

Appendix A

Laboratory methods and method reporting limits

Statistical Methods

Table A.1. Minnesota Valley Testing Laboratories, Inc., Alkalinity Water Sample Data
Dakota County Ambient Groundwater Quality Study 1999-2019

Well	Date Analyzed	Field Alkalinity	Data analyzed	Laboratory Alkalinity
AGQS-67	9/20/2000	356	10/3/2000	351
AGQS-40	9/20/2000	371	10/4/2000	370
AGQS-77	9/21/2000	282	10/5/2000	288
AGQS-02	9/21/2000	234	10/6/2000	229
AGQS-50	9/21/2000	356	10/7/2000	353
AGQS-01	9/21/2000	273	10/8/2000	269
AGQS-39	9/22/2000	195	10/9/2000	193
AGQS-35	9/22/2000	166	10/10/2000	171

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
1999	Alkalinity, Total	10.00	mg/L CaCO3	310.2
1999	Ammonia Nitrogen	0.20	mg/L	350.1
1999	Bromide	1.00	mg/L	300
1999	Calcium	0.40	mg/L	200.8
1999	Chloride	5.00	mg/L	300
1999	Fluoride	0.50	mg/L	300
1999	Iron	0.20	mg/L	200.8
1999	Magnesium	0.10	mg/L	200.8
1999	Nitrate Nitrogen	0.50	mg/L	300
1999	Nitrite Nitrogen	0.50	mg/L	300
1999	Ortho Phosphate	0.005	mg/L	365.2
1999	Potassium	0.20	mg/L	200.8
1999	Sodium	0.20	mg/L	200.8
1999	Sulfate	5.00	mg/L	300
1999	Total Organic Carbon	0.50	mg/L	5310
2000	Alkalinity, Total Fld	10.00	mg/L CaCO3	field
2000	Ammonia Nitrogen	0.02	mg/L	350.1
2000	Bromide	0.10	mg/L	4500.Br
2000	Calcium	0.02	mg/L	6010
2000	Chloride	3.00	mg/L	325.2
2000	Dissolved Oxygen, Field	0.10	mg/L	4500-OG.
2000	EH, Field		units	NA
2000	Fluoride	0.10	mg/L	340.2
2000	Iron	0.01	mg/L	6010
2000	Magnesium	0.04	mg/L	6010
2000	Nitrate + Nitrite Nitrogen	0.20	mg/L as N	353.2
2000	Nitrate Nitrogen	0.20	mg/L as N	353.2
2000	Nitrite Nitrogen	0.01	mg/L as N	EPA 353.2
2000	pH, Field	1.00	Std units	150.1
2000	Phosphate, Ortho	0.31	mg/L	365.3
2000	Potassium	0.10	mg/L	EPA 258.1
2000	Sample Appearance, Field			2110
2000	Sodium	0.10	mg/L	6010
2000	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2000	Sulfate	4.00	mg/L	375.4
2000	Temperature, field		deg. C	170.1
2000	Total Organic Carbon	1.00	mg/L	415.1
2000	Turbidity, Field	0.10	NTU	180.1
2001	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2001	Ammonia Nitrogen	0.02	mg/L	350.1
2001	Arsenic	2.00	ug/L	206.2
2001	Bromide	0.10	mg/L	4500.Br
2001	Calcium	0.02	mg/L	6010
2001	Chloride	3.00	mg/L	325.2
2001	Dissolved Oxygen, Field	0.10	mg/L	4500-OG.

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
2001	EH, Field		units	field
2001	Fluoride	0.10	mg/L	340.2
2001	Iron	0.01	mg/L	6010
2001	Magnesium	0.04	mg/L	6010
2001	Nitrate + Nitrite Nitrogen	0.20	mg/L as N	353.2
2001	Nitrate Nitrogen	0.20	mg/L as N	353.2
2001	Nitrite Nitrogen	0.01	mg/L as N	EPA 353.2
2001	pH, Field	1.00	Std units	150.1
2001	Phosphate, Ortho	0.31	mg/L	365.3
2001	Potassium	0.10	mg/L	6010
2001	Sample Appearance, Field			2110
2001	Sodium	0.10	mg/L	6010
2001	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2001	Sulfate	4.00	mg/L	375.4
2001	Temperature, field		DEGREES C	170.1
2001	Total Organic Carbon	0.50	mg/L	415.1
2001	Turbidity, Field	0.10	NTU	180.1
2002	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2002	Ammonia Nitrogen	0.02	mg/L	350.1
2002	Bromide	0.10	mg/L	4500.Br
2002	Calcium	0.02	mg/L	6010
2002	Chloride	3.00	mg/L	325.2
2002	Dissolved Oxygen, Field	0.10	mg/L	4500-OG.
2002	Fluoride	0.10	mg/L	340.2
2002	Iron	0.01	mg/L	6010
2002	Magnesium	0.04	mg/L	6010
2002	Nitrate + Nitrite Nitrogen	0.20	mg/L as N	353.2
2002	Nitrate Nitrogen	0.20	mg/L as N	353.2
2002	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2002	pH, Field	1.00	Std units	150.1
2002	Phosphate, Ortho	0.31	mg/L	EPA 365.1
2002	Potassium	0.26	mg/L	6010
2002	Sample Appearance, Field			2110
2002	Sodium	0.10	mg/L	6010
2002	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2002	Sulfate	4.00	mg/L	375.4
2002	Temperature, field		DEGREES C	170.1
2002	Total Organic Carbon	0.50	mg/L	415.1
2002	Turbidity, Field	0.10	NTU	180.1
2003	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2003	Ammonia Nitrogen	0.02	mg/L	350.1
2003	Bromide	0.10	mg/L	4500.Br
2003	Calcium	1.00	mg/L	6010
2003	Chloride	3.00	mg/L	325.2
2003	Dissolved Oxygen, Field	0.10	mg/L	4500-OG.

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
2003	EH, Field		units	field
2003	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2003	Iron	0.01	mg/L	6010
2003	Magnesium	1.00	mg/L	6010
2003	Nitrate + Nitrite Nitrogen	0.20	mg/L as N	353.2
2003	Nitrate Nitrogen	0.20	mg/L as N	353.2
2003	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2003	pH, Field	1.00	Std units	150.1
2003	Phosphate, Ortho	0.31	mg/L	EPA 365.1
2003	Phosphorus, Ortho	0.10	mg/L	EPA 365.1
2003	Potassium	1.00	mg/L	6010
2003	Sample Appearance, Field			2110
2003	Sodium	1.00	mg/L	6010
2003	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2003	Sulfate	4.00	mg/L	375.4
2003	Temperature, field		DEGREES C	170.1
2003	Total Organic Carbon	0.50	mg/L	415.1
2003	Turbidity, Field	0.10	NTU	180.1
2004	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2004	Ammonia Nitrogen	0.02	mg/L	350.1
2004	Arsenic	0.50	µg/L	200.8
2004	Bromide	0.10	mg/L	4500.Br
2004	Caffeine	1.00	ppb	SW846 3510/NPD27
2004	Calcium	0.20	mg/L	6010
2004	Chloride	3.00	mg/L	325.2
2004	Dissolved Oxygen, Field	0.10	mg/L	4500-OG.
2004	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2004	Iron	0.01	mg/L	6010
2004	Magnesium	0.50	mg/L	6010
2004	Nitrate + Nitrite Nitrogen	0.20	mg/L	353.2
2004	Nitrate Nitrogen	0.20	mg/L as N	353.2
2004	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2004	pH, Field	1.00	Std units	150.1
2004	Phosphate, Ortho	0.31	mg/L	EPA 365.1
2004	Phosphorus, Ortho	0.10	mg/L	EPA 365.1
2004	Potassium	0.50	mg/L	6010
2004	Sample Appearance, Field			2110
2004	Sodium	0.50	mg/L	6010
2004	Specific Conductance, Fld	1.00	umhos/cm	120.1
2004	Sulfate	4.00	mg/L	375.4
2004	Temperature, field		DEGREES C	170.1
2004	Total Organic Carbon	0.50	mg/L	415.1
2004	Turbidity, Field	0.10	NTU	180.1
2005	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2005	Ammonia Nitrogen	0.02	mg/L	350.1

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
2005	Arsenic	0.50	ug/L	200.8
2005	Bromide	0.10	mg/L	4500.Br
2005	Calcium	0.20	mg/L	6010
2005	Chloride	3.00	mg/L	325.2
2005	Dissolved Oxygen, Field	0.10	mg/L	SM 4500-O G
2005	EH, Field	0.00	units	NA
2005	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2005	Iron	0.01	mg/L	6010
2005	Magnesium	0.50	mg/L	6010
2005	Manganese	0.005	mg/L	6010
2005	Nitrate + Nitrite Nitrogen	0.20	mg/L	353.2
2005	Nitrate Nitrogen	0.20	mg/L as N	353.2
2005	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2005	Nitrogen, Total Kjeldahl	0.10	mg/L	SM 4500NorgB/NH3 E
2005	pH, Field	1.00	Std units	150.1
2005	Potassium	0.50	mg/L	6010
2005	Sample Appearance, Field	0.00		SM 2110
2005	Sodium	0.50	mg/L	6010
2005	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2005	Sulfate	4.00	mg/L	375.4
2005	Temperature, field	0.00	DEGREES C	170.1
2005	Total Organic Carbon	0.50	mg/L	415.1
2005	Turbidity, Field	0.10	NTU	180.1
2006	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2006	Ammonia Nitrogen	0.02	mg/L	350.1
2006	Arsenic	0.50	ug/L	200.8
2006	Bromide	0.10	mg/L	4500.Br
2006	Calcium	0.50	mg/L	6010
2006	Chloride	3.00	mg/L	325.2
2006	Dissolved Oxygen, Field	0.10	mg/L	SM 4500-O G
2006	EH, Field		units	
2006	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2006	Iron	0.01	mg/L	6010
2006	Magnesium	0.50	mg/L	6010
2006	Manganese	0.0050	mg/L	6010
2006	Nitrate + Nitrite Nitrogen	0.20	mg/L	353.2
2006	Nitrate Nitrogen	0.20	mg/L as N	353.2
2006	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2006	Nitrogen, Total Kjeldahl	0.10	mg/L	SM 4500NorgB/NH3 E
2006	pH, Field	1.00	Std units	150.1
2006	Potassium	0.50	mg/L	6010
2006	Sample Appearance, Field			SM 2110
2006	Sodium	0.50	mg/L	6010
2006	Specific Conductance, Fld	1.00	umhos/cm	120.1
2006	Sulfate	4.00	mg/L	375.4

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
2006	Temperature, field		DEGREES C	170.1
2006	Total Organic Carbon	0.50	mg/L	415.1
2006	Turbidity, Field	0.10	NTU	180.1
2007	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2007	Ammonia Nitrogen	0.02	mg/L	350.1
2007	Bromide	0.10	mg/L	4500.Br
2007	Calcium	0.50	mg/L	6010
2007	Chloride	3.00	mg/L	325.2
2007	Dissolved Oxygen, Field	0.10	mg/L	SM 4500-O G
2007	EH, Field	0.00	units	
2007	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2007	Iron	0.01	mg/L	6010
2007	Magnesium	0.50	mg/L	6010
2007	Manganese	0.005	mg/L	6010
2007	Nitrate + Nitrite Nitrogen	0.20	mg/L	353.2
2007	Nitrate Nitrogen	0.20	mg/L as N	353.2
2007	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2007	Nitrogen, Total Kjeldahl	0.20	mg/L	SM 4500NorgB/NH3 E
2007	pH, Field	1.00	Std units	150.1
2007	Potassium	0.50	mg/L	6010
2007	Sample Appearance, Field	0.00		SM 2110
2007	Sodium	0.50	mg/L	6010
2007	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2007	Sulfate	4.00	mg/L	375.4
2007	Temperature, field	0.00	DEGREES C	170.1
2007	Total Organic Carbon	0.50	mg/L	415.1
2007	Turbidity, Field	0.10	NTU	180.1
2008	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2008	Ammonia Nitrogen	0.02	mg/L	350.1
2008	Bromide	0.10	mg/L	4500.Br
2008	Calcium	0.50	mg/L	6010
2008	Chloride	3.00	mg/L	SM 4500 Cl E
2008	Dissolved Oxygen, Field	0.10	mg/L	SM 4500-O G
2008	EH, Field	0.00	units	
2008	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2008	Iron	0.01	mg/L	6010
2008	Magnesium	0.50	mg/L	6010
2008	Manganese	0.005	mg/L	6010
2008	Nitrate + Nitrite Nitrogen	0.20	mg/L	353.2
2008	Nitrate Nitrogen	0.20	mg/L as N	353.2
2008	Nitrite Nitrogen	0.02	mg/L as N	EPA 353.2
2008	Nitrogen, Total Kjeldahl	0.20	mg/L	SM 4500NorgB/NH3 E
2008	pH, Field	1.00	Std units	150.1
2008	Potassium	0.50	mg/L	6010
2008	Sample Appearance, Field	0.00		SM 2110

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
2008	Sodium	0.50	mg/L	6010
2008	Specific Conductance, Fld	1.00	µmhos/cm	120.1
2008	Sulfate	4.00	mg/L	ASTM D516-02
2008	Temperature, field	0.00	DEGREES C	170.1
2008	Total Organic Carbon	0.50	mg/L	SM 5310C
2008	Turbidity, Field	0.10	NTU	180.1
2009	Alkalinity, Total	20.00	mg/L CaCO3	SM 2320B 18th Ed
2009	Calcium	0.50	mg/L	6010
2009	Chloride	0.10	mg/L	300.A
2009	Dissolved Oxygen, Field	0.10	mg/L	SM 4500-O G
2009	EH, Field	0.00	eH	
2009	Fluoride	0.20	mg/L	300.A
2009	Fluoride	0.10	mg/L	SM 18th ED 4500-F C
2009	Hardness, Total	0.00	mg/L	2340.B
2009	Iron	0.01	mg/L	6010
2009	Magnesium	0.50	mg/L	6010
2009	Manganese	0.005	mg/L	6010
2009	Nitrate + Nitrite Nitrogen	0.20	mg/L	353.2
2009	Nitrate Nitrogen	0.10	mg/L	300.A
2009	Nitrite Nitrogen	0.30	mg/L	300.A
2009	pH, Field	1.00	Std units	I-1586-85
2009	Sample Appearance, Field	0.00		SM 2110
2009	Specific Conductance, Fld	1.00	umhos/cm	120.1
2009	Sulfate	1.00	mg/L	300.A
2009	Sulfate	4.00	mg/L	ASTM D516-02
2009	Temperature, field	0.00	DEGREES C	170.1
2009	Turbidity, Field	0.10	NTU	180.1
2011	Alkalinity, Total Fld	20.00	mg/L CaCO3	2320B
2011	CALCIUM	5.00	mg/L	SM 2340D
2011	Chloride	0.10	mg/L	300.A
2011	Dissolved Oxygen, Field	0.10	mg/L	indigo carmin
2011	Fluoride	0.20	mg/L	300.A
2011	Hardness, Total	0.00	mg/L CaCO3	2340C
2011	Iron	0.02	mg/L	SM 3500B, D
2011	Magnesium	5.00	mg/L	SM 2340B or C
2011	Manganese	0.005	mg/L	40 CFR 136
2011	Nitrate Nitrogen	0.10	mg/L	300.A
2011	pH, Field	2.00	Std units	SM 4500
2011	Silica	1.00	mg/L	SM 4500E
2011	Sodium	0.50	mg/L	6010
2011	Specific Conductance, Fld	0.00	umhos/cm	SM 2510b
2011	Sulfate	1.00	mg/L	300.A
2011	Temperature, field	0.00	DEGREES C	SM2250
2011	Total Dissolved Solids	0.00	mg/L	SM 2540 C
2013	Alkalinity, Total Fld	20.00	mg/L CaCO3	2320B

Table A.2. General Chemistry Analyte, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Sample Year	Analyte	Method Reporting Limit	Units	Laboratory Method
2013	Arsenic	0.50	µg/L	200.8
2013	Calcium	0.50	mg/L	200.7
2013	Carbon, Total Organic	0.50	mg/L	SM 5310C
2013	Chloride	0.30	mg/L	300A
2013	Dissolved Oxygen, Field	0.10	mg/L	indigo carmin
2013	Fluoride	0.07	mg/L	300A
2013	Hardness, Total	0.00	mg/L CaCO3	2340C
2013	Iron	0.02	mg/L	SM 3500B, D
2013	Magnesium	0.50	mg/L	200.7
2013	Manganese	0.005	mg/L	200.7
2013	Nitrate Nitrogen	0.20	mg/L	300A
2013	Nitrite Nitrogen	0.30	mg/L	300A
2013	Nitrogen, Total Kjeldahl	0.50	mg/L	SM 4500NorgB/NH3 E
2013	pH, Field	2.00	Std units	SM 4500E
2013	Sodium	0.50	mg/L	200.7
2013	Specific Conductance, Fld	0.00	umhos/cm	SM 2510b
2013	Sulfate	1.00	mg/L	300A
2013	Temperature, field	0.00	DEGREES C	SM2250
2013	Total Dissolved Solids	0.00	mg/L	SM 2540 C
2017	Chloride	3.00	mg/L	SM 4500 Cl E
2017	Dissolved Oxygen, Field	0.10	mg/L	SM 4500-O G
2017	EH, Field	0.00	eH	
2017	Manganese	0.005	mg/L	200.7
2017	Nitrate + Nitrite Nitrogen	0.20	mg/L	DPA 353.2
2017	pH, Field	1.00	Std units	I-1586-85
2017	Sample Appearance, Field	0.00		SM 2110
2017	Specific Conductance, Fld	1.00	umhos/cm	120.1
2017	Temperature, field	0.00	DEGREES C	170.1
2017	Arsenic	0.50	ug/L	200.8
2019	Chloride	0.50	mg/L	300.A
2019	Dissolved Oxygen, Field	0.10	mg/L	indigo carmin
2019	Fluoride	0.20	mg/L	300.A
2019	Nitrate Nitrogen	0.25	mg/L	300.A
2019	Nitrite Nitrogen	0.10	mg/L	300.A
2019	pH, Field	2.00	Std units	SM 4500
2019	Specific Conductance, Fld	0.00	µmhos/cm	SM 2510b
2019	Sulfate	1.00	mg/L	300.A
2019	Temperature, field	0.00	DEGREES C	SM2250

Table A.3. Volatile Organic Compounds, Method Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Analyte	2000 MVTL method 601/8021 MRL µg/L	2004 MVTL method SW8260B MRL µg/L
1,1,1,2-Tetrachloroethane	0.50	0.40
1,1,1-Trichloroethane	0.70	0.50
1,1,2,2-Tetrachloroethane	0.50	0.60
1,1,2-Trichloroethane	0.50	0.60
1,1-Dichloro-1-propene	0.50	0.40
1,1-Dichloroethane	0.60	0.60
1,1-Dichloroethene	0.50	0.50
1,2,3-Trichlorobenzene	1.00	1.20
1,2,3-Trichloropropane	0.60	1.00
1,2,4-Trichlorobenzene	1.00	0.90
1,2,4-Trimethylbenzene	0.60	0.50
1,2-Dibromo-3-chloropropane	1.00	1.00
1,2-Dibromoethane	0.60	0.50
1,2-Dichlorobenzene	1.00	0.40
1,2-Dichloroethane	0.50	0.50
1,2-Dichloropropane	0.80	0.40
1,3,5-Trimethylbenzene	0.90	0.50
1,3-Dichlorobenzene	0.60	0.40
1,3-Dichloropropane	0.60	0.40
1,4-Dichlorobenzene	0.50	0.40
2,2-Dichloropropane	1.00	0.80
2-Chlorotoluene	0.50	0.50
4-Chlorotoluene	0.50	0.60
Acetone	10.00	6.00
Allyl Chloride	0.70	0.90
Benzene	0.50	0.40
Bromobenzene	0.90	0.70
Bromochloromethane	0.80	0.70
Bromodichloromethane	0.50	0.40
Bromoform	1.00	0.50
Bromomethane	0.70	1.50
cis-1,2-Dichloroethene	0.50	0.40
cis-1,3-Dichloropropene	0.50	0.40
Carbon Tetrachloride	0.50	0.40
Chlorobenzene	0.50	0.40
Chlorodibromomethane	0.50	0.40
Chloroethane	0.70	1.30
Chloroform	0.70	0.50
Chloromethane	1.00	2.10
Cumene	0.60	0.50
Dibromomethane	1.00	0.40
Dichlorodifluoromethane	0.60	0.80
Dichlorofluoromethane	0.50	0.80
Ethyl Benzene	0.90	0.40
Ethyl Ether	0.70	0.90
Hexachlorobutadiene	1.00	0.90
Methyl Ethyl Ketone	5.00	4.00
Methyl Isobutyl Ketone	1.60	1.00
Methyl tert-butyl ether	0.60	0.50
Methylene Chloride	0.60	1.20

Analyte	2000 MVTL method 601/8021 MRL µg/L	2004 MVTL method SW8260B MRL µg/L
m-Xylene and p-Xylene	0.70	0.80
Naphthalene	0.70	1.00
n-Butylbenzene	0.60	0.60
n-Propylbenzene	0.60	0.60
o-Xylene	0.30	0.60
p-Isopropyltoluene	0.50	0.60
sec-Butylbenzene	0.50	0.60
Styrene	1.00	0.50
t-1,2-Dichloroethene	0.50	0.60
t-1,3-Dichloropropene	0.50	0.40
t-Butylbenzene	0.60	1.50
Tetrachloroethene	0.90	0.50
Tetrahydrofuran	5.00	0.50
Toluene	0.60	0.50
Trichloroethene	0.70	0.30
Trichlorofluoromethane	0.60	0.70
Trichlorotrifluoroethane	0.80	0.80
Vinyl Chloride	0.50	0.60

Table A.4. USGS Organic Geochemistry Research Lab (OGRL) historical and current reporting limits in ppb (µg/L)
Dakota County Ambient Groundwater Quality Study 1999-2019

Analyte (Triazines)	LCAA METHOD		GCS METHOD	LCPD METHOD			LCEA METHOD	
	2001	2002	2001-2004	2003	2004	2005- PRESENT	2004-2017	2018- PRESENT
Atrazine			0.05				0.025	0.020
Deethylatrazine (DEA)			0.05				0.025	0.020
Deethylhydroxyatrazine (DEHA)							0.025	0.020
Deisopropylatrazine (DIA)			0.05				0.025	0.020
Deisopropylhydroxyatrazine (DIHA)							0.025	0.020
Didealkylatrazine (DDA)							0.025	0.020
Hydroxyatrazine (HA)							0.025	0.020
Bromacil							0.025	0.020
Cyanazine			0.05				0.025	0.020
Deethylcyanazine (DEC)							0.20	0.020
Cyanazine acid (CAC)							0.025	0.020
Deethylcyanazine acid (DCAC)							0.025	0.020
Cyanazine amide (CAM)			0.05				0.025	0.020
Deethylcyanazine amide (DCAM)							0.025	0.020
Diuron							0.20	0.020
Fluometuron							0.20	0.05
Demethylfluometuron (DMFM)							0.20	0.020
Linuron							0.20	0.020
Prometon			0.05				0.025	0.020
Propazine			0.05				0.025	0.020
Simazine			0.05				0.025	0.020
Hydroxysimazine							0.025	0.020
Ametryn			0.05					
Metribuzin			0.05					
Pendimethalin			0.05					
Prometryn			0.05					
Terbutryn			0.05					

Table A.4. USGS Organic Geochemistry Research Lab (OGRL) historical and current reporting limits in ppb (µg/L)
Dakota County Ambient Groundwater Quality Study 1999-2019

Analyte (Actemides)	LCAA METHOD		GCS METHOD	LCPD METHOD			LCEA METHOD	
	2001	2002	2001-2004	2003	2004	2005- PRESENT	2004-2017	2018- PRESENT
Acetochlor			0.05	0.02	0.02	0.02		
Acetochlor deschloro					0.02	0.02		
Acetochlor ESA	0.05	0.05		0.02	0.02	0.02		
Acet/Meto ESA 2nd amide				0.02	0.02	0.02		
Acetochlor hydroxy					0.02	0.02		
Acetochlor OXA	0.05	0.05		0.02	0.02	0.02		
Acetochlor SAA		0.05		0.02	0.02	0.02		
Acet/Meto - 2nd amide						0.02		
Alachlor			0.05	0.02	0.02	0.02		
Alachlor deschloro					0.02	0.02		
Alachlor ESA	0.05	0.05		0.02	0.02	0.02		
Alachlor ESA 2nd amide				0.02	0.02	0.02		
Alachlor hydroxy					0.02	0.02		
Alachlor OXA	0.05	0.05		0.02	0.02	0.02		
Alachlor SAA		0.05		0.02	0.02	0.02		
Alachlor - 2nd amide					0.02	0.02		
Dimethenamide			0.05	0.02	0.02	0.02		
Dimethenamide deschloro					0.02	0.02		
Dimethenamide hydroxy					0.02	0.02		
Dimethenamide OXA	0.05	0.05		0.02	0.02	0.02		
Dimethenamide ESA	0.05	0.05		0.02	0.02	0.02		
Flufenacet			0.05	0.02	0.02	0.02		
Flufenacet ESA	0.05	0.05		0.02	0.02	0.02		
Flufenacet OXA	0.05	0.05		0.02	0.02	0.02		
Metolachlor			0.05	0.02	0.02	0.02		
Metolachlor deschloro					0.02	0.02		
Metolachlor ESA	0.05	0.05		0.02	0.02	0.02		
Metolachlor hydroxy					0.02	0.02		
Metolachlor OXA	0.05	0.05		0.02	0.02	0.02		
Propachlor			0.05	0.02	0.02	0.02		
Propachlor OXA	0.05	0.05		0.02	0.02	0.02		
Propachlor ESA	0.05	0.05		0.05	0.05	0.05		

Table A.5. Perfluorocarbon Analyte, Method Method Reporting Limit
 Dakota County Ambient Groundwater Quality Study 1999-2019

Perfluorocarbon Analyte (PFCs)	2008 MDH Lab 555 PFC Expanded List MRL µg/L
Perfluorobutanesulfonate (PFBS)	0.3
Perfluorobutanoic acid (PFBA)	0.3
Perfluorohexanesulfonate (PFHxS)	0.3
Perfluorohexanoic acid (PFHxA)	0.3
Perfluorooctanesulfonate (PFOS)	0.3
Perfluorooctanoic acid (PFOA)	0.3
Perfluoropentanoic acid (PFPeA)	0.3

Table A.6 Organic Waste Water Compounds Method and Method Reporting Level
Dakota County Ambient Groundwater Quality Study 1999-2019

Analyte	2008 USGS Lab LCEA method µg/L
1,4-Dichlorobenzene	0.2
1-Methylnaphthalene	0.2
2,6-Dimethylnaphthalene	0.2
2-Methylnaphthalene	0.2
3,4-Dichlorophenyl isocyanate	0.2
3-beta-Coprostanol	2.0
3-Methyl-1H-indole	0.8
3-tert-Butyl-4-hydroxyanisole	0.2
4-Cumylphenol	0.2
4-n-Octylphenol	0.2
4-Nonylphenol (sum of all isomers)	0.2
4-Nonylphenol diethoxylate (sum of all isomers)	2.0
4-Nonylphenol monoethoxylate (sum of all isomers)	3.0
4-tert-Octylphenol	2.0
4-tert-Octylphenol diethoxylate	0.2
4-tert-Octylphenol monoethoxylate	0.3
5-Methyl-1H-benzotriazole	1.0
9,10-Anthraquinone	2.0
Acetophenone	0.2
Acetyl hexamethyl tetrahydro naphthalene	0.3
Anthracene	0.2
Atrazine (Aatrex)	0.2
BDE congener 47	0.2
Benzo[a]pyrene	0.2
Benzophenone	0.2
beta-Sitosterol	0.8
beta-Stigmastanol	0.8
Bis(2-ethylhexyl) phthalate	2.0
Bisphenol A	0.4
Bromacil	0.2
Caffeine	0.2
Camphor	0.2
Carbaryl	0.8
Carbazole	0.8

Analyte	2008 USGS Lab LCEA method µg/L
Chlorpyrifos (Lorsban)	0.2
Cholesterol	0.2
Cotinine	0.2
Diazinon	0.2
Dichlorvos	0.2
Diethyl phthalate	0.2
D-Limonene	0.2
Fluoranthene	0.2
Hexahydrohexamethyl cyclopentabenzopyran	0.2
Indole	0.2
Isoborneol	0.2
Isophorone	0.2
Isopropylbenzene	0.8
Isoquinoline	0.2
Menthol	0.2
Metalaxyl	0.2
Methyl salicylate	0.2
Metolachlor (Dual)	0.2
N,N-Diethyl-m-toluamide (DEET)	0.2
Naphthalene	0.2
p-Cresol	0.2
Pentachlorophenol	0.2
Phenanthrene	0.2
Phenol	0.2
Prometon (Pramitol)	0.2
Pyrene	0.2
Tetrachloroethene	0.4
Tribromomethane	0.4
Tributyl phosphate	0.2
Triclosan	0.2
Triethyl citrate	0.2
Triphenyl phosphate	0.2
Tris(2-butoxyethyl) phosphate	0.2
Tris(2-chloroethyl) phosphate	0.2
Tris(dichloroisopropyl) phosphate	0.2

Table 1. Wastewater method compound names, endocrine-disrupting potential, log Kow, parameter/method codes, and possible compound uses.

[EDP, endocrine-disrupting potential; K, known; S, suspected; CAS, Chemical Abstract Service; F, fungicide; H, herbicide; I, insecticide; GUP, general use pesticide; FR, flame retardant; PAH, polycyclic aromatic hydrocarbon; Kow, octanol-water partition coefficient; WW, wastewater; Manuf, manufacturing; %, percent; >, greater than; CP, combustion product; USEPA, U.S. Environmental Protection Agency; UV, ultraviolet; --, no data]

Compound name	EDP ¹	Log Kow ²	CAS number ³	Parameter/method codes ⁴	Possible compound uses or sources ⁵
1,4-Dichlorobenzene ⁶	S	3.28	106-46-7	34571Y	Moth repellent, fumigant, deodorant
1-Methylnaphthalene	--	3.72	90-12-0	81696Z	2–5% of gasoline, diesel fuel, or crude oil
2,2',4,4'-Tetrabromodiphenyl ether	--	6.77	5436-43-1	63147A	Widely used brominated flame retardant
2,6-Dimethylnaphthalene	--	4.26	581-42-0	62805Z	Present in diesel/kerosene (trace in gasoline)
2-Methylnaphthalene	--	3.72	91-57-6	30194Z	2–5% of gasoline, diesel fuel, or crude oil
3,4-Dichlorophenyl isocyanate	--	3.88	102-36-3	63145A	Degradate of diuron, a noncrop herbicide
3beta-Coprostanol	--	8.82	360-68-9	62806Z	Carnivore fecal indicator
3-Methyl-1H-indole (skatol)	--	2.60	83-34-1	62807Z	Fragrance, stench in feces and coal tar
3-tert-Butyl-4-hydroxyanisole (BHA)	K	3.50	25013-16-5	61702Z	Antioxidant, general preservative
4-Cumylphenol	K	4.12	599-64-4	62808Z	Nonionic detergent or metabolite
4-n-Octylphenol	K	5.50	1806-26-4	62809Z	Nonionic detergent or metabolite
4-Nonylphenol (total, NP)	K	5.92	84852-15-3	62829Z	Nonionic detergent or metabolite
4-tert-Octylphenol	K	5.28	140-66-9	62810Z	Nonionic detergent or metabolite
5-Methyl-1H-benzotriazole	--	1.71	136-85-6	61944Z	Antioxidant in antifreeze and deicers
Acetophenone	--	1.67	98-86-2	62811Z	Fragrance in detergent and tobacco, flavor in beverages
Acetyl-hexamethyl-tetrahydro-naphthalene (AHTN, Tonalide)	--	6.35	21145-77-7	62812Z	Musk fragrance, persistent, widespread in ground water, concern for bioaccumulation and toxicity
Anthracene ⁶	--	4.35	120-12-7	34220Z	Component of tar, diesel, or crude oil, CP
Anthraquinone	--	3.34	84-65-1	62813Z	Manuf dye/textiles, seed treatment, bird repellent
Atrazine ⁶	K	2.82	1912-24-9	39630C	Selective triazine herbicide
Benzo[a]pyrene ⁶	K	6.11	50-32-8	34247Z	Regulated PAH, used in cancer research, CP
Benzophenone	S	3.15	119-61-9	62814Z	Fixative for perfumes and soaps
beta-Sitosterol	--	9.65	83-46-5	62815Z	Plant sterol
beta-Stigmastanol	--	9.73	19466-47-8	61948Z	Herbivore fecal indicator (digestion of sitosterol)
Bisphenol A	K	3.64	80-05-7	62816Z	Manuf polycarbonate resins, antioxidant, FR
Bromacil	--	1.68	314-40-9	30234Z	H (GUP), >80% noncrop usage on grass/brush
Bromoform	--	1.79	75-25-2	32104Y	WW ozonation byproduct, military/explosives
Caffeine	--	0.16	58-08-2	81436Z	Beverages, diuretic, very mobile/biodegradable
Camphor	--	3.04	76-22-2	62817Z	Flavor, odorant, ointments
Carbaryl	K	2.35	63-25-2	39750Z	I, crop and garden uses, low persistence
Carbazole	--	3.23	86-74-8	77571Z	I, Manuf dyes, explosives, and lubricants
Chlorpyrifos	K	4.66	2921-88-2	38932Z	I, domestic pest and termite control (domestic use restricted as of 2001)
Cholesterol	--	8.74	57-88-5	62818Z	Often a fecal indicator, also a plant sterol
Cotinine	--	0.34	486-56-6	61945Z	Primary nicotine metabolite
Diazinon ⁶	K	3.86	333-41-5	39570Y	I, > 40% nonagricultural usage, ants, flies
Dichlorvos	S	0.60	62-73-7	30218Z	I, pet collars; naled or trichlofon degradate
Diethyl phthalate (DEP) ⁶	K	2.82	84-66-2	34336B	Plasticizer for polymers and resins
Diethylhexyl phthalate (DEHP) ⁶	K	8.39	117-81-7	39100C	Plasticizer for polymers and resins, pesticide inert
d-Limonene	--	4.83	5989-27-5	62819Z	F, antimicrobial, antiviral, fragrance in aerosols

Table A.6a. USGS Summary of Organic Wastewater Compound

Table 1. Wastewater method compound names, endocrine-disrupting potential, log Kow, parameter/method codes, and possible compound uses—Continued.

[EDP, endocrine-disrupting potential; K, known; S, suspected; CAS, Chemical Abstract Service; F, fungicide; H, herbicide; I, insecticide; GUP, general use pesticide; FR, flame retardant; PAH, polycyclic aromatic hydrocarbon; Kow, octanol-water partition coefficient; WW, wastewater; Manuf, manufacturing; %, percent; >, greater than; CP, combustion product; USEPA, U.S. Environmental Protection Agency; UV, ultraviolet; --, no data]

Compound name	EDP ¹	Log Kow ²	CAS number ³	Parameter/method codes ⁴	Possible compound uses or sources ⁵
Fluoranthene ⁶	--	4.93	206-44-0	34376Z	Component of coal tar and asphalt (only traces in gasoline or diesel fuel), CP
Hexahydrohexamethyl-cyclopentabenzopyran (HHCB, Galaxolide)	--	6.26	1222-05-5	62823Z	Musk fragrance, persistent, widespread in ground water, concern for bioaccumulation and toxicity
Indole	--	2.05	120-72-9	62824Z	Pesticide inert ingredient, fragrance in coffee
Isoborneol	--	2.85	124-76-5	62825Z	Fragrance in perfumery, in disinfectants
Isophorone ⁶	--	2.62	78-59-1	34408Z	Solvent for lacquer, plastic, oil, silicon, resin
Isopropylbenzene (cumene)	--	3.45	98-82-8	77223Y	Manuf phenol/acetone, fuels and paint thinner
Isoquinoline	--	2.14	119-65-3	62826Z	Flavors and fragrances
Menthol	--	3.38	89-78-1	62827Z	Cigarettes, cough drops, liniment, mouthwash
Metalaxyl	--	1.70	57837-19-1	04254Z	H, F (GUP), mildew, blight, pathogens, golf/turf
Methyl salicylate	--	2.60	119-36-8	62828Z	Liniment, food, beverage, UV-absorbing lotion
Metolachlor ⁶	--	3.24	51218-45-2	82612Z	H (GUP), indicator of agricultural drainage
N,N-Diethyl- <i>meta</i> -toluamide (DEET)	--	2.26	134-62-3	61947Z	I, urban uses, mosquito repellent
Naphthalene ⁶	--	3.17	91-20-3	34696Y	Fumigant, moth repellent, major component (about 10%) of gasoline
Nonylphenol, diethoxy- (total, NPEO2)	K	--	26027-38-2	61703Z	Nonionic detergent
Nonylphenol, monoethoxy- (total, NPEO1)	K	--	104-35-8	61704A	Nonionic detergent
Octylphenol, diethoxy-(OPEO2)	K	--	26636-32-8	61705Z	Nonionic detergent
Octylphenol, monoethoxy-(OPEO1)	K	--	26636-32-8	61706Z	Nonionic detergent
<i>p</i> -Cresol	--	2.06	106-44-5	77146Z	Wood preservative
Pentachlorophenol ⁶	S	4.74	87-86-5	39032Z	H, F, wood preservative, termite control
Phenanthrene ⁶	--	4.35	85-01-8	34461Z	Manuf explosives, component of tar, diesel fuel, or crude oil, CP
Phenol ⁶	--	1.51	108-95-2	34694Z	Disinfectant, Manuf several products, leachate
Prometon ⁶	--	3.57	1610-18-0	39056Z	H (noncrop only), applied prior to blacktop
Pyrene ⁶	--	4.93	129-00-0	34469Z	Component of coal tar and asphalt (only traces in gasoline or diesel fuel), CP
Tetrachloroethylene	--	2.97	127-18-4	34475Y	Solvent, degreaser, veterinary anthelmintic
Tri(2-butoxyethyl) phosphate	--	3.00	78-51-3	62830Z	Flame retardant
Tri(2-chloroethyl) phosphate	S	1.63	115-96-8	62831Z	Plasticizer, flame retardant
Tri(dichloroisopropyl) phosphate	S	3.65	13674-87-8	61707Z	Flame retardant
Tributyl phosphate	--	3.82	126-73-8	62832Z	Antifoaming agent, flame retardant
Triclosan	S	4.66	3380-34-5	61708Z	Disinfectant, antimicrobial (concern for acquired microbial resistance)
Triethyl citrate (ethyl citrate)	--	0.33	77-93-0	62833Z	Cosmetics, pharmaceuticals
Triphenyl phosphate	--	4.70	115-86-6	62834Z	Plasticizer, resin, wax, finish, roofing paper, FR

¹Colburn and others (2000), Our Stolen Future website (<http://www.ourstolenfuture.org/Basics/chemlist.htm>).

²Log Kow calculated using USEPA's exposure assessment tools and models (EPI-suite software, WSKOWWIN™ version 1.40; U.S. Environmental Protection Agency, 2005).

³CAS Registry Number® is a Registered Trademark of the American Chemical Society. CAS recommends the verification of the CASRNs through CAS Client Services. See www.cas.org

⁴Parameter codes define sample constituent variables linked to compound analytical results stored in the National Water Information System data base.

⁵ChemFinder Webserver (2006); National Toxicology Program (2006); National Institute of Standards and Technology (2006); Spectrum Laboratories, Inc. (2006); HealthCentral.com (2006); EXTension TOXicology NETwork (2006).

⁶Compound determined by at least one other whole-water method at the National Water Quality Laboratory.

Table A.7. USGS National Water Quality Laboratory, Method Reporting Limits and Methods

Schedule 2001									
Sample, Container, and Field Information									
Description: Pesticides, Water, Filtered, SPE-C18, Lab Extracted									
Owner: NAWQA									
Analyte▲	Lab Code	Parameter Code	M	CAS Number	RL	Unit	RL Type	C A	Container ID
alpha-HCH		34253	GCM35	319-84-6	0.0040	ug/L	lrl	C	48 (GCC)
Acetochlor		49260	GCM33	34256-82-1	0.010	ug/L	lrl		48 (GCC)
Alachlor		46342	GCM35	15972-60-8	0.008	ug/L	lrl		48 (GCC)
2,6-Diethylaniline		82660	GCM35	579-66-8	0.0060	ug/L	irl		48 (GCC)
Atrazine		39632	GCM35	1912-24-9	0.008	ug/L	lrl		48 (GCC)
Azinphos-methyl		82686	GCM35	86-50-0	0.12	ug/L	lrl	C	48 (GCC)
Benfluralin		82673	GCM35	1861-40-1	0.014	ug/L	lrl		48 (GCC)
Butylate		04028	GCM35	2008-41-5	0.0040	ug/L	lrl		48 (GCC)
Carbaryl		82680	GCM35	63-25-2	0.06	ug/L	lrl		48 (GCC)
Carbofuran		82674	GCM35	1563-66-2	0.060	ug/L	lrl		48 (GCC)
Chlorpyrifos		38933	GCM35	2921-88-2	0.0036	ug/L	irl		48 (GCC)
cis-Permethrin		82687	GCM35	61949-76-6	0.010	ug/L	lrl		48 (GCC)
Cyanazine		04041	GCM35	21725-46-2	0.022	ug/L	lrl		48 (GCC)
Dacthal		82682	GCM35	1861-32-1	0.0076	ug/L	lrl		48 (GCC)
2-Chloro-4-isopropylamino-6-amino-s-triazine {CIAT}		04040	GCM35	6190-65-4	0.006	ug/L	lrl		48 (GCC)
Diazinon		39572	GCM35	333-41-5	0.0060	ug/L	lrl	C	48 (GCC)
Diazinon-d10		91063	GCM35	100155-47-3		pct			48 (GCC)
Dieldrin		39381	GCM35	60-57-1	0.008	ug/L	lrl		48 (GCC)
Disulfoton		82677	GCM35	298-04-4	0.040	ug/L	lrl	C	48 (GCC)
EPTC		82668	GCM35	759-94-4	0.0056	ug/L	lrl		48 (GCC)
Ethalfuralin		82663	GCM35	55283-68-6	0.006	ug/L	lrl		48 (GCC)
Ethoprophos		82672	GCM35	13194-48-4	0.016	ug/L	lrl		48 (GCC)
Desulfinylfipronil amide		62169	GCM31		0.029	ug/L	irl		48 (GCC)
Fipronil sulfide		62167	GCM31	120067-83-6	0.012	ug/L	lrl		48 (GCC)
Fipronil sulfone		62168	GCM31	120068-36-2	0.024	ug/L	lrl		48 (GCC)
Desulfinylfipronil		62170	GCM31		0.012	ug/L	irl		48 (GCC)
Fipronil		62166	GCM31	120068-37-3	0.018	ug/L	lrl		48 (GCC)
Fonofos		04095	GCM35	944-22-9	0.0048	ug/L	lrl		48 (GCC)
alpha-HCH-d6		91065	GCM35	86194-41-4		pct			48 (GCC)
Lindane		39341	GCM35	58-89-9	0.0040	ug/L	lrl		48 (GCC)
Linuron		82666	GCM35	330-55-2	0.06	ug/L	lrl		48 (GCC)
Malathion		39532	GCM35	121-75-5	0.016	ug/L	lrl	C	48 (GCC)
Parathion-methyl		82667	GCM35	298-00-0	0.008	ug/L	lrl	C	48 (GCC)
Metolachlor		39415	GCM35	51218-45-2	0.020	ug/L	lrl		48 (GCC)
Metribuzin		82630	GCM35	21087-64-9	0.012	ug/L	lrl		48 (GCC)
Molinate		82671	GCM35	2212-67-1	0.0040	ug/L	lrl		48 (GCC)
Napropamide		82684	GCM35	15299-99-7	0.008	ug/L	lrl		48 (GCC)
p,p'-DDE		34653	GCM35	72-55-9	0.002	ug/L	lrl	C	48 (GCC)
Parathion		39542	GCM35	56-38-2	0.020	ug/L	lrl	C	48 (GCC)

Table A.7. USGS National Water Quality Laboratory, Method Reporting Limits and Methods

Pebulate		82669	GCM35	1114-71-2	0.0160	ug/L	lrl	48 (GCC)
Pendimethalin		82683	GCM35	40487-42-1	0.012	ug/L	lrl	48 (GCC)
Phorate		82664	GCM35	298-02-2	0.020	ug/L	lrl	48 (GCC)
Prometon		04037	GCM35	1610-18-0	0.012	ug/L	lrl	48 (GCC)
Propachlor		04024	GCM35	1918-16-7	0.006	ug/L	lrl	48 (GCC)
Propanil		82679	GCM35	709-98-8	0.010	ug/L	lrl	48 (GCC)
Propargite		82685	GCM35	2312-35-8	0.020	ug/L	lrl	48 (GCC)
Propyzamide		82676	GCM35	23950-58-5	0.0036	ug/L	lrl	48 (GCC)
Sample volume		99856	GCM35			mL		48 (GCC)
set number, schedule 2001		99818	GCM35			no.		48 (GCC)
Simazine		04035	GCM35	122-34-9	0.006	ug/L	lrl	48 (GCC)
Tebuthiuron		82670	GCM35	34014-18-1	0.028	ug/L	lrl	48 (GCC)
Terbacil		82665	GCM35	5902-51-2	0.024	ug/L	lrl	48 (GCC)
Terbufos		82675	GCM35	13071-79-9	0.018	ug/L	lrl	48 (GCC)
Thiobencarb		82681	GCM35	28249-77-6	0.016	ug/L	lrl	48 (GCC)
Tri-allate		82678	GCM35	2303-17-5	0.0046	ug/L	lrl	48 (GCC)
Trifluralin		82661	GCM35	1582-09-8	0.018	ug/L	lrl	48 (GCC)

CAS Registry Number® is a Registered Trademark of the American Chemical Society. CAS recommends the verification of the CASRNs through CAS Client Services.

