	12/09/2020 15:10
Total Purge Volume (gal)	7
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/09/2020 16:15:00, Bottling-Stop: 12/09/2020 16:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:30	32.60	-0.20	400	10 +	2,468 +	<0.5	7.4	-93 +	246
15:35	32.60	-0.20	400	10 +	2,499 +	<0.5	7.4	-98 +	105
15:45	32.60	-0.20	400	10 +	2,508 +	0.6	7.4	-100 +	69
15:50	32.60	-0.20	400	10 +	2,512 +	<0.5	7.4	-103 +	39
16:00	32.50	-0.30	400	10 +	2,509 +	<0.5	7.3	-105 +	25
16:03	32.50	-0.30	400	10 +	2,505 +	<0.5	7.3	-106 +	22
16:06	32.50	-0.30	400	10 +	2,509 +	<0.5	7.3	-106 +	22
16:09	32.50	-0.30	400	10 +	2,510 +	<0.5	7.3	-106 +	20

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>58.70</u>
Total Drawdown (ft)	<u>-0.30</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2020-Q4 - HS-MW-29A
 Kent County, MI

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Well	HS-MW-29A / 2 in Diameter PVC
Sample Quarter	2020-Q4
Date	12/09/2020
Weather	Cloudy, 40
Sampler Initials	MKM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: GZA-PERI-03, Centrifugal-Pump: NA
Meters Used	YSI: 09H100958, Turbidimeter: Agile Rental (0803C028700), Water-Level-Meter: NR
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 16.3
Measured Bottom Depth (ft bmp)	17
Sample Comment	Turbidity did not stabilize. Last 3 readings are not 5 minutes apart per the Standard Operating Procedure (SOP); GZA does not believe this impacts data quality.
Initial Water Level Date/Time	12/09/2020 09:20
Initial Water Level Depth (ft bmp)	6.22
Pump/Tubing Intake Depth (ft bmp)	14.8
Tubing Length (ft)	19
Tubing Inner Diameter (in)	0.375
Purging Initiation Date/Time	12/09/2020 09:20
Total Purge Volume (gal)	5.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 12/09/2020 10:20:00, Bottling-Stop: 12/09/2020 10:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
09:30	6.25	0.03	350	10 +	814 +	<0.5	7.3	-85 +	59 +
09:40	6.25	0.03	350	10 +	836 +	<0.5	7.0	-67 +	42 +
09:45	6.25	0.03	350	10 +	845 +	<0.5	7.0	-59 +	32 +
09:48	6.25	0.03	350	10 +	852 +	<0.5	7.0	-62 +	23 +
09:52	6.25	0.03	350	10 +	850 +	<0.5	7.0	-65 +	18 +
10:00	6.25	0.03	350	10 +	855 +	<0.5	7.0	-70 +	12 +
10:05	6.25	0.03	350	10 +	857 +	<0.5	7.0	-72 +	8 +
10:08	6.25	0.03	350	10 +	854 +	<0.5	7.0	-69 +	6 +
10:11	6.25	0.03	350	10 +	863 +	<0.5	7.0	-75 +	6 +
10:14	6.25	0.03	350	10 +	863 +	<0.5	7.0	-77 +	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>8.58</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WVNW-MW-200A
 Kent County, MI

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Well	WVNW-MW-200A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/22/2023
Weather	Partly Cloudy
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	28.73
Sample Comment	14:50: YSI connected.
Initial Water Level Date/Time	05/22/2023 14:15
Initial Water Level Depth (ft bmp)	15.69
Pump/Tubing Intake Depth (ft bmp)	26.23
Tubing Length (ft)	32
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/22/2023 14:20
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/22/2023 15:25:00, Bottling-Stop: 05/22/2023 15:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:30	15.69	0.00	150	NR	NR	NR	NR	NR	NR
14:40	15.69	0.00	150	NR	NR	NR	NR	NR	17
14:50	15.69	0.00	150	12 +	783 +	8.0	7.5	251	13
14:55	15.69	0.00	150	12 +	783 +	8.2	7.6	247	10
15:00	15.69	0.00	150	12 +	781 +	8.3	7.6	244	10
15:05	15.69	0.00	150	12 +	779 +	8.2	7.6	242	6
15:10	15.69	0.00	150	12 +	776 +	8.0	7.6	240	<5
15:15	15.69	0.00	150	12 +	776 +	8.1	7.6	237	<5
15:20	15.69	0.00	150	12 +	774 +	8.5	7.6	235	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>10.54</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WVNW-MW-200B
 Kent County, MI

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Well	WVNW-MW-200B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/22/2023
Weather	Sunny Mid 70s
Sampler Initials	AW
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	54.8 - 59.8
Measured Bottom Depth (ft bmp)	59.75
Sample Comment	Static water level did not change from 14:24 reading. YSI connected at 14:40.
Initial Water Level Date/Time	05/22/2023 14:10
Initial Water Level Depth (ft bmp)	15.91
Pump/Tubing Intake Depth (ft bmp)	57.25
Tubing Length (ft)	60
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/22/2023 14:14
Total Purge Volume (gal)	2.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/22/2023 15:00:00, Bottling-Stop: 05/22/2023 15:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:24	15.90	-0.01	180	NR	NR	NR	NR	NR	NR
14:40	15.90	-0.01	180	12 +	831 +	4.7	7.3	51	<5
14:45	15.90	-0.01	180	12 +	830 +	4.7	7.3	56	<5
14:50	15.90	-0.01	180	12 +	827 +	4.7	7.3	59	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>41.34</u>
Total Drawdown (ft)	<u>-0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WVNW-MW-201A
 Kent County, MI

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Well	WVNW-MW-201A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/22/2023
Weather	Sunny, mid 60s
Sampler Initials	AW
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	11.9 - 16.9
Measured Bottom Depth (ft bmp)	16.9
Sample Comment	10:43: SWL = 9.95 ft, reduced pump speed to 140 ml/min; 10:50: SWL = 9.91 ft; 10:57: SWL = 9.92 ft, remained stable. 11:05: YSI connected.
Initial Water Level Date/Time	05/22/2023 10:15
Initial Water Level Depth (ft bmp)	9.90
Pump/Tubing Intake Depth (ft bmp)	14.4
Tubing Length (ft)	16.5
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/22/2023 10:37
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/22/2023 11:40:00, Bottling-Stop: 05/22/2023 11:44:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:43	9.95	0.05	140	NR	NR	NR	NR	NR	NR
10:50	9.91	0.01	140	NR	NR	NR	NR	NR	NR
10:57	9.92	0.02	140	NR	NR	NR	NR	NR	NR
11:05	9.92	0.02	140	10 +	974 +	1.5	7.3	162	<5
11:10	9.92	0.02	140	10 +	979 +	1.6	7.3	166	<5
11:15	9.92	0.02	140	10 +	976 +	1.6	7.3	168	<5
11:20	9.92	0.02	140	10 +	980 +	1.8	7.3	171	<5
11:25	9.92	0.02	140	10 +	976 +	1.7	7.3	173	<5
11:30	9.92	0.02	140	10 +	975 +	1.7	7.3	174	<5
11:35	9.92	0.02	140	11 +	975 +	1.8	7.3	176	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	4.50
Total Drawdown (ft)	0.02
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - WVNW-MW-201B
Kent County, MI

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Well	WVNW-MW-201B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/22/2023
Weather	Partly Cloudy
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	29.6 - 34.6
Measured Bottom Depth (ft bmp)	34.55
Sample Comment	12:00: YSI connected.
Initial Water Level Date/Time	05/22/2023 11:35
Initial Water Level Depth (ft bmp)	10.13
Pump/Tubing Intake Depth (ft bmp)	32
Tubing Length (ft)	35
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/22/2023 11:35
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/22/2023 12:25:00, Bottling-Stop: 05/22/2023 12:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:45	10.15	0.02	200	NR	NR	NR	NR	NR	NR
11:55	10.15	0.02	200	NR	NR	NR	NR	NR	11
12:00	10.16	0.03	200	11 +	864 +	<0.5	7.4	73	7
12:05	10.16	0.03	200	11 +	867 +	<0.5	7.4	71	7
12:10	10.16	0.03	200	11 +	868 +	<0.5	7.3	68	<5
12:15	10.16	0.03	200	11 +	870 +	<0.5	7.4	65	<5
12:20	10.16	0.03	200	11 +	872 +	<0.5	7.4	64	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	21.87
Total Drawdown (ft)	0.03
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - WVNW-MW-201C
Kent County, MI

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Well	WVNW-MW-201C / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/22/2023
Weather	Partly Cloudy
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	49.1 - 54.1
Measured Bottom Depth (ft bmp)	54.1
Sample Comment	11:00: YSI connected.
Initial Water Level Date/Time	05/22/2023 10:25
Initial Water Level Depth (ft bmp)	10.14
Pump/Tubing Intake Depth (ft bmp)	51.5
Tubing Length (ft)	55
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/22/2023 10:30
Total Purge Volume (gal)	2.8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/22/2023 11:30:00, Bottling-Stop: 05/22/2023 11:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:40	10.17	0.03	175	NR	NR	NR	NR	NR	NR
10:50	10.18	0.04	175	NR	NR	NR	NR	NR	11
11:00	10.18	0.04	175	11 +	868 +	1.8	7.5	86	<5
11:05	10.18	0.04	175	11 +	867 +	1.9	7.4	86	<5
11:10	10.18	0.04	175	11 +	865 +	1.8	7.4	84	<5
11:15	10.18	0.04	175	11 +	867 +	1.9	7.4	84	<5
11:20	10.18	0.04	175	11 +	869 +	1.9	7.4	84	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	41.36
Total Drawdown (ft)	0.04
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WVNW-MW-202A
 Kent County, MI

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Well	WVNW-MW-202A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	Sunny 65
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	42.6 - 47.6
Measured Bottom Depth (ft bmp)	47.6
Sample Comment	10:26: SWL = 11.39 ft, remained stable. 10:35: YSI connected. Turbidity did not stabilize.
Initial Water Level Date/Time	05/24/2023 10:20
Initial Water Level Depth (ft bmp)	11.38
Pump/Tubing Intake Depth (ft bmp)	45.1
Tubing Length (ft)	47.1
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 10:20
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 11:05:00, Bottling-Stop: 05/24/2023 11:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:26	11.39	0.01	200	NR	NR	NR	NR	NR	NR
10:40	11.39	0.01	200	11 +	683	7.7	7.4	57	10 +
10:45	11.39	0.01	200	11 +	681	7.5	7.3	63	7 +
10:50	11.39	0.01	200	11 +	680	7.7	7.3	66	5 +
10:55	11.39	0.01	200	11 +	677	7.5	7.3	67	<5 +
11:00	11.39	0.01	200	11 +	677	7.5	7.3	70	<5 +

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? No
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>33.72</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WVNW-MW-202B
 Kent County, MI

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Well	WVNW-MW-202B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	Sunny, Mid 60s
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	62.3 - 67.3
Measured Bottom Depth (ft bmp)	67.3
Sample Comment	11:25: SWL =11.54 ft, remained stable. 11:30: YSI connected.
Initial Water Level Date/Time	05/24/2023 11:20
Initial Water Level Depth (ft bmp)	11.53
Pump/Tubing Intake Depth (ft bmp)	64.8
Tubing Length (ft)	66.8
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 11:20
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 12:00:00, Bottling-Stop: 05/24/2023 12:07:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:25	11.54	0.01	220	NR	NR	NR	NR	NR	NR
11:35	11.54	0.01	220	10 +	662	2.2	7.3	55	<5
11:45	11.54	0.01	220	10 +	692	4.3	7.3	56	<5
11:50	11.54	0.01	220	10 +	692	4.5	7.3	55	<5
11:55	11.54	0.01	220	10 +	694	4.6	7.3	55	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.

- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.

- 3) Did indicator parameters reach stabilization? Yes

- 4) Was the two hour time limit reached? No

- 5) Calculations:

Head Above Pump Intake (ft) 53.27

Total Drawdown (ft) 0.01

Calculated Final Purge Volume (gal) NA

- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WVNW-MW-203
 Kent County, MI

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Well	WVNW-MW-203 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.9 - 18.9
Measured Bottom Depth (ft bmp)	18.9
Sample Comment	10:30: SWL = 15.46 ft; 10:35: SWL = 15.49 ft, remained stable. 10:40: YSI connected
Initial Water Level Date/Time	05/24/2023 10:30
Initial Water Level Depth (ft bmp)	15.46
Pump/Tubing Intake Depth (ft bmp)	16.9
Tubing Length (ft)	18.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 10:30
Total Purge Volume (gal)	1
Modified Sample	Yes
If Modified, Reasoning	Static water level was below the top of the well screen. Pump intake depth was placed between the static water level and the bottom of the well.
Sample Collection Information	Bottling-Start: 05/24/2023 11:00:00, Bottling-Stop: 05/24/2023 11:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:35	15.49	0.03	140	NR	NR	NR	NR	NR	<5
10:40	15.49	0.03	140	11 +	95 +	9.4	7.7	186	<5
10:45	15.49	0.03	140	11 +	96 +	9.6	7.7	186	<5
10:50	15.49	0.03	140	11 +	96 +	9.7	7.7	187	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>1.44</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-7A
 Kent County, MI

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Well	AREA19-MW-7A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.7 - 13.7
Measured Bottom Depth (ft bmp)	13.74
Sample Comment	1145: SWL = 4.35 ft; 12:05: SWL = 4.36 ft, remained constant for duration of purge. 12:20: YSI connected.
Initial Water Level Date/Time	05/24/2023 11:40
Initial Water Level Depth (ft bmp)	4.35
Pump/Tubing Intake Depth (ft bmp)	11.2
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 11:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 12:50:00, Bottling-Stop: 05/24/2023 12:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:45	4.35	0.00	200	NR	NR	NR	NR	NR	289
11:55	4.35	0.00	200	NR	NR	NR	NR	NR	231
12:05	4.36	0.01	200	NR	NR	NR	NR	NR	91
12:15	4.36	0.01	200	NR	NR	NR	NR	NR	20
12:20	4.36	0.01	200	11 +	866 +	4.9	7.4	223	16
12:25	4.36	0.01	200	11 +	864 +	4.7	7.4	221	11
12:30	4.36	0.01	200	11 +	867 +	4.7	7.4	221	11

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-7A
 Kent County, MI

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Well	AREA19-MW-7A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.7 - 13.7
Measured Bottom Depth (ft bmp)	13.74
Sample Comment	1145: SWL = 4.35 ft; 12:05: SWL = 4.36 ft, remained constant for duration of purge. 12:20: YSI connected.
Initial Water Level Date/Time	05/24/2023 11:40
Initial Water Level Depth (ft bmp)	4.35
Pump/Tubing Intake Depth (ft bmp)	11.2
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 11:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 12:50:00, Bottling-Stop: 05/24/2023 12:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:35	4.36	0.01	200	11 +	867 +	4.6	7.4	220	<5
12:40	4.36	0.01	200	11 +	864 +	4.5	7.4	220	<5
12:45	4.36	0.01	200	11 +	863 +	4.6	7.4	220	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>6.85</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-221A
 Kent County, MI

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Well	AREA19-MW-221A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	65F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	15.5 - 20.5
Measured Bottom Depth (ft bmp)	NR
Sample Comment	15:50 YSI Connected.
Initial Water Level Date/Time	05/24/2023 15:10
Initial Water Level Depth (ft bmp)	12.80
Pump/Tubing Intake Depth (ft bmp)	18
Tubing Length (ft)	20
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 15:10
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 16:25:00, Bottling-Stop: 05/24/2023 16:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:15	12.95	0.15	250	NR	NR	NR	NR	NR	179
15:25	12.93	0.13	200	NR	NR	NR	NR	NR	43
15:35	12.93	0.13	200	NR	NR	NR	NR	NR	12
15:50	12.93	0.13	200	10 +	626	8.6	7.3	56	6
16:00	12.93	0.13	200	10 +	622	8.5	7.3	60	<5
16:10	12.93	0.13	200	10 +	614	8.4	7.3	61	<5
16:15	12.93	0.13	200	10 +	611	8.5	7.3	63	<5
16:20	12.93	0.13	200	10 +	611	8.4	7.3	64	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.20</u>
Total Drawdown (ft)	<u>0.13</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-221B
 Kent County, MI

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Well	AREA19-MW-221B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	65F Sunny
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.5 - 49.5
Measured Bottom Depth (ft bmp)	49.5
Sample Comment	15:15: SWL = 12.42 ft, remained stable. 15:30 YSI connected.
Initial Water Level Date/Time	05/24/2023 15:15
Initial Water Level Depth (ft bmp)	12.39
Pump/Tubing Intake Depth (ft bmp)	47
Tubing Length (ft)	50
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 15:20
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 16:10:00, Bottling-Stop: 05/24/2023 16:12:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:15	12.42	0.03	200	NR	NR	NR	NR	NR	NR
15:30	12.42	0.03	200	11 +	400	7.4	7.1	352	6
15:35	12.42	0.03	200	11 +	400	7.2	7.3	350	6
15:40	12.44	0.05	200	11 +	411	7.1	7.5	332	<5
15:45	12.44	0.05	200	11 +	444	6.9	7.7	323	<5
15:50	12.44	0.05	200	11 +	487	7.8	7.7	323	<5
15:55	12.44	0.05	200	12 +	491	7.8	7.6	327	<5
16:00	12.44	0.05	200	11 +	490	7.8	7.6	330	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>34.61</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well	AREA19-MW-222 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/31/2023
Weather	78F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	9.3 - 14.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 11:40.
Initial Water Level Date/Time	05/31/2023 11:00
Initial Water Level Depth (ft bmp)	7.81
Pump/Tubing Intake Depth (ft bmp)	11.4
Tubing Length (ft)	13.9
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/31/2023 11:05
Total Purge Volume (gal)	2.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/31/2023 11:55:00, Bottling-Stop: 05/31/2023 12:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:10	7.95	0.14	150	NR	NR	NR	NR	NR	NR
11:20	7.92	0.11	150	NR	NR	NR	NR	NR	7
11:30	7.92	0.11	150	NR	NR	NR	NR	NR	<5
11:40	7.92	0.11	150	12 +	544 +	<0.5	7.4	-59	<5
11:45	7.92	0.11	150	12 +	542 +	<0.5	7.3	-61	<5
11:50	7.92	0.11	150	12 +	542 +	<0.5	7.3	-65	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>3.59</u>
Total Drawdown (ft)	<u>0.11</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well	AREA19-MW-223 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/31/2023
Weather	78F Sunny
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.9 - 12.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 10:45.
Initial Water Level Date/Time	05/31/2023 10:10
Initial Water Level Depth (ft bmp)	5.00
Pump/Tubing Intake Depth (ft bmp)	10.5
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/31/2023 10:10
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/31/2023 11:20:00, Bottling-Stop: 05/31/2023 11:26:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:15	5.04	0.04	160	NR	NR	NR	NR	NR	<5
10:45	5.04	0.04	160	14 +	523 +	6.0	6.9	-110	<5
10:55	5.04	0.04	160	13 +	522 +	<0.5	7.0	-166	<5
11:00	5.04	0.04	160	13 +	522 +	<0.5	7.0	-170	<5
11:05	5.04	0.04	160	13 +	523 +	<0.5	7.0	-173	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.

- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.

