

BURGESS & NIPLE

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Mr. Michael B. Nixon
Superintendent
City of Lancaster, Ohio
Water/Water Pollution Control
800 Lawrence Street
Lancaster, OH 43130-9401

Re: Statistical Analysis –
April 2017 Monitoring Event
Lancaster Miller Park Source Water
Assessment and Protection Program

May 19, 2017

Dear Mr. Nixon:

Burgess & Niple, Inc. (B&N) has prepared this report regarding the City of Lancaster, Ohio (City) Miller Park Source Water Assessment and Protection (SWAP) program (also known as the Wellhead Protection Program) to present the results of the latest statistical analyses completed on groundwater quality data obtained from the monitoring wells included in the SWAP program groundwater monitoring network. The City's SWAP program for their Miller Park Wellfield was endorsed by the Ohio Environmental Protection Agency (EPA) on April 18, 1997 (one of the first in the State of Ohio) along with the associated Groundwater Monitoring Plan. One of the objectives of the SWAP program is to establish and monitor the groundwater quality within one-year and five-year time-of-travel zones around the Miller Park Wellfield. Groundwater sampling was conducted quarterly for the first two years of implementation of the groundwater monitoring program. Subsequently, semiannual groundwater sampling was initiated in 1998. After 10 years of monitoring, the Superintendent of Water for the City has determined the sampling frequency in which the SWAP monitoring well network is sampled, which has typically been completed on a semiannual basis.

The groundwater monitoring program includes sampling of groundwater monitoring wells positioned around the Miller Park Wellfield and analyzing those samples for a designated list of potential constituents of concern (COCs). The analytical results are compared to U.S. EPA Primary and Secondary Maximum Contaminant Levels (MCLs) and Action Levels. These procedures are consistent with the Ohio EPA standards typical for a SWAP program in Ohio.

The City proactively initiated statistical analysis of the groundwater quality data in 2016 due to concerns regarding arsenic concentrations in groundwater within the vicinity of the Miller Park potable water supply wellfield. Specifically, the City received complaints that groundwater quality may have been impacted by construction activities associated with the new County Jail site at 342 W. Wheeling Street in Lancaster, Ohio, which is located along the south side of the Miller Park wellfield. B&N submitted a letter dated December 8, 2015 to the City that documented that arsenic is naturally occurring in groundwater within the Wisconsinan Epoch glacial deposits. These glacial deposits are distributed throughout the Midwest and underlie the Miller Park Wellfield and surrounding area. The letter also stated that multiple Central Ohio municipalities have naturally occurring arsenic concentrations in groundwater within the sand and gravel aquifer that are above the U.S. EPA Primary MCL of 10 micrograms per liter ($\mu\text{g/l}$). Concentrations in the vicinity of the Miller Park potable water supply wellfield have been documented to be more than 5 times higher than the U.S. EPA Primary MCL in the pre-treatment groundwater. However, some of the lowest arsenic concentrations have been reported in the vicinity of the new County Jail site. Although elevated concentrations of arsenic have been documented in the SWAP program monitoring wells and the City potable water supply wells, the existing treatment process at the City's water treatment facility has been effective at reducing these

naturally occurring concentrations within the sand and gravel aquifer to levels that are below the U.S. EPA Primary MCL in finished drinking water prior to distribution to the community. Completion of these statistical analyses will provide the City with an indication as to whether their water treatment process may need to be reevaluated to make sure the treated potable water supply continues to meet the applicable regulatory water quality standards.

The Groundwater Monitoring Plan for the Miller Park Wellfield defines a groundwater monitoring network of eight shallow monitoring wells (MW-1S, MW-2, MW-3, MW-4S, MW-5S, MW-6S, MW-7, and MW-8) and four deep monitoring wells (MW-1D, MW-4D, MW-5D, and MW-6D). Two additional monitoring wells (MW-9S within the shallow zone and MW-9D within the deep zone) were added to the monitoring network in 2015 to evaluate groundwater quality migrating toward the Miller Park Wellfield from the new County Jail site. **Figure 1** included in **Attachment 1** displays each of the monitoring well locations. The monitoring wells are sampled semiannually and analyzed for a list of various metals, inorganics, and volatile organic compounds (VOCs).

Statistical analyses were completed to identify trends of concentrations of those constituents that are monitored semiannually and have a U.S. EPA Primary MCL, which could pose a threat to human health or the environment. These parameters include antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, mercury, selenium, thallium, and various VOCs. Except for arsenic, barium, and selenium, concentrations of each of the COCs were reported below the laboratory detection limit in each of the monitoring wells during the April 2017 monitoring event and were, thus, not evaluated. The following are the U.S. EPA Primary MCLs for the constituents detected in one or more of the monitoring wells during the most recent monitoring event:

Parameter	U.S. EPA Primary MCL
Arsenic	10 µg/l
Barium	2,000 µg/l
Selenium	50 µg/l

The following summarizes the parameters detected and statistically evaluated during the April 2017 monitoring event by monitoring well:

Well	Parameter
Shallow Zone	
MW-1S	Barium
MW-2	Barium
MW-3	Arsenic and Barium
MW-4S	Arsenic and Barium
MW-5S	Barium
MW-6S	Barium
MW-7	Arsenic and Barium
MW-8	Barium and Selenium
MW-9S	Arsenic and Barium
Deep Zone	
MW-1D	Arsenic and Barium
MD-4D	Arsenic and Barium
MW-5D	Arsenic and Barium
MW-6D	Arsenic and Barium
MW-9D	Arsenic and Barium

Groundwater quality data were analyzed using Mann-Kendall trend analyses and time-versus-concentration plots. These statistical analyses were performed to identify trends and determine whether groundwater migrating towards the wellfield is a concern. Below are the results and discussions of these analyses. **Tables 1 and 2 in Attachment 2** include the historical groundwater quality data for the shallow zone and deep zone monitoring network, respectively, since 1995.

Regulatory Limit Exceedances

Of the analytical results reported for the April 2017 monitoring event, the following concentrations exceeded the respective U.S. EPA Primary MCL:

Well	Parameter	Concentration	MCL
MW-3	Arsenic	39 µg/l	10 µg/l
MW-5D	Arsenic	14.5 µg/l	10 µg/l

As discussed above, naturally occurring arsenic concentrations have previously been documented to be above the U.S. Primary MCL within the sand and gravel deposits in the region. Historical arsenic concentrations have ranged from 1.9 µg/l to 28 µg/l in MW-3 and from 7.0 µg/l to 53 µg/l in MW-5D. The April 2017 arsenic result reported for MW-3 is the highest value reported for that well to date. The City indicated that MW-3 was recently rehabilitated, which could account for the most recent elevated result.

Mann-Kendall Trend Analyses

In order to determine whether there is evidence of a statistically significant increasing or decreasing trend in concentrations, two-tailed Mann-Kendall trend analyses were completed. Analytical results reported from the initiation of the groundwater monitoring program in October 1995 through the most recent monitoring event were assessed to identify overall trends in concentration. Trends were determined to be statistically significant if the two-tailed test for an increasing trend or the two-tailed test for a decreasing trend was at or below an alpha of 0.02 (0.01 for each test). Copies of the two-tailed Mann-Kendall trend analyses are included in **Attachment 3**.

Based upon the trend analyses, the following constituents were identified to have an overall statistically increasing trend in concentration since October 1995:

Shallow Wells:

- Barium in MW-1S, MW-4S, MW-8, and MW-9S;
- Selenium in MW-8; and,

Deep Wells

- Barium in MW-1D.

For those tests that were identified to indicate an overall statistically increasing trend since initiating the monitoring program, subsequent tests were completed on the ten most recent results to determine whether a statistical trend is evident over the latest sample data. Except for barium in MW-4S and MW-9S, no evidence of a statistically significant increasing trends were present, indicating that concentrations of these constituents have generally recently stabilized.

Evidence of overall groundwater quality improvements were identified by the determination of statistically significant decreasing trends in concentration for barium in MW-5S and MW-6D.

Time-Versus-Concentration Plots

The methodology of the Mann-Kendall trend analysis identifies the number of higher results compared to the number of lower results and determines whether there is statistical evidence that there are a significant amount of higher or lower results than the other. However, the test does not account for the magnitude in the difference of the individual results. Time-versus-concentration plots were constructed for each of the detected constituents with U.S. EPA Primary MCLs that were determined to have an overall statistically increasing trend during the April 2017 monitoring event. These plots provide a means to visually assess whether one or more historical values may be the cause of an overall increasing trend. Additional time-versus-concentration plots were completed on only the ten most recent results. Copies of the time-versus-concentration plots are provided in **Attachment 4**.

Based upon the time-versus-concentration plots, the following conclusions were made:

- The barium result reported for MW-1S in July 1996 (<200 µg/l) generated a lower concentration compared to the remaining data set when entered into the database as one-half the detection limit, which causes subsequent results to be viewed as an increasing trend. Upon looking at the 10 most recent results, only a slight increasing trend in concentrations is visually observed and the Mann-Kendall trend test concluded that there was no recent statistically significant increasing trend. Results (160 µg/l to 228 µg/l) are well below the U.S. EPA Primary MCL of 2,000 µg/l.
- Barium concentrations reported for MW-4S appear to be increasing, both from the beginning of sampling as well as the 10 most recent results. The two most recent results are the highest reported to date. However, all results (469 µg/l to 721 µg/l) remain to be less than one half the U.S. EPA Primary MCL of 2,000 µg/l.
- The barium result reported for MW-8 in July 1996 (<200 µg/l) generated a higher concentration compared to the remaining data set when entered into the database as one-half the detection limit, and an overall increasing trend is observed. Upon looking at the 10 most recent results, a recent increasing trend is also observed. However, concentrations only vary between 48 µg/l and 65 µg/l, which are well below the U.S. EPA Primary MCL of 2,000 µg/l, and the Mann-Kendall trend test concluded that there was no recent statistically significant increasing trend.
- Barium concentrations in MW-9S depict an overall increasing trend. However, data has only been collected from this well since April 2015, the well has been sampled on a more frequent basis than semiannually, and the increasing trend may be a result of seasonal fluctuations. Concentrations (393 µg/l to 571 µg/l) remain to be less than one half the U.S. EPA Primary MCL of 2,000 µg/l.
- Barium results reported for MW-1D since 1995 depict an overall increasing trend. Upon looking at the 10 most recent results, an increasing trend in concentrations is also visually observed. However, the Mann-Kendall trend test on the 10 most recent results concluded that there was no recent statistically significant increasing trend and results (230 µg/l to 373 µg/l) are well below the U.S. EPA Primary MCL of 2,000 µg/l.
- The selenium concentrations reported for MW-8 had a stretch of results reported as <5.0 µg/l between February 1997 and May 2001, which generated an overall increasing trend for subsequent detected concentrations. When looking at the 10 most recent results, a decreasing trend in concentrations is observed. All concentrations (<5.0 µg/l to 16.6 µg/l) are well below the U.S. EPA Primary MCL of 50 µg/l.

Conclusions

The latest arsenic concentrations reported for MW-3 and MW-5D exceeded the U.S. EPA Primary MCL. However, based upon the Mann-Kendall trend analyses, no statistically significant increasing trends in arsenic concentrations

were identified in these wells. As discussed above and in the December 8, 2015 letter, arsenic is a naturally occurring element in the subsurface of the Midwest. Although elevated concentrations of arsenic have been documented in the SWAP program monitoring wells and the City potable water supply wells, the existing treatment process at the City's water treatment facility has been effective at reducing these naturally occurring concentrations within the sand and gravel aquifer to levels that are below the U.S. EPA Primary MCL in finished drinking water prior to distribution to the community.

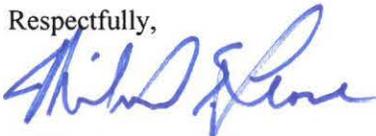
Although barium concentrations were determined to have a statistically significant increasing trend in MW-1S, MW-4S, MW-8, MW-9S, and MW-1D, the 10 most recent analytical results concluded that there were no recent trends in MW-1S, MW-8, or MW-1D. The time-versus-concentration plots generated for both the entire data sets and the 10 most recent results for barium in MW-4S and MW-9S depict increasing trends; however, all barium results in MW-4S and MW-9S have been less than one half the U.S. EPA Primary MCL of 2,000 µg/l. Also, data has only been collected from MW-9S since April 2015 and the well has been sampled on a more frequent basis than semiannually, which may have generated an increasing trend as a result of seasonal fluctuations.

Selenium concentrations in MW-8 had a stretch of results reported as <5.0 µg/l between February 1997 and May 2001, which generated an overall increasing trend for subsequent detected concentrations. Upon looking at the 10 most recent results, a decreasing trend in concentrations is observed. All results have been well below the U.S. EPA Primary MCL of 50 µg/l.

There is no indication that concentrations of antimony, beryllium, cadmium, chromium, cyanide, mercury, thallium, or any of the various organic compounds with U.S. EPA Primary MCLs monitored as part of the City's SWAP program for the Miller Park Wellfield will pose an issue with the City's water treatment facility, as each of these COCs was nondetect in each of the monitoring wells during the April 2017 monitoring event. Based upon the statistical analyses and time-versus-concentration plots completed on the detected arsenic, barium, and selenium results, it does not appear that groundwater quality surrounding the Miller Park Wellfield is changing at a rate that would cause the need to reevaluate the water treatment facility operations at this time as long as current treatment procedures remain in place. Moreover, based upon the data gathered to date, there is no indication of a release in the vicinity of the Miller Park Wellfield that would pose an immediate threat to the ability of the City's water treatment facility to meet Primary Drinking Water Standards.

If you have any questions, please do not hesitate to call.