Values of "C" in the C A column denote NELAP Certified analytes

[Excel Format](#)

[Sample, Container, and Field Information](#)

References

- OFR 95-181 (original method)**
Zaugg, S.D., Sandstrom, M.W., Smith, S.G., and Fehlberg, K.M., 1995, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory--Determination of pesticides in water by C-18 solid-phase extraction and capillary-column gas chromatography/mass spectrometry with selected-ion monitoring: U.S. Geological Survey Open-File Report 95-181, 60 p.
Method ID: O-1126-95
- SOP ID: OD0250.x**
GC/MS/SIM, SPE: Pesticides, Herbicides, Triazine, lab-extracted: FIL
- Journal of AOAC Intl, v. 79, no. 4, p. 962-966 (Acetochlor)**
Lindley, C.E., Stewart, J.T., and Sandstrom, M.W., 1996, Determination of low concentrations of acetochlor in water by automated solid-phase extraction and gas chromatography with mass selective detection: Journal of AOAC International, v. 79, no. 4, p. 962-966.
- NWQL tech memo 94-12**
Description and guide for interpreting low-level data supplied by the NWQL for schedules 2001, 2010, 2050, and 2051
- Newsgroup entry - NAWQA, water.quality (Jun 30, 1999)**
Surrogate Terbutylazine Removal from Methods 2001/2010 and 1379
- NWQL Tech Memo 02-01**
Removal of Terbutylazine from Pesticide Analysis by Gas Chromatography/Mass Spectrometry (Methods 2001 abd 2010)
- NWQL Rapi-Note 02-002**
Reload of three pesticides determined by NWQL schedules 2001 / 2010
- NWQL Rapi-Note 02-013**
Reload of Terbutylazine Results
- Memo - Method approval announcement (Fipronil addons)**
Approval of a Water Quality Analytical Method Supplement for the Determination of Fipronil and Degradates in Water by the National Water Quality Laboratory
- OFR 02-462 (fipronil and degradates)**
Madsen, J.E., Sandstrom, M.W., and Zaugg, S.D., 2003, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory---A method supplement for the determination of fipronil and degradates in water by gas chromatography/mass spectrometry: U.S. Geological Survey Open-File Report 02-462, 11 p.
Method ID: O-1126-02

Table A.8. Pharmaceuticals and Pharmaceutical Degradates, Method Method Reporting Limit
Dakota County Ambient Groundwater Quality Study 1999-2019

Analyte	Type	2013 USGS Lab LCAB method µg/L
Azithromycin	Pharmaceutical	<0.005
Carbamazepine	Pharmaceutical	<0.005
Chloramphenicol	Pharmaceutical	<0.100
Chlorotetracycline	Pharmaceutical	<0.010
Epi-chlorotetracycline	Pharmaceutical Degradate	<0.010
Epi-iso-chlorotetracycline	Pharmaceutical Degradate	<0.010
Iso-chlorotetracycline	Pharmaceutical Degradate	<0.010
Ciproflaxacin	Pharmaceutical	<0.005
Doxycycline	Pharmaceutical	<0.010
Enrofloxacin	Pharmaceutical	<0.005
Erythromycin	Pharmaceutical	<0.008
Erythromycin-H2O	Pharmaceutical Degradate	<0.005
Ibuprofen	Pharmaceutical	<0.050
Lincomycin	Pharmaceutical	<0.005
Lomefloxacin	Pharmaceutical	<0.005
Norfloxacin	Pharmaceutical	<0.005
Ofloxacin	Pharmaceutical	<0.005
Ormetoprim	Pharmaceutical	<0.005
Oxytetracycline	Pharmaceutical	<0.010
Epi-oxytetracycline	Pharmaceutical Degradate	<0.010
Roxithromycin	Pharmaceutical	<0.005
Sarafloxacin	Pharmaceutical	<0.005
Sulfachloropyridazine	Pharmaceutical	<0.005
Sulfadiazine	Pharmaceutical	<0.005
Sulfadimethoxine	Pharmaceutical	<0.005
Sulfamethazine	Pharmaceutical	<0.005
Sulfamethoxazole	Pharmaceutical	<0.005
Sulfathiazole	Pharmaceutical	<0.005
Tetracycline	Pharmaceutical	<0.010
Epi-tetracycline	Pharmaceutical Degradate	<0.010
Trimethoprim	Pharmaceutical	<0.005
Tylosin	Pharmaceutical	<0.010
Virginiamycin	Pharmaceutical	<0.005



Pace Analytical Services, LLC
Method Detection Limit and Reporting Limit
for PFAS by EPA Method 537 Modified

Analyte	Acronym	CAS#	Drinking Waters		Control limits		
			MDL (ng/L)	PRL (ng/L)	Lower	Upper	RPD
Perfluorobutanoic acid	PFBA	375-22-4	0.616	2.0	70	130	20
Perfluoropentanoic acid	PFPeA	2706-90-3	0.630	2.0	70	130	20
Perfluorobutanesulfonic acid	PFBS	375-73-5	0.653	2.0	70	130	20
Perfluorohexanoic acid	PFHxA	307-24-4	0.388	2.0	70	130	20
Perfluoroheptanoic acid	PFHpA	375-85-9	0.647	2.0	70	130	20
Perfluorohexanesulfonic acid	PFHxS	355-46-4	0.622	2.0	70	130	20
Perfluorooctanoic acid	PFOA	335-67-1	0.430	2.0	70	130	20
Perfluorononanoic acid	PFNA	375-95-1	0.687	2.0	70	130	20
Perfluorooctanesulfonic acid	PFOS	1763-23-1	0.451	2.0	70	130	20
Perfluorodecanoic acid	PFDA	335-76-2	0.391	2.0	70	130	20
Perfluoroundecanoic acid	PFUDA or PFUnA	2058-94-8	0.553	2.0	70	130	20
Perfluorodecanesulfonic acid	PFDS	335-77-3	0.468	2.0	70	130	20
Perfluorododecanoic acid	PFDoA	307-55-1	0.472	2.0	70	130	20
Perfluorotridecanoic acid	PFTrDA	72629-94-8	0.455	2.0	70	130	20
Perfluorotetradecanoic acid	PFTeDA	376-06-7	0.374	2.0	70	130	20
Perfluorohexadecanoic acid	PFHxDA	67905-19-5	0.513	2.0	70	130	20
Perfluorooctadecanoic acid	PFODA	16517-11-6	0.603	2.0	70	130	20
N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9	0.993	4.0	70	130	20
N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6	1.33	4.0	70	130	20
Propanoic acid, 2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)	PFPOPra	13252-13-6	1.38	4.0	70	130	20
Dodecafluoro-3H-4,8-dioxanone	NaDONA	958445-44-8	1.51	4.0	70	130	20

Injection Internal Standards	Control limits	
	Lower	Upper
Perfluoro-n-[1,2-13C2]hexanoic acid	70	130
Perfluoro-n0-[1,2-13C2]decanoic acid	70	130
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	70	130



Table B.9.

Pace Analytical Services, LLC
Method Detection Limit and Reporting Limit
PFAS by EPA 537

Analyte	Acronym	CAS#	Drinking Water		Soil		Control limits		
			MDL (ng/L)	PRL (ng/L)	MDL (ng/Kg)	PRL (ng/Kg)	Lower	Upper	RPD
Perfluorobutanoic acid	PFBA	375-22-4			55.8	500	70	130	20
Perfluoropentanoic acid	PFPeA	2706-90-3			71.8	500	70	130	20
Perfluorohexanoic acid	PFHxA	307-24-4			71.8	500	70	130	20
Perfluorobutanesulfonic acid	PFBS	375-73-5	2.197	16.16	72.8	500	70	130	20
Perfluoroheptanoic acid	PFHpA	375-85-9	0.156	2.00	70.5	500	70	130	20
Perfluorohexanesulfonic acid	PFHxS	355-46-4	0.630	5.56	119	500	70	130	20
Perfluorooctanoic acid	PFOA	335-67-1	0.358	4.00	86.8	500	70	130	20
Perfluorononanoic acid	PFNA	375-95-1	0.422	4.00	102	500	70	130	20
Perfluorooctanesulfonic acid	PFOS	1763-23-1	0.907	8.00	79.4	500	70	130	20
Perfluorodecanoic acid	PFDA	335-76-2			68.9	500	70	130	20
Perfluoroundecanoic acid	PFUnA or PFUnA	2058-94-8			73.8	500	70	130	20
Perfluorodecanesulfonic acid	PFDS	335-77-3			71.7	500	70	130	20
Perfluorododecanoic acid	PFDoA	307-55-1			101	500	70	130	20
Perfluorotridecanoic acid	PFTriDA	72629-94-8			55.6	500	70	130	20
Perfluorotetradecanoic acid	PFTeDA	376-06-7			131	500	70	130	20
Perfluorohexadecanoic acid	PFHxDA	67905-19-5			42.6	500	70	130	20
Perfluorooctadecanoic acid	PFODA	16517-11-6			55.4	500	70	130	20
N-methyl perfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9			124	1000	70	130	20
N-ethyl perfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6			138	1000	70	130	20
Propanoic acid, 2,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)	PFPrOPrA	13252-13-6			126	1000	70	130	20
Dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	958445-44-8			141	1000	70	130	20

Injection Internal Standards	Control limits		Control limits	
	Lower	Upper	Lower	Upper
Perfluoro-n-[1,2-13C2]hexanoic acid	70	130	70	130
Perfluoro-n-[1,2-13C2]decanoic acid	70	130	70	130
N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid	70	130	70	130

Analytical Method Information

Analyte	MDL	MRL	Units	% Recovery	DUP RPD	Matrix Spike		Blank Spike		CASNumber
						% R	RPD	% R	RPD	
EPA 537M - Polyfluoroalkyl Substances (PFAS) by EPA 537M (Water)										
11Cl-PF3OUdS	1.0	1.0	ng/l	-		70-130	30	70-130	30	763051-92-9
4:2 FTS	1.0	1.0	ng/l	-		63-143	30	63-143	30	NA
6:2 FTS	1.0	1.0	ng/l	-		64-140	30	64-140	30	NA
8:2 FTS	1.0	1.0	ng/l	-		67-138	30	67-138	30	39108-34-4
9Cl-PF3ONS	1.0	1.0	ng/l	-		70-130	30	70-130	30	756426-58-1
ADONA	1.0	1.0	ng/l	-		70-130	30	70-130	30	958445-44-8
EtFOSAA	1.0	1.0	ng/l	-		61-135	30	61-135	30	2991-50-6
FOSA	1.0	1.0	ng/l	-		67-137	30	67-137	30	754-91-6
HFPO-DA	1.0	1.0	ng/l	-		70-130	30	70-130	30	13252-13-6
MeFOSAA	1.0	1.0	ng/l	-		65-136	30	65-136	30	2355-31-9
Perfluorooctanoic acid (PFOA)	1.0	1.0	ng/l	-		71-133	30	71-133	30	335-67-1
PFBA	1.0	1.0	ng/l	-		73-129	30	73-129	30	375-22-4
PFBS	1.0	1.0	ng/l	-		72-130	30	72-130	30	375-73-5
PFDA	1.0	1.0	ng/l	-		71-129	30	71-129	30	335-76-2
PFDoA	1.0	1.0	ng/l	-		72-134	30	72-134	30	307-55-1
PFDS	1.0	1.0	ng/l	-		53-142	30	53-142	30	335-77-3
PFHpA	1.0	1.0	ng/l	-		72-130	30	72-130	30	375-85-9
PFHpS	1.0	1.0	ng/l	-		69-134	30	69-134	30	375-92-8
PFHxA	1.0	1.0	ng/l	-		72-129	30	72-129	30	307-24-4
PFHxS	1.0	1.0	ng/l	-		68-131	30	68-131	30	355-46-4
PFNA	1.0	1.0	ng/l	-		69-130	30	69-130	30	375-95-1
PFNS	1.0	1.0	ng/l	-		69-127	30	69-127	30	98789-57-2
PFOS	1.0	1.0	ng/l	-		65-140	30	65-140	30	1763-23-1
PFPeA	1.0	1.0	ng/l	-		72-129	30	72-129	30	2706-90-3
PFPeS	1.0	1.0	ng/l	-		71-127	30	71-127	30	2706-91-4
PFTeDA	1.0	1.0	ng/l	-		71-132	30	71-132	30	376-06-7
PFTrDA	1.0	1.0	ng/l	-		65-144	30	65-144	30	72629-94-8
PFUnA	1.0	1.0	ng/l	-		69-133	30	69-133	30	2058-94-8

Analytical Method Information

Analyte	MDL	MRL	Units	% Recovery	DUP RPD	Matrix Spike		Blank Spike		CASNumber
						% R	RPD	% R	RPD	
EPA 538 - MDA Pesticide list by LC/MS/MS by EPA 538 (Water)										
2,4,5-T	12	50	ng/l	-		50-150	50	50-150	50	93-76-5
2,4,5-TP (Silvex)	12	50	ng/l	-		50-150	50	50-150	50	93-72-1
2,4-D	3.2	10	ng/l	-		50-150	50	50-150	50	94-75-7
2,4-DB	6.6	20	ng/l	-		50-150	50	50-150	50	94-82-6
2-Hydroxyatrazine	1.1	6.7	ng/l	-		50-150	50	50-150	50	2163-68-0
Acetamiprid	7.1	25	ng/l	-		50-150	50	50-150	50	135410-20-7
Acetochlor	5.4	30	ng/l	-		50-150	50	50-150	50	34256-82-1
Acetochlor ESA	8.2	30	ng/l	-		50-150	50	50-150	50	187022-11-3
Acetochlor OA	5.6	33	ng/l	-		50-150	50	50-150	50	194992-44-4
Alachlor	4.6	30	ng/l	-		50-150	50	50-150	50	15972-60-8
Alachlor ESA	12	42	ng/l	-		50-150	50	50-150	50	142363-53-9
Alachlor OA	9.7	33	ng/l	-		50-150	50	50-150	50	171262-17-2
Aldicarb sulfone	3.8	15	ng/l	-		50-150	50	50-150	50	1646-88-4
Aldicarb sulfoxide	14	50	ng/l	-		50-150	50	50-150	50	1646-87-3
Aminopyralid	2.5	25	ng/l	-		50-150	50	50-150	50	150114-71-9
Atrazine	9.2	30	ng/l	-		50-150	50	50-150	50	1912-24-9
Atrazine Deisopropyl	8.1	25	ng/l	-		50-150	50	50-150	50	1007-28-9
Atrazine Desethyl	11	50	ng/l	-		50-150	50	50-150	50	6190-65-4
Atrazine Desethyl Deisopropyl (DEDI Atrazine)	14	50	ng/l	-		50-150	50	50-150	50	3397-62-4
Azoxystrobin	3.2	10	ng/l	-		50-150	50	50-150	50	131860-33-8
Bensulfuron-methyl	2.8	17	ng/l	-		50-150	50	50-150	50	83055-99-6
Bensulide	74	250	ng/l	-		50-150	50	50-150	50	741-58-2
Bentazon	1.6	5.0	ng/l	-		50-150	50	50-150	50	25057-89-0
Boscalid	13	50	ng/l	-		50-150	50	50-150	50	188425-85-6
Bromacil	8.7	30	ng/l	-		50-150	50	50-150	50	314-40-9
Bromoxynil	6.6	25	ng/l	-		50-150	50	50-150	50	1689-84-5
Carbaryl	2.6	25	ng/l	-		50-150	50	50-150	50	63-25-2
Carbendazim	3.1	10	ng/l	-		50-150	50	50-150	50	10605-21-7
Carbofuran	1.2	13	ng/l	-		50-150	50	50-150	50	1563-66-2
Chlorantraniliprole	12	50	ng/l	-		50-150	50	50-150	50	500008-45-7
Chlorimuron-ethyl	5.8	20	ng/l	-		50-150	50	50-150	50	90982-32-4
Chlorpyrifos	8.2	40	ng/l	-		50-150	50	50-150	50	2921-88-2
Chlorpyrifos-oxon	8.2	40	ng/l	-		50-150	50	50-150	50	5598-15-2
Clomazone	3.8	15	ng/l	-		50-150	50	50-150	50	81777-89-1
Clopyralid	13	50	ng/l	-		50-150	50	50-150	50	1702-17-6
Clothianidin	4.5	25	ng/l	-		50-150	50	50-150	50	210880-92-5
Cyanazine	6.2	25	ng/l	-		50-150	50	50-150	50	21725-46-2
Cyanazine Acid	1.4	10	ng/l	-		50-150	50	50-150	50	36576-43-9
Cyanazine Amide	1.9	10	ng/l	-		50-150	50	50-150	50	36576-42-8
Cyantraniliprole	13	100	ng/l	-		50-150	50	50-150	50	736994-63-1
Cyfluthrin	36	100	ng/l	-		50-150	50	50-150	50	68359-37-5
Cypermethrin	170	500	ng/l	-		50-150	50	50-150	50	52315-07-8
Deethylcyanazine Acid	8.6	25	ng/l	-		50-150	50	50-150	50	
Diazinon	6.5	30	ng/l	-		50-150	50	50-150	50	333-41-5
Diazinon-O analog	22	75	ng/l	-		50-150	50	50-150	50	962-58-3
Dicamba	17	50	ng/l	-		50-150	50	50-150	50	1918-00-9
Dichloroprop	14	50	ng/l	-		50-150	50	50-150	50	120-36-5
Dicrotophos	7.6	25	ng/l	-		50-150	50	50-150	50	141-66-2
Difenoconazole	5.7	25	ng/l	-		50-150	50	50-150	50	119446-68-3

Analytical Method Information

Analyte	MDL	MRL	Units	% Recovery	DUP RPD	Matrix Spike		Blank Spike		CASNumber
						% R	RPD	% R	RPD	
Dimethenamid	3.4	15	ng/l	-		50-150	50	50-150	50	87674-68-8
Dimethenamid ESA	0.86	6.7	ng/l	-		50-150	50	50-150	50	205939-58-8
Dimethenamid OA	2.1	10	ng/l	-		50-150	50	50-150	50	380412-59-9
Dimethoate	18	50	ng/l	-		50-150	50	50-150	50	60-51-5
Dinotefuran	6.6	25	ng/l	-		50-150	50	50-150	50	165252-70-0
Disulfoton sulfone	3.3	20	ng/l	-		50-150	50	50-150	50	2497-06-5
Diuron	1.8	13	ng/l	-		50-150	50	50-150	50	330-54-1
Ethofumesate	18	50	ng/l	-		50-150	50	50-150	50	26225-79-6
Flufenacet OA	1.8	8.3	ng/l	-		50-150	50	50-150	50	201668-31-7
Flumetsulam	15	50	ng/l	-		50-150	50	50-150	50	98967-40-9
Flutriafol	2.0	10	ng/l	-		50-150	50	50-150	50	76674-21-0
Fluxapyroxad	2.3	10	ng/l	-		50-150	50	50-150	50	907204-31-3
Fomesafen	14	50	ng/l	-		50-150	50	50-150	50	72178-02-0
Fonofos	4.7	15	ng/l	-		50-150	50	50-150	50	944-22-9
Halosulfuron-Methyl	8.8	30	ng/l	-		50-150	50	50-150	50	100784-20-1
Hexazinone	2.3	10	ng/l	-		50-150	50	50-150	50	51235-04-2
Imazamethabenz acid	3.2	10	ng/l	-		50-150	50	50-150	50	100728-84-5
Imazamethabenz Methyl	1.2	5.0	ng/l	-		50-150	50	50-150	50	81405-85-8
Imazamox	2.8	13	ng/l	-		50-150	50	50-150	50	114311-32-9
Imazapic	1.4	10	ng/l	-		50-150	50	50-150	50	104098-48-8
Imazapyr	1.8	8.3	ng/l	-		50-150	50	50-150	50	81334-34-1
Imazaquin	3.1	17	ng/l	-		50-150	50	50-150	50	81335-37-7
Imazethapyr	1.4	10	ng/l	-		50-150	50	50-150	50	81335-77-5
Imidacloprid	0.92	5.0	ng/l	-		50-150	50	50-150	50	138261-41-3
Isoxaflutole	8.0	40	ng/l	-		50-150	50	50-150	50	141112-29-0
Linuron	3.3	20	ng/l	-		50-150	50	50-150	50	330-55-2
Malathion	5.0	50	ng/l	-		50-150	50	50-150	50	121-75-5
MCPA	1.4	5.0	ng/l	-		50-150	50	50-150	50	94-74-6
MCPB	4.8	20	ng/l	-		50-150	50	50-150	50	94-81-5
MCPP	13	50	ng/l	-		50-150	50	50-150	50	93-65-2
Mesotrione	16	50	ng/l	-		50-150	50	50-150	50	104206-82-8
Metalaxyl	1.7	8.3	ng/l	-		50-150	50	50-150	50	57837-19-1
Methyl paraoxon	3.7	25	ng/l	-		50-150	50	50-150	50	950-35-6
Methyl parathion	37	100	ng/l	-		50-150	50	50-150	50	298-00-0
Metolachlor	8.2	25	ng/l	-		50-150	50	50-150	50	51218-45-2
Metolachlor ESA	2.6	10	ng/l	-		50-150	50	50-150	50	171118-09-5
Metolachlor OA	3.0	10	ng/l	-		50-150	50	50-150	50	152019-73-3
Metribuzin	19	75	ng/l	-		50-150	50	50-150	50	21087-64-9
Metribuzin-Desamino	2.1	25	ng/l	-		50-150	50	50-150	50	35045-02-4
Metribuzin-Desamino-Diketo	180	500	ng/l	-		50-150	50	50-150	50	52236-30-3
Metribuzin-Diketo	150	500	ng/l	-		50-150	50	50-150	50	56507-37-0
Metsulfuron Methyl	4.0	23	ng/l	-		50-150	50	50-150	50	74223-64-6
Myclobutanil	2.5	10	ng/l	-		50-150	50	50-150	50	88671-89-0
N-Deethylcyanazine	4.9	25	ng/l	-		50-150	50	50-150	50	
N-Deethylcyanazine Amide	2.4	25	ng/l	-		50-150	50	50-150	50	36556-77-1
Nicosulfuron	6.1	27	ng/l	-		50-150	50	50-150	50	111991-09-4
Norflurazon	6.0	20	ng/l	-		50-150	50	50-150	50	27314-13-2
Norflurazon-Desmethyl	14	50	ng/l	-		50-150	50	50-150	50	23576-24-1
Oxadiazon	16	75	ng/l	-		50-150	50	50-150	50	19666-30-9
Oxydementon-Methyl	4.9	20	ng/l	-		50-150	50	50-150	50	301-12-2

Analytical Method Information

Analyte	MDL	MRL	Units	% Recovery	DUP RPD	Matrix Spike		Blank Spike		CASNumber
						% R	RPD	% R	RPD	
Pendimethalin	8.8	75	ng/l	-		50-150	50	50-150	50	40487-42-1
Phorate	9.1	25	ng/l	-		50-150	50	50-150	50	298-02-2
Picloram	14	42	ng/l	-		50-150	50	50-150	50	1918-02-1
Picoxystrobin	12	50	ng/l	-		50-150	50	50-150	50	117428-22-5
Prometon	29	100	ng/l	-		50-150	50	50-150	50	1610-18-0
Prometryn	1.2	5.0	ng/l	-		50-150	50	50-150	50	7287-19-6
Propachlor	8.5	30	ng/l	-		50-150	50	50-150	50	1918-16-7
Propachlor ESA	10	30	ng/l	-		50-150	50	50-150	50	947601-88-9
Propachlor OA	2.6	10	ng/l	-		50-150	50	50-150	50	70628-36-3
Propazine	5.1	25	ng/l	-		50-150	50	50-150	50	139-40-2
Propiconazole	2.0	10	ng/l	-		50-150	50	50-150	50	60207-90-1
Pyraclostrobin	7.3	25	ng/l	-		50-150	50	50-150	50	175013-18-0
Pyroxasulfone	16	50	ng/l	-		50-150	50	50-150	50	447399-55-5
Saflufenacil	5.1	15	ng/l	-		50-150	50	50-150	50	372137-35-4
Sedaxane	7.7	75	ng/l	-		50-150	50	50-150	50	874967-67-6
Siduron	0.87	6.7	ng/l	-		50-150	50	50-150	50	1982-49-6
Simazine	26	75	ng/l	-		50-150	50	50-150	50	122-34-9
Sulfentrazone	4.1	50	ng/l	-		50-150	50	50-150	50	122836-35-5
Sulfometuron Methyl	0.99	8.3	ng/l	-		50-150	50	50-150	50	74222-97-2
Tebuconazole	1.5	10	ng/l	-		50-150	50	50-150	50	107534-96-3
Tebupirimfos	4.7	30	ng/l	-		50-150	50	50-150	50	96182-53-5
Tembotrione	14	50	ng/l	-		50-150	50	50-150	50	335104-84-2
Terbufos	3.2	30	ng/l	-		50-150	50	50-150	50	13071-79-9
Tetraconazole	2.7	10	ng/l	-		50-150	50	50-150	50	112281-77-3
Thiacloprid	4.9	50	ng/l	-		50-150	50	50-150	50	111988-49-9
Thiamethoxam	8.5	25	ng/l	-		50-150	50	50-150	50	153719-23-4
Thifensulfuron Methyl	4.8	17	ng/l	-		50-150	50	50-150	50	79277-27-3
Thiobencarb	0.80	8.3	ng/l	-		50-150	50	50-150	50	28249-77-6
Tolfenpyrad	30	100	ng/l	-		50-150	50	50-150	50	129558-76-5
Triallate	14	50	ng/l	-		50-150	50	50-150	50	2303-17-5
Triasulfuron	3.4	23	ng/l	-		50-150	50	50-150	50	82097-50-5
Triclopyr	12	50	ng/l	-		50-150	50	50-150	50	55335-06-3

Analytical Method Information

Analyte	MDL	MRL	Units	% Recovery	DUP RPD	Matrix Spike		Blank Spike		CASNumber
						% R	RPD	% R	RPD	
EPA 625 - Semivolatile Organic Compounds by EPA 625.1 (Water)										
1,2,4-Trichlorobenzene	0.49	1.0	ug/l	-	30	44-142	30	57-130	30	120-82-1
1,2-Dichlorobenzene	0.46	1.0	ug/l	-	30	51-120	30	57-120	30	95-50-1
1,2-Diphenylhydrazine/Azobenzene	0.30	1.0	ug/l	-		-		-		122-66-7
1,3-Dichlorobenzene	0.42	1.0	ug/l	-	30	37-120	30	55-120	30	541-73-1
1,4-Dichlorobenzene	0.48	1.0	ug/l	-	30	39-120	30	55-120	30	106-46-7
2,4,6-Trichlorophenol	0.22	1.0	ug/l	-	30	37-144	30	52-129	30	88-06-2
2,4-Dichlorophenol	0.26	1.0	ug/l	-	30	39-135	30	53-122	30	120-83-2
2,4-Dimethylphenol	0.30	1.0	ug/l	-	30	32-120	30	42-120	30	105-67-9
2,4-Dinitrophenol	1.9	10	ug/l	-	30	0.1-191	30	0.1-173	30	51-28-5
2,4-Dinitrotoluene	0.18	1.0	ug/l	-	30	39-139	30	48-127	30	121-14-2
2,6-Dinitrotoluene	0.27	1.0	ug/l	-	30	50-158	30	68-137	30	606-20-2
2-Chloronaphthalene	0.45	1.0	ug/l	-	30	60-120	30	65-120	30	91-58-7
2-Chlorophenol	0.28	1.0	ug/l	-	30	23-134	30	36-120	30	95-57-8
2-Methyl-4,6-dinitrophenol	1.4	5.0	ug/l	-	30	0.1-181	30	53-130	30	534-52-1
2-Nitrophenol	0.26	1.0	ug/l	-	30	29-182	30	45-167	30	88-75-5
3,3'-Dichlorobenzidine	0.99	5.0	ug/l	-	30	0.1-262	30	8-213	30	91-94-1
4-Bromophenyl phenyl ether	0.36	1.0	ug/l	-	30	53-127	30	65-120	30	101-55-3
4-Chloro-3-methylphenol	0.23	1.0	ug/l	-	30	22-147	30	41-128	30	59-50-7
4-Chlorophenyl phenyl ether	0.41	1.0	ug/l	-	30	25-158	30	38-145	30	7005-72-3
4-Nitrophenol	1.2	5.0	ug/l	-	30	0.1-132	30	13-129	30	100-02-7
Acenaphthene	0.38	1.0	ug/l	-	30	47-145	30	60-132	30	83-32-9
Acenaphthylene	0.17	1.0	ug/l	-	30	33-145	30	54-126	30	208-96-8
Anthracene	0.12	1.0	ug/l	-	30	27-133	30	43-120	30	120-12-7
Benzidine	1.4	10	ug/l	-	30	0.1-200	30	0.1-200	30	92-87-5
Benzo (a) anthracene	0.19	1.0	ug/l	-	30	33-143	30	42-133	30	56-55-3
Benzo (a) pyrene	0.39	1.0	ug/l	-	30	17-163	30	32-148	30	50-32-8
Benzo (b) fluoranthene	0.46	1.0	ug/l	-	30	24-159	30	42-140	30	205-99-2
Benzo (g,h,i) perylene	0.42	2.0	ug/l	-	30	0.1-219	30	0.1-195	30	191-24-2
Benzo (k) fluoranthene	0.22	1.0	ug/l	-	30	11-162	30	25-146	30	207-08-9
Bis(2-chloroethoxy)methane	0.25	1.0	ug/l	-	30	33-184	30	49-165	30	111-91-1
Bis(2-chloroethyl)ether	0.27	1.0	ug/l	-	30	12-158	30	43-126	30	111-44-4
Bis(2-chloroisopropyl)ether	0.38	1.0	ug/l	-	30	36-166	30	63-139	30	108-60-1
Bis(2-ethylhexyl)phthalate	2.3	5.0	ug/l	-	30	8-158	30	29-137	30	117-81-7
Butyl benzyl phthalate	0.18	1.0	ug/l	-	30	0.1-152	30	0.1-140	30	85-68-7
Chrysene	0.19	1.0	ug/l	-	30	17-168	30	44-140	30	218-01-9
Dibenzo (a,h) anthracene	0.53	2.0	ug/l	-	30	0.1-227	30	0.1-200	30	53-70-3
Diethyl phthalate	0.15	1.0	ug/l	-	30	0.1-120	30	0.1-120	30	84-66-2
Dimethyl phthalate	0.18	1.0	ug/l	-	30	0.1-120	30	0.1-120	30	131-11-3
Di-n-butyl phthalate	0.10	1.0	ug/l	-	30	1-120	30	8-120	30	84-74-2
Di-n-octyl phthalate	0.46	1.0	ug/l	-	30	4-146	30	19-132	30	117-84-0
Fluoranthene	0.080	1.0	ug/l	-	30	26-137	30	43-121	30	206-44-0
Fluorene	0.35	1.0	ug/l	-	30	59-121	30	70-120	30	86-73-7
Hexachlorobenzene	0.49	1.0	ug/l	-	30	0.1-152	30	8-142	30	118-74-1
Hexachlorobutadiene	0.47	1.0	ug/l	-	30	24-120	30	38-120	30	87-68-3
Hexachlorocyclopentadiene	0.98	5.0	ug/l	-	30	10-120	30	10-120	30	77-47-4
Hexachloroethane	0.50	1.0	ug/l	-	30	40-120	30	55-120	30	67-72-1
Indeno (1,2,3-cd) pyrene	0.55	2.0	ug/l	-	30	0.1-171	30	0.1-151	30	193-39-5
Isophorone	0.21	1.0	ug/l	-	30	21-196	30	47-180	30	78-59-1
Naphthalene	0.49	1.0	ug/l	-	30	21-133	30	36-120	30	91-20-3

Analytical Method Information

Analyte	MDL	MRL	Units	% Recovery	DUP RPD	Matrix Spike		Blank Spike		CASNumber
						% R	RPD	% R	RPD	
Nitrobenzene	0.36	1.0	ug/l	-	30	35-180	30	54-158	30	98-95-3
N-Nitrosodimethylamine	0.50	1.0	ug/l	-	30	18-120	30	22-120	30	62-75-9
N-Nitrosodi-n-propylamine	0.26	1.0	ug/l	-	30	0.1-230	30	14-198	30	621-64-7
N-Nitrosodiphenylamine	0.19	1.0	ug/l	-	30	49-120	30	47-120	30	86-30-6
Pentachlorophenol	0.40	1.0	ug/l	-	30	0.1-133	30	41-120	30	87-86-5
Phenanthrene	0.32	1.0	ug/l	-	30	54-120	30	65-120	30	85-01-8
Phenol	0.16	1.0	ug/l	-	30	5-120	30	17-120	30	108-95-2
Pyrene	0.25	1.0	ug/l	-	30	52-120	30	70-120	30	129-00-0
<i>2,4,6-Tribromophenol</i>	-	-	Surrogate	25-120		-		-		118-79-6
<i>2-Fluorobiphenyl</i>	-	-	Surrogate	22-120		-		-		321-60-8
<i>2-Fluorophenol</i>	-	-	Surrogate	17-120		-		-		367-12-4
<i>Nitrobenzene-d5</i>	-	-	Surrogate	47-120		-		-		4165-60-0
<i>Phenol-d5</i>	-	-	Surrogate	12-120		-		-		4165-62-2
<i>Terphenyl-d14</i>	-	-	Surrogate	44-129		-		-		1718-51-0

Statistical Methods for Environmental Data ^(1,2,3,4)

Environmental data in general and water resources data more specifically often have the following characteristics:

1. A lower bound of zero. No negative values are involved. Exceptions include parameters such as electrochemical potential (Eh), where the scale includes both positive and negative values.
2. Presence of 'outliers', observations considerably higher or lower than most of the data, which infrequently but regularly occur. Outliers on the high side are more common in water resources.
3. Positive skewness occurs when outliers are mostly on the high side. The lognormal distribution is the classic example of positive skewness.
4. Skewness generally results in the non-normal distribution of data. A normal distribution is symmetric and represents the large sample approximation of the binomial distribution. The Binomial distribution, in turn, is the common basis for calculating probability. Parametric statistical tests assume data follow the normal distribution (or other distributions that can be described by "parameters"). Symmetry alone does not guarantee normality. Symmetric data with more observations at both extremes (heavy tails) than occurs for a normal distribution are also "non-normal".
5. Data reported only as below or above some threshold (censored data). This is usually due to analytical /measurement limitations. Examples include concentrations below one or more detection limit.
6. Seasonal patterns. Values tend to be higher or lower in certain seasons of the year.
7. Autocorrelation. Consecutive observations tend to be strongly correlated with each other, for example stream levels between runoff events. For the most common kind of autocorrelation in water resources (positive autocorrelation), high values tend to follow high values and low values tend to follow low values.
8. Dependence on other uncontrolled variables. Values strongly co-vary with water discharge, hydraulic conductivity, sediment grain size, or some other variable.

Based on the above characteristics of environmental data, applications of statistical methods are discussed below.

Hypothesis testing

Statistical analysis is basically a testing of two or more groups of data, or sets of paired data, for differences or relationships. For group tests, the question involves whether the variability within the group is less than or greater than the variability between groups. For paired data, the question is whether the overall difference between pairs is statistically different from zero. Correlation measures the strength of association of one variable to another: a large variability in the association is a poor correlation. The "null hypothesis" is that there is no difference between pairs or groups: no correlation. Some threshold needs to be assigned for "no difference" to have a real world meaning. A statistical test of a hypothesis never gives absolute certainty.

Statistical tests usually calculate a “test statistic” from the data. The test statistic, either as a discrete or continuous function, is associated with probability based on permuting all possible values of the statistic. For small sample sizes, exact tables are available for test statistics vs probabilities. For larger sample sizes, the test statistic distribution is often approximated by a continuous distribution (e.g., the normal distribution, or chi-squared distribution). Probability is then calculated by an equation (this is what most software does).

Probability Values (p-values) and Statistical Significance

All statistical tests calculate a probability of observing the test statistic by chance alone. Probabilities here are considered “type I errors”, that is, we are looking to avoid finding a relationship when none exists (*false positives*). A p-value of 0.05 has a one chance in twenty of finding a relationship when there is none. The term “statistical significance” must always refer to a level defined by the analyst. Statistical tests determine or assign the probability to test results, scientists define the significance level. Depending on the application, acceptable probability varies, but commonly 95% or 90% significance levels, p-value = 0.05 or p-value=0.10 respectively, are used with environmental data.

The choice of an acceptable significance level for rejecting the null hypothesis depends on the specific application. The p-value used in a specific situation depends on the relative importance of finding a relationship where one exists compared to missing a relationship when it does exist. Statisticians have often used a significance level, but this level is somewhat arbitrary. If, for example, the increase in crop yield associated with fertilizer application is of interest, a p-value of 0.1 is often used, since a farmer is willing to use more fertilizer if he thinks there is a one chance in 10 of seeing an increased yield. In contrast, if a drug is effective for a specific medical application but has certain side effects, a significance level of .01 or .001, 1 chance in 100 or 1000, may be justified for observing the side effect. Here the emphasis is not simply on the positive effect of the drug but also on it not having other implications for a number of people.

The sample size is quite important for significance. As few as 5 or 10 samples might be required to see crop response to fertilizer, while a large sample is required to see a 1 in 1000 chance of a drug side effect. A common situation in environmental studies is testing for trends over time or space. In this case sample size is very important, since a p-value of greater than .05 (95% significance) can often not be obtained when only a few observations are involved. Either one must choose a higher p-value (lower significance level) for accepting a trend, or more data over time or space are needed.

In the Dakota County Ambient Study analysis, p-values of 0.05 and 0.1 are both identified so that conclusions regarding significance can be assessed. In a number of cases, the overall conclusions are preserved whether either the 0.05 or 0.1 significance levels is used. In a few cases the significance level does influence whether a pattern is seen in the data.

The power of a statistical test is its ability to find relationships if they exist. This is called “type II error”, which represents *false negatives*. To avoid type II errors, either use the procedure with the greatest power given the data, or increase the sample size.

Parametric and non-parametric Tests

Statistical tests are divided into “parametric” and “non-parametric”. Parametric tests assume an underlying distribution (usually normal) of the data (or residuals in the case of regression). A

“parameter” such as the mean or standard deviation is assumed to follow a specified distribution, most commonly the normal distribution. Non-parametric tests do not assume such a distribution, and generally operate on “ranks” of the data rather than the raw values themselves. Such tests are looking for differences in medians or proportions, while parametric tests are looking for differences in means (averages). A portion of the “information” in a data set is lost when the raw data are replaced with ranks, and hence non-parametric tests are generally less powerful than parametric tests when the data meet the underlying assumptions of the parametric test. In contrast, non-parametric tests generally have equal or higher “power” than parametric test when the underlying data are not normally distributed.

Permutation tests are a special category of non-parametric tests. Permutation involves the calculation of all possible combinations of the data, or a large sampling thereof, to generate a probability of the obtaining the observed data. No mathematical distribution of the data is assumed. With the computing power of personal computers today, permutation tests are becoming more common in statistical analysis. A major advantage of permutation tests over non-parametric rank based tests is that means or averages rather than medians can be addressed. This is most important where quantities such as mass loading are of interest.

Transformation of Data

Experience indicates that with most environmental data, normality is the exception. In many cases the data can be made more normal by *transforming* one or both variables into “log” units. Parametric tests can be then be performed on the transformed data. Other transformations include quadratic, powers (positive and negative), hyperbolic, and logistic. A general feature of non-parametric tests based on ranks is that they are invariate to power transformations, since they deal with medians (which are geometric means). When the interest is in frequency, the median is the key measure of central tendency. When physical quantities such as mass flow are of interest, the mean or average is the key statistic rather than the median. In such cases permutation methods (above) should be used to estimate, for example, differences between means rather than medians.

Regardless of the statistical tests employed, it is important to find an appropriate mathematical approximation of any relationship between variables. With only two variables, graphing can help in this regard. With multiple variables, statistical tests with different models can be used.

The appropriate relationship between variables is perhaps best seen when non-parametric regression is used. For example, where the underlying data are related in log –linear or log-log fashion, the regression generates estimate of the median, which is a geometric mean. Here ranks are used, and the test results are invariate to power transformations. To use the results with actual physical values, the data need to be initially appropriately transformed, and the non-parametric regression results retransformed into original units.

One characteristic of environmental data which requires careful treatment is that of non-detects. In the past many people have substituted a number, such as half the detection limit, for all non-detects. Any such “substitution” introduces assumptions into the data which were not in the original data and can lead to false or biased conclusions. Further complicating the situation are multiple non-detect levels, such as could arise when different analytical techniques or sensitivity are represented in a dataset. Substitution should be generally avoided. Non-detects can be handled with nonparametric techniques directly by censoring at the highest detection limit or with Survival Analysis techniques (Kaplan-Meyer)

for more than one detection limit. *The key is that the information contained in the fraction of non-detects be incorporated in statistical analysis.*

Matched Pair Tests

1) Sign test (non-parametric)

The sign test counts the number of positive and negative differences between pairs of data and uses the binomial distribution to calculate a probability of the ratio being different than 0.5. No distribution is assumed for the data. Exact binomial tables are required for sample sizes less than about 20. The normal distribution is used for larger sample sizes. The sign test uses only the direction and not the magnitude of paired differences, and therefore has limited power to detect differences compared to tests which incorporate the magnitude of differences. A modification of the sign test accounts for non-detects after censoring at the highest detection limit. The sign test is also useful for testing whether a proportion of data are higher or lower than an assigned value, such as a standard.

2) Signed-Rank test (non-parametric)

Sometimes called the Wilcoxon signed-rank test, this test uses both the sign and magnitude of paired differences to determine whether the median of differences is statistically different from zero. Paired differences are ranked from highest to lowest, and the sum of the positive (or negative) signed ranks is the test statistic. From an exact table of the Wilcoxon test statistic and for an assumed acceptable significance level (e.g., p -value = .05), the median difference is tested to be statistically different from zero. The null hypothesis is that the median difference is not different from zero. The test statistic is a function of sample size (n), and the test can be either one or two-sided, depending on the hypothesis about the direction of the underlying phenomenon.

Although normality is not assumed in the signed-rank test, the shape of the distributions between the two groups is assumed to be approximately the same. The median difference represents an "offset" between the two groups. When groups have greatly different distributions, log transformations can produce differences which are more symmetric. A multiplicative relationship is turned into an additive one. This is a common occurrence with water resources data; data sets having higher median values also often have higher variances than "background" sites with low median values. The median difference in log units can be retransformed to estimate median ratio in original units.

Most computer statistical programs use a large sample approximation for the sign-rank test. This is appropriate for sample sizes above about 12, but many datasets include few pairs than this. Thus the *exact tables* need to be used. Using the large sample approximation will tend to reject the null hypothesis more often than warranted (i.e., differences between groups will be found where otherwise rejected). An alternative for smaller sample sizes is to conduct a permutation test for the confidence interval of the median (or mean) of paired differences (see below).

Non-detects with the rank-sign test can be dealt with most simply by censoring at the highest laboratory reporting or detection level. The censored values are then considered as "ties" in the test calculation, where the average rank is assigned to ties. This captures the information contained in the fraction of non-detects in the dataset. Simply ignoring all non-detects does not capture this information and can lead to missing patterns in some situations.

3) Paired t-test (Parametric)

The paired t-test uses a similar procedure to that of the signed-rank test; taking differences between pairs, but calculating a *mean* difference rather than a median difference. Then assuming normality of the difference data, a probability is calculated for this mean being different from zero. The t-distribution is similar to the normal distribution but accounts for the effect of small sample sizes. The t-test has more power for small sample sizes and *where the assumption of normality is met*, but loses this power for skewed data. The non-normality of differences results in an inflation of variance, making deviations from a zero difference difficult to find.

4) Permutation signed rank test (non-parametric)

As discussed above, the median or mean difference of paired data can be tested to be different from zero by calculating a confidence interval for the mean or median by calculating a large number of permutations from the original data. At a given probability, the interval either contains “zero” or not. From the difference data, random sampling of many (up to say 1000) possible combinations and compiling them yield an estimate of the confidence interval(s). This resampling with replacement is called “bootstrapping”. Modern computer software now has incorporated bootstrapping into many routines. *The advantage of permutation is that no distribution of the test statistic is assumed*, no limit due to sample size is involved, and the mean and its confidence interval can be tested instead of the median. One thousand resampling permutations can yield probabilities within less than 0.014 of the true (theoretical) probability (2) and 4000 resampling’s can cut this uncertainty in half, but 1000 is usually adequate for most purposes.