- 3) Did indicator parameters reach stabilization? Yes

- 4) Was the two hour time limit reached? No

- 5) Calculations:

Head Above Pump Intake (ft) 5.50

Total Drawdown (ft) 0.04

Calculated Final Purge Volume (gal) NA

- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-224
 Kent County, MI

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Well	AREA19-MW-224 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/24/2023
Weather	Partly Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	12.12
Sample Comment	14:35: SWL = 4.97 ft; 14:40: = 5.70 ft, lowered pump speed; 14:45: SWL = 5.76 ft; 14:50: SWL = 5.80 ft; 14:55: SWL = 5.76 ft; 15:10: SWL = 5.77 ft, stabilized. Collected duplicate sample; 15:25: Collected Field Blank. Last 3 water level readings were not the same per Standard Operating Procedure. Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	05/24/2023 14:35
Initial Water Level Depth (ft bmp)	4.97
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	14
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/24/2023 14:35
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/24/2023 15:20:00, Bottling-Stop: 05/24/2023 15:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:40	5.70	0.73	230	14.1 +	1,280 +	<0.5	7.3	206	8
14:45	5.76	0.79	150	13.9 +	1,291 +	0.8	7.4	171	<5
14:50	5.80	0.83	120	13.9 +	1,290 +	0.8	7.4	156	<5
14:55	5.76	0.79	120	13.9 +	1,291 +	0.6	7.4	145	<5
15:00	5.76	0.79	120	13.6 +	1,287 +	<0.5	7.4	134	<5
15:05	5.76	0.79	120	13.7 +	1,283 +	<0.5	7.4	125	<5
15:10	5.77	0.80	120	13.6 +	1,284 +	<0.5	7.3	121	<5
15:15	5.77	0.80	120	13.5 +	1,277 +	<0.5	7.3	116	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	4.63
Total Drawdown (ft)	0.80
Calculated Final Purge Volume (gal)	0.14
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - AREA19-MW-225A
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Well	AREA19-MW-225A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/26/2023
Weather	61F Sunny
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.6 - 12.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Collected MS/MSD, 11:45: YSI connected.
Initial Water Level Date/Time	05/26/2023 11:15
Initial Water Level Depth (ft bmp)	6.15
Pump/Tubing Intake Depth (ft bmp)	10.1
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/26/2023 11:15
Total Purge Volume (gal)	6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/26/2023 13:20:00, Bottling-Stop: 05/26/2023 13:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:25	6.17	0.02	180	NR	NR	NR	NR	NR	NR
11:35	6.16	0.01	180	NR	NR	NR	NR	NR	NR
11:45	6.16	0.01	180	9.6 +	790 +	1.9	7.2	323	<5
11:50	6.16	0.01	180	9.5 +	789 +	0.6	7.1	263	<5
11:55	6.16	0.01	180	9.5 +	790 +	<0.5	7.0	218	<5
12:00	6.16	0.01	180	9.4 +	790 +	<0.5	7.1	181	<5
12:05	6.16	0.01	180	9.5 +	789 +	<0.5	7.2	157	<5
12:10	6.16	0.01	180	9.4 +	790 +	<0.5	7.2	138	<5
12:15	6.16	0.01	180	9.5 +	790 +	<0.5	7.2	119	<5
12:20	6.16	0.01	180	9.5 +	790 +	<0.5	7.2	105	<5
12:25	6.16	0.01	180	9.5 +	789 +	<0.5	7.2	95	<5
12:30	6.16	0.01	180	9.5 +	790 +	<0.5	7.2	83	<5
12:35	6.16	0.01	180	9.5 +	790 +	<0.5	7.2	73	<5
12:40	6.16	0.01	180	9.5 +	790 +	<0.5	7.2	61	<5
12:45	6.16	0.01	180	9.5 +	789 +	<0.5	7.2	53	<5
12:50	6.16	0.01	180	9.4 +	789 +	<0.5	7.2	44	<5
12:55	6.16	0.01	180	9.5 +	788 +	<0.5	7.2	37	<5
13:00	6.16	0.01	180	9.5 +	788 +	<0.5	7.2	29	<5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-225A
 Kent County, MI

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Well	AREA19-MW-225A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/26/2023
Weather	61F Sunny
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.6 - 12.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Collected MS/MSD, 11:45: YSI connected.
Initial Water Level Date/Time	05/26/2023 11:15
Initial Water Level Depth (ft bmp)	6.15
Pump/Tubing Intake Depth (ft bmp)	10.1
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/26/2023 11:15
Total Purge Volume (gal)	6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/26/2023 13:20:00, Bottling-Stop: 05/26/2023 13:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:05	6.16	0.01	180	9.5 +	788 +	<0.5	7.2	21	<5
13:10	6.16	0.01	180	9.5 +	787 +	<0.5	7.2	16	<5
13:15	6.16	0.01	180	9.5 +	788 +	<0.5	7.2	10	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? Yes
- Calculations:

Head Above Pump Intake (ft)	<u>3.95</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - AREA19-MW-225B
Kent County, MI

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Well	AREA19-MW-225B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/26/2023
Weather	61F sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	32.9 - 37.9
Measured Bottom Depth (ft bmp)	37.8
Sample Comment	YSI connected at 12:20. Recommend using bladder pump for this well; lowest pump speed possible was 125 ml/min. Turbidity did not stabilize.
Initial Water Level Date/Time	05/26/2023 11:10
Initial Water Level Depth (ft bmp)	5.52
Pump/Tubing Intake Depth (ft bmp)	35.3
Tubing Length (ft)	36
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/26/2023 11:10
Total Purge Volume (gal)	3.6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/26/2023 13:00:00, Bottling-Stop: 05/26/2023 13:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	6.64	1.12	200	NR	NR	NR	NR	NR	NR
11:25	6.60	1.08	150	NR	NR	NR	NR	NR	NR
11:30	6.57	1.05	150	NR	NR	NR	NR	NR	11 +
11:40	6.70	1.18	150	NR	NR	NR	NR	NR	7 +
12:00	6.70	1.18	125	NR	NR	NR	NR	NR	7 +
12:10	6.73	1.21	125	NR	NR	NR	NR	NR	6 +
12:20	6.80	1.28	125	10 +	1,808 +	<0.5	7.5	-75	6 +
12:30	6.85	1.33	125	10 +	1,809 +	<0.5	7.4	-77	6 +

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-225B
 Kent County, MI

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Well	AREA19-MW-225B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/26/2023
Weather	61F sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	32.9 - 37.9
Measured Bottom Depth (ft bmp)	37.8
Sample Comment	YSI connected at 12:20. Recommend using bladder pump for this well; lowest pump speed possible was 125 ml/min. Turbidity did not stabilize.
Initial Water Level Date/Time	05/26/2023 11:10
Initial Water Level Depth (ft bmp)	5.52
Pump/Tubing Intake Depth (ft bmp)	35.3
Tubing Length (ft)	36
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/26/2023 11:10
Total Purge Volume (gal)	3.6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/26/2023 13:00:00, Bottling-Stop: 05/26/2023 13:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:40	6.90	1.38	125	10 +	1,811 +	<0.5	7.5	-78	5 +
12:45	6.90	1.38	125	10 +	1,810 +	<0.5	7.5	-79	<5 +
12:50	6.90	1.38	125	10 +	1,812 +	<0.5	7.5	-79	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>29.78</u>
Total Drawdown (ft)	<u>1.38</u>
Calculated Final Purge Volume (gal)	<u>0.26</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - AREA19-MW-226A
Kent County, MI

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Well	AREA19-MW-226A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	Sunny, Humid 80
Sampler Initials	MKM/WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 11.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Re-sampled later in the day because only one bottle was filled during initial sampling. Only field readings from the sample that was analyzed are reported. YSI connected at 14:45. Pump could not maintain 50 ml/min.
Initial Water Level Date/Time	05/30/2023 14:35
Initial Water Level Depth (ft bmp)	6.39
Pump/Tubing Intake Depth (ft bmp)	8.83
Tubing Length (ft)	10
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 14:40
Total Purge Volume (gal)	1
Modified Sample	Yes
If Modified, Reasoning	Static water level below top of screen.
Sample Collection Information	Bottling-Start: 5/30/2023 15:05:00 PM, Bottling-Stop: 5/30/2023 15:10:00 PM, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:43	6.41	0.02	100	NR	NR	NR	NR	NR	NR
14:45	6.41	0.02	100	12 +	666 +	2.3	7.2	46	6
14:50	6.41	0.02	100	12 +	662 +	2.1	7.1	47	<5
14:55	6.41	0.02	100	12 +	659 +	2.0	7.1	47	<5
15:00	6.41	0.02	100	12 +	660 +	1.8	7.1	45	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	2.44
Total Drawdown (ft)	0.02
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-226B
 Kent County, MI

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Well	AREA19-MW-226B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	Sunny, Humid, 85
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	12.8 - 17.8
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 12:30.
Initial Water Level Date/Time	05/30/2023 12:00
Initial Water Level Depth (ft bmp)	5.91
Pump/Tubing Intake Depth (ft bmp)	15.3
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 12:13
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/30/2023 13:20:00, Bottling-Stop: 05/30/2023 13:23:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:17	5.94	0.03	100	NR	NR	NR	NR	NR	NR
12:30	5.96	0.05	100	11 +	648 +	1.4	7.3	48	12
12:35	5.95	0.04	100	11 +	645 +	1.5	7.3	48	7
12:40	5.95	0.04	100	12 +	645 +	1.4	7.3	47	8
12:45	5.95	0.04	100	11 +	643 +	1.5	7.3	47	7
12:50	5.95	0.04	100	11 +	645 +	1.5	7.3	47	7
12:55	5.95	0.04	100	12 +	640 +	1.5	7.3	47	6
13:00	5.95	0.04	100	12 +	641 +	1.6	7.3	47	5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - AREA19-MW-226B
 Kent County, MI

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Well	AREA19-MW-226B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	Sunny, Humid, 85
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	12.8 - 17.8
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 12:30.
Initial Water Level Date/Time	05/30/2023 12:00
Initial Water Level Depth (ft bmp)	5.91
Pump/Tubing Intake Depth (ft bmp)	15.3
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 12:13
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/30/2023 13:20:00, Bottling-Stop: 05/30/2023 13:23:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:05	5.95	0.04	100	12 +	642 +	1.5	7.3	47	<5
13:10	5.95	0.04	100	12 +	640 +	1.5	7.3	47	<5
13:15	5.95	0.04	100	12 +	640 +	1.5	7.3	47	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>9.39</u>
Total Drawdown (ft)	<u>0.04</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - WV/CH-MW-240
Kent County, MI

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Well	WV/CH-MW-240 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	06/01/2023
Weather	74F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: BP-10, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	63.0 - 68.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	10:05: SWL = 30.91 ft; 10:20: SWL = 30.82 ft, remained stable. YSI Connected at 11:20.
Initial Water Level Date/Time	06/01/2023 10:00
Initial Water Level Depth (ft bmp)	30.73
Pump/Tubing Intake Depth (ft bmp)	65.5
Tubing Length (ft)	67
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	06/22/2023 10:00
Total Purge Volume (gal)	3.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 06/01/2023 11:45:00, Bottling-Stop: 06/01/2023 11:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:05	30.91	0.18	300	NR	NR	NR	NR	NR	NR
10:20	30.82	0.09	150	NR	NR	NR	NR	NR	NR
10:30	30.82	0.09	150	NR	NR	NR	NR	NR	19
10:40	30.82	0.09	150	NR	NR	NR	NR	NR	16
10:50	30.86	0.13	150	NR	NR	NR	NR	NR	13
11:00	30.84	0.11	150	NR	NR	NR	NR	NR	8
11:10	30.82	0.09	150	NR	NR	NR	NR	NR	6
11:20	30.82	0.09	150	14 +	779 +	4.2	7.2	54	5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WV/CH-MW-240
 Kent County, MI

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Well	WV/CH-MW-240 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	06/01/2023
Weather	74F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: BP-10, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	63.0 - 68.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	10:05: SWL = 30.91 ft; 10:20: SWL = 30.82 ft, remained stable. YSI Connected at 11:20.
Initial Water Level Date/Time	06/01/2023 10:00
Initial Water Level Depth (ft bmp)	30.73
Pump/Tubing Intake Depth (ft bmp)	65.5
Tubing Length (ft)	67
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	06/22/2023 10:00
Total Purge Volume (gal)	3.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 06/01/2023 11:45:00, Bottling-Stop: 06/01/2023 11:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:30	30.82	0.09	150	14 +	778 +	3.9	7.1	57	<5
11:35	30.82	0.09	150	14 +	779 +	3.9	7.1	56	<5
11:40	30.82	0.09	150	14 +	780 +	3.9	7.1	57	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>34.77</u>
Total Drawdown (ft)	<u>0.09</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WV/CH-MW-241A
 Kent County, MI

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Well	WV/CH-MW-241A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/23/2023
Weather	Sunny
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	28.7
Sample Comment	14:06: SWL = 18.61 ft, remained stable. 14:22: YSI connected. Bubble was noted on DO probe at 14:30.
Initial Water Level Date/Time	05/23/2023 13:55
Initial Water Level Depth (ft bmp)	18.56
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	27.7
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/23/2023 14:06
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/23/2023 14:55:00, Bottling-Stop: 05/23/2023 15:03:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:06	18.61	0.05	50	NR	NR	NR	NR	NR	NR
14:22	18.61	0.05	50	13 +	681 +	8.6	7.4	239	8
14:30	18.61	0.05	50	13 +	673 +	9.4	7.4	241	<5
14:35	18.61	0.05	50	13 +	672 +	8.5	7.4	244	<5
14:40	18.61	0.05	50	13 +	670 +	8.2	7.4	246	<5
14:45	18.61	0.05	50	13 +	668 +	8.3	7.5	248	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>7.64</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WV/CH-MW-241B
 Kent County, MI

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Well	WV/CH-MW-241B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/23/2023
Weather	Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	55.9 - 60.9
Measured Bottom Depth (ft bmp)	60.9
Sample Comment	14:00: SWL = 19.17 ft; 14:05: Purge start, SWL = 19.19 ft, remained stable. 14:20 YSI connected.
Initial Water Level Date/Time	05/23/2023 14:00
Initial Water Level Depth (ft bmp)	19.17
Pump/Tubing Intake Depth (ft bmp)	58.4
Tubing Length (ft)	60
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/23/2023 14:05
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/23/2023 14:40:00, Bottling-Stop: 05/23/2023 14:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:15	19.19	0.02	140	NR	NR	NR	NR	NR	7
14:20	19.19	0.02	140	13 +	758 +	6.0	7.5	23	<5
14:25	19.19	0.02	140	12 +	752 +	5.3	7.3	29	<5
14:30	19.19	0.02	140	12 +	751 +	5.1	7.2	34	<5
14:35	19.19	0.02	140	12 +	751 +	5.1	7.2	36	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>39.23</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WV/CH-MW-242A
 Kent County, MI

16.0062961.52
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Well	WV/CH-MW-242A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/23/2023
Weather	Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: BP-12, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	40.0 - 45.0
Measured Bottom Depth (ft bmp)	45
Sample Comment	10:15: SWL = 35.9 ft, remained stable. 10:45: YSI connected.
Initial Water Level Date/Time	05/23/2023 10:10
Initial Water Level Depth (ft bmp)	35.90
Pump/Tubing Intake Depth (ft bmp)	42.5
Tubing Length (ft)	45
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	05/23/2023 10:15
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/23/2023 11:25:00, Bottling-Stop: 05/23/2023 11:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:25	35.90	0.00	90	NR	NR	NR	NR	NR	7
10:45	35.90	0.00	90	14 +	781 +	0.9	7.4	-83	9
10:50	35.90	0.00	90	14 +	777 +	0.6	7.3	-84	8
10:55	35.90	0.00	90	15 +	778 +	<0.5	7.3	-85	6
11:00	35.90	0.00	90	15 +	775 +	<0.5	7.3	-85	8
11:05	35.90	0.00	90	15 +	774 +	<0.5	7.3	-86	5
11:10	35.90	0.00	90	15 +	776 +	<0.5	7.3	-83	4
11:15	35.90	0.00	90	15 +	776 +	<0.5	7.3	-83	4

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>6.60</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WV/CH-MW-242B
 Kent County, MI

16.0062961.52
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Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/23/2023
Weather	Sunny, Mid 60s
Sampler Initials	MKM
Purging Device	Bladder-Pump: BP-10, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	9:58: SWL = 16.65 ft, water level continued to drop even with constant discharge and fill adjustments; 10:00: turned pump off to allow well to recharge; 10:10 restarted pump, SWL = 16.43 ft; 10:25: water to surface, SWL = 16.60 ft; 10:42: SWL = 16.62 ft. 10:51: YSI connected. Last 3 water level readings were not the same per Standard Operating Procedure. Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	05/23/2023 09:48
Initial Water Level Depth (ft bmp)	16.43
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	69
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	05/23/2023 09:53
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/23/2023 11:27:00, Bottling-Stop: 05/23/2023 11:37:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
09:58	16.65	0.22	NR	NR	NR	NR	NR	NR	NR
10:10	16.43	0.00	50	NR	NR	NR	NR	NR	NR
10:27	16.60	0.17	50	NR	NR	NR	NR	NR	NR
10:42	16.62	0.19	90	NR	NR	NR	NR	NR	NR
10:53	16.66	0.23	50	16 +	841 +	1.1	7.4	-12	NR
11:03	16.66	0.23	50	16 +	832 +	0.7	7.4	-75	18
11:07	16.70	0.27	50	17 +	830 +	0.6	7.4	-78	15

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - WV/CH-MW-242B
 Kent County, MI

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Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/23/2023
Weather	Sunny, Mid 60s
Sampler Initials	MKM
Purging Device	Bladder-Pump: BP-10, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	9:58: SWL = 16.65 ft, water level continued to drop even with constant discharge and fill adjustments; 10:00: turned pump off to allow well to recharge; 10:10 restarted pump, SWL = 16.43 ft; 10:25: water to surface, SWL = 16.60 ft; 10:42: SWL = 16.62 ft. 10:51: YSI connected. Last 3 water level readings were not the same per Standard Operating Procedure. Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	05/23/2023 09:48
Initial Water Level Depth (ft bmp)	16.43
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	69
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	05/23/2023 09:53
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/23/2023 11:27:00, Bottling-Stop: 05/23/2023 11:37:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:12	16.69	0.26	50	17 +	832 +	0.5	7.4	-77	15
11:17	16.69	0.26	50	17 +	828 +	0.5	7.4	-77	14
11:22	16.70	0.27	50	17 +	829 +	0.5	7.4	-79	14

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>50.47</u>
Total Drawdown (ft)	<u>0.27</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-29A
 Kent County, MI

16.0062961.52
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Well	HS-MW-29A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/25/2023
Weather	Sunny
Sampler Initials	AW
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 16.3
Measured Bottom Depth (ft bmp)	16.3
Sample Comment	10:55: SWL = 6.3 ft; 11:22: SWL = 6.31 ft, remained constant for duration of purge. 11:22: YSI connected.
Initial Water Level Date/Time	05/25/2023 10:55
Initial Water Level Depth (ft bmp)	6.30
Pump/Tubing Intake Depth (ft bmp)	11.3
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/25/2023 10:55
Total Purge Volume (gal)	4
Modified Sample	Yes
If Modified, Reasoning	Initial static water level was at the same depth as the top of the well screen.
Sample Collection Information	Bottling-Start: 05/25/2023 12:15:00, Bottling-Stop: 05/25/2023 12:17:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:00	6.30	0.00	150	NR	NR	NR	NR	NR	66
11:22	6.31	0.01	150	9 +	628	<0.5	6.9	131	13
11:27	6.31	0.01	150	9 +	630	<0.5	7.0	89	11
11:32	6.31	0.01	150	9 +	634	<0.5	7.0	68	8
11:45	6.31	0.01	150	9 +	638	<0.5	7.1	33	<5
11:50	6.31	0.01	150	9 +	640	<0.5	7.1	25	<5
11:55	6.31	0.01	150	9 +	640	<0.5	7.1	13	<5
12:00	6.31	0.01	150	9 +	642	<0.5	7.1	5	<5
12:05	6.31	0.01	150	9 +	643	<0.5	7.1	-1	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.00</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-260
 Kent County, MI

16.0062961.52
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Well	HS-MW-260 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/25/2023
Weather	Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.1 - 13.1
Measured Bottom Depth (ft bmp)	13.1
Sample Comment	11:30: YSI connected.
Initial Water Level Date/Time	05/25/2023 10:55
Initial Water Level Depth (ft bmp)	6.23
Pump/Tubing Intake Depth (ft bmp)	10.6
Tubing Length (ft)	12.6
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/25/2023 11:00
Total Purge Volume (gal)	2.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/25/2023 12:05:00 , Bottling-Stop: 05/25/2023 12:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	6.27	0.04	220	NR	NR	NR	NR	NR	29
11:30	6.28	0.05	220	9 +	644	0.6	7.2	69	14
11:35	6.28	0.05	220	9 +	627	<0.5	7.2	25	8
11:40	6.28	0.05	220	9 +	632	<0.5	7.2	16	<5
11:45	6.28	0.05	220	9 +	609	<0.5	7.1	7	<5
11:50	6.28	0.05	220	10 +	617	<0.5	7.1	2	<5
11:55	6.28	0.05	220	10 +	615	<0.5	7.1	-2	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.37</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet

WWW RAP Field Data
GSI 2023-Q2 - HS-MW-261
Kent County, MI

16.0062961.52

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Well	HS-MW-261 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/25/2023
Weather	64F Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.2 - 12.2
Measured Bottom Depth (ft bmp)	12.21
Sample Comment	14:55: SWL = 4.38 ft; 15:00: SWL = 4.39 ft, remained constant for duration of purge. 15:00: YSI connected.
Initial Water Level Date/Time	05/25/2023 14:40
Initial Water Level Depth (ft bmp)	4.31
Pump/Tubing Intake Depth (ft bmp)	9.7
Tubing Length (ft)	11.7
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/25/2023 14:45
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/25/2023 15:35:00, Bottling-Stop: 05/25/2023 15:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:55	4.38	0.07	60	NR	NR	NR	NR	NR	20
15:00	4.39	0.08	60	12 +	668	0.6	7.4	-84	12
15:05	4.39	0.08	60	12 +	665	<0.5	7.2	-91	13
15:10	4.39	0.08	60	12 +	661	<0.5	7.2	-90	10
15:15	4.39	0.08	60	12 +	657	<0.5	7.1	-89	9
15:20	4.39	0.08	60	12 +	657	<0.5	7.1	-90	<5
15:25	4.39	0.08	60	13 +	656	<0.5	7.1	-89	<5
15:30	4.39	0.08	60	12 +	653	<0.5	7.1	-88	<5

Notes:

1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.