Respectfully,



Michael E. Leone, CPG-10767
Project Director

MEL:cmc
Attachments

ATTACHMENT 1

FIGURES



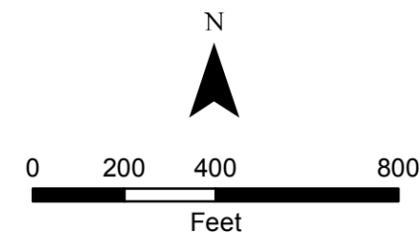
LEGEND

-  M.P. Monitoring Wells
-  Streets
-  2012 Ortho Imagery
-  M.P. Water Supply Wells

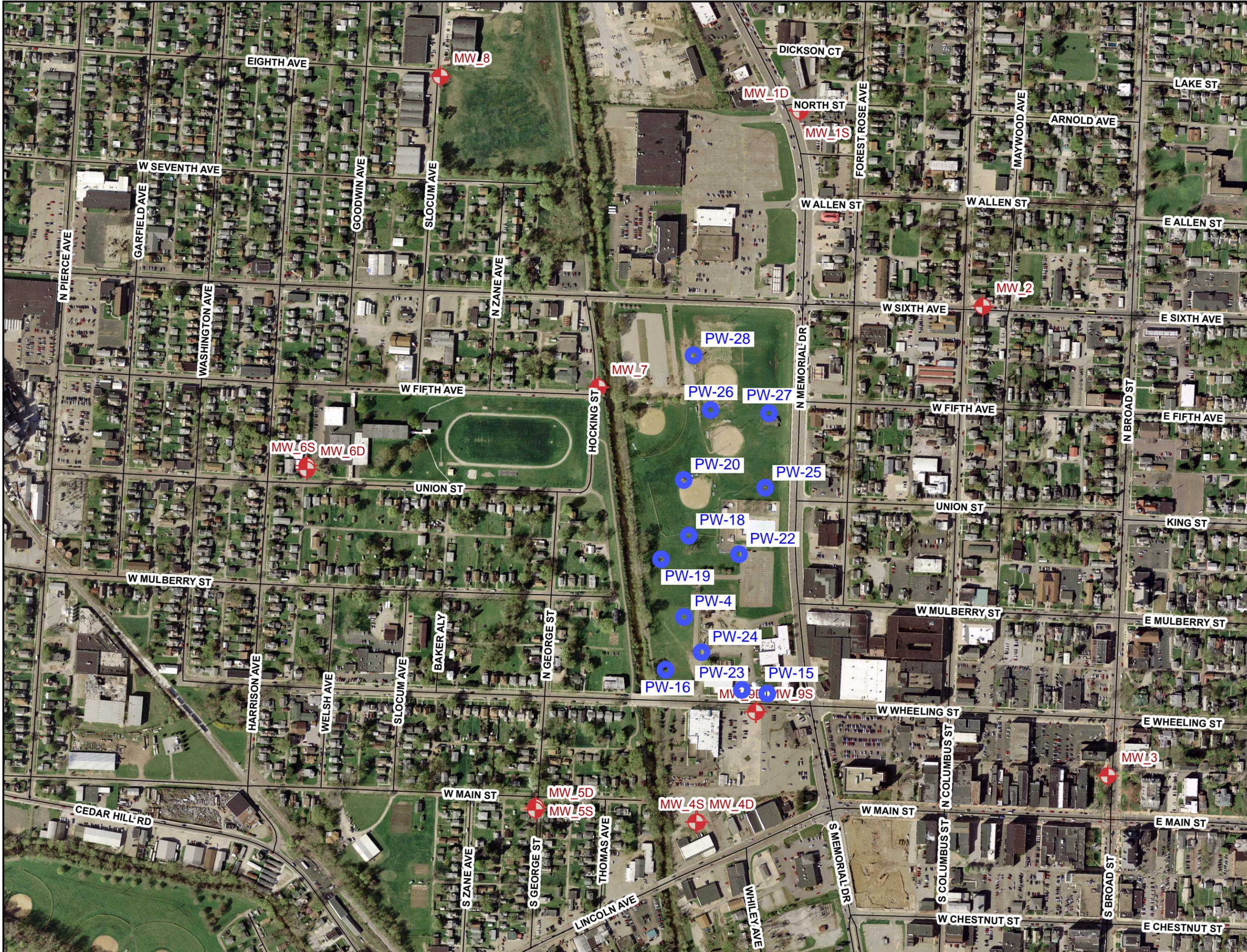
Disclaimer

Map produced by the City of Lancaster, Department of Engineering
 Data provided by the Fairfield County Auditor GIS Department
 All data created by Fairfield County Auditor GIS Department has been developed to meet National Map Accuracy Standards. All GIS data layers are referenced in the Ohio State Plane Coordinate System, Horizontal - North American Datum (NAD) 83 (95) Vertical data - North American Datum Vertical Datum (NAVD) 88, Units - Surveyors Feet.
 All data has been developed from public records that are constantly undergoing change and is not warranted for content, completeness or accuracy. City of Lancaster does not warrant, guarantee or represent the data to be fit for a particular use or purpose.
 If detailed information is required for data layers shown, please contact the City of Lancaster, Department on Engineering.
 Please notify the City of Lancaster, Department of Engineering with any discrepancies.

Miller Park Monitoring Well Locations



December 2, 2015



ATTACHMENT 2

TABLES

Table 1
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-1S																																	
			10/18/95	1/15/96	4/22/96	7/29/96	2/11/97	4/28/97	7/7/97	10/7/97	6/24/98	12/16/98	7/20/99	4/27/00	11/27/00	5/30/01	10/17/01	5/7/02	10/31/02	5/19/03	11/12/03	5/12/04	10/26/04	12/13/04	5/4/05	11/2/05	4/24/06	10/26/06	5/7/07	11/14/07	6/17/08	10/30/08	7/8/09	3/31/15		
INORGANICS																																				
ALUMINUM	ug/L	50 to 200 (S)	<50	180	<50	<200	<500	<500	<500	<500	<500	<500	51	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25	
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	4.00	<4	4.20	7.60	<4	<4	<4	<4.0	4.00	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4
ARSENIC	ug/L	10 (P)	6.0	6.0	6.0	<10	9.7	8.4	6.4	8.4	7.2	8.0	9.1	6.4	6.0	10.0	12.0	6.8	6.5	5.5	6.2	5.9	6.3	--	6.5	<5.0	<5.0	<5.0	<5.0	<5.0	10.5	5.4	<5.0	4.0		
BARIIUM	ug/L	2,000 (P)	180	170	160	<200	170	190	228	179	216	201	184	192	175	227	224	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	207	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.2	<1	1.00	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	
CALCIUM	mg/L	--	110	110	150	145	120	110	120	107	260	117	122	125	120	140	120	117	127	130	135	144	136	--	161	147	140	140	142	158	146	156	145	194		
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	<5.0	<5	<10	<10	<10	<10	<5	<5	<5	<5	<5	--	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50	<10	<10	<10	<20	<50	<50	<50	<50	<50	<50	--	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	31.0	13.0	<20	<20	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.040		
IRON	ug/L	300 (S)	2400	3,000	2,500	2,000	3,200	2,600	2,590	2,400	2,400	2,800	2,500	3,100	3,010	3,340	3,830	2,800	2,840	2,870	2,930	3,580	2,030	--	3,120	1,610	1,510	1,170	1,950	1,550	2,410	885	2,720	755		
LEAD	ug/L	15 (A)	<2	<2	<3	<3	<2	<2	<2	<2	<2	<2	<2.0	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	34.0	37.0	45.0	39.0	37.0	38.0	36.0	36.0	76.0	40.0	38.0	41.9	38.0	44.0	45.0	41.7	41.9	40.2	40.4	45.9	46.0	--	50.8	49.2	48.4	46.6	46.2	52.9	49.2	51.8	48.2	46.5		
MANGANESE	ug/L	50 (S)	200	220	510	500	260	300	270	200	319	213	215	267	270	320	320	273	251	299	253	364	309	--	385	506	401	489	488	721	456	661	448	281		
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	--	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0		
POTASSIUM	mg/L	--	2.8	3.1	3.6	<5	3.0	3.8	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.7		
SELENIUM	ug/L	50 (P)	<5	<5	<4	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10		
SODIUM	mg/L	--	51	56	62	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	132		
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	1.0	<1	2.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	<1.0	<0.05		
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	--	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	<100	60.00	<50	<50	<100	<100	<100	<100	<100	<100	--	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10			
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025			
ZINC	ug/L	5,000 (S)	30	10	10	21	<10	<10	<10	<10	10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	--	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10		
VOC'S (METHOD 8260)																																				
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	--	<50	<10	<10	<10	<10	<10	<10	<10	<10	<5.0			
Carbon Disulfide	ug/L	--	<5	<5	<5	<1	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	--	<50	<1	<1	<1	<1	<1	<1	<1	<1	<5.0			
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5.0		
FIELD PARAMETERS																																				
pH	S.U.	6.5-8.5 (S)	7.20	7.10	7.10	7.50	7.20	7.40	7.20	7.40	7.10	7.40	7.10	7.90	6.93	6.80	7.20	7.40	7.13	6.96	6.95	6.52	6.98	--	7.02	7.02	6.98	7.01	6.98	7.02	7.02	6.84	7.02	6.98		
CONDUCTIVITY	umhos/cm	--	751	847	1,087	870	1,175	1,050	1,100	1,000	980	1,000	940	1,060	1,169	1,040	1,120	960	1,035	851	1,105	871	1,140	--	897	1,312	945	762	740	843	772	746	1,337	1,438		
TEMPERATURE	°C	--	20.0	14.4	19.4	18.9	13.9</																													

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-1S (continued)		
			4/14/16	10/18/16	4/12/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	3.0	<3.0	<3.0
BARIUM	ug/L	2,000 (P)	191	214	199
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	154	174	170
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	214	535
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	51.8	59.4	54.4
MANGANESE	ug/L	50 (S)	270	270	260
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	5.7	5.2	6.1
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	123	139	122
SULFIDE	mg/L	--	<0.05	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	15	<10
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	6.86	6.91	6.96
CONDUCTIVITY	umhos/cm	--	1,605	1,157	1,005
TEMPERATURE	°C	--	17.2	19.1	18.3

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-2																																
			10/18/95	1/16/96	4/23/96	7/31/96	2/11/97	4/29/97	7/8/97	10/7/97	6/24/98	12/21/98	7/21/99	4/27/00	11/28/00	5/30/01	10/17/01	5/7/02	10/31/02	5/20/03	11/13/03	5/11/04	10/27/04	5/4/05	10/31/05	4/24/06	10/26/06	5/7/07	11/14/07	6/18/08	10/30/08	7/8/09	4/1/15		
INORGANICS																																			
ALUMINUM	ug/L	50 to 200 (S)	970	700	<50	<200	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	4.6	<4	4.8	7.4	<4	<4	<4	<4.0	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	<3	8.0	6.0	<10	12.0	10.0	7.8	1.1	8.2	18.0	9.6	9.8	7.0	10.0	10.0	9.0	7.6	7.9	5.4	6.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<3.0	
BARIUM	ug/L	2,000 (P)	50	28	14	<200	<100	<100	28	19	33	30	34	35	33	37	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	
CALCIUM	mg/L	--	130	260	210	150	140	130	120	113	109	150	136	136	110	140	120	119	113	128	124	123	118	138	111	125	127	133	115	122	116	114	176		
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50	<10	10.0	<20	<50	<50	<50	<50	<50	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	<10	<20	<20	<20	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.040	
IRON	ug/L	300 (S)	2,600	6,200	1,700	202	2,400	1,800	1,400	1,600	1,700	4,300	1,300	2,760	<50.0	1,950	760	2,380	1,380	2,010	217	1,360	589	81	<100	<100	125	<100	465	505	445	437	99		
LEAD	ug/L	15 (A)	2.0	<5	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2.0	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	35.0	71.0	58.0	43.0	36.0	37.0	33.0	33.0	34.0	45.0	38.0	39.0	34.0	38.0	36.0	36.3	34.3	36.4	34.6	35.9	37.5	41.4	35.3	39.9	39.8	40.9	36.5	38.6	37.1	36.7	41.8		
MANGANESE	ug/L	50 (S)	300	620	380	<15.0	170	150	120	120	120	152	162	113	100	100	90	83	103	73	58	69	151	86	96	146	149	215	177	240	235	261	189		
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	8.6	5.5	5.4	7.8	7.1	7.6	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.8	
SELENIUM	ug/L	50 (P)	14.0	9.0	11.0	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	5.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10		
SODIUM	mg/L	--	33	55	55	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	114	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	2.0	<1	2.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	1.9	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05			
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	0.5	0.5	<0.50	<0.50	<0.50	0.5	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100			
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025			
ZINC	ug/L	5,000 (S)	30	70	<10	<20	<10	<10	<10	<10	25	13	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10		
VOC'S (METHOD 8260)																																			
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<50	<10	<10	<10	<10	<10	<10	<10	<10	<1.0		
Carbon Disulfide	ug/L	--	<5	<5	<5	<1	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1.0		
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	
FIELD PARAMETERS																																			
pH	S.U.	6.5-8.5 (S)	7.1	7.5	7.1	7.9	7.1	7.4	7.2	7.4	7.20	7.20	7.20	7.70	7.22	6.60	7.60	7.30	7.29	7.12	7.40	6.66	7.05	7.12	7.13	7.09	7.14	7.06	7.08	7.11	7.10	7.20	7.11		
CONDUCTIVITY	umhos/cm	--	796	1,270	1,460	850	1,100	1,100	1,200	1,000	870	1,000	930	1,010	1,149	890	970	890	877	791	962	806	965	798	891	721	647	681	655	633	571	834	1,174		
TEMPERATURE	°C	--	20.6	14.4	14.8	17.8	13.9	13.9	14.4	14.4	15.6	13.9	--	15.0	8.9	15.5	14.3	15.4	14.7	15.5	13.8	15.4	15.2	15.3	15.7	15.7	15.2	16.1	15.7	15.6	16.0	16.6	17.4		

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-2 (continued)		
			4/21/16	10/18/16	4/13/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	<3.0	<3.0	<3.0
BARIUM	ug/L	2,000 (P)	55	50	67
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	131	130	124
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	136	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	45.4	42.1	39.3
MANGANESE	ug/L	50 (S)	226	200	297
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	7.7	6.6	8.4
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	51	57	42
SULFIDE	mg/L	--	<0.05	<0.05	0.1
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	15	16
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.16	7.07	7.03
CONDUCTIVITY	umhos/cm	--	1,039	776	731
TEMPERATURE	°C	--	17.5	21.7	16.3