Comparison of Two Independent Groups

1) Rank-Sum Test (non-parametric)

The rank-sum test is called the Wilcoxon rank-sum test or the Mann-Whitney test. In contrast to matched pair tests above, these test(s) see if one group produces larger values than the other. Wording the question differently, is the variability within the groups greater or less than the variance between groups? First the data are ranked from high to low, and the sum of the joint ranks is calculated, using average ranks in the case of ties. Then the sum of the ranks is calculated for each group. The smaller rank sum is the test statistic (or either sum if group sizes are equal). The test statistic and the sample size are used to determine a probability, either using exact tables for small sample sizes (10 or less), and a large sample approximation for larger sample sizes (the distribution of the test statistic is approximately normal for $n \geq 10$). The probability can be either one or two sided, depending on the underlying hypothesis. As with the signed-rank test for paired differences, this is a *test of medians*. Computer software also generates an estimate of the absolute difference between medians. If the distribution of the groups is more symmetrical in log units, a transformation is warranted.

Retransformation of the difference between *medians* into linear units yields the ratio of *geometric means*. How close this is to group medians depends on how close the data are to being symmetric in their transformed units.

The rank-sum test is a test of “medians” or the 50th percentile of the data. When more 50% non-detects are involved in one or both groups, the signed-rank test will fail to generate the correct probability for rejection the null hypothesis.

2) Slippage Test (non-parametric)—a test where large number of non-detects are encountered

When more than 50% non-detects are involved with one or both of the groups, the Rank sum test will not necessarily yield correct predictions. An alternative is to examine only counts of detects at the high

end. In the slippage test, the counts of values in one group (the higher group) which exceed the largest value in the other (lower) group are used to calculate a probability that the two groups are statistically different. Exact tables list the minimum counts associated with an accepted probability (e.g., p-value = .05 or .01) based on the number of samples in the lower and higher group. This is quick test that can be done by ranking the data in each group from high to low, counting the number in the higher group which exceeds the largest value in the lower group, and looking up the count to not to exceed the assigned probability given the sample sizes. The slippage test is most applicable to >75% non-detects and sample sizes >30.

A similar binomial procedure, called the *quantile test*, pools and orders the data for the two groups. For a specified probability and sample size, a critical number of highest values is pre-determined. Exact tables (or software) then determine whether more of these “highest” values are in one group than in the other at the desired probability.

Like the slippage test, the quantile test require relatively large sample sizes (>20) to detect differences between groups at high probability. This test is most applicable for non-detects >50% and <~75%. The quantile test is often used to compare a set of values to a standard such as nitrate in drinking water.

3) Two Sample T-test

Each of two groups are assumed to have normal distributions but not necessarily the same variance. The individual group variances and pooled variances are used to calculate a test statistic, which is compared to the t-distribution for a given sample size. This test generally lacks power for non-normal data compared to the rank-sum test. Thus the t-test often fails to find differences between groups of data which are skewed. In particular, skewness is hard to determine statistically for small sample sizes (<25). Like all parametric tests, the t-test is for the means rather than the medians.

3) Permutation Anova (two sample analysis of variance)

Analogous to the rank-sign permutation test, bootstrap procedures can be used to estimate confidence intervals for the median or mean for each of two populations, at an assumed probability level. If the confidence intervals for the groups due not overlap, the groups are said to be statistically different at that probability level. Either one or two-sided tests can be used, depending on the underlying hypothesis. No assumptions regarding the shape of the underlying distributions are implied. For non-normal data, the means can be tested and the difference between means calculated.

Comparison of Three or more independent Groups

1) Kruskal-Wallis Test (non-parametric)

The Kruskal-Wallis (KW) test is similar to the rank-sum test for two groups, and is usually performed to see if any difference exists between several groups. A follow-up test can then determine which groups differ. Normality is not assumed. The data are ranked smallest to largest and the average rank for each group calculated. The test statistic K uses the squares of the differences between average ranks. This test statistic follows a “chi-squared distribution” with k-1 degrees of freedom (k=number of groups). Sample size is much less restrictive for KW (>=5 for 3 groups) than for the two group Mann-Whitney test, so that the large sample approximation can be usually employed. The KW is a one-sided test and is equivalent to the one sided rank-sum test (Mann-Whitney) for two groups. A two-group KW test with less than about 10 samples should use exact tables, as with the Wilcoxon rank sign or Mann-Whitney rank-sum test(s). With two groups and sample sizes above 10 the KW test yields similar p-values as dose the Mann-Whitney rank sum test.

KW can deal with non-detects directly when only one detection limit is involved by censoring at this level. All non-detects are then considered ties at the lowest value in the dataset. Kaplan Meyer methods (survival analysis) can be used when more than one detection level is involved. Like the rank-sum test, KW is a test of medians and often fails to find differences when the number of non-detects exceeds 50%. One must then resort to examining groups pairwise using the slippage or quantile tests.

2) ANOVA (analysis of variance-parametric)

ANOVA is analogous to the two sample t-test but examines three or more groups. Normal distributions are assumed for all groups. The test is for variance between groups being greater than within groups. ANOVA is a test of means and cannot readily deal with non-detects. KW is generally equal to or more powerful than ANOVA for skewed data, and is thus more commonly used for environmental data.

3) Permutation Anova (three or more sample analysis of variance)

Analogous to the rank-sign permutation test, bootstrap procedures can be used to estimate confidence intervals for the median or mean for each of several populations, at an assumed probability level. If the confidence intervals for the groups do not overlap, the groups are said to be statistically different at that probability level. Either one or two-sided tests can be used, depending on the underlying hypothesis. No assumptions regarding the shape of the underlying distributions are implied. For non-normal data, the means can be tested and the difference between means calculated.

Correlation and Regression

Correlation is a measure of strength in the relationship between two sets of continuous data. A relationship is said to be linear if it follows a straight line, and monotonic if it follows one direction but is not necessarily linear. Both parametric and non-parametric methods are available.

1) Pearson's r (Parametric)

The most commonly used parametric measure of correlation is Pearson's " r ". This test statistic is dimensionless and is obtained by standardizing the distance from the mean and dividing by the sample standard deviation. The " r " statistic follows the t-distribution with $n-2$ degrees of freedom, and a probability for correlation is calculated from the t-distribution and the sample size. The data are assumed to be normally distributed, as with all parametric tests.

2) Ordinary Least Squares (OLS-parametric) and Lowess

OLS first calculates the Pearson's correlation coefficient (r). A line is then calculated from the paired x-y data based on minimizing the sum of the squares of the deviations (or residuals) from the line. The slope of this line and the intercept constitute the regression equation. *The square of r (Rsq) represents the ratio of the variance explained by the line to the total variance in the dataset.* Rsq and the sample size determine the probability (p-value) of observing the relationship by chance alone.

OLS assumes that the residuals (differences between predicted and observed values) are normally distributed, have a constant variance over the range of x values, and that pairs of x-y values are independent.

Environmental data commonly do not meet some or all of these requirements. First, environmental data are often skewed, so that the relationship of x-y may be more log-linear, or inverse ($1/x$) or some other power. Or the data may not even be monotonic, such as in a quadratic relationship. The general

principle is that the proper relationship between the variables needs to be determined for OLS to be useful.

Graphing the data and using software to generate a “Lowess” line with the data help to identify or approximate the “proper” mathematical form of any possible relationship. Lowess stands for “Locally Weighted Exponential Scatterplot Smoothing”, which uses regression for each point and its neighbors to define the line or curve. Points closer together are given more weight. Once the appropriate is determined, transforming either the x or y values may yield a result in a relationship which is closer to being linear. The transformed data may look more like a normal distribution.

OLS assumes constant variance, a condition often not found with environmental data. The most common case is where variance increases with x values. Again, transforming the values, y in this case, can sometimes make the variance more constant. “Weighted least squares” is another method for dealing with non-constant variance. Values are normalized by dividing by the standard deviation for different intervals of the data, and OLS then performed on the weighted variables.

Another limitation of OLS is that environmental data are often “auto correlated”. Auto correlation occurs when values in a sequence are related to the previous values. Lake and stream levels over time are examples. This violates the OLS assumption of independence. Auto correlation can be thought of an “over sampling” problem. The data appear more correlated than they actually are. This results in p-values lower than is actually the case. Corrections for autocorrelation can yield more accurate probabilities by estimating an “effective sample size”. A corrected and smaller sample size then yields a more accurate p-value for the correlation. Auto correlation is common in time-series and is the subject of regression in trend analysis (below).

3) Kendall’s tau(non-parametric) and the Kendall-Theil robust line

The above drawbacks of OLS often lead the analyst to apply non-parametric regression methods for environmental data. Kendall’s tau measures the strength of a monotonic relationship between two variables. Tau does not assume normality and is based on ranks. The test statistic is calculated by determining the sign (+ or -) of each of all possible slopes. The difference between the number of positive and negative slopes, divided by the total number of possibilities, is defined as “tau”. Tau and the sample size are used to calculate a p-value. Tau follows the binomial distribution for sample sizes greater than 10. Exact tables are used for sample sizes less than 10.

A non-parametric regression line called the Kendall-Theil robust line (KT line) is the *median* of all pairwise slopes. This median line and the associated “tau” statistic are monotonic and invariate to transformation of data. To use the KT line for prediction, however, the proper form of the x-y relationship is required. As with OLS, graphing and LOWESS can help in this regard.

As noted previously, OLS yields a “mean” or average line while KT yields a “median” line. Further if the relationship is log or another type of transformation, a bias results when the data are retransformed into original units. Whether a median or a mean should be the target parameter depends of the purpose of the analysis. When the goal is, for example, to estimate a mass quantity such as yearly stream flow from daily measurements, means are necessary rather than medians. The sum of the daily means is equal to the mean of the sum. If a log transformation were used, the sum of the medians is *not* the median of the sum, but rather a geometric mean. In this example the estimate of the flow will be biased low, and a correction is necessary. One type of correction uses the average of the squared residuals to calculate a mean level from the median value.

A.13. Statistical Methodology

Provided by Kimm Crawford, Crawford Environmental Services

A variation of the KT line is the ATS line (Akritis-Theil-Sen) -- a permutation procedure. The ATS line is calculated by resampling (or permuting) the original data to generate a median line. The result is a regression line is that which when subtracted from the y values, yields a tau approximately "zero". ATS is calculated iteratively after setting an initial estimate of the slope. ATS is lower in bias and standard error than other alternatives, including weighted least squares.

A major advantage of KT and ATS regression is that non-detects can be handled directly by censoring at the highest detection limit. Like other non-parametric methods, the median is the target, and the median is not affected when all non-detects are assigned the same value (the lowest in the dataset). KT and ATS can also handle multiple censoring limits using Kaplan Mayer survival methods. Like the KT procedure, ATS needs a bias correction if a mean is the target parameter from regression rather than a median.

4) Multiple Regression (MLS or multivariate analysis)

The OLS procedure can be extended to additional variables. The utility of multiple regression (MLS) is that the combined effects of two or more variables can be examined statistically. Transformations may be necessary to make the data more normal and to reflect the proper relationships between variables. Major limitations of MLS are that all of the assumptions for OLS still apply, and that non-detects are not readily handled. Co-variance can also be a problem with MLS. Two or more independent variables in MLS analysis may be themselves correlated. An example would be specific conductance (SC), total dissolved solids (TDS) and total hardness (Thard) in natural waters. SC and TDS or Thard are generally correlated and thus do not represent independent variables.

Multiple regression can also deal with certain relationships which are not monotonic. For example, an initial increasing level for a parameter over time followed by a peak may be modeled by a quadratic equation where both time and its square are the x variables in a multiple regression.

5) Time Series (time as the x variable in regression)

MLS can be used for time-series analysis, where time is one of the independent variables. For example, it may be of interest to see if the concentration of a parameter in a stream has varied over time. An exogenous variable here is the possible change in stream flow itself with time. If the data meet underlying regression assumptions, time and flow as the independent variables can be used in a multiple regression analysis. Alternatively, OLS of concentration vs time can be conducted, followed by regression of the residuals from the regression vs time. Flow is then assumed to be the factor for a trend in residuals vs time. This latter procedure also lends itself to non-parametric KT regression, if the assumptions of OLS are not met. Other than using this "two step" procedure, non-parametric procedures are not generally applicable in multiple regression.

In some cases a seasonal trend may be imbedded into a longer term yearly trend. In such cases, due to a seasonal pattern, the variability in the data may have the result that no yearly statistical trend is calculated in Kendall regression. A special non-parametric test called the "Seasonal Kendall" can be applied to data where trends over time (years) are of interest, and where there may be an additional seasonal pattern or trend also. The Kendall-Theil regression is first used with time (years) as the x variable to see if there is an overall yearly trend. With or without such a statistical yearly trend, the Kendall and tau statistics are calculated for each season separately. The Seasonal statistics are combined to yield an overall probability of a trend over years accounting for patterns in the seasons. This procedure can identify seasonal patterns which are missed when yearly data alone are examined.

Discrete Relationships

Contingency tables and analysis (non-parametric)

In some cases only categorical variables are encountered in water resources data. Examples include the detection or non-detection of a substance, land use type, aquifer type, or watershed. In such cases a contingency table can be constructed to determine whether the row classification is independent of the column classification. Counts of row and column parameters are constructed as a contingency table. Then a statistical test is used to see if the proportions differ with the categories. Three types of situations occur with contingency tables.

Both row and column data nominal-Chi-Squared Test

In this case the order of the column and rows is irrelevant: only the relative proportions are tested. The chi-squared distribution approximates the exact distribution for the sum of the differences between the squares of counts or proportions by categories. 80% or more of the cells should have counts of 5 or more for the chi-squared approximation to be representative of the distribution of the data. When these conditions are not met, two or more rows or columns can sometimes be combined to generate a contingency table which can be tested by the Chi-Squared procedure. Spreadsheet calculators can calculate Chi-Squared test statistics and probability values for nominal contingency tables.

An alternative is a permutation chi-sq test where cell counts are less than 5. Large sample approximation not assumed. Useful for smaller sample sizes or data with frequency counts less than 5.

One type of data is ordinal and the other nominal

This case is analogous to the two or more group situations where the Mann-Whitney or Kruskal Wallis tests were employed with continuous data. In a contingency table the rows are ordered from low- to high for the ordinal variable, and the columns are the nominal variables. Spreadsheet calculators using the same assumptions as described above with continuous data can calculate KW test statistics and probabilities using contingency tables. If continuous data are available, it is almost always more accurate to use the MW or KW tests directly, since some information is lost when numerical data are assembled into categories.

Both data types ordinal

This case is analogous to the case of correlation of two continuous variables where non-parametric regression was appropriate. In a contingency table the data are ordered from left to right and from top to bottom in increasing values or levels. The Kendall tau statistic and p-values can be calculated using spreadsheets based on the same assumptions described above for continuous data. If continuous data are available, they should be used directly, since some information is lost when ordinal data are assembled into categories.

Presentation tables

Categorical data are often used in summaries where one or both data types are ordinal. As discussed above, although the test statistics can be calculated directly from such tables, it is preferable to calculate the actual statistics and p-values from raw data rather than the contingency tables. Tables and bar charts or other depictions can be an aid in illustrating particular relationships, but they should not be a substitute for calculating statistics from the actual data if they are available.

Statistical Trend Methodology

The study data set can be examined to identify statistical trends for individual wells and for collective trends.

The power of a statistical test to correctly describe a trend is a function of the inherent variability in the system, the sample size, and the significance level chosen for the test. A minimum of 5 samples/years is needed to be able to see a 90-95% statistical significance, and the smaller the sample size, the more likely it is that an 'actual' trend might be missed statistically. This study is based on a relatively small sample size, so the significance level chosen can have a strong effect on the results. Significance is reported at two levels: 90% and 95%.

The statistical likelihood of trends in nitrate, chloride, sulfate, and sodium data for each well were tested through time; parametric and non-parametric tests were used. The data were first tested for the existence of a trend for each well and anion. If a trend was significant, then it was quantified by a linear line. If the correlation is statistically significant at 90% or higher, the well is considered to have a trend. Wells with trends can be grouped into two categories: unchanging (background, and stable above background) and changing (exponential up, linear up, peaking and exponential downward). Second, a nonparametric regression line was calculated for the nitrate, chloride, sulfate, and sodium data, which yielded a slope and intercept when the trend was linear and upward over time. When the trend was linear downward, only a slope (negative) was calculated. The linear or monotonic slope, either positive (upward) and negative (downward), was calculated using the Akritas-Thein-Sen (ATS) method. The ATS is a permutation variation of the Kendall-tau nonparametric method and is particularly suited to data with non-detections at different levels. For upward trending wells, the x-intercept, or "year zero" for an anthropogenic compound, was calculated from the ATS equation (line). The "year zero" is the estimated first year that the ion began to impact the groundwater.

Some wells have an overall upward or downward trend but have either a maximum or minimum in the pattern over time. These wells were modeled statistically using a quadratic regression, which has a linear term plus a "squared" term for time. This is a parametric method under the category of multiple regression. Either term can be positive or negative, which results in a maximum or minimum (as leveling off). As with linear regression, quadratic regression has correlation coefficients and probability values. A significance level of 90% or greater is the criteria used for a trend pattern, just as with linear regression/correlation

References

- 1) Helsel, D.R. and Hirsch, R.M., "Statistical Methods in Water Resources" chapter A3, in Techniques of water-Resources Investigations of the US Geological Survey, 2002.
- 2) Helsel, D. R., "Statistics for Censored Environmental Data using Minitab and R". Wiley and Sons, 2012.
- 3) Helsel, D. R., "Nondetects and Data Analysis-Statistics for Censored Environmental Data, Wiley and Sons, 2005.
- 4) Higgins, J.J., "Introduction to Modern Nonparametric Statistics", Thomson Brooks/Cole, 2004.

Statistical Methods for Environmental Data ^(1,2,3,4,5)

Environmental data in general and water resources data more specifically often have the following characteristics:

1. A lower bound of zero. No negative values are involved. Exceptions include parameters such as electrochemical potential (Eh), where the scale includes both positive and negative values.
2. Presence of 'outliers', observations considerably higher or lower than most of the data, which infrequently but regularly occur. Outliers on the high side are more common in water resources.
3. Positive skewness occurs when outliers are mostly on the high side. The lognormal distribution is the classic example of positive skewness.
4. Skewness generally results in the non-normal distribution of data. A normal distribution is symmetric and represents the large sample approximation of the binomial distribution. The Binomial distribution, in turn, is the common basis for calculating probability. Parametric statistical tests assume data follow the normal distribution (or other distributions that can be described by "parameters"). Symmetry alone does not guarantee normality. Symmetric data with more observations at both extremes (heavy tails) than occurs for a normal distribution are also "non-normal".
5. Data reported only as below or above some threshold (censored data). This is usually due to analytical or measurement limitations. Examples include concentrations below one or more detection limit.
6. Seasonal patterns. Values tend to be higher or lower in certain seasons of the year.
7. Autocorrelation. Consecutive observations tend to be strongly correlated with each other, for example stream levels between runoff events. For the most common kind of autocorrelation in water resources (positive autocorrelation), high values tend to follow high values and low values tend to follow low values.
8. Dependence on other uncontrolled variables. Values strongly co-vary with water discharge, hydraulic conductivity, sediment grain size, or some other variable.

Based on the above characteristics of environmental data, applications of statistical methods are discussed below.

Hypothesis testing

Statistical analysis is basically a testing of two or more groups of data, or sets of paired data, for differences or relationships. For group tests, the question involves whether the variability within the group is less than or greater than the variability between groups. For paired data, the question is whether the overall difference between pairs is statistically different from zero. Correlation measures the strength of association of one variable to another: a large variability in the association is a poor correlation. The "null hypothesis" is that there is no difference between pairs or groups: no correlation. Some threshold needs to be assigned for "no difference" to have a real world meaning. A statistical test of a hypothesis never gives absolute certainty.

Statistical tests usually calculate a “test statistic” from the data. The test statistic, either as a discrete or continuous function, is associated with probability based on permuting all possible values of the statistic. For small sample sizes, exact tables are available for test statistics vs probabilities. For larger sample sizes, the test statistic distribution is often approximated by a continuous distribution (e.g., the normal distribution, or chi-squared distribution). Probability is then calculated by an equation (this is what most software does).

Probability Values (p-values) and Statistical Significance

All statistical tests calculate a probability of observing the test statistic by chance alone. Probabilities here are considered “type I errors”, that is, we are looking to avoid finding a relationship when none exists (*false positives*). A p-value of 0.05 has a one chance in twenty of finding a relationship when there is none. The term “statistical significance” must always refer to a level defined by the analyst. Statistical tests determine or assign the probability to test results, scientists define the significance level. Depending on the application, acceptable probability varies, but commonly 95% or 90% significance levels, $p\text{-value} > 0.05$ or $p\text{-value} > 0.10$, respectively, are used with environmental data.

The choice of an acceptable significance level for rejecting the null hypothesis depends on the specific application. The p-value used in a specific situation depends on the relative importance of finding a relationship where one exists compared to missing a relationship when it does exist. Statisticians have often used a significance level, but this level is somewhat arbitrary. If, for example, the increase in crop yield associated with fertilizer application is of interest, a p-value of 0.1 is often used, since a farmer is willing to use more fertilizer if he thinks there is a one chance in 10 of seeing an increased yield. In contrast, if a drug is effective for a specific medical application but has certain side effects, a significance level of .01 or .001, 1 chance in 100 or 1000, may be justified for observing the side effect. Here the emphasis is not simply on the positive effect of the drug but also on it not having other implications for a number of people.

The sample size is quite important for significance. As few as 5 or 10 samples might be required to see crop response to fertilizer, while a large sample is required to see a 1 in 1000 chance of a drug side effect. A common situation in environmental studies is testing for trends over time or space. In this case sample size is very important, since a p-value of greater than .05 (95% significance) can often not be obtained when only a few observations are involved. Either one must choose a higher p-value (lower significance level) for accepting a trend, or more data over time or space are needed.

In the Dakota County Ambient Study analysis, p-values of 0.05 and 0.1 are both identified so that conclusions regarding significance can be assessed. In a number of cases, the overall conclusions are preserved whether either the 0.05 or 0.1 significance levels is used. In a few cases the significance level does influence whether a pattern is seen in the data.

The power of a statistical test is its ability to find relationships if they exist. This is called “type II error”, which represents *false negatives*. To avoid type II errors, either use the procedure with the greatest power given the data or increase the sample size.

Parametric and non-parametric Tests

Statistical tests are divided into “parametric” and “non-parametric”. Parametric tests assume an underlying distribution (usually normal) of the data (or residuals in the case of regression). A

“parameter” such as the mean or standard deviation is assumed to follow a specified distribution, most commonly the normal distribution. Non-parametric tests do not assume such a distribution, and generally operate on “ranks” of the data rather than the raw values themselves. Such tests are looking for differences in medians or proportions, while parametric tests are looking for differences in means (averages). A portion of the “information” in a data set is lost when the raw data are replaced with ranks, and hence non-parametric tests are generally less powerful than parametric tests when the data meet the underlying assumptions of the parametric test. In contrast, non-parametric tests generally have equal or higher “power” than parametric test when the underlying data are not normally distributed.

Permutation tests are a special category of non-parametric tests. Permutation involves the calculation of all possible combinations of the data, or a large sampling thereof, to generate a probability of the obtaining the observed data. No mathematical distribution of the data is assumed. With the computing power of personal computers today, permutation tests are becoming more common in statistical analysis. A major advantage of permutation tests over non-parametric rank-based tests is that means, or averages rather than medians can be addressed. This is most important where quantities such as mass loading are of interest.

Transformation of Data

Experience indicates that with most environmental data, normality is the exception. In many cases the data can be made more normal by *transforming* one or both variables into “log” units. Parametric tests can be then be performed on the transformed data. Other transformations include quadratic, powers (positive and negative), hyperbolic, and logistic. A general feature of non-parametric tests based on ranks is that they are invariate to power transformations, since they deal with medians (which are geometric means). When the interest is in frequency, the median is the key measure of central tendency. When physical quantities such as mass flow are of interest, the mean or average is the key statistic rather than the median. In such cases permutation methods (above) should be used to estimate, for example, differences between means rather than medians.

Regardless of the statistical tests employed, it is important to find an appropriate mathematical approximation of any relationship between variables. With only two variables, graphing can help in this regard. With multiple variables, statistical tests with different models can be used.

The appropriate relationship between variables is perhaps best seen when non-parametric regression is used. For example, where the underlying data are related in log –linear or log-log fashion, the regression generates estimate of the median, which is a geometric mean. Here ranks are used, and the test results are invariate to power transformations. To use the results with actual physical values, the data need to be initially appropriately transformed, and the non-parametric regression results retransformed into original units.

One characteristic of environmental data which requires careful treatment is that of non-detects. In the past many people have substituted a number, such as half the detection limit, for all non-detects. Any such “substitution” introduces assumptions into the data which were not in the original data and can lead to false or biased conclusions. Further complicating the situation are multiple non-detect levels, such as could arise when different analytical techniques or sensitivity are represented in a dataset. Substitution should be generally avoided. Non-detects can be handled with nonparametric techniques directly by censoring at the highest detection limit or with Survival Analysis techniques (Kaplan-Meyer)

for more than one detection limit. *The key is that the information contained in the fraction of non-detects be incorporated in statistical analysis.*

Matched Pair Tests

1) Sign test (non-parametric)

The sign test counts the number of positive and negative differences between pairs of data and uses the binomial distribution to calculate a probability of the ratio being different than 0.5. No distribution is assumed for the data. Exact binomial tables are required for sample sizes less than about 20. The normal distribution is used for larger sample sizes. The sign test uses only the direction and not the magnitude of paired differences, and therefore has limited power to detect differences compared to tests which incorporate the magnitude of differences. A modification of the sign test accounts for non-detects after censoring at the highest detection limit. The sign test is also useful for testing whether a proportion of data are higher or lower than an assigned value, such as a standard.

2) Signed-Rank test (non-parametric)

Sometimes called the Wilcoxon signed-rank test, this test uses both the sign and magnitude of paired differences to determine whether the median of differences is statistically different from zero. Paired differences are ranked from highest to lowest, and the sum of the positive (or negative) signed ranks is the test statistic. From an exact table of the Wilcoxon test statistic and for an assumed acceptable significance level (e.g., $p\text{-value} = .05$), the median difference is tested to be statistically different from zero. The null hypothesis is that the median difference is not different from zero. The test statistic is a function of sample size (n), and the test can be either one or two-sided, depending on the hypothesis about the direction of the underlying phenomenon.

Although normality is not assumed in the signed-rank test, the shape of the distributions between the two groups is assumed to be approximately the same. The median difference represents an “offset” between the two groups. When groups have greatly different distributions, log transformations can produce differences which are more symmetric. A multiplicative relationship is turned into an additive one. This is a common occurrence with water resources data; data sets having higher median values also often have higher variances than “background” sites with low median values. The median difference in log units can be retransformed to estimate median ratio in original units.

Most computer statistical programs use a large sample approximation for the sign-rank test. This is appropriate for sample sizes above about 12, but many datasets include few pairs than this. Thus, the *exact tables* need to be used. Using the large sample approximation will tend to reject the null hypothesis more often than warranted (i.e., differences between groups will be found where otherwise rejected). An alternative for smaller sample sizes is to conduct a permutation test for the confidence interval of the median (or mean) of paired differences (see below).

Non-detects with the rank-sign test can be dealt with most simply by censoring at the highest laboratory reporting or detection level. The censored values are then considered as “ties” in the test calculation, where the average rank is assigned to ties. This captures the information contained in the fraction of non-detects in the dataset. Simply ignoring all non-detects does not capture this information and can lead to missing patterns in some situations.

3) Permutation signed rank test (non-parametric)

As discussed above, the median or mean difference of paired data can be tested to be different from zero by calculating a confidence interval for the mean or median by calculating a large number of permutations from the original data. At a given probability, the interval either contains “zero” or not. From the difference data, random sampling of many (up to say 1000) possible combinations and compiling them yield an estimate of the confidence interval(s). This resampling with replacement is called “bootstrapping”. Modern computer software now has incorporated bootstrapping into many routines. *The advantage of permutation is that no distribution of the test statistic is assumed, no limit due to sample size is involved, and the mean and its confidence interval can be tested instead of the median.* One thousand resampling permutations can yield probabilities within less than 0.014 of the true (theoretical) probability (2) and 4000 resampling’s can cut this uncertainty in half, but 1000 is usually adequate for most purposes.

Comparison of Two Independent Groups

1) Rank-Sum Test (non-parametric)

The rank-sum test is called the Wilcoxon rank-sum test or the Mann-Whitney test. In contrast to matched pair tests above, these test(s) see if one group produces larger values than the other. Wording the question differently, is the variability within the groups greater or less than the variance between groups? First the data are ranked from high to low, and the sum of the joint ranks is calculated, using average ranks in the case of ties. Then the sum of the ranks is calculated for each group. The smaller rank sum is the test statistic (or either sum if group sizes are equal). The test statistic and the sample size are used to determine a probability, either using exact tables for small sample sizes (10 or less), and a large sample approximation for larger sample sizes (the distribution of the test statistic is approximately normal for $n \geq 10$). The probability can be either one or two sided, depending on the underlying hypothesis. As with the signed-rank test for paired differences, this is a *test of medians*. Computer software also generates an estimate of the absolute difference between medians. If the distribution of the groups is more symmetrical in log units, a transformation is warranted.

Retransformation of the difference between *medians* into linear units yields the ratio of *geometric means*. How close this is to group medians depends on how close the data are to being symmetric in their transformed units.

The rank-sum test is a test of “medians” or the 50th percentile of the data. When more 50% non-detects are involved in one or both groups, the signed-rank test will fail to generate the correct probability for rejection the null hypothesis.

2) Slippage Test (non-parametric)—a test where large number of non-detects are encountered

When more than 50% non-detects are involved with one or both of the groups, the Rank sum test will not necessarily yield correct predictions. An alternative is to examine only counts of detects at the high end. In the slippage test, the counts of values in one group (the higher group) which exceed the largest value in the other (lower) group are used to calculate a probability that the two groups are statistically different. Exact tables list the minimum counts associated with an accepted probability (e.g., p-value = .05 or .01) based on the number of samples in the lower and higher group. This is quick test that can be done by ranking the data in each group from high to low, counting the number in the higher group which exceeds the largest value in the lower group, and looking up the count to not to exceed the assigned probability given the sample sizes. The slippage test is most applicable to >75% non-detects and sample sizes >30.

A similar binomial procedure, called the *quantile test*⁵, pools and orders the data for the two groups. The counts above a selected value in the combined data set (e.g. the upper or 3rd quartile) are then recorded. These counts above this selected value which are from one vs the other group are then used to calculate a probability for the groups being different, based on the total sample size. Exact tables (or software) then determine whether more of these “highest” values are in one group than in the other at the desired probability.

Like the slippage test, the quantile test requires relatively large sample sizes (>20) to detect differences between groups at high probability. This test is most applicable for non-detects >50% and <~75%. The quantile test is often used to compare a set of values to a standard such as nitrate in drinking water.

Comparison of Three or more independent Groups

Kruskal-Wallis Test (non-parametric)

The Kruskal-Wallis (KW) test is similar to the rank-sum test for two groups and is usually performed to see if any difference exists between several groups. A follow-up test can then determine which groups differ. Normality is not assumed. The data are ranked smallest to largest and the average rank for each group calculated. The test statistic K uses the squares of the differences between average ranks. This test statistic follows a “chi-squared distribution” with k-1 degrees of freedom (k=number of groups). Sample size is much less restrictive for KW (>=5 for 3 groups) than for the two group Mann-Whitney test, so that the large sample approximation can be usually employed. The KW is a one-sided test and is equivalent to the one-sided rank-sum test (Mann-Whitney) for two groups. A two-group KW test with less than about 10 samples should use exact tables, as with the Wilcoxon rank sign or Mann-Whitney rank-sum test(s). With two groups and sample sizes above 10 the KW test yields similar p-values as does the Mann-Whitney rank sum test.

KW can deal with non-detects directly when only one detection limit is involved by censoring at this level. All non-detects are then considered ties at the lowest value in the dataset. Kaplan Meyer methods (survival analysis) can be used when more than one detection level is involved. Like the rank-sum test, KW is a test of medians and often fails to find differences when the number of non-detects exceeds 50%. One must then resort to examining groups pairwise using the slippage or quantile tests.

Correlation and Regression

Correlation is a measure of strength in the relationship between two sets of continuous data. A relationship is said to be linear if it follows a straight line, and monotonic if it follows one direction but is not necessarily linear. Both parametric and non-parametric methods are available.

1.) Ordinary Least Squares (OLS-parametric) and Lowess

OLS first calculates the Pearson’s correlation coefficient (r). A line is then calculated from the paired x-y data based on minimizing the sum of the squares of the deviations (or residuals) from the line. The slope of this line and the intercept constitute the regression equation. *The square of r (Rsq) represents the ratio of the variance explained by the line to the total variance in the dataset.* Rsq and the sample size determine the probability (p-value) of observing the relationship by chance alone.

OLS assumes that the residuals (differences between predicted and observed values) are normally distributed, have a constant variance over the range of x values, and that pairs of x-y values are independent.

Environmental data commonly do not meet some or all of these requirements. First, environmental data are often skewed, so that the relationship of x-y may be more log-linear, or inverse ($1/x$) or some other power. Or the data may not even be monotonic, such as in a quadratic relationship. The general principle is that the proper relationship between the variables needs to be determined for OLS to be useful.

Graphing the data and using software to generate a “Lowess” line with the data help to identify or approximate the “proper” mathematical form of any possible relationship. Lowess stands for ‘Locally Weighted Exponential Scatterplot Smoothing’, which uses regression for each point and its neighbors to define the line or curve. Points closer together are given more weight. Once the appropriate is determined, transforming either the x or y values may yield a result in a relationship which is closer to being linear. The transformed data may look more like a normal distribution.

OLS assumes constant variance, a condition often not found with environmental data. The most common case is where variance increases with x values. Again, transforming the values, y in this case, can sometimes make the variance more constant. “Weighted least squares” is another method for dealing with non-constant variance. Values are normalized by dividing by the standard deviation for different intervals of the data, and OLS then performed on the weighted variables.

Another limitation of OLS is that environmental data are often “auto correlated”. Auto correlation occurs when values in a sequence are related to the previous values. Lake and stream levels over time are examples. This violates the OLS assumption of independence. Auto correlation can be thought of an “over sampling” problem. The data appear more correlated than they actually are. This results in p-values lower than is actually the case. Corrections for autocorrelation can yield more accurate probabilities by estimating an “effective sample size”. A corrected and smaller sample size then yields a more accurate p-value for the correlation. Auto correlation is common in time-series and is the subject of regression in trend analysis (below).

2) Kendall’s tau(non-parametric) and the Kendall-Theil robust line

The above drawbacks of OLS often lead the analyst to apply non-parametric regression methods for environmental data. Kendall’s tau measures the strength of a monotonic relationship between two variables. Tau does not assume normality and is based on ranks. The test statistic is calculated by determining the sign (+ or -) of each of all possible slopes. The difference between the number of positive and negative slopes, divided by the total number of possibilities, is defined as “tau”. Tau and the sample size are used to calculate a p-value. Tau follows the binomial distribution for sample sizes greater than 10. Exact tables are used for sample sizes less than 10.

A non-parametric regression line called the Kendall-Theil robust line (KT line) is the *median* of all pairwise slopes. This median line and the associated “tau” statistic are monotonic and invariate to transformation of data. To use the KT line for prediction, however, the proper form of the x-y relationship is required. As with OLS, graphing and LOWESS can help in this regard.

As noted previously, OLS yields a “mean” or average line while KT yields a “median” line. Further if the relationship is log or another type of transformation, a bias results when the data are retransformed into original units. Whether a median or a mean should be the target parameter depends of the purpose of the analysis. When the goal is, for example, to estimate a mass quantity such as yearly stream flow from daily measurements, means are necessary rather than medians. The sum of the daily means is equal to the mean of the sum. If a log transformation were used, the sum of the medians is *not* the

median of the sum, but rather a geometric mean. In this example the estimate of the flow will be biased low, and a correction is necessary. One type of correction uses the average of the squared residuals to calculate a mean level from the median value.

A variation of the KT line is the ATS line (Akritis-Theil-Sen) -- a permutation procedure. The ATS line is calculated by resampling (or permuting) the original data to generate a median line. The result is a regression line is that which when subtracted from the y values, yields a tau approximately "zero". ATS is calculated iteratively after setting an initial estimate of the slope. ATS is lower in bias and standard error than other alternatives, including weighted least squares.

A major advantage of KT and ATS regression is that non-detects can be handled directly by censoring at the highest detection limit. Like other non-parametric methods, the median is the target, and the median is not affected when all non-detects are assigned the same value (the lowest in the dataset). KT and ATS can also handle multiple censoring limits using Kaplan Mayer survival methods. Like the KT procedure, ATS needs a bias correction if a mean is the target parameter from regression rather than a median.

3) Multiple Regression (MLS or multivariate analysis)

The OLS procedure can be extended to additional variables. The utility of multiple regression (MLS) is that the combined effects of two or more variables can be examined statistically. Transformations may be necessary to make the data more normal and to reflect the proper relationships between variables. Major limitations of MLS are that all of the assumptions for OLS still apply, and that non-detects are not readily handled. Co-variance can also be a problem with MLS. Two or more independent variables in MLS analysis may be themselves correlated. An example would be specific conductance (SC), total dissolved solids (TDS) and total hardness (Thard) in natural waters. SC and TDS or Thard are generally correlated and thus do not represent independent variables.

Multiple regression can also deal with certain relationships which are not monotonic. For example, an initial increasing level for a parameter over time followed by a peak may be modeled by a quadratic equation where both time and its square are the x variables in a multiple regression.

Discrete Relationships

Contingency tables and analysis (non-parametric)

In some cases, only categorical variables are encountered in water resources data. Examples include the detection or non-detection of a substance, land use type, aquifer type, or watershed. In such cases a contingency table can be constructed to determine whether the row classification is independent of the column classification. Counts of row and column parameters are constructed as a contingency table. Then a statistical test is used to see if the proportions differ with the categories. Three types of situations occur with contingency tables.

Both row and column data nominal-Chi-Squared Test

In this case the order of the column and rows is irrelevant: only the relative proportions are tested. The chi-squared distribution approximates the exact distribution for the sum of the differences between the squares of counts or proportions by categories. Eighty percent or more of the cells should have counts of 5 or more for the chi-squared approximation to be representative of the distribution of the data. When these conditions are not met, two or more rows or columns can sometimes be combined to generate a contingency table which can be tested by the Chi-Squared procedure. Spreadsheet

calculators can calculate Chi-Squared test statistics and probability values for nominal contingency tables.

An alternative is a permutation chisq test where cell counts are less than 5. Large sample approximation not assumed. Useful for smaller sample sizes or data with frequency counts less than 5.

One type of data is ordinal and the other nominal

This case is analogous to the two or more group situations where the Mann-Whitney or Kruskal Wallis tests were employed with continuous data. In a contingency table the rows are ordered from low- to-high for the ordinal variable, and the columns are the nominal variables. Spreadsheet calculators using the same assumptions as described above with continuous data can calculate KW test statistics and probabilities using contingency tables. If continuous data are available, it is almost always more accurate to use the MW or KW tests directly, since some information is lost when numerical data are assembled into categories.

Both data types ordinal

This case is analogous to the case of correlation of two continuous variables where non-parametric regression was appropriate. In a contingency table the data are ordered from left to right and from top to bottom in increasing values or levels. The Kendall tau statistic and p-values can be calculated using spreadsheets based on the same assumptions described above for continuous data. If continuous data are available, they should be used directly, since some information is lost when ordinal data are assembled into categories.

Presentation tables

Categorical data are often use in summaries where one or both data types are ordinal. As discussed above, although the test statistics can be calculated directly from such tables, it is preferable to calculate the actual statistics and p-values from raw data rather than the contingency tables. Tables and bar charts or other depictions can be an aid in illustrating particular relationships, but they should not be a substitute for calculating statistics from the actual data if they are available.

Statistical Trend Methodology

The study data set can be examined to identify statistical trends for individual wells and for collective trends.

The power of a statistical test to correctly describe a trend is a function of the inherent variability in the system, the sample size, and the significance level chosen for the test. A minimum of 5 samples/years is needed be able to see a 90-95% statistical significance, and the smaller the sample size, the more likely it is that an 'actual' trend might be missed statistically. This study is based on a relatively small sample size, so the significance level chosen can have a strong effect on the results. Significance is reported at two levels: 90% and 95%.

The statistical likelihood of trends in nitrate, chloride, sulfate, and sodium data for each well were tested through time; parametric and non-parametric tests were used. The data were first tested for the existence of a trend for each well and anion. If a trend was significant, then it was quantified by a linear line. If the correlation is statistically significant at 90% or higher, the well is considered to have a trend. Wells with trends can be grouped into two categories: unchanging (no trend, background, and stable above background) and changing (exponential up, linear up, peaking and exponential downward).

Second, a nonparametric regression line was calculated for the nitrate, chloride, sulfate, and sodium data, which yielded a slope and intercept when the trend was linear and upward over time. When the trend was linear downward, only a slope (negative) was calculated. The linear or monotonic slope, either positive (upward) and negative (downward), was calculated using the Akritas-Thein-Sen (ATS) method. The ATS is a permutation variation of the Kendall-tau nonparametric method and is particularly suited to data with non-detections at different levels. For upward trending wells, the x-intercept, or “year zero” for an anthropogenic compound, was calculated from the ATS equation (line). The “year zero” is the estimated first year that the ion began to impact the groundwater.

Some wells have an overall upward or downward trend but have either a maximum or minimum in the pattern over time. These wells were modeled statistically using a quadratic regression, which has a linear term plus a “squared” term for time. This is a parametric method under the category of multiple regression. Either term can be positive or negative, which results in a maximum or minimum (as leveling off). As with linear regression, quadratic regression has correlation coefficients and probability values. A significance level of 90% or greater is the criteria used for a trend pattern, just as with linear regression/correlation

References

- 1) Helsel, D.R. and Hirsch, R.M., “Statistical Methods in Water Resources” Chapter A3, in Techniques of Water-Resources Investigations of the US Geological Survey, 2002.
- 2) Helsel, D. R., “Statistics for Censored Environmental Data using Minitab and R”. Wiley and Sons, 2012.
- 3) Helsel, D. R., “Nondetects and Data Analysis-Statistics for Censored Environmental Data”. Wiley and Sons, 2005.
- 4) Higgins, J.J., “Introduction to Modern Nonparametric Statistics”, Thomson Brooks/Cole, 2004.
- 5) Battelle, Earth Tech, Inc. and NewFields, Inc., “Guidance for Environmental Background Analysis Volume III: Groundwater.” October 2003.

Appendix B

Table Results by Well –
General Chemistry, Radionuclide, and PFAS

Data exists for some wells during sample years where the entire Ambient Study data set was not sampled. The data is from Ambient Study wells that participated in another Dakota County sampling event.