2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.

3) Did indicator parameters reach stabilization? Yes

4) Was the two hour time limit reached? No

5) Calculations:

Head Above Pump Intake (ft) 5.39

Total Drawdown (ft) 0.08

Calculated Final Purge Volume (gal) NA

6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-262
 Kent County, MI

16.0062961.52
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Well	HS-MW-262 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/25/2023
Weather	64F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 15:05.
Initial Water Level Date/Time	05/25/2023 14:50
Initial Water Level Depth (ft bmp)	5.43
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	11
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/25/2023 14:50
Total Purge Volume (gal)	2.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/25/2023 15:20:00, Bottling-Stop: 05/25/2023 15:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:55	5.46	0.03	200	NR	NR	NR	NR	NR	<5
15:00	5.46	0.03	200	NR	NR	NR	NR	NR	<5
15:05	5.46	0.03	200	12 +	759	<0.5	7.3	266	<5
15:10	5.46	0.03	200	12 +	759	<0.5	7.3	262	<5
15:15	5.46	0.03	200	12 +	759	<0.5	7.3	258	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.17</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - HS-MW-263A
Kent County, MI

16.0062961.52
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Well	HS-MW-263A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	80F Sunny
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.2 - 13.2
Measured Bottom Depth (ft bmp)	13.2
Sample Comment	YSI Connected at 12:25.
Initial Water Level Date/Time	05/30/2023 11:05
Initial Water Level Depth (ft bmp)	7.76
Pump/Tubing Intake Depth (ft bmp)	12.7
Tubing Length (ft)	14.7
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 11:05
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/30/2023 12:50:00, Bottling-Stop: 05/30/2023 12:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:10	7.81	0.05	160	NR	NR	NR	NR	NR	NR
11:20	7.81	0.05	160	NR	NR	NR	NR	NR	31
11:30	7.81	0.05	160	NR	NR	NR	NR	NR	11
11:40	7.81	0.05	160	NR	NR	NR	NR	NR	6
11:50	7.81	0.05	160	NR	NR	NR	NR	NR	<5
12:10	7.81	0.05	160	NR	NR	NR	NR	NR	<5
12:25	7.81	0.05	180	13 +	790 +	<0.5	7.3	-28	<5
12:30	7.81	0.05	180	13 +	791 +	<0.5	7.3	-108	<5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-263A
 Kent County, MI

16.0062961.52
 Page 2 of 2

Well	HS-MW-263A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	80F Sunny
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.2 - 13.2
Measured Bottom Depth (ft bmp)	13.2
Sample Comment	YSI Connected at 12:25.
Initial Water Level Date/Time	05/30/2023 11:05
Initial Water Level Depth (ft bmp)	7.76
Pump/Tubing Intake Depth (ft bmp)	12.7
Tubing Length (ft)	14.7
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 11:05
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/30/2023 12:50:00, Bottling-Stop: 05/30/2023 12:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:35	7.81	0.05	180	13 +	791 +	<0.5	7.3	-130	<5
12:40	7.81	0.05	180	13 +	791 +	<0.5	7.3	-130	<5
12:45	7.81	0.05	180	13 +	791 +	<0.5	7.3	-138	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.94</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well	HS-MW-263B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	80F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.3 - 49.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 11:40.
Initial Water Level Date/Time	05/30/2023 11:10
Initial Water Level Depth (ft bmp)	6.39
Pump/Tubing Intake Depth (ft bmp)	46.8
Tubing Length (ft)	48
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 11:10
Total Purge Volume (gal)	2.8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/30/2023 12:25:00, Bottling-Stop: 05/30/2023 12:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	6.41	0.02	150	NR	NR	NR	NR	NR	NR
11:30	6.41	0.02	150	NR	NR	NR	NR	NR	<5
11:40	6.41	0.02	150	12 +	735 +	1.2	7.4	187	<5
11:50	6.41	0.02	150	12 +	732 +	1.1	7.3	183	<5
12:00	6.41	0.02	150	12 +	730 +	1.4	7.3	180	<5
12:05	6.41	0.02	150	12 +	730 +	1.6	7.3	177	<5
12:10	6.41	0.02	150	12 +	728 +	1.8	7.3	178	<5
12:15	6.41	0.02	150	12 +	728 +	1.8	7.3	177	<5
12:20	6.41	0.02	150	12 +	727 +	1.8	7.3	177	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>40.41</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q2 - HS-MW-264
Kent County, MI

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Well	HS-MW-264 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/23/2023
Weather	Sunny, 86
Sampler Initials	AW
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	25.0 - 30.0
Measured Bottom Depth (ft bmp)	30
Sample Comment	15:40: SWL = 21.75 ft; 15:55: SWL = 21.76 ft, remained constant for duration of purge. 15:55: YSI connected.
Initial Water Level Date/Time	05/23/2023 15:35
Initial Water Level Depth (ft bmp)	21.75
Pump/Tubing Intake Depth (ft bmp)	27.5
Tubing Length (ft)	30
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/23/2023 15:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/23/2023 16:20:00, Bottling-Stop: 05/23/2023 16:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:45	21.76	0.01	140	NR	NR	NR	NR	NR	17
15:55	21.76	0.01	140	11 +	623 +	7.1	7.2	45	6
16:00	21.76	0.01	140	12 +	629 +	7.2	7.1	56	5
16:05	21.76	0.01	140	12 +	635 +	7.1	7.1	60	<5
16:10	21.76	0.01	140	12 +	640 +	7.0	7.1	64	<5
16:15	21.76	0.01	140	12 +	641 +	7.0	7.1	66	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.75</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-265
 Kent County, MI

16.0062961.52
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Well	HS-MW-265 / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/30/2023
Weather	89F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.3 - 18.3
Measured Bottom Depth (ft bmp)	18.3
Sample Comment	YSI Connected at 15:50.
Initial Water Level Date/Time	05/30/2023 15:10
Initial Water Level Depth (ft bmp)	9.07
Pump/Tubing Intake Depth (ft bmp)	15.8
Tubing Length (ft)	17
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/30/2023 15:10
Total Purge Volume (gal)	2.7
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/30/2023 16:15:00, Bottling-Stop: 05/30/2023 16:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:20	9.08	0.01	200	NR	NR	NR	NR	NR	NR
15:40	9.08	0.01	200	NR	NR	NR	NR	NR	7
15:50	9.08	0.01	200	NR	NR	NR	NR	NR	<5
16:00	9.08	0.01	200	12 +	838 +	2.5	7.2	164	<5
16:05	9.08	0.01	200	12 +	839 +	2.4	7.3	162	<5
16:10	9.08	0.01	200	13 +	840 +	2.4	7.3	162	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>6.73</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-266A
 Kent County, MI

16.0062961.52
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Well	HS-MW-266A / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/25/2023
Weather	56F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.2 - 18.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 1215.
Initial Water Level Date/Time	05/25/2023 12:05
Initial Water Level Depth (ft bmp)	4.08
Pump/Tubing Intake Depth (ft bmp)	15.7
Tubing Length (ft)	17
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/25/2023 12:05
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/25/2023 12:35:00, Bottling-Stop: 05/25/2023 12:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:10	4.09	0.01	220	NR	NR	NR	NR	NR	<5
12:15	4.09	0.01	220	10 +	792	2.5	7.5	45	<5
12:20	4.09	0.01	220	10 +	791	2.5	7.4	46	<5
12:25	4.09	0.01	220	10 +	792	2.5	7.4	46	<5
12:30	4.09	0.01	220	10 +	791	2.5	7.4	46	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>11.62</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q2 - HS-MW-266B
 Kent County, MI

16.0062961.52
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Well	HS-MW-266B / 2 in Diameter PVC
Sample Quarter	2023-Q2
Date	05/25/2023
Weather	56F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	53.0 - 58.0
Measured Bottom Depth (ft bmp)	58
Sample Comment	Connected YSI at 11:25.
Initial Water Level Date/Time	05/25/2023 11:00
Initial Water Level Depth (ft bmp)	4.00
Pump/Tubing Intake Depth (ft bmp)	55.5
Tubing Length (ft)	58.5
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	05/25/2023 11:00
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 05/25/2023 11:40:00, Bottling-Stop: 05/25/2023 11:45:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:10	4.01	0.01	240	NR	NR	NR	NR	NR	<5
11:20	4.01	0.01	240	NR	NR	NR	NR	NR	<5
11:25	4.01	0.01	240	10 +	858	1.0	7.4	44	<5
11:30	4.01	0.01	240	10 +	860	0.9	7.4	44	<5
11:35	4.01	0.01	240	10 +	861	0.9	7.4	43	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>51.50</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-200A
 Kent County, MI

16.0062961.52
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 See Page 1 for Notes

Well	WVNW-MW-200A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	79F sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	NR
Sample Comment	14:35: YSI connected; Collected DUP
Initial Water Level Date/Time	08/08/2023 14:15
Initial Water Level Depth (ft bmp)	16.74
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	29
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 14:20
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 15:00:00, Bottling-Stop: 08/08/2023 15:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:30	16.74	0.00	190	NR	NR	NR	NR	NR	<5
14:35	16.74	0.00	190	14	720 +	7.5	7.4	171	<5
14:40	16.74	0.00	190	13	710 +	7.7	7.4	168	<5
14:45	16.74	0.00	190	13	706 +	8.0	7.5	165	<5
14:50	16.74	0.00	190	13	700 +	8.0	7.4	163	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>9.46</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-200B
 Kent County, MI

16.0062961.52
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 See Page 1 for Notes

Well	WVNW-MW-200B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	79F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	54.8 - 59.8
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 14:40. Collected MS/MSD.
Initial Water Level Date/Time	08/08/2023 14:15
Initial Water Level Depth (ft bmp)	16.87
Pump/Tubing Intake Depth (ft bmp)	57.3
Tubing Length (ft)	59.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 14:15
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 14:55:00, Bottling-Stop: 08/08/2023 15:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:30	16.87	0.00	250	NR	NR	NR	NR	NR	NR
14:35	16.87	0.00	250	NR	NR	NR	NR	NR	<5
14:40	16.87	0.00	250	12	731 +	8.3	7.0	126	<5
14:45	16.87	0.00	250	12	732 +	8.3	7.0	121	<5
14:50	16.87	0.00	250	12	728 +	8.3	7.0	123	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>40.43</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-201A
 Kent County, MI

16.0062961.52
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 See Page 1 for Notes

Well	WVNW-MW-201A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	76F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	11.9 - 16.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 11:15.
Initial Water Level Date/Time	08/09/2023 10:50
Initial Water Level Depth (ft bmp)	10.30
Pump/Tubing Intake Depth (ft bmp)	14.4
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 10:50
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 12:15:00, Bottling-Stop: 08/09/2023 12:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:00	10.30	0.00	200	NR	NR	NR	NR	NR	<5
11:15	10.30	0.00	200	12	742	10.2	7.3	335	<5
11:25	10.30	0.00	200	12	742	9.4	7.2	296	<5
11:35	10.30	0.00	200	13	747	8.9	7.3	262	<5
12:00	10.30	0.00	200	14	742	8.0	7.2	233	<5
12:05	10.30	0.00	200	14	742	8.0	7.2	230	<5
12:10	10.30	0.00	200	14	742	8.0	7.2	228	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>4.10</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-201B
 Kent County, MI

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Well	WVNW-MW-201B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	76F Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	29.6 - 34.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	11:20: YSI connected
Initial Water Level Date/Time	08/09/2023 10:50
Initial Water Level Depth (ft bmp)	10.50
Pump/Tubing Intake Depth (ft bmp)	32.1
Tubing Length (ft)	35
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 10:55
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 11:45:00, Bottling-Stop: 08/09/2023 11:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:10	10.50	0.00	150	NR	NR	NR	NR	NR	<5
11:20	10.50	0.00	150	12	846	7.1	7.0	159	<5
11:25	10.50	0.00	150	12	846	6.8	7.0	161	<5
11:30	10.50	0.00	150	12	846	6.5	7.0	161	<5
11:35	10.50	0.00	150	12	842	6.3	7.0	160	<5
11:40	10.50	0.00	150	12	847	6.4	7.0	159	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>21.60</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-201C
 Kent County, MI

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Well	WVNW-MW-201C / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	76F Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	49.1 - 54.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	12:00: YSI Connected
Initial Water Level Date/Time	08/09/2023 10:55
Initial Water Level Depth (ft bmp)	10.50
Pump/Tubing Intake Depth (ft bmp)	51.6
Tubing Length (ft)	55
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 11:00
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 12:35:00, Bottling-Stop: 08/09/2023 12:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	10.53	0.03	120	NR	NR	NR	NR	NR	<5
11:40	10.54	0.04	120	NR	NR	NR	NR	NR	<5
12:00	10.55	0.05	120	13	589	1.4	7.0	150	<5
12:05	10.55	0.05	120	13	625	1.1	7.0	144	<5
12:10	10.55	0.05	120	13	661	1.0	7.0	140	<5
12:15	10.55	0.05	120	13	691	1.0	7.0	136	<5
12:20	10.55	0.05	120	13	707	1.0	7.0	132	<5
12:25	10.55	0.05	120	13	715	0.9	7.1	130	<5
12:30	10.55	0.05	120	13	715	1.0	7.1	128	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>41.10</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-202A
 Kent County, MI

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Well	WVNW-MW-202A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	81F cloudy
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	42.6 - 47.6
Measured Bottom Depth (ft bmp)	47.7
Sample Comment	15:20: YSI connected
Initial Water Level Date/Time	08/09/2023 14:45
Initial Water Level Depth (ft bmp)	12.06
Pump/Tubing Intake Depth (ft bmp)	45.2
Tubing Length (ft)	50
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 14:45
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 15:40:00, Bottling-Stop: 08/09/2023 15:45:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:15	12.07	0.01	190	NR	NR	NR	NR	NR	<5
15:20	12.07	0.01	190	11	581	12.8	7.2	141	<5
15:25	12.07	0.01	190	11	581	7.5	7.0	149	<5
15:30	12.07	0.01	190	11	582	7.5	7.0	151	<5
15:35	12.07	0.01	190	11	582	7.5	7.0	153	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>33.14</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WVNW-MW-202B
 Kent County, MI

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Well	WVNW-MW-202B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	81F Cloudy
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	62.3 - 67.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	08/09/2023 14:35
Initial Water Level Depth (ft bmp)	12.18
Pump/Tubing Intake Depth (ft bmp)	64.8
Tubing Length (ft)	68
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 14:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 15:30:00, Bottling-Stop: 08/09/2023 15:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:05	12.18	0.00	160	12	558	5.5	7.2	317	<5
15:10	12.18	0.00	160	12	560	5.5	7.2	314	<5
15:15	12.18	0.00	160	12	558	5.6	7.2	313	<5
15:20	12.18	0.00	160	12	558	5.4	7.2	311	<5
15:25	12.18	0.00	160	12	559	5.6	7.2	308	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	52.62
Total Drawdown (ft)	0.00
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q3 - WVNW-MW-203
Kent County, MI

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Well	WVNW-MW-203 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.9 - 18.9
Measured Bottom Depth (ft bmp)	18.94
Sample Comment	Initial SWL was below top of screen interval, set tubing at midpoint of SWL and bottom of well. YSI Connected at 10:45.
Initial Water Level Date/Time	08/10/2023 10:30
Initial Water Level Depth (ft bmp)	16.20
Pump/Tubing Intake Depth (ft bmp)	17.5
Tubing Length (ft)	19
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 10:30
Total Purge Volume (gal)	1.75
Modified Sample	Yes
If Modified, Reasoning	Water below top of screen
Sample Collection Information	Bottling-Start: 08/10/2023 11:10:00, Bottling-Stop: 08/10/2023 11:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:40	16.22	0.02	140	NR	NR	NR	NR	NR	9 +
10:45	16.22	0.02	140	12	163 +	10.0	6.8	170	8 +
10:50	16.22	0.02	140	12	164 +	9.9	6.9	169	7 +
10:55	16.22	0.02	140	12	165 +	9.7	6.9	164	5 +
11:00	16.22	0.02	140	12	166 +	9.9	6.9	162	5 +
11:05	16.22	0.02	140	12	170 +	9.8	7.0	161	4 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>1.30</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-7A
 Kent County, MI

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Well	AREA19-MW-7A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	Sunny 70
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.7 - 13.7
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Purge water observed to be clear. 10:55: YSI connected.
Initial Water Level Date/Time	08/10/2023 10:25
Initial Water Level Depth (ft bmp)	4.85
Pump/Tubing Intake Depth (ft bmp)	11.2
Tubing Length (ft)	15
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 10:25
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 11:25:00, Bottling-Stop: 08/10/2023 11:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:35	4.85	0.00	250	NR	NR	NR	NR	NR	<5
10:45	4.85	0.00	250	NR	NR	NR	NR	NR	<5
10:55	4.85	0.00	250	14	882 +	4.5	7.3	353	<5
11:05	4.85	0.00	250	14	878 +	4.3	7.2	349	<5
11:15	4.85	0.00	250	14	880 +	4.3	7.2	343	<5
11:20	4.85	0.00	250	14	879 +	4.4	7.2	340	<5
11:25	4.85	0.00	250	14	881 +	4.4	7.2	338	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>6.35</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-221A
 Kent County, MI

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Well	AREA19-MW-221A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	Clear 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	15.5 - 20.5
Measured Bottom Depth (ft bmp)	20.5
Sample Comment	Connected YSI at 11:05. Removed bubbles from dissolved oxygen probe at 11:50.
Initial Water Level Date/Time	08/08/2023 10:50
Initial Water Level Depth (ft bmp)	13.33
Pump/Tubing Intake Depth (ft bmp)	18.0
Tubing Length (ft)	20
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 10:50
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 12:10:00, Bottling-Stop: 08/08/2023 12:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:00	13.41	0.08	200	NR	NR	NR	NR	NR	14
11:05	13.44	0.11	200	12	603 +	6.3	7.3	217	9
11:10	13.43	0.10	200	13	601 +	6.0	7.3	228	<5
11:15	13.42	0.09	200	13	604 +	6.1	7.3	233	<5
11:20	13.42	0.09	200	13	600 +	6.2	7.3	243	<5
11:25	13.42	0.09	200	13	596 +	6.4	7.3	257	<5
11:30	13.42	0.09	200	13	594 +	6.5	7.3	263	<5
11:35	13.42	0.09	200	13	589 +	6.8	7.4	269	<5
11:40	13.42	0.09	200	13	569 +	6.7	7.4	271	<5
11:45	13.42	0.09	200	13	553 +	6.8	7.4	275	<5
11:50	13.42	0.09	200	13	585 +	6.8	7.4	275	<5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-221A
 Kent County, MI

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Well	AREA19-MW-221A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	Clear 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	15.5 - 20.5
Measured Bottom Depth (ft bmp)	20.5
Sample Comment	Connected YSI at 11:05. Removed bubbles from dissolved oxygen probe at 11:50.
Initial Water Level Date/Time	08/08/2023 10:50
Initial Water Level Depth (ft bmp)	13.33
Pump/Tubing Intake Depth (ft bmp)	18.0
Tubing Length (ft)	20
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 10:50
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 12:10:00, Bottling-Stop: 08/08/2023 12:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:55	13.42	0.09	200	13	583 +	7.1	7.4	275	<5
12:00	13.42	0.09	200	13	582 +	7.1	7.4	277	<5
12:05	13.42	0.09	200	13	583 +	7.1	7.4	280	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	4.67
Total Drawdown (ft)	0.09
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-221B
 Kent County, MI