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-3																																
			10/19/95	1/17/96	4/24/96	7/30/96	2/11/97	4/29/97	7/8/97	10/7/97	6/25/98	12/17/98	7/28/99	4/27/00	11/28/00	5/31/01	10/18/01	5/7/02	10/31/02	5/20/03	11/13/03	5/12/04	10/26/04	5/4/05	11/1/05	4/26/06	10/26/06	5/8/07	11/15/07	6/18/08	10/29/08	7/8/09	4/1/15		
INORGANICS																																			
ALUMINUM	ug/L	50 to 200 (S)	<50	<50	<50	<200	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	5.5	4.4	<4	8.3	<4	<4	<4	<4.0	6.0	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0.88
ARSENIC	ug/L	10 (P)	<3	<3	17.0	15.7	24.0	28.0	1.9	21.0	19.0	23.0	26.0	17.6	24.0	19.0	24.0	12.9	15.0	14.7	17.4	18.1	17.3	17.6	17.4	18.8	20.3	20.3	17.3	21.5	26.3	19.6	9.0		
BARIUM	ug/L	2,000 (P)	320	730	310	290	290	300	264	230	293	314	329	341	397	359	406	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	245
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	
CALCIUM	mg/L	--	77.0	140.0	92.0	88.0	88.0	88.0	92.0	77.0	74.0	93.0	97.0	90.7	91.0	97.0	91.0	87.4	87.7	93.2	98.7	91.0	87.1	98.3	89.6	92.4	95.5	97.1	85.9	93.6	96.8	96.9	107.0		
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
COBALT	ug/L	--	<20	<20	<20.0	<50.0	<100.0	<100.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<10.0	<10.0	<10.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10.0	<10.0	<10.1	<10.2	<10.3	<10.4	<10.5	<10.6	29.0	18.0	<20	<20	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.040	
IRON	ug/L	300 (S)	40	2,400	590	680	690	940	2,260	1,000	1,200	920	1,300	1,690	2,440	3,260	1,370	2,760	2,790	2,930	1,990	1,750	2,470	2,770	1,980	2,920	2,760	2,500	991	2,600	2,350	2,790	<80		
LEAD	ug/L	15 (A)	<2	<3	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	22.0	38.0	25.0	25.0	24.0	24.0	26.0	23.0	23.0	25.0	25.0	25.0	24.0	25.0	26.0	27.4	24.7	25.3	25.7	24.9	25.3	26.1	25.3	25.6	27.3	26.5	23.9	25.8	26.9	26.7	24.7		
MANGANESE	ug/L	50 (S)	140	58	360	320	400	400	410	340	536	608	781	794	770	<10.0	520	402	345	335	277	416	276	279	318	307	289	285	221	269	254	251	182		
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	0.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<10.0	
POTASSIUM	mg/L	--	1.2	2.7	1.0	<5	1.0	11.0	0.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.0
SELENIUM	ug/L	50 (P)	<5	<4	<4	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	
SODIUM	mg/L	--	9.4	27.0	8.3	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.5
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	2.0	5.0	3.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10		
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025		
ZINC	ug/L	5,000 (S)	40	20	100	<20	<10	<10	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<10	
VOC'S (METHOD 8260)																																			
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1.0		
Carbon Disulfide	ug/L	--	<5	24	<5	1	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0
FIELD PARAMETERS																																			
pH	S.U.	6.5-8.5 (S)	7.40	7.20	7.70	8.20	7.60	7.80	7.40	7.70	7.40	7.80	7.80	7.90	7.40	6.70	7.40	7.60	7.47	7.34	7.46	6.87	7.44	7.51	7.51	7.42	7.42	7.42	7.47	7.49	7.36	7.50	7.49		
CONDUCTIVITY	umhos/cm	--	422	411	492	470	640	670	620	600	540	650	600	670	696	630	640	590	595	544	635	468	613	428	638	511	447	447	478	450	181	576	608		
TEMPERATURE	°C	--	15.6	16.7	12.8	18.3	13.3	13.3	15.0	15.0	15.0	15.0	--	14.4	9.8	15.5	14.9	16.0	14.9	15.2	14.3	15.9	15.3	15.6	15.5	15.6	15.4	15.4	14.7	16.0	15.6	17.4	17.2		

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-3 (continued)		
			4/15/16	10/18/16	4/12/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	15.0	7.9	39.0
BARIUM	ug/L	2,000 (P)	228	198	279
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	97.4	99.2	83.6
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	28.4	29.0	22.7
MANGANESE	ug/L	50 (S)	233	191	195
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	<2.0	<2.0	<2
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	6.9	10.6	25.2
SULFIDE	mg/L	--	0.8	0.3	6.4
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	<10	<10
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	22.8
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.41	7.47	7.37
CONDUCTIVITY	umhos/cm	--	638	497	508
TEMPERATURE	°C	--	16.4	21.8	17.4

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-4S																																				
			10/17/95	1/16/96	4/24/96	7/29/96	2/11/97	4/28/97	7/7/97	10/6/97	6/24/98	12/16/98	7/20/99	4/27/00	11/27/00	5/30/01	10/17/01	5/7/02	10/30/02	5/19/03	11/12/03	5/11/04	10/26/04	5/3/05	10/31/05	4/24/06	10/25/06	5/7/07	11/14/07	6/17/08	10/29/08	7/8/09	3/31/15	2/17/16	3/16/16	4/13/16			
INORGANICS																																							
ALUMINUM	ug/L	50 to 200 (S)	70	210	<50	<200	<500	<500	<500	<500	<500	660	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	6.5	<4	<4	8.0	<4	<4	<4	<4.0	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	<4	<4	<4		
ARSENIC	ug/L	10 (P)	3.0	6.0	22.0	14.7	17.0	34.0	1.7	18.0	19.0	10.0	11.0	11.6	7.0	17.0	14.0	15.2	8.6	11.6	9.8	12.2	9.4	16.5	19.2	18.3	21.4	28.0	57.0	53.4	32.0	34.8	19.0	15.0	15.0	7.0			
BARIUM	ug/L	2,000 (P)	420	420	570	660	560	520	604	458	<10.0	469	532	487	409	531	455	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	707	635	676	609		
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	<1	<1	<1			
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<5	<1	<1			
CALCIUM	mg/L	--	140	130	130	152	140	130	140	122	130	136	154	131	140	150	140	131	144	164	160	159	152	164	149	172	183	179	153	157	174	156	208	178	176	180			
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<10	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<10	<5	<5		
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50	<10	<10	<20	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<25	<25	<25	<25				
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10.0	<25.0	<20.0	10.0	<10.0	16.0	<10.0	<20.0	<20.0	<20.0	<10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<50			
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.040	<0.010	<0.010	<0.010			
IRON	ug/L	300 (S)	4,100	6,900	9,700	9,500	11,000	10,000	8,200	8,600	10,000	10,000	9,400	9,400	8,700	10,300	9,700	8,940	8,600	9,590	7,530	9,180	8,860	9,140	10,000	11,900	11,800	12,600	12,000	12,400	12,000	11,800	1,080	4,580	2,730	198			
LEAD	ug/L	15 (A)	<2	<5	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<5	<5	<5				
MAGNESIUM	mg/L	--	33.0	31.0	31.0	34.0	31.0	32.0	32.0	31.0	29.0	29.0	33.0	31.6	32.0	35.0	35.0	33.4	34.9	37.9	35.1	36.7	37.3	38.0	35.4	42.3	41.8	39.3	36.3	35.8	39.6	34.6	33.7	43.0	42.3	43.0			
MANGANESE	ug/L	50 (S)	310	260	360	370	320	340	310	260	303	267	256	279	250	310	260	273	235	266	218	271	247	262	283	336	333	388	376	435	356	362	383	330	347	335			
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0			
POTASSIUM	mg/L	--	11.0	9.2	8.3	11.0	11.0	9.6	10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.2	14.2	14.0	14.1			
SELENIUM	ug/L	50 (P)	<5	<5	<4	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<5	<5	<5				
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0				
SODIUM	mg/L	--	48.0	42.0	39.0	43.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	49.1	49.0	52.4	47.0			
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	1.0	1.0	2.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05	<0.05	<0.05	--				
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5	<1.5	<1.5	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100				
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025	<0.025	<0.025	<0.025				
ZINC	ug/L	5,000 (S)	20	20	10	23	<10	11	10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10	<10	<10	<10				
VOC'S (METHOD 8260)																																							
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			
Carbon Disulfide	ug/L	--	7	<5	<5	2	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1			
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5.0	<1.0	<1.0	<1.0		

FIELD PARAMETERS																																				
pH	S.U.	6.5-8.5 (S)	7.20	7.10	7.20	7.10	7.10	7.30	7.10	7.00	7.00	7.10	7.10	7.00	6.88	6.60	7.20	7.10	6.96	6.90	7.00	6.42	6.98	7.03	7.02	6.94	6.98	6.98	7.00	7.00	6.83	7.00	6.99	6.84	6.90	6.85
CONDUCTIVITY	umhos/cm	--	871	858	913	890	1,100	1,100	1,100	975	1,050	1,100	1,050	1,110	1,207	990	1,150	980	1,123	1,069	741	920	1,121	828	923	838	746	746	781	803	636	1,114	1,133	1,450	1,290	1,379
TEMPERATURE	°C	--	17.2	16.1	16.7	18.3	13.3	12.8	13.3	15.0	13.9	14.4	--	13.3	12.3	13.9	14.9	14.3	15.0	14.2	15.5	14.7	15.4	14.3	16.2	15.0	15.9	15.9	16.4	15.1	16.0	16.5	14.3	17.0	17.1	16.2

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-4S (continued)									
			5/18/16	6/8/16	7/20/16	8/17/16	9/21/16	10/19/16	11/9/16	12/21/16	1/18/17	4/19/17
INORGANICS												
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
ARSENIC	ug/L	10 (P)	7.0	6.0	6.5	9.2	11.6	14.0	11.3	12.2	10.7	9.4
BARIUM	ug/L	2,000 (P)	557	607	685	699	666	712	686	675	690	721
BERYLLIUM	ug/L	4 (P)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1
CALCIUM	mg/L	--	165	179	175	178	181	178	179	183	184	178
CHROMIUM	ug/L	100 (P)	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	274	1,540	129	1,100	801	4,260	1,830	1,560	1,210	750
LEAD	ug/L	15 (A)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MAGNESIUM	mg/L	--	42.9	40.2	39.3	44.9	42.8	45.2	41.8	41.5	42.6	41.8
MANGANESE	ug/L	50 (S)	347	336	368	377	393	383	402	419	459	450
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	14.0	14.6	14.5	14.0	14.0	14.4	13.7	15.1	15.4	14.9
SELENIUM	ug/L	50 (P)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
SODIUM	mg/L	--	47.8	47.3	45.9	53.7	52.8	59.9	48.9	54.4	53.5	46.7
SULFIDE	mg/L	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.05	0.1
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	12
VOC'S (METHOD 8260)												
Acetone	ug/l	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	2.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0

FIELD PARAMETERS												
pH	S.U.	6.5-8.5 (S)	7.01	6.75	6.79	6.98	6.94	6.90	6.82	6.89	6.82	6.97
CONDUCTIVITY	umhos/cm	--	1,075	1,193	1,382	1,295	1,083	1,263	1,097	1,053	1,134	1,049
TEMPERATURE	°C	--	16.1	16.2	16.7	16.8	17.1	17.2	16.2	16.5	16.5	16.4

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-5S																																
			10/19/95	1/17/96	4/22/96	7/30/96	2/11/97	4/29/97	7/7/97	10/6/97	6/24/98	12/16/98	7/20/99	4/27/00	11/27/00	5/30/01	10/17/01	5/7/02	10/31/02	5/20/03	11/12/03	5/12/04	10/26/04	5/3/05	10/31/05	4/24/06	10/25/06	5/7/07	11/14/07	6/17/08	11/3/08	7/8/09	4/9/15		
INORGANICS																																			
ALUMINUM	ug/L	50 to 200 (S)	<50	<50	740	<200	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	4.50	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	<3	13	<3	<10	<5	<5	7	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.8	<5.0	<3.0		
BARIUM	ug/L	2,000 (P)	610	320	740	520	400	430	340	380	564	549	504	549	286	329	177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	279	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	
CALCIUM	mg/L	--	140	85	150	179	150	150	160	134	140	141	166	187	150	190	160	159	168	168	182	196	196	196	170	171	185	176	172	165	171	151	179		
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10.0	10.00	<25.0	<20.0	<20.0	<10.0	<10.0	11.00	<10.0	<10.0	<20.0	<20.0	<10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.040	
IRON	ug/L	300 (S)	1,800	490	4,200	4,900	6,500	5,400	3,100	4,400	5,400	5,800	4,500	7,660	8,400	9,350	9,020	6,200	6,810	6,910	6,740	7,690	8,170	7,270	7,520	7,270	7,610	7,010	7,380	6,660	6,910	5,850	351		
LEAD	ug/L	15 (A)	<2	<3	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	36.0	24.0	43.0	43.0	36.0	39.0	38.0	36.0	37.0	36.0	38.0	49.8	33.0	44.5	37.0	40.0	37.8	36.7	38.0	43.5	47.0	42.3	40.1	42.4	41.9	40.1	40.9	38.4	40.1	35.1	38.5		
MANGANESE	ug/L	50 (S)	130	330	190	310	250	230	280	200	230	104	89	142	120	250	160	141	179	135	161	186	171	153	169	189	194	204	188	213	206	194	159		
MERCURY	ug/L	2 (P)	<0.1	<0.1	0.20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	2.7	1.2	2.8	<5	2.5	2.6	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.4	
SELENIUM	ug/L	50 (P)	<5	<4	<4	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10		
SODIUM	mg/L	--	25.0	9.1	30.0	32.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26.5	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	2.00	1.00	2.00	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05		
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10		
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025		
ZINC	ug/L	5,000 (S)	30	<10	20	<20	<10	<10	<10	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	24	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10		
VOC'S (METHOD 8260)																																			
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1.0		
Carbon Disulfide	ug/L	--	<5	16	<5	<1	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1.0		
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	
FIELD PARAMETERS																																			
pH	S.U.	6.5-8.5 (S)	7.40	7.90	7.20	7.40	7.20	7.60	6.90	7.10	7.30	7.30	7.20	7.60	6.98	6.58	7.30	7.30	7.09	7.09	7.03	6.54	7.16	7.14	7.12	7.06	7.08	7.08	7.08	7.10	7.08	7.07	7.15		
CONDUCTIVITY	umhos/cm	--	765	458	926	940	1,050	1,200	1,100	1,000	1,000	1,000	1,000	1,350	1,139	1,130	1,100	1,030	1,109	829	1,244	907	1,205	804	919	790	659	659	726	669	578	1,009	1,007		
TEMPERATURE	°C	--	17.8	18.3	16.1	16.1	12.8	9.4	12.8	14.4	13.3	13.9	--	12.8	10.4	13.9	14.3	13.8	15.3	13.1	14.9	13.7	15.1	13.6	15.3	14.0	15.0	15.0	15.0	14.1	15.6	15.8	14.9		