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	Year Drilled	Grout Type	Elevation	SWL	% Ag Section
AGQS-01	Shallow	100	197	Opdc	8	Coates	1975	Bentonite	918	80	84
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	1975	none	885	25	56
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	1975	none	820	100	13
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	1975	none	878	85	65
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	1975	none	830	90	66
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	1975	neat cement	880	130	67
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	1977	Bentonite	1068	117	61
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	1982	Bentonite	990	25	47
AGQS-09	Mid	140	185	Opdc	16	Rosemount	1977	Bentonite	930	95	85
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	1978	Bentonite	886	120	0
AGQS-11	Deep	265	280	Cjdn	5	Hastings	1978	neat cement	858	163	23
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	1977	neat cement	875	130	67
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	1980	none	892	133	0
AGQS-14	Deep	385	415	Cjdn	2	Hampton	1981	neat cement	990	115	47
AGQS-15	Mid	166	170	Ucs	5	Hastings	1981	Bentonite	700	15	23
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	1982	neat cement	930	95	88
AGQS-17	Deep	276	280	Ucs	15	Rosemount	1984	Bentonite	960	155	29
AGQS-18	Deep	265	280	Opdc	11	Rosemount	1984	Bentonite	1008	170	0
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	1984	Bentonite	906	140	0
AGQS-20	Shallow	55	60	Ucs		Empire Twp	1984	none	896	8	50
AGQS-21	Mid	133	137	Ucs		Burnsville	1973	none	920	80	0
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	1964	none	920	185	0
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	1986	Bentonite	878	100	0
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	1986	Bentonite	910	40	63
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	1984	neat cement	990	20	68
AGQS-26	Deep	342	360	Opdc		Lakeville	1985	none	1122	183	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount	1985	Bentonite	940	110	0
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	1985	neat cement	890	20	66
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	1986	Bentonite	900	6	63
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	1987	Bentonite	970	20	63
AGQS-31	Mid	135	140	Ucs		Lakeville	1987	Bentonite	1006	45	0
AGQS-32	Mid	179	218	Opdc	15	Rosemount	1987	Bentonite	934	120	29
AGQS-33	Deep	260	280	Cjdn	8	Coates	1988	neat cement	910	60	84
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	1988	Bentonite	900	15	59
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	1988	Bentonite	870	60	19
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	1990	Bentonite	950	190	3
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	1990	Bentonite	872	30	19
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	1991	neat cement	960	70	63
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	1992	neat cement	872	1	19
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	1992	neat cement	930	15	20
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	1991	neat cement	946	97	85
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	1993	Bentonite	830	80	66
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	1993	Bentonite	946	185	3
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	1994	neat cement	820	80	66
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	1994	neat cement	900	12	59
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	1994	neat cement	976	130	29
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	1996	neat cement	888	99	0
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	1996	Bentonite	900	15	63
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	1996	neat cement	886	130	65
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	1996	Bentonite	1060	104	41
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	2003	Bentonite	890	150	3
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	1920	none	1020	70	45
AGQS-53	Deep	254	365	Opdc	11	Rosemount	1981	none	1024	149	0
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	1972	none	900	30	72
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	1864	none	893	175	89
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	1977	none	1017	127	47
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	1900	none	890	30	88
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	1900	none	990	23	32

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	Year Drilled	Grout Type	Elevation	SWL	% Ag Section
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	1890	none	950	40	63
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	1915	none	840	7	64
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	1900	none	1031	100	47
AGQS-62	Mid	145	149	Ucs		Marshan Twp	1900	none	833	100	77
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	1900	none	851	81	65
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	1949	none	901	14	84
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	1920	none	901	14	84
AGQS-66	Shallow	75	80	Ucs	8	Coates	1890	none	914	50	84
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	1930	none	921	1	20
AGQS-68	Mid	158	163	Ucs		Apple Valley	1985	neat cement	960	129	0
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp	1915	none	840	5	64
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	1996	neat cement	862	10	39
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	1973	none	868	12	39
AGQS-77	Deep	267	285	Cjdn		Empire Twp	1983	neat cement	885	16	56
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	1975	none	890	79	68
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	1977	none	890	85	76
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	2003	neat cement	895	45	89
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		none	822	13	67
AGQS-82	Mid	167	175	Ucs		Ravenna Twp	1978	none	830	120	13
Muni-01	Deep	406	500	Cjdn		Eagan	1978			123	0
Muni-02	Deep	258	356	Cjdn		Randolph	1979			-1	36
Muni-03	Deep	355	457	Cjdn		Empire	1981			33	47
Muni-04	Deep	322	401	Cjdn		South St Paul	1961			158	0
Muni-05	Mid	132	424	OpCj		Farmington	1959			9	0
Muni-06	Mid	248	302	Cjdn		Hampton	1965			105	50
Muni-07	Mid	218	298	Cjdn		Burnsville	1964			1	0
Muni-08	Deep	340	410	Cjdn		Empire	1973				50
Muni-09	Deep	580	680	Cjdn		New Trier	1966			150	83
Muni-10	Deep	434	517	Cjdn		Lakeville	1964			56	0
Muni-11	Mid	240	342	OpCj		South St Paul	1946			85	0
Muni-12	Deep	388	471	Cjdn		Rosemount	1962			98	5
Muni-13	Deep	392	477	Cjdn		Farmington	1973			15	44
Muni-14	Deep	420	516	Cjdn		Apple Valley	1989			103	3
Muni-15	Deep	345	400	Cjdn		Rosemount	1989			73	45
Muni-16	Deep	345	400	Cjdn		Rosemount	1990			75	45
Muni-17	Deep	389	498	Cjdn		Rosemount	1990			53	0
Muni-18	Deep	267	293	Ucs		Vermillion	1993			13	84
Muni-19	Deep	425	616	OpCj		Lakeville	1994			180	43
Muni-20	Deep	417	512	Cjdn		Farmington	1999			63	0
Muni-21	Deep	384	500	Cjdn		Eagan	2002			148	2
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights	2004			240	0
Muni-23	Deep	256	305	Cjdn		Hampton	2002			92	50
Muni-24	Deep	312	400	Cjdn		Hastings	1961			138	8
Muni-25	Deep	277	356	Cjdn		Hastings	1970			147	5
Muni-26	Mid	240	332	Cjdn		Hastings	1972			125	4
Muni-27	Mid	205	285	Cjdn		Hastings	1989			84	0
Muni-28	Mid	208	299	Cjdn		Hastings	1956			67	0
Muni-29	Deep	197	402	OpCj		Farmington	1938		906	11	0
Muni-30	Deep	408	501	Cjdn		Farmington	2002		958	57	0
Muni-31	Deep	386	485	Cjdn		Farmington	2003		950	53	0

Well construction information for wells older than 1974 is based on information from the well owner or from nearby well's of the same age

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	260	286	263	264	272	256	237	232	235	231	242	289.2	281	231	289	258	260	13
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	220	234	240	239	222	252	239	232	235	235	238	252.8	231	220	253	236	235	13
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						242	219	216	216	219	218			216	242	222	219	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				254	252	266	255	254	257	251	250	265.2	289	250	289	259	255	10
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						242	227	226	225					225	242	230	227	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	200	209	215	212	214	212	213	210	208	213	208	215.17	205	200	215	210	212	13
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	280	286	290	288	284	292	290	284	285	301	278	302.81	276	276	303	287	286	13
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	260	273	268	272	260	272	269	266	265	271	260	276.16	260	260	276	267	268	13
AGQS-09	Mid	140	185	Opdc	16	Rosemount	240	244	244	249	236	252	249	240	240	245	240	253.02	231	231	253	243	244	13
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	330	339	274	346	336	343	346	350	351	528	344	377.6	355	274	528	355	346	13
AGQS-11	Deep	265	280	Cjdn	5	Hastings	160	168	169	173	174	181	170	166	166	171	164	168.68	159	159	181	168	169	13
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	210	100	218	217	218	226	217	220	208	215	210	205.9	215	100	226	206	215	13
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		277	278	300	296	292	288	300	293	295	292	300.91	270	270	301	290	293	12
AGQS-14	Deep	385	415	Cjdn	2	Hampton	280	104	285	277	264	260	268	280	279	279	276	282.29	263	104	285	261	277	13
AGQS-15	Mid	166	170	Ucs	5	Hastings						151	162	160	162	161	162	161.43		151	162	160	161	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		155	147	156	146	165	150	150	144	147	145	149.9	135	135	165	149	148	12
AGQS-17	Deep	276	280	Ucs	15	Rosemount						272	271	270	271	271	264	279.71	276	264	280	272	271	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount	270	277	268	275	265	272	267	264	261	269	258	281.16	254	254	281	268	268	13
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						282	284	270	279	279	274	308	269	269	308	281	279	8
AGQS-20	Shallow	55	60	Ucs		Empire Twp						262	249	242	279	299	280	310.62	196	196	311	265	271	8
AGQS-21	Mid	133	137	Ucs		Burnsville						302	278	300	301	281	242	304.31	283	242	304	286	292	8
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	280	294	286	285	270	282	282	280	285	283	272	302.51	264	264	303	282	282	13
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						292	284	278	281	281	268	264	279	264	292	278	280	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	210	224	218	217	216	232	219	212	213	217	212	224.62		210	232	218	217	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		252	248	252	252	252	253	250	253	261	254	261.31	249	248	261	253	252	12
AGQS-26	Deep	342	360	Opdc		Lakeville						343	336	336	337	339	330	355.45	331	330	355	338	337	8
AGQS-27	Mid	176	180	Ucs	11	Rosemount						252	253	252	251	245	244	275.3	274	244	275	256	252	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		294	283	285	268	282	276	274	273	275	270	282	267	267	294	277	276	12
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		257	236	237	242	272	241	234	243	235	254	226.3	239	226	272	243	240	12
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	160	176	191	192	169	171	182	182	176	183	154	167.56	169	154	192	175	176	13
AGQS-31	Mid	135	140	Ucs		Lakeville						343	332	320	319	319	318	332.4	299	299	343	323	320	8
AGQS-32	Mid	179	218	Opdc	15	Rosemount	250	261	261	259	260	262	263	260	257	257	252	268.73	246	246	269	258	260	13
AGQS-33	Deep	260	280	Cjdn	8	Coates	230	236	235	234	224	220	227	224	219	231	226	248.43	237	219	248	230	230	13
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	270	284	272	283	272	266	276	270	275	277	276	291.27	267	266	291	275	275	13
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	160	166	169	172	170	167	166	170	166	155	160	170.77	144	144	172	164	166	13
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	280	286	290	280	280	282	278	280	281	273	270	236	265	236	290	275	280	13
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						194	205	200	190	193	190	205.78	197	190	206	197	196	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	270	292	278	283	252	262	276	260	250	255	250	235.43	257	235	292	263	260	13
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	180	195	193	197	190	186	194	190	196	189	198	212.97	199	180	213	194	194	13
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	360	371	369	363	350	355	373	370	367	363	352	358.02	347	347	373	361	363	13
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	240	252	245	254	252	252	249	240	246	243	236	243.54	230	230	254	245	245	13
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	200	211	202	178	190	202	203	206	206	203	200	220.44	243	178	243	205	203	13
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	270	277	268	275	262	272	269	270	265	257	260	246	250	246	277	265	268	13
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	160	168	171	208	176	161	170	188	168	161	172	176.87	147	147	208	171	170	13
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	200	205	214	212	214	210	211	220	210		368	215.32	200	200	368	223	212	12
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		269	265	259	260	272	263	260	261	263	256	281.06	255	255	281	264	262	12
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						246	243	250	246	253	244	238	240	238	253	245	245	8

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	Min	Max	Avg	Median	Counts	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						282	259	254	251	255	246	261.9	249	246	282	257	255	8	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				244	234	252	249	240	242	251	238	247.22	219	219	252	242	243	10	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	350	356	349	353	341	363	355	346	345	345	340	353.88	326	326	363	348	349	13	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						262	266	270	265	267	260	264.57	255	255	270	264	265	8	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						333	320	328	327	347	336	230	253	230	347	309	328	8	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		323	315	325	300	312	306	292	291	287	282	276		276	325	301	300	11	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	200	215	216	224	214	222	217	212	209	215	206	227.77	216	200	228	215	215	13	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		232	227	234	226	242	231	226	226	229	226	236.89	259	226	259	233	230	12	
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		130	142	141	128	129	130	150	166	161	112	157.78	147	112	166	141	142	12	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		193	218	237	190	181	221	180	204	267	164	234	199	164	267	207	202	12	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						373	383	390	377	374	370	390.43	364	364	390	378	376	8	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						202	176	176	174	171	184	177.86	196	171	202	182	177	8	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						206	185	192			99			99	206	171	189	4	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						294	302	290	289	287	268	294.65	274	268	302	287	290	8	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						232	231	220	222	231	220			220	232	226	227	6	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						242	237	236	234	241	232	242.1	231	231	242	237	237	8	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						260	274	280	293	307	252	300.61	283	252	307	281	282	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						218	223	230	216	225	228	210.52	212	211	230	220	221	8	
AGQS-66	Shallow	75	80	Ucs	8	Coates						290	267	262	222	301	274	293.98	196	196	301	263	271	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	340	356	344	343	336	331	328	340	323	325	316	322	309	309	356	332	331	13	
AGQS-68	Mid	158	163	Ucs		Apple Valley							320	326	327	341					320	341	329	327	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									249	245					245	249	247	247	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		236	234												234	236	235	235	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		246	245												245	246	246	246	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		282	287												282	287	285	285	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												232.05	341	232	341	287	287	2	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											218	222.99	236	218	236	226	223	3	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												211.91	241	212	241	226	226	2	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												236.42	249	236	249	243	243	2	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp														191	191	191	191	191	1
Muni-24	Deep	312	400	Cjdn		Hastings							225								225	225	225	225	1
Muni-25	Deep	277	356	Cjdn		Hastings							261								261	261	261	261	1
Muni-26	Mid	240	332	Cjdn		Hastings							205								205	205	205	205	1
Muni-27	Mid	205	285	Cjdn		Hastings							225								225	225	225	225	1
Muni-28	Mid	208	299	Cjdn		Hastings							231								231	231	231	231	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2004	2005	2006	2016	2015	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	<2	<0.5						<0.5		0.0	0.0	0.0	0.0	3.0
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<2							0.56		0.0	0.6	0.3	0.3	2.0
AGQS-03	Mid	176	181	Ucs		Ravenna Twp		<0.5								0.0	0.0	0.0	0.0	1.0
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp								<0.5		0.0	0.0	0.0	0.0	1.0
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		<0.5								0.0	0.0	0.0	0.0	1.0
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<2							0.56		0.0	0.6	0.3	0.3	2.0
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<2							0.52		0.0	0.5	0.3	0.3	2.0
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<2							0.95		0.0	1.0	0.5	0.5	2.0
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<2							2.47		0.0	2.5	1.2	1.2	2.0
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<2							1.05		0.0	1.1	0.5	0.5	2.0
AGQS-15	Mid	166	170	Ucs	5	Hastings		<0.5								0.0	0.0	0.0	0.0	1.0
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<2									0.0	0.0	0.0	0.0	1.0
AGQS-17	Deep	276	280	Ucs	15	Rosemount		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights		1.54				9.87		9.52		1.5	9.9	7.0	9.5	3.0
AGQS-20	Shallow	55	60	Ucs		Empire Twp		<0.5						1.69		0.0	1.7	0.8	0.8	2.0
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<2							1.6		0.0	1.6	0.8	0.8	2.0
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights		<0.5				<0.5		<0.5		0.0	0.0	0.0	0.0	3.0
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<2									0.0	0.0	0.0	0.0	1.0
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<2							0.6		0.0	0.6	0.3	0.3	2.0
AGQS-26	Deep	342	360	Opdc		Lakeville		<0.5						0.9		0.0	0.9	0.5	0.5	2.0
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<2							1.16		0.0	1.2	0.6	0.6	2.0
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-31	Mid	135	140	Ucs		Lakeville			<0.5					2.02		0.0	2.0	1.0	1.0	2.0
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<2						<0.5	<0.5		0.0	0.0	0.0	0.0	3.0
AGQS-33	Deep	260	280	Cjdn	8	Coates	<2	<0.5					<0.5	<0.5		0.0	0.0	0.0	0.0	4.0
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<2							0.74		0.0	0.7	0.4	0.4	2.0
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<2							0.64		0.0	0.6	0.3	0.3	2.0
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	6.2							5.6		5.6	6.2	5.9	5.9	2.0
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<2							0.97		0.0	1.0	0.5	0.5	2.0
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2004	2005	2006	2016	2015	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<2							3.1		0.0	3.1	1.6	1.6	2.0
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<2									0.0	0.0	0.0	0.0	1.0
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.5						5.86		0.0	5.9	2.9	2.9	2.0
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.5						0.58		0.0	0.6	0.3	0.3	2.0
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp								<0.5		0.0	0.0	0.0	0.0	1.0
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	3.1							3.29	3.88	3.1	3.9	3.4	3.3	3.0
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights		<0.5						2.73		0.0	2.7	1.4	1.4	2.0
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp			<0.5					<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<2									0.0	0.0	0.0	0.0	1.0
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp		<0.5								0.0	0.0	0.0	0.0	1.0
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		<0.5								0.0	0.0	0.0	0.0	1.0
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-62	Mid	145	149	Ucs		Marshan Twp		<0.5								0.0	0.0	0.0	0.0	1.0
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		<0.5						1.19		0.0	1.2	0.6	0.6	2.0
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp		<0.5						<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-66	Shallow	75	80	Ucs	8	Coates		<u>5.41</u>						<0.5		0.0	5.4	2.7	2.7	2.0
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<2							<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-68	Mid	158	163	Ucs		Apple Valley				<0.5						0.0	0.0	0.0	0.0	1.0
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	<2									0.0	0.0	0.0	0.0	1.0
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	<2									0.0	0.0	0.0	0.0	1.0
AGQS-77	Deep	267	285	Cjdn		Empire Twp	<2									0.0	0.0	0.0	0.0	1.0
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.5		<0.5	<0.5		0.0	0.0	0.0	0.0	3.0
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					0.54			<0.5		0.0	0.5	0.3	0.3	2.0
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.5			<0.5		0.0	0.0	0.0	0.0	2.0
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.5		<0.5	0.56		0.0	0.6	0.2	0.0	3.0
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.5		0.0	0.0	0.0	0.0	1.0

Shaded cells indicate result exceeds the laboratory reporting limit.

Shaded cells with underline result indicates arsenic greater than half the drinking water guideline of > 5.0 ug/L

Drinking Water Guideline = 10 ug/L (EPA MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	min	max	avg	med	counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.2	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.00	0	10
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	7
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	0.00	0	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0.13	0.26	0.06	<0.02	0.06	0.39	0.06	0.12	0.11	<0.02	0.39	0.13	0.11	9
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	9
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.2	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.01	0	10
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0.09	0.13	0.1	0.13	0.15	0.09	0.15	0.12	0.13	5
AGQS-20	Shallow	55	60	Ucs		Empire Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-21	Mid	133	137	Ucs		Burnsville						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0.2	0.4	0.35	0.32	0.27	0.18	0.29	0.42	0.34	0.46	0.18	0.46	0.32	0.33	10
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.2	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.05	<0.02	0.05	0.01	0	10
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	9
AGQS-26	Deep	342	360	Opdc		Lakeville						0.43	0.47	<0.02	0.48	0.49	<0.02	0.49	0.37	0.47	5
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.02	<0.02	<0.02	0.04	<0.02	<0.02	0.04	0.01	0	5
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.04	<0.02	0.04	0.01	0	9
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	0.04	0.01	0	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0	0.00	0	10
AGQS-31	Mid	135	140	Ucs		Lakeville						1.82	1.95	2	1.9	2	1.82	2	1.93	1.95	5
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.2	0.06	0.04	<0.02	<0.02	<0.02	0.04	0.03	0.06	0.07	<0.02	0.07	0.03	0.035	10
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.2	0.08	0.07	0.05	<0.02	0.05	0.08	0.06	0.09	0.1	<0.02	0.1	0.06	0.065	10
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.2	0.14	0.1	0.07	<0.02	0.08	0.14	0.11	0.09	0.1	<0.02	0.14	0.08	0.095	10
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.2	0.16	0.12	0.05	<0.02	0.06	0.08	0.06	0.09	0.1	<0.02	0.16	0.07	0.07	10
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.2	0.09	0.06	0.03	<0.02	0.04	0.06	0.02	0.07	0.07	<0.02	0.09	0.04	0.05	10
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.2	0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03		<0.02	0.03	0.01	0	9
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.03	0.01	0	9

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	min	max	avg	med	counts
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0.11	0.15	0.15	0.17	0.18	0.11	0.18	0.15	0.15	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0.04	0.06	0.04	0.08	0.08	0.04	0.08	0.06	0.06	5
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0.2	0.32	0.33	0.26	0.25	0.33	0.39	0.38	0.37	0.39	0.2	0.39	0.32	0.33	10
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						0.04	0.09	0.05	0.08	0.1	0.04	0.1	0.07	0.08	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						0.1	0.14	0.08	0.13	0.12	0.08	0.14	0.11	0.12	5
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0.04	0.03	<0.02	<0.02	<0.02	0.03	<0.02	0.04	0.06	<0.02	0.06	0.02	0.03	9
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	9
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	9
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	9
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0.18	0.24	0.21	0.24	0.27	0.18	0.27	0.23	0.24	5
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.02	<0.02	<0.02			<0.02	<0.02	0.00	0	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	0.02	0.04	<0.02	0.04	0.01	0	5
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	5
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	10
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.02	<0.02	<0.02	<0.02	0.00	0	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0.03	0.03								0.03	0.03	0.03	0.03	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.02	<0.02								<0.02	<0.02	0.00	0	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0.04	0.04								0.04	0.04	0.04	0.04	2
Muni-24	Deep	312	400	Cjdn		Hastings							<0.02				<0.02	<0.02	0.00	0	1
Muni-25	Deep	277	356	Cjdn		Hastings							<0.02				<0.02	<0.02	0.00	0	1
Muni-26	Mid	240	332	Cjdn		Hastings							<0.02				<0.02	<0.02	0.00	0	1
Muni-27	Mid	205	285	Cjdn		Hastings							<0.02				<0.02	<0.02	0.00	0	1
Muni-28	Mid	208	299	Cjdn		Hastings							<0.02				<0.02	<0.02	0.00	0	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2018
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.072
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.11
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	0.063
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.012
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0.14
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0.05
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.079
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0.03
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0.374
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.009
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	0.029
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0.024
AGQS-17	Deep	276	280	Ucs	15	Rosemount	0.039
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0.139
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	0.01
AGQS-20	Shallow	55	60	Ucs		Empire Twp	0.031
AGQS-21	Mid	133	137	Ucs		Burnsville	0.02
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0.306
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0.05
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	0.217
AGQS-26	Deep	342	360	Opdc		Lakeville	0.104
AGQS-27	Mid	176	180	Ucs	11	Rosemount	0.066
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	0.326
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	0.163
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.057
AGQS-31	Mid	135	140	Ucs		Lakeville	0.085
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0.076
AGQS-33	Deep	260	280	Cjdn	8	Coates	0.278
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0.038
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0.047
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0.057
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	0.018
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0.267
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0.035
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0.048
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0.014
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0.082

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2018
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0.027
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0.035
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	0.29
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	0.008
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	0.081
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	0.123
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0.084
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	0.033
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	0.161
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.291
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.032
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0.117
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.039
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	0.1
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.009
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0.053
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	0.022
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	0.057
AGQS-66	Shallow	75	80	Ucs	8	Coates	0.09
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0.061
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	0.023
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	0
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	0.134
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp	0.029
AGQS-82	Mid	167	175	Ucs		Ravenna Twp	0.075

Shaded cells with underline result indicates barium greater than drinking water guideline of > 2 mg/L

Drinking Water Guideline = 2 mg/L (EPA MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	86	97.7	92.1	94	81.6	82.8	77.4	80.2	78.9	77.8	85.8	97.8	114	77.4	114.0	88.2	85.8	13
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	100	84.7	88.4	89	84	81.1	83.8	85.1	88.2	95.4	95.4	96.76	92.9	81.1	100.0	89.6	88.4	13
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						59	60	64.4	63.6	68.6	67.2			59.0	68.6	63.8	64.0	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				101	97.5	93.1	96.6	105	96.7	93.7	101	100.64	102	93.1	105.0	98.7	99.1	10
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						94.8	95.9	99.2	93.6					93.6	99.2	95.9	95.4	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	65	64.2	71.3	71.4	71.1	72.1	71.3	74.6	70	73.7	73.8	72.23	79.6	64.2	79.6	71.6	71.4	13
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	67	68.3	75.8	74.5	73.2	76.4	74.3	75.4	78.4	71.7	78.3	75.48	77.3	67.0	78.4	74.3	75.4	13
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	110	75.1	79.5	79.7	77.4	80.5	81.9	82.8	79.2	73.9	83.9	81.16	83.5	73.9	110.0	82.2	80.5	13
AGQS-09	Mid	140	185	Opdc	16	Rosemount	77	69.7	79.7	82	69.6	78.5	71.8	66.4	74.3	82.2	80.4	71.42	80.5	66.4	82.2	75.7	77.0	13
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	98	107	70.1	122	116	119	114	112	120	121	123	128.23	137	70.1	137.0	114.4	119.0	13
AGQS-11	Deep	265	280	Cjdn	5	Hastings	44	42.9	47.8	49.6	46.5	44.1	45.9	47.5	46.5	44.5	47.3	46.26	45.3	42.9	49.6	46.0	46.3	13
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	69	67.5	73.8	72.4	72.9	75.6	72	71.7	71.6	73.9	74.8	70.61	79.3	67.5	79.3	72.7	72.4	13
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		68.3	71	79.2	80	80.5	67.6	72.5	83.2	86.8	89.6	79.94	81.8	67.6	89.6	78.4	80.0	12
AGQS-14	Deep	385	415	Cjdn	2	Hampton	71	61	69	68.7	65.7	66.3	65.5	68	66.4	68.9	69.8	66.55	69	61.0	71.0	67.4	68.0	13
AGQS-15	Mid	166	170	Ucs	5	Hastings						54.1	53.6	57.8	55.5	57.1	59	61.27		53.6	61.3	56.9	57.1	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		40.6	46.6	47.5	47.9	47.5	45.5	48.5	43.2	46.4	47.3	47.48	50.8	40.6	50.8	46.6	47.4	12
AGQS-17	Deep	276	280	Ucs	15	Rosemount						83.3	83.1	80.6	85.4	89	83.8	84.81	87.6	80.6	89.0	84.7	84.3	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount	64	61	64.7	66.1	64	62.8	63	70.8	59.9	62.5	63.5	60.06	65.2	59.9	70.8	63.7	63.5	13
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						70.5	69.3	65.4	69.9	75.8	72.1	68.98	74.2	65.4	75.8	70.8	70.2	8
AGQS-20	Shallow	55	60	Ucs		Empire Twp						77.1	55.2	85.7	95.9	88	131	134.72	123	55.2	134.7	98.8	92.0	8
AGQS-21	Mid	133	137	Ucs		Burnsville						80.7	70.9	73.5	82.4	77	68.1	77.51	79.5	68.1	82.4	76.2	77.3	8
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	91	60.1	67.7	69.3	64.4	67.3	68.6	63	71.9	68.1	69	68.17	70.3	60.1	91.0	69.1	68.2	13
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						81.9	83.2	83.2	82.2	86.3	80.3	82.78	81.5	80.3	86.3	82.7	82.5	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	60	58.8	62.4	60.8	62.4	62.5	62.4	64.6	61.7	64.7	64.3	64.92		58.8	64.9	62.5	62.4	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		69.4	78.6	79	76.6	80.9	72.1	75.7	78.7	75.1	84.2	69.79	74.7	69.4	84.2	76.2	76.2	12
AGQS-26	Deep	342	360	Opdc		Lakeville						76.6	78.7		78	77.2		77.91	80	76.6	80.0	78.1	78.0	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount						65.8	67.2	72.1	67.6	68.5	65.3	70.2	75.3	65.3	75.3	69.0	68.1	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		69.8	76.5	78	72.9	73.8	71.8	76.5	74.1	75.9	72.5	71.42	73.1	69.8	78.0	73.9	73.5	12
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		65.2	66.5	65.8	67.7	69.1	67.4	68.2	68.4	69.7	75.9	66.95	71.6	65.2	75.9	68.5	68.0	12
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	55	54.4	67	65	58.9	59.2	62.6	67.7	65.8	68.8	58.2	61.14	59.3	54.4	68.8	61.8	61.1	13
AGQS-31	Mid	135	140	Ucs		Lakeville						106	106	99.9	106	117	109	105.51	101	99.9	117.0	106.3	106.0	8
AGQS-32	Mid	179	218	Opdc	15	Rosemount	83	69.5	78.7	82.6	83.5	80.5	74.5	76.9	83.6	84	75.6	77.1	81.9	69.5	84.0	79.3	80.5	13
AGQS-33	Deep	260	280	Cjdn	8	Coates	70	71.9	75.3	74.5	74.1	74.8		76			76.2	77.91	79.7	70.0	79.7	75.0	75.1	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	67	71.7	74.3	77.7	76.2	75	72.4	69.8	73.5	74.7	76.1	76.29	83.9	67.0	83.9	74.5	74.7	13
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	42	41.8	46.7	47.3	43.8	44.6	44.5	42.6	45.5	46.7	47.6	45.04	51	41.8	51.0	45.3	45.0	13
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	110	60.9	72.5	73.9	70.1	72.5	71.8	65.3	73.5	76.3	73.7	70.2	73.8	60.9	110.0	74.2	72.5	13
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						63.6	62.6	61.1	58.6	59.3	62	60.06	66.2	58.6	66.2	61.7	61.6	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	81	69.3	72.4	71.7	67	69.1	73.3	73	67.2	70.9	71	66.14	73.9	66.1	81.0	71.2	71.0	13
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	48	44.5	46.7	49.2	46.1	48.3	47.2	44.2	45.4	46.2	50.6	48.69	53.4	44.2	53.4	47.6	47.2	13
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	97	82.7	96.5	98.7	90.8	94.4	97.7	88.7	92	99.9	92.3	96.17	103	82.7	103.0	94.6	96.2	13
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	66	58.1	64.2	65.4	62	61	62.1	54.7	60.3	61	63	62.9	64.7	54.7	66.0	62.0	62.1	13
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	88	60.2	66.5	43.4	64.8	63.4	65.7	73.4	68	64.2	68.3	67.36	72.5	43.4	88.0	66.6	66.5	13
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	99	66.9	67.9	70.7	66.8	67.4	66.4	62	64.6	60	66.4	67.77	66.8	60.0	99.0	68.7	66.8	13

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	41	37	43.6	67.1	42.8	38.2	40.3	43.6	41.1	39.7	44.7	40.58	40.8	37.0	67.1	43.1	41.0	13
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	50	50.8	53.2	55.8	53.8	52.2	56.3	52.4	54.8		57.5	55.59	57	50.0	57.5	54.1	54.3	12
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		60.5	65.7	67.9	65.7	65.1	63	62.2	64.7	65.2	64.1	64.52	65.6	60.5	67.9	64.5	64.9	12
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						63.4	65.7	63.5	64.5	71.1	68.9	69.79	72.5	63.4	72.5	67.4	67.3	8
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						68.9	70	78.8	69.2	71.4	68.1	68.58	71.2	68.1	78.8	70.8	69.6	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				66.3	67.1	63.9	63.4	75.3	68	68.7	70.8	71.82		63.4	75.3	68.4	68.0	9
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	86	105	90.7	87.6	88	86.8	87.8	91	91.4	89	90.7	88.46	87.2	86.0	105.0	90.0	88.5	13
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						67.2	66.6	60.5	64.2	69.2	69.2	62.9	66.6	60.5	69.2	65.8	66.6	8
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						92.3	79.4	83.5	81.8	96.4	109	60.87	59.8	59.8	109.0	82.9	82.7	8
AGQS-53	Deep	254	365	Opdc	11	Rosemount		77.3	78.3	80.1	74.8	76.5	73	77.9	72.8	74.2	78.6	74.66		72.8	80.1	76.2	76.5	11
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	61	64.3	72.9		74.9	76.6	75.2	82.7	76.9	79.8	77.8			61.0	82.7	74.2	75.9	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		72.4	73.9	74.8	73.7	71.1	71.6	77.5	72.6	72.2	75.7	71.01	76.9	71.0	77.5	73.6	73.2	12
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		43.8	51.9	52	48.1	47.7	48.2	61.6	63.1	60.7	45.9	50.32	56.3	43.8	63.1	52.5	51.1	12
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		61.3	69	72.6	65.3	66.2	67.6	62.7	67	83.1	65.3	75.88	71.5	61.3	83.1	69.0	67.3	12
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						93.2	95.9	95.6	92.4	97.6	97.6	96.58	96.3	92.4	97.6	95.6	96.1	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						68.6	65.6	70.7	65.1	69.1	71.8	64.52	68.4	64.5	71.8	68.0	68.5	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						74.8	79.1	87.1			22.8			22.8	87.1	66.0	77.0	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						74.3	76.4	78	74.8	78.5	77.1	73.04	83.4	73.0	83.4	76.9	76.8	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						83.7	85.4	86	83.7	78.7	87			87.0	87.0	84.1	84.6	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						83.3	85.1	90.7	86.2	81.9	88.3	87.24	90.5	81.9	90.7	86.7	86.7	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						81.8	84.6	91.9	96.1	98.5	84.3	101.85	103	81.8	103.0	92.8	94.0	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						59.7	62.8	65.8	56.7	64.2	63.5	53.16	59	53.2	65.8	60.6	61.3	8
AGQS-66	Shallow	75	80	Ucs	8	Coates						118	112	113		132	131	125.8	114	112.0	132.0	120.8	118.0	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	79	99.6	110	115	106	105	109	99.8	96.2	104	104	99.82	113	79.0	115.0	103.1	104.0	13
AGQS-68	Mid	158	163	Ucs		Apple Valley							86.1	92	87.8	89.5				86.1	92.0	88.9	88.7	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp										88.8	78.8			78.8	88.8	83.8	83.8	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		60.8	65.8											60.8	65.8	63.3	63.3	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		69.2	77.7											69.2	77.7	73.5	73.5	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		72	75.1											72.0	75.1	73.6	73.6	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												111.58	110	110.0	111.6	110.8	110.8	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											84.1	77.1	82.1	77.1	84.1	81.1	82.1	3
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												58.4	52.9	52.9	58.4	55.7	55.7	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												86.3	78	78.0	86.3	82.2	82.2	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													60.9	60.9	60.9	60.9	60.9	1
Muni-24	Deep	312	400	Cjdn		Hastings							62.5							62.5	62.5	62.5	62.5	1
Muni-25	Deep	277	356	Cjdn		Hastings							77.5							77.5	77.5	77.5	77.5	1
Muni-26	Mid	240	332	Cjdn		Hastings							63.8							63.8	63.8	63.8	63.8	1
Muni-27	Mid	205	285	Cjdn		Hastings							68.5							68.5	68.5	68.5	68.5	1
Muni-28	Mid	208	299	Cjdn		Hastings							69.9							69.9	69.9	69.9	69.9	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Trend	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	59	84.5	52.6	53.4	80.8	44.8	19.8	19.1	21.8	24.3	44.7	127.7	192			170	150.49	19.1	192.0	76.3	53.4	over 50	15
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	47	84.1	79.5	73.1	56.4	61.1	69	65.3	78.6	88.3	112	83.8	88.9			73.3	81.15	47.0	112.0	76.1	78.6	over 50	15
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						10.4	10.2	10.4	13.4	16.4	18.8							10.2	18.8	13.3	11.9	up	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				29.8	31.9	35.1	30.5	35.1	35.8	39.4	61.2	39.8	42.8			36.1	34.13	29.8	61.2	37.6	35.5	20 to 50	12
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						21.5	17.8	16.4	16.3					19				16.3	21.5	18.2	17.8	10 to 20	5
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	11	10.2	11.3	11	11.6	11.7	10	10.3	11.9	14.2	16.9	13.8	14.2			14.7	14.83	10.0	16.9	12.5	11.7	up	15
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<5	<3	<3	3.4	4.2	3.1	<3	3.6	<3	3.3	4.6	3.9	4.2			5.6	5.31	0.0	5.6	2.7	3.6	up	15
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	8.3	8	9.1	9.2	9.8	10.3	9.6	9.7	12.2	14.3	14.8	14.7	16.5			19.4	21.41	8.0	21.4	12.5	10.3	up	15
AGQS-09	Mid	140	185	Opdc	16	Rosemount	14	11.5	13	12.6	9.4	14.1	11.6	8.8	12.3	19	17	12.5	20.3			29.6	32.35	8.8	32.4	15.9	13.0	up	15
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	90	82.8		107	110	122	104	123	120	116	142	122.7	152.8			194	175.07	82.8	194.0	125.8	121.0	up	14
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<5	<3	<3	<3	<3	<3	<3	<3	<3	<3	1.2	0.9	1.5			<3	1.33	0.0	1.5	0.3	3.0	0.3 to 3	15
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	14	12.9	14.6	13.4	13.2	14	13.3	13	14.9	17	19.5	15.8	16.6			17.2	17.95	12.9	19.5	15.2	14.6	up	15
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		12.3	5.2	11.3	11.7	12.3	7.6	12	14.3	17.8	19	16.5	18.3			24.3		5.2	24.3	14.0	12.3	up	13
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<5	<3	7.5	<3	3.8	<3	<3	<3	<3	<3	1.5	1.3	1.9			4.8	4.58	0.0	7.5	1.7	3.0	0.3 to 3	15
AGQS-15	Mid	166	170	Ucs	5	Hastings						6.1	5.2	5.9	6	8.1	9.7	10.4						5.2	10.4	7.3	6.1	up	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<3	<3	3.6	4.3	3.5	3.2	3.5	<3	<3	4.5	3.8	4.3					0.0	4.5	2.6	3.5	0.3 to 3	12
AGQS-17	Deep	276	280	Ucs	15	Rosemount						25.7	22.6	23.5	27.3	30.3	33.3	31.7	35.6			48	49.6	22.6	49.6	32.8	31.0	up	10
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<5	<3	<3	<3	<3	<3	<3	<3	<3	<3	1.5	0.8	1.5			<3	1.38	0.0	1.5	0.3	3.0	0.3 to 3	15
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<3	<3	3.1	<3	<3	2.8	2.4	8.5	4.5		3.8	3.16	0.0	8.5	2.6	3.0	0.3 to 3	11
AGQS-20	Shallow	55	60	Ucs		Empire Twp						29.3	27.6	35.3	40	51.4	154.5	140.8	134.4			122	107.67	27.6	154.5	84.3	79.5	over 50	10
AGQS-21	Mid	133	137	Ucs		Burnsville						31.9	25.8	29.5	35.9	32.7	42.1	26.7	22.6			41.5	26.6	22.6	42.1	31.5	30.7	20 to 50	10
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	5.1	<3	6.5	5.8	6.4	6.4	4.4	7.7	12.7	10.2	12.1	13.3	14.4			12.4		0.0	14.4	8.4	7.1	up	14
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						12.1	11.8	10.1	11.1	11.5	14.9	12	11.3	19		12.5	14.28	10.1	19.0	12.8	12.0	10 to 20	11
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<5	<3	<3	3	3.6	<3	<3	3	<3	<3	2.6	2.3						0.0	3.6	1.2	3.0	0.3 to 3	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		9.5	10	10	9.4	9.9	6.7	6.4	9.7	12.2	14.9	9.9	10			12.3	12.39	6.4	14.9	10.2	10.0	10 to 20	14
AGQS-26	Deep	342	360	Opdc		Lakeville						<3	<3		<3	<3	0.7	0.4	0.8			<3	0.53	0.0	0.8	0.3	3.0	0.3 to 3	9
AGQS-27	Mid	176	180	Ucs	11	Rosemount						6.8	6.1	6.9	7.9	10	13.4	11.7	13.8			18.4	19.66	6.1	19.7	11.5	10.9	up	10
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<3	<3	<3	<3	<3	<3	<3	<3	<3	0.4	0.2	<0.3			<3	0.28	0	0.4	0.1	3.0	0.3 to 3	14
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<3	<3	3.1	4.3	4.4	<3	<3	<3	<3	7.8	2.7	3.5			5.1	2.82	0.0	7.8	2.4	3.0	0.3 to 3	14
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	15	15	19.5	18.2	14.8	17.4	17.8	15.5	19	21.9	20	18.2	16.9			19.1	21.3	14.8	21.9	18.0	18.2	10 to 20	15
AGQS-31	Mid	135	140	Ucs		Lakeville						93.7	77.6	83	104	105	129	114.2	94.4			113	103.86	77.6	129.0	101.8	103.9	up	10
AGQS-32	Mid	179	218	Opdc	15	Rosemount	11	10.3	11.9	11.4	12.2	12.6	11.4	10.9	13.6	15	18.5	14.1	14.8		17.4	16.4	17.95	10.3	18.5	13.7	13.1	up	16
AGQS-33	Deep	260	280	Cjdn	8	Coates	15	12.8	10.8	8.7	13.4	15.3		11			14.2	16.3	20.6		27.2	25.8	25.22	8.7	27.2	16.6	15.0	up	13
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<5	<3	<3	3.2	4	3.1	<3	<3	<3	<3	1.8	3	5.9			6.3	3.92	0.0	6.3	2.1	3.0	0.3 to 3	15
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<5	<3	<3	3.9	4.3	3.8	3.2	3.8	3.6	4.5	6.2	4.9	5.3			6.6	6.68	0.0	6.7	3.8	4.3	up	15
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<5	<3	5	5.3	6.1	6.3	6.4	6.6	7.9	10.4	9.9	8.3	9.4			12	12.75	0.0	12.8	7.1	6.6	up	15
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						7.7	7	5.5	5.1	7.2	9.7	10.1	13.2			17.1	20.32	5.1	20.3	10.3	8.7	up	10
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<5	<3	<3	<3	3.9	<3	<3	3.1	<3	<3	3.7	4.3	4.8			10.4	11.56	0.0	11.6	2.8	3.1	up	15
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<5	<3	3	<3	<3	<3	<3	<3	<3	<3	0.3	0.3	0.4			<3	0.33	0.0	3.0	0.3	3.0	0.3 to 3	15
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<5	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.8	0.5	0.6			<3	1.01	0.0	1.0	0.2	3.0	0.3 to 3	15
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<5	<3	<3	<3	3.4	<3	<3	<3	<3	<3	1.8	2.1	2.4			3.4	3.31	0.0	3.4	1.1	3.0	0.3 to 3	15
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	11	10	10.9	10.2	9.1	9.7	10.4	9	10.4	11.6	13	11	10.9		13.5	12.6	11.82	9.0	13.5	10.9	10.9	up	16
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<5	3.4	3.1	3.9	3.8	3.9	<3	3.3	<3	<3	3	2.2	2.9			4.5	4.28	0.0	4.5	2.6	3.3	0.3 to 3	15

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Trend	Counts
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<5	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.5	0.2	0.7			<3	0.34	0.0	0.7	0.1	3.0	0.3 to 3	15
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<5	<3	<3	<3	<3	<3	<3	<3	<3		1.9	0.4	0.3				0.45	0.0	1.9	0.2	3.0	0.3 to 3	13
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<3	<3	<3	3	<3	<3	<3	<3	<3	0.5	0.4	0.9			<3	0.45	0.0	3.0	0.4	3.0	0.3 to 3	14
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						15.6	12.6	12.3	14	16.7	20.3	20	21.8			23.4	25.46	12.3	25.5	18.2	18.4	up	10
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						<3	<3	<3	<3	<3	0.8	1.5	0.9			<3	1.11	0.0	1.5	0.4	3.0	0.3 to 3	10
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				4.6	5.8	4.1	3.3	5	4.7	6.5	6.9	8.2	9.1		12.8	11.4	11.56	3.3	12.8	7.2	6.5	up	13
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<5	<3	<3	<3	3	<3	<3	<3	<3	<3	0.6	0.3	0.7			<3	0.41	0.0	3.0	0.3	3.0	0.3 to 3	15
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<3	<3	<3	<3	<3	1.5	1.2	1.2			<3	1.27	0.0	1.5	0.5	3.0	0.3 to 3	10
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					3.1	<3	3.5	<3	3.7	9.7	9.1	7.1		9.1	5	8.53	0.0	9.7	5.3	5.0	up	11	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<3	<3	3.5	4	3.4	<3	3.8	3.4	5.7	6.4	7.7						0.0	7.7	3.4	3.5	3 to 10	11
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	11	9.7	10.7		10.8	10.5	9.5	9.5	10.9	12.7	13					12.6	13.12	9.5	13.1	11.3	10.9	up	13
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		16.6	18.3	16.5	16.6	17.9	16.6	15.8	17.9	21.2	24.6	20.3	24.7			26.1	23.78	15.8	26.1	19.8	18.1	up	14
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		10.7	11.6	11.1	12.6	12	9.1	11.6	16.6	15.6	16.7	12.9	14.9			13.7	16.27	9.1	16.7	13.2	12.8	up	14
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		16.6	24.3	24	15.1	15.4	17.6	11.5	17.7	30.6	32.5	41.7	25.6			19.7	18.83	11.5	41.7	22.2	19.3	20 to 50	14
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						5.9	5	4.4	4.5	5.6	5.7	4.8	5.5					4.4	5.9	5.2	5.3	3 to 10	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						29.7	29.6	28.8	31.5	33.1	23	27.8	26.5			31.4	26.39	23.0	33.1	28.8	29.2	20 to 50	10
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						24.1	25.9	35.2			32.2							24.1	35.2	29.4	29.1	SS	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						7.2	6.5	4.5	3.2	3.8	5.9	6.2	8.3			14.2	20.38	3.2	20.4	8.0	6.4	up	10
AGQS-62	Mid	145	149	Ucs		Marshan Twp						16.9	14.6	14.3	17.6	18.4	19.4							14.3	19.4	16.9	17.3	10 to 20	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						15.9	14.2	13.7	16.5	19.4	21.6	18.6	19.9			19.8	19.69	13.7	21.6	17.9	19.0	up	10
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						17.6	19.1	22	42.3	27.4	36.1	11.2	19.4			23.2	23.51	11.2	42.3	24.2	22.6	20 to 50	10
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						3.6	<3	3.5	<3	4.5	11.5	0.7	3.2			3.7	4.23	0.0	11.5	3.5	3.6	3 to 10	10
AGQS-66	Shallow	75	80	Ucs	8	Coates						221	181	170		<u>277</u>	<u>292</u>	199.9	227			179	170.07	170.0	292.0	213.0	199.9	over 50	9
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	93	77.2	64.9	72.6	64.8	65.4	64.8	55.9	57.9	53.6	67.8	69.9	66.6			59.1	78.02	53.6	93.0	67.4	65.4	down	15
AGQS-68	Mid	158	163	Ucs		Apple Valley							11	11.7	14.9	16.6								11.0	16.6	13.6	13.3	SS	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									29.9	17.9								17.9	29.9	23.9	23.9	SS	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<3	<3															0.0	0.0	0.0	3.0	SS	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		16.6	18															16.6	18.0	17.3	17.3	SS	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<3	<3															0.0	0.0	0.0	3.0	SS	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												23.7	25.4		22	27.5	20.44	20.4	27.5	23.8	23.7	20 to 50	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp												17.3	13.5	14.1	15.3	15.4	17.29	13.5	17.3	15.5	15.4	10 to 20	6
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												0.5	0.9		<3	<3	1.11	0.0	1.1	0.5	1.1	0.3 to 3	5
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												48.5	41.9		30.1	24.6	23.35	23.4	48.5	33.7	30.1	down	5
AGQS-82	Mid	167	175	Ucs		Ravenna Twp																15.6	16.86	15.6	16.9	16.4	16.8	SS	1
Muni-24	Deep	312	400	Cjdn		Hastings							8.2											8.2	8.2	8.2	8.2	SS	1
Muni-25	Deep	277	356	Cjdn		Hastings							27.9											27.9	27.9	27.9	27.9	SS	1
Muni-26	Mid	240	332	Cjdn		Hastings							13.6											13.6	13.6	13.6	13.6	SS	1
Muni-27	Mid	205	285	Cjdn		Hastings							29.5											29.5	29.5	29.5	29.5	SS	1
Muni-28	Mid	208	299	Cjdn		Hastings							13.7											13.7	13.7	13.7	13.7	SS	1