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Well	AREA19-MW-221B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	Sunny 70
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.5 - 49.5
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Purge water observed to be very clear. 11:20: YSI connected.
Initial Water Level Date/Time	08/08/2023 10:50
Initial Water Level Depth (ft bmp)	12.75
Pump/Tubing Intake Depth (ft bmp)	47.0
Tubing Length (ft)	51.5
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 10:50
Total Purge Volume (gal)	2.2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 11:35:00, Bottling-Stop: 08/08/2023 11:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:00	12.75	0.00	175	NR	NR	NR	NR	NR	13
11:10	12.75	0.00	200	NR	NR	NR	NR	NR	7
11:20	12.75	0.00	200	11	471 +	7.0	7.1	359	<5
11:25	12.75	0.00	200	11	472 +	6.8	7.1	357	<5
11:30	12.75	0.00	200	11	472 +	6.6	7.1	354	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>34.25</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-222
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-222 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/11/2023
Weather	Sunny 70
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Livonia, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	9.3 - 14.3
Measured Bottom Depth (ft bmp)	14.24
Sample Comment	YSI Connected at 11:25.
Initial Water Level Date/Time	08/11/2023 10:30
Initial Water Level Depth (ft bmp)	7.71
Pump/Tubing Intake Depth (ft bmp)	11.4
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/11/2023 11:05
Total Purge Volume (gal)	2.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/11/2023 11:55:00, Bottling-Stop: 08/11/2023 12:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:15	7.83	0.12	250	NR	NR	NR	NR	NR	NR
11:25	7.83	0.12	250	13	517	<0.5	7.3	29	9
11:35	7.83	0.12	250	13	509	<0.5	7.4	-20	<5
11:45	7.83	0.12	250	13	503	<0.5	7.3	-40	<5
11:50	7.83	0.12	250	13	501	<0.5	7.3	-45	<5
11:55	7.83	0.12	250	13	501	<0.5	7.3	-49	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>3.69</u>
Total Drawdown (ft)	<u>0.12</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-223
 Kent County, MI

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 See Page 1 for Notes

Well	AREA19-MW-223 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/11/2023
Weather	Cloudy 70
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.9 - 12.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 10:30.
Initial Water Level Date/Time	08/11/2023 09:55
Initial Water Level Depth (ft bmp)	5.00
Pump/Tubing Intake Depth (ft bmp)	11.5
Tubing Length (ft)	14
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/11/2023 10:00
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/11/2023 10:55:00, Bottling-Stop: 08/11/2023 11:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:10	5.04	0.04	250	NR	NR	NR	NR	NR	125
10:20	5.04	0.04	250	NR	NR	NR	NR	NR	13
10:30	5.04	0.04	250	13	620 +	<0.5	6.8	-108	<5
10:40	5.04	0.04	250	13	614 +	<0.5	6.9	-117	<5
10:45	5.04	0.04	250	13	614 +	<0.5	6.9	-119	<5
10:50	5.04	0.04	250	13	612 +	<0.5	6.9	-120	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>6.50</u>
Total Drawdown (ft)	<u>0.04</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q3 - AREA19-MW-224
Kent County, MI

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Well	AREA19-MW-224 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	12.1
Sample Comment	Lowered purge rate after 13:55 reading to control drawdown. YSI Connected at 14:00.
Initial Water Level Date/Time	08/10/2023 13:45
Initial Water Level Depth (ft bmp)	4.92
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	11
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 13:45
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 14:25:00, Bottling-Stop: 08/10/2023 14:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:55	5.89	0.97	120	NR	NR	NR	NR	NR	6 +
14:00	5.84	0.92	100	20	1,284 +	0.5	7.0	64	<5 +
14:05	5.83	0.91	100	20	1,286 +	<0.5	7.0	61	<5 +
14:10	5.79	0.87	100	20	1,293 +	<0.5	7.0	58	<5 +
14:15	5.79	0.87	100	20	1,289 +	<0.5	7.0	56	<5 +
14:20	5.79	0.87	100	20	1,292 +	<0.5	7.0	53	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.68</u>
Total Drawdown (ft)	<u>0.87</u>
Calculated Final Purge Volume (gal)	<u>0.15</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-225A
 Kent County, MI

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 See Page 1 for Notes

Well	AREA19-MW-225A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	Cloudy 80
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Livonia, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.6 - 12.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	15:30: YSI connected
Initial Water Level Date/Time	08/09/2023 14:35
Initial Water Level Depth (ft bmp)	6.20
Pump/Tubing Intake Depth (ft bmp)	10.1
Tubing Length (ft)	15
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 14:35
Total Purge Volume (gal)	5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 16:25:00, Bottling-Stop: 08/09/2023 16:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:50	6.20	0.00	225	NR	NR	NR	NR	NR	<5
15:05	6.20	0.00	225	NR	NR	NR	NR	NR	<5
15:20	6.20	0.00	225	NR	NR	NR	NR	NR	<5
15:30	6.20	0.00	225	14	820 +	<0.5	7.2	53	<5
15:40	6.20	0.00	225	14	819 +	<0.5	7.2	26	<5
15:50	6.20	0.00	225	14	819 +	<0.5	7.2	10	<5
16:00	6.20	0.00	225	14	817 +	<0.5	7.2	-2	<5
16:10	6.20	0.00	225	14	814 +	<0.5	7.2	-10	<5
16:15	6.20	0.00	225	14	813 +	<0.5	7.2	-14	<5
16:20	6.20	0.00	225	14	813 +	<0.5	7.2	-17	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	3.90
Total Drawdown (ft)	0.00
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-225B
 Kent County, MI

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 See Page 2 for Notes

Well	AREA19-MW-225B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: BP-12, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	32.9 - 37.9
Measured Bottom Depth (ft bmp)	37.8
Sample Comment	15:43: YSI batteries replaced
Initial Water Level Date/Time	08/09/2023 14:45
Initial Water Level Depth (ft bmp)	5.86
Pump/Tubing Intake Depth (ft bmp)	35.3
Tubing Length (ft)	37
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	08/09/2023 14:45
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 16:50:00, Bottling-Stop: 08/09/2023 16:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:55	5.93	0.07	50	NR	NR	NR	NR	NR	>999
15:05	6.03	0.17	50	NR	NR	NR	NR	NR	>999
15:15	6.06	0.20	50	NR	NR	NR	NR	NR	628
15:25	6.07	0.21	50	NR	NR	NR	NR	NR	273
15:35	6.07	0.21	50	NR	NR	NR	NR	NR	180
15:45	6.07	0.21	50	NR	NR	NR	NR	NR	144
15:55	6.07	0.21	50	18	1,514	0.5	7.4	-79	101
16:05	6.07	0.21	50	17	1,518	<0.5	7.4	-84	87
16:15	6.07	0.21	50	18	1,514	<0.5	7.4	-87	67
16:25	6.07	0.21	50	18	1,515	<0.5	7.4	-89	53

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-225B
 Kent County, MI

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Well	AREA19-MW-225B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: BP-12, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	32.9 - 37.9
Measured Bottom Depth (ft bmp)	37.8
Sample Comment	15:43: YSI batteries replaced
Initial Water Level Date/Time	08/09/2023 14:45
Initial Water Level Depth (ft bmp)	5.86
Pump/Tubing Intake Depth (ft bmp)	35.3
Tubing Length (ft)	37
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	08/09/2023 14:45
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 16:50:00, Bottling-Stop: 08/09/2023 16:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
16:35	6.07	0.21	50	18	1,516	<0.5	7.4	-89	52
16:40	6.07	0.21	50	18	1,515	<0.5	7.4	-90	49
16:45	6.07	0.21	50	18	1,514	<0.5	7.4	-90	47

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? Yes
- Calculations:

Head Above Pump Intake (ft)	<u>29.44</u>
Total Drawdown (ft)	<u>0.21</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-226A
 Kent County, MI

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 See Page 1 for Notes

Well	AREA19-MW-226A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/07/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 11.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 14:40.
Initial Water Level Date/Time	08/07/2023 14:25
Initial Water Level Depth (ft bmp)	6.14
Pump/Tubing Intake Depth (ft bmp)	8.7
Tubing Length (ft)	9.57
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/07/2023 14:25
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/07/2023 15:15:00, Bottling-Stop: 08/07/2023 15:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:35	6.15	0.01	50	NR	NR	NR	NR	NR	42
14:40	6.15	0.01	50	18	429 +	0.9	7.1	226 +	22
14:45	6.15	0.01	50	18	428 +	0.7	7.0	223 +	42
14:50	6.15	0.01	50	18	429 +	0.6	7.0	221 +	10
14:55	6.15	0.01	50	18	431 +	0.6	7.0	219 +	12
15:00	6.15	0.01	50	18	430 +	0.5	7.0	218 +	10
15:05	6.15	0.01	50	19	429 +	0.5	7.0	216 +	9
15:10	6.15	0.01	50	19	429 +	0.4	7.0	213 +	8

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>2.56</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - AREA19-MW-226B
 Kent County, MI

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Well	AREA19-MW-226B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/07/2023
Weather	Sunny 75
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	12.8 - 17.8
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 14:45.
Initial Water Level Date/Time	08/07/2023 14:25
Initial Water Level Depth (ft bmp)	5.69
Pump/Tubing Intake Depth (ft bmp)	15.3
Tubing Length (ft)	19
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/07/2023 14:25
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/07/2023 15:00:00, Bottling-Stop: 08/07/2023 15:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:35	5.75	0.06	200	NR	NR	NR	NR	NR	NR
14:45	5.75	0.06	200	14	434 +	3.0	7.3	345	<5
14:50	5.75	0.06	200	14	434 +	3.1	7.3	345	<5
14:55	5.75	0.06	200	14	434 +	3.0	7.2	343	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	9.61
Total Drawdown (ft)	0.06
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q3 - WV/CH-MW-240
Kent County, MI

16.0062961.52
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See Page 2 for Notes

Well	WV/CH-MW-240 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/11/2023
Weather	Cloudy, 70s
Sampler Initials	AJG
Purging Device	Bladder-Pump: BP-11, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	63.0 - 68.0
Measured Bottom Depth (ft bmp)	68
Sample Comment	YSI Connected at 13:30.
Initial Water Level Date/Time	08/11/2023 12:00
Initial Water Level Depth (ft bmp)	30.02
Pump/Tubing Intake Depth (ft bmp)	65.5
Tubing Length (ft)	67
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	08/11/2023 12:00
Total Purge Volume (gal)	5.25
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/11/2023 14:00:00, Bottling-Stop: 08/11/2023 14:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:10	30.03	0.01	150	NR	NR	NR	NR	NR	>999
12:20	30.03	0.01	150	NR	NR	NR	NR	NR	>999
12:30	30.03	0.01	150	NR	NR	NR	NR	NR	760
12:40	30.03	0.01	150	NR	NR	NR	NR	NR	365
12:50	30.03	0.01	150	NR	NR	NR	NR	NR	217
13:00	30.03	0.01	150	12	808 +	6.9	7.1	374	135
13:10	30.03	0.01	150	12	806 +	6.8	7.1	364	81
13:20	30.03	0.01	150	12	802 +	6.8	7.1	358	76
13:30	30.03	0.01	150	12	809 +	6.7	7.2	353	53
13:40	30.03	0.01	150	12	808 +	6.7	7.2	351	47

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WV/CH-MW-240
 Kent County, MI

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 See Page 2 for Notes

Well	WV/CH-MW-240 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/11/2023
Weather	Cloudy, 70s
Sampler Initials	AJG
Purging Device	Bladder-Pump: BP-11, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	63.0 - 68.0
Measured Bottom Depth (ft bmp)	68
Sample Comment	YSI Connected at 13:30.
Initial Water Level Date/Time	08/11/2023 12:00
Initial Water Level Depth (ft bmp)	30.02
Pump/Tubing Intake Depth (ft bmp)	65.5
Tubing Length (ft)	67
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	08/11/2023 12:00
Total Purge Volume (gal)	5.25
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/11/2023 14:00:00, Bottling-Stop: 08/11/2023 14:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:45	30.03	0.01	150	12	808 +	6.7	7.2	350	42
13:50	30.03	0.01	150	12	808 +	6.7	7.2	349	42
13:55	30.03	0.01	150	12	807 +	6.7	7.2	348	41

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? Yes
- Calculations:

Head Above Pump Intake (ft)	<u>35.48</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WV/CH-MW-241A
 Kent County, MI

16.0062961.52
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 See Page 1 for Notes

Well	WV/CH-MW-241A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	72F Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	NR
Sample Comment	11:35: YSI connected
Initial Water Level Date/Time	08/08/2023 10:55
Initial Water Level Depth (ft bmp)	19.91
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	29
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 11:00
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 12:10:00, Bottling-Stop: 08/08/2023 12:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:25	19.96	0.05	190	NR	NR	NR	NR	NR	7
11:35	19.97	0.06	190	13	624 +	7.6	7.0	121	<5
11:45	19.97	0.06	190	12	625 +	5.3	6.8	141	<5
11:50	19.97	0.06	190	12	625 +	9.9	6.8	148	<5
11:55	19.97	0.06	190	12	624 +	9.8	6.8	150	<5
12:00	19.97	0.06	190	12	625 +	9.7	6.8	151	<5
12:05	19.97	0.06	190	12	623 +	9.5	6.9	156	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes _____
- 4) Was the two hour time limit reached? No _____
- 5) Calculations:

Head Above Pump Intake (ft)	6.29
Total Drawdown (ft)	0.06
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA _____

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WV/CH-MW-241B
 Kent County, MI

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 See Page 1 for Notes

Well	WV/CH-MW-241B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	72F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	55.9 - 60.9
Measured Bottom Depth (ft bmp)	60.9
Sample Comment	11:40: YSI Connected
Initial Water Level Date/Time	08/08/2023 11:00
Initial Water Level Depth (ft bmp)	20.26
Pump/Tubing Intake Depth (ft bmp)	58.4
Tubing Length (ft)	62
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 11:00
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 12:05:00, Bottling-Stop: 08/08/2023 12:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	20.29	0.03	190	NR	NR	NR	NR	NR	<5
11:40	20.29	0.03	190	13	620 +	4.8	7.3	153	<5
11:50	20.29	0.03	190	13	617 +	4.8	7.3	150	<5
11:55	20.29	0.03	190	13	615 +	4.8	7.3	150	<5
12:00	20.29	0.03	190	13	615 +	4.8	7.3	150	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>38.14</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WV/CH-MW-242A
 Kent County, MI

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 See Page 1 for Notes

Well	WV/CH-MW-242A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: BP-11, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	40.0 - 45.0
Measured Bottom Depth (ft bmp)	45
Sample Comment	YSI Connected at 12:00.
Initial Water Level Date/Time	08/09/2023 11:40
Initial Water Level Depth (ft bmp)	36.55
Pump/Tubing Intake Depth (ft bmp)	42.5
Tubing Length (ft)	44
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	08/09/2023 11:40
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 12:35:00, Bottling-Stop: 08/09/2023 12:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:50	36.56	0.01	90	NR	NR	NR	NR	NR	41
12:00	36.56	0.01	90	16	537 +	0.7	7.4	-13	13
12:10	36.56	0.01	90	16	537 +	<0.5	7.4	-32	7
12:15	36.56	0.01	90	16	538 +	<0.5	7.4	-35	5
12:20	36.56	0.01	90	16	535 +	<0.5	7.4	-43	5
12:25	36.56	0.01	90	16	536 +	<0.5	7.4	-45	4
12:30	36.56	0.01	90	16	538 +	<0.5	7.4	-48	4

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.95</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q3 - WV/CH-MW-242B
Kent County, MI

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See Page 2 for Notes

Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	Sunny 80
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Livonia, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Water observed to be clear. 11:40: YSI connected.
Initial Water Level Date/Time	08/09/2023 10:50
Initial Water Level Depth (ft bmp)	17.60
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	70
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 10:50
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 12:55:00, Bottling-Stop: 08/09/2023 13:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:00	17.80	0.20	50	NR	NR	NR	NR	NR	<5
11:10	17.85	0.25	50	NR	NR	NR	NR	NR	<5
11:20	17.95	0.35	50	NR	NR	NR	NR	NR	<5
11:30	17.95	0.35	50	NR	NR	NR	NR	NR	<5
11:40	17.92	0.32	50	17	683	1.3	7.3	164	<5
11:50	17.90	0.30	50	17	687	1.2	7.3	156	<5
12:00	17.90	0.30	50	16	686	1.3	7.3	132	<5
12:10	17.98	0.38	50	16	684	0.8	7.3	75	<5
12:20	18.00	0.40	50	16	686	<0.5	7.3	-11	<5
12:30	18.00	0.40	50	16	686	<0.5	7.3	-39	<5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - WV/CH-MW-242B
 Kent County, MI

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Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/09/2023
Weather	Sunny 80
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Livonia, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Water observed to be clear. 11:40: YSI connected.
Initial Water Level Date/Time	08/09/2023 10:50
Initial Water Level Depth (ft bmp)	17.60
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	70
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/09/2023 10:50
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/09/2023 12:55:00, Bottling-Stop: 08/09/2023 13:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:40	18.00	0.40	50	16	685	<0.5	7.3	-53	<5
12:45	18.00	0.40	50	16	686	<0.5	7.3	-56	<5
12:50	18.00	0.40	50	16	686	<0.5	7.3	-60	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? Yes
- 5) Calculations:

Head Above Pump Intake (ft)	<u>49.30</u>
Total Drawdown (ft)	<u>0.40</u>
Calculated Final Purge Volume (gal)	<u>0.15</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-29A
 Kent County, MI

16.0062961.52
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Well	HS-MW-29A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	72F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 16.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 11:20.
Initial Water Level Date/Time	08/10/2023 10:45
Initial Water Level Depth (ft bmp)	6.18
Pump/Tubing Intake Depth (ft bmp)	12.3
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 10:45
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 11:55:00, Bottling-Stop: 08/10/2023 12:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:05	6.20	0.02	250	NR	NR	NR	NR	NR	5 +
11:20	6.20	0.02	250	14	419 +	0.6	7.0	101	<5 +
11:25	6.20	0.02	250	13	419 +	0.6	7.0	83	<5 +
11:40	6.20	0.02	250	14	418 +	0.6	7.0	25	<5 +
11:45	6.20	0.02	250	14	415 +	0.6	7.0	19	<5 +
11:50	6.20	0.02	250	14	416 +	0.6	7.0	21	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>6.12</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-260
 Kent County, MI

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Well	HS-MW-260 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	72F Sunny
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.1 - 13.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	11:30 YSI connected. Last 3 water level readings were not the same per Standard Operating Procedure. Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	08/10/2023 11:05
Initial Water Level Depth (ft bmp)	6.23
Pump/Tubing Intake Depth (ft bmp)	10.6
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 11:10
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 12:10:00, Bottling-Stop: 08/10/2023 12:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:25	6.23	0.00	160	NR	NR	NR	NR	NR	9 +
11:30	6.23	0.00	160	15	512 +	0.9	7.0	191	6 +
11:35	6.23	0.00	160	14	415 +	<0.5	7.1	192	<5 +
11:40	6.23	0.00	160	14	413 +	<0.5	7.2	179	<5 +
11:45	6.23	0.00	160	14	414 +	<0.5	7.2	163	<5 +
11:50	6.23	0.00	160	14	414 +	<0.5	7.2	148	<5 +
11:55	6.24	0.01	160	14	413 +	<0.5	7.2	134	<5 +
12:00	6.24	0.01	160	14	414 +	<0.5	7.2	130	<5 +
12:05	6.25	0.02	160	14	414 +	<0.5	7.2	127	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.37</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-261
 Kent County, MI

16.0062961.52
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 See Page 1 for Notes

Well	HS-MW-261 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	80F Sunny
Sampler Initials	JET
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.2 - 12.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 14:40
Initial Water Level Date/Time	08/10/2023 13:55
Initial Water Level Depth (ft bmp)	4.28
Pump/Tubing Intake Depth (ft bmp)	9.7
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 13:55
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 15:10:00, Bottling-Stop: 08/10/2023 15:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:30	4.42	0.14	250	NR	NR	NR	NR	NR	<5 +
14:40	4.42	0.14	250	15	418 +	<0.5	7.1	28	<5 +
14:55	4.42	0.14	250	15	416 +	<0.5	7.2	-37	<5 +
15:00	4.42	0.14	250	15	416 +	<0.5	7.2	-41	<5 +
15:05	4.42	0.14	250	15	416 +	<0.5	7.2	-38	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.42</u>
Total Drawdown (ft)	<u>0.14</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-262
 Kent County, MI

16.0062961.52
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 See Page 1 for Notes