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-5S (continued)		
			4/12/16	10/18/16	4/10/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	<3.0	<3.0	<3.0
BARIIUM	ug/L	2,000 (P)	240	230	232
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	169	178	173
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	139	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	40.6	40.8	38.1
MANGANESE	ug/L	50 (S)	179	188	204
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	3.4	3.2	3.6
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	28.6	35.7	33.6
SULFIDE	mg/L	--	--	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	47	11
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.08	7.11	7.10
CONDUCTIVITY	umhos/cm	--	993	734	799
TEMPERATURE	°C	--	15.0	16.8	17.3

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-6S																															
			10/18/95	1/15/96	4/24/96	7/30/96	2/11/97	4/28/97	7/7/97	10/7/97	6/24/98	12/16/98	7/20/99	4/27/00	11/27/00	5/30/01	10/17/01	5/7/02	10/30/02	5/19/03	11/12/03	5/11/04	10/26/04	5/3/05	10/31/05	4/24/06	10/25/06	5/7/07	11/14/07	6/17/08	10/29/08	7/8/09	4/1/15	
INORGANICS																																		
ALUMINUM	ug/L	50 to 200 (S)	110	<50	<50	<200	<500	<500	<500	<500	<500	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	4.40	<4	<4	7.60	<4.0	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	<3	<3	<3	<10	<5	<5	<5	<5	<5	NS	NS	NS	NS	NS	NS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<3.0		
BARIUM	ug/L	2,000 (P)	51	46	100	<200.0	<100.0	<100.0	53	43	58	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS	NS	NS	NS	NS	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1		
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1		
CALCIUM	mg/L	--	99	99	110	107	110	110	110	98	98	NS	NS	NS	NS	NS	NS	114	113	107	120	123	120	118	115	114	117	111	107	122	116	103	115	
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	NS	NS	NS	NS	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	NS	NS	NS	NS	NS	NS	<50	<50	<50	<50	<50	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25		
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	<10	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	0.01	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.040		
IRON	ug/L	300 (S)	400	30.00	60.00	101	<30.0	<30.0	4.00	<5.0	<5.0	NS	NS	NS	NS	NS	NS	73.00	<30	<30	<30	<30	<30	<30	<100	<100	<100	<100	<100	<100	<100	<80		
LEAD	ug/L	15 (A)	<2	<2	<3	<3	<2	<2	<2	<2	<2	NS	NS	NS	NS	NS	NS	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	26.0	27.0	30.0	29.0	29.0	30.0	28.0	27.0	28.0	NS	NS	NS	NS	NS	NS	33.0	30.7	28.3	30.1	32.4	32.6	31.1	32.1	32.8	31.5	29.8	29.7	34.1	32.7	29.8	26.3	
MANGANESE	ug/L	50 (S)	300	280	250	138	280	260	180	220	236	NS	NS	NS	NS	NS	NS	229	355	121	311	85	154	125	154	103	149	82	159	111	146	92	223	
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NS	NS	NS	NS	NS	NS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	NS	NS	NS	NS	NS	NS	<20	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0		
POTASSIUM	mg/L	--	4.1	4.0	4.1	6.1	4.2	4.5	4.2	--	--	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.9	
SELENIUM	ug/L	50 (P)	9	9	12	10	6	<5	<5	<5	<5	NS	NS	NS	NS	NS	NS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6	<5.0	<5.0	5	<5.0	<5	
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
SODIUM	mg/L	--	70.0	73.0	59.0	57.0	--	--	--	--	--	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94.7	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	NS	NS	NS	NS	NS	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.40	<1.0	<0.05	
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	NS	NS	NS	NS	NS	NS	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	NS	NS	NS	NS	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10		
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025		
ZINC	ug/L	5,000 (S)	20	20	10	<20	<10	14	<10	<10	<10	NS	NS	NS	NS	NS	NS	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10	
VOC'S (METHOD 8260)																																		
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	NS	NS	NS	NS	NS	NS	<100	<100	<100	<100	<100	<100	<50	<10	<10	<10	<10	<10	<10	<10	<1.0		
Carbon Disulfide	ug/L	--	<5	<5	<5	<1	<10	<10	<10	<10	<10	NS	NS	NS	NS	NS	NS	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1.0		
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	
FIELD PARAMETERS																																		
pH	S.U.	6.5-8.5 (S)	7.50	7.50	7.50	7.50	7.40	7.60	7.50	7.60	7.60	NS	NS	NS	NS	NS	NS	7.50	7.25	7.23	7.17	6.69	7.26	7.30	7.23	7.20	7.26	7.26	7.28	7.30	7.09	7.29	7.26	
CONDUCTIVITY	umhos/cm	--	764	800	823	760	1,000	1,000	1,000	975	940	NS	NS	NS	NS	NS	NS	980	1,042	811	1,162	903	1,056	745	960	808	694	694	713	684	587	967	1,002	
TEMPERATURE	°C	--	17.2	15.0	12.8	16.7	12.8	12.2	13.9	13.9	14.4	NS	NS	NS	NS	NS	NS	13.8	14.3	13.8	14.8	14.1	14.9	14.1	15.9	14.2	15.5	15.5	15.7	14.6	15.4	15.9	15.1	

* Sample dates 12/16/98 through 10/17/01 - Not Sampled due to vandalism.

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-6S (continued)		
			4/12/16	10/18/16	4/10/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	<3.0	<3.0	<3.0
BARIUM	ug/L	2,000 (P)	72	87	103
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	115	110	122
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	33.4	34.3	33.8
MANGANESE	ug/L	50 (S)	305	243	237
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	6.3	5.6	6.6
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	78.8	90.7	92.4
SULFIDE	mg/L	--	--	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	17	<10
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.14	7.20	7.10
CONDUCTIVITY	umhos/cm	--	975	764	800
TEMPERATURE	°C	--	15.9	17.7	17.3

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-7																																
			10/17/95	1/16/96	4/24/96	7/29/96	2/11/97	4/28/97	7/8/97	10/6/97	6/25/98	12/16/98	7/21/99	4/27/00	11/28/00	5/30/01	10/17/01	5/8/02	10/31/02	5/20/03	11/13/03	5/11/04	10/27/04	5/3/05	10/31/05	4/24/06	10/25/06	5/8/07	11/14/07	6/17/08	10/29/08	7/8/09	4/1/15		
INORGANICS																																			
ALUMINUM	ug/L	50 to 200 (S)	80	<50	<50	<200	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	4.9	4.8	<4	11.0	<4	<4	<4	<4.0	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	17	21	17	<10	22	30	2	20	15	18	14	16	19	16	20	15	15	14	16	13	14	21	19	18	19	19	19	23	21	29	10		
BARIUM	ug/L	2,000 (P)	33	33	41	290	<100	<100	34	38	38	30	32	34	30	42	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	
CALCIUM	mg/L	--	230	210	230	96	220	230	210	183	200	197	216	212	180	230	220	199	202	216	236	226	259	393	321	269	268	384	274	4	289	282	202		
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<10	<10	<10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	12.00	<20	<20	<20	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.040	
IRON	ug/L	300 (S)	12,000	12,000	9,700	1,500	14,000	14,000	13,600	14,000	16,000	14,000	13,000	15,400	11,100	13,300	13,600	15,200	13,000	11,600	11,600	14,100	16,900	35,900	21,700	19,300	17,000	25,200	17,900	19,400	17,600	20,100	4,870		
LEAD	ug/L	15 (A)	<2	<5	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2.0	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	34.0	31.0	33.0	26.0	32.0	35.0	31.0	31.0	31.0	27.0	32.0	35.2	38.0	38.0	38.0	39.0	35.2	35.8	38.7	36.3	40.8	60.5	30.0	31.7	36.9	46.5	32.2	47.5	42.1	42.9	31.8		
MANGANESE	ug/L	50 (S)	250	330	610	156	310	370	270	310	388	290	340	360	380	500	440	421	386	458	422	461	473	728	669	678	639	1040	778	979	838	783	383		
MERCURY	ug/L	2 (P)	<0.1	0.90	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<20	<20	<20	<40	<40	45.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	10.00	<20	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	3.6	3.5	3.7	6.2	3.7	4.3	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.5	
SELENIUM	ug/L	50 (P)	<5	<5	<4	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
SODIUM	mg/L	--	34.0	38.0	37.0	17.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	63.7	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	2.00	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05		
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10		
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025		
ZINC	ug/L	5,000 (S)	30	20	80	27	<10	<10	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10		
VOC'S (METHOD 8260)																																			
Acetone	ug/l	--	<50	<50	<50	5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<50	<10	<10	<10	<10	<10	<10	<10	<10	<1.0		
Carbon Disulfide	ug/L	--	<5	<5	<5	<1	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1.0		
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	
FIELD PARAMETERS																																			
pH	S.U.	6.5-8.5 (S)	6.90	8.10	7.10	7.10	7.10	7.30	7.20	7.10	6.90	7.10	7.10	7.60	6.80	6.60	7.10	7.40	7.03	6.96	6.93	6.42	6.94	6.79	6.80	6.83	6.89	6.89	6.77	6.85	6.65	6.87	7.02		
CONDUCTIVITY	umhos/cm	--	1,080	957	1,191	1,191	1,500	1,500	1,300	1,200	1,100	1,200	1,230	1,360	1,440	1,240	1,500	1,220	1,236	891	1,438	1,024	1,350	1,155	1,355	983	845	845	839	766	630	1,489	1,197		
TEMPERATURE	°C	--	18.3	12.8	17.2	17.2	13.9	12.8	13.3	14.4	13.9	14.4	--	13.9	11.0	14.4	14.9	14.3	15.5	14.1	14.7	14.1	15.3	14.6	16.5	14.6	16.2	16.2	16.5	14.8	16.3	15.8	15.1		

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-7 (continued)		
			4/12/16	10/18/16	4/10/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	4.0	4.1	4.1
BARIUM	ug/L	2,000 (P)	51	45	49.5
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	NA	188	217
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	322	455	1,380
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	40.2	39.0	38.0
MANGANESE	ug/L	50 (S)	370	392	401
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	4.2	3.9	4.4
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	57.6	58.3	60.7
SULFIDE	mg/L	--	--	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	<10	<10
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	6.88	6.94	6.94
CONDUCTIVITY	umhos/cm	--	1,250	876	896
TEMPERATURE	°C	--	16.6	18.4	17.3

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-8																															
			10/20/95	1/16/96	4/23/96	7/31/96	2/11/97	4/28/97	7/8/97	10/22/97	6/25/98	12/29/98	7/29/99	4/27/00	11/28/00	5/31/01	10/19/01	5/8/02	11/1/02	5/20/03	11/13/03	5/11/04	11/12/04	5/3/05	10/31/05	4/24/06	10/25/06	5/7/07	11/15/07	6/17/08	11/4/08	7/8/09	4/1/15	
INORGANICS																																		
ALUMINUM	ug/L	50 to 200 (S)	<50	<50	<50	<200	<500	<500	<500	<500	<500	--	<50	53	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	<4	<4	<4	12.0	<4	4.10	<4	<4.0	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	<3	<3	<3	<10	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<3.0	
BARIUM	ug/L	2,000 (P)	50	46	45	<200	<100	<100	55	49	64	50	57	51	48	54	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	
CALCIUM	mg/L	--	120	110	110	125	120	110	110	122	101	--	130	107	120	110	130	91	110	101	110	112	129	135	139	132	133	124	134	115	111	125	142	
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	17.00	<5.0	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50	<10	<10	<20	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	23	20	20	22	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	0.01	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.040	
IRON	ug/L	300 (S)	20	70	70	119	<30	<30	13	13	<50	--	<30	<30	<50	<50	<50	<30	<30	<30	<30	<30	<30	<100	<100	<100	<100	<100	<100	<100	<100	<80		
LEAD	ug/L	15 (A)	<2	<5	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2.0	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	32.0	31.0	31.0	34.0	30.0	31.0	31.0	30.0	34.0	--	34.0	30.1	31.0	29.0	36.0	27.3	31.5	27.3	29.0	30.3	35.5	36.9	40.1	38.6	38.4	33.3	38.1	31.8	31.1	35.1	31.4	
MANGANESE	ug/L	50 (S)	200	260	14	<15	180	90	140	160	71	--	194	173	200	170	250	181	167	158	168	176	188	223	272	208	268	222	267	254	232	281	212	
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<10.0	
POTASSIUM	mg/L	--	3.8	4.1	3.8	4.8	4.9	5.1	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.8	
SELENIUM	ug/L	50 (P)	15.0	10.0	5.0	13.4	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	9.0	8.2	8.5	8.2	9.8	10.2	11.0	9.2	15.2	8.2	11.6	13.6	11.1	14.6	11.8	16.6	12.0		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10		
SODIUM	mg/L	--	45.0	46.0	36.0	48.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	78.9	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	<1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05		
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10		
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025		
ZINC	ug/L	5,000 (S)	<10	10.0	10.0	<20	<10	<10	<10	<10	11.0	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10		
VOC'S (METHOD 8260)																																		
Acetone	ug/l	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<50	<10	<10	<10	<10	<10	<10	<10	<1.0		
Carbon Disulfide	ug/L	--	<5	<5	<5	<1	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1.0		
MTBE	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	
FIELD PARAMETERS																																		
pH	S.U.	6.5-8.5 (S)	7.30	7.50	7.40	7.90	7.20	7.50	6.90	7.50	7.10	7.10	7.10	7.10	7.04	6.80	7.20	7.60	7.27	7.19	7.24	6.70	7.16	7.16	7.11	7.10	7.16	7.16	7.26	7.08	7.18	7.18	7.16	
CONDUCTIVITY	umhos/cm	--	776	738	808	830	1,100	1,050	1,000	1,000	860	980	930	930	1,052	970	1,110	910	1,005	760	1,084	920	1,254	883	1,165	1,010	830	830	845	713	559	1,091	969	
TEMPERATURE	°C	--	17.8	12.8	18.9	16.7	12.8	13.3	14.4	13.9	15.0	--	--	13.9	11.8	14.4	14.9	14.3	15.9	15.2	14.8	15.2	16.0	15.1	17.2	15.2	16.6	16.6	15.7	16.2	16.7	16.9	15.9	