Shaded cells with underline result indicates chloride greater than drinking water guideline of > 250 mg/L

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = 250 mg/L (EPA SMCLs)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Counts	
AGQS-01	Shallow	100	197	Opdc	8	Coates	11.3	9.28	12.2	12.9	12.5	13	14.32	7.48	5.68	10.18	2.4	8.7			6.84	8.8	2.4	14.3	9.7	9.7	14	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.6	1.9	3.82	3.01	2.42	12.6		1.25	5.35	3.73	1	2.1			7.1	2.7	0.6	12.6	3.7	2.7	13	
AGQS-03	Mid	176	181	Ucs		Ravenna Twp					11.6	11.1	8.79	7.28	2.73	9.23							2.7	11.6	8.5	9.0	6	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp			11.2	11.3	11.1	7.91	15.87	5.17	12.78	11.03	10.5	1			7.84	10.4	1.0	15.9	9.7	10.8	12	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp					9.91	11	16.37	12.99						10.07			9.9	16.4	12.1	11.0	5	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.78	0.67	1.5	6.68	6.18	1.38	3.14	1.76	1.99	1.18	1.5	1.1			6.94	1.7	0.7	6.9	2.6	1.6	14	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	5.62	1.87	1.89	1.58	0.42	8.7	4.7	1.5	4.44	4.14	3.3	3			2.37	2.3	0.4	8.7	3.3	2.7	14	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	2.39	0.35	0.16	0.15	0.26	3.87	2.18	0.12	1.45	5.34	0.5	0.8			5.12	2.1	0.1	5.3	1.8	1.1	14	
AGQS-09	Mid	140	185	Opdc	16	Rosemount	10.1	7.46	8.33	13.9	12.9	9.47	15.62	5.96	8.47	8.13	2.8	6.7			9.92	8.3	2.8	15.6	9.1	8.4	14	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	3.99	11.2	2.08	0.55	13.8	6.25	5.34	5.14	7.02	1.07	1.4	1.1			2.58	1.4	0.6	13.8	4.5	3.3	14	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0.22	8.34	9.75	12	7.37	9.94	8.43	5.56	11.17	7.42	9.5	7.5			7.89	8.3	0.2	12.0	8.1	8.3	14	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.38	8.01	8.9	12.1	10.4	8.05	4.99	9.4	5.46	7.04	4	6.7			8.02	7.3	0.4	12.1	7.2	7.7	14	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	3.27	0.14	3.39	0.24	12.7	4.92	7.01	3.45	4.36	0.61	2.1	0.7			5		0.1	12.7	3.7	3.4	13	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	1.73	0.37	8.13	6.12	5.91	6.57	3.44	0.13	1.83	0.29	2.2	7			0.61	2.5	0.1	8.1	3.3	2.4	14	
AGQS-15	Mid	166	170	Ucs	5	Hastings					9.39	9.26	9.46	6.97	10.39	7	7						7.0	10.4	8.5	9.3	7	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	2.05	0.52	1.08	6.76	5.78	0.21	3.58	1.76	1.9	5.82	0.5	5					0.2	6.8	2.9	2.0	12	
AGQS-17	Deep	276	280	Ucs	15	Rosemount					11.5	9.64	8.84	2.83	6.55	3.73	0.1	3.3			6.95	3.8	0.1	11.5	5.7	5.2	10	
AGQS-18	Deep	265	280	Opdc	11	Rosemount	3.66	0.28	0.23	6.45	9.78	7.15	5.03	16.29	13.15	1.03	1.5	0.6			8.08	2	0.2	16.3	5.4	4.3	14	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights					12.4	6.83	5.11	4.92	6.65	1.1	1	0.6	1		6.2	2	0.6	12.4	4.3	4.9	11	
AGQS-20	Shallow	55	60	Ucs		Empire Twp					0.74	13.7	7.16	0.22	7.49	6.48	2	1.9			8.53		0.2	13.7	5.4	6.5	9	
AGQS-21	Mid	133	137	Ucs		Burnsville					10.9	9.26	6.54	4.52	8.72	6.48	1	4			7.65		1.0	10.9	6.6	6.5	9	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	5.16	0.15	1.93	0.2	13.7	5.27	8.45	4.69	8.4	0.5	0.7	0.9			0.28		0.2	13.7	3.9	1.9	13	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights					12.8	6.27	20.29	4.45	6.38	2.5	6.9	1.7	2.69		7.75	5.3	1.7	20.3	7.0	6.3	11	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	6.2	0.25	0.13	0.15	0.2	12.1	7	0.1	8.02	3.38	0.01						0.0	12.1	3.4	0.3	11	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	5.83	1.94	1.99	1.27	1.92	4.6	7.21	1.24	1.71	5.38	0.3	0.9			3.43	2	0.3	7.2	2.8	2.0	14	
AGQS-26	Deep	342	360	Opdc		Lakeville					3.65	5	15.4	0.19	6.38	7.83	0.4	0.8			7.64	2.6	0.2	15.4	5.0	4.3	10	
AGQS-27	Mid	176	180	Ucs	11	Rosemount					11.8	6.63	11.54	5.28	8.36	4.5	0.3	0.5			3.71	1.4	0.3	11.8	5.4	4.9	10	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	1.19	0.18	0.45	0.16	0.23	8.18	8.85	0.12	5.72	3.79	0.12	0.7			3.76	1.3	0.1	8.9	2.5	0.9	14	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	8.17	0.23	0.1	0.13	0.51	8.77	4.48	0.1	5.62	3.53	0.82	0.7			1.72		0.1	8.8	2.7	0.8	13	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.08	9.63	9.43	11.5	9.67	12	8.86	7.88	10.31	9.5	7.7	8.5			9.49	10.2	0.1	12.0	8.9	9.5	14	
AGQS-31	Mid	135	140	Ucs		Lakeville					5.85	4.17	3.46	0.14	7.53	5.55	0.2	0.6			6.31	1.1	0.1	7.5	3.5	3.8	10	
AGQS-32	Mid	179	218	Opdc	15	Rosemount	10.8	7.51	9.3	12.3	11.3	12.2	16.78	6.07	7.39	7.04	12.5	6.9		6.47	9.2	6.7	6.1	16.8	9.5	9.2	15	
AGQS-33	Deep	260	280	Cjdn	8	Coates	12.2	8.93	11.1	11.3	9.39	13.1	15.94	12.7	12.54	9.63	7	7.8		9.21	7.72	11.4	7.0	15.9	10.7	11.1	15	
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	4.02	0.18	1.22	6.48	5.86	0.94	4.11	5.51	4.67	0.26	0.16	7			6.34		0.2	7.0	3.6	4.1	13	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0.55	0.17	3.27	5.67	4.72	0.04	1.33	0.25	1.37	0.2	0.9	0.4			3.62		0.0	5.7	1.7	0.9	13	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	6.83	0.11	0.24	0.11	8.63	4.71	8.61	4.42	7.81	0.48	5	0.5			8.29	11.3	0.1	11.3	4.8	4.9	14	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp					5.14	0.25	3.48	0.4	2.34	0.1	1.2	0.4			6.56		0.1	6.6	2.2	1.2	9	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0.8	0.28	0.32	0.18	0.25	4.6	4.94	0.19	4.46	0.77	0.61	0.6			6.36	1.1	0.2	6.4	1.8	0.7	14	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	1.16	0.87	1.62	6.4	4.18	1.89	3.4	0.64	1.37	0.47	0.5	0.6			4.51		0.5	6.4	2.1	1.4	13	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	8.06	0.14	0.94	11.4	10.2	5.7	8.2	0.13	7.71	2.42	10.2	6.7			5.11		0.1	11.4	5.9	6.7	13	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	6.68	1.8	2.38	7.51	10.9	5.88	7.75	3.89	5.9	1.91	0.4	1.3			6.13		0.4	10.9	4.8	5.9	13	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0.37	3.53	6.26	5.45	8.41	3.8	9.04	5.11	3.59	2.78	0.8	4.2		7.26	4.38	5	0.4	9.0	4.7	4.4	15	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	4	0.11	0.32	0.2	10.8	5.64	5.37	3.47	4.41	0.43	0.8	0.4			6.25	1.6	0.1	10.8	3.1	2.5	14	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0.73	0.22	1.13	3.45	7.66	1.83	6.84	0.59	2.21	0.17	0.3	0.6			3.17	1.4	0.2	7.7	2.2	1.3	14	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0.69	0.31	9.27	5.67	4.67	1.1	2.16	5.19		0.38	0.12	1.3					0.1	9.3	2.8	1.3	11	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	8.76	0.12	0.88	8.53	6.52	3.88	10.67	2.94	5.41	0.69	1.5	0.8			7.51	1.2	0.1	10.7	4.2	3.4	14	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake					0.87	4.89	6.69	3.82	9.06	0.44	4.1	0.5			8.43		0.4	9.1	4.3	4.1	9	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp					0.2	7.59	5.01	0.17	4.79	3.58	0.01	1			3.51		0.0	7.6	2.9	3.5	9	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			7.02	9.21	8.69	9.02	13.69	6.04	8.39	5.66	4.3	5.3		7.94	6.63	8.2	4.3	13.7	7.7	7.9	13	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	5.82	0.15	1.3	0.53	0.28	7.4	6.18	0.22	6.93	1.08	0.07	0.7					2.5	0.1	7.4	2.6	1.1	13
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights					15.2	8.59	12.89	16.87	11.41	8.2	6.7	8			8.22	4.7	4.7	16.9	10.1	8.4	10	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					0.54	5.48	5.38	19.53	4.77	4.2	0.7	4		3.74			0.5	19.5	5.4	4.2	9	
AGQS-53	Deep	254	365	Opdc	11	Rosemount	3.25	0.53	0.26	0.08	6.13	4.37	7.56	4.53	14.14	0.59	0.5						0.1	14.1	3.8	3.3	11	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.14	6.51	5.49	7.4	7.08	11.1	7.89	6.14	9.43	7.59	4	5.8			10.11	6	0.1	11.1	6.8	6.8	14	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.41	11.3	13	14.1	12	10.9	11.16	6.42	13.26	10.14	6.9	10.8				9.17	12.8	0.4	14.1	10.2	11.0	14
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0.97	13.5	13.3	14	9.27	13.8	7.19	12.15	7.37	10.77	7	10.4				11.18	13.4	1.0	14.0	10.3	11.0	14
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.54	8.27	8.59	12.7	12.3	8.8	5.55	8.99	5.52	6.68	5.2	7.5				8.15	8.4	0.5	12.7	7.7	8.2	14
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp					0.27	4.05	4.45	0.11	3.15	1.44	0.09	1.1						0.1	4.5	1.8	1.3	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp					10.4	12.7		8.73	11.14	10.07	7.2	7.12				10.16	10	7.1	12.7	9.7	10.1	9
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp					7.51	9.01	5.95				12.13							6.0	12.1	8.7	8.3	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					5.02	0.11	3.5	3.72	1.85	0.11	0.7	1.9				3.97	1	0.1	5.0	2.2	1.9	10
AGQS-62	Mid	145	149	Ucs		Marshan Twp					11.3	8.57	7.23	6.02	5.27	8.3								5.3	11.3	7.8	7.8	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp					14.2	10.4	16.93	4.56	12.9	10.93	9.2	9.92				10.83	12.7	4.6	16.9	11.3	10.9	10
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					7.07	2.81	3.75	4.73	2.14	0.19	0.1	0.7				5.72		0.1	7.1	3.0	2.8	9
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					5.82	0.35	3.93	4.58	1.88	0.18	0.13	0.6				4.95		0.1	5.8	2.5	1.9	9
AGQS-66	Shallow	75	80	Ucs	8	Coates					11.8	12.4	14.9	6.21	5.23	6.84	7.8	7.6				5.16	10.4	5.2	14.9	8.8	7.7	10
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	7.16	9.33	9.34	11.4	10.5	7.92	6.97	11.71	8.51	8.09	8.7	8.5				10.06		7.0	11.7	9.1	8.7	13
AGQS-68	Mid	158	163	Ucs		Apple Valley						8.93	12.49	7.24	5.29									5.3	12.5	8.5	8.1	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp								3.66	6.76									3.7	6.8	5.2	5.2	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	0.62	0.19																0.2	0.6	0.4	0.4	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	0.68	0.15																0.2	0.7	0.4	0.4	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp	1.34	0.17																0.2	1.3	0.8	0.8	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp											5.5	8.4			9.88	8.33	10.2	5.5	10.2	8.5	8.4	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										7.61	1	7.8			8.18	7.12	7.8	1.0	8.2	6.6	7.7	6
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											5.5	0.5			2.51	0.56	2.4	0.5	5.5	2.3	2.4	5
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											3	5			8.79	7.26	5.1	3.0	8.8	5.8	5.1	5
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												9.3				10.75	7.1	7.1	10.8	9.1	9.3	3
Muni-01	Deep	406	500	Cjdn		Eagan					6.14													6.1	6.1	6.1	6.1	1
Muni-02	Deep	258	356	Cjdn		Randolph					3.57													3.6	3.6	3.6	3.6	1
Muni-03	Deep	355	457	Cjdn		Empire					25.45													25.5	25.5	25.5	25.5	1
Muni-04	Deep	322	401	Cjdn		South St Paul					1.77													1.8	1.8	1.8	1.8	1
Muni-05	Mid	132	424	OpCj		Farmington					21.99													22.0	22.0	22.0	22.0	1
Muni-06	Mid	248	302	Cjdn		Hampton					17.53													17.5	17.5	17.5	17.5	1
Muni-07	Mid	218	298	Cjdn		Burnsville					7.32													7.3	7.3	7.3	7.3	1
Muni-08	Deep	340	410	Cjdn		Empire					26.28													26.3	26.3	26.3	26.3	1
Muni-09	Deep	580	680	Cjdn		New Trier					19.52													19.5	19.5	19.5	19.5	1
Muni-10	Deep	434	517	Cjdn		Lakeville					5.73													5.7	5.7	5.7	5.7	1
Muni-11	Mid	240	342	OpCj		South St Paul					7.33													7.3	7.3	7.3	7.3	1
Muni-12	Deep	388	471	Cjdn		Rosemount					4.42													4.4	4.4	4.4	4.4	1
Muni-13	Deep	392	477	Cjdn		Farmington					20.92													20.9	20.9	20.9	20.9	1
Muni-14	Deep	420	516	Cjdn		Apple Valley					6.59													6.6	6.6	6.6	6.6	1
Muni-15	Deep	345	400	Cjdn		Rosemount					8.67													8.7	8.7	8.7	8.7	1
Muni-16	Deep	345	400	Cjdn		Rosemount					8.51													8.5	8.5	8.5	8.5	1
Muni-17	Deep	389	498	Cjdn		Rosemount					6.08													6.1	6.1	6.1	6.1	1
Muni-18	Deep	267	293	Ucs		Vermillion					23.14													23.1	23.1	23.1	23.1	1
Muni-19	Deep	425	616	OpCj		Lakeville					7.4													7.4	7.4	7.4	7.4	1
Muni-20	Deep	417	512	Cjdn		Farmington					20.37													20.4	20.4	20.4	20.4	1
Muni-21	Deep	384	500	Cjdn		Eagan					6.74													6.7	6.7	6.7	6.7	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					3.23													3.2	3.2	3.2	3.2	1
Muni-23	Deep	256	305	Cjdn		Hampton					20.93													20.9	20.9	20.9	20.9	1
Muni-24	Deep	312	400	Cjdn		Hastings					11.8	18.64												11.8	18.6	15.2	15.2	2
Muni-25	Deep	277	356	Cjdn		Hastings					13.1	21.06												13.1	21.1	17.1	17.1	2
Muni-26	Mid	240	332	Cjdn		Hastings					12.1	22.16												12.1	22.2	17.1	17.1	2
Muni-27	Mid	205	285	Cjdn		Hastings					24.36	16.63												16.6	24.4	20.5	20.5	2
Muni-28	Mid	208	299	Cjdn		Hastings					24.26	21.56												21.6	24.3	22.9	22.9	2

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2003	2004	2005	2006	2007	2008	2009	2017	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	-2.8	-35.9	-52		8.1	-46.4	-72.3	107	-33.7		-72.3	107.0	-16.0	-34.8	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	3.4	-36.5	-46.7	-52.4	-64.9		200	-42.6	-32.9		-64.9	200.0	-9.1	-39.6	8
AGQS-03	Mid	176	181	Ucs	7	Ravenna Twp				-59.1	-46.7	-60.7	-84.3	123	62		-84.3	123.0	-11.0	-52.9	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp			-54.6	-61	-48.4	-45.1	-75.8	-32.6	-104.1		-104.1	-32.6	-60.2	-54.6	7
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				-52.8	-56.2	-48.4	-47.3			63.2	-56.2	63.2	-28.3	-48.4	5
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	-29.7	-38.9	-58.3	-51.8	-53.7	347	-44.9	90	56		-58.3	347.0	24.0	-38.9	9
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	-2.4	-29.8	-46.5	-50.1	-52.1	-82.1	67	-31.2	-29.7		-82.1	67.0	-28.5	-31.2	9
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	2.3	-30.2	-47.3	-52.3	-2.7	-86.8	301	139	-29.7		-86.8	301.0	21.5	-29.7	9
AGQS-09	Mid	140	185	Opdc	16	Rosemount	-29.3	3.4	-56	-57.8	-50.7	-54.6	-81.9	-69.7	-107.3		-107.3	3.4	-56.0	-56.0	9
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	-5.9	-40.2	-47.2	-41.1	-38.2	-31.1	-79.9	-60.9	-98.3		-98.3	-5.9	-49.2	-41.1	9
AGQS-11	Deep	265	280	Cjdn	5	Hastings	-15.2	-54.6	-70.4	-72	-55.1	-101.3	-83.4	-54.8	66		-101.3	66.0	-49.0	-55.1	9
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	-24.4	-40.5	-56.8	-52.4	-56.5	332	-47.9	73	22		-56.8	332.0	16.5	-40.5	9
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	-11.3	-30.8	-54.3	-46.3	-45.7	-46.6	-81.6	-54.2	-114.1		-114.1	-11.3	-53.9	-46.6	9
AGQS-14	Deep	385	415	Cjdn	2	Hampton	-11.7	-34.6	-59.1		-34.7	127	-43.2	-111	-199		-199.0	127.0	-45.8	-39.0	8
AGQS-15	Mid	166	170	Ucs	5	Hastings				-72.1	-51	-109.1	-83.6	-50.8	44		-109.1	44.0	-53.8	-61.6	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	-28.7	-46.6	-62.3	-61.6	-58	313	-51.8	44			-62.3	313.0	6.0	-49.2	8
AGQS-17	Deep	276	280	Ucs	15	Rosemount				-50.3	-46.9	-50.1	-84.5	-67.3	-99.6		-99.6	-46.9	-66.5	-58.8	6
AGQS-18	Deep	265	280	Opdc	11	Rosemount	-22.3	-6.7		-51.7	-47.6	-46.3	-45.8	-60.5	-100.9		-100.9	-6.7	-47.7	-47.0	8
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				-57.3	-46.4	-49.7	-83.4	-69.3	-109		-109.0	-46.4	-69.2	-63.3	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp				-38.5	-33.4	-80.2	289	-41.5	-18.4		-80.2	289.0	12.8	-36.0	6
AGQS-21	Mid	133	137	Ucs		Burnsville				-21.7	-35.9	-15.8	-65.4	-41.6	-87.6		-87.6	-15.8	-44.7	-38.8	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	5.5	-18.4	-56.9	-51.2	-68.4	-26.2	-82.7	-63.1	-111.7		-111.7	5.5	-52.6	-56.9	9
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				-55.2	-39.3		-84.3	-68.4	-104.1		-104.1	-39.3	-70.3	-68.4	5
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	-6.2	-36.2	-55	-59.4	-101.8	-90.2	-4	-51.7	-28.2		-101.8	-4.0	-48.1	-51.7	9
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	29.2	26.6	-47.2	-52.2	-39.5	-96.3	308	138	-28.3		-96.3	308.0	26.5	-28.3	9
AGQS-26	Deep	342	360	Opdc		Lakeville				-56.6	-39.7	-63.6	35	-40	-33.2		-63.6	35.0	-33.0	-39.9	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount				-58.9	-40.9	-56.5	-81.8	-68.9	-105.2		-105.2	-40.9	-68.7	-63.9	6
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	-2.7	-32.1	-51.9	-50.2	-67	-87.9	11	-45.5	-29.4		-87.9	11.0	-39.5	-45.5	9
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	-3.8	-38.5	-51.7	-56.8	-89	-88.8	-2	-45	-35.4		-89.0	-2.0	-45.7	-45.0	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	6.4	-43	-28.3	-33.2	-38.6	-74.8	218	-41.4	-16.4		-74.8	218.0	-5.7	-33.2	9
AGQS-31	Mid	135	140	Ucs		Lakeville				-50.2	-70.9	-73.3	-11	-27.1	-20.8		-73.3	-11.0	-42.2	-38.7	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount	-25	4.2	-54.4	-94.5	-44.4	-29.3	-83.8	-66.1	-110.4	192.2	-110.4	192.2	-31.2	-49.4	10
AGQS-33	Deep	260	280	Cjdn	8	Coates	-36.7	-41.4	-56.2		-22.2	-53	-50.2	-75.5	-106.9	150.3	-106.9	150.3	-32.4	-50.2	9
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	-9.4	-26.1	-47.3		-45.1	136	-27.7	12	-156		-156.0	136.0	-20.5	-26.9	8
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	-2.3	-42.1	-65.1		-56.7	82	-59.4	-95	-188		-188.0	82.0	-53.3	-58.1	8
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	-19.6	0.8	-52.8	-51.6	-43.1	-51.9	-82.9	-67.4	-115.9		-115.9	0.8	-53.8	-51.9	9
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp					-50.6	183	-47.5	-85	-156		-156.0	183.0	-31.2	-50.6	5
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	8	-35.7	-61.2	-54.1	-110	-104	-28	-42.5	-43.7		-110.0	8.0	-52.4	-43.7	9
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	14.4	-46.1	-79.5		-59.8	80	-59	-159	-205		-205.0	80.0	-64.3	-59.4	8
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	-2.1	-6.4	-37.6		-50	266	-28.8	146	89		-50.0	266.0	47.0	-4.3	8
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	-24.7	4.2	-56.5	-63.1	-46.6	-53	-83.5	-70.7	-114.3		-114.3	4.2	-56.5	-56.5	9
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	-25.4	-48.5	-60.8	-60.3	-60	-52.9	-49.7	127	107	72.1	-60.8	127.0	-5.2	-49.1	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	-19.7	4.2	-54	-54.9	-53.6	-55.4	-84.9	-69.6	-116.2		-116.2	4.2	-56.0	-54.9	9
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	-32.2	-55.3	-63.1	-61.2	-61.1	-61.7	-58.5	132	-238		-238.0	132.0	-55.5	-61.1	9
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	-8.2	-34.5	-57.7		-48	92	-40.1		-176		-176.0	92.0	-38.9	-40.1	7
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	-21.3	3.8	-58.7	-58.9	-47	-47.4	-83.5	-68.3	-116		-116.0	3.8	-55.3	-58.7	9
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				-48.7	-16.7	-58.2	-83	-64.5	-112.2		-112.2	-16.7	-63.9	-61.4	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				-55.3	-117.9	-84.9	45	-47	-33.5		-117.9	45.0	-48.9	-51.2	6
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			-54.7	-59.1	-68.2	-51.9	-78.6	2.3	-111.9	113	-111.9	113.0	-38.6	-56.9	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	46.5	-5.7	-28.6	-44.2	-54.5	-82.2	129	-41.2	-21.2		-82.2	129.0	-11.3	-28.6	9
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				-54.4	-14.3	-63.7	-46.7	-68.8	-108.3		-108.3	-14.3	-59.4	-59.1	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp				-50.3	-76.6	-90.4	-38.4	-77.5	-25.9	-67	-90.4	-25.9	-60.9	-67.0	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount	-11.3	-12.8	-47.8	-17.9	-37.2	-42.4	-81		-104.8		-104.8	-11.3	-44.4	-39.8	8
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	-18.9	-40.3	-55.2	-59.4	-50.5	-88.4	279		-40.3		-88.4	279.0	-9.3	-45.4	8

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2003	2004	2005	2006	2007	2008	2009	2017	Min	Max	Avg	Median	Counts
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	-19.7	-42.1	-57.1	-60.7	-44.3	-86.8	-81.4	-45.6	39		-86.8	39.0	-44.3	-45.6	9
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	-14.1	-50.7	-68		-60.9	289	-54.2	57	25		-68.0	289.0	15.4	-32.4	8
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	-2.6	-31.7	-49.4	-61	-49.9	342	-35.9	56	60		-61.0	342.0	25.3	-31.7	9
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				-47.6	-94.9	-75.8	119	-21.5	-27.9		-94.9	119.0	-24.8	-37.8	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				-25.8	-60.2		217	-47.1	-35.2		-60.2	217.0	9.7	-35.2	5
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				-55.1	-12.6	-83.3			26.5		-83.3	26.5	-31.1	-33.9	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					-45.7	281	-26	-32	-35		-45.7	281.0	28.5	-32.0	5
AGQS-62	Mid	145	149	Ucs		Marshan Twp				-57.6	-53.3	-48	-79.1	-13	66		-79.1	66.0	-30.8	-50.7	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				-59.8	-52.3	-42.2	-78.4	-40.4	-106.7		-106.7	-40.4	-63.3	-56.1	6
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					-51.1	273	-40.1	106	10		-51.1	273.0	59.6	10.0	5
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					-51.5	166	-44.2	-91	-178		-178.0	166.0	-39.7	-51.5	5
AGQS-66	Shallow	75	80	Ucs	8	Coates					49.8	-29.6	-76.5	107	25		-76.5	107.0	15.1	25.0	5
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	-7	10.8	-40.6		-42.4	118	-42.9	-59.7	96		-59.7	118.0	4.0	-23.8	8
AGQS-68	Mid	158	163	Ucs		Apple Valley					-35.8	-30.9	251	151			-35.8	251.0	83.8	60.1	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							106	-35.6			-35.6	106.0	35.2	35.2	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	-11.2	-34.6									-34.6	-11.2	-22.9	-22.9	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	-14.3	-34.5									-34.5	-14.3	-24.4	-24.4	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp	4.6	-32.6									-32.6	4.6	-14.0	-14.0	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										102.4	102.4	102.4	102.4	102.4	1
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp									47	29.8	29.8	47.0	38.4	38.4	2
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp										179.7	179.7	179.7	179.7	179.7	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp										24.6	24.6	24.6	24.6	24.6	1
Muni-01	Deep	406	500	Cjdn		Eagan					-39.1						-39.1	-39.1	-39.1	-39.1	1
Muni-02	Deep	258	356	Cjdn		Randolph					-34.4						-34.4	-34.4	-34.4	-34.4	1
Muni-03	Deep	355	457	Cjdn		Empire					-67.4						-67.4	-67.4	-67.4	-67.4	1
Muni-04	Deep	322	401	Cjdn		South St Paul					-30.3						-30.3	-30.3	-30.3	-30.3	1
Muni-05	Mid	132	424	OpCj		Farmington					-58.1						-58.1	-58.1	-58.1	-58.1	1
Muni-06	Mid	248	302	Cjdn		Hampton					-89.2						-89.2	-89.2	-89.2	-89.2	1
Muni-07	Mid	218	298	Cjdn		Burnsville					-40.9						-40.9	-40.9	-40.9	-40.9	1
Muni-08	Deep	340	410	Cjdn		Empire					-74.6						-74.6	-74.6	-74.6	-74.6	1
Muni-09	Deep	580	680	Cjdn		New Trier					-79.1						-79.1	-79.1	-79.1	-79.1	1
Muni-10	Deep	434	517	Cjdn		Lakeville					-39.1						-39.1	-39.1	-39.1	-39.1	1
Muni-11	Mid	240	342	OpCj		South St Paul					-34.8						-34.8	-34.8	-34.8	-34.8	1
Muni-12	Deep	388	471	Cjdn		Rosemount					-38.4						-38.4	-38.4	-38.4	-38.4	1
Muni-13	Deep	392	477	Cjdn		Farmington					-43.6						-43.6	-43.6	-43.6	-43.6	1
Muni-14	Deep	420	516	Cjdn		Apple Valley					-41.1						-41.1	-41.1	-41.1	-41.1	1
Muni-15	Deep	345	400	Cjdn		Rosemount					-54.5						-54.5	-54.5	-54.5	-54.5	1
Muni-16	Deep	345	400	Cjdn		Rosemount					-50.3						-50.3	-50.3	-50.3	-50.3	1
Muni-17	Deep	389	498	Cjdn		Rosemount					-41.4						-41.4	-41.4	-41.4	-41.4	1
Muni-18	Deep	267	293	Ucs		Vermillion					-90.4						-90.4	-90.4	-90.4	-90.4	1
Muni-19	Deep	425	616	OpCj		Lakeville					-47.3						-47.3	-47.3	-47.3	-47.3	1
Muni-20	Deep	417	512	Cjdn		Farmington					20.2						20.2	20.2	20.2	20.2	1
Muni-21	Deep	384	500	Cjdn		Eagan					-49.3						-49.3	-49.3	-49.3	-49.3	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					-34.8						-34.8	-34.8	-34.8	-34.8	1
Muni-23	Deep	256	305	Cjdn		Hampton					-84.4						-84.4	-84.4	-84.4	-84.4	1
Muni-24	Deep	312	400	Cjdn		Hastings					159.4	-71.1					-71.1	159.4	44.2	44.2	2
Muni-25	Deep	277	356	Cjdn		Hastings					155.8	-81.5					-81.5	155.8	37.2	37.2	2
Muni-26	Mid	240	332	Cjdn		Hastings					162.9	-62.3					-62.3	162.9	50.3	50.3	2
Muni-27	Mid	205	285	Cjdn		Hastings					164	-82.8					-82.8	164.0	40.6	40.6	2
Muni-28	Mid	208	299	Cjdn		Hastings					162.7	-85.1					-85.1	162.7	38.8	38.8	2

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	<0.1	<0.1	0.11	0.05		<0.2		<0.07			0.08	<0.07	0.12	0.03	0.00	14
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.5	<0.1	0.11	<0.1	<0.1	0.1	0.11	<0.1	<0.1	0.11	0.06		<0.2		<0.07			0.13	<0.07	0.13	0.04	0.00	14
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.1	0.11	<0.1	<0.1	0.1	0.009								<0.1	0.11	0.04	0.00	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.37		<0.2		<0.07			0.09	<0.07	0.37	0.06	0.00	11
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.1	<0.1	<0.1	<0.1	0.11									<0.1	0.14	0.03	0.00	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.5	<0.1	<0.1	0.11	0.12	0.13	0.13	<0.1	0.13	0.14	0.06		<0.2		0.09			0.14	<0.1	0.14	0.08	0.10	14
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.5	0.11	0.15	0.15	0.16	0.17	0.2	0.14	0.21	0.18	0.06		<0.2		0.15			0.2	<0.2	0.21	0.13	0.15	14
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.5	<0.1	0.14	0.15	0.15	0.17	0.2	0.13	0.2	0.18	0.009		<0.2		0.15			0.2	<0.1	0.20	0.12	0.15	14
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.5	<0.1	<0.1	0.1	<0.1	<0.1	0.12	<0.1	0.11	0.12	0.009		<0.2		<0.07			0.12	<0.07	0.12	0.04	0.00	14
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.5	<0.1	0.94	0.1	0.11	0.11	0.13	<0.1	0.12	0.13	0.009		<0.2		<0.07			0.12	<0.07	0.94	0.13	0.11	14
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.5	<0.1	<0.1	<0.1	0.1	0.11	0.16	<0.1	0.11	0.12	0.07		<0.2		0.08			0.12	<0.1	0.16	0.06	0.08	14
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.5	<0.1	<0.1	<0.1	0.1	0.11	0.1	<0.1	0.11	0.12	0.009		<0.2		<0.07			0.13	<0.07	0.13	0.05	0.00	14
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0.13	0.17	0.16	0.17	0.2	0.23	0.16	0.18	0.19	<0.2		<0.2		<0.07				<0.07	0.23	0.13	0.17	12
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.5	0.15	0.19	0.2	0.23	0.22	0.19	0.17	0.17	0.19	0.07			0.2			0.26	<0.5	0.26	0.17	0.19	0.14	14
AGQS-15	Mid	166	170	Ucs	5	Hastings						0.1	0.12	<0.1	0.1	0.11	0.07		<0.2						<0.1	0.12	0.07	0.10	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1		<0.2		0.09				<0.1	0.10	0.03	0.00	12
AGQS-17	Deep	276	280	Ucs	15	Rosemount						0.1	0.13	<0.1	0.11	0.12	0.009		<0.2		<0.07			0.12	<0.07	0.13	0.07	0.10	9
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.5	<0.1	0.1	0.14	0.18	0.14	0.17	0.13	0.19	0.15	0.23		<0.2		0.16			0.16	<0.1	0.23	0.13	0.15	14
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0.15	0.17	0.12	0.15	0.16	0.37		<0.2		0.14		<0.1	0.16	<0.2	0.37	0.16	0.15	10
AGQS-20	Shallow	55	60	Ucs		Empire Twp						0.12	0.17	0.1	0.11	0.13	0.12		<0.2		<0.07			0.15	<0.07	0.17	0.10	0.12	9
AGQS-21	Mid	133	137	Ucs		Burnsville						0.16	0.18	0.14	0.15	0.17	0.33		<0.2		<0.07			0.19	<0.07	0.33	0.15	0.16	9
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.5	0.15	0.17	0.18	0.2	0.21	0.22	0.19	0.2	0.21	0.12			0.21		0.15			<0.5	0.22	0.17	0.19	13
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.12	0.13	0.11	0.1	0.12	0.15		<0.2		0.1		0.2	0.14	<0.2	0.16	0.11	0.12	10
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.5	0.16	0.21	0.25	0.22	0.25	0.26	0.23	0.22	0.24	0.19		0.21						<0.5	0.26	0.20	0.22	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.1	0.13	0.11	0.12	0.13	0.15	<0.1	0.12	0.14	0.009		<0.2		0.09			0.16	<0.2	0.17	0.09	0.12	13
AGQS-26	Deep	342	360	Opdc		Lakeville						0.25	0.2	0.2	0.2	0.22	0.09		0.23		0.27			0.24	0.09	0.27	0.21	0.22	9
AGQS-27	Mid	176	180	Ucs	11	Rosemount						0.15	0.15	0.11	0.11	0.14	0.3		<0.2		<0.07			0.13	<0.07	0.30	0.12	0.13	9
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0.12	0.15	0.16	0.16	0.18	0.2	0.17	0.16	0.19	0.1		<0.2		0.18			0.21	<0.2	0.21	0.15	0.16	13
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0.15	0.2	0.21	0.2	0.23	0.25	0.22	0.2	0.22	0.11		0.2		0.21			0.25	0.11	0.25	0.20	0.21	13
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.5	<0.1	<0.1	0.12	0.1	0.12	0.16	<0.1	0.14	0.15	0.009		<0.2		<0.07			0.16	<0.07	0.16	0.07	0.05	14
AGQS-31	Mid	135	140	Ucs		Lakeville						0.15	0.18	0.11	0.18	0.15	0.06		<0.2		<0.07			0.17	<0.07	0.18	0.11	0.15	9
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.5	<0.1	0.15	0.12	0.1	0.11	0.12	<0.1	0.12	0.13	0.27		<0.2		<0.07			0.13	<0.07	0.27	0.09	0.12	14
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.5	<0.1	<0.1	<0.1	0.1	<0.1	0.12	<0.1	0.14	0.12	0.1		<0.2		<0.07			0.11	<0.07	0.14	0.05	0.00	14
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.5	<0.1	0.11	<0.1	<0.1	0.13	0.11	<0.1	0.1	0.11	0.009		<0.2		0.1			0.11	<0.1	0.13	0.06	0.05	14
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.5	<0.1	<0.1	<0.1	<0.1	0.1	0.13	0.1	0.12	0.13	0.77		<0.2		0.07			0.13	<0.1	0.77	0.11	0.09	14
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.5	<0.1	0.15	0.14	0.15	0.16	0.19	0.14	0.16	0.17	0.32		<0.2		0.15			0.18	<0.1	0.32	0.14	0.15	14
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						0.13	0.14	<0.1	0.13	0.14	0.09		<0.2		<0.07			0.14	<0.07	0.14	0.09	0.13	9
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.5	0.12	0.14	0.19	0.16	0.19	0.22	0.17	0.22	0.19	0.1		<0.2		0.16			0.22	<0.2	0.22	0.15	0.17	14
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.5	<0.1	<0.1	<0.1	0.1	0.11	0.13	<0.1	0.1	0.11	0.1		<0.2		0.1			0.1	<0.1	0.13	0.06	0.10	14
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.5	0.12	<0.1	0.15	0.18	0.2	0.17	0.16	0.16	0.17	0.009		<0.2		0.16			0.2	<0.1	0.20	0.12	0.16	14
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.5	<0.1	<0.1	<0.1	0.1	0.12	0.14	0.11	0.13	0.14	0.06		<0.2		0.11			0.14	<0.1	0.14	0.08	0.11	14
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.5	<0.1	<0.1	0.13	0.1	0.12	0.12	<0.1	0.1	0.12	0.009		<0.2		<0.07			0.12	<0.07	0.13	0.06	0.05	14
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.5	<0.1	0.13	0.13	0.14	0.16	0.18	0.14	0.16	0.16	0.28		<0.2		0.18			0.17	<0.1	0.28	0.13	0.15	14
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.5	<0.1	0.11	<0.1	0.15	0.17	0.17	0.15	0.15	0.17	0.14		<0.2		0.15			0.17	<0.1	0.17	0.11	0.15	14
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.5	0.1	0.11	0.13	0.16	0.2	0.17	0.16	0.15		0.61		<0.2		0.14			0.17	<0.2	0.61	0.16	0.15	13

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	Min	Max	Avg	Median	Counts	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.1	0.13	0.11	0.13	0.16	0.16	0.14	0.15	0.16	0.14		<0.2		0.15			0.15	<0.2	0.16	0.12	0.14	13	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0.19	0.17	0.16	0.17	0.18	0.28		0.2		0.15			0.19	0.15	0.28	0.19	0.18	9	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0.17	0.22	0.18	0.18	0.2	0.11		<0.2		0.18			0.24	<0.2	0.24	0.16	0.18	9	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				0.11	0.12	0.14	0.16	0.12	0.13	0.15	0.1		<0.2		0.12			0.15	<0.2	0.16	0.12	0.12	11	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0.6	0.3	0.38	0.4	0.39	0.42	0.47	0.42	0.43	0.4	0.22		0.4		0.45			0.43	0.22	0.60	0.41	0.41	14	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						0.15	0.15	0.13	0.19	0.16	0.28		<0.2		0.16			0.17	<0.2	0.28	0.15	0.16	9	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						0.35	0.38	0.32	0.39	0.32	0.1		0.2		0.19			0.25	0.10	0.39	0.28	0.32	9	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0.15	0.2	0.23	0.21	0.22	0.25	0.2	0.18	0.21	0.19		0.2						0.15	0.25	0.20	0.20	11	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.5	<0.1	0.11	0.12	0.13	0.14	0.15	0.11	0.12	0.14	0.08		0.2		0.07			0.17	<0.1	0.20	0.11	0.12	14	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.1	<0.1	<0.1	0.11	<0.1	0.12	<0.1	<0.1	0.1	0.05		<0.2		<0.07			0.1	<0.07	0.12	0.04	0.00	13	
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0.11	0.18	0.18	0.19	0.19	0.21	0.15	0.17	0.19	0.15		0.21		0.16			0.26	0.11	0.26	0.18	0.18	13	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.47		<0.2		<0.07			0.11	<0.07	0.47	0.04	0.00	13	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0.24	0.26	0.22	0.26	0.23	0.1		<0.2		0.25				<0.2	0.26	0.20	0.24	8	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.12	0.14	<0.1	0.13	0.14	0.09		0.2		<0.07			0.18	<0.07	0.20	0.11	0.13	9	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.11	<0.1	<0.1			0.1								<0.1	0.11	0.05	0.05	4	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.3	0.32	0.34	0.27	0.28	0.18		0.28		0.27			0.27	0.18	0.34	0.28	0.28	9	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.1	0.11	<0.1	<0.1	0.12	0.07								<0.1	0.12	0.05	0.04	6	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.1	0.1	<0.1	<0.1	0.1	0.009		<0.2		<0.07			0.09	<0.07	0.10	0.03	0.00	9	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.22	0.19	0.13	0.16	0.17	0.009		<0.2		<0.07			0.17	<0.07	0.22	0.12	0.16	9	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.23	0.16	<0.1	0.13	0.15	0.09		<0.2		0.12			0.17	<0.2	0.23	0.12	0.13	9	
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.1	0.1	<0.1	0.1	<0.1	<0.2		<0.2		0.09			0.04	<0.2	0.10	0.04	0.00	9	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.5	<0.1	0.11	0.11	0.15	0.18	0.12	0.12	0.17	0.14	0.75		<0.2		<0.07			0.15	<0.07	0.75	0.14	0.12	14	
AGQS-68	Mid	158	163	Ucs		Apple Valley							0.16	0.11	0.14	0.15									0.11	0.16	0.14	0.15	4	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.1	0.15									<0.1	0.15	0.08	0.08	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0.16	0.16																0.16	0.16	0.16	0.16	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.1	<0.1																<0.1	<0.1	<0.1	<0.1	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0.14	0.16																0.14	0.16	0.15	0.15	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp													<0.2		<0.07			0.11	<0.07	0.11	0.04	0.00	3	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											0.009		<0.2		<0.07			0.11	<0.07	0.11	0.03	0.00	4	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp													<0.2		0.13			0.16	<0.2	0.16	0.10	0.13	3	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp													<0.2		<0.07			0.15	<0.07	0.15	0.05	0.00	3	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp															<0.07			0.13	<0.07	0.13	0.07	0.07	2	
Muni-24	Deep	312	400	Cjdn		Hastings							0.15												0.15	0.15	0.15	0.15	1	
Muni-25	Deep	277	356	Cjdn		Hastings							0.12													0.12	0.12	0.12	0.12	1
Muni-26	Mid	240	332	Cjdn		Hastings							0.13													0.13	0.13	0.13	0.13	1
Muni-27	Mid	205	285	Cjdn		Hastings							0.12													0.12	0.12	0.12	0.12	1
Muni-28	Mid	208	299	Cjdn		Hastings							0.12													0.12	0.12	0.12	0.12	1

Shaded cells with underline result indicates Fluoride greater than drinking water guideline of > 4 mg/L

Drinking Water Guideline = 4 mg/L (EPA MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	337	409.5	444.0	337.0	444.0	396.8	409.5	3
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	356	359.91	363.0	356.0	363.0	359.6	359.9	3
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	302			302.0	302.0	302.0	302.0	1
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	394	411.6	412.0	394.0	412.0	405.9	411.6	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	310	320.24	352.0	310.0	352.0	327.4	320.2	3
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	313	322.31	326.0	313.0	326.0	320.4	322.3	3
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	336	340.9	339.0	336.0	340.9	338.6	339.0	3
AGQS-09	Mid	140	185	Opdc	16	Rosemount	328	328.51	338.0	328.0	338.0	331.5	328.5	3
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	490	512.39	567.0	490.0	567.0	523.1	512.4	3
AGQS-11	Deep	265	280	Cjdn	5	Hastings	189	198.34	195.0	189.0	198.3	194.1	195.0	3
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	311	316.11	344.0	311.0	344.0	323.7	316.1	3
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	352	324.38	339.0	324.4	352.0	338.5	339.0	3
AGQS-14	Deep	385	415	Cjdn	2	Hampton	310	297.52	318.0	297.5	318.0	308.5	310.0	3
AGQS-15	Mid	166	170	Ucs	5	Hastings	229	241.73		229.0	241.7	235.4	235.4	2
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	196	198.34	219.0	196.0	219.0	204.4	198.3	3
AGQS-17	Deep	276	280	Ucs	15	Rosemount	341	357.43	367.0	341.0	367.0	355.1	357.4	3
AGQS-18	Deep	265	280	Opdc	11	Rosemount	269	289.25	291.0	269.0	291.0	283.1	289.3	3
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	299	303.71	323.0	299.0	323.0	308.6	303.7	3
AGQS-20	Shallow	55	60	Ucs		Empire Twp	476	497.7	445.0	445.0	497.7	472.9	476.0	3
AGQS-21	Mid	133	137	Ucs		Burnsville	309	363.63	366.0	309.0	366.0	346.2	363.6	3
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	294	309.91	318.0	294.0	318.0	307.3	309.9	3
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	313	332.64	328.0	313.0	332.6	324.5	328.0	3
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	240	235.2		235.2	240.0	237.6	237.6	2
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	340	309.91	315.0	309.9	340.0	321.6	315.0	3
AGQS-26	Deep	342	360	Opdc		Lakeville		338.84	340.0	338.8	340.0	339.4	339.4	2
AGQS-27	Mid	176	180	Ucs	11	Rosemount	278	309.91	322.0	278.0	322.0	303.3	309.9	3
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	287	308.7	297.0	287.0	308.7	297.6	297.0	3
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	285	247.8	279.0	247.8	285.0	270.6	279.0	3
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	227	235.53	239.0	227.0	239.0	233.8	235.5	3
AGQS-31	Mid	135	140	Ucs		Lakeville	404	409.09	381.0	381.0	409.1	398.0	404.0	3
AGQS-32	Mid	179	218	Opdc	15	Rosemount	305	336.77	338.0	305.0	338.0	326.6	336.8	3
AGQS-33	Deep	260	280	Cjdn	8	Coates	303	308.7	324.0	303.0	324.0	311.9	308.7	3
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	302	306.6	346.0	302.0	346.0	318.2	306.6	3
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	208	206.61	232.0	206.6	232.0	215.5	208.0	3
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	306	293.38	320.0	293.4	320.0	306.5	306.0	3
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	250	264.46	279.0	250.0	279.0	264.5	264.5	3
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	292	274.79	307.0	274.8	307.0	291.3	292.0	3
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	216	247.93	243.0	216.0	247.9	235.6	243.0	3
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	354	355.37	406.0	354.0	406.0	371.8	355.4	3
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	261	266.52	284.0	261.0	284.0	270.5	266.5	3