Well	HS-MW-262 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	Partly Cloudy
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	14:45: YSI Connected
Initial Water Level Date/Time	08/10/2023 14:00
Initial Water Level Depth (ft bmp)	5.32
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 14:05
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 15:20:00, Bottling-Stop: 08/10/2023 15:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:25	5.37	0.05	180	NR	NR	NR	NR	NR	NR
14:40	5.37	0.05	180	NR	NR	NR	NR	NR	<5 +
14:45	5.37	0.05	180	17	649 +	<0.5	7.3	294	<5 +
14:50	5.37	0.05	180	17	648 +	<0.5	7.4	273	<5 +
14:55	5.37	0.05	180	17	648 +	<0.5	7.4	262	<5 +
15:00	5.37	0.05	180	17	647 +	<0.5	7.4	252	<5 +
15:05	5.37	0.05	180	17	647 +	<0.5	7.4	244	<5 +
15:10	5.37	0.05	180	17	647 +	<0.5	7.4	237	<5 +
15:15	5.37	0.05	180	17	646 +	<0.5	7.4	235	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.28</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-263A
 Kent County, MI

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 See Page 1 for Notes

Well	HS-MW-263A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	Sunny 80
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.2 - 13.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	14:30: YSI Connected. Purge water observed to be very clear.
Initial Water Level Date/Time	08/08/2023 14:00
Initial Water Level Depth (ft bmp)	7.85
Pump/Tubing Intake Depth (ft bmp)	10.7
Tubing Length (ft)	17
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 14:00
Total Purge Volume (gal)	5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 15:15:00, Bottling-Stop: 08/08/2023 15:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:10	7.85	0.00	250	NR	NR	NR	NR	NR	<5
14:20	7.85	0.00	250	NR	NR	NR	NR	NR	<5
14:30	7.85	0.00	250	19	792 +	<0.5	7.3	-80	<5
14:40	7.85	0.00	250	19	792 +	<0.5	7.3	-89	<5
14:50	7.85	0.00	250	19	792 +	<0.5	7.3	-97	<5
15:00	7.85	0.00	250	19	792 +	<0.5	7.3	-100	<5
15:05	7.85	0.00	250	19	792 +	<0.5	7.3	-101	<5
15:10	7.85	0.00	250	19	792 +	<0.5	7.3	-102	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>2.85</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q3 - HS-MW-263B
Kent County, MI

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Well	HS-MW-263B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.3 - 49.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 14:10.
Initial Water Level Date/Time	08/08/2023 13:55
Initial Water Level Depth (ft bmp)	6.59
Pump/Tubing Intake Depth (ft bmp)	47.8
Tubing Length (ft)	50.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 13:55
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 15:00:00, Bottling-Stop: 08/08/2023 15:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:05	6.61	0.02	150	NR	NR	NR	NR	NR	9
14:10	6.61	0.02	150	17	651 +	6.0	7.3	327	6
14:15	6.61	0.02	150	16	650 +	4.2	7.3	320	<5
14:20	6.61	0.02	150	16	647 +	3.1	7.3	316	<5
14:25	6.61	0.02	150	16	647 +	2.6	7.2	303	<5
14:30	6.61	0.02	150	16	646 +	2.6	7.2	294	<5
14:35	6.61	0.02	150	16	639 +	2.7	7.2	282	<5
14:40	6.61	0.02	150	17	636 +	2.8	7.3	273	<5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-263B
 Kent County, MI

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Well	HS-MW-263B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/08/2023
Weather	Clear, 80s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.3 - 49.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 14:10.
Initial Water Level Date/Time	08/08/2023 13:55
Initial Water Level Depth (ft bmp)	6.59
Pump/Tubing Intake Depth (ft bmp)	47.8
Tubing Length (ft)	50.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/08/2023 13:55
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/08/2023 15:00:00, Bottling-Stop: 08/08/2023 15:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:45	6.61	0.02	150	17	637 +	2.6	7.3	269	<5
14:50	6.61	0.02	150	16	638 +	2.7	7.3	265	<5
14:55	6.61	0.02	150	16	638 +	2.8	7.3	263	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>41.21</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-264
 Kent County, MI

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Well	HS-MW-264 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/11/2023
Weather	Cloudy
Sampler Initials	BPT
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	25.0 - 30.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	08/11/2023 10:35
Initial Water Level Depth (ft bmp)	22.06
Pump/Tubing Intake Depth (ft bmp)	29
Tubing Length (ft)	34
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/11/2023 10:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/11/2023 11:25:00, Bottling-Stop: 08/11/2023 11:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:55	22.07	0.01	190	12	687 +	7.4	6.8	157	<5
11:00	22.07	0.01	190	12	690 +	1.3	6.7	161	<5
11:05	22.07	0.01	190	12	689 +	3.6	6.7	160	<5
11:10	22.07	0.01	190	12	691 +	3.5	6.7	158	<5
11:15	22.07	0.01	190	12	691 +	3.5	6.7	160	<5
11:20	22.07	0.01	190	12	692 +	3.5	6.7	157	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>6.94</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-265
 Kent County, MI

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 See Page 1 for Notes

Well	HS-MW-265 / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/10/2023
Weather	Sunny 80
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.3 - 18.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 15:05.
Initial Water Level Date/Time	08/10/2023 14:35
Initial Water Level Depth (ft bmp)	8.92
Pump/Tubing Intake Depth (ft bmp)	15.8
Tubing Length (ft)	19
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/10/2023 14:35
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/10/2023 15:30:00, Bottling-Stop: 08/10/2023 15:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:45	8.92	0.00	200	NR	NR	NR	NR	NR	<5
14:55	8.92	0.00	200	NR	NR	NR	NR	NR	<5
15:05	8.92	0.00	200	14	855 +	3.3	7.1	360	<5
15:15	8.92	0.00	200	14	854 +	3.2	7.1	353	<5
15:20	8.92	0.00	200	14	851 +	3.1	7.1	347	<5
15:25	8.92	0.00	200	14	853 +	3.1	7.1	345	<5
15:30	8.92	0.00	200	14	852 +	3.1	7.1	344	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 Head Above Pump Intake (ft) 6.88
 Total Drawdown (ft) 0.00
 Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q3 - HS-MW-266A
 Kent County, MI

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Well	HS-MW-266A / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/07/2023
Weather	Sunny 75
Sampler Initials	WVK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.2 - 18.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 12:00.
Initial Water Level Date/Time	08/07/2023 11:40
Initial Water Level Depth (ft bmp)	4.01
Pump/Tubing Intake Depth (ft bmp)	15.7
Tubing Length (ft)	19
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/07/2023 11:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/07/2023 12:25:00, Bottling-Stop: 08/07/2023 12:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:50	4.04	0.03	225	NR	NR	NR	NR	NR	NR
12:00	4.04	0.03	225	12	585 +	3.2	7.3	303	<5
12:05	4.04	0.03	225	12	586 +	2.9	7.3	303	<5
12:10	4.04	0.03	225	12	581 +	2.6	7.3	300	<5
12:15	4.04	0.03	225	12	580 +	2.5	7.3	302	<5
12:20	4.04	0.03	225	12	580 +	2.5	7.3	303	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>11.69</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q3 - HS-MW-266B
Kent County, MI

16.0062961.52
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See Page 1 for Notes

Well	HS-MW-266B / 2 in Diameter PVC
Sample Quarter	2023-Q3
Date	08/07/2023
Weather	Mostly clear, 70s
Sampler Initials	AJG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-LAV
Reference Measuring Point	PVC
Well Screen (ft bmp)	53.0 - 58.0
Measured Bottom Depth (ft bmp)	58
Sample Comment	Connected YSI at 11:45.
Initial Water Level Date/Time	08/07/2023 11:25
Initial Water Level Depth (ft bmp)	3.93
Pump/Tubing Intake Depth (ft bmp)	55.5
Tubing Length (ft)	58
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	08/07/2023 11:25
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 08/07/2023 12:05:00, Bottling-Stop: 08/07/2023 12:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:35	3.94	0.01	240	NR	NR	NR	NR	NR	<5
11:45	3.94	0.01	240	12	607 +	1.6	7.3	207 +	<5
11:50	3.94	0.01	240	12	605 +	1.1	7.4	201 +	<5
11:55	3.94	0.01	240	12	606 +	1.0	7.4	199 +	<5
12:00	3.94	0.01	240	12	605 +	1.0	7.4	198 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>51.57</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-200A
 Kent County, MI

16.0062961.52
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Well	WVNW-MW-200A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/16/2023
Weather	Overcast, 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	28.7
Sample Comment	NR
Initial Water Level Date/Time	10/16/2023 14:30
Initial Water Level Depth (ft bmp)	16.94
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	28.2
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/16/2023 14:30
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/16/2023 15:16:00, Bottling-Stop: 10/16/2023 15:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:40	16.94	0.00	200	11	NR	7.1	7.1	280	<5
14:45	16.94	0.00	200	11	768	7.2	7.1	280	<5
14:50	16.94	0.00	200	11	767	7.6	7.1	286	<5
14:55	16.94	0.00	200	10	767	7.8	7.1	292	<5
15:05	16.94	0.00	200	10	768	7.9	7.1	301	<5
15:10	16.94	0.00	200	10	768	7.9	7.1	305	<5
15:15	16.94	0.00	200	10	768	7.9	7.1	307	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>9.26</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-200B
 Kent County, MI

16.0062961.52
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Well	WVNW-MW-200B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/16/2023
Weather	Overcast, 50
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	54.8 - 59.8
Measured Bottom Depth (ft bmp)	59.8
Sample Comment	Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/16/2023 14:30
Initial Water Level Depth (ft bmp)	17.08
Pump/Tubing Intake Depth (ft bmp)	57.3
Tubing Length (ft)	59.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/16/2023 14:30
Total Purge Volume (gal)	1.27
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/16/2023 15:05:00, Bottling-Stop: 10/16/2023 15:08:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:35	17.08	0.00	120	11	764	4.3	7.3	70	<5
14:40	17.08	0.00	120	11	764	4.7	7.3	69	<5
14:45	17.08	0.00	120	11	764	4.8	7.3	70	<5
14:50	17.08	0.00	120	11	765	4.9	7.3	71	<5
14:55	17.08	0.00	120	11	764	4.7	7.3	71	<5
15:00	17.08	0.00	120	11	764	5.2	7.3	72	<5
15:05	17.09	0.01	120	11	764	5.2	7.3	73	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	40.22
Total Drawdown (ft)	0.01
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-201A
 Kent County, MI

16.0062961.52
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Well	WVNW-MW-201A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/16/2023
Weather	Cloudy, 50
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Agile Rental 1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	11.9 - 16.9
Measured Bottom Depth (ft bmp)	16.9
Sample Comment	Connected YSI at 12:45.
Initial Water Level Date/Time	10/16/2023 12:30
Initial Water Level Depth (ft bmp)	9.80
Pump/Tubing Intake Depth (ft bmp)	14.4
Tubing Length (ft)	16.4
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/16/2023 12:30
Total Purge Volume (gal)	3.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/16/2023 13:10:00, Bottling-Stop: 10/16/2023 13:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:40	9.82	0.02	275	NR	NR	NR	NR	NR	NR
12:45	9.82	0.02	275	NR	NR	NR	NR	NR	NR
13:00	9.82	0.02	275	11	748	3.3	7.3	190 +	<5
13:05	9.82	0.02	275	11	748	3.1	7.4	191 +	<5
13:10	9.82	0.02	275	11	748	3.2	7.4	192 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.60</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-201B
 Kent County, MI

16.0062961.52
 Page 1 of 1

Well	WVNW-MW-201B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/16/2023
Weather	Overcast
Sampler Initials	JVP/VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Agile Rental 2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	29.6 - 34.6
Measured Bottom Depth (ft bmp)	34.6
Sample Comment	YSI Connected at 12:55. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/16/2023 12:30
Initial Water Level Depth (ft bmp)	10.02
Pump/Tubing Intake Depth (ft bmp)	32.1
Tubing Length (ft)	34.1
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/16/2023 12:30
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/16/2023 13:45:00, Bottling-Stop: 10/16/2023 13:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:40	10.02	0.00	75	NR	NR	NR	NR	NR	NR
12:55	10.02	0.00	75	11	827	2.8	7.4	-6	<5
13:05	10.02	0.00	75	11	830	2.5	7.4	4	<5
13:15	10.02	0.00	75	11	831	2.3	7.4	12	<5
13:35	10.03	0.01	75	11	831	2.1	7.3	20	<5
13:40	10.03	0.01	75	10	832	2.0	7.3	22	<5
13:45	10.02	0.00	75	10	832	2.0	7.4	25	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	22.08
Total Drawdown (ft)	0.00
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-201C
 Kent County, MI

16.0062961.52
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Well	WVNW-MW-201C / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/16/2023
Weather	Overcast, 49F
Sampler Initials	CRB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	49.1 - 54.1
Measured Bottom Depth (ft bmp)	54.1
Sample Comment	YSI Connected at 12:50. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/16/2023 12:30
Initial Water Level Depth (ft bmp)	10.02
Pump/Tubing Intake Depth (ft bmp)	51.6
Tubing Length (ft)	53.6
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/16/2023 12:30
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/16/2023 13:23:00, Bottling-Stop: 10/16/2023 13:28:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:35	10.08	0.06	250	NR	NR	NR	NR	NR	NR
12:40	10.08	0.06	250	NR	NR	NR	NR	NR	NR
12:45	10.08	0.06	250	NR	NR	NR	NR	NR	NR
12:50	10.09	0.07	250	10	863	2.2	7.1	219	<5
12:55	10.09	0.07	250	10	864	2.3	7.1	226	<5
13:00	10.10	0.08	250	10	864	2.4	7.1	232	<5
13:10	10.10	0.08	250	10	864	2.4	7.1	239	<5
13:15	10.10	0.08	250	10	863	2.5	7.1	243	<5
13:20	10.11	0.09	250	10	869	2.4	7.1	246	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>41.58</u>
Total Drawdown (ft)	<u>0.09</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-202A
 Kent County, MI

16.0062961.52
 Page 1 of 1

Well	WVNW-MW-202A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy 50
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	42.6 - 47.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 14:40.
Initial Water Level Date/Time	10/17/2023 10:25
Initial Water Level Depth (ft bmp)	11.98
Pump/Tubing Intake Depth (ft bmp)	45.1
Tubing Length (ft)	48
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 10:25
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 11:05:00, Bottling-Stop: 10/17/2023 11:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:30	12.01	0.03	475	NR	NR	NR	NR	NR	NR
10:35	12.01	0.03	475	NR	NR	NR	NR	NR	NR
10:40	12.01	0.03	475	10	691	8.6	7.3	162	<5
10:45	12.01	0.03	475	10	690	9.4	7.3	180	<5
10:50	12.01	0.03	475	10	690	9.1	7.3	189	<5
10:55	12.01	0.03	475	10	688	9.6	7.3	197	<5
11:00	12.01	0.03	475	10	688	9.6	7.3	205	<5
11:05	12.01	0.03	475	10	688	9.6	7.3	207	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes _____
- 4) Was the two hour time limit reached? No _____
- 5) Calculations:

Head Above Pump Intake (ft) 33.12 _____
 Total Drawdown (ft) 0.03 _____
 Calculated Final Purge Volume (gal) NA _____
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA _____

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-202B
 Kent County, MI

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Well	WVNW-MW-202B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy 50F
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	62.3 - 67.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 11:30.
Initial Water Level Date/Time	10/17/2023 11:15
Initial Water Level Depth (ft bmp)	12.13
Pump/Tubing Intake Depth (ft bmp)	64.8
Tubing Length (ft)	66
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 11:15
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 11:45:00, Bottling-Stop: 10/17/2023 11:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	12.15	0.02	500	NR	NR	NR	NR	NR	NR
11:25	12.15	0.02	500	NR	NR	NR	NR	NR	NR
11:30	12.15	0.02	500	10	686	7.7	7.4	197	8
11:35	12.15	0.02	500	10	688	7.6	7.4	199	<5
11:40	12.15	0.02	500	10	686	7.5	7.4	201	<5
11:45	12.15	0.02	500	10	687	7.4	7.4	204	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>52.67</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WVNW-MW-203
 Kent County, MI

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Well	WVNW-MW-203 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	50s, rainy (cloudy)
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.9 - 18.9
Measured Bottom Depth (ft bmp)	18.9
Sample Comment	Connected YSI at 14:40. Pump was set at slowest speed at 14:40.
Initial Water Level Date/Time	10/19/2023 14:25
Initial Water Level Depth (ft bmp)	16.14
Pump/Tubing Intake Depth (ft bmp)	17.4
Tubing Length (ft)	19.4
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 14:25
Total Purge Volume (gal)	1.1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 14:57:00, Bottling-Stop: 10/19/2023 15:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:25	16.15	0.01	160	NR	NR	NR	NR	NR	NR
14:40	16.16	0.02	120	12	292	9.0	6.9	240	<5
14:45	16.17	0.03	120	12	293	8.7	6.9	250	<5
14:50	16.17	0.03	120	12	291	8.6	6.9	257	<5
14:55	16.17	0.03	120	12	293	8.8	7.0	259	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>1.26</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-7A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-7A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Sunny 60s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.7 - 13.7
Measured Bottom Depth (ft bmp)	13.7
Sample Comment	
Initial Water Level Date/Time	10/18/2023 16:30
Initial Water Level Depth (ft bmp)	5.01
Pump/Tubing Intake Depth (ft bmp)	11.2
Tubing Length (ft)	13.2
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 16:30
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 17:11:00, Bottling-Stop: 10/18/2023 17:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
16:40	5.02	0.01	100	14	802 +	3.6	7.2	112 +	14
16:50	5.02	0.01	100	14	802 +	3.8	7.2	111 +	8
16:55	5.02	0.01	100	14	801 +	3.8	7.3	111 +	6
17:00	5.02	0.01	100	14	803 +	3.7	7.3	112 +	<5
17:05	5.02	0.01	100	14	802 +	3.8	7.3	112 +	<5
17:10	5.02	0.01	100	14	802 +	3.8	7.3	113 +	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>6.19</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-221A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-221A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Sunny 50s
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	15.5 - 20.5
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 11:15.
Initial Water Level Date/Time	10/18/2023 11:10
Initial Water Level Depth (ft bmp)	13.52
Pump/Tubing Intake Depth (ft bmp)	18.0
Tubing Length (ft)	20
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 11:10
Total Purge Volume (gal)	0.8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 11:42:00, Bottling-Stop: 10/18/2023 11:48:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:10	13.58	0.06	100	NR	NR	NR	NR	NR	NR
11:15	13.59	0.07	100	12	582 +	5.2	7.1	210	<5
11:20	13.59	0.07	100	12	582 +	4.3	7.0	224	<5
11:30	13.59	0.07	100	12	580 +	4.3	7.0	236	<5
11:35	13.59	0.07	100	12	580 +	4.4	7.0	243	<5
11:40	13.59	0.07	100	12	578 +	4.4	7.0	249	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.48</u>
Total Drawdown (ft)	<u>0.07</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-221B
 Kent County, MI

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Well	AREA19-MW-221B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Sunny 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.5 - 49.5
Measured Bottom Depth (ft bmp)	49.5
Sample Comment	
Initial Water Level Date/Time	10/18/2023 11:15
Initial Water Level Depth (ft bmp)	13.83
Pump/Tubing Intake Depth (ft bmp)	47.0
Tubing Length (ft)	49
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 11:15
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 11:52:00, Bottling-Stop: 10/18/2023 11:56:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	13.87	0.04	100	12	558 +	9.5	7.3	187 +	6
11:30	13.87	0.04	100	12	556 +	7.0	7.3	188 +	4
11:35	13.87	0.04	100	12	555 +	6.7	7.3	189 +	5
11:40	13.87	0.04	100	12	555 +	6.7	7.3	188 +	5
11:45	13.87	0.04	100	12	554 +	6.9	7.3	188 +	5
11:50	13.87	0.04	100	12	555 +	7.2	7.3	187 +	5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>33.17</u>
Total Drawdown (ft)	<u>0.04</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-222
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-222 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Sunny 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	9.3 - 14.3
Measured Bottom Depth (ft bmp)	14.3
Sample Comment	Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/18/2023 14:55
Initial Water Level Depth (ft bmp)	7.33
Pump/Tubing Intake Depth (ft bmp)	11.8
Tubing Length (ft)	13.8
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 14:55
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 15:32:00, Bottling-Stop: 10/18/2023 15:36:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:05	7.41	0.08	140	14	584 +	<0.5	7.2	-38 +	5
15:20	7.42	0.09	140	14	580 +	<0.5	7.2	-69 +	<5
15:25	7.43	0.10	140	14	581 +	<0.5	7.2	-74 +	<5
15:30	7.43	0.10	140	14	582 +	<0.5	7.2	-78 +	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>4.47</u>
Total Drawdown (ft)	<u>0.10</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-223
 Kent County, MI