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-8 (continued)		
			4/13/16	10/18/16	4/10/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	<3.0	<3.0	<3.0
BARIUM	ug/L	2,000 (P)	65	58	62
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	127	116	126
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	37.2	35.1	35.8
MANGANESE	ug/L	50 (S)	205	236	202
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	6.2	5.7	6.3
SELENIUM	ug/L	50 (P)	8.0	10.2	8.0
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	80.6	95.3	88.5
SULFIDE	mg/L	--	--	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	<10	<10
VOC'S (METHOD 8260)					
Acetone	ug/l	--	<1.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
MTBE	ug/L	--	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.05	7.21	7.18
CONDUCTIVITY	umhos/cm	--	1,213	781	852
TEMPERATURE	°C	--	18.0	19.3	18.4

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

**Table 1 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Shallow Zone**

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-9S																				
			4/15/15	10/7/15	10/20/15	11/4/15	11/18/15	12/2/15	12/16/15	1/20/16	2/17/16	3/16/16	4/13/16	5/18/16	6/8/16	7/20/16	8/17/16	9/21/16	10/19/16	11/9/16	12/21/16	1/18/17	4/19/17
INORGANICS																							
ALUMINUM	ug/L	50 to 200 (S)	<25	<150	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	
ANTIMONY	ug/L	6 (P)	<3	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
ARSENIC	ug/L	10 (P)	5.0	9.0	7.0	6.0	6.0	7.0	5.0	11.0	7.0	6.0	5.0	5.0	4.0	3.9	5.5	5.4	6.2	5.5	5.8	4.8	4.5
BARIUM	ug/L	2,000 (P)	399	459	405	413	393	419	422	475	474	502	494	451	480	484	491	489	521	529	537	540	571
BERYLLIUM	ug/L	4 (P)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<1	<5	<5	<5	<5	<5	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	
CALCIUM	mg/L	--	166	163	142	144	144	157	164	179	160	159	165	146	156	148	161	162	170	176	177	179	181
CHROMIUM	ug/L	100 (P)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	
COBALT	ug/L	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
CYANIDE	mg/L	0.2 (P)	<0.040	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
IRON	ug/L	300 (S)	446	1,830	1,660	293	139	798	689	2,160	925	331	<80	146	<80	86	328	181	1,490	502	538	430	85
LEAD	ug/L	15 (A)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MAGNESIUM	mg/L	--	44.3	44.0	39.1	42.4	45.6	46.0	44.5	50.8	48.7	49.3	49.4	45.9	43.2	42.6	46.1	45.3	51.0	49.3	50.2	52.3	51.8
MANGANESE	ug/L	50 (S)	204	142	133	128	144	147	140	140	131	135	124	132	125	117	127	129	125	128	137	123	119
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.27	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	30.1	19.4	17.8	17.6	16.9	16.8	16.9	18.2	17.6	17.9	18.1	16.7	18.2	17.5	15.2	15.5	15.9	15.4	17.1	17.5	18.7
SELENIUM	ug/L	50 (P)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
SODIUM	mg/L	--	302	272	243	212	176	188	184	166	196	210	183	207	222	202	219	198	194	180	173	156	168
SULFIDE	mg/L	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	
TIN	ug/L	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
VANADIUM	mg/L	--	<0.025	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	
ZINC	ug/L	5,000 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	14	<10	<10	<10	<10	
VOC'S (METHOD 8260)																							
Acetone	ug/l	--	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.8	<5.0	
Carbon Disulfide	ug/L	--	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	
MTBE	ug/L	--	<1.0	<1.0	<2.0	--	1.1	1.5	1.2	1.2	1.3	<1.0	1.8	1.1	1.3	<1.0	1.4	<5	1.3	1.2	1.2	1.6	1.1
FIELD PARAMETERS																							
pH	S.U.	6.5-8.5 (S)	6.95	6.97	7.00	6.97	6.96	6.88	6.89	6.85	6.93	6.92	6.85	7.00	6.82	6.84	6.97	6.93	6.92	6.88	6.93	--	6.99
CONDUCTIVITY	umhos/cm	--	2,280	2,340	2,170	2,010	1,941	1,947	1,970	1,870	2,060	1,949	2,140	1,606	1,777	2,001	1,764	1,544	1,750	1,489	1,317	--	1,328
TEMPERATURE	°C	--	18.1	17.4	17.1	17.4	17.4	17.1	18.0	16.9	17.2	17.6	17.4	17.3	17.7	18.1	17.8	18.2	18.2	17.0	16.7	16.8	17.7

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-1D																															
			10/18/95	1/15/96	4/22/96	7/29/96	2/12/97	4/28/97	7/7/97	10/22/97	6/24/98	12/16/98	7/20/99	8/24/00	11/27/00	5/30/01	10/18/01	5/7/02	10/31/02	5/19/03	11/12/03	5/12/04	10/26/04	5/4/05	11/2/05	4/26/06	10/26/06	5/7/07	11/14/07	6/17/08	10/30/08	7/8/09	3/31/15	
INORGANICS																																		
ALUMINUM	ug/L	50 to 200 (S)	<50	<50	240	<200	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	6.80	<4	<4	6.10	<4	<4	<4	<4.0	<4	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	<3	5	14	<10	14	16	12	14	14	12	13	8.7	11	14	14	9.4	8.8	8.8	9.4	9.1	11	11	9.9	11.4	11.7	11.4	11.9	15.9	14	7.6	6	
BARIUM	ug/L	2,000 (P)	230	230	230	280	230	230	247	240	280	242	232	312	291	306	251	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	373	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1		
CALCIUM	mg/L	--	110	100	100	132	100	110	110	111	110	110	113	127	130	120	100	106	99	101	108	119	106	117	99	128	141	128	119	112	116	102	143	
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50	<10	<10	<10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	<10	<10	<20	<20	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.040		
IRON	ug/L	300 (S)	180	2,700	3,300	3,700	3,700	3,500	3,300	3,100	4,100	3,400	3,100	4,080	4,240	3,980	3,510	3,250	2,960	2,950	2,830	3,340	3,080	3,130	3,050	3,820	4,180	3,800	3,840	3,570	3,570	3,080	421	
LEAD	ug/L	15 (A)	<2	<2	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2.0	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5		
MAGNESIUM	mg/L	--	29.0	31.0	31.0	36.0	29.0	29.0	30.0	28.0	34.0	30.0	30.0	35.5	34.0	32.0	30.0	31.5	27.6	27.6	28.1	31.1	29.3	30.9	27.7	35.0	40.3	35.0	34.3	32.1	33.8	30.4	33.8	
MANGANESE	ug/L	50 (S)	68	66	70	70	63	68	58	57	66	51	49	66	70	70	60	53	46	49	44	58	48	65	50	75	73	67	64	71	68	71	97	
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	0.25	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	2.5	2.6	2.9	<5	2.5	2.6	2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.0	
SELENIUM	ug/L	50 (P)	<5	<5	<4	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10		
SODIUM	mg/L	--	23	29	25	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	76	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	2.00	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.05		
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.5		
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10		
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.025		
ZINC	ug/L	5,000 (S)	30	60	30	<20	<10	<10	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10		
VOC'S (METHOD 8260)																																		
Acetone	ug/L	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<50	<10	<10	<10	<10	<10	<10	<5.0		
2-Butanone (MEK)	ug/L	--	<50	<50	<50	<5	<50	<50	<50	<50	<50	<50	<50	<100	<100	<100	<50	<50	<50	<50	<50	<50	<50	<50	<10	<10	<10	<10	<10	<10	<10	<5.0		
Carbon Disulfide	ug/L	--	<5	<5	<5	2	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1	<1	<1	<1	<1	<1	<5.0		
Chloroform	ug/L	80 (P)	<5	<5	<5	<1	<5	<2	<2	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1.0		
FIELD PARAMETERS																																		
pH	S.U.	6.5-8.5 (S)	7.30	7.50	7.20	7.50	7.40	7.40	7.20	7.50	7.00	7.20	7.20	7.18	7.02	6.70	7.50	7.40	7.31	7.29	7.19	6.70	7.23	7.29	7.24	7.16	7.17	7.19	7.17	7.20	6.99	7.21	--	
CONDUCTIVITY	umhos/cm	--	663	847	730	750	830	870	840	760	870	800	680	886	1,007	810	820	770	732	657	775	659	781	579	813	732	681	668	705	635	586	789	--	
TEMPERATURE	°C	--	18.30	8.89	17.20	19.40	12.20	13.30	13.90	12.80	14.40	13.30	NM	19.70	10.90	15.50	13.20	13.75	13.40	14.50	14.00	14.80	14.20	14.10	14.40	14.30	13.90	15.00	14.30	15.20	14.60	16.10	--	

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

* MW-1D was damaged by construction operations located in front of Tasty Made prior to the October 2016 monitoring event. The day before sampling, the casing pipe was cut and a new stub piece was glued. 2-Butanone (Methyl-ethyl-ketone) is listed on the Safety Data Sheet (SDS) of the glue.
There is no U.S. EPA Primary MCL listed for this chemical and U.S. EPA does not list it as a carcinogen.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-1D (continued)		
			4/14/16	10/18/16	4/12/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	5	3.7	3.8
BARIUM	ug/L	2,000 (P)	332	279	314
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	126	119	116
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	102
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	40.0	36.1	33.8
MANGANESE	ug/L	50 (S)	102	100	119
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	8.2	6.8	8.5
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	69	73	69
SULFIDE	mg/L	--	<0.05	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	96	10
VOC'S (METHOD 8260)					
Acetone	ug/L	--	<1.0	<5.0	<5.0
2-Butanone (MEK)	ug/L	--	<5.0	9.0*	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
Chloroform	ug/L	80 (P)	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.09	7.20	7.15
CONDUCTIVITY	umhos/cm	--	1,155	790	743
TEMPERATURE	°C	--	15.90	18.50	15.90

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-4D (continued)									
			5/18/16	6/8/16	7/20/16	8/17/16	9/21/16	10/19/16	11/9/16	12/21/16	1/18/17	4/19/17
INORGANICS												
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
ARSENIC	ug/L	10 (P)	5	4	3.4	3.9	3.8	3.5	3.6	3.6	3.2	4.2
BARIUM	ug/L	2,000 (P)	267	287	297	294	281	284	282	278	271	286
BERYLLIUM	ug/L	4 (P)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1
CALCIUM	mg/L	--	91.6	96.1	99.7	96.8	94.8	97.6	99.3	99.2	99.2	102
CHROMIUM	ug/L	100 (P)	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	<80	<80	<80	473	99	<80	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MAGNESIUM	mg/L	--	31.7	29.7	28.9	31.4	30.3	30.9	30.1	29.5	29.4	30.3
MANGANESE	ug/L	50 (S)	249	235	242	246	242	233	232	247	234	231
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SELENIUM	ug/L	50 (P)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
SODIUM	mg/L	--	14.9	14.1	13.2	14.1	14.8	16.4	15	13	12.7	13.4
SULFIDE	mg/L	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VOC'S (METHOD 8260)												
Acetone	ug/L	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone (MEK)	ug/L	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	80 (P)	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0

FIELD PARAMETERS												
pH	S.U.	6.5-8.5 (S)	7.37	7.19	7.22	7.36	7.34	7.30	7.27	7.39	7.23	7.34
CONDUCTIVITY	umhos/cm	--	583	672	760	682	572	681	611	580	657	632
TEMPERATURE	°C	--	15.7	16.0	16.3	16.1	16.6	15.9	15.0	14.8	14.9	16.2