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	273	301.65	300.0	273.0	301.7	291.6	300.0	3
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	274	283.05	288.0	274.0	288.0	281.7	283.1	3
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	185	196.28	183.0	183.0	196.3	188.1	185.0	3
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	229	226.8	241.0	226.8	241.0	232.3	229.0	3
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	260	256.19	281.0	256.2	281.0	265.7	260.0	3
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	301	316.11	332.0	301.0	332.0	316.4	316.1	3
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	261	268.8	282.0	261.0	282.0	270.6	268.8	3
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	296	305.78		296.0	305.8	200.6	296.0	3
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	331	319.2	332.0	319.2	332.0	327.4	331.0	3
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	281	274.79	285.0	274.8	285.0	280.3	281.0	3
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	420	274.79	249.0	249.0	420.0	314.6	274.8	3
AGQS-53	Deep	254	365	Opdc	11	Rosemount	322	311.98		312.0	322.0	317.0	317.0	2
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	308			308.0	308.0	104.0	3.0	3
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	321	324.38	337.0	321.0	337.0	327.5	324.4	3
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	175	212.8	230.0	175.0	230.0	205.9	212.8	3
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	255	345.04	301.0	255.0	345.0	300.3	301.0	3
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	394	382.2	402.0	382.2	402.0	392.7	394.0	3
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	258	247.93	263.0	247.9	263.0	256.3	258.0	3
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	127			127.0	127.0	127.0	127.0	1
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	336	342.97	368.0	336.0	368.0	349.0	343.0	3
AGQS-62	Mid	145	149	Ucs		Marshan Twp	337			337.0	337.0	337.0	337.0	1
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	343	342.97	362.0	343.0	362.0	349.3	343.0	3
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	332	384.3	415.0	332.0	415.0	377.1	384.3	3
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	249	224.7	244.0	224.7	249.0	239.2	244.0	3
AGQS-66	Shallow	75	80	Ucs	8	Coates	495	468.3	445.0	445.0	495.0	469.4	468.3	3
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	407	417.35	442.0	407.0	442.0	422.1	417.4	3
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp		364.21	443.0	364.2	443.0	403.6	403.6	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	344	334.71	349.0	334.7	349.0	342.6	344.0	3
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		221.88	232	221.88	232	226.94	226.94	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		335.4	307	307	335.4	321.2	321.2	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp			276	276	276	276	276	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	120.29	163	120.3	163.0	141.6	141.6	2.0
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	107.1	132	107.1	132.0	119.6	119.6	2.0
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	146.39	123	123.0	146.4	134.7	134.7	2.0
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	105.07	146	105.1	146.0	125.5	125.5	2.0
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	19.49	49	19.5	49.0	34.2	34.2	2.0
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	64.74	79	64.7	79.0	71.9	71.9	2.0
AGQS-09	Mid	140	185	Opdc	16	Rosemount	75.48	107	75.5	107.0	91.2	91.2	2.0
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	134.79	211	134.8	211.0	172.9	172.9	2.0
AGQS-11	Deep	265	280	Cjdn	5	Hastings	29.65	35	29.7	35.0	32.3	32.3	2.0
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	110.21	128	110.2	128.0	119.1	119.1	2.0
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	23.46	68	23.5	68.0	45.7	45.7	2.0
AGQS-14	Deep	385	415	Cjdn	2	Hampton	15.22	54	15.2	54.0	34.6	34.6	2.0
AGQS-15	Mid	166	170	Ucs	5	Hastings	80.29		80.3	80.3	80.3	80.3	1.0
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	48.44	84	48.4	84.0	66.2	66.2	2.0
AGQS-17	Deep	276	280	Ucs	15	Rosemount	77.72	91	77.7	91.0	84.4	84.4	2.0
AGQS-18	Deep	265	280	Opdc	11	Rosemount	8.08	36	8.1	36.0	22.0	22.0	2.0
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	-4.28	53	-4.3	53.0	24.4	24.4	2.0
AGQS-20	Shallow	55	60	Ucs		Empire Twp	187.07	249	187.1	249.0	218.0	218.0	2.0
AGQS-21	Mid	133	137	Ucs		Burnsville	59.32	83	59.3	83.0	71.2	71.2	2.0
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	7.4	54	7.4	54.0	30.7	30.7	2.0
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	68.64	49	49.0	68.6	58.8	58.8	2.0
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	10.57		10.6	10.6	10.6	10.6	1.0
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	48.6	66	48.6	66.0	57.3	57.3	2.0
AGQS-26	Deep	342	360	Opdc		Lakeville	-16.61	9	-16.6	9.0	-3.8	-3.8	2.0
AGQS-27	Mid	176	180	Ucs	11	Rosemount	34.61	48	34.6	48.0	41.3	41.3	2.0
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	26.7	30	26.7	30.0	28.4	28.4	2.0
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	21.49	40	21.5	40.0	30.7	30.7	2.0
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	67.97	70	68.0	70.0	69.0	69.0	2.0
AGQS-31	Mid	135	140	Ucs		Lakeville	76.68	82	76.7	82.0	79.3	79.3	2.0
AGQS-32	Mid	179	218	Opdc	15	Rosemount	68.04	92	68.0	92.0	80.0	80.0	2.0
AGQS-33	Deep	260	280	Cjdn	8	Coates	60.26	87	60.3	87.0	73.6	73.6	2.0
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	15.32	78	15.3	78.0	46.7	46.7	2.0
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	35.84	88	35.8	88.0	61.9	61.9	2.0
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	57.38	54	54.0	57.4	55.7	55.7	2.0
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	58.67	82	58.7	82.0	70.3	70.3	2.0
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	39.35	50	39.4	50.0	44.7	44.7	2.0
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	34.96	43	35.0	43.0	39.0	39.0	2.0

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011	2013	Min	Max	Avg	Median	Counts
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	-2.65	58	-2.7	58.0	27.7	27.7	2.0
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	22.98	53	23.0	53.0	38.0	38.0	2.0
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	81.21	57	57.0	81.2	69.1	69.1	2.0
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	37.05	38	37.1	38.0	37.5	37.5	2.0
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	19.41	35	19.4	35.0	27.2	27.2	2.0
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	11.47	41	11.5	41.0	26.2	26.2	2.0
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	-24.87	26	-24.9	26.0	0.6	0.6	2.0
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	78.11	92	78.1	92.0	85.1	85.1	2.0
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	6.89	33	6.9	33.0	19.9	19.9	2.0
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	58.55	0	0.0	58.6	29.3	29.3	2.0
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	-34.68	6	-34.7	6.0	-14.3	-14.3	2.0
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	10.21	30	10.2	30.0	20.1	20.1	2.0
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	44.79	-4	-4.0	44.8	20.4	20.4	2.0
AGQS-53	Deep	254	365	Opdc	11	Rosemount	35.98		36.0	36.0	36.0	36.0	1.0
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	-226.72	-213	-226.7	-213.0	-219.9	-219.9	2.0
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	87.48	78	78.0	87.5	82.7	82.7	2.0
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	55.02	82	55.0	82.0	68.5	68.5	2.0
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	111.04	101	101.0	111.0	106.0	106.0	2.0
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	-8.23	38	-8.2	38.0	14.9	14.9	2.0
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	70.06	67	67.0	70.1	68.5	68.5	2.0
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	48.31	94	48.3	94.0	71.2	71.2	2.0
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	100.87	131	100.9	131.0	115.9	115.9	2.0
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	83.68	131	83.7	131.0	107.3	107.3	2.0
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	14.17	32	14.2	32.0	23.1	23.1	2.0
AGQS-66	Shallow	75	80	Ucs	8	Coates	174.31	249	174.3	249.0	211.7	211.7	2.0
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	95.35	133	95.4	133.0	114.2	114.2	2.0
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	132.15	102	102.0	132.2	117.1	117.1	2.0
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	111.71	113	111.7	113.0	112.4	112.4	2.0
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	9.96	-9	-9.0	10.0	0.5	0.5	2.0
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp	98.97	58	58.0	99.0	78.5	78.5	2.0
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		85	85.0	85.0	85.0	85.0	1.0

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.2	0.02	<0.008	<0.008	0.01	0.01	<u>9.58</u>	<0.01	<0.01	0.24	0.02	0.04	0.22		<0.008	9.58	0.78	0.01	13
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.2	<0.008	0.04	<0.008	0.02	0.01	0.1	0.01	0.02	0.01	0.01	0.07	0.02		<0.008	0.10	0.02	0.01	13
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						0.01	0.01	<0.01	<0.01	<0.01	<0.01				<0.01	<0.01	0.00	0.00	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				0.03	0.03	0.04	0.1	0.16	0.05	0.06	0.03	0.06	0.05		0.03	0.16	0.06	0.05	10
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						0.1	0.15	0.08	0.03						0.03	0.15	0.09	0.09	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.2	0.01	0.009	0.09	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.09	0.01		<0.01	0.09	0.02	0.00	13
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<u>0.7</u>	<u>0.41</u>	<u>0.5</u>	<u>1.09</u>	<u>0.87</u>	<u>2.54</u>	<u>2.08</u>	<u>2.52</u>	<u>0.56</u>	<u>0.75</u>	<u>0.56</u>	<u>1.15</u>	<u>0.9</u>		0.41	2.54	1.13	0.87	13
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.2	<0.008	<0.008	<0.008	0.02	<u>4.12</u>	<0.01	<0.01	<0.01	<0.01	0.06	0.01	0.02		<0.008	4.12	0.33	0.00	13
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.2	<0.008	0.06	0.01	0.15	0.04	<u>1.22</u>	0.01	0.02	0.21	0.03	0.03	0.11		<0.008	1.22	0.16	0.04	13
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<u>2.1</u>	<u>0.66</u>	<0.008	<u>9.87</u>	<u>5.56</u>	0.01	<u>1.31</u>	<u>0.79</u>	<u>0.44</u>	<u>0.46</u>	<u>0.9</u>	<u>0.82</u>	<u>3.5</u>		<0.008	9.87	2.03	0.82	13
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.2	<0.008	<0.008	0.05	0.22	<u>0.49</u>	0.05	0.01	0.04	0.07	<0.01	0.01	0.08		<0.008	0.49	0.08	0.04	13
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.2	0.04	0.03	0.12	0.09	0.1	<u>1.19</u>	0.1	0.08	0.1	0.28	0.03	0.08		<0.2	1.19	0.17	0.09	13
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<u>1.69</u>	<u>0.89</u>	<u>3.13</u>	<u>3.8</u>	<u>2.29</u>	<u>2.41</u>	<u>3.25</u>	<u>4.72</u>	<u>5.01</u>	<u>3.65</u>	<u>5</u>	<u>3.32</u>		0.89	5.01	3.26	3.29	12
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<u>0.6</u>	0.07	0.12	<u>0.76</u>	0.1	0.15	0.24	<u>0.78</u>	<u>4.24</u>	<u>3.88</u>	<u>2.77</u>	<u>1.6</u>	<u>2.45</u>		0.07	4.24	1.37	0.76	13
AGQS-15	Mid	166	170	Ucs	5	Hastings						0.02	0.01	0.05	0.02	0.07	0.02	0.01			0.01	0.07	0.03	0.02	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.01	0.05	0.02	0.1	0.25	0.24	0.04	0.17	0.07	0.16	0.08	0.01		0.01	0.25	0.10	0.08	12
AGQS-17	Deep	276	280	Ucs	15	Rosemount						0.03	0.02	0.06	0.05	0.05	0.04	0.01	0.02		0.01	0.06	0.04	0.04	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<u>0.3</u>	0.14	<u>0.41</u>	<u>0.5</u>	<u>0.59</u>	<u>0.57</u>	0.13	0.19	<u>1.22</u>	<u>0.47</u>	<u>0.54</u>	<u>0.85</u>	<u>0.8</u>		0.13	1.22	0.52	0.50	13
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<u>2.31</u>	<u>2.61</u>	<u>1.97</u>	<u>2.02</u>	<u>8.15</u>	<u>1.52</u>	<u>2.62</u>	<u>2.95</u>	<u>1.65</u>	1.52	8.15	2.87	2.31	9
AGQS-20	Shallow	55	60	Ucs		Empire Twp						<0.01	<0.01	0.08	<0.01	0.01	<0.01	0.01	0.02		<0.01	0.08	0.02	0.01	8
AGQS-21	Mid	133	137	Ucs		Burnsville						0.23	<u>1.72</u>	0.05	<u>0.31</u>	<u>1.34</u>	<u>3.93</u>	0.01	<u>0.63</u>		0.01	3.93	1.03	0.47	8
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<u>7.1</u>	<u>1.45</u>	<u>2.41</u>	<u>3.01</u>	<u>2.74</u>	<u>0.57</u>	<u>0.94</u>	<u>1.53</u>	<u>3.72</u>	<u>2.35</u>	<u>2.48</u>	<u>1.13</u>	<u>3.5</u>		0.57	7.10	2.53	2.41	13
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.03	<u>0.49</u>	<0.01	<u>1.14</u>	0.04	0.03	0.01	0	0.042	<0.01	1.14	0.20	0.03	9
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<u>1.4</u>	<u>1.12</u>	<u>1.68</u>	<u>1.95</u>	<u>2.27</u>	<u>1.78</u>	<u>1.88</u>	<u>1.42</u>	<u>2.22</u>	<u>1.84</u>	<u>2.04</u>	<u>1.83</u>			1.12	2.27	1.79	1.84	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0.02	<0.008	<0.008	0.01	0.04	<0.01	0.06	0.06	0.02	<0.01	0.01	0.04		<0.008	0.06	0.02	0.02	12
AGQS-26	Deep	342	360	Opdc		Lakeville						<u>1.53</u>	<u>2.36</u>		<u>1.68</u>	<u>1.58</u>		<u>2.6</u>	<u>1.98</u>		1.53	2.60	1.96	1.83	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<u>1.15</u>	<u>0.61</u>	<u>0.68</u>	<u>1.81</u>	<u>1.46</u>	<u>0.89</u>	<u>1.89</u>	<u>1</u>		0.61	1.89	1.19	1.08	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<u>2.34</u>	<u>2.06</u>	<u>2.69</u>	<u>2.8</u>	0.01	<u>3.97</u>	<u>2.55</u>	<u>3.48</u>	<u>2.16</u>	<u>1.22</u>	<u>2.3</u>	<u>1.71</u>		<0.008	3.97	2.27	2.32	12
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<u>1.5</u>	<u>2.25</u>	<u>1.91</u>	<u>1.49</u>	<u>1.87</u>	<u>1.86</u>	<u>1.99</u>	<u>1.64</u>	<u>2.42</u>	<u>2.72</u>	<u>2.46</u>	<u>1.84</u>		1.49	2.72	2.00	1.89	12
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.2	0.02	0.01	0.04	0.05	0.09	0.03	0.04	0.04	0.02	0.08	0.01	<u>0.43</u>		<0.2	0.43	0.07	0.04	13
AGQS-31	Mid	135	140	Ucs		Lakeville						<u>9.18</u>	<u>9.56</u>	<u>8.98</u>	<u>9.31</u>	<u>9.78</u>	<u>9.8</u>	<u>7.64</u>	<u>9</u>		7.64	9.80	9.16	9.25	8
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.2	0.09	<0.008	0.02	0.07	0.03	0.03	0.01	<0.01	0.01	0.09	0.06	<u>1.22</u>		<0.008	1.22	0.13	0.03	13
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.2	<0.008	<0.008	0.02	0.05	0.01		<0.01			<0.01	0.02	0.08		<0.008	0.08	0.02	0.01	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<u>0.5</u>	<u>0.46</u>	<u>0.69</u>	<u>0.6</u>	<u>0.57</u>	<u>0.56</u>	<u>0.33</u>	<u>1.25</u>	<u>0.61</u>	<u>0.61</u>	<u>3.88</u>	<u>0.89</u>	<u>2.1</u>		0.33	3.88	1.00	0.61	13
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<u>0.3</u>	0.22	0.24	<u>0.47</u>	0.28	<u>0.32</u>	<u>0.41</u>	0.29	<u>0.38</u>	0.28	0.29	<u>0.32</u>	<u>0.39</u>		0.22	0.47	0.32	0.30	13
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<u>2.2</u>	<u>0.45</u>	<u>1.4</u>	<u>1.48</u>	<u>1.43</u>	<u>5.76</u>	<u>1.57</u>	<u>1.42</u>	<u>1.56</u>	<u>1.68</u>	<u>1.59</u>	<u>2.81</u>	<u>1.72</u>		0.45	5.76	1.93	1.57	13
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<u>0.32</u>	<u>0.42</u>	0.23	0.28	<u>0.44</u>	0.14	<u>0.53</u>	0.26		0.14	0.53	0.33	0.30	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<u>4.7</u>	<u>1.12</u>	<u>4.09</u>	<u>5.78</u>	<u>5.46</u>	<u>4.09</u>	<u>4.26</u>	<u>4.27</u>	<u>3.94</u>	<u>6.5</u>	<u>5.08</u>	<u>4.74</u>	<u>4</u>		1.12	6.50	4.46	4.27	13
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<u>2.9</u>	<u>1.19</u>	<u>1.95</u>	<u>1.9</u>	<u>2.76</u>	<u>2.14</u>	<u>1.4</u>	<u>1.77</u>	<u>2.36</u>	<u>4.66</u>	0.19	0.28	<u>1.19</u>		0.19	4.66	1.90	1.90	13
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<u>2</u>	<u>1.52</u>	<u>2.43</u>	<u>1.64</u>	0.08	0.06	0.02	0.11	0.03	0.01	0.11	<u>1.68</u>	0.01		0.01	2.43	0.75	0.11	13
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.2	<0.008	<0.008	0.02	0.04	0.03	0.04	<0.01	<0.01	0.05	0.05	0.02	0.01		<0.008	0.05	0.02	0.02	13
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.2	0.15	0.02	<u>0.84</u>	0.05	<u>0.96</u>	0.03	0.01	0.21	0.04	0.04	0.11	0.16		<0.2	0.96	0.20	0.05	13
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<u>1.2</u>	<u>1.19</u>	<u>0.7</u>	<u>1.43</u>	<u>0.76</u>	<u>3.12</u>	<u>1.49</u>	<u>2.67</u>	<u>3.86</u>	<u>5.76</u>	<u>1.94</u>	<u>1.8</u>	<u>1.9</u>		0.70	5.76	2.14	1.80	13

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	Min	Max	Avg	Median	Counts
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0.4	0.38	0.59	0.01	0.29	1.03	0.78	1.29	1.62	1.88	0.98	1.8	1.31		0.01	1.88	0.95	0.98	13
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0.6	0.54	0.28	0.47	0.62	0.29	0.58	0.66	0.46		0.48	0.4	0.44		0.28	0.66	0.49	0.48	12
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		1.71	0.45	3.94	3.7	5.77	3.95	2.59	2.76	5.01	3.34	3.09	3.1		0.45	5.77	3.28	3.22	12
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0.21	0.35	0.19	0.31	0.15	0.08	0.44	0.64		0.08	0.64	0.30	0.26	8
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						1.33	2.42	1.48	1.24	1.46	1.17	1.08	1.63		1.08	2.42	1.48	1.40	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				0.04	0.04	0.03	0.04	<0.01	<0.01	0.03	0.03	0.03	0.09		<0.01	0.09	0.03	0.03	10
AGQS-50	Mid	173	181	Opdc		Greenville Twp	1.9	1.55	2.18	2.02	1.8	3.09	2.2	1.59	2.37	2.38	2.36	1.78	2.32		1.55	3.09	2.12	2.18	13
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						1.3	1.34	1.09	1.08	1.26	1.18	0.87	1.01		0.87	1.34	1.14	1.14	8
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						0.09	3.99	8.89	3.1	2.73	3.26	7.42	19.6		0.09	19.60	6.14	3.63	8
AGQS-53	Deep	254	365	Opdc	11	Rosemount		1.69	1.38	2.84	2.32	2.32	4.51	1.86	1.54	1.52	5.07	1.8			1.38	5.07	2.44	1.86	11
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.2	<0.008	0.01		0.02	<0.01	0.11	0.05	0.02	0.01	0.03				<0.008	0.11	0.03	0.02	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0.15	0.02	0.13	0.01	0.12	0.03	0.01	0.18	0.04	<0.01	0.01	0.09		<0.01	0.18	0.07	0.04	12
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0.01	0.01	0.09	0.09	0.09	0.08	0.03	0.01	0.02	0.01	0.07	0.02		0.01	0.09	0.04	0.03	12
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.008	<0.008	<0.008	0.04	0.03	0.1	<0.01	0.03	0.04	<0.01	0.01	0.01		<0.008	0.10	0.02	0.01	12
AGQS-58	Shallow	60	65	Ucs		Greenville Twp						0.31	0.75	0.03	0.04	0.02	0.04	0.02	0.02		0.02	0.75	0.15	0.04	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.19	0.05	<0.01	0.09	0.08	<0.01	0.06	0.71		<0.01	0.71	0.15	0.07	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.01	<0.01	0.47				73.1			<0.01	73.10	18.39	0.24	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.07	0.06	0.04	0.05	0.04	0.1	0.05	0.02		0.02	0.10	0.05	0.05	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.39	0.04	0.01	0.03	0.14	0.05				0.01	0.39	0.11	0.05	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.01	0.03	<0.01	0.02	0.09	<0.01	0.3	0.09		<0.01	0.30	0.07	0.03	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.02	0.02	<0.01	0.02	<0.01	0.01	0.04	0.01		<0.01	<0.01	0.02	0.02	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.77	5.57	17.1	0.56	0.67	0.78	0.3	0.4		0.30	17.10	3.27	0.72	8
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.06	0.24	0.02		0.04	0.12	0.07	0.07		0.02	0.24	0.09	0.07	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.2	<0.008	<0.008	<0.008	0.02	<0.01	0.11	<0.01	0.05	<0.01	0.02	0.01	0.01		<0.008	0.11	0.02	0.00	13
AGQS-68	Mid	158	163	Ucs		Apple Valley							0.01	0.08	0.04	<0.01					<0.01	0.08	0.03	0.03	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.69	0.55					0.55	0.69	0.62	0.62	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		1.89	1.87												1.87	1.89	1.88	1.88	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0.04	<0.008												<0.008	<0.008	0.02	0.02	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		1.64	2.04												1.64	2.04	1.84	1.84	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												1.83	0.01		0.01	1.83	0.92	0.92	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											0.03	0.06	0.11		0.03	0.11	0.07	0.06	3
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												1.6	2.05		1.60	2.05	1.83	1.83	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.01	0.13		0.01	0.13	0.07	0.07	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													0.04		0.04	0.04	0.04	0.04	1
Muni-24	Deep	312	400	Cjdn		Hastings							0.06								0.06	0.06	0.06	0.06	1
Muni-25	Deep	277	356	Cjdn		Hastings							<0.01								<0.01	<0.01	0.00	0.00	1
Muni-26	Mid	240	332	Cjdn		Hastings							0.08								0.08	0.08	0.08	0.08	1
Muni-27	Mid	205	285	Cjdn		Hastings							0.03								0.03	0.03	0.03	0.03	1
Muni-28	Mid	208	299	Cjdn		Hastings							0.01								0.01	0.01	0.01	0.01	1

Shaded cells with underline result indicates iron greater than drinking water guideline of > 0.3 mg/L

Drinking Water Guideline = 0.3 mg/L (EPA SMCLs)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2005	2006	2007	2008	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.4	0.6	<0.2	0.6	0.7	<0.2	0.7	0.46	0.6	5
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.4	0.4	0.4	<0.2	0.5	<0.2	0.5	0.34	0.4	5
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	0.1	0.6	<0.2	0.9		<0.2	0.9	0.4	0.35	4
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	0.3	0.5	0.7	0.7	0.4	0.3	0.7	0.52	0.5	5
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	0.4	0.4	0.7			0.4	0.7	0.5	0.4	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.1	<0.1	<0.2	0.6	0.4	<0.1	0.6	0.22	0.1	5
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0.3	<0.1	0.3	<0.2		<0.1	0.3	0.15	0.15	4
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0.9	<0.1	0.4	<0.2	0.5	<0.1	0.9	0.36	0.4	5
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.4	0.6	0.3	0.4	0.7	0.3	0.6	0.45	0.4	5
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0.1	0.3	<0.2	<0.2	0.2	<0.2	0.3	0.12	0.1	5
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0.3	0.5	<0.2	0.6	0.4	<0.2	0.6	0.36	0.4	5
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.4	0.1	0.3	0.7	0.4	0.1	0.7	0.38	0.4	5
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	0.6	0.3	<0.2	<0.2	0.6	<0.2	0.6	0.3	0.3	5
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0.1	<0.1	<0.2	0.3	0.2	<0.1	0.3	0.12	0.1	5
AGQS-15	Mid	166	170	Ucs	5	Hastings	0.3	0.4	<0.2	0.6		<0.2	0.6	0.325	0.35	4
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.1	<0.1	<0.2	<0.2	0.2	<0.1	0.2	0.04	0	5
AGQS-17	Deep	276	280	Ucs	15	Rosemount	0.1	0.6	0.4	<0.2	0.5	<0.2	0.6	0.32	0.4	5
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.1	<0.1	<0.2	0.9	0.4	<0.1	0.9	0.26	0	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	0.1	0.3	<0.2	<0.2	0.4	<0.2	0.4	0.16	0.1	5
AGQS-20	Shallow	55	60	Ucs		Empire Twp	0.6	0.3	0.7	0.6		0.3	0.7	0.55	0.6	4
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.1	0.3	<0.2	<0.2	0.2	<0.1	0.3	0.1	0	5
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0.4	0.6	0.3	0.9	0.4	0.3	0.9	0.52	0.4	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0.4	0.2	0.3	0.4	0.4	0.2	0.4	0.34	0.4	5
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0.4	0.1	<0.2	<0.2		<0.2	0.4	0.125	0.05	4
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	0.4	<0.1	0.4	<0.2	0.4	<0.1	0.4	0.24	0.4	5
AGQS-26	Deep	342	360	Opdc		Lakeville	0.7	0.1	0.9	0.7	1	0.1	1	0.68	0.7	5
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.1	0.2	<0.2	<0.2	0.5	<0.1	0.5	0.14	0	5
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	0.1	0.1	<0.2	<0.2	0.4	<0.2	0.4	0.12	0.1	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	0.3	0.7	<0.2	<0.2	0.4	<0.2	0.7	0.28	0.3	5
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.4	0.3	0.7	<0.2	0.8	<0.2	0.8	0.44	0.4	5
AGQS-31	Mid	135	140	Ucs		Lakeville	2.3	2.2	2.6	2.3	2.8	2.2	2.8	2.44	2.3	5
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0.3	0.4	0.6	0.6	0.7	0.3	0.6	0.5	0.6	5
AGQS-33	Deep	260	280	Cjdn	8	Coates	0.4	0.2	<0.2	0.7	0.2	<0.2	0.7	0.3	0.2	5
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0.4	0.3	<0.2	0.3	0.5	<0.2	0.5	0.3	0.3	5
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.1	<0.1	<0.2	<0.2	0.2	<0.1	0.2	0.04	0	5
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0.1	0.2	<0.2	<0.2		<0.2	0.2	0.075	0.05	4
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.1	<0.1	<0.2	<0.2		<0.1	<0.2	<0.2	<0.2	4
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0.6	0.3	0.4	<0.2		<0.2	0.6	0.325	0.35	4
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.1	<0.1	<0.2	<0.2	0.4	<0.1	0.4	0.08	0	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0.3	0.3	<0.2	0.3	0.4	<0.2	0.4	0.26	0.3	5
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.1	0.2	<0.2	0.3	0.2	<0.1	0.3	0.14	0.2	5
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0.3	0.3	<0.2	0.7	0.3	<0.2	0.7	0.32	0.3	5

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2005	2006	2007	2008	2013	Min	Max	Avg	Median	Counts
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0.1	0.3	<0.2	<0.2		<0.2	0.3	0.1	0.05	4
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.1	<0.1	<0.2	<0.2	0.5	<0.1	0.5	0.1	0	5
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.1	<0.1	<0.2		0.2	<0.1	0.2	0.05	0	4
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.1	0.1	<0.2	<0.2	0.4	<0.1	0.4	0.1	0	5
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	0.6	0.3	0.3	<0.2	0.3	<0.2	0.6	0.3	0.3	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	0.3	0.3	0.3	<0.2		<0.2	0.3	0.225	0.3	4
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.1	0.2	0.4	0.9		<0.1	0.9	0.375	0.3	4
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0.7	0.8	0.4	0.4	0.5	0.4	0.8	0.56	0.5	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	0.7	0.2	<0.2	<0.2	0.5	<0.2	0.7	0.28	0.2	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	0.7	<0.1	<0.2	0.6	0.6	<0.1	0.7	0.38	0.6	5
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.1	0.4	<0.2	<0.2		<0.1	0.4	0.1	0	4
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.6	0.4	0.6	<0.2	0.2	<0.2	0.6	0.36	0.4	5
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.1	0.4	0.4	0.9	0.2	0.1	0.9	0.4	0.4	5
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0.3	0.1	0.3	0.6	0.4	0.1	0.6	0.34	0.3	5
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.3	0.1	<0.2	0.4	0.5	<0.2	0.5	0.26	0.3	5
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	0.9	0.6	0.4	0.3	0.4	0.3	0.9	0.52	0.4	5
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	0.6	0.3	0.7	0.6		0.3	0.7	0.55	0.6	4
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	0.7	0.4				0.4	0.7	0.55	0.55	2
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.1	<0.1	<0.2	<0.2	0.2	<0.1	0.2	0.04	0	5
AGQS-62	Mid	145	149	Ucs		Marshan Twp	0.6	0.5	0.6	0.6		0.5	0.6	0.575	0.6	4
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0.4	0.5	0.7	0.9	0.2	0.2	0.9	0.54	0.5	5
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	0.7	0.1	0.6	0.6	0.8	0.1	0.8	0.56	0.6	5
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.1	<0.1	<0.2	0.4	0.4	<0.1	0.4	0.16	0	5
AGQS-66	Shallow	75	80	Ucs	8	Coates	0.9	0.6	0.4	0.4		0.4	0.9	0.575	0.5	4
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0.6	0.4	<0.2	0.7	0.4	<0.2	0.7	0.42	0.4	5
AGQS-68	Mid	158	163	Ucs		Apple Valley	0.4	0.2	<0.2	<0.2		<0.2	0.4	0.15	0.1	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp			1.3	0.4		0.4	1.3	0.85	0.85	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					0.2	0.2	0.2	0.2	0.2	1
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					0.5	0.5	0.5	0.5	0.5	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					0.2	0.2	0.2	0.2	0.2	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					0.4	0.4	0.4	0.4	0.4	1
Muni-24	Deep	312	400	Cjdn		Hastings	0.1					0.1	0.1	0.1	0.1	1
Muni-25	Deep	277	356	Cjdn		Hastings	0.6					0.6	0.6	0.6	0.6	1
Muni-26	Mid	240	332	Cjdn		Hastings	0.4					0.4	0.4	0.4	0.4	1
Muni-27	Mid	205	285	Cjdn		Hastings	0.3					0.3	0.3	0.3	0.3	1
Muni-28	Mid	208	299	Cjdn		Hastings	0.3					0.3	0.3	0.3	0.3	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	31	32.3	31.4	31.7	27.1	27.5	27.1	28.9	26.9	26.7	29.8	40.25	38.8	26.7	40.3	30.7	29.8	13
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	33	25.8	27.8	27.2	25.3	25.8	27.2	26.6	28.8	29.4	28.7	28.82	31.9	25.3	33.0	28.2	27.8	13
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						28.3	28.9	31.4	31.1	31.5	32.7			28.3	32.7	30.7	31.3	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				33.6	32.6	31.8	33.6	35.8	33.5	32.9	34.5	39.04	38.3	31.8	39.0	34.6	33.6	10
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						32.2	32.4	34.4	33.3					32.2	34.4	33.1	32.9	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	31	27.6	30.7	30.2	29.1	29.8	29.4	31.8	29.4	29.4	30.6	34.05	37.2	27.6	37.2	30.8	30.2	13
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	27	24.5	27.2	27	26	27.2	27.3	27.5	28.3	25.4	28.5	32.49	32.3	24.5	32.5	27.7	27.2	13
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	41	26.7	28.7	28.9	27.3	29	29.9	30.2	29.2	27.3	30.6	33.67	31.8	26.7	41.0	30.3	29.2	13
AGQS-09	Mid	140	185	Opdc	16	Rosemount	31	27.6	31.9	31.6	30	30.6	27.6	28.5	30.3	30.6	30.9	36.55	33.4	27.6	36.6	30.8	30.6	13
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	40	39	26.7	43	42	42.9	44.5	42.3	44.8	43.1	44.4	46.75	54.7	26.7	54.7	42.6	43.0	13
AGQS-11	Deep	265	280	Cjdn	5	Hastings	18	15.5	18.3	18.1	17.3	16.4	17.2	17.8	17.9	17.7	17.2	20.17	19.9	15.5	20.2	17.8	17.8	13
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	29	27.5	29.8	29	28.7	30	28.7	29.4	29	28.8	30.2	34.03	35.6	27.5	35.6	30.0	29.0	13
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		22.7	26.6	26.7	27.2	27.4	29.7	26.4	28.9	29.4	31.2	29.95	32.8	22.7	32.8	28.2	28.2	12
AGQS-14	Deep	385	415	Cjdn	2	Hampton	39	28.7	32.4	31.6	30.1	30.7	30.4	32.9	32.8	31	33	31.84	35.4	28.7	39.0	32.3	31.8	13
AGQS-15	Mid	166	170	Ucs	5	Hastings						18.6	18.4	19.7	19.4	19.5	19.8	21.61		18.4	21.6	19.6	19.5	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		15.1	18.4	18.7	18.6	18.3	17.9	19.5	17.5	19	19.42	22.5	15.1	22.5	18.5	18.5	12	
AGQS-17	Deep	276	280	Ucs	15	Rosemount						30.8	31.8	31.4	33.8	31.6	31.9	35.47	36.1	30.8	36.1	32.9	31.9	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount	31	25.7	27.9	27.7	27	26.6	26.7	28.4	26	28.2	26.9	33.83	31.2	25.7	33.8	28.2	27.7	13
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						27.1	26.8	27	27.5	27.6	29	31.78	33.5	26.8	33.5	28.8	27.6	8
AGQS-20	Shallow	55	60	Ucs		Empire Twp						20.7	15.4	24.7	26.3	23.2	36.1	39.31	33.5	15.4	39.3	27.4	25.5	8
AGQS-21	Mid	133	137	Ucs		Burnsville						36.5	34.5	34.9	38.9	34.8	33.8	41.4	40.8	33.8	41.4	37.0	35.7	8
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	45	25.7	29.3	29.4	27.2	28.4	24.8	27.8	30.8	29.8	29.5	33.91	34.7	24.8	45.0	30.5	29.4	13
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						27	28.4	28.2	28.4	28.2	27.4	30.67	30.2	27.0	30.7	28.6	28.3	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	20	17.2	18.6	18.1	18.5	18.8	18.2	20	18.9	18.6	19.2	17.65		17.2	20.0	18.6	18.6	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		25.5	29.4	29.2	28.5	29.4	26.9	29	29.8	29.6	31.4	33.02	31.3	25.5	33.0	29.4	29.4	12
AGQS-26	Deep	342	360	Opdc		Lakeville						28.3	29		29.3	27.9		34.91	34.2	27.9	34.9	30.6	29.2	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount						27.3	28	29.8	28.6	29.3	27.8	32.61	32.6	27.3	32.6	29.5	29.0	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		23.6	26	26.4	25.5	25.1	24.5	25.9	26.2	24.1	25.7	31.54	27.9	23.6	31.5	26.0	25.8	12
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		19.4	20.7	20.6	20.1	20.9	20.1	21.3	21.4	20.9	23.2	19.43	24.5	19.4	24.5	21.0	20.8	12
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	21	17.7	21.8	20.8	20.1	19	19.9	23.1	20.8	21.8	19.8	20.19	22.1	17.7	23.1	20.6	20.8	13
AGQS-31	Mid	135	140	Ucs		Lakeville						31.2	30.1	32.6	31.9	31.3	31.9	34.82	31.4	30.1	34.8	31.9	31.7	8
AGQS-32	Mid	179	218	Opdc	15	Rosemount	36	26.1	29.4	30.5	31.6	29.8	27.6	29.8	31.7	29.7	28.2	35.12	32.5	26.1	36.0	30.6	29.8	13
AGQS-33	Deep	260	280	Cjdn	8	Coates	27	24.9	26.8	26.2	25.7	26.2		27.1			27.3	27.8	30.5	24.9	30.5	27.0	26.9	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	26	25.2	26.8	27.2	26.8	26.3	25.3	25.6	27.6	26.6	27.1	28.2	33.2	25.2	33.2	27.1	26.8	13
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	23	19.5	21.6	21.4	19.9	20.5	20.5	20.1	21.6	21.1	21.6	22.89	25.5	19.5	25.5	21.5	21.4	13
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	48	23.5	29.4	29.2	27.5	28.6	28	27	30.2	29.6	29.7	28.51	33	23.5	48.0	30.2	29.2	13
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						23.5	23.4	23.6	22.2	21.4	23.1	27.83	27.6	21.4	27.8	24.1	23.5	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	37	26.9	28.4	28.1	25.9	26.5	28	27.5	26.7	27.5	27.9	26.28	29.7	25.9	37.0	28.2	27.5	13
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	24	20.4	21.1	21.6	20.3	21.6	21.1	20.5	21.2	21	21.7	30.72	26.6	20.3	30.7	22.4	21.2	13
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	34	25.7	31	30.9	29.2	29.3	31.4	29.2	30	30.4	30.1	27.93	36.2	25.7	36.2	30.4	30.1	13
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	28	24	27.2	26.6	25.3	24.9	25.6	24.2	26	25.7	25.3	26.65	29.7	24.0	29.7	26.1	25.7	13
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	35	22.4	25.4	17.2	24.8	23.8	24.7	27.9	26.2	25.1	24.9	32.48	29	17.2	35.0	26.1	25.1	13
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	45	26.5	26.7	27.4	26	26.7	26.7	24.9	26.2	23.7	26.2	27.56	29.6	23.7	45.0	27.9	26.7	13
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	18	14.7	18.1	25.2	17.3	15.9	16.5	17.9	17.4	16.7	17.8	22.95	19.7	14.7	25.2	18.3	17.8	13