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Well	AREA19-MW-223 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Sunny 50s
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.9 - 12.9
Measured Bottom Depth (ft bmp)	12.9
Sample Comment	Dissolved Oxygen did not stabilize.
Initial Water Level Date/Time	10/18/2023 13:30
Initial Water Level Depth (ft bmp)	4.92
Pump/Tubing Intake Depth (ft bmp)	10.4
Tubing Length (ft)	12.9
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 13:30
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 13:57:00, Bottling-Stop: 10/18/2023 14:01:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:40	4.95	0.03	140	13	656 +	3.9 +	6.6	-89 +	7
13:45	4.94	0.02	140	13	653 +	0.9 +	6.7	-96 +	<5
13:50	4.94	0.02	140	13	650 +	0.7 +	6.7	-100 +	<5
13:55	4.94	0.02	140	13	648 +	0.6 +	6.7	-103 +	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? No
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u> 5.48 </u>
Total Drawdown (ft)	<u> 0.02 </u>
Calculated Final Purge Volume (gal)	<u> NA </u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2023-Q4 - AREA19-MW-224
Kent County, MI

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Well	AREA19-MW-224 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Sunny, some clouds, 50s
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	12.1
Sample Comment	Last 3 water level readings were not the same per the Standard Operating Procedure (SOP). pH did not stabilize.
Initial Water Level Date/Time	10/18/2023 09:40
Initial Water Level Depth (ft bmp)	4.80
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	11.6
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 09:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 10:26:00, Bottling-Stop: 10/18/2023 10:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
09:50	5.70 +	0.90	210	13	1,321 +	1.1	7.0 +	171	<5
09:55	5.71 +	0.91	210	13	1,322 +	0.8	7.0 +	89	<5
10:05	5.80 +	1.00	210	13	1,318 +	0.5	7.0 +	58	<5
10:10	5.83 +	1.03	210	14	1,316 +	<0.5	7.0 +	45	<5
10:15	5.87 +	1.07	210	14	1,312 +	<0.5	7.0 +	40	<5
10:20	5.90 +	1.10	210	14	1,308 +	<0.5	7.0 +	33	<5
10:25	5.92 +	1.12	210	14	1,305 +	<0.5	7.0 +	30	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.80</u>
Total Drawdown (ft)	<u>1.12</u>
Calculated Final Purge Volume (gal)	<u>0.19</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-225A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-225A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	Overcast 53
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.6 - 12.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 11:00. Collected MS/MSD and DUP. AECOM Collected Split Sample.
Initial Water Level Date/Time	10/19/2023 10:15
Initial Water Level Depth (ft bmp)	6.19
Pump/Tubing Intake Depth (ft bmp)	10.1
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 10:15
Total Purge Volume (gal)	8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 11:25:00, Bottling-Stop: 10/19/2023 11:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:25	6.22	0.03	500	NR	NR	NR	NR	NR	NR
10:30	6.22	0.03	500	NR	NR	NR	NR	NR	NR
10:45	6.22	0.03	500	NR	NR	NR	NR	NR	NR
10:55	6.22	0.03	500	NR	NR	NR	NR	NR	NR
11:00	6.22	0.03	500	13	1,069 +	<0.5	7.2	138	<5
11:05	6.22	0.03	500	13	1,069 +	<0.5	7.2	130	<5
11:15	6.22	0.03	500	13	1,068 +	<0.5	7.2	115	<5
11:20	6.22	0.03	500	13	1,069 +	<0.5	7.2	110	<5
11:25	6.22	0.03	500	13	1,068 +	<0.5	7.2	106	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>3.91</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-225B
 Kent County, MI

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Well	AREA19-MW-225B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	Rain 50
Sampler Initials	NCK
Purging Device	Bladder-Pump: BP-10, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	32.9 - 37.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 13:45. AECOM Collected Split Sample.
Initial Water Level Date/Time	10/19/2023 12:00
Initial Water Level Depth (ft bmp)	5.63
Pump/Tubing Intake Depth (ft bmp)	35.4
Tubing Length (ft)	37
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	10/19/2023 12:15
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 14:15:00, Bottling-Stop: 10/19/2023 14:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:20	5.94	0.31	50	NR	NR	NR	NR	NR	NR
12:40	5.94	0.31	50	NR	NR	NR	NR	NR	NR
13:00	5.94	0.31	50	NR	NR	NR	NR	NR	NR
13:45	5.98	0.35	50	12	1,867 +	<0.5	7.5	67	49
13:55	5.98	0.35	50	12	1,867 +	<0.5	7.5	65	37
14:05	5.98	0.35	50	12	1,868 +	<0.5	7.5	63	38
14:10	5.98	0.35	50	12	1,868 +	<0.5	7.5	61	39
14:15	5.98	0.35	50	12	1,870 +	<0.5	7.5	61	36

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? Yes
- 5) Calculations:

Head Above Pump Intake (ft)	<u>29.77</u>
Total Drawdown (ft)	<u>0.35</u>
Calculated Final Purge Volume (gal)	<u>0.15</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-226A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-226A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	Overcast, 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 11.3
Measured Bottom Depth (ft bmp)	11.3
Sample Comment	Water level meter was moved and dissolved oxygen values may have been impacted. Dissolved Oxygen did not stabilize. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range; GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/19/2023 10:10
Initial Water Level Depth (ft bmp)	6.05
Pump/Tubing Intake Depth (ft bmp)	10.8
Tubing Length (ft)	12.8
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 10:10
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 10:40:00, Bottling-Stop: 10/19/2023 10:44:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:25	6.17	0.12	120	13	705	3.5 +	6.9	-73	<5
10:30	6.17	0.12	120	13	703	3.7 +	6.8	-79	<5
10:35	6.18	0.13	120	13	703	3.1 +	6.8	-82	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.75</u>
Total Drawdown (ft)	<u>0.13</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - AREA19-MW-226B
 Kent County, MI

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Well	AREA19-MW-226B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	Cloudy, 50s
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental Geo-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	12.8 - 17.8
Measured Bottom Depth (ft bmp)	17.8
Sample Comment	Connected YSI at 10:30. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/19/2023 10:15
Initial Water Level Depth (ft bmp)	5.70
Pump/Tubing Intake Depth (ft bmp)	15.3
Tubing Length (ft)	17.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 10:15
Total Purge Volume (gal)	0.8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 10:48:00, Bottling-Stop: 10/19/2023 10:52:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:15	5.68	-0.02	100	NR	NR	NR	NR	NR	NR
10:30	5.72	0.02	100	13	618 +	7.4	7.4	192 +	<5
10:35	5.73	0.03	100	13	617 +	2.4	7.4	194 +	<5
10:40	5.73	0.03	100	13	616 +	2.4	7.3	196 +	<5
10:45	5.72	0.02	100	13	616 +	2.4	7.3	198 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>9.60</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WV/CH-MW-240
 Kent County, MI

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Well	WV/CH-MW-240 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/20/2023
Weather	50 cloudy, heavy rain around 10:40
Sampler Initials	NCK
Purging Device	Bladder-Pump: BP-12, Peristaltic-Pump: NA, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	63.0 - 68.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 13:25.
Initial Water Level Date/Time	10/20/2023 09:55
Initial Water Level Depth (ft bmp)	31.32
Pump/Tubing Intake Depth (ft bmp)	65.5
Tubing Length (ft)	68
Tubing Inner Diameter (in)	0.25
Purging Initiation Date/Time	10/20/2023 09:55
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/20/2023 11:25:00, Bottling-Stop: 10/20/2023 11:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:05	31.39	0.07	150	NR	NR	NR	NR	NR	NR
10:20	31.39	0.07	150	NR	NR	NR	NR	NR	NR
10:35	31.39	0.07	150	11	805 +	6.5	6.9	227	135
10:40	31.39	0.07	150	11	805 +	7.2	6.9	231	100
11:15	31.39	0.07	150	11	806 +	6.4	6.9	248	35
11:20	31.39	0.07	150	11	806 +	6.4	6.9	250	34
11:25	31.39	0.07	150	11	804 +	6.4	6.9	251	32

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>34.18</u>
Total Drawdown (ft)	<u>0.07</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WV/CH-MW-241A
 Kent County, MI

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Well	WV/CH-MW-241A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	50s, rainy
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	28.7
Sample Comment	Connected YSI at 13:10.
Initial Water Level Date/Time	10/19/2023 13:00
Initial Water Level Depth (ft bmp)	21.25
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	28.2
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 13:00
Total Purge Volume (gal)	0.6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 13:23:00, Bottling-Stop: 10/19/2023 13:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:00	21.25	0.00	120	NR	NR	NR	NR	NR	NR
13:10	21.32	0.07	120	12	640	8.0	7.1	213	<5
13:15	21.32	0.07	120	12	644	8.0	7.1	222	<5
13:20	21.32	0.07	120	12	648	8.1	7.1	227	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	4.95
Total Drawdown (ft)	0.07
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WV/CH-MW-241B
 Kent County, MI

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Well	WV/CH-MW-241B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	Rain, 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	55.9 - 60.9
Measured Bottom Depth (ft bmp)	60.9
Sample Comment	
Initial Water Level Date/Time	10/19/2023 12:55
Initial Water Level Depth (ft bmp)	21.35
Pump/Tubing Intake Depth (ft bmp)	58.4
Tubing Length (ft)	60.4
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 12:55
Total Purge Volume (gal)	1.2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 13:22:00, Bottling-Stop: 10/19/2023 13:26:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:10	21.37	0.02	180	12	740 +	4.9	7.3	221 +	<5
13:15	21.37	0.02	180	12	740 +	4.6	7.3	222 +	<5
13:20	21.37	0.02	180	12	740 +	4.8	7.3	223 +	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	37.05
Total Drawdown (ft)	0.02
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WV/CH-MW-242A
 Kent County, MI

16.0062961.52
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Well	WV/CH-MW-242A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Partly overcast 50
Sampler Initials	CRB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: NA, Centrifugal-Pump: Mega Monsoon #2
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	40.0 - 45.0
Measured Bottom Depth (ft bmp)	
Sample Comment	Connected YSI at 11:10. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/18/2023 10:45
Initial Water Level Depth (ft bmp)	36.74
Pump/Tubing Intake Depth (ft bmp)	42.5
Tubing Length (ft)	45
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 10:45
Total Purge Volume (gal)	8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 11:55:00, Bottling-Stop: 10/18/2023 12:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:30	36.86	0.12	300	NR	NR	NR	NR	NR	NR
10:45	36.89	0.15	300	NR	NR	NR	NR	NR	NR
10:55	36.89	0.15	300	NR	NR	NR	NR	NR	NR
11:10	36.88	0.14	300	13	801 +	<0.5	7.4	69	<5
11:25	36.87	0.13	300	13	803 +	<0.5	7.4	-20	<5
11:35	36.87	0.13	300	13	802 +	<0.5	7.4	-46	<5
11:45	36.86	0.12	300	13	806 +	<0.5	7.4	-60	<5
11:50	36.86	0.12	300	13	804 +	<0.5	7.4	-63	<5
11:55	36.87	0.13	300	13	802 +	<0.5	7.4	-67	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	5.76
Total Drawdown (ft)	0.13
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - WV/CH-MW-242B
 Kent County, MI

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Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/18/2023
Weather	Partly cloudy 50
Sampler Initials	CRB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: NA, Centrifugal-Pump: Mega Monsoon #2
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 13:25.
Initial Water Level Date/Time	10/18/2023 12:40
Initial Water Level Depth (ft bmp)	17.51
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	70
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/18/2023 12:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/18/2023 14:15:00, Bottling-Stop: 10/18/2023 14:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:55	17.80	0.29	50	NR	NR	NR	NR	NR	NR
13:05	17.86	0.35	50	NR	NR	NR	NR	NR	NR
13:20	17.84	0.33	50	NR	NR	NR	NR	NR	NR
13:25	17.86	0.35	50	14	822 +	<0.5	7.3	-50	45
13:40	17.83	0.32	50	14	820 +	<0.5	7.3	-61	23
14:00	17.83	0.32	50	13	822 +	<0.5	7.3	-65	21
14:05	17.83	0.32	50	14	819 +	<0.5	7.4	-67	16
14:10	17.83	0.32	50	14	823 +	<0.5	7.4	-64	15
14:15	17.83	0.32	50	14	827 +	<0.5	7.4	-58	16

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>49.39</u>
Total Drawdown (ft)	<u>0.32</u>
Calculated Final Purge Volume (gal)	<u>0.14</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-29A
 Kent County, MI

16.0062961.52
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Well	HS-MW-29A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/19/2023
Weather	Rain 52
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 16.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	14:40: Collected Field Blank. Connected YSI at 16:10.
Initial Water Level Date/Time	10/19/2023 15:30
Initial Water Level Depth (ft bmp)	6.27
Pump/Tubing Intake Depth (ft bmp)	11.3
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/19/2023 15:30
Total Purge Volume (gal)	5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/19/2023 16:35:00, Bottling-Stop: 10/19/2023 16:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:30	6.29	0.02	300	NR	NR	NR	NR	NR	NR
15:45	6.29	0.02	300	NR	NR	NR	NR	NR	NR
16:10	6.29	0.02	300	13	660 +	<0.5	7.2	175	<5
16:15	6.29	0.02	300	13	659 +	<0.5	7.2	168	<5
16:20	6.29	0.02	300	13	659 +	<0.5	7.2	157	<5
16:25	6.29	0.02	300	13	658 +	<0.5	7.2	148	<5
16:30	6.29	0.02	300	13	660 +	<0.5	7.2	140	<5
16:35	6.29	0.02	300	13	655 +	<0.5	7.2	138	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.03</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-260
 Kent County, MI

16.0062961.52
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Well	HS-MW-260 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy 55
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.1 - 13.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 15:55.
Initial Water Level Date/Time	10/17/2023 15:40
Initial Water Level Depth (ft bmp)	6.07
Pump/Tubing Intake Depth (ft bmp)	10.6
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 15:45
Total Purge Volume (gal)	5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 16:55:00, Bottling-Stop: 10/17/2023 17:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:50	6.14	0.07	300	NR	NR	NR	NR	NR	NR
15:55	6.14	0.07	300	13	583	<0.5	7.1	186	<5
16:00	6.14	0.07	300	13	583	<0.5	7.1	173	<5
16:10	6.14	0.07	300	13	579	<0.5	7.1	140	<5
16:20	6.14	0.07	300	13	576	<0.5	7.1	111	<5
16:30	6.14	0.07	300	13	572	<0.5	7.1	86	<5
16:45	6.15	0.08	300	13	568	<0.5	7.1	59	<5
16:50	6.15	0.08	300	13	568	<0.5	7.1	54	<5
16:55	6.15	0.08	300	13	567	<0.5	7.1	49	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.53</u>
Total Drawdown (ft)	<u>0.08</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet

WWW RAP Field Data
GSI 2023-Q4 - HS-MW-261
Kent County, MI

16.0062961.52

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Well	HS-MW-261 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy 55
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.2 - 12.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 14:15
Initial Water Level Date/Time	10/17/2023 13:40
Initial Water Level Depth (ft bmp)	4.19
Pump/Tubing Intake Depth (ft bmp)	9.7
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 13:45
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 14:35:00, Bottling-Stop: 10/17/2023 14:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:55	4.35	0.16	325	NR	NR	NR	NR	NR	NR
14:05	4.35	0.16	325	NR	NR	NR	NR	NR	NR
14:15	4.36	0.17	325	14	747	<0.5	7.2	-52	9
14:25	4.36	0.17	325	14	751	<0.5	7.2	-58	<5
14:30	4.36	0.17	325	14	751	<0.5	7.2	-59	<5
14:35	4.36	0.17	325	14	753	<0.5	7.2	-59	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.51</u>
Total Drawdown (ft)	<u>0.17</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-262
 Kent County, MI

16.0062961.52
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Well	HS-MW-262 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy 55
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 15:10.
Initial Water Level Date/Time	10/17/2023 14:45
Initial Water Level Depth (ft bmp)	5.39
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 14:50
Total Purge Volume (gal)	2.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 15:20:00, Bottling-Stop: 10/17/2023 15:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:55	5.44	0.05	300	NR	NR	NR	NR	NR	NR
15:05	5.44	0.05	300	NR	NR	NR	NR	NR	NR
15:10	5.44	0.05	300	14	842	<0.5	7.4	82	<5
15:15	5.44	0.05	300	14	841	<0.5	7.4	77	<5
15:20	5.44	0.05	300	14	841	<0.5	7.4	73	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.21</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-263A
 Kent County, MI

16.0062961.52
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Well	HS-MW-263A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/20/2023
Weather	50s, rainy
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.2 - 13.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Connected YSI at 10:15. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/20/2023 10:05
Initial Water Level Depth (ft bmp)	7.74
Pump/Tubing Intake Depth (ft bmp)	10.7
Tubing Length (ft)	12.7
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/20/2023 10:05
Total Purge Volume (gal)	2.7
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/20/2023 10:51:00, Bottling-Stop: 10/20/2023 10:53:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:10	7.76	0.02	230	NR	NR	NR	NR	NR	NR
10:15	7.77	0.03	230	15	881 +	<0.5	7.2	102 +	22
10:35	7.77	0.03	230	15	862 +	<0.5	7.3	-6 +	6
10:40	7.76	0.02	230	15	860 +	<0.5	7.3	-15 +	<5
10:45	7.77	0.03	230	15	858 +	<0.5	7.3	-20 +	<5
10:50	7.77	0.03	230	15	859 +	<0.5	7.3	-24 +	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>2.96</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-263B
 Kent County, MI

16.0062961.52
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Well	HS-MW-263B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/20/2023
Weather	Overcast/drizzle, 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.3 - 49.3
Measured Bottom Depth (ft bmp)	49.3
Sample Comment	Pump struggling and air was noted in the tubing. DO readings may be elevated and should not be used for other purposes. Water level was rising after initial drawdown; GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/20/2023 10:05
Initial Water Level Depth (ft bmp)	6.50
Pump/Tubing Intake Depth (ft bmp)	47
Tubing Length (ft)	49
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/20/2023 10:05
Total Purge Volume (gal)	0.8
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/20/2023 10:37:00, Bottling-Stop: 10/20/2023 10:43:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:20	6.51	0.01	100	15	753 +	9.3 +	7.6	148	8
10:25	6.51	0.01	100	15	752 +	9.2 +	7.6	150	5
10:30	6.52	0.02	100	15	752 +	9.1 +	7.6	153	5
10:35	6.50	0.00	100	15	752 +	9.1 +	7.6	155	5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>40.50</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-264
 Kent County, MI

16.0062961.52
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Well	HS-MW-264 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy, 50F
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	25.0 - 30.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	10/17/2023 10:30
Initial Water Level Depth (ft bmp)	22.00
Pump/Tubing Intake Depth (ft bmp)	27.5
Tubing Length (ft)	29.5
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 10:30
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 11:16:00, Bottling-Stop: 10/17/2023 11:21:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:45	21.99	-0.01	120	11	656	7.7	6.9	238	<5 +
10:55	21.99	-0.01	120	11	663	7.7	6.8	247	<5 +
11:00	22.00	0.00	120	11	664	7.6	6.9	242	<5 +
11:05	22.00	0.00	120	11	665	7.7	6.8	257	<5 +
11:10	22.00	0.00	120	11	666	7.6	6.8	263	<5 +
11:15	22.00	0.00	120	11	667	7.4	6.8	267	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.50</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-265
 Kent County, MI

16.0062961.52
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Well	HS-MW-265 / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/20/2023
Weather	Cloudy 50
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-3
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.3 - 18.3
Measured Bottom Depth (ft bmp)	18.3
Sample Comment	14:30: Collected Field Blank. Connected YSI at 14:15.
Initial Water Level Date/Time	10/20/2023 13:29
Initial Water Level Depth (ft bmp)	8.65
Pump/Tubing Intake Depth (ft bmp)	15.8
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/20/2023 13:30
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/20/2023 14:25:00, Bottling-Stop: 10/20/2023 14:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:45	8.68	0.03	300	NR	NR	NR	NR	NR	NR
14:00	8.68	0.03	300	NR	NR	NR	NR	NR	NR
14:15	8.68	0.03	300	13	823 +	3.0	7.0	252	<5
14:20	8.68	0.03	300	13	824 +	3.0	7.0	253	<5
14:25	8.68	0.03	300	13	825 +	3.0	7.0	254	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>7.15</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-266A
 Kent County, MI