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-5D																								
			10/19/95	1/17/96	4/22/96	7/30/96	2/12/97	4/29/97	7/7/97	10/21/97	6/24/98	12/16/98	7/20/99	8/24/00	11/27/00	5/30/01	10/19/01	6/3/02	5/20/03	11/12/03	5/25/04	10/27/04	5/3/05	11/1/05	6/17/08	4/9/15	
INORGANICS																											
ALUMINUM	ug/L	50 to 200 (S)	<50	<50	90	<200	<500	<500	<500	<500	<500	<500	<500	<500	--	--	--	--	--	--	--	--	--	--	--	<25	
ANTIMONY	ug/L	6 (P)	<5	<5	<5	<60	4.20	<4	<4	<4	<4	<4	<4	<4.0	5.00	<4	<4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<2.0	<4	
ARSENIC	ug/L	10 (P)	7	27	22	14.6	47	47	49	44	42	53	53	24.2	41	34	42	29.5	26.3	26.4	24.5	28.8	27.5	32.3	38.7	11	
BARIUM	ug/L	2,000 (P)	120	190	110	<200	160	180	180	170	179	170	168	175	163	183	169	--	--	--	--	--	--	--	--	134	
BERYLLIUM	ug/L	4 (P)	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.2	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<5	<1	<1	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<5	<5	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	
CALCIUM	mg/L	--	72.0	73.0	69.0	74.0	72.0	74.0	75.0	79.0	62.0	77.0	77.0	73.7	82.0	84.0	77.0	109.0	81.6	88.1	82.6	79.8	87.5	81.3	81.3	79.2	
CHROMIUM	ug/L	100 (P)	<20	<20	<20	<10	<2	<2	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<10	<10	<10	<5	<5	<5	<5	<5	<5	<5.0	<5.0	<10	
COBALT	ug/L	--	<20	<20	<20	<50	<100	<100	<50.0	<50.0	<50.0	<50.0	<50.0	<50	<10	<10	<20	<50	<50	<50	<50	<50	<50	<5.0	<5.0	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<10	<10	<10	<25	<20	<20	<10	<10	<10	<20	<20	<20	<10	--	--	--	--	--	--	--	--	--	--	<50	
CYANIDE	mg/L	0.2 (P)	<0.005	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.040	
IRON	ug/L	300 (S)	1,500	4,100	3,100	2,600	8,400	8,200	7,500	7,100	8,200	7,700	7,600	7,540	8,270	8,230	7,870	7,080	7,260	6,980	7,100	7,130	7,090	7,730	7,490	<80	
LEAD	ug/L	15 (A)	<2	<3	<3	<3	<2	<2	<2	<2	<2	<2	<2	<2.0	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<5	
MAGNESIUM	mg/L	--	24.0	25.0	25.0	26.0	25.0	26.0	26.0	26.0	23.0	27.0	26.0	24.9	26.0	27.0	28.0	33.0	27.3	28.4	24.9	28.0	28.9	28.6	27.8	30.0	
MANGANESE	ug/L	50 (S)	270	240	240	240	290	310	290	280	313	292	291	316	330	340	330	317	303	287	293	284	292	315	351	283	
MERCURY	ug/L	2 (P)	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	4.00	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<20	<20	<20	<40	<40	<40	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<10	<10	<10	<20	<20	<20	<20	<20	<20	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	1.40	1.10	1.20	<5	1.00	1.00	0.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.0	
SELENIUM	ug/L	50 (P)	<5	<4	<4	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5		
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	
SODIUM	mg/L	--	4.9	5.3	7.2	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5.0	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	<1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1.0	<1.0	<0.05	
THALLIUM	ug/L	2 (P)	<2	<2	<2	<10	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1	<1	<1	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<0.50	<0.50	<1.5	
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<100	<100	<100	<100	<100	<100	<100	<100	<10	
VANADIUM	mg/L	--	<0.01	<0.01	<0.01	<0.05	<1	<1	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	<0.025	
ZINC	ug/L	5,000 (S)	20.00	<10	20.00	<20	<10	<10	21.00	<10	<10	<10	<10	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20.0	<20.0	<10	
VOC'S (METHOD 8260)																											
Acetone	ug/L	--	<50	<50	<50	<5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<50	<10	<10	<5.0
2-Butanone (MEK)	ug/L	--	<50	<50	<50	<5	<50	<50	<50	<50	<50	<50	<50	<50	<100	<100	<100	<50	<50	<50	<50	<50	<50	<10	<10	<5.0	
Carbon Disulfide	ug/L	--	<5	6	<5	2	<10	<10	<10	<10	<10	<10	<10	<100	<100	<100	<10	<10	<10	<10	<10	<10	<50	<1	<1	<1.0	
Chloroform	ug/L	80 (P)	<5	<5	<5	<1	<5	<2	<2	<5	<5	<5	<5	<5.0	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<1	<1	<1.0	
FIELD PARAMETERS																											
pH	S.U.	6.5-8.5 (S)	7.50	7.70	7.30	7.70	7.70	7.80	6.80	7.60	7.40	7.50	7.50	7.38	7.36	6.60	7.50	7.47	7.30	7.48	7.58	7.39	7.54	7.49	7.52	--	
CONDUCTIVITY	umhos/cm	--	413	367	470	450	600	640	600	560	570	600	530	570	630	580	600	590	554	650	581	623	450	632	477	--	
TEMPERATURE	°C	--	16.10	16.10	17.80	16.10	11.70	10.00	13.30	12.80	13.30	13.30	NM	18.80	10.20	13.30	13.20	14.10	13.40	13.20	13.70	13.20	13.60	13.90	14.10	--	

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-5D (continued)		
			4/12/16	10/18/16	4/10/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	15	12.5	14.5
BARIUM	ug/L	2,000 (P)	115	111	117
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	87.4	93.0	91.7
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	31.4	33.5	31.3
MANGANESE	ug/L	50 (S)	283	287	301
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	<2	<2	<2
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	5	7.2	6.1
SULFIDE	mg/L	--	--	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	<10	<10
VOC'S (METHOD 8260)					
Acetone	ug/L	--	<1.0	<5.0	<5.0
2-Butanone (MEK)	ug/L	--	<5.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
Chloroform	ug/L	80 (P)	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.48	7.47	7.21
CONDUCTIVITY	umhos/cm	--	573	478	512
TEMPERATURE	°C	--	14.70	15.30	16.60

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-6D (continued)		
			4/12/16	10/18/16	4/10/17
INORGANICS					
ALUMINUM	ug/L	50 to 200 (S)	<25	<25	<25
ANTIMONY	ug/L	6 (P)	<4	<4	<4
ARSENIC	ug/L	10 (P)	7	5.4	5.7
BARIUM	ug/L	2,000 (P)	212	205	209
BERYLLIUM	ug/L	4 (P)	<1	<1	<1
CADMIUM	ug/L	5 (P)	<1	<1	<1
CALCIUM	mg/L	--	102	113	101
CHROMIUM	ug/L	100 (P)	<5	<5	<5
COBALT	ug/L	--	<25	<25	<25
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50
CYANIDE	mg/L	0.2 (P)	<0.010	<0.010	<0.010
IRON	ug/L	300 (S)	<80	<80	<80
LEAD	ug/L	15 (A)	<5	<5	<5
MAGNESIUM	mg/L	--	34.4	37.6	37.1
MANGANESE	ug/L	50 (S)	48	54	54
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20
NICKEL	ug/L	--	<10.0	<10.0	<10.0
POTASSIUM	mg/L	--	2.8	2.4	2.5
SELENIUM	ug/L	50 (P)	<5	<5	<5
SILVER	ug/L	100 (S)	<10	<10	<10
SODIUM	mg/L	--	37.2	33.4	25.2
SULFIDE	mg/L	--	--	<0.05	<0.05
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5
TIN	ug/L	--	<10	<10	<10
VANADIUM	mg/L	--	<0.025	<0.025	<0.025
ZINC	ug/L	5,000 (S)	<10	25	<10
VOC'S (METHOD 8260)					
Acetone	ug/L	--	<1.0	<5.0	<5.0
2-Butanone (MEK)	ug/L	--	<5.0	<5.0	<5.0
Carbon Disulfide	ug/L	--	<1.0	<1.0	<1.0
Chloroform	ug/L	80 (P)	<1.0	<1.0	<1.0

FIELD PARAMETERS					
pH	S.U.	6.5-8.5 (S)	7.28	7.36	7.20
CONDUCTIVITY	umhos/cm	--	767	600	626
TEMPERATURE	°C	--	16.2	16.7	16.8

(P) = Ohio EPA Primary Maximum Contaminant Level

(S) = Secondary Maximum Contaminant Level

(A) = Action Level

NA = NOT ANALYZED

Shaded parameters have Primary MCL.

Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	MW-9D																				
			4/15/15	10/7/15	10/20/15	11/4/15	11/18/15	12/2/15	12/16/15	1/20/16	2/17/16	3/16/16	4/13/16	5/18/16	6/8/16	7/20/16	8/17/16	9/21/16	10/19/16	11/9/16	12/21/16	1/18/17	4/19/17
INORGANICS																							
ALUMINUM	ug/L	50 to 200 (S)	<25	<150	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	
ANTIMONY	ug/L	6 (P)	<3	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
ARSENIC	ug/L	10 (P)	7	8	8	6	9	9	6	13	9	8	7	7	5	6	6.1	7.7	6.4	6.5	6.3	5.5	6.3
BARIUM	ug/L	2,000 (P)	74	78	73	74	135	123	68	108	94	91	82	89	127	111	108	102	83	84	87.7	82.5	104
BERYLLIUM	ug/L	4 (P)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
CADMIUM	ug/L	5 (P)	<5	<5	<5	<1	<5	<5	<5	<5	<5	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	
CALCIUM	mg/L	--	123	118	109	108	149	145	126	133	125	120	113	114	139	134	136	124	114	118	126	117	134
CHROMIUM	ug/L	100 (P)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	
COBALT	ug/L	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
CYANIDE	mg/L	0.2 (P)	<0.040	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
IRON	ug/L	300 (S)	934	298	1,200	<80	374	1,570	321	1,830	687	258	<80	<80	80	<80	141	391	996	342	297	149	<80
LEAD	ug/L	15 (A)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MAGNESIUM	mg/L	--	34.7	33.0	29.8	31.7	39.4	37.3	32.9	34.7	34.2	34.0	33.0	34.9	35.5	33.1	36.5	35.0	33.2	33.2	35.1	33.1	35.4
MANGANESE	ug/L	50 (S)	339	261	276	241	370	392	318	308	328	286	227	297	356	322	344	348	306	268	312	257	312
MERCURY	ug/L	2 (P)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	6.8	3.2	3.2	3.0	7.2	7.7	4.3	5.4	4.5	4.1	3.5	4.3	7.5	8.2	6.9	7.7	6.8	5.5	6.1	4.9	7.2
SELENIUM	ug/L	50 (P)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SILVER	ug/L	100 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
SODIUM	mg/L	--	69.1	22.0	22.7	20.0	87.5	99.6	56.4	62.7	50.2	46.6	20.0	40.5	95.6	97.3	76.2	88.4	60.5	42.9	41.0	25.8	59.0
SULFIDE	mg/L	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
THALLIUM	ug/L	2 (P)	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	
TIN	ug/L	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
VANADIUM	mg/L	--	<0.025	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	
ZINC	ug/L	5,000 (S)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	17.0	<10	11.0	<10	<10	
VOC'S (METHOD 8260)																							
Acetone	ug/L	--	<5.0	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
2-Butanone (MEK)	ug/L	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Carbon Disulfide	ug/L	--	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroform	ug/L	80 (P)	<1.0	1.5	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0	
FIELD PARAMETERS																							
pH	S.U.	6.5-8.5 (S)	7.11	7.21	7.20	7.20	7.07	6.94	7.05	7.04	7.00	7.11	7.12	7.23	6.90	6.95	7.07	7.02	7.05	7.04	7.17	7.02	7.06
CONDUCTIVITY	umhos/cm	--	993	810	829	815	1,309	1,415	1,230	1,274	1,103	922	790	798	1,264	1,350	1,127	994	1,008	803	776	810	910
TEMPERATURE	°C	--	16.7	16.1	15.8	16.0	16.7	16.5	15.9	15.2	15.6	16.0	15.7	16.1	16.6	16.9	17.0	16.7	16.3	15.6	15.3	15.1	16.2

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	PW-4								PW-15																	
			2/19/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/1/15	10/20/15	11/6/15	12/16/15	1/20/16	2/17/16	3/16/16	4/13/16	5/18/16	6/8/16	7/20/16	8/17/16	9/21/16	10/19/16	11/9/16	12/12/16	1/18/17	4/19/17	
INORGANICS																												
ALUMINUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
ARSENIC	ug/L	10 (P)	15.3	14	9.7	6.7	7.7	4.1	7.9	4	4	<3	5	8	7	10	3	<3	5	<3	4	6.9	<3	<3	3.6	<3	3.2	
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	97	99	104	98	113	97	108	107	<1	164	141	104	106	100	105	101	106	125	
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	
CALCIUM	mg/L	--	--	--	--	--	--	--	--	120	120	127	125	130	117	123	124	114	114	122	122	119	133	124	121	122	122	
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	
COBALT	ug/L	--	--	--	--	--	--	--	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	<80	275	<80	<80	792	342	1,260	<80	<80	<80	<80	<80	417	1,200	983	394	484	<80	
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	32.5	33.5	33.9	33.8	36.5	34.7	36.0	36.4	35.9	35.3	33.6	35.5	34.4	38.9	35.6	34.2	34.4	34.9	
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	216	215	211	221	217	213	233	209	226	151	207	228	230	218	214	222	212	188	
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	--	--	--	--	--	--	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	5.3	5.2	5.1	5.2	6.6	5.1	5.2	5.2	4.8	4.0	4.1	5.0	5.5	5.1	4.9	5.2	5.3	5.0	
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
SODIUM	mg/L	--	--	--	--	--	--	--	--	58.9	53.4	55.3	54.9	65.7	49.0	58.9	48.4	57.2	37.1	46.5	55.7	60.7	59.5	56.8	52.5	53.8	48.7	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	
TIN	ug/L	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
VANADIUM	mg/L	--	--	--	--	--	--	--	--	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	28.0	<10	<10	<10	<10
VOC'S (METHOD 8260)																												
Acetone	ug/L	--	--	--	--	--	--	--	--	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0	
FIELD PARAMETERS																												
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

**Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone**

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	PW-16													PW-18												
			2/23/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17	2/23/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17
INORGANICS																												
ALUMINUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC	ug/L	10 (P)	12.7	12	13.9	5.4	7.1	5.4	8.1	4.5	5.0	7.7	7.6	5.3	7.4	13.8	13	11.8	6.7	7.8	5.0	7.9	3.6	5.7	<3.0	9.3	7.1	7.8
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CALCIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COBALT	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NICKEL	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SODIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VANADIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC'S (METHOD 8260)																												
Acetone	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS																												
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

**Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone**

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	PW-19													PW-20												
			2/23/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17	2/23/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17
INORGANICS																												
ALUMINUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC	ug/L	10 (P)	12	12	10.7	4.9	6.3	3.8	8.6	3.9	4.4	5.6	8.0	5.6	7.3	13.2	10	7.4	3.2	<3.0	5.0	<3.0	6.8	4.4	6.9	4.8	3.9	<3.0
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CALCIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COBALT	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NICKEL	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SODIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VANADIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC'S (METHOD 8260)																												
Acetone	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS																												
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	PW-22													PW-23																							
			2/19/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17	9/1/15	10/20/15	11/6/15	12/16/15	1/20/16	2/17/16	3/16/16	4/13/16	5/18/16	6/8/16	7/20/16	8/17/16	9/21/16	10/19/16	11/9/16	12/21/16	1/23/17	4/19/17						
INORGANICS																																							
ALUMINUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
ARSENIC	ug/L	10 (P)	14.1	11	7.8	3.1	5.4	<3.0	6.5	3.4	4.6	6.7	4.2	4.2	6.3	--	7	9	7	9	8	11	20	9	9	5	5.7	7.4	6.9	15.7	10.1	8.0	7.3	4.2	--	--	--	--	
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	74	69	84	81	85	85	72	71	154	113	89	88	89	84	81.4	75.4	125	--	--	--	--	
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
CALCIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	136	134	138	140	134	129	141	135	126	116	120	135	118	158	138	127	124	118	--	--	--	--	
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
COBALT	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25		
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<80	460	<80	292	782	1,400	2,420	131	490	<80	<80	241	281	2,160	1,350	885	821	<80	--	--	--	--	
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	36.3	37.4	35.8	36.0	37.9	37.6	39.7	37.8	38.4	35.4	35.1	37.6	34.4	41.5	36.7	33.5	33.4	35.0	--	--	--	--	
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	270	279	263	260	220	241	286	253	272	164	169	249	236	269	259	249	237	187	--	--	--	--	
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
NICKEL	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.8	5.9	5.4	5.6	5.1	4.9	5.7	5.6	5.0	4.3	3.6	4.6	4.3	5.4	5.1	5.3	5.2	5.1	--	--	--	--	
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
SODIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67.8	67.0	66.4	66.9	55.6	58.0	69.9	61.4	70.7	41.4	40.2	66.7	60.3	89.6	83.0	83.4	76.8	48.8	--	--	--	--	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
VANADIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28.0	22.0	<10	<10	<10	<10	12.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
VOC'S (METHOD 8260)																																							
Acetone	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<2.0	<2.0	<1.0	<1.0	2.3	<1.0	<1.0	<5.0	<5.0	<5.0	7.5	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
FIELD PARAMETERS																																							
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	PW-25						PW-26										PW-27																										
			2/23/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	2/23/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17	2/23/16	3/24/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17											
INORGANICS																																													
ALUMINIUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
ARSENIC	ug/L	10 (P)	12.9	12	9	5	5.5	<3.0	13.7	11	7.8	3.7	4.1	6.1	8.3	6.6	5.7	7.4	4.5	5.2	10.0	13.5	18	9	4.3	3.7	4.7	8.0	5.5	4.9	7.7	8.5	<3.0	5.5	--	--	--	--	--	--	--				
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
CALCIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
COBALT	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
NICKEL	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
SODIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
VANADIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
VOC'S (METHOD 8260)																																													
Acetone	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
FIELD PARAMETERS																																													
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALYZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

**Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone**

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	PW-28												Plant Source											
			2/19/16	3/23/16	4/14/16	5/18/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	4/14/17	2/19/16	3/23/16	4/14/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17
INORGANICS																										
ALUMINUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC	ug/L	10 (P)	14	11	6.3	4.9	4.7	3.7	5.1	5.2	3.9	6.8	5.2	4.2	15.1	12	7.0	3.9	3.1	6.7	6.0	3.7	5.6	7.6	4.8	8.3
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CALCIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COBALT	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NICKEL	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SODIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VANADIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOC'S (METHOD 8260)																										
Acetone	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS																										
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

(P) = Ohio EPA Primary Maximum Contaminant Level
(S) = Secondary Maximum Contaminant Level
(A) = Action Level
NA = NOT ANALZED
Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

Table 2 (continued)
City of Lancaster, Ohio
Miller Park Wellfield
Historical Groundwater Quality Data
Deep Zone

PARAMETERS	Units	MCL/SMCL/ ACTION LEVEL	Plant Tap											
			2/19/16	3/23/16	4/14/16	6/8/16	7/15/16	8/16/16	9/23/16	10/18/16	11/10/16	12/12/16	1/23/17	4/14/17
INORGANICS														
ALUMINUM	ug/L	50 to 200 (S)	--	--	--	--	--	--	--	--	--	--	--	--
ANTIMONY	ug/L	6 (P)	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC	ug/L	10 (P)	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
BARIUM	ug/L	2,000 (P)	--	--	--	--	--	--	--	--	--	--	--	--
BERYLLIUM	ug/L	4 (P)	--	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	ug/L	5 (P)	--	--	--	--	--	--	--	--	--	--	--	--
CALCIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM	ug/L	100 (P)	--	--	--	--	--	--	--	--	--	--	--	--
COBALT	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--
COPPER	ug/L	1,000 (S) / 1,300 (A)	--	--	--	--	--	--	--	--	--	--	--	--
CYANIDE	mg/L	0.2 (P)	--	--	--	--	--	--	--	--	--	--	--	--
IRON	ug/L	300 (S)	--	--	--	--	--	--	--	--	--	--	--	--
LEAD	ug/L	15 (A)	--	--	--	--	--	--	--	--	--	--	--	--
MAGNESIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
MANGANESE	ug/L	50 (S)	--	--	--	--	--	--	--	--	--	--	--	--
MERCURY	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--
NICKEL	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--
POTASSIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
SELENIUM	ug/L	50 (P)	--	--	--	--	--	--	--	--	--	--	--	--
SILVER	ug/L	100 (S)	--	--	--	--	--	--	--	--	--	--	--	--
SODIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
SULFIDE	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
THALLIUM	ug/L	2 (P)	--	--	--	--	--	--	--	--	--	--	--	--
TIN	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--
VANADIUM	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
ZINC	ug/L	5,000 (S)	--	--	--	--	--	--	--	--	--	--	--	--
VOC'S (METHOD 8260)														
Acetone	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	ug/L	80 (P)	--	--	--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS														
pH	S.U.	6.5-8.5 (S)	--	--	--	--	--	--	--	--	--	--	--	--
CONDUCTIVITY	umhos/cm	--	--	--	--	--	--	--	--	--	--	--	--	--
TEMPERATURE	°C	--	--	--	--	--	--	--	--	--	--	--	--	--

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Shaded parameters have Primary MCL.
Shaded results exceed Primary MCL.

ATTACHMENT 3

MANN-KENDALL TREND ANALYSES

City of Lancaster, Ohio
 Miller Park Wellfield
 Wellhead Protection Program
 Mann-Kendall Trend Analyses
 October 1995 - April 2017

ARSENIC

Well No.	October 1995 - Current			10 Most Recent Trend		
	Increasing	Decreasing	No Trend	Increasing	Decreasing	No Trend
Shallow Wells						
MW-1S	*ND*					
MW-2	*ND*					
MW-3			X			
MW-4S			X			
MW-5S	*ND*					
MW-6S	*ND*					
MW-7			X			
MW-8	*ND*					
MW-9S			X			
Deep Wells						
MW-1D			X			
MW-4D			X			
MW-5D			X			
MW-6D			X			
MW-9D			X			

BARIUM

Well No.	October 1995 - Current			10 Most Recent Trend		
	Increasing	Decreasing	No Trend	Increasing	Decreasing	No Trend
Shallow Wells						
MW-1S	X					X
MW-2			X			
MW-3			X			
MW-4S	X			X		
MW-5S		X				
MW-6S			X			
MW-7			X			
MW-8	X					X
MW-9S	X			X		
Deep Wells						
MW-1D	X					X
MW-4D			X			
MW-5D			X			
MW-6D		X				
MW-9D			X			

ND = Result reported below the laboratory detection limit.

City of Lancaster, Ohio
Miller Park Wellfield
Wellhead Protection Program
Mann-Kendall Trend Analyses
October 1995 - April 2017

SELENIUM

Well No.	October 1995 - Current			10 Most Recent Trend		
	Increasing	Decreasing	No Trend	Increasing	Decreasing	No Trend
Shallow Wells						
MW-1S		*ND*				
MW-2		*ND*				
MW-3		*ND*				
MW-4S		*ND*				
MW-5S		*ND*				
MW-6S		*ND*				
MW-7		*ND*				
MW-8	X					X
MW-9S		*ND*				
Deep Wells						
MW-1D		*ND*				
MW-4D		*ND*				
MW-5D		*ND*				
MW-6D		*ND*				
MW-9D		*ND*				

ND = Result reported below the laboratory detection limit.

City of Lancaster, Ohio
Miller Park Wellfield
Wellhead Protection Program
Mann-Kendall Trend Analyses
October 1995 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW1S/BA

The calculated $z = 2.20544$

Ha: There is an upward trend, the p-value = 0.0137116

At alpha = 0.02, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.986288

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

**City of Lancaster, Ohio
Miller Park Wellfield
Wellhead Protection Program
Mann-Kendall Trend Analyses
10 Most Recent Trend**

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW1S/BA-10REC

The calculated $z = 0.357771$

Ha: There is an upward trend, the p-value = 0.360257

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.639743

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

City of Lancaster, Ohio
Miller Park Wellfield
Wellhead Protection Program
Mann-Kendall Trend Analyses
October 1995 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW2/BA

The calculated $z = 1.83124$

Ha: There is an upward trend, the p-value = 0.0335321

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.966468

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

City of Lancaster, Ohio
Miller Park Wellfield
Wellhead Protection Program
Mann-Kendall Trend Analyses
October 1995 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW3/AS

The calculated $z = 0.534307$

Ha: There is an upward trend, the p-value = 0.296565

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.703435

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW3/BA

The calculated $z = -0.73515$

Ha: There is an upward trend, the p-value = 0.768875

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.231125

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Analyses
October 1995 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW4S/AS

The calculated $z = 1.52653$

Ha: There is an upward trend, the p-value = 0.0634387

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.936561

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW4S/BA

The calculated $z = 2.27230$

Ha: There is an upward trend, the p-value = 0.0115343

At $\alpha = 0.02$, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.988466

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

**City of Lancaster, Ohio
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Mann-Kendall Trend Analyses
10 Most Recent Trend**

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW4S/AS-10REC

The calculated $z = 2.50440$

Ha: There is an upward trend, the p-value = 0.0061330

At alpha = 0.02, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.993867

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

**City of Lancaster, Ohio
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Mann-Kendall Trend Analyses
October 1995 - April 2017**

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW5S/BA

The calculated $z = -3.11562$

Ha: There is an upward trend, the p-value = 0.999082

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.0009178

At $\alpha = 0.02$, there is enough evidence to determine that there is a downward trend.

City of Lancaster, Ohio
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Mann-Kendall Trend Analyses
October 1995 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW6S/BA

The calculated $z = 1.53093$

Ha: There is an upward trend, the p-value = 0.0628932

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.937107

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

City of Lancaster, Ohio
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Mann-Kendall Trend Analyses
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Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW7/AS

The calculated $z = -0.50425$

Ha: There is an upward trend, the p-value = 0.692958

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.307042

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW7/BA

The calculated $z = 0.877328$

Ha: There is an upward trend, the p-value = 0.190154

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.809846

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW8/BA

The calculated $z = 2.29142$

Ha: There is an upward trend, the p-value = 0.0109695

At alpha = 0.02, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.989031

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW8/SE

The calculated $z = 2.91815$

Ha: There is an upward trend, the p-value = 0.0017606

At alpha = 0.02, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.998239

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

**City of Lancaster, Ohio
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Mann-Kendall Trend Analyses
10 Most Recent Trend**

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW8/BA-10REC

The calculated $z = 1.88586$

Ha: There is an upward trend, the p-value = 0.0296572

At alpha = 0.02, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.970343

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW8/SE-10REC

The calculated $z = -1.16743$

Ha: There is an upward trend, the p-value = 0.878483

At alpha = 0.02, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.121517

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

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April 2015 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW9S/AS

The calculated $z = -0.99676$

Ha: There is an upward trend, the p-value = 0.840560

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.159440

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW9S/BA

The calculated $z = 3.47751$

Ha: There is an upward trend, the p-value = 0.0002531

At $\alpha = 0.02$, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.999747

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

**City of Lancaster, Ohio
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Mann-Kendall Trend Analyses
10 Most Recent Trend**

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW9S/BA-10REC

The calculated $z = 3.39882$

Ha: There is an upward trend, the p-value = 0.0003384

At alpha = 0.02, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.999662

At alpha = 0.02, there is not enough evidence to determine that there is a downward trend.

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October 1995 - April 2017**

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW1D/AS

The calculated $z = -1.41702$

Ha: There is an upward trend, the p-value = 0.921761

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.0782391

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW1D/BA

The calculated $z = 3.50164$

Ha: There is an upward trend, the p-value = 0.0002312

At $\alpha = 0.02$, there is enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.999769

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Analyses
10 Most Recent Trend

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW1D/BA-10REC

The calculated $z = 1.43108$

Ha: There is an upward trend, the p-value = 0.0762031

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.923797

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW4D/AS

The calculated $z = -1.14575$

Ha: There is an upward trend, the p-value = 0.874051

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.125949

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW4D/BA

The calculated $z = -0.09067$

Ha: There is an upward trend, the p-value = 0.536124

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.463876

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW5D/AS

The calculated $z = -1.81486$

Ha: There is an upward trend, the p-value = 0.965228

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.0347724

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW5D/BA

The calculated $z = -1.05085$

Ha: There is an upward trend, the p-value = 0.853337

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.146663

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Analyses
October 1995 - April 2017

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW6D/AS

The calculated $z = -0.91979$

Ha: There is an upward trend, the p-value = 0.821159

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.178841

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW6D/BA

The calculated $z = -2.48957$

Ha: There is an upward trend, the p-value = 0.993605

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.0063949

At $\alpha = 0.02$, there is enough evidence to determine that there is a downward trend.