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	Min	Max	Avg	Median	Counts
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	21	18.1	19.8	20	19.3	18.9	20.4	19.4	20.5		20.8	21.39	24.1	18.1	24.1	20.3	20.2	12
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		22.1	24.2	24.8	24.5	23.8	23.3	23.5	25.4	23.7	24.2	22.89	28.5	22.1	28.5	24.2	24.0	12
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						29.2	30.4	30.5	31.4	30.8	31.2	34.49	36.7	29.2	36.7	31.8	31.0	8
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						21.9	21.9	23.6	22.8	21.7	22.2	23.67	25.4	21.7	25.4	22.9	22.5	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				25.4	26.3	25.1	26	29.9	28	27.7	29	30.78		25.1	30.8	27.6	27.7	9
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	26	29.9	26.3	24.9	24.4	24.4	25.7	26.4	26.4	25.2	25.5	23.81	27.9	23.8	29.9	25.9	25.7	13
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						25.4	25.1	24.4	25.1	25.2	26.3	28.59	28.9	24.4	28.9	26.1	25.3	8
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						27.3	26.2	30.6	25	28.9	35.8	29.25	24.3	24.3	35.8	28.4	28.1	8
AGQS-53	Deep	254	365	Opdc	11	Rosemount		29.9	30.4	30.4	28.6	29	26.9	30.1	28.7	27.6	30.5	30.41		26.9	30.5	29.3	29.9	11
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	26	23.2	26.6		27.1	27.4	26.6	30.4	28.4	28	27.7			23.2	30.4	27.1	27.3	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		31.7	32.6	32.2	32.1	31.3	31	33.6	32	32.1	32.1	35.8	35.2	31.0	35.8	32.6	32.1	12
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		14	17.2	16.7	15.3	15.3	15.2	16.8	19.7	18.3	14.6	21.22	21.8	14.0	21.8	17.2	16.8	12
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		22	25.5	26.8	23.9	23.1	25	21.4	25.2	32.2	22.3	37.87	29.7	21.4	37.9	26.2	25.1	12
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						34	35.2	36	35	35.2	36.4	34.35	39.3	34.0	39.3	35.7	35.2	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						19.9	19.2	20.4	20.1	19.7	19.2	21.15	22.4	19.2	22.4	20.3	20.0	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						25.6	27.2	30.6			17			17.0	30.6	25.1	26.4	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						32.4	33.9	35.3	33.8	32.9	34.9	39.08	39	32.4	39.1	35.2	34.4	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						29.3	28.4	29.4	28.5	27.6	29.1			27.6	29.4	28.7	28.8	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						27.7	28.3	30.5	28.9	27.3	29.8	30.45	33	27.3	33.0	29.5	29.4	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						27	28.2	31.7	33.5	30.7	29.4	31.66	38.3	27.0	38.3	31.3	31.2	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						21.6	23.5	26.4	21.1	22.8	22	22.37	23.6	21.1	26.4	22.9	22.6	8
AGQS-66	Shallow	75	80	Ucs	8	Coates						36.4	35.3	34		42	40.7	37.57	39.1	34.0	42.0	37.9	37.6	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	30	32.6	37.6	38.3	35	35.3	34.5	34.4	33.2	36.6	35.7	40.93	38.9	30.0	40.9	35.6	35.3	13
AGQS-68	Mid	158	163	Ucs		Apple Valley							36.1	37.1	35.4	36.4				35.4	37.1	36.3	36.3	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									34.4	26.3				26.3	34.4	30.4	30.4	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		22	23.6											22.0	23.6	22.8	22.8	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		25.5	28.6											25.5	28.6	27.1	27.1	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		24.6	26.6											24.6	26.6	25.6	25.6	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												20.73	41	20.7	41.0	30.9	30.9	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											32.6	34.61	35	32.6	35.0	34.1	34.6	3
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												18.39	24.3	18.4	24.3	21.3	21.3	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												29.21	27.3	27.3	29.2	28.3	28.3	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													30.3	30.3	30.3	30.3	30.3	1
Muni-24	Deep	312	400	Cjdn		Hastings							26.3							26.3	26.3	26.3	26.3	1
Muni-25	Deep	277	356	Cjdn		Hastings							33.2							33.2	33.2	33.2	33.2	1
Muni-26	Mid	240	332	Cjdn		Hastings							24.8							24.8	24.8	24.8	24.8	1
Muni-27	Mid	205	285	Cjdn		Hastings							25.6							25.6	25.6	25.6	25.6	1
Muni-28	Mid	208	299	Cjdn		Hastings							27.1							27.1	27.1	27.1	27.1	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2005	2006	2007	2008	2009	2011	2013	2014	2015	2017	2018	2019	Min	Max	Avg	Median	Trend	Counts	
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.240	<0.005	<0.005	<0.005	<0.005	0.030	<0.005				<0.005		<0.005	0.240	0.034	<0.005	None	8	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.030	<0.005						<0.005	0.030	0.004	<0.005	None	7	
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	0.070	<0.005	<0.005	<0.005	<0.005								<0.005	0.070	0.014	<0.005	None	5	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	0.007	0.006	<0.005	<0.005	<0.005	0.030	<0.005						<0.005	0.030	0.006	<0.005	None	7	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	0.010	<0.005	<0.005										<0.005	0.010	0.003	<0.005	None	3	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.050	0.040	0.050	0.050	0.030	0.040	0.010						0.010	0.050	0.039	0.040	None	7	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0.100	0.100	0.090	0.080	0.090	0.100	0.090				0.095		0.080	0.100	0.093	0.093	None	8	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0.020	0.020	0.020	0.020	0.020	0.040	0.020						0.020	0.040	0.023	0.020	None	7	
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.070	<0.005	<0.005	0.006	<0.005	0.020	<0.005						<0.005	0.070	0.014	<0.005	None	7	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0.650	0.580	0.660	0.650	0.640	0.450	0.680				0.559		0.450	0.680	0.609	0.645	None	8	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.005	<0.005	<0.005	<0.005	<0.005	0.030	0.006						<0.005	0.030	0.005	<0.005	None	7	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	<0.005						<0.005	0.010	0.001	<0.005	None	7	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	0.180	0.240	0.260	0.270	0.260	0.260	0.200				0.191		0.180	0.270	0.233	0.250	None	8	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0.007	0.060	0.090	0.040	0.030	0.060	0.020						0.007	0.090	0.044	0.040	None	7	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.005	<0.005	<0.005	<0.005	<0.005	0.020							<0.005	0.020	0.003	<0.005	None	6	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	0.010	0.010	0.010	0.010	0.080	0.020	0.010						0.010	0.080	0.021	0.010	None	7	
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.005	0.010	0.010	0.007	<0.005	0.020	<0.005	0.008					<0.005	0.020	0.007	0.008	None	8	
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0.120	0.100	0.120	0.120	0.110	0.140	0.110				0.123		0.100	0.140	0.118	0.120	None	8	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	0.800	0.780	0.780	0.800	0.830	0.170	0.840			0.835		0.791		0.170	0.840	0.736	0.800	None	9
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.040	<0.005						<0.005	0.040	0.006	<0.005	None	7	
AGQS-21	Mid	133	137	Ucs		Burnsville	0.010	<0.005	0.007	0.020	0.030	0.030	0.020						<0.005	0.030	0.017	0.020	None	7	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0.190	0.170	0.200	0.180	0.180	0.430	0.170				0.185		0.170	0.430	0.213	0.183	None	8	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.005	<0.005	<0.005	<0.005	<0.005	0.030	<0.005		<0.005				<0.005	0.030	0.004	<0.005	None	8	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0.060	0.050	0.070	0.060	0.070	0.080							0.050	0.080	0.055	0.065	None	6	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.005	<0.005	0.020	<0.005	<0.005	0.070	0.350				<0.005		<0.005	0.350	0.055	<0.005	None	8	
AGQS-26	Deep	342	360	Opdc		Lakeville	0.030	<0.005	0.040	0.040	<0.005	0.060	0.040						<0.005	0.060	0.030	0.040	None	7	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	0.400	0.410	0.410	0.350	0.320	0.360	0.320	0.422			0.460		0.320	0.460	0.384	0.400	None	9	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	0.040	0.050	0.040	0.040	0.030	0.070	0.040						0.030	0.070	0.044	0.040	None	7	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	0.060	0.060	0.060	0.070	0.070	0.090	0.060						0.060	0.090	0.067	0.060	None	7	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.005	<0.005	0.006	<0.005	<0.005	0.020	0.005						<0.005	0.020	0.004	<0.005	None	7	
AGQS-31	Mid	135	140	Ucs		Lakeville	<0.005	0.220	0.240	0.250	0.240	0.260	0.210				0.240		<0.005	0.260	0.208	0.240	None	8	
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.005	<0.005	<0.005	<0.005	0.005	0.020	<0.005	<0.005		<0.005			<0.005	0.020	0.003	<0.005	None	9	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.005	<0.005	<0.005	<0.005	<0.005	0.020	<0.005				0.013		<0.005	0.020	0.004	<0.005	None	8	
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0.050	0.040	0.060	0.050	0.100	0.060	0.080				0.074		0.040	0.100	0.064	0.060	Up	8	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0.030	0.020	0.030	0.030	0.030	0.040	0.030						0.020	0.040	0.030	0.030	None	7	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0.660	0.630	0.650	0.680	0.690	0.630	0.630				0.681		0.630	0.690	0.656	0.655	None	8	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	0.210	0.200	0.210	0.220	0.210	0.240	0.220				0.241		0.200	0.241	0.219	0.215	None	8	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0.080	0.080	0.090	0.150	0.110	0.150	0.090				0.054		0.054	0.150	0.101	0.090	None	8	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0.020	0.020	0.020	0.050	0.010	0.030	0.020						0.010	0.050	0.024	0.020	None	7	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0.090	0.060	0.070	0.070	0.060	0.070	0.050						0.050	0.090	0.067	0.070	None	7	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0.008	<0.005	<0.005	0.006	0.006	0.020	<0.005						<0.005	0.020	0.006	0.006	None	7	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.005	<0.005	0.006	<0.005	<0.005	0.020	<0.005						<0.005	0.020	0.004	<0.005	None	7	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0.560	0.550	0.570	0.520	0.570	0.560	0.560				0.566		0.520	0.570	0.557	0.560	None	8	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0.020	0.020	0.020	0.030	0.020	0.050	0.030						0.020	0.050	0.027	0.020	None	7	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0.050	0.050	0.050		0.050	0.070	0.050						0.050	0.070	0.053	0.050	None	6	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	0.240	0.230	0.230	0.250	0.240	0.250	0.230				0.243		0.230	0.250	0.239	0.240	None	8	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	0.170	0.170	0.170	0.180	0.170	0.210	0.170				0.187		0.170	0.210	0.178	0.170	None	8	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	0.060	0.050	0.040	0.050	0.040	0.060	0.040						0.040	0.060	0.049	0.050	None	7	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.020							<0.005	0.020	0.003	<0.005	None	6	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0.020	0.020	0.020	0.020	0.020	0.050	0.020					0.021	0.020	0.050	0.024	0.020	None	8	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	0.750	0.700	0.740	0.800	0.790	0.540	0.610				1.000		0.540	1.000	0.741	0.745	None	8	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	0.340	0.270	0.320	0.140	0.350	0.560	0.720				0.140		0.140	0.720	0.355	0.330	Peaking	8	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2005	2006	2007	2008	2009	2011	2013	2014	2015	2017	2018	2019	Min	Max	Avg	Median	Trend	Counts		
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<u>0.300</u>	<u>0.290</u>	<u>0.290</u>	<u>0.280</u>	<u>0.420</u>	<u>0.270</u>							0.270	0.420	0.308	0.290	None	6		
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.006							<0.005	0.006	0.001	<0.005	None	6		
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.010	<0.005	<0.005	<0.005	<0.005	0.020	<0.005						<0.005	0.020	0.004	<0.005	None	7		
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.020	<0.005						<0.005	0.020	0.003	<0.005	None	7		
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.030	<0.005						<0.005	0.030	0.004	<0.005	None	7		
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<u>0.800</u>	<u>0.770</u>	<u>0.790</u>	<u>0.840</u>	<u>0.830</u>	<u>0.830</u>	<u>0.810</u>						0.770	0.840	0.810	0.810	None	7		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.005	<0.005	0.005	<0.005	<0.005	0.040	0.010						<0.005	0.040	0.008	<0.005	None	7		
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	0.080	<u>1.010</u>			<u>1.500</u>								0.080	1.500	0.863	1.010	None	3		
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.030	0.020	0.020	0.020	0.030	0.060	0.040						0.020	0.060	0.031	0.030	Up	7		
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.005	<0.005	<0.005	<0.005	<0.005								<0.005	<0.005	<0.005	<0.005	None	5		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.005	<0.005	<0.005	<0.005	<0.005	0.020	<0.005						<0.005	0.020	0.003	<0.005	None	7		
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<u>0.420</u>	<u>0.460</u>	<u>0.490</u>	<u>0.490</u>	<u>0.430</u>	<u>0.440</u>	<u>0.330</u>					<u>0.327</u>	0.490	0.423	0.435	None	8			
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<u>0.140</u>	<u>0.180</u>	0.090	<u>0.130</u>	<u>0.170</u>	0.060	0.090					<u>0.103</u>	0.060	0.180	0.120	0.117	None	8		
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.005	<0.005	<0.005	<0.005	<0.005	0.030	<0.005						<0.005	0.030	0.004	<0.005	None	7		
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.005	0.030	<0.005	<0.005	<0.005	0.030	<0.005						<0.005	0.030	0.009	<0.005	None	7		
AGQS-68	Mid	158	163	Ucs		Apple Valley	<0.005	<0.005	<0.005	<0.005									<0.005	<0.005	<0.005	<0.005	<0.005	4		
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp			0.070	0.030									0.030	0.070	0.050	0.050	None	2		
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp						0.020	<0.005				<0.005		<0.005	0.020	0.007	<0.005	None	3		
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.005	0.010	<0.005						<0.005	0.010	0.003	<0.005	None	3		
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp						0.070	0.050						0.050	0.070	0.060	0.060	None	2		
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp						0.030	<0.005				<0.005		<0.005	0.030	0.010	<0.005	None	3		
AGQS-82	Mid	167	175	Ucs		Ravenna Twp							<0.005	<0.005					<0.005	<0.005	<0.005	<0.005	<0.005	2		
Muni-24	Deep	312	400	Cjdn		Hastings	0.020												0.020	0.020	0.020	0.020	None	1		
Muni-25	Deep	277	356	Cjdn		Hastings	<0.005												<0.005	<0.005	<0.005	<0.005	None	1		
Muni-26	Mid	240	332	Cjdn		Hastings	0.020												0.020	0.020	0.020	0.020	None	1		
Muni-27	Mid	205	285	Cjdn		Hastings	<0.005												<0.005	<0.005	<0.005	<0.005	None	1		
Muni-28	Mid	208	299	Cjdn		Hastings	<0.005												<0.005	<0.005	<0.005	<0.005	None	1		
Shaded cells with underline result indicates manganese greater than the drinking water guideline of > 0.100 mg/L							Shaded cells in red text indicates manganese greater than the drinking water guideline of > 0.300 mg/L																			

Drinking Water Guideline = 0.100 mg/L (MDH HRL₃₃ and HBV₁₈)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015	2017	2018	2019	Min	Max	Avg	Median	Trend	Counts			
AGQS-01	Shallow	100	197	Opdc	8	Coates	9.7	9.4	9.64	9.55	9.73	10.3	9.64	9.44	8.9	9.37	9.64	10.3						11.5	11.52	8.90	11.52	10.00	9.64	up	15			
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	5.2	4.57	5.35	5	5.91	4.42	4.35	4.3	3.81	4.51	3.29	4.1						6.42	7.14	3.29	7.14	4.94	4.57	0.25 to <5	15			
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						8.82	8.85	9.37	10.8	9.97	10.2							10.2		8.82	10.80	9.67	9.67	up	6			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				22.1	22.6	26.4	24.9	23.7	24.8	23.9	22.6							22.3	22.55	21.20	26.40	23.23	22.60	>=10	12			
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						30.6	26.5	24.7	26.2			20.6						25.9		20.60	30.60	25.75	26.05	>=10	6			
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	4.3	3.71	3.73	4.96	7.42	7.01	4.83	6.4	5.31	5.1	7.16	5.8						7.16	7.03	5.59	3.71	7.42	5.67	5.59	5 to <10	15		
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	0.05	0.50	0.20	0.20	<0.2	15			
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	2.5	2.33	2.61	3.18	2.89	2.98	3.23	3.41	3.23	3.2	3.15	3.1						2.08	1.9	1.90	3.41	2.85	2.98	0.25 to <5	15			
AGQS-09	Mid	140	185	Opdc	16	Rosemount	9.3	7.33	8.23		7.11	9.53	9.1	7.74	8.58	9.98	9.91	8.1						9.91	10.8	11.06	7.11	11.06	9.11	9.20	5 to <10	14		
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	0.05	0.50	0.20	0.20	<0.2	15			
AGQS-11	Deep	265	280	Cjdn	5	Hastings	3.8	3.73	3.86	3.94	4.09	4.28	4.25	4.27	4.51	4.14	4.24	4.3						4.3	4.53	3.73	4.53	4.18	4.25	up	15			
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	13	12.5	12.3	13.9	15.2	16.9	14.8	15.2	15.9	14.9	15.5	15.7						15.5	15.9	16.32	12.30	16.90	14.90	15.20	up	15		
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05		0.05	0.20	0.17	0.20	<0.2	13			
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.5	<0.2	<0.2	0.24	0.23	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						0.47	0.26	0.10	0.50	0.23	0.2	<0.2	15			
AGQS-15	Mid	166	170	Ucs	5	Hastings						9.62	10.1	10.4	10.8	10.1	10.3	12.2								9.62	12.20	10.50	10.30	up	7			
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.93	0.76	1.12	1.41	1.17	0.96	0.93	0.59	0.33	0.37	0.2								0.20	1.41	0.76	0.85	up	12			
AGQS-17	Deep	276	280	Ucs	15	Rosemount						4.21	5.11	5.06	5.65	5.06	5.04	5							5.04	5.07						11		
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	<0.05	<0.25	<0.05	<0.25	<0.2	15			
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1				<0.25		0.11	<0.25	0.10	0.25	0.18	0.2	<0.2	11			
AGQS-20	Shallow	55	60	Ucs		Empire Twp						1.27	1.63	2.23	2.43	4.04	7.31	4.9							5.48	4.26	1.27	7.31	3.68	3.62	up	10		
AGQS-21	Mid	133	137	Ucs		Burnsville						0.97	0.69	1.06	0.96	0.65	0.34	0.7							0.92	0.08	0.08	1.06	0.66	0.70	0.25 to <5	10		
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05		<0.05	<0.5			<0.2	14			
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						5.46	4.61	3.56	2.58	2.05	1.31	1.1							2.48	3.13	0.90	5.46	2.55	2.48	0.25 to <5	11		
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.1	<0.1						<0.2		<0.1	<0.5			<0.2	12			
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		4.74	4.89	6.1	4.57	5.52	2.88	2.29	4.6	4.64	6.27	1.6							1.99	1.12	0.50	6.27	3.69	4.59	down	14		
AGQS-26	Deep	342	360	Opdc		Lakeville						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.2		0.06	<0.25	<0.1	0.06		<0.2	10		
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.2	<0.2	0.46	<0.25	0.46		<0.2	11			
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	<0.05	<0.25			<0.2	14			
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	<0.05	<0.25			<0.2	14			
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	9.3	8.71	9.25	10.6	10.1	<0.2	10.6	10.4	12.3	11.1	10.7	11.5							12	11.59	8.71	12.30	10.72	10.65	up	14		
AGQS-31	Mid	135	140	Ucs		Lakeville						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							0.09	<0.25	0.09	0.25	0.17	0.2	<0.2	10		
AGQS-32	Mid	179	218	Opdc	15	Rosemount	6.1	6.27	6.69	7.22	8.28	7.97	8.59	8.57	9.24	8.33	8.17	7.9						8.17	8.58	8.26	7.38	7.46	6.10	9.24	7.81	7.97	5 to <10	17
AGQS-33	Deep	260	280	Cjdn	8	Coates	7.9	6.58	7.32	7.1	8.02	7.96	8.3	8.23	8.99	8.34	8.18	8.9							8.18	11.1	9.99	10.58	6.58	11.10	8.57	8.27	up	16
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	<0.25	<0.05	<0.25			<0.2	15		
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	<0.25	<0.05	<0.25			<0.2	15		
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	<0.05	<0.25			<0.2	15			
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	<0.05	<0.25			<0.2	10			
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							0.06	<0.25	<0.1	0.06			<0.2	15		
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	<0.25	<0.05	<0.25			<0.2	15		
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	0.01	<0.05	0.01			<0.2	15		
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	1.2	0.9	1.1	0.76	1.25	0.7	0.57	0.67	0.97	0.2	0.65	1							0.55	0.81	<0.2	1.25			0.25 to <5	15		
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	9.2	7.71	7.95	8.55	8.29	9.35	9.5	10.3	10.3	9.11	9.02	12.2							14.4	11.9	11.03	7.71	14.40	10.06	9.43	up	16	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	<0.25	<0.05	<0.25			<0.2	15		
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	<0.25	<0.05	<0.25			<0.2	15		
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	0.4								<0.25	<0.1	0.4			<0.2	13		
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1							<0.05	<0.25	<0.05	<0.25			<0.2	14		
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1						<0.05	<0.25	<0.05	<0.25							

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2017	2018	2019	Min	Max	Avg	Median	Trend	Counts		
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1								<0.1	<0.2			<0.2	8			
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						9.24	8.38	9.1	8.96	8.76	7.14	8.7			7.14				7.55	7.5	7.00	9.24	8.23	8.54	down	10		
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						27.5	27.3	22.4			3.91				3.91						3.91	27.50	20.28	24.85	SS	4		
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.43	0.45	0.47	0.4	0.3	0.38	0.1						0.18	0.05	0.05	0.47	0.30	0.34	down	10			
AGQS-62	Mid	145	149	Ucs		Marshan Twp						20.7	22.2	19.5	21.5	18.8	19										18.80	22.20	20.28	20.10	>=10	6		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						18.1	19.3	18.6	20.2	18.7	17.9	18.7			17.9				17.9	19.56	17.90	20.20	18.91	18.70	>=10	10		
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						1.71	2.51	1.89	3.4	3.28	0.65	11.7			0.65				1.18	5.96	0.65	11.70	3.93	2.90	0.25 to <5	10		
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1			<0.2				<0.05	<0.25	<0.05	<0.25			<0.2	10		
AGQS-66	Shallow	75	80	Ucs	8	Coates						13.9	11.9	10.8	8.73	14.4	13	12.4			13				11	9.96	8.73	14.40	11.83	12.05	>=10	10		
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	6.9	5.91	5.75	6.48	7.09	7.37	6.78	7.32	7.74	6.88	8.09	6.3		8.09					6.8	6.54	5.75	8.09	6.84	6.80	5 to <10	15		
AGQS-68	Mid	158	163	Ucs		Apple Valley							2.37	2.61	2.45	2.75											2.37	2.75	2.55	2.53	SS	4		
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									14.5	8.56											8.56	14.50	11.53	11.53	SS	2		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.2	<0.2																		0.2	0.2	0.2	0.2	SS	2		
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		1.56	1.32																		1.32	1.56	1.44	1.44	SS	2		
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.2	<0.2																		0.2	0.2	0.2	0.2	SS	2		
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												17.9								18.4	17.1	17.62	17.10	19.10	18.02	17.90	>=10	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											17	16.6			17				17.3	17	19.6	16.60	19.60	17.82	17.15		6	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.1							<0.05	<0.05	<0.25	<0.05	<0.25			<0.2	5	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												11.2						7.7	8.01	8.92	7.70	11.20	8.81	8.20	5 to <10	5		
AGQS-82	Mid	167	175	Ucs		Ravenna Twp																			18.1	20.15	18.10	20.80	19.39	19.33	SS	4		
Muni-01	Deep	406	500	Cjdn		Eagan						<0.2									<0.05						0.05	0.2			SS	2		
Muni-02	Deep	258	356	Cjdn		Randolph						<0.2															0.2	0.2			SS	1		
Muni-03	Deep	355	457	Cjdn		Empire						<0.2														<0.05	0.05	0.2			SS	2		
Muni-04	Deep	322	401	Cjdn		South St Paul						<0.2										<0.05					0.05	0.2			SS	2		
Muni-05	Mid	132	424	OpCj		Farmington						<0.2															0.05	0.2			SS	2		
Muni-06	Mid	248	302	Cjdn		Hampton						1.16															1.16	1.7	1.43			SS	2	
Muni-07	Mid	218	298	Cjdn		Burnsville						<0.2															0.05	0.2			SS	2		
Muni-08	Deep	340	410	Cjdn		Empire						<0.2														<0.05	0.05	0.2			SS	2		
Muni-09	Deep	580	680	Cjdn		New Trier						<0.2															0.05	0.2			SS	2		
Muni-10	Deep	434	517	Cjdn		Lakeville						<0.2															0.05	0.2			SS	2		
Muni-11	Mid	240	342	OpCj		South St Paul						2.9															2.8	2.9	2.85			SS	2	
Muni-12	Deep	388	471	Cjdn		Rosemount						<0.2																0.2	0.2			SS	1	
Muni-13	Deep	392	477	Cjdn		Farmington						<0.2														<0.05	0.05	0.2			SS	2		
Muni-14	Deep	420	516	Cjdn		Apple Valley						0.5															0.5	0.89	0.70			SS	2	
Muni-15	Deep	345	400	Cjdn		Rosemount						0.31															0.77	0.31	0.77	0.54		SS	2	
Muni-16	Deep	345	400	Cjdn		Rosemount						4.26															4.4	4.26	4.4	4.33		SS	2	
Muni-17	Deep	389	498	Cjdn		Rosemount						<0.2														<0.05	<0.05	<0.2			SS	2		
Muni-18	Deep	267	293	Ucs		Vermillion						2.8															3.7	2.8	3.7	3.25		SS	2	
Muni-19	Deep	425	616	OpCj		Lakeville						<0.2															<0.05	<0.05	<0.2			SS	2	
Muni-20	Deep	417	512	Cjdn		Farmington						<0.2														0.11	0.11	0.11	0.11		SS	2		
Muni-21	Deep	384	500	Cjdn		Eagan						<0.2															<0.05	<0.2			SS	2		
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						<0.2															<0.05	<0.2			SS	2		
Muni-23	Deep	256	305	Cjdn		Hampton						1.49															1.49	1.7	1.60			SS	2	
Muni-24	Deep	312	400	Cjdn		Hastings						3.06		3.36													5.2	3.06	5.2	3.87		SS	3	
Muni-25	Deep	277	356	Cjdn		Hastings						8.85	7.88														7.4	7.4	8.85	8.04		SS	3	
Muni-26	Mid	240	332	Cjdn		Hastings						5.94	5.96														7.3	5.94	7.3	6.40		SS	3	
Muni-27	Mid	205	285	Cjdn		Hastings						4.49	4.6														6.0	4.49	6	5.03		SS	3	
Muni-28	Mid	208	299	Cjdn		Hastings						9.28	9.16														8.6	8.6	9.28	9.01		SS	3	
Muni-29	Deep	197	402	OpCj		Farmington																					<0.05	<0.05	<0.05			SS	1	
Muni-30	Deep	408	501	Cjdn		Farmington																					0.96	0.96	0.96	0.96		SS	1	
Muni-31	Deep	386	485	Cjdn		Farmington																					<0.05	<0.05	<0.05			SS	1	

Shaded cells indicate nitrate > 5.0 mg/L Shaded cells with underline result indicates nitrate greater than the drinking water guideline of > 10.0 mg/L

SS - sample size less than 5 sample events, no trend analysis performed Nitrate results for 2014 and 2019 were provided by MDH and the City of Hastings.

Drinking Water Guideline = 10 mg/L (EPA MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2013	2015	2019	Min	Max	Avg	Median	Counts
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	<0.1	<0.01	<0.3	0.00	0.00	12	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	<0.1	<0.01	<0.3	0.00	0.00	12	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3		<0.02	<0.3	0.00	0.00	7	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3		<0.02	<0.3	0.00	0.00	8	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.03	0.02	<0.02			<0.3			<0.02	0.03	0.01	0.01	4	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	0	<0.02	<0.3	0.00	0.00	8	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3			<0.02	<0.3	0.00	0.00	6	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	<0.1	<0.02	<0.3	0.00	0.00	8	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.16	0.1	0.05	0.06	0.11	<0.3	<0.3		0.07	<0.3	0.16	0.07	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	<0.1	<0.02	<0.3	0.00	0.00	8	
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	<0.1	<0.02	<0.3	0.00	0.00	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.5	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.3	<0.3	0.01	<0.01	<0.3	0.00	0.00	13	
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02	<0.02				<0.02	<0.02	0.00	0.00	4	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.02	<0.02				<0.02	<0.02	0.00	0.00	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0.01	<0.01												<0.01	0.01	0.01	0.01	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.01	<0.01												<0.01	<0.01	0.00	0.00	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.01	<0.01												<0.01	<0.01	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												<0.3	<0.1		<0.1	<0.3	0.00	0.00	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp												<0.3	<0.3		0.01	<0.3	0.01	0.00	3
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.3	<0.1		<0.1	<0.3	0.00	0.00	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.3	<0.1		<0.1	<0.3	0.00	0.00	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												<0.3	<0.1		<0.1	<0.3	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-06	Mid	248	302	Cjdn		Hampton							0.026								0.03	0.03	0.03	0.03	1
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.02								<0.02	<0.02	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton							0.027								0.03	0.03	0.03	0.03	1
Muni-24	Deep	312	400	Cjdn		Hastings							<0.02	<0.02							<0.02	<0.02	0.00	0.00	2
Muni-25	Deep	277	356	Cjdn		Hastings							<0.02	<0.02							<0.02	<0.02	0.00	0.00	2
Muni-26	Mid	240	332	Cjdn		Hastings							0.03	0.04							0.03	0.04	0.04	0.04	2
Muni-27	Mid	205	285	Cjdn		Hastings							<0.02	<0.02							<0.02	<0.02	0.00	0.00	2
Muni-28	Mid	208	299	Cjdn		Hastings							<0.02	<0.02							<0.02	<0.02	0.00	0.00	2

Shaded cells indicate nitrite > 0.5 mg/L Shaded cells with underline result indicates nitrite greater than the drinking water guideline of > 1.0mg/L

Drinking Water Guideline = 1.0 mg/L (EPA MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	6.9	7.31	7.37	7.59	7.12	7.5	7.87	6.92	7.43	7.36	7.3	7.43			7.43	7.3	6.9	7.9	7.3	7.4	14
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	7.17	7.86	6.26	7.66	7.49	7.65		7.39	7.54	7.34	7.4	7.64			7.42		6.3	7.9	7.4	7.5	12
AGQS-03	Mid	176	181	Ucs		Ravenna Twp					8.09	7.48	8.08	7.76	7.68	7.51							7.5	8.1	7.8	7.7	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp			7.49	7.64	7.2	7.5	7.84	7.2	7.39	6.99	7.4	7.5			7.37	7.6	7.0	7.8	7.4	7.4	12
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp					7.97	7.34	7.9	7.08						7.64		7.1	8.0	7.6	7.6	5	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	7.31	7.65	7.51	7.72	7.95	7.29	7.67	7.7	8.07	7.34	7.8	7.51			7.61	7	7.0	8.1	7.6	7.6	14
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	7.11	7.71	7.2	7.66	7.45	7.23	7.66	7.46	7.34	7.32	7.7	7.7			7.60		7.1	7.7	7.5	7.5	13
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	6.97	7.71	7.13	7.68	7.99	7.57	7.73	7.48	7.71	7.33	7.71	7.7			9.50		7.0	9.5	7.7	7.7	13
AGQS-09	Mid	140	185	Opdc	16	Rosemount	7.44	7.21	7.56	7.67	8.07	7.54	8.05	7.61	7.24	7.02	7.82	7.63			7.59	7.3	7.0	8.1	7.6	7.6	14
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	7.11	7.36	7.47	7.5	7.73	7.32	7.55	7.55	6.97	6.83	7.43	7.24			7.17	7.2	6.8	7.7	7.3	7.3	14
AGQS-11	Deep	265	280	Cjdn	5	Hastings	7.63	7.7	7.85	7.86	7.44	7.62	8.05	7.7	7.8	7.72	7.72	7.93			7.92	7.3	7.3	8.1	7.7	7.7	14
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	7.31	7.69	7.58	7.68	7.97	7.36	7.68	7.75	8.04	7.41	7.74	7.83			7.46		7.3	8.0	7.7	7.7	13
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	7.16	7.29	7.31	7.82	7.84	7.45	7.89	7.58	6.76	7.24	7.8	7.52			7.46		6.8	7.9	7.5	7.5	13
AGQS-14	Deep	385	415	Cjdn	2	Hampton	7.38	7.8	7.44	7.72	7.13	7.44	7.66	7.65	8.09	7.33	7.6	7.59			7.33		7.1	8.1	7.6	7.6	13
AGQS-15	Mid	166	170	Ucs	5	Hastings					7.43	7.55	8.11	7.72	7.73	7.6	7.8					7.4	8.1	7.7	7.7	7	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	7.47	7.83	7.69	7.8	8.15	7.37	8.02	7.84	7.95	7.35	7.9	7.73					7.4	8.2	7.8	7.8	12
AGQS-17	Deep	276	280	Ucs	15	Rosemount					7.92	7.47	7.94	7.79	7.23	6.86	7.7	7.64			7.46	7.2	6.9	7.9	7.5	7.6	10
AGQS-18	Deep	265	280	Opdc	11	Rosemount	7.25	6.71	7.72	7.64	7.96	7.49	7.86	7.07	7.06	6.94	7.73	7.8			7.55	7.2	6.7	8.0	7.4	7.5	14
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights					8.06	7.06	7.94	7.7	7.22	7.04	7.81	7.7	7.6		7.56	7.6	7.0	8.1	7.6	7.6	11
AGQS-20	Shallow	55	60	Ucs		Empire Twp					7.23	7.69	7.61	7.29	7.52	7.12	7.2	7			7.22		7.0	7.7	7.3	7.2	9
AGQS-21	Mid	133	137	Ucs		Burnsville					6.82	7.27	6.93	6.54	7.24	6.74	7.94	7.62			7.14		6.5	7.9	7.1	7.1	9
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	7.17	7.03	7.61	7.87	7.94	7.89	7.2	7.66	6.79	7.16	7.84	7.6			7.50		6.8	7.9	7.5	7.6	13
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights					8.03	7.47	7.49	7.77	7.21	6.86	7.6	7.62	7.46		7.48	7.4	6.9	8.0	7.5	7.5	11
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	7.15	7.84	7.11	7.83	7.62	7.76	7.81	7.64	7.71	7.48	7.5						7.1	7.8	7.6	7.6	11
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	7.06	7.63	7.18	7.68	7.49	7.5	7.95	7.46	7.99	7.29	7.78	7.7			7.44		7.1	8.0	7.6	7.5	13
AGQS-26	Deep	342	360	Opdc		Lakeville					7.11	7.18	8.24	7.43	7.5	7.35	7.72	7.61			7.58		7.1	8.2	7.5	7.5	9
AGQS-27	Mid	176	180	Ucs	11	Rosemount					8.07	7.36	8.07	7.61	7.21	7.02	7.4	7.7			7.72	7.4	7.0	8.1	7.6	7.5	10
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	7.23	7.76	7.58	7.77	7.45	7.65	7.76	7.39	7.61	7.29	7.4	7.5			7.36		7.2	7.8	7.5	7.5	13
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	7.06	7.9	7.19	7.77	7.57	7.59	7.78	7.54	7.59	7.34	7.5	7.55			7.62		7.1	7.9	7.5	7.6	13
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	7.23	7.75	6.8	7.3	7.14	7.59	7.5	7.24	7.53	7.08	7.4	7.6			7.16		6.8	7.8	7.3	7.3	13
AGQS-31	Mid	135	140	Ucs		Lakeville					6.98	6.7	7.46	7.28	7.26	7.16	7.61	7.41			7.19		6.7	7.6	7.2	7.3	9
AGQS-32	Mid	179	218	Opdc	15	Rosemount	7.4	7.2	7.6	7.64	8	7.43	7.05	7.73	7.17	7.16	7.61	7.6		7.33	7.59	6.5	6.5	8.0	7.4	7.4	15
AGQS-33	Deep	260	280	Cjdn	8	Coates	7.29	7.42	7.58	7.68	7.22	8.26	8.01	7.31	8.17	7	7.5	7.6		7.30	7.69	7.3	7.0	8.3	7.6	7.5	15
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	7.3	7.38	7.37	7.5	6.99	7.13	7.7	7.37	7.67	7.15	7.5	7.41			7.31		7.0	7.7	7.4	7.4	13
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	7.28	7.72	7.7	7.85	7.28	7.35	7.85	7.99	7.69	7.52	8	7.8			7.65		7.3	8.0	7.7	7.7	13
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	7.34	6.89	7.67	7.79	7.95	7.53	7.99	7.66	7.14	7.11	7.84	7.6			7.57	7.5	6.9	8.0	7.5	7.6	14
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp					7.16	7.23	7.78	7.75	7.86	7.39	7.83	7.53			7.60		7.2	7.9	7.6	7.6	9
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	7.24	7.59	6.71	7.96	7.52	7.39	8.11	7.63	7.53	7.58	7.9	7.6			7.45		6.7	8.1	7.6	7.6	13
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	6.82	7.81	7.9	8.13	7.34	7.42	7.88	7.97	8.33	7.5	8	7.8			7.67		6.8	8.3	7.7	7.8	13
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	6.92	6.95	7.12	7.3	6.8	7	7.27	7.37	7.12	6.95	7.6	7.2			7.16		6.8	7.6	7.1	7.1	13
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	7.4	7.25	7.57	7.65	8.18	7.52	8	7.72	7.27	7.22	7.8	7.7			7.66		7.2	8.2	7.6	7.7	13
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	7.48	7.57	7.71	7.77	8.12	7.44	7.99	7.79	7.5	7.39	7.5	7.81		7.55	7.58	7.3	7.3	8.1	7.6	7.6	15
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	7.4	7.3	7.8	7.81	8.02	7.6	8.05	7.8	7.24	7.19	7.9	7.7			7.64	7.4	7.2	8.1	7.6	7.7	14
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	7.59	7.7	7.79	7.79	8.13	7.44	8.18	7.97	8.23	7.59	7.54	7.91			7.90	7.3	7.3	8.2	7.8	7.8	14
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	7.22	7.57	7.75	7.66	7.09	7.2	7.65	7.6		7.34	7.6	7.7					7.1	7.8	7.5	7.6	11
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	7.5	7.1	7.75	7.73	8.1	7.48	7.89	7.72	7.21	7.22	7.7	7.7			7.58	8.6	7.1	8.6	7.7	7.7	14
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake					7.36	5.79	8.12	7.68	7.19	7.21	7.94	7.8			7.67		5.8	8.1	7.4	7.7	9
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp					7.54	7.6	7.72	7.43	7.62	7.35	7.42	7.5			7.45		7.4	7.7	7.5	7.5	9
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			7.53	7.65	7.16	7.83	7.99	7.34	6.73	7.15	7.64	7.7		7.55	7.63	7.4	6.7	8.0	7.5	7.6	13
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	7.05	7.16	5.75	7.31	7.34	7.48	7.38	7.38	7.53	7.16	7.4	7.34					5.8	7.7	7.2	7.3	12
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights					8.01	7.11	8.22	7.1	7.21	7.09	7.7	7.6			7.57	7.3	7.1	8.2	7.5	7.4	10
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					7.45	7.34	7.81	6.64	7.96	7.21	7.61	7.71		7.16		6.6	8.0	7.4	7.5	9	
AGQS-53	Deep	254	365	Opdc	11	Rosemount	7.03	6.82	7.64	7.69	7.72	7.3	7.76	7.55	7.27	7.02	7.8					6.8	7.8	7.4	7.6	11	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	7.4	7.94	7.59	7.82	7.62	7.71	7.74	7.53	7.7	7.48	7.9	8			7.48		7.4	8.0	7.7	7.7	13
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	7.45	7.43	7.44	7.69	7.2	7.43	7.74	7.57	7.63	7.46	7.28	7.84			7.45	7.4	7.2	7.8	7.5	7.5	14

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	7.35	8.17	7.82	7.9	7.38	7.44	7.9	7.89	8.06	7.55	7.8	7.84			7.73		7.4	8.2	7.8	7.8	13
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	7.38	7.5	7.35	7.52	8.14	7.21	7.92	7.52	8.02	7.56	7.53	7.5			7.44	<u>6.5</u>	6.5	8.1	7.5	7.5	14
AGQS-58	Shallow	60	65	Ucs		Greenville Twp					7.4	7.37	7.51	7.42	7.14	7.3	7.4	7.7					7.1	7.7	7.4	7.4	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp					7	7.5		7.53	7.63	7.42	7.7	7.7			7.47		7.0	7.7	7.5	7.5	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp					8.02	7.41	7.67			<u>6.24</u>							6.2	8.0	7.3	7.5	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					7.03	7.14	7.56	7.33	<u>8.77</u>	7.18	7.62	7.64			7.33		7.0	8.8	7.5	7.3	9
AGQS-62	Mid	145	149	Ucs		Marshan Twp					7.14	7.28	7.9	7.43	7.26	7.21							7.1	7.9	7.4	7.3	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp					7.18	7.57	7.77	7.38	7.54	7.03	7.5	7.7			7.44		7.0	7.8	7.5	7.5	9
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					7.08	7.24	7.63	7.6	7.68	7.24	7.42	7.62			7.52		7.1	7.7	7.4	7.5	9
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					7.23	7.26	7.87	7.68	<u>8.8</u>	7.38	7.6	7.62			7.54		7.2	8.8	7.7	7.6	9
AGQS-66	Shallow	75	80	Ucs	8	Coates					6.93	7.32	7.51	7.26	6.76	6.97	7.12	7.32			7.23	7.2	6.8	7.5	7.2	7.2	10
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	6.53	6.6	6.92	7.36	6.97	7.19	7.15	6.87	6.77	6.95	7.53	7.4			7.33		6.5	7.5	7.0	7.0	13
AGQS-68	Mid	158	163	Ucs		Apple Valley						7.28	7.55	7.23	7.18								7.2	7.6	7.3	7.3	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp								7.24	7.46								7.2	7.5	7.4	7.4	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	7.19	7.57															7.2	7.6	7.4	7.4	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	7.24	7.56															7.2	7.6	7.4	7.4	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp	6.89	7.77															6.9	7.8	7.3	7.3	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp											7.24	7.41		7.20	7.14	<u>6.5</u>	6.5	7.4	7.1	7.2	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										7.4	7.52	7.82		7.52	7.58	7.3	7.3	7.8	7.5	7.5	6
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											7.61	7.7		7.55	7.75	8	7.6	8.0	7.7	7.7	5
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											7.5	7.61		7.45	7.69	6.6	6.6	7.7	7.4	7.5	5
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												7.9			7.55		7.6	7.9	7.7	7.7	2
Muni-01	Deep	406	500	Cjdn		Eagan						7.72											7.7	7.7	7.7	7.7	1
Muni-02	Deep	258	356	Cjdn		Randolph						7.53											7.5	7.5	7.5	7.5	1
Muni-03	Deep	355	457	Cjdn		Empire						7.3											7.3	7.3	7.3	7.3	1
Muni-04	Deep	322	401	Cjdn		South St Paul						7.57											7.6	7.6	7.6	7.6	1
Muni-05	Mid	132	424	OpCj		Farmington						7.14											7.1	7.1	7.1	7.1	1
Muni-06	Mid	248	302	Cjdn		Hampton						7.83											7.8	7.8	7.8	7.8	1
Muni-07	Mid	218	298	Cjdn		Burnsville						7.75											7.8	7.8	7.8	7.8	1
Muni-08	Deep	340	410	Cjdn		Empire						7.5											7.5	7.5	7.5	7.5	1
Muni-09	Deep	580	680	Cjdn		New Trier						7.61											7.6	7.6	7.6	7.6	1
Muni-10	Deep	434	517	Cjdn		Lakeville						7.63											7.6	7.6	7.6	7.6	1
Muni-11	Mid	240	342	OpCj		South St Paul						7.64											7.6	7.6	7.6	7.6	1
Muni-12	Deep	388	471	Cjdn		Rosemount						7.61											7.6	7.6	7.6	7.6	1
Muni-13	Deep	392	477	Cjdn		Farmington						6.74											6.7	6.7	6.7	6.7	1
Muni-14	Deep	420	516	Cjdn		Apple Valley						7.66											7.7	7.7	7.7	7.7	1
Muni-15	Deep	345	400	Cjdn		Rosemount						7.92											7.9	7.9	7.9	7.9	1
Muni-16	Deep	345	400	Cjdn		Rosemount						7.83											7.8	7.8	7.8	7.8	1
Muni-17	Deep	389	498	Cjdn		Rosemount						7.66											7.7	7.7	7.7	7.7	1
Muni-18	Deep	267	293	Ucs		Vermillion						7.91											7.9	7.9	7.9	7.9	1
Muni-19	Deep	425	616	OpCj		Lakeville						7.78											7.8	7.8	7.8	7.8	1
Muni-20	Deep	417	512	Cjdn		Farmington						<u>5.77</u>											5.8	5.8	5.8	5.8	1
Muni-21	Deep	384	500	Cjdn		Eagan						7.91											7.9	7.9	7.9	7.9	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						7.65											7.7	7.7	7.7	7.7	1
Muni-23	Deep	256	305	Cjdn		Hampton						7.72											7.7	7.7	7.7	7.7	1
Muni-24	Deep	312	400	Cjdn		Hastings						7.9	8.24										7.9	8.2	8.1	8.1	2
Muni-25	Deep	277	356	Cjdn		Hastings						7.93	8.15										7.9	8.2	8.0	8.0	2
Muni-26	Mid	240	332	Cjdn		Hastings						7.78	8.22										7.8	8.2	8.0	8.0	2
Muni-27	Mid	205	285	Cjdn		Hastings						7.74	7.82										7.7	7.8	7.8	7.8	2
Muni-28	Mid	208	299	Cjdn		Hastings						7.85	7.98										7.9	8.0	7.9	7.9	2

Shaded cells with underline result indicates pH greater than or less than the drinking water standard of 6.5-8.5

Drinking Water Guideline = 6.5 - 8.5 (EPA SMCLs)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	1.8	2.4	2.22	1.89	1.53	1.65	1.62	1.94	1.16	1.52	1.16	2.40	1.77	1.73	10
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	3.9	1.64	3.13	3.22	3.84	2.53	3.18	3.2	3	3.54	1.64	3.90	3.12	3.19	10
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						0.65	1.1	0.69	0.55	0.88	0.55	1.10	0.77	0.69	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				1.45	1.47	1.63	1.85	1.81	1.34	1.53	1.34	1.85	1.58	1.53	7
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						1.07	1.2	1.09	1.15		1.07	1.20	1.13	1.12	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	1.3	1.74	1.28	1.19	1.22	1.23	1.35	1.36	1.1	1.46	1.10	1.74	1.32	1.29	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	1.3	1.63	1.31	1.23	1.13	1.33	1.48	1.49	1.16	1.25	1.13	1.63	1.33	1.31	10
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	1.9	1.61	1.31	1.24	1.26	1.36	1.4	1.32	1.26	1.19	1.19	1.90	1.39	1.32	10
AGQS-09	Mid	140	185	Opdc	16	Rosemount	1.8	1.88	1.61	1.6	1.51	1.57	1.61	1.56	1.58	1.87	1.51	1.88	1.66	1.61	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	1.9	2.16	2	2.09	2.01	2.21	2.21	2.13	2.18	2.32	1.90	2.32	2.12	2.15	10
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0.9	0.96	0.81	0.92	<1	0.87	1.14	0.72	0.8	0.83	<1	1.14	0.80	0.85	10
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	1.3	1.77	1.24	1.16	1.18	1.26	1.27	1.45	1.03	1.54	1.03	1.77	1.32	1.27	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		2.1	1.6	1.75	1.72	1.74	1.74	1.8	1.8	2.12	1.60	2.12	1.82	1.75	9
AGQS-14	Deep	385	415	Cjdn	2	Hampton	1.3	1.1	1.17	1.13	1.01	1.03	1.46	1.24	0.87	1.29	0.87	1.46	1.16	1.15	10
AGQS-15	Mid	166	170	Ucs	5	Hastings						0.93	1.2	0.76	0.59	0.99	0.59	1.20	0.89	0.93	5
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.96	0.76	1.02	<1	0.85	0.93	0.84	0.63	1.07	<1	1.07	0.78	0.85	9
AGQS-17	Deep	276	280	Ucs	15	Rosemount						1.7	2.07	1.43	1.74	2.03	1.43	2.07	1.79	1.74	5
AGQS-18	Deep	265	280	Opdc	11	Rosemount	1.9	1.88	1.74	1.64	2.06	1.56	1.98	1.85	1.7	1.88	1.56	2.06	1.82	1.87	10
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						1.51	1.58	1.39	1.32	1.63	1.32	1.63	1.49	1.51	5
AGQS-20	Shallow	55	60	Ucs		Empire Twp						2.01	2.28	1.2	1.03	2.23	1.03	2.28	1.75	2.01	5
AGQS-21	Mid	133	137	Ucs		Burnsville						1.72	2.03	1.71	1.75	1.97	1.71	2.03	1.84	1.75	5
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	2.3	1.71	1.51	1.46	1.35	1.45	1.61	1.59	1.51	1.6	1.35	2.30	1.61	1.55	10
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						1.5	1.69	1.64	1.59	1.98	1.50	1.98	1.68	1.64	5
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	1	1.3	1.02	1.1	<1	0.95	0.95	0.99	0.92	1.2	<1	1.30	0.94	1.00	10
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		2.07	1.68	1.53	1.44	1.55	1.72	1.84	1.53	1.6	1.44	2.07	1.66	1.60	9
AGQS-26	Deep	342	360	Opdc		Lakeville						2	2.49	<0.5	2.03	2.21	<0.5	2.49	1.75	2.03	5
AGQS-27	Mid	176	180	Ucs	11	Rosemount						1.69	2.06	1.82	1.56	2.02	1.56	2.06	1.83	1.82	5
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		1.51	1.35	1.24	1.15	1.26	1.58	1.2	1.27	1.38	1.15	1.58	1.33	1.27	9
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		1.34	1.04	1.15	<1	1.17	1.15	1.08	0.96	1.25	<1	1.34	1.02	1.15	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	1.2	1.18	0.87	1.15	<1	0.99	1.08	1.17	0.84	1.26	<1	1.26	0.97	1.12	10
AGQS-31	Mid	135	140	Ucs		Lakeville						3.21	3.33		3.33	3.82	3.21	3.82	3.42	3.33	4
AGQS-32	Mid	179	218	Opdc	15	Rosemount	2	1.81	3.76	1.55	1.56	1.62	1.55	1.52	1.69	1.87	1.52	3.76	1.89	1.66	10
AGQS-33	Deep	260	280	Cjdn	8	Coates	1.4	1.72	1.53	1.37	1.37	1.48	0.84	1.33	<0.5	<0.5	<0.5	1.72	1.10	1.37	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	1.3	1.53	1.32	1.32	1.36	1.38	1.46	1.39	1.35	1.68	1.30	1.68	1.41	1.37	10
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0.7	1.3	0.68	0.72	<1	0.58	0.65	<0.5	<0.5	0.79	<1	1.30	0.54	0.67	10
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	2.7	1.9	1.65	1.5	1.46	1.57	1.75	1.51	1.58	1.79	1.46	2.70	1.74	1.62	10
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						0.94	0.86	0.77	0.53	1.09	0.53	1.09	0.84	0.86	5
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	2.2	1.93	1.75	1.63	1.44	1.49	1.76	1.58	1.43	1.85	1.43	2.20	1.71	1.69	10
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0.9	1.46	0.9	0.87	<1	0.78	0.7	<0.5	0.6	0.87	<1	1.46	0.71	0.83	10
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	2.3	2.21	2.2	2.06	1.98	2	2.23	1.67	2.03	2.38	1.67	2.38	2.11	2.13	10
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	1.8	1.8	1.61	1.51	1.49	1.44	1.65	1.5	1.44	1.71	1.44	1.80	1.60	1.56	10
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	1.2	0.95	0.79	0.79	<1	0.69	0.94	0.94	0.77	0.85	<1	1.20	0.79	0.82	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	2.7	1.8	3.9	1.55	1.48	1.55	1.69	1.64	1.41	1.54	1.41	3.90	1.93	1.60	10