16.0062961.52
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Well	HS-MW-266A / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Cloudy, 50F
Sampler Initials	JVP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.2 - 18.2
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/17/2023 13:45
Initial Water Level Depth (ft bmp)	4.41
Pump/Tubing Intake Depth (ft bmp)	15.7
Tubing Length (ft)	17.7
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 13:45
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 14:16:00, Bottling-Stop: 10/17/2023 14:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:50	4.42	0.01	100	11	799	2.9	7.1	213	<5 +
14:05	4.43	0.02	100	11	804	2.5	7.1	222	<5 +
14:10	4.42	0.01	100	11	806	2.4	7.1	224	<5 +
14:15	4.42	0.01	100	11	808	2.4	7.1	227	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>11.29</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2023-Q4 - HS-MW-266B
 Kent County, MI

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Well	HS-MW-266B / 2 in Diameter PVC
Sample Quarter	2023-Q4
Date	10/17/2023
Weather	Overcast 50s
Sampler Initials	VG
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	53.0 - 58.0
Measured Bottom Depth (ft bmp)	58
Sample Comment	Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	10/17/2023 13:40
Initial Water Level Depth (ft bmp)	4.35
Pump/Tubing Intake Depth (ft bmp)	55.5
Tubing Length (ft)	57.5
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	10/17/2023 13:40
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 10/17/2023 14:07:00, Bottling-Stop: 10/17/2023 14:12:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:45	4.35	0.00	130	12	870 +	6.5	7.2	156 +	31 +
13:55	4.35	0.00	130	11	870 +	1.1	7.3	154 +	<5 +
14:00	4.36	0.01	130	11	869 +	1.1	7.3	153 +	<5 +
14:05	4.36	0.01	130	11	867 +	1.1	7.3	152 +	<5 +

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>51.15</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WVNW-MW-200A
Kent County, MI

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Well	WVNW-MW-200A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/09/2024
Weather	Snow 30
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 13:15.
Initial Water Level Date/Time	01/09/2024 12:40
Initial Water Level Depth (ft bmp)	16.84
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	30
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/09/2024 12:45
Total Purge Volume (gal)	2.3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/09/2024 13:30:00, Bottling-Stop: 01/09/2024 13:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:50	16.84	0.00	200	NR	NR	NR	NR	NR	NR
13:00	16.84	0.00	200	NR	NR	NR	NR	NR	NR
13:10	16.84	0.00	200	NR	NR	NR	NR	NR	NR
13:15	16.84	0.00	200	9	789	8.3	7.4	188	<5
13:20	16.84	0.00	200	9	789	8.2	7.4	187	<5
13:25	16.84	0.00	200	9	795	8.4	7.4	186	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 - Head Above Pump Intake (ft) 9.36
 - Total Drawdown (ft) 0.00
 - Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WVNW-MW-200B
Kent County, MI

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Well	WVNW-MW-200B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/09/2024
Weather	Snow 30
Sampler Initials	JN
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	54.8 - 59.8
Measured Bottom Depth (ft bmp)	59.8
Sample Comment	YSI Connected at 14:00. Dissolved Oxygen was recorded in %, not mg/L; therefore, stabilization for dissolved oxygen cannot be calculated as outlined in the Standard Operating Procedure (SOP). Other indicator parameters were stable.
Initial Water Level Date/Time	01/09/2024 13:30
Initial Water Level Depth (ft bmp)	17.00
Pump/Tubing Intake Depth (ft bmp)	57.3
Tubing Length (ft)	60.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/09/2024 13:35
Total Purge Volume (gal)	2.3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/09/2024 14:20:00, Bottling-Stop: 01/09/2024 14:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (%)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:40	17.01	0.01	200	NR	NR	NR	NR	NR	NR
13:50	17.01	0.01	200	NR	NR	NR	NR	NR	NR
14:00	17.01	0.01	200	9	823	32.5 +	7.3	179	<5
14:10	17.01	0.01	200	9	824	32.7 +	7.3	179	<5
14:15	17.01	0.01	200	9	825	32.3 +	7.3	178	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>40.30</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - WVNW-MW-201A
 Kent County, MI

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Well	WVNW-MW-201A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	11.9 - 16.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 11:15.11:35: Collected DUP and MS/MSD
Initial Water Level Date/Time	01/10/2024 10:50
Initial Water Level Depth (ft bmp)	9.93
Pump/Tubing Intake Depth (ft bmp)	14.4
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 10:55
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/10/2024 11:35:00, Bottling-Stop: 01/10/2024 11:45:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:00	9.94	0.01	200	NR	NR	NR	NR	NR	NR
11:05	9.94	0.01	200	NR	NR	NR	NR	NR	NR
11:15	9.94	0.01	200	10	868 +	2.3	7.4	116	<5
11:20	9.94	0.01	200	10	858 +	1.2	7.4	115	<5
11:25	9.94	0.01	200	10	850 +	1.3	7.4	113	<5
11:30	9.94	0.01	200	10	846 +	1.3	7.4	112	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>4.47</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WVNW-MW-201B
Kent County, MI

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Well	WVNW-MW-201B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	JN
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	29.6 - 34.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 10:15.
Initial Water Level Date/Time	01/10/2024 09:50
Initial Water Level Depth (ft bmp)	10.18
Pump/Tubing Intake Depth (ft bmp)	32.1
Tubing Length (ft)	35.1
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 09:55
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/10/2024 10:50:00, Bottling-Stop: 01/10/2024 11:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:00	10.18	0.00	225	NR	NR	NR	NR	NR	NR
10:15	10.18	0.00	225	10	946 +	0.7	7.4	245	<5
10:20	10.18	0.00	225	10	947 +	<0.5	7.3	250	<5
10:30	10.18	0.00	225	10	945 +	<0.5	7.3	251	<5
10:35	10.18	0.00	225	10	945 +	<0.5	7.3	251	<5
10:40	10.18	0.00	225	10	945 +	<0.5	7.3	250	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>21.92</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WVNW-MW-201C
Kent County, MI

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Well	WVNW-MW-201C / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	JB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	49.1 - 54.1
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 10:20.
Initial Water Level Date/Time	01/10/2024 09:50
Initial Water Level Depth (ft bmp)	10.15
Pump/Tubing Intake Depth (ft bmp)	51.6
Tubing Length (ft)	54.6
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 09:55
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/10/2024 10:45:00, Bottling-Stop: 01/10/2024 10:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:05	10.21	0.06	250	NR	NR	NR	NR	NR	NR
10:15	10.21	0.06	250	NR	NR	NR	NR	NR	NR
10:20	10.23	0.08	250	10	888 +	3.3	7.4	131	<5
10:30	10.23	0.08	250	10	888 +	3.6	7.4	129	<5
10:35	10.23	0.08	250	10	888 +	3.6	7.4	128	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 - Head Above Pump Intake (ft) 41.45
 - Total Drawdown (ft) 0.08
 - Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - WVNW-MW-202A
 Kent County, MI

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Well	WVNW-MW-202A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	30, Snow
Sampler Initials	JB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	42.6 - 47.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 14:55. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	01/11/2024 14:15
Initial Water Level Depth (ft bmp)	11.84
Pump/Tubing Intake Depth (ft bmp)	45.1
Tubing Length (ft)	48.1
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 14:20
Total Purge Volume (gal)	5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 15:10:00, Bottling-Stop: 01/11/2024 15:15:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:30	11.88	0.04	400	NR	NR	NR	NR	NR	NR
14:40	11.88	0.04	400	NR	NR	NR	NR	NR	NR
14:55	11.88	0.04	400	9	682 +	7.3	7.5	322	<5
15:00	11.89	0.05	400	9	682 +	7.2	7.5	324	<5
15:05	11.89	0.05	400	9	683 +	7.2	7.5	326	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>33.26</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WVNW-MW-202B
Kent County, MI

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Well	WVNW-MW-202B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	30, snow
Sampler Initials	JN
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	62.3 - 67.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 14:50.
Initial Water Level Date/Time	01/11/2024 14:30
Initial Water Level Depth (ft bmp)	12.02
Pump/Tubing Intake Depth (ft bmp)	64.8
Tubing Length (ft)	67.8
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 14:35
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 15:20:00, Bottling-Stop: 01/11/2024 15:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:40	12.04	0.02	325	NR	NR	NR	NR	NR	NR
14:50	12.05	0.03	325	10	664	6.0	7.4	204	<5
14:55	12.05	0.03	325	10	663	5.8	7.4	205	<5
15:05	12.06	0.04	325	10	663	5.5	7.4	213	<5
15:10	12.06	0.04	325	10	663	5.5	7.4	215	<5
15:15	12.06	0.04	325	10	663	5.5	7.4	218	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>52.78</u>
Total Drawdown (ft)	<u>0.04</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WVNW-MW-203
Kent County, MI

16.0062961.52
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Well	WVNW-MW-203 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	JB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.9 - 18.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Pump stalled when attempted to purge under 150 mL/min. YSI Connected at 11:40. Last 3 readings are not 5 minutes apart per the Standard Operating Procedure (SOP). GZA does not believe this impacts data quality.
Initial Water Level Date/Time	01/10/2024 11:10
Initial Water Level Depth (ft bmp)	16.01
Pump/Tubing Intake Depth (ft bmp)	17.45
Tubing Length (ft)	20.45
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 11:15
Total Purge Volume (gal)	1
Modified Sample	Yes
If Modified, Reasoning	Static water level was below the top of the well screen.
Sample Collection Information	Bottling-Start: 01/10/2024 12:10:00, Bottling-Stop: 01/10/2024 12:15:00, Parameters-Sampled: PFAS

Hbe									
Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:20	16.01	0.00	150	NR	NR	NR	NR	NR	NR
11:30	16.01	0.00	150	NR	NR	NR	NR	NR	NR
11:35	16.01	0.00	150	NR	NR	NR	NR	NR	NR
11:40	16.01	0.00	150	9	318 +	7.6	7.1	292	<5
11:50	16.01	0.00	150	9	326 +	7.7	7.2	291	<5
11:55	16.01	0.00	150	9	328 +	7.7	7.2	293	<5
12:05	16.01	0.00	150	10	330 +	7.7	7.3	290	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>1.44</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - AREA19-MW-7A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-7A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/09/2024
Weather	Snow, 34
Sampler Initials	JB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.7 - 13.7
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 15:15.
Initial Water Level Date/Time	01/09/2024 14:40
Initial Water Level Depth (ft bmp)	4.89
Pump/Tubing Intake Depth (ft bmp)	11.2
Tubing Length (ft)	14.2
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/09/2024 14:45
Total Purge Volume (gal)	2.64
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/09/2024 15:35:00, Bottling-Stop: 01/09/2024 15:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:55	4.89	0.00	200	NR	NR	NR	NR	NR	NR
15:05	4.89	0.00	200	NR	NR	NR	NR	NR	NR
15:15	4.89	0.00	200	9	850	3.5	7.4	175	<5
15:20	4.89	0.00	200	9	848	3.5	7.3	175	<5
15:30	4.89	0.00	200	9	851	3.6	7.4	174	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>6.31</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - AREA19-MW-221A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-221A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	Foggy, 39F
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 4, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	15.5 - 20.5
Measured Bottom Depth (ft bmp)	NR
Sample Comment	14:20: Water level stablized and YSI connected.
Initial Water Level Date/Time	01/25/2024 14:05
Initial Water Level Depth (ft bmp)	13.06
Pump/Tubing Intake Depth (ft bmp)	18
Tubing Length (ft)	20
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 14:10
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 14:50:00, Bottling-Stop: 01/25/2024 14:55:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:20	13.13	0.07	120	NR	NR	NR	NR	NR	<5
14:35	13.13	0.07	120	9	611 +	3.7	7.2	132	<5
14:40	13.13	0.07	120	9	610 +	3.8	7.3	125	<5
14:45	13.13	0.07	120	9	610 +	3.8	7.3	123	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	4.94
Total Drawdown (ft)	0.07
Calculated Final Purge Volume (gal)	NA
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - AREA19-MW-221B
Kent County, MI

16.0062961.52
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Well	AREA19-MW-221B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	39 Cloudy
Sampler Initials	JMS
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.5 - 49.5
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	01/25/2024 14:05
Initial Water Level Depth (ft bmp)	12.51
Pump/Tubing Intake Depth (ft bmp)	47
Tubing Length (ft)	52
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 14:10
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 14:55:00, Bottling-Stop: 01/25/2024 15:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:30	12.51	0.00	100	9	603 +	6.1	7.2	247	<5
14:35	12.51	0.00	100	9	602 +	5.9	7.2	257	<5
14:40	12.51	0.00	100	9	602 +	5.9	7.2	266	<5
14:45	12.51	0.00	100	9	602 +	5.8	7.2	269	<5
14:50	12.51	0.00	100	9	602 +	5.9	7.2	274	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>34.49</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - AREA19-MW-222
Kent County, MI

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Well	AREA19-MW-222 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	Cloudy, mid 30s
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	9.3 - 14.3
Measured Bottom Depth (ft bmp)	14.3
Sample Comment	
Initial Water Level Date/Time	01/25/2024 13:15
Initial Water Level Depth (ft bmp)	6.76
Pump/Tubing Intake Depth (ft bmp)	11.8
Tubing Length (ft)	14
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 13:20
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 14:15:00, Bottling-Stop: 01/25/2024 14:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:45	6.83	0.07	125	7	641 +	0.7	7.3	-3	11
13:50	6.84	0.08	125	7	639 +	0.7	7.3	-7	7
13:55	6.84	0.08	125	8	640 +	0.6	7.3	-13	8
14:00	6.84	0.08	125	7	640 +	0.7	7.3	-22	6
14:05	6.84	0.08	125	8	638 +	0.6	7.3	-27	6
14:10	6.84	0.08	125	8	639 +	0.6	7.3	-31	6

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.04</u>
Total Drawdown (ft)	<u>0.08</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - AREA19-MW-223
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-223 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/24/2024
Weather	Rain, 30s
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.9 - 12.9
Measured Bottom Depth (ft bmp)	12.9
Sample Comment	Collected AECOM split sample. Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	01/24/2024 15:35
Initial Water Level Depth (ft bmp)	4.65
Pump/Tubing Intake Depth (ft bmp)	10.4
Tubing Length (ft)	13
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/24/2024 15:40
Total Purge Volume (gal)	2.3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/24/2024 16:20:00, Bottling-Stop: 01/24/2024 16:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
16:05	4.68	0.03	250	7	879 +	0.9	6.8	-118	<5
16:10	4.69	0.04	250	7	878 +	0.9	6.8	-119	<5
16:15	4.68	0.03	250	7	876 +	0.9	6.7	-121	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>5.75</u>
Total Drawdown (ft)	<u>0.03</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - AREA19-MW-224
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-224 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	Cloudy, mid 30s
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	12.1
Sample Comment	Water level initially dropped at lowest pump setting.
Initial Water Level Date/Time	01/25/2024 15:00
Initial Water Level Depth (ft bmp)	3.35
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 15:05
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 16:00:00, Bottling-Stop: 01/25/2024 16:10:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:45	3.80	0.45	60	6	1,340 +	1.4	7.3	77	5
15:50	3.80	0.45	60	6	1,341 +	1.3	7.3	76	5
15:55	3.80	0.45	60	6	1,348 +	1.3	7.3	74	5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	6.25
Total Drawdown (ft)	0.45
Calculated Final Purge Volume (gal)	0.09
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - AREA19-MW-225A
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-225A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	36 Cloudy
Sampler Initials	JMS
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 4, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.6 - 12.6
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	01/25/2024 10:55
Initial Water Level Depth (ft bmp)	5.67
Pump/Tubing Intake Depth (ft bmp)	10.1
Tubing Length (ft)	15.1
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 11:00
Total Purge Volume (gal)	5.25
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 11:55:00, Bottling-Stop: 01/25/2024 12:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:10	5.69	0.02	400	7	1,136 +	<0.5	7.0	48	<5
11:15	5.69	0.02	400	7	1,134 +	<0.5	7.0	40	<5
11:20	5.69	0.02	400	7	1,131 +	<0.5	7.0	26	<5
11:25	5.69	0.02	400	7	1,132 +	<0.5	7.1	16	<5
11:30	5.69	0.02	400	7	1,131 +	<0.5	7.1	3	<5
11:35	5.69	0.02	400	7	1,131 +	<0.5	7.1	-5	<5
11:40	5.69	0.02	400	7	1,129 +	<0.5	7.1	-12	<5
11:45	5.69	0.02	400	7	1,127 +	<0.5	7.1	-17	<5
11:50	5.69	0.02	400	7	1,128 +	<0.5	7.1	-22	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>4.43</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - AREA19-MW-225B
 Kent County, MI

16.0062961.52
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Well	AREA19-MW-225B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	Foggy, 35F
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	32.9 - 37.9
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Water level stabilized at 11:35.
Initial Water Level Date/Time	01/25/2024 10:50
Initial Water Level Depth (ft bmp)	5.13
Pump/Tubing Intake Depth (ft bmp)	35.4
Tubing Length (ft)	38
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 10:55
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 12:25:00, Bottling-Stop: 01/25/2024 12:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:05	5.64	0.51	50	NR	NR	NR	NR	NR	NR
11:10	5.76	0.63	50	NR	NR	NR	NR	NR	NR
11:25	5.93	0.80	50	NR	NR	NR	NR	NR	NR
11:30	5.96	0.83	50	NR	NR	NR	NR	NR	NR
11:35	5.98	0.85	50	NR	NR	NR	NR	NR	NR
11:50	5.98	0.85	50	7	1,904 +	1.0	7.3	14	7
12:05	5.98	0.85	50	7	1,905 +	0.7	7.4	-69	5
12:10	5.98	0.85	50	7	1,907 +	0.6	7.4	-79	5
12:15	5.98	0.85	50	8	1,902 +	0.6	7.4	-85	5
12:20	5.98	0.85	50	8	1,905 +	0.6	7.4	-88	5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization?

Yes
- 4) Was the two hour time limit reached?

No
- 5) Calculations:

Head Above Pump Intake (ft)

30.27

 Total Drawdown (ft)

0.85

 Calculated Final Purge Volume (gal)

0.18
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume?