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Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW9D/AS

The calculated $z = -0.43468$

Ha: There is an upward trend, the p-value = 0.668102

At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

Ha: There is a Downward trend, the p-value = 0.331898

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

Mann-Kendall Trend Test by Normal Approximation

Ho: No trend in MW9D/BA

The calculated $z = 0.733473$

Ha: There is an upward trend, the p-value = 0.231635

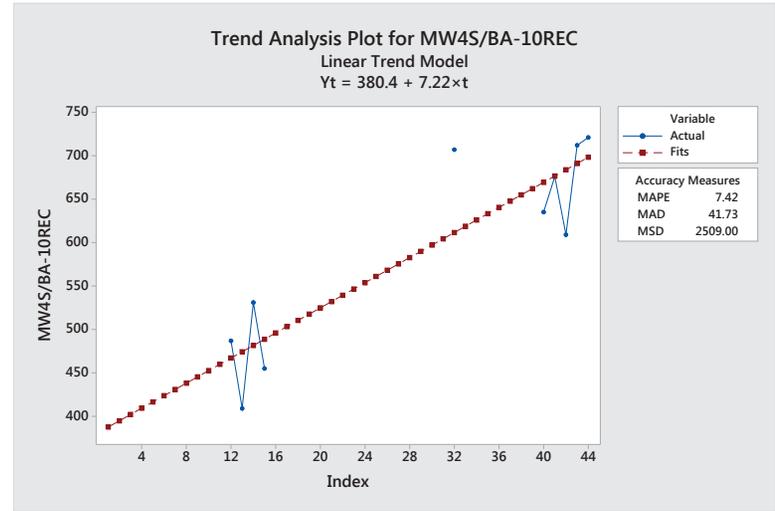
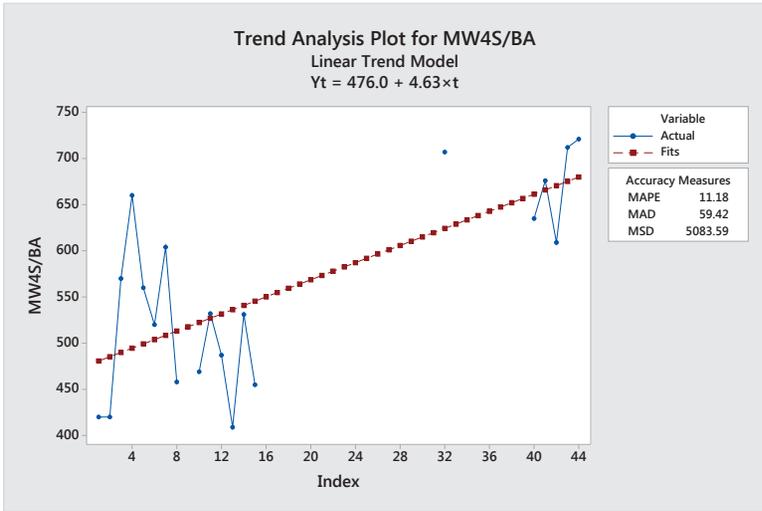
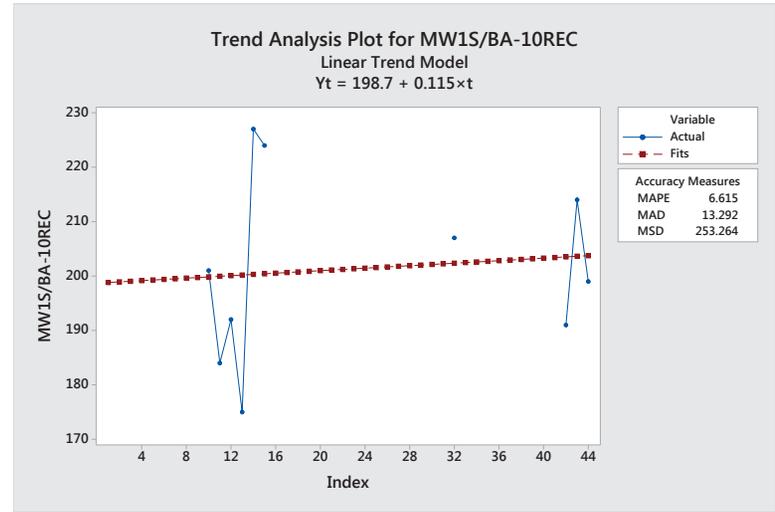
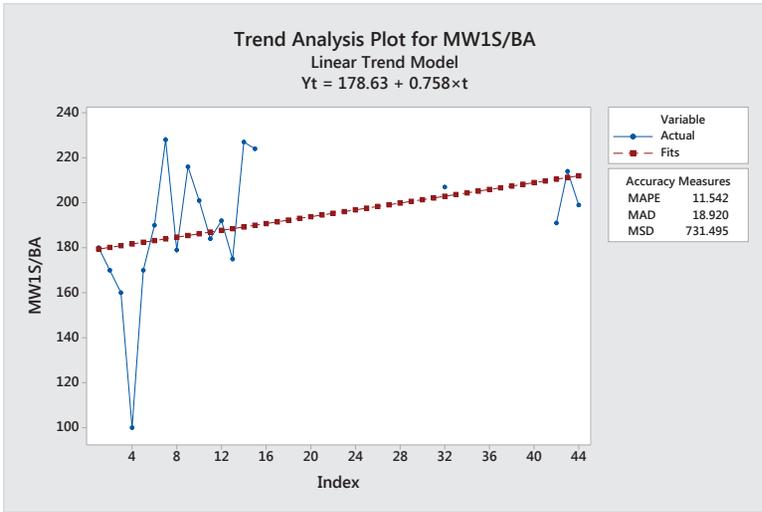
At $\alpha = 0.02$, there is not enough evidence to determine that there is an upward trend.

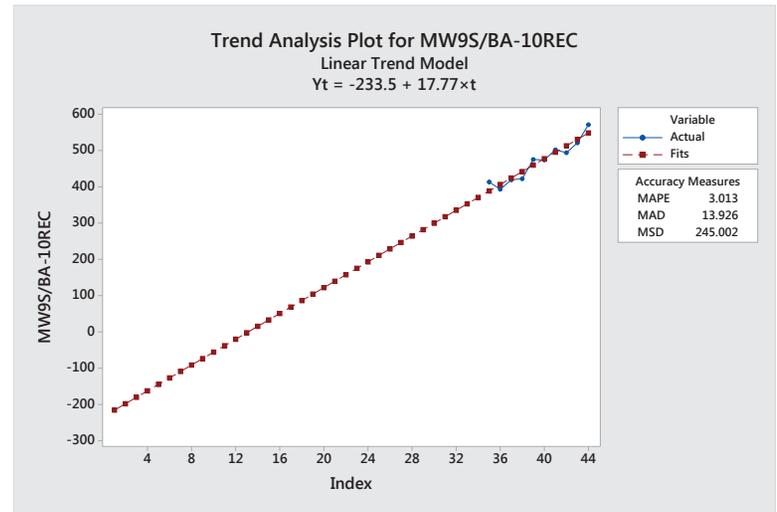
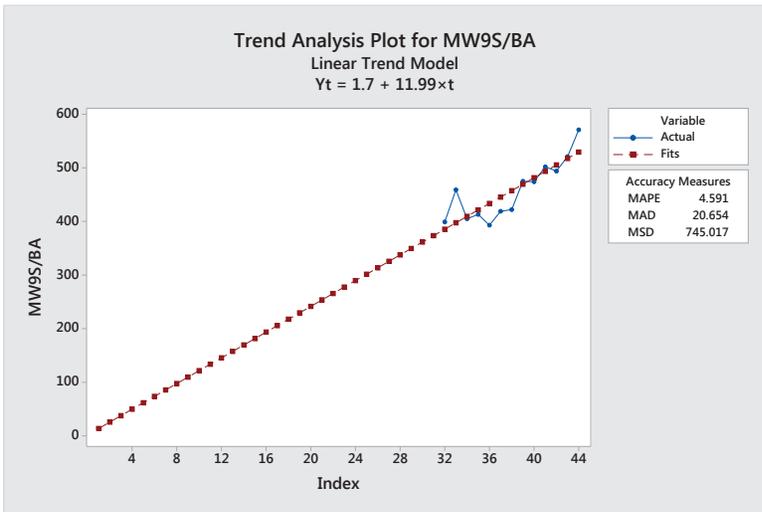
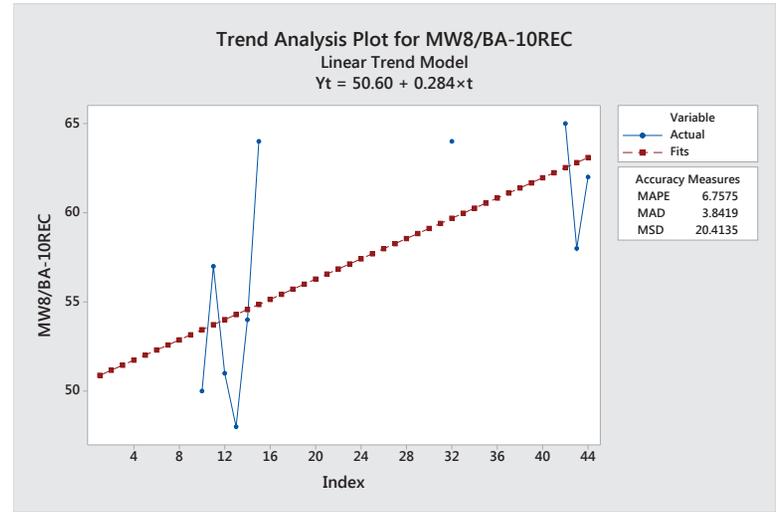
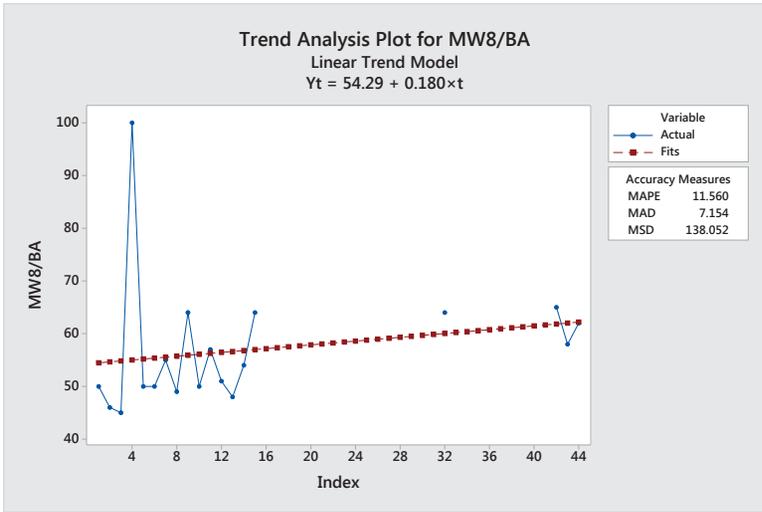
Ha: There is a Downward trend, the p-value = 0.768365

At $\alpha = 0.02$, there is not enough evidence to determine that there is a downward trend.

ATTACHMENT 4

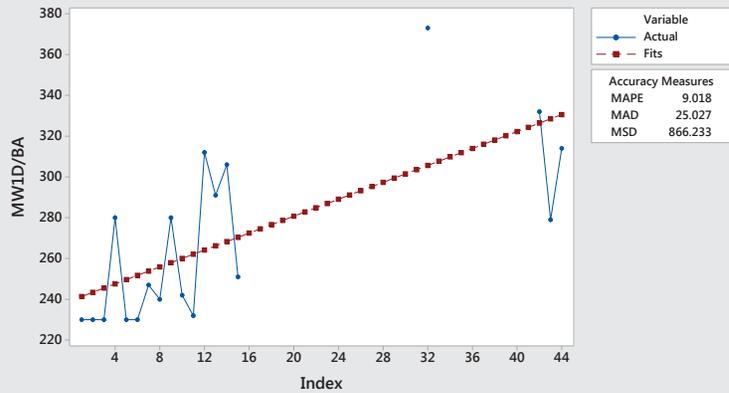
TIME-VERSUS-CONCENTRATION PLOTS





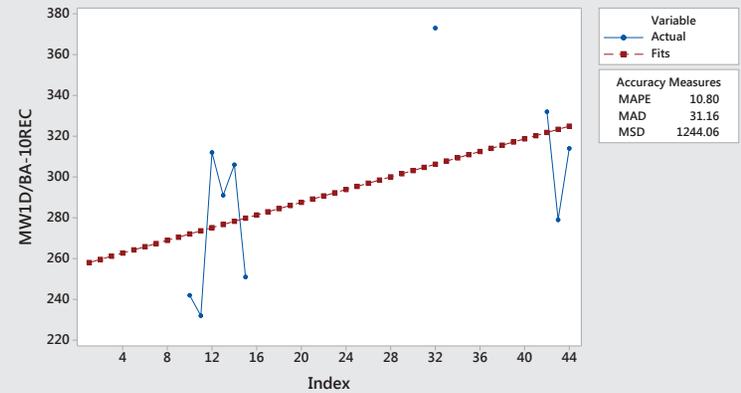
Trend Analysis Plot for MW1D/BA

Linear Trend Model
 $Y_t = 239.3 + 2.074 \times t$



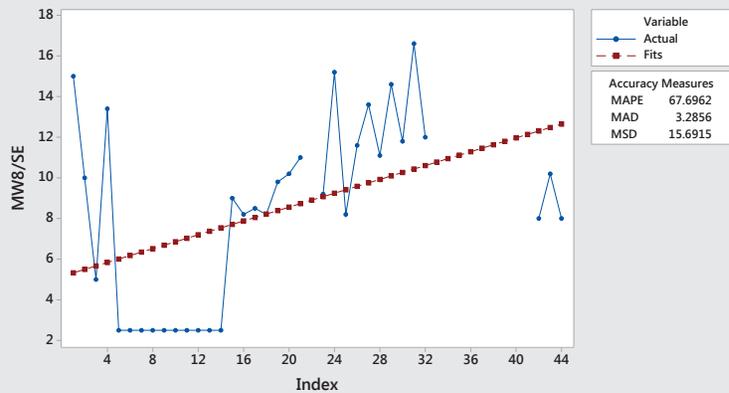
Trend Analysis Plot for MW1D/BA-10REC

Linear Trend Model
 $Y_t = 256.5 + 1.555 \times t$



Trend Analysis Plot for MW8/SE

Linear Trend Model
 $Y_t = 5.15 + 0.1703 \times t$



Trend Analysis Plot for MW8/SE-10REC

Linear Trend Model
 $Y_t = 20.68 - 0.2690 \times t$