Yes

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - AREA19-MW-226A
Kent County, MI

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Well	AREA19-MW-226A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	Snow 30
Sampler Initials	JN
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-2, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 11.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 12:05.
Initial Water Level Date/Time	01/11/2024 11:40
Initial Water Level Depth (ft bmp)	5.92
Pump/Tubing Intake Depth (ft bmp)	9.1
Tubing Length (ft)	13.1
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 11:45
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 12:35:00, Bottling-Stop: 01/11/2024 12:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:50	5.94	0.02	100	NR	NR	NR	NR	NR	NR
12:05	5.95	0.03	100	7	805	<0.5	6.8	-35	<5
12:15	5.95	0.03	100	7	799	<0.5	6.8	-48	<5
12:20	5.95	0.03	100	7	787	<0.5	6.8	-54	<5
12:25	5.95	0.03	100	7	780	<0.5	6.8	-56	<5
12:30	5.95	0.03	100	7	773	<0.5	6.8	-57	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 - Head Above Pump Intake (ft) 3.18
 - Total Drawdown (ft) 0.03
 - Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - AREA19-MW-226B
Kent County, MI

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Well	AREA19-MW-226B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	Snowy 30
Sampler Initials	JB
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	12.8 - 17.8
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 12:05. Last 3 readings were not 5 minutes apart per the Standard Operating Procedure (SOP). GZA does not believe this impacts data quality.
Initial Water Level Date/Time	01/11/2024 11:30
Initial Water Level Depth (ft bmp)	5.49
Pump/Tubing Intake Depth (ft bmp)	15.3
Tubing Length (ft)	18.3
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 11:35
Total Purge Volume (gal)	3
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 12:35:00, Bottling-Stop: 01/11/2024 12:40:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:45	5.54	0.05	200	NR	NR	NR	NR	NR	NR
11:55	5.54	0.05	200	NR	NR	NR	NR	NR	NR
12:05	5.54	0.05	200	8	631 +	3.1	7.2	261	<5
12:15	5.54	0.05	200	8	629 +	2.5	7.3	263	<5
12:25	5.54	0.05	200	8	629 +	2.5	7.3	264	<5
12:30	5.54	0.05	200	8	629 +	2.5	7.3	265	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>9.81</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WV/CH-MW-240
Kent County, MI

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Well	WV/CH-MW-240 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	Snow 30
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: NA, Centrifugal-Pump: Mega Monsoon #1
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: GeoTech Rental
Reference Measuring Point	PVC
Well Screen (ft bmp)	63.0 - 68.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	Water was observed to be very turbid and out of range of the turbidimeter at the beginning of the purge. Connected YSI at 15:10.
Initial Water Level Date/Time	01/11/2024 14:10
Initial Water Level Depth (ft bmp)	31.55
Pump/Tubing Intake Depth (ft bmp)	65.5
Tubing Length (ft)	68
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 14:20
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 15:25:00, Bottling-Stop: 01/11/2024 15:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:25	31.70	0.15	200	NR	NR	NR	NR	NR	>999
14:30	31.75	0.20	200	NR	NR	NR	NR	NR	>999
14:35	31.70	0.15	150	NR	NR	NR	NR	NR	>999
15:10	31.70	0.15	150	11	802	5.1	7.3	238	<5
15:15	31.70	0.15	150	11	801	4.9	7.3	234	<5
15:20	31.70	0.15	150	11	805	4.8	7.3	231	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 - Head Above Pump Intake (ft) 33.95
 - Total Drawdown (ft) 0.15
 - Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WV/CH-MW-241A
Kent County, MI

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Well	WV/CH-MW-241A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/17/2024
Weather	12 Snow
Sampler Initials	JMS
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	23.7 - 28.7
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	01/17/2024 11:35
Initial Water Level Depth (ft bmp)	22.31
Pump/Tubing Intake Depth (ft bmp)	26.2
Tubing Length (ft)	31.2
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/17/2024 11:40
Total Purge Volume (gal)	1.1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/17/2024 12:20:00, Bottling-Stop: 01/17/2024 12:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
11:50	22.32	0.01	120	11	1,126 +	7.0	7.1	220	<5
11:55	22.32	0.01	120	11	1,127 +	6.7	7.3	235	<5
12:00	22.32	0.01	120	11	1,121 +	6.7	7.3	246	<5
12:05	22.32	0.01	120	11	1,112 +	6.7	7.3	253	<5
12:10	22.32	0.01	120	11	1,111 +	6.8	7.4	257	<5
12:15	22.32	0.01	120	10	1,098 +	6.7	7.4	262	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>3.89</u>
Total Drawdown (ft)	<u>0.01</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - WV/CH-MW-241B
Kent County, MI

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Well	WV/CH-MW-241B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/17/2024
Weather	12F, Snowy, Windy
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	55.9 - 60.9
Measured Bottom Depth (ft bmp)	60.9
Sample Comment	12:25: YSI connected
Initial Water Level Date/Time	01/17/2024 11:45
Initial Water Level Depth (ft bmp)	22.30
Pump/Tubing Intake Depth (ft bmp)	58.4
Tubing Length (ft)	60
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/17/2024 11:55
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/17/2024 12:45:00, Bottling-Stop: 01/17/2024 12:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:00	22.30	0.00	120	NR	NR	NR	NR	NR	35
12:20	22.30	0.00	120	NR	NR	NR	NR	NR	17
12:25	22.30	0.00	120	7	758	6.6	7.3	274	10
12:30	22.30	0.00	120	7	758	6.1	7.3	283	<5
12:35	22.30	0.00	120	7	754	5.7	7.2	291	<5
12:40	22.30	0.00	120	7	755	5.6	7.2	292	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 - Head Above Pump Intake (ft) 36.10
 - Total Drawdown (ft) 0.00
 - Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - WV/CH-MW-242A
 Kent County, MI

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Well	WV/CH-MW-242A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: NA, Centrifugal-Pump: Mega Monsoon #1
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	40.0 - 45.0
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 13:55. 14:30: Collected Field Blank (JB); 14:40: Collected Field Blank (JN).
Initial Water Level Date/Time	01/10/2024 13:25
Initial Water Level Depth (ft bmp)	36.78
Pump/Tubing Intake Depth (ft bmp)	42.5
Tubing Length (ft)	45
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 13:30
Total Purge Volume (gal)	4
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/10/2024 14:30:00, Bottling-Stop: 01/10/2024 14:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:40	36.95	0.17	250	NR	NR	NR	NR	NR	NR
13:45	36.95	0.17	250	NR	NR	NR	NR	NR	NR
13:55	36.95	0.17	250	13	766 +	0.6	7.3	-50	27
14:10	36.95	0.17	250	13	756 +	<0.5	7.3	-66	9
14:15	36.95	0.17	250	13	757 +	<0.5	7.3	-69	<5
14:20	36.95	0.17	250	13	754 +	<0.5	7.3	-70	<5
14:25	36.95	0.17	250	13	756 +	<0.5	7.3	-72	<5

Notes:

- 1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- 2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- 3) Did indicator parameters reach stabilization? Yes
- 4) Was the two hour time limit reached? No
- 5) Calculations:

Head Above Pump Intake (ft)	<u>5.72</u>
Total Drawdown (ft)	<u>0.17</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- 6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - WV/CH-MW-242B
 Kent County, MI

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Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	JN
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 13:55.
Initial Water Level Date/Time	01/10/2024 13:25
Initial Water Level Depth (ft bmp)	17.41
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	70
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 13:30
Total Purge Volume (gal)	1.6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/10/2024 15:30:00, Bottling-Stop: 01/10/2024 15:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:40	17.78	0.37	50	NR	NR	NR	NR	NR	NR
13:50	17.89	0.48	50	NR	NR	NR	NR	NR	NR
13:55	17.89	0.48	50	10	819 +	3.0	7.4	21	<5
14:05	17.97	0.56	50	10	818 +	2.9	7.4	-28	<5
14:15	18.00	0.59	50	10	818 +	3.0	7.4	-28	<5
14:25	18.01	0.60	50	10	817 +	0.7	7.4	-54	<5
14:35	18.09	0.68	50	10	818 +	0.7	7.4	-63	<5
14:45	18.11	0.70	50	10	817 +	1.9	7.4	-65	<5
14:50	18.12	0.71	50	10	818 +	1.8	7.4	-68	<5
14:55	18.14	0.73	50	10	817 +	1.4	7.4	-71	<5
15:00	18.14	0.73	50	10	818 +	1.6	7.4	-74	<5

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - WV/CH-MW-242B
 Kent County, MI

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Well	WV/CH-MW-242B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/10/2024
Weather	Snow 30
Sampler Initials	JN
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	64.4 - 69.4
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 13:55.
Initial Water Level Date/Time	01/10/2024 13:25
Initial Water Level Depth (ft bmp)	17.41
Pump/Tubing Intake Depth (ft bmp)	66.9
Tubing Length (ft)	70
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/10/2024 13:30
Total Purge Volume (gal)	1.6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/10/2024 15:30:00, Bottling-Stop: 01/10/2024 15:35:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:10	18.16	0.75	50	10	817 +	0.5	7.4	-77	<5
15:20	18.18	0.77	50	10	817 +	<0.5	7.4	-76	<5
15:30	18.18	0.75	50	10	817 +	<0.5	7.4	-76	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? No
- Was the two hour time limit reached? Yes
- Calculations:

Head Above Pump Intake (ft)	<u>49.49</u>
Total Drawdown (ft)	<u>0.77</u>
Calculated Final Purge Volume (gal)	<u>0.21</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-29A
Kent County, MI

16.0062961.52
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Well	HS-MW-29A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	Cloudy, 30s
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	6.3 - 16.3
Measured Bottom Depth (ft bmp)	16.3
Sample Comment	NR
Initial Water Level Date/Time	01/11/2024 14:35
Initial Water Level Depth (ft bmp)	6.14
Pump/Tubing Intake Depth (ft bmp)	11.3
Tubing Length (ft)	16
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 14:40
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 15:25:00, Bottling-Stop: 01/11/2024 15:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:05	6.14	0.00	175	8	589 +	2.3	7.0	38 +	42
15:10	6.14	0.00	175	8	592 +	2.3	7.0	38 +	33
15:15	6.14	0.00	175	8	599 +	2.2	7.0	37 +	31
15:20	6.14	0.00	175	8	604 +	2.2	7.0	35 +	32

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>5.16</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - HS-MW-260
 Kent County, MI

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Well	HS-MW-260 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	Cloudy, 30s
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.1 - 13.1
Measured Bottom Depth (ft bmp)	13.1
Sample Comment	Turbidity readings were not collected between 13:35 and 14:00 due to a broken vial.
Initial Water Level Date/Time	01/11/2024 13:20
Initial Water Level Depth (ft bmp)	6.05
Pump/Tubing Intake Depth (ft bmp)	10.6
Tubing Length (ft)	15
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 13:25
Total Purge Volume (gal)	2.75
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 14:25:00, Bottling-Stop: 01/11/2024 14:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:35	6.10	0.05	175	7	731 +	0.8	7.0	36 +	NR
13:40	6.10	0.05	175	8	721 +	0.7	7.0	6 +	NR
13:45	6.10	0.05	175	8	718 +	0.7	7.0	2 +	NR
13:50	6.10	0.05	175	8	712 +	0.8	7.0	-5 +	NR
13:55	6.10	0.05	175	8	703 +	0.8	7.0	-12 +	NR
14:00	6.10	0.05	175	8	698 +	0.9	7.0	-15 +	NR
14:05	6.10	0.05	175	7	680 +	0.9	7.0	-18 +	8
14:10	6.10	0.05	175	8	668 +	0.9	7.0	-21 +	6
14:15	6.10	0.05	175	8	665 +	0.8	7.0	-22 +	6
14:20	6.10	0.05	175	8	660 +	0.8	7.0	-23 +	6

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>4.55</u>
Total Drawdown (ft)	<u>0.05</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet

WWW RAP Field Data
GSI 2024-Q1 - HS-MW-261
Kent County, MI

16.0062961.52

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Well	HS-MW-261 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/22/2024
Weather	Cloudy, 25°
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 4, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.2 - 12.2
Measured Bottom Depth (ft bmp)	12.2
Sample Comment	Last 3 water level readings were not the same per the Standard Operating Procedure (SOP). Other indicator parameters were stable.
Initial Water Level Date/Time	01/22/2024 14:00
Initial Water Level Depth (ft bmp)	4.11
Pump/Tubing Intake Depth (ft bmp)	9.7
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/22/2024 14:05
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/22/2024 15:20:00, Bottling-Stop: 01/22/2024 15:25:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
14:35	4.20 +	0.09	100	8	720	<0.5	7.1	8	46
14:40	4.20 +	0.09	100	8	717	<0.5	7.1	-7	38
14:45	4.21 +	0.10	100	8	717	<0.5	7.1	-21	27
14:50	4.21 +	0.10	100	8	714	<0.5	7.1	-30	21
15:00	4.22 +	0.11	100	8	711	<0.5	7.1	-45	22
15:05	4.22 +	0.11	100	8	710	<0.5	7.1	-49	12
15:10	4.23 +	0.12	100	8	710	<0.5	7.1	-51	13
15:15	4.24 +	0.13	100	8	710	<0.5	7.1	-53	12

Notes:

1) Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.

2) Weather temperature units are in degrees Fahrenheit, unless otherwise noted.

3) Did indicator parameters reach stabilization? No

4) Was the two hour time limit reached? No

5) Calculations:

Head Above Pump Intake (ft) 5.59

Total Drawdown (ft) 0.13

Calculated Final Purge Volume (gal) 0.04

6) If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? Yes

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-262
Kent County, MI

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Well	HS-MW-262 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/22/2024
Weather	Cloudy, 22°
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 4, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	7.1 - 12.1
Measured Bottom Depth (ft bmp)	12.1
Sample Comment	Last 3 water level readings were not the same per Standard Operating Procedure (SOP). Water level meters are considered accurate to +/- 0.01 feet and last 3 readings were within this range. GZA does not believe this impacts data quality.
Initial Water Level Date/Time	01/22/2024 15:40
Initial Water Level Depth (ft bmp)	5.21
Pump/Tubing Intake Depth (ft bmp)	9.6
Tubing Length (ft)	12
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/22/2024 15:45
Total Purge Volume (gal)	1
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/22/2024 16:15:00, Bottling-Stop: 01/22/2024 16:20:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
15:55	5.31	0.10	125	7	754	<0.5	7.4	79	<5
16:00	5.31	0.10	125	7	755	<0.5	7.4	72	<5
16:05	5.31	0.10	125	7	756	<0.5	7.4	67	<5
16:10	5.32	0.11	125	7	754	<0.5	7.4	62	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:
 - Head Above Pump Intake (ft) 4.39
 - Total Drawdown (ft) 0.11
 - Calculated Final Purge Volume (gal) NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
 WWW RAP Field Data
 GSI 2024-Q1 - HS-MW-263A
 Kent County, MI

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Well	HS-MW-263A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/24/2024
Weather	30F, rainy
Sampler Initials	RCP
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: Rental, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 4, Turbidimeter: Agile Rental 4, Water-Level-Meter: WLM-4
Reference Measuring Point	PVC
Well Screen (ft bmp)	8.2 - 13.2
Measured Bottom Depth (ft bmp)	13.2
Sample Comment	
Initial Water Level Date/Time	01/24/2024 15:40
Initial Water Level Depth (ft bmp)	7.59
Pump/Tubing Intake Depth (ft bmp)	10.7
Tubing Length (ft)	11
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/24/2024 15:45
Total Purge Volume (gal)	2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/24/2024 16:25:00, Bottling-Stop: 01/24/2024 16:30:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
16:00	7.63	0.04	120	6	900 +	<0.5	7.0	-27	8
16:05	7.63	0.04	120	6	899 +	<0.5	7.0	-29	9
16:10	7.63	0.04	120	6	898 +	<0.5	7.1	-48	5
16:15	7.63	0.04	120	6	897 +	<0.5	7.1	-56	5
16:20	7.63	0.04	120	6	895 +	<0.5	7.1	-58	5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>3.11</u>
Total Drawdown (ft)	<u>0.04</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-263B
Kent County, MI

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Well	HS-MW-263B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/24/2024
Weather	35 Rain
Sampler Initials	JMS
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-3, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 2, Turbidimeter: Agile Rental 2, Water-Level-Meter: WLM-1
Reference Measuring Point	PVC
Well Screen (ft bmp)	44.3 - 49.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	
Initial Water Level Date/Time	01/24/2024 15:45
Initial Water Level Depth (ft bmp)	6.33
Pump/Tubing Intake Depth (ft bmp)	46.8
Tubing Length (ft)	51.8
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/24/2024 15:50
Total Purge Volume (gal)	2.25
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/24/2024 16:40:00, Bottling-Stop: 01/24/2024 16:45:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
16:25	6.35	0.02	200	9	800 +	1.8	7.2	333	<5
16:30	6.35	0.02	200	9	801 +	1.8	7.2	335	<5
16:35	6.35	0.02	200	9	799 +	1.8	7.2	334	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>40.47</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-264
Kent County, MI

16.0062961.52
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Well	HS-MW-264 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/25/2024
Weather	Cloudy, Mid 30s
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 1, Turbidimeter: Agile Rental 1, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	25.0 - 30.0
Measured Bottom Depth (ft bmp)	30
Sample Comment	11:00: Collected DUP
Initial Water Level Date/Time	01/25/2024 10:20
Initial Water Level Depth (ft bmp)	21.13
Pump/Tubing Intake Depth (ft bmp)	27.5
Tubing Length (ft)	30
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/25/2024 10:25
Total Purge Volume (gal)	2.75
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/25/2024 11:00:00, Bottling-Stop: 01/25/2024 11:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
10:45	21.14	0.01	300	10	762 +	6.2	7.1	144	<5
10:50	21.14	0.01	300	10	765 +	6.0	7.1	144	<5
10:55	21.14	0.01	300	10	768 +	5.9	7.1	144	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization?

Yes
- Was the two hour time limit reached?

No
- Calculations:

Head Above Pump Intake (ft)

6.37

Total Drawdown (ft)

0.01

Calculated Final Purge Volume (gal)

NA
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume?

NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-265
Kent County, MI

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Well	HS-MW-265 / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/11/2024
Weather	Snow 30
Sampler Initials	NCK
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: NA, Centrifugal-Pump: Mega Monsoon #1
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: GeoTech Rental
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.3 - 18.3
Measured Bottom Depth (ft bmp)	NR
Sample Comment	YSI Connected at 12:30.
Initial Water Level Date/Time	01/11/2024 11:40
Initial Water Level Depth (ft bmp)	7.76
Pump/Tubing Intake Depth (ft bmp)	15.8
Tubing Length (ft)	19
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/11/2024 11:50
Total Purge Volume (gal)	6
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/11/2024 13:00:00, Bottling-Stop: 01/11/2024 13:05:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:00	7.78	0.02	400	NR	NR	NR	NR	NR	NR
12:15	7.78	0.02	400	NR	NR	NR	NR	NR	NR
12:30	7.78	0.02	400	11	839	3.7	7.3	214	<5
12:35	7.78	0.02	400	11	839	3.6	7.3	226	<5
12:45	7.78	0.02	400	11	839	3.4	7.3	236	<5
12:50	7.78	0.02	400	11	839	3.4	7.3	235	<5
12:55	7.78	0.02	400	11	839	3.4	7.3	237	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; and "us/cm" indicates microsiemens per centimeter
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>8.04</u>
Total Drawdown (ft)	<u>0.02</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-266A
Kent County, MI

16.0062961.52
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Well	HS-MW-266A / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/23/2024
Weather	Cloudy, 32°, rain off and on
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	13.2 - 18.2
Expected Well Bottom Depth (ft bmp)	18.2
Sample Comment	NR
Initial Water Level Date/Time	01/23/2024 12:05
Initial Water Level Depth (ft bmp)	4.23
Pump/Tubing Intake Depth (ft bmp)	15.7
Tubing Length (ft)	18
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/23/2024 12:15
Total Purge Volume (gal)	1.5
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/23/2024 12:55:00, Bottling-Stop: 01/23/2024 13:00:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
12:40	4.23	0.00	135	11	731 +	3.6 +	7.4	113	<5
12:45	4.23	0.00	135	11	732 +	3.4 +	7.4	116	<5
12:50	4.23	0.00	135	11	736 +	3.3 +	7.4	119	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>11.47</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA

Well Sampling Worksheet
WWW RAP Field Data
GSI 2024-Q1 - HS-MW-266B
Kent County, MI

16.0062961.52
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Well	HS-MW-266B / 2 in Diameter PVC
Sample Quarter	2024-Q1
Date	01/23/2024
Weather	Cloudy, 33°, rain.
Sampler Initials	CBM
Purging Device	Bladder-Pump: NA, Peristaltic-Pump: PER-1, Centrifugal-Pump: NA
Meters Used	YSI: Agile Rental 3, Turbidimeter: Agile Rental 3, Water-Level-Meter: WLM-2
Reference Measuring Point	PVC
Well Screen (ft bmp)	53.0 - 58.0
Measured Bottom Depth (ft bmp)	58
Sample Comment	NR
Initial Water Level Date/Time	01/23/2024 13:00
Initial Water Level Depth (ft bmp)	4.17
Pump/Tubing Intake Depth (ft bmp)	55.5
Tubing Length (ft)	58.5
Tubing Inner Diameter (in)	0.17
Purging Initiation Date/Time	01/23/2024 13:05
Total Purge Volume (gal)	2.2
Modified Sample	No
If Modified, Reasoning	
Sample Collection Information	Bottling-Start: 01/23/2024 13:45:00, Bottling-Stop: 01/23/2024 13:50:00, Parameters-Sampled: PFAS

Reading Time	Depth To Water (ft)	Cumulative Drawdown (ft)	Purge Rate (ml/min)	Temperature (deg c)	Specific Conductivity (us/cm)	Dissolved Oxygen (mg/l)	pH (su)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
13:30	4.17	0.00	150	11	779 +	2.3 +	7.4	-28	<5
13:35	4.17	0.00	150	11	780 +	2.2 +	7.4	-28	<5
13:40	4.17	0.00	150	11	782 +	2.2 +	7.4	-28	<5

Notes:

- Abbreviations include: "deg c" indicates degrees Celsius; "ft" indicates feet; "ft bmp" indicates feet below reference measuring point; "gal" indicates gallons; "in" indicates inches; "mg/l" indicates milligrams per liter; "ml/min" indicates milliliters per minute; "mV" indicates millivolts; "NA" indicates not applicable; "NR" indicates not recorded; "ntu" indicates Nephelometric Turbidity units; "su" indicates standard units; "us/cm" indicates microsiemens per centimeter; and "+" indicates the parameter(s) may be used for stabilization calculations but cannot be used for other purposes.
- Weather temperature units are in degrees Fahrenheit, unless otherwise noted.
- Did indicator parameters reach stabilization? Yes
- Was the two hour time limit reached? No
- Calculations:

Head Above Pump Intake (ft)	<u>51.33</u>
Total Drawdown (ft)	<u>0.00</u>
Calculated Final Purge Volume (gal)	<u>NA</u>
- If Drawdown Did Not Stabilize or Stabilized Drawdown >0.3 ft, is Total Purge Volume > Calculated Final Purge Volume? NA