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Min	Max	Avg	Median	Counts
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0.8	0.81	0.69	0.9	<1	0.79	0.82	0.54	<0.5	0.58	<1	0.90	0.59	0.74	10
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	1.2	1.21	1.11	1.03	1.04	1.07	1.23	1.13	1.01		1.01	1.23	1.11	1.11	9
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		1.88	3.89	1.62	1.56	1.61	1.67	1.67	1.58	1.8	1.56	3.89	1.92	1.67	9
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						1.15	1.93	1.6	1.43	1.73	1.15	1.93	1.57	1.60	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						1.16	1.28	1.44	0.96	1.36	0.96	1.44	1.24	1.28	5
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				1.02	1.04	1.15	1.47	1.51	1.01	1.1	1.01	1.51	1.19	1.10	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	2.5	1.67	2.55	2.27	2.22	2.16	2.36	2.37	2.29	2.55	1.67	2.55	2.29	2.33	10
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						1.59	1.91	1.49	1.64	1.75	1.49	1.91	1.68	1.64	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						1.51	1.62	1.75	1.45	2.03	1.45	2.03	1.67	1.62	5
AGQS-53	Deep	254	365	Opdc	11	Rosemount		1.73	2.85	2.73	2.53	2.46	2.8	2.35	2.18	2.46	1.73	2.85	2.45	2.46	9
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.8	0.87	0.79	0.16	<1	0.77	0.81	0.79	0.67	0.98	<1	0.98	0.66	0.79	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		1.64	1.52	1.55	1.7	1.85	2.03	1.91	1.48	1.73	1.48	2.03	1.71	1.70	9
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0.7	0.44	0.5	<1	<0.5	<0.5	0.63	<0.5	0.59	<0.5	0.70	0.32	0.44	9
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		5.74	8.44	12.2	8.14	6.25	11.9	4.19	10.2	24	4.19	24.00	10.12	8.44	9
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						2.74	2.79	2.89	2.81	3.21	2.74	3.21	2.89	2.81	5
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.53	0.64	<0.5	<0.5	0.75	<0.5	0.75	0.38	0.53	5
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						3.41	3.58	3.9			3.41	3.90	3.63	3.58	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						1.38	1.45	1.41	1.05	1.76	1.05	1.76	1.41	1.41	5
AGQS-62	Mid	145	149	Ucs		Marshan Twp						1.27	1.35	1.17	1.18	1.23	1.17	1.35	1.24	1.23	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						1.47	1.73	1.61	1.55	1.41	1.41	1.73	1.55	1.55	5
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						2.77	3.22	3.32	3.74	4.15	2.77	4.15	3.44	3.32	5
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						1.23	1.32		1.02	1.55	1.02	1.55	1.28	1.28	4
AGQS-66	Shallow	75	80	Ucs	8	Coates						2.24	2.49	2.38	<0.5	2.38	<0.5	2.49	1.90	2.38	5
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	1	1.74	1.77	1.5	1.42	1.43	1.9	1.24	1.25	1.7	1.00	1.90	1.50	1.47	10
AGQS-68	Mid	158	163	Ucs		Apple Valley							1.67	1.47	1.16	1.31	1.16	1.67	1.40	1.39	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									1.12	1.19	1.12	1.19	1.16	1.16	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		1.93	1.32								1.32	1.93	1.63	1.63	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		1.75	1.31								1.31	1.75	1.53	1.53	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		1.58	1.41								1.41	1.58	1.50	1.50	2
Muni-24	Deep	312	400	Cjdn		Hastings							1.51				1.51	1.51	1.51	1.51	1
Muni-25	Deep	277	356	Cjdn		Hastings							1.21				1.21	1.21	1.21	1.21	1
Muni-26	Mid	240	332	Cjdn		Hastings							1.56				1.56	1.56	1.56	1.56	1
Muni-27	Mid	205	285	Cjdn		Hastings							1.81				1.81	1.81	1.81	1.81	1
Muni-28	Mid	208	299	Cjdn		Hastings							1.45				1.45	1.45	1.45	1.45	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011
AGQS-01	Shallow	100	197	Opdc	8	Coates	9.9
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	12.37
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	9.14
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	6.25
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	11.12
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	10.92
AGQS-09	Mid	140	185	Opdc	16	Rosemount	9.46
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	13.81
AGQS-11	Deep	265	280	Cjdn	5	Hastings	8.22
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	7.19
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	11.45
AGQS-14	Deep	385	415	Cjdn	2	Hampton	8.65
AGQS-15	Mid	166	170	Ucs	5	Hastings	12.21
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	8.23
AGQS-17	Deep	276	280	Ucs	15	Rosemount	11.36
AGQS-18	Deep	265	280	Opdc	11	Rosemount	7.75
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	14.54
AGQS-20	Shallow	55	60	Ucs		Empire Twp	21.77
AGQS-21	Mid	133	137	Ucs		Burnsville	10.78
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	9.8
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	14.31
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	9.58
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	10.22
AGQS-26	Deep	342	360	Opdc		Lakeville	12.58
AGQS-27	Mid	176	180	Ucs	11	Rosemount	10.8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	10.49
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	8.82
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	11.96
AGQS-31	Mid	135	140	Ucs		Lakeville	24.8
AGQS-32	Mid	179	218	Opdc	15	Rosemount	10.62
AGQS-33	Deep	260	280	Cjdn	8	Coates	9.32
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	6.98
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	8.03
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	14.42
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	12.3
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	5.31
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	7.94
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	8.61
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	7.97
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	11.31

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	18.17
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	6.4
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	6.82
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	6.61
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	8.58
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	9.51
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	9.28
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	9.99
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	16.47
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	11.6
AGQS-53	Deep	254	365	Opdc	11	Rosemount	7.16
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	8.35
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	6.84
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	9.68
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	13.05
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	12.76
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	10.68
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	7.63
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	11.89
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	12.62
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	6.67
AGQS-66	Shallow	75	80	Ucs	8	Coates	10.76
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	12.86
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	12.8
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	6.26
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	8.59
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp	12.52

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2011	2013	Min	Max	Avg	Median	Trend	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	26	36.7	23.3	25.3	11.2	18	8.71	9.35	7.72	7.6	55.6	91.5	7.6	91.5	26.7	20.7	No Trend	12
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	16	11.9	30.2	33	19.4	22.7	26.5	26.8	25.1	31.7	32	20.6	11.9	33.0	24.7	25.8	No Trend	12
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						2.56	3.09	3.22	2.58	3.3			2.6	3.3	3.0	3.1	<4	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				8.94	9.49	10.2	9.83	11.4	10.5	10.8	12.1	12.6	8.9	12.6	10.7	10.5	Up	9
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						4.35	4.57	4.93	5.04				4.4	5.0	4.7	4.8	SS	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	3.7	3.69	3	3.95	2.89	3.73	3.77	4.08	3.62	4.42	4.15	4.09	2.9	4.4	3.8	3.8	Up	12
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	3.2	1.67	2.7	3.48	2.14	3.13	3.16	3.54	3.33	3.29	3.27	3.42	1.7	3.5	3.0	3.2	<4	12
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	3.5	1.07	1.99	2.84	1.73	2.7	2.78	2.76	2.89	2.83	3.13	3.4	1.1	3.5	2.6	2.8	Up	12
AGQS-09	Mid	140	185	Opdc	16	Rosemount	4.3	2.47	3.54	4.39	2.66	4.3	3.98	4.54	4.09	5.13	4.21	5	2.5	5.1	4.1	4.3	Up	12
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	21	19	3.12	26.8	27.1	28.4	26.3	31.9	33.7	32.4	30.1	33	3.1	33.7	26.1	27.8	Up	12
AGQS-11	Deep	265	280	Cjdn	5	Hastings	1.9	0.55	1.35	2.17	1.14	1.97	2.45	2.2	1.73	2.19	2.08	2.04	0.6	2.5	1.8	2.0	<4	12
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	3.8	3.91	3.2	4.16	3.03	3.83	3.81	4.05	3.72	4.3	4.1	4	3.0	4.3	3.8	3.9	<4	12
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		3.75	5.13	5.65	4.52	5.25	5.42	5.67	5.7	5.95	5.63	6.16	3.8	6.2	5.3	5.6	Up	11
AGQS-14	Deep	385	415	Cjdn	2	Hampton	3.8	1.63	2.7	3.32	2.6	3.24	3.3	3.45	3.27	3.66	3.26	3.19	1.6	3.8	3.1	3.3	<4	12
AGQS-15	Mid	166	170	Ucs	5	Hastings						2.63	2.73	2.62	2.04	2.52	2.56		2.0	2.7	2.5	2.6	<4	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		1.07	1.93	2.56	1.83	2.59	2.7	2.77	2.64	2.9	2.74	2.53	1.1	2.9	2.4	2.6	Up	11
AGQS-17	Deep	276	280	Ucs	15	Rosemount						5.92	6.73	6.94	6.62	7.22	6.93	7.32	5.9	7.3	6.8	6.9	Up	7
AGQS-18	Deep	265	280	Opdc	11	Rosemount	2.8	1.13	1.87	2.63	2.79	2.6	3	3.14	2.87	2.67	2.56	2.54	1.1	3.1	2.6	2.7	<4	12
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						4.45	4.36	5.08	4.53	4.99	4.36	4.92	4.4	5.1	4.7	4.5	No Trend	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp						24.8	51.1	15	18.1	49.5	35.2	49	15.0	51.1	34.7	35.2	No Trend	7
AGQS-21	Mid	133	137	Ucs		Burnsville						8.76	8.78	9.29	10.9	10.4	11.1	9.97	8.8	11.1	9.9	10.0	Up	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	8.5	3.81	4.87	5.67	4.44	5.39	5.75	6.38	5.83	5.66	6.04	6.04	3.8	8.5	5.7	5.7	No Trend	12
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						4.01	4.14	4.73	4.56	4.85	4.42	5.82	4.0	5.8	4.6	4.6	Up	7
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	4.6	2.98	3.8	4.61	3.43	4.29	4.44	4.69	4.05	4.84	4.4		3.0	4.8	4.2	4.4	No Trend	11
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		1.45	2.42	3.4	2	3.19	2.93	3.42	3.36	3.24	2.97	3.11	1.5	3.4	2.9	3.1	<4	11
AGQS-26	Deep	342	360	Opdc		Lakeville						7.39	7.64		7.65	8	8.22	8.38	7.4	8.4	7.9	7.8	Up	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount						3.33	3.74	3.89	3.19	3.87	3.68	4.1	3.2	4.1	3.7	3.7	<4	7
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		3.03	3.97	4.58	3.23	4.17	4.8	4.82	4.01	4.75	4.43	4.05	3.0	4.8	4.2	4.2	No Trend	11
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		3.08	3.87	4.74	3.76	4.83	4.6	4.83	4.34	5.06	4.66	5.42	3.1	5.4	4.5	4.7	Up	11
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	7.5	5.14	6.5	8.09	6.94	7.66	7.65	7.78	8.26	8.25	9.27	8.68	5.1	9.3	7.6	7.7	Up	12
AGQS-31	Mid	135	140	Ucs		Lakeville						13.7	16.9	22.2	21.3	23.3	28.4	28.1	13.7	28.4	22.0	22.2	Up	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	3.6	1.41	2.9	3.22	2.4	3.27	3.19	4.11	3.47	3.87	3.7	3.81	1.4	4.1	3.2	3.4	Up	12
AGQS-33	Deep	260	280	Cjdn	8	Coates	6.3	4.89	4.13	4.35	5.37	6.28		5.58			4.83	5.49	4.1	6.3	5.2	5.4	No Trend	9
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	4.1	2.9	3.5	4.54	3.76	4.44	4.36	5.18	4.44	4.81	4.53	4.72	2.9	5.2	4.3	4.4	Up	12
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	2.3	2.4	1.6	2.33	1.41	2.23	2.25	3.13	2.39	2.61	2.41	2.29	1.4	3.1	2.3	2.3	Up	12
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	6.9	2.8	3.52	4.23	3.04	4.13	4.31	4.84	4.44	4.88	4.25	4.68	2.8	6.9	4.3	4.3	Up	12
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						2.74	2.82	2.93	2.34	3.09	2.93	3.16	2.3	3.2	2.9	2.9	<4	7
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	4.3	1.98	2.74	3.67	2.3	3.4	3.66	3.93	3.64	4.01	3.84	4.66	2.0	4.7	3.5	3.7	Up	12
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	2.6	2.49	1.59	2.31	1.42	2.23	2.4	3	2.26	2.65	2.42	2.28	1.4	3.0	2.3	2.4	<4	12
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	6.5	3.78	5.6	5.83	4.28	6.19	6.7	7.16	6.38	6.85	5.88	5.68	3.8	7.2	5.9	6.0	No Trend	12
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	2.7	1.15	1.97	2.65	1.65	2.57	2.7	3.35	2.69	2.86	2.74	2.52	1.2	3.4	2.5	2.7	<4	12
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	4.4	1.81	2.68	3.21	2.5	3.21	3.34	3.76	3.3	3.53	3.57	3.58	1.8	4.4	3.2	3.3	Up	12
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	7.3	2.58	4.2	4.55	3.45	4.28	4.42	5.08	4.54	4.64	4.61	4.76	2.6	7.3	4.5	4.5	Up	12

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2011	2013	Min	Max	Avg	Median	Trend	Counts
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	3.1	1.63	2.58	3.42	2.34	3.06	3.31	3.45	2.97	3.14	2.89	2.91	1.6	3.5	2.9	3.0	<4	12
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	2.6	1.03	1.77	2.53	1.66	2.4	2.56	3.21	2.45		2.55	2.46	1.0	3.2	2.3	2.5	<4	11
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		1.66	2.9	3.11	2.15	3.12	2.99	3.98	3.07	3.34	3.12	3.04	1.7	4.0	3.0	3.1	Up	11
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						5.47	5.84	6.18	5.74	6.48	7.81	7.14	5.5	7.8	6.4	6.2	Up	7
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						4.78	4.97	5.7	4.43	5.25	5.43	5.12	4.4	5.7	5.1	5.1	No Trend	7
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				3.01	2.1	2.97	3.25	3.66	2.63	3.27	3.42		2.1	3.7	3.0	3.1	<4	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	13	14.4	12.6	13	11.5	11.9	12.1	12.9	13	12.7	12	12.3	11.5	14.4	12.6	12.7	No Trend	12
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						3.93	4.08	4.46	4.44	4.55	4.04	4.24	3.9	4.6	4.2	4.2	No Trend	7
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						13.2	12.8	12.7	12.8	14.3	8.89	9.65	8.9	14.3	12.0	12.8	No Trend	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		1.99	2.56	3.33	2.14	3.15	3.71	3.71	2.92	3.47	3.3		2.0	3.7	3.0	3.2	<4	10
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	4.4	2.82	3.88		3.63	4.5	4.64	5.28	4.3	5.12	136		2.8	136.0	17.5	4.5	No Trend	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		4.88	5.38	6.16	5.19	6.13	6.47	7.18	5.9	6.18	6.7	6.87	4.9	7.2	6.1	6.2	No Trend	11
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		3.75	4.8	5.59	4.76	5.42	5.37	6.98	6.5	6.58	5.35	5.41	3.8	7.0	5.5	5.4	Up	11
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		8.31	11.4	14.5	8.68	7.56	11.8	5.37	10.1	20.9	10.3	9.49	5.4	20.9	10.8	10.1	No Trend	11
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						6.99	7.21	7.64	7.42	7.83	7.12	7.6	7.0	7.8	7.4	7.4	No Trend	7
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						6.7	7.83	7.79	8.01	9.11	7.76	8.33	6.7	9.1	7.9	7.8	No Trend	7
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						10.6	10	12.1					10.0	12.1	10.9	10.6	SS	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						3.86	4.29	3.96	3.57	4.14	3.82	3.83	3.6	4.3	3.9	3.9	<4	7
AGQS-62	Mid	145	149	Ucs		Marshan Twp						5.98	6.28	6.11	5.44	5.34			5.3	6.3	5.8	6.0	No Trend	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						4.55	5.06	5.08	4.64	4.83	5.27	5.28	4.6	5.3	5.0	5.1	No Trend	7
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						6.91	7.17	8.53	10.8	13.1	5.78	6.9	5.8	13.1	8.5	7.2	No Trend	7
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						3.06	3.13		2.84	3.86	2.8	2.99	2.8	3.9	3.1	3.0	<4	6
AGQS-66	Shallow	75	80	Ucs	8	Coates						74.9	68.2	68.3		95	107	89.7	68.2	107.0	83.9	82.3	No Trend	6
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	42	39.9	39.5	38.3	28.3	30.1	31.1	27.4	25.7	24.8	29.4	27.5	24.8	42.0	32.0	29.8	Down	12
AGQS-68	Mid	158	163	Ucs		Apple Valley							4.15	4.43	3.84	4.17			3.8	4.4	4.1	4.2	SS	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									6.23	6.43			6.2	6.4	6.3	6.3	SS	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		3.7	3.11										3.1	3.7	3.4	3.4	SS	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		6.36	6.08										6.1	6.4	6.2	6.2	SS	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		2.35	3.01										2.4	3.0	2.7	2.7	SS	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp											9.77	10.2	9.8	10.2	10.0	10.0	SS	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											4.06	4.23	4.1	4.2	4.1	4.1	SS	2
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											2.17	1.98	2.0	2.2	2.1	2.1	SS	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											26.5	25.4	25.4	26.5	26.0	26.0	SS	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp											2.89	2.9	2.9	2.9	2.9	2.9	SS	1
Muni-24	Deep	312	400	Cjdn		Hastings							4.45						4.5	4.5	4.5	4.5	SS	1
Muni-25	Deep	277	356	Cjdn		Hastings							9.34						9.3	9.3	9.3	9.3	SS	1
Muni-26	Mid	240	332	Cjdn		Hastings							6.4						6.4	6.4	6.4	6.4	SS	1
Muni-27	Mid	205	285	Cjdn		Hastings							15.1						15.1	15.1	15.1	15.1	SS	1
Muni-28	Mid	208	299	Cjdn		Hastings							6.18						6.2	6.2	6.2	6.2	SS	1

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	379	405	365	513	661	458	455	434	459	383	425	431					446	308	308.0	661.0	437.3	432.5	14		
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	539	725	619	690	500	689	512	677	650	505	725	623					643	517	500.0	725.0	615.3	633.0	14		
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp					647	623	655	765	773	718	641	702								623.0	773.0	690.5	678.5	8	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp					488	468		564	522	505	502	530					567	373	373.0	567.0	502.1	505.0	9		
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp					585	566	656			664										566.0	664.0	617.8	620.5	4	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					746	665	612	525	586	604	600	614					701	513	513.0	746.0	616.6	608.0	10		
AGQS-62	Mid	145	149	Ucs		Marshan Twp					697	698	601	490	597	629										490.0	698.0	618.7	615.0	6	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp					701	623	616	354	686	1280	614	684					810	466	354.0	1280.0	683.4	653.5	10		
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					810	679	690	682	730	654	672	699								612.0	810.0	692.0	682.0	9	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					747	518	457	377	460	495	393	440					498		377.0	747.0	487.2	460.0	9		
AGQS-66	Shallow	75	80	Ucs	8	Coates					950	1053	993	441	1357	1450	1262	1490						1134	913	441.0	1490.0	1104.3	1093.5	10	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	941	978	855	923	983	720	892	627	659	852	759	867								627.0	983.0	842.8	867.0	13	
AGQS-68	Mid	158	163	Ucs		Apple Valley						634	631	755	647											631.0	755.0	666.8	640.5	4	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp								761	609											609.0	761.0	685.0	685.0	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	468	485																		468.0	485.0	476.5	476.5	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	579	596																		579.0	596.0	587.5	587.5	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp	521	534																		521.0	534.0	527.5	527.5	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp											717	845				686	1019	566	566.0	1019.0	766.6	717.0	5		
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp									637	588	656		515	767	457				457.0	767.0	603.3	612.5	6		
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp										386	416		365	513	294				294.0	513.0	394.8	386.0	5		
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp										650	679		599	752	437				437.0	752.0	623.4	650.0	5		
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												544						674	447	447.0	674.0	555.0	544.0	3	
Muni-01	Deep	406	500	Cjdn		Eagan						534														534.0	534.0	534.0	534.0	1	
Muni-02	Deep	258	356	Cjdn		Randolph						399														399.0	399.0	399.0	399.0	1	
Muni-03	Deep	355	457	Cjdn		Empire						184														184.0	184.0	184.0	184.0	1	
Muni-04	Deep	322	401	Cjdn		South St Paul						502														502.0	502.0	502.0	502.0	1	
Muni-05	Mid	132	424	OpCj		Farmington						293														293.0	293.0	293.0	293.0	1	
Muni-06	Mid	248	302	Cjdn		Hampton						254														254.0	254.0	254.0	254.0	1	
Muni-07	Mid	218	298	Cjdn		Burnsville						556														556.0	556.0	556.0	556.0	1	
Muni-08	Deep	340	410	Cjdn		Empire						241														241.0	241.0	241.0	241.0	1	
Muni-09	Deep	580	680	Cjdn		New Trier						290														290.0	290.0	290.0	290.0	1	
Muni-10	Deep	434	517	Cjdn		Lakeville						434														434.0	434.0	434.0	434.0	1	
Muni-11	Mid	240	342	OpCj		South St Paul						726														726.0	726.0	726.0	726.0	1	
Muni-12	Deep	388	471	Cjdn		Rosemount						521														521.0	521.0	521.0	521.0	1	
Muni-13	Deep	392	477	Cjdn		Farmington						307														307.0	307.0	307.0	307.0	1	
Muni-14	Deep	420	516	Cjdn		Apple Valley						591														591.0	591.0	591.0	591.0	1	
Muni-15	Deep	345	400	Cjdn		Rosemount						508														508.0	508.0	508.0	508.0	1	
Muni-16	Deep	345	400	Cjdn		Rosemount						558														558.0	558.0	558.0	558.0	1	
Muni-17	Deep	389	498	Cjdn		Rosemount						535														535.0	535.0	535.0	535.0	1	
Muni-18	Deep	267	293	Ucs		Vermillion						240														240.0	240.0	240.0	240.0	1	
Muni-19	Deep	425	616	OpCj		Lakeville						413														413.0	413.0	413.0	413.0	1	
Muni-20	Deep	417	512	Cjdn		Farmington						320														320.0	320.0	320.0	320.0	1	
Muni-21	Deep	384	500	Cjdn		Eagan						471														471.0	471.0	471.0	471.0	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						487														487.0	487.0	487.0	487.0	1	
Muni-23	Deep	256	305	Cjdn		Hampton						287														287.0	287.0	287.0	287.0	1	
Muni-24	Deep	312	400	Cjdn		Hastings						491	514													491.0	514.0	502.5	502.5	2	
Muni-25	Deep	277	356	Cjdn		Hastings						592	615													592.0	615.0	603.5	603.5	2	
Muni-26	Mid	240	332	Cjdn		Hastings						490	587													490.0	587.0	538.5	538.5	2	
Muni-27	Mid	205	285	Cjdn		Hastings						544	571													544.0	571.0	557.5	557.5	2	
Muni-28	Mid	208	299	Cjdn		Hastings						529	553													529.0	553.0	541.0	541.0	2	

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2015	2018	2019	Min	Max	Avg	Median	Trend	Counts				
AGQS-53	Deep	254	365	Opdc	11	Rosemount		11	13.8	14.5	14.2	13.2	18.5	14	15.6	21.7	19.3	17.8						11.0	21.7	15.8	14.5	Up	11				
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	27	25	29	35.3	35.5	33	42.5	44.3	47.5	48.3	40.7	48.1	45.8			32.4	37.06	25.0	48.3	38.1	37.1	Peaked 2010	15				
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		24	24.6	24.6	23.4	27.7	22.8	21.3	24.6	26.3	20.8	22.6	19			14.5	21.58	14.5	27.7	22.7	23.1	Down	14				
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		17	17.8	18.8	20.1	17.1	19	18.4	17.9	19.3	19.8	17.5	17.4			13	16.58	13.0	20.1	17.8	17.9	None	14				
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		21	23.8	24.5	24.9	18.5	25.3	22.3	25.6	30.4	22.6	30.3	25.6			18.5	24	18.5	30.4	24.1	24.3	None	14				
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						15.7	18.9	18.7	20.3	23.6	20.5	21.1	20.4					15.7	23.6	19.9	20.4	Peak 2010	8				
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						16.3	16.9	18.3	19.7	18.1	15.7	15.9	14.7			10.8	13.51	10.8	19.7	16.0	16.1	Down	10				
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						14.4	18.1	27.1			24.3							14.4	27.1	21.0	21.2	None	4				
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						34.7	39.3	36.5	34.8	39	37.3	49.3	48.9			58.9	75.1	34.7	75.1	45.4	39.2	Up	10				
AGQS-62	Mid	145	149	Ucs		Marshan Twp					27.2	24.1	21.6	23.9	24.2	23.5								21.6	27.2	24.1	24.0	None	6				
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp							23.2	21.6	24.8	29.2	22.1	24.5	22.7			16.5	22.2	16.5	29.2	23.0	22.7	None	9				
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						39.5	42	40.9	55.2	52.5	54.5	39.9	38			22.6	30.53	22.6	55.2	41.6	40.4	Peaked 2008	10				
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						19.2	24.6	22.8	21.3	28	28.9	20.1	21.5			11.5	21.56	11.5	28.9	21.9	21.5	None	10				
AGQS-66	Shallow	75	80	Ucs	8	Coates						30.6	28.3	21.1	29.5	50.3	30	26	18.5			15.4	22.72	15.4	50.3	27.2	27.2	None	10				
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	40	35	38.1	36.2	35.2	33.2	31.6	32.4	30.2	33.3	30.8	26.7	24			20	24.16	20.0	40.0	31.4	32.4	Down	15				
AGQS-68	Mid	158	163	Ucs		Apple Valley							30.7	27.9	30.8	29.9								27.9	30.8	29.8	30.3	SS	4				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									23.3	20.7								20.7	23.3	22.0	22.0	SS	2				
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		28	34.5															28.0	34.5	31.3	31.3	SS	2				
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		37	40.2															37.0	40.2	38.6	38.6	SS	2				
AGQS-77	Deep	267	285	Cjdn		Empire Twp		17	22.6															17.0	22.6	19.8	19.8	SS	2				
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp																		30.3	29.8	22.3	27.1	22.3	30.3	27.4	28.5	SS	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											40.3	37.5	34.4			23.1	32.19	23.1	40.3	33.5	34.4	SS	5				
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp																		23.1	22.6	21.5	22.55	21.5	23.1	22.4	22.6	SS	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp																		32.4	30	24.8	28.7	24.8	32.4	29.0	29.4	SS	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp																		18.2	13	19.06	13.0	19.1	16.8	18.2	SS	3	
Muni-24	Deep	312	400	Cjdn		Hastings							39.7											39.7	39.7	39.7	39.7	SS	1				
Muni-25	Deep	277	356	Cjdn		Hastings							19.8											19.8	19.8	19.8	19.8	SS	1				
Muni-26	Mid	240	332	Cjdn		Hastings							29.8											29.8	29.8	29.8	29.8	SS	1				
Muni-27	Mid	205	285	Cjdn		Hastings							31.6											31.6	31.6	31.6	31.6	SS	1				
Muni-28	Mid	208	299	Cjdn		Hastings							24											24.0	24.0	24.0	24.0	SS	1				

Shaded cells with underline result indicates sulfate greater than drinking water guideline of > 250 mg/L.

* >90% statistical significance, not >95% (pvalue > 0.01)

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = 250 mg/L (EPA SMCLs)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2013	2015	2017	2018	2019	Min	Max	Avg	Median	Counts
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	10.7	11.4	12.5	13.4	11.3	11.5	13.69	10.4	10.44	10.54	14	12.5				12.44	11.9	10.4	14.0	11.9	11.7	14
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	10.5	11.2	11.3	11.2	11.7	10.3	13.72	10.8	10.03	10.11	10.6	10.2				12.19	11.9	10.0	13.7	11.1	11.0	14
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp					9.9	10.8	11.08	9.65	11.5	9.87	11	11.5						9.7	11.5	10.7	10.9	8
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp					9.6	10.8		9.88	10.38	9.93	10	10				10.97	11.2	9.6	11.2	10.3	10.0	9
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp					14.6	12.8	14.8			12.43								12.4	14.8	13.7	13.7	4
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					10.6	9.2	13.2	8.12	10.06	10.22	12.1	11.5				12.55	12	8.1	13.2	11.0	11.1	10
AGQS-62	Mid	145	149	Ucs		Marshan Twp					10.5	10.3	13.58	10.91	10.57	10.27								10.3	13.6	11.0	10.5	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp					10.5	10.8	13.47	11.01	8.9	10.8	11.7	10.8				10.39	10.1	8.9	13.5	10.8	10.8	10
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					12.9	11.9	13.97	10.95	11.67	10.55	11.9	11						10.6	14.0	11.8	11.7	9
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					11.4	10.3	11.85	10.11	11.14	10.4	10.6	11.6				11.65		10.1	11.9	11.0	11.1	9
AGQS-66	Shallow	75	80	Ucs	8	Coates					11.6	11.4	13.45	10.52	11.35	11.96	10	11.3				11.31	11.6	10.0	13.5	11.4	11.4	10
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	10	10.4	10.5	10.1	10.3	12.9	11.85	12.07	12.61	10.29	10.4	10				11.77		10.0	12.9	11.0	10.4	13
AGQS-68	Mid	158	163	Ucs		Apple Valley						10.6	11.55	9.75	12.03									9.8	12.0	11.0	11.1	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp								11.94	12.2									11.9	12.2	12.1	12.1	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	10.9	11.3																10.9	11.3	11.1	11.1	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	11.5	11.5																11.5	11.5	11.5	11.5	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp	10.3	10.4																10.3	10.4	10.4	10.4	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp												11.7	10.5		10.25	10.4	11.5	10.3	11.7	10.9	10.5	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp									10.37	13.6	10.1				10.51	10.93	10.7	10.1	13.6	11.0	10.6	6
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												11.4	13.1		10.28	10.54	11.2	10.3	13.1	11.3	11.2	5
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											10.4	10.7		10.92	10.47	10.9	10.4	10.9	10.4	10.7	10.7	5
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													12			10.77	10.8	10.8	12.0	11.2	10.8	3
Muni-01	Deep	406	500	Cjdn		Eagan						9.73												9.7	9.7	9.7	9.7	1
Muni-02	Deep	258	356	Cjdn		Randolph						12.82												12.8	12.8	12.8	12.8	1
Muni-03	Deep	355	457	Cjdn		Empire						9.19												9.2	9.2	9.2	9.2	1
Muni-04	Deep	322	401	Cjdn		South St Paul						10.07												10.1	10.1	10.1	10.1	1
Muni-05	Mid	132	424	OpCj		Farmington						9.66												9.7	9.7	9.7	9.7	1
Muni-06	Mid	248	302	Cjdn		Hampton						9.36												9.36	9.36	9.36	9.36	1
Muni-07	Mid	218	298	Cjdn		Burnsville						9.96												9.96	9.96	9.96	9.96	1
Muni-08	Deep	340	410	Cjdn		Empire						9.43												9.43	9.43	9.43	9.43	1
Muni-09	Deep	580	680	Cjdn		New Trier						9.93												9.93	9.93	9.93	9.93	1
Muni-10	Deep	434	517	Cjdn		Lakeville						9.51												9.51	9.51	9.51	9.51	1
Muni-11	Mid	240	342	OpCj		South St Paul						10.21												10.21	10.21	10.21	10.21	1
Muni-12	Deep	388	471	Cjdn		Rosemount						9.2												9.2	9.2	9.2	9.2	1
Muni-13	Deep	392	477	Cjdn		Farmington						9.17												9.17	9.17	9.17	9.17	1
Muni-14	Deep	420	516	Cjdn		Apple Valley						9.43												9.43	9.43	9.43	9.43	1
Muni-15	Deep	345	400	Cjdn		Rosemount						8.92												8.92	8.92	8.92	8.92	1
Muni-16	Deep	345	400	Cjdn		Rosemount						9.12												9.12	9.12	9.12	9.12	1
Muni-17	Deep	389	498	Cjdn		Rosemount						9.58												9.58	9.58	9.58	9.58	1
Muni-18	Deep	267	293	Ucs		Vermillion						9.59												9.59	9.59	9.59	9.59	1
Muni-19	Deep	425	616	OpCj		Lakeville						9.51												9.51	9.51	9.51	9.51	1
Muni-20	Deep	417	512	Cjdn		Farmington						9.13												9.13	9.13	9.13	9.13	1
Muni-21	Deep	384	500	Cjdn		Eagan						9.73												9.73	9.73	9.73	9.73	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						9.75												9.75	9.75	9.75	9.75	1
Muni-23	Deep	256	305	Cjdn		Hampton						9.65												9.65	9.65	9.65	9.65	1
Muni-24	Deep	312	400	Cjdn		Hastings						11.2	11.27											11.2	11.27	11.235	11.235	2
Muni-25	Deep	277	356	Cjdn		Hastings						11.3	11.28											11.28	11.3	11.29	11.29	2
Muni-26	Mid	240	332	Cjdn		Hastings						12.3	12.07											12.07	12.3	12.185	12.185	2
Muni-27	Mid	205	285	Cjdn		Hastings						12	13.36											12	13.36	12.68	12.68	2
Muni-28	Mid	208	299	Cjdn		Hastings						11.2	11.65											11.2	11.65	11.425	11.425	2

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	564.93	674	564.9	674.0	619.5	619.5	2
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	443.73	425	425.0	443.7	434.4	434.4	2
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	472.41	492	472.4	492.0	482.2	482.2	2
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	350.61	352	350.6	352.0	351.3	351.3	2
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	319.58	306	306.0	319.6	312.8	312.8	2
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	345.26	334	334.0	345.3	339.6	339.6	2
AGQS-09	Mid	140	185	Opdc	16	Rosemount	275.3	356	275.3	356.0	315.7	315.7	2
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	317.95	634	318.0	634.0	476.0	476.0	2
AGQS-11	Deep	265	280	Cjdn	5	Hastings	201.1	196	196.0	201.1	198.6	198.6	2
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	350.74	0	0.0	350.7	175.4	175.4	2
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	326.81	325	325.0	326.8	325.9	325.9	2
AGQS-14	Deep	385	415	Cjdn	2	Hampton	278.6	297	278.6	297.0	287.8	287.8	2
AGQS-15	Mid	166	170	Ucs	5	Hastings	266.58		266.6	266.6	266.6	266.6	1
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	343.5	216	216.0	343.5	279.8	279.8	2
AGQS-17	Deep	276	280	Ucs	15	Rosemount	231.08	385	231.1	385.0	308.0	308.0	2
AGQS-18	Deep	265	280	Opdc	11	Rosemount	270.13	268	268.0	270.1	269.1	269.1	2
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	318	305	305.0	318.0	311.5	311.5	2
AGQS-20	Shallow	55	60	Ucs		Empire Twp	591.71	431	431.0	591.7	511.4	511.4	2
AGQS-21	Mid	133	137	Ucs		Burnsville	385.25	358	358.0	385.3	371.6	371.6	2
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	326.4	298	298.0	326.4	312.2	312.2	2
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	275.61	335	275.6	335.0	305.3	305.3	2
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	255.02		255.0	255.0	255.0	255.0	1
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	318.93	309	309.0	318.9	314.0	314.0	2
AGQS-26	Deep	342	360	Opdc		Lakeville	339.36	327	327.0	339.4	333.2	333.2	2
AGQS-27	Mid	176	180	Ucs	11	Rosemount	302.1	331	302.1	331.0	316.6	316.6	2
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	304.49	292	292.0	304.5	298.2	298.2	2
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	263	279	263.0	279.0	271.0	271.0	2
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	278.84	278	278.0	278.8	278.4	278.4	2
AGQS-31	Mid	135	140	Ucs		Lakeville	483.04	435	435.0	483.0	459.0	459.0	2
AGQS-32	Mid	179	218	Opdc	15	Rosemount	383.05	346	346.0	383.1	364.5	364.5	2
AGQS-33	Deep	260	280	Cjdn	8	Coates	346.48	350	346.5	350.0	348.2	348.2	2
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	319.3	324	319.3	324.0	321.7	321.7	2
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	282.35	219	219.0	282.4	250.7	250.7	2
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	270.52	301	270.5	301.0	285.8	285.8	2
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	303.03	286	286.0	303.0	294.5	294.5	2
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	280.82	308	280.8	308.0	294.4	294.4	2
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	227.72	222	222.0	227.7	224.9	224.9	2

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011	2013	Min	Max	Avg	Median	Counts
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	361.57	370	361.6	370.0	365.8	365.8	2
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	339.96	264	264.0	340.0	302.0	302.0	2
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	330.39	344	330.4	344.0	337.2	337.2	2
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	271.18	272	271.2	272.0	271.6	271.6	2
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	187.81	169	169.0	187.8	178.4	178.4	2
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	231.94	223	223.0	231.9	227.5	227.5	2
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	357.45	264	264.0	357.5	310.7	310.7	2
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	339.36	327	327.0	339.4	333.2	333.2	2
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	288.13	281	281.0	288.1	284.6	284.6	2
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	322.85	0	0.0	322.9	161.4	161.4	2
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	343.72	330	330.0	343.7	336.9	336.9	2
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<u>597.04</u>	268	268.0	597.0	432.5	432.5	2
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	285.47	279	279.0	285.5	282.2	282.2	2
AGQS-53	Deep	254	365	Opdc	11	Rosemount	285.37		285.4	285.4	285.4	285.4	1
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	383.25	398	383.3	398.0	390.6	390.6	2
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	357.46	347	347.0	357.5	352.2	352.2	2
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	350.42	286	286.0	350.4	318.2	318.2	2
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	218.53	356	218.5	356.0	287.3	287.3	2
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	398.71	389	389.0	398.7	393.9	393.9	2
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	241.62	289	241.6	289.0	265.3	265.3	2
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	422.39	349	349.0	422.4	385.7	385.7	2
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	394.11	399	394.1	399.0	396.6	396.6	2
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	422.68	407	407.0	422.7	414.8	414.8	2
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	225.99	239	226.0	239.0	232.5	232.5	2
AGQS-66	Shallow	75	80	Ucs	8	Coates	<u>727.62</u>	<u>660</u>	660.0	727.6	693.8	693.8	2
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	487.91	485	485.0	487.9	486.5	486.5	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	414.57	<u>506</u>	414.6	506.0	460.3	460.3	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	374.1	397	374.1	397.0	385.6	385.6	2
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	230.17	248	230.2	248.0	239.1	239.1	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp	414.36	471	414.4	471.0	442.7	442.7	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		335	335.0	335.0	335.0	335.0	1

Shaded cells with underline result indicates TDS greater than drinking water guideline of > 500 mg/L

Drinking Water Guideline = 500 mg/L (EPA SMCLs)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2013	Min	Max	Avg	Median	Counts
AGQS-01	Shallow	100	197	Opdc	8	Coates	9.9	<1	0.5	0.9	<0.5	<0.5	<0.5	0.6	<0.5	0.7	3	<0.5	9.9	1.4	0.5	11
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	7.6	1.5	0.9	1	1	0.6	<0.5	0.8	0.6	0.7	2.3	<0.5	7.6	1.5	0.9	11
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.5	<0.5	0.6	<0.5	<0.5		<0.5	0.6	0.1	0.0	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp			1	2.6	0.6	<0.5	0.9	0.6	0.8	2.2	<0.5	2.6	1.1	0.9	8	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.5	<0.5	0.9	0.6		<0.5	0.9	0.4	0.3	4	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.7	<1	0.5	0.6	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	1.6	<0.5	1.6	0.4	0.0	11
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	9.2	<1	0.6	0.7	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	2.4	<0.5	9.2	1.2	0.0	11
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	9.7	<1	0.8	1	0.7	0.6	<0.5	0.6	0.6	0.6	2.2	<0.5	9.7	1.5	0.6	11
AGQS-09	Mid	140	185	Opdc	16	Rosemount	8.2	<1	<0.5	0.8	0.6	<0.5	<0.5	<0.5	<0.5	0.6	1.8	<0.5	8.2	1.1	0.0	11
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	11	<1	0.6	1	0.6	0.7	<0.5	0.8	0.6	0.8	3.4	<0.5	11.0	1.8	0.7	11
AGQS-11	Deep	265	280	Cjdn	5	Hastings	7.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	7.7	0.8	0.0	11
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	7.2	<1	0.6	0.6	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	1.7	<0.5	7.2	1.0	0.0	11
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<1	1.1	1.9	1.5	1.3	0.6	1.2	1.2	1.4	2.7	<1	2.7	1.3	1.3	10
AGQS-14	Deep	385	415	Cjdn	2	Hampton	8.9	<1	<0.5	0.6	<0.5	<0.5	1	0.5	<0.5	<0.5	1.9	<0.5	8.9	1.2	0.0	11
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	5
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<1	0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	0.9	0.1	0.0	10
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.5	<0.5	0.5	<0.5	0.6	2.3	<0.5	2.3	0.6	0.3	6
AGQS-18	Deep	265	280	Opdc	11	Rosemount	8.5	<1	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	8.5	1.0	0.0	11
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0.5	<0.5	0.6	0.5	0.7	2.4	<0.5	2.4	0.8	0.6	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp						0.6	0.9	0.9	0.6	1.2	3.5	0.6	3.5	1.3	0.9	6
AGQS-21	Mid	133	137	Ucs		Burnsville						0.6	<0.5	0.6	0.6	0.8	2.2	<0.5	2.2	0.8	0.6	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	8.9	<1	0.9	1.3	0.8	0.7	0.7	0.8	0.8	0.7	2.6	<1	8.9	1.7	0.8	11
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.6	0.6	0.9	<0.5	0.6	2.2	<0.5	2.2	0.8	0.6	6
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	5.3	<1	0.6	0.7	0.6	<0.5	<0.5	<0.5	<0.5	0.6		<0.5	5.3	0.8	0.3	10
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<1	0.8	1.1	0.7	0.6	<0.5	0.7	0.6	0.6	2.3	<0.5	2.3	0.7	0.7	10
AGQS-26	Deep	342	360	Opdc		Lakeville						1.2	2.1	1.7	1.1	1.3	3.3	1.1	3.3	1.8	1.5	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.5	<0.5	0.6	<0.5	0.5	1.8	<0.5	1.8	0.5	0.3	6
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		1.1	0.7	0.8	0.8	<0.5	<0.5	0.6	<0.5	0.6	2.2	<0.5	2.2	0.7	0.7	10
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<1	0.6	0.9	0.9	0.6	<0.5	<0.5	<0.5	0.6	2	<0.5	2.0	0.6	0.6	10
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	6.2	1.2	0.8	0.9	0.8	0.6	<0.5	0.6	0.6	0.8	1.6	<0.5	6.2	1.3	0.8	11
AGQS-31	Mid	135	140	Ucs		Lakeville						3.3	2.7	3.3	3.2	2.9	5.6	2.7	5.6	3.5	3.3	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount	8.1	<1	0.5	0.9	0.6	<0.5	<0.5	0.6	<0.5	0.8	2.1	<0.5	8.1	1.2	0.6	11
AGQS-33	Deep	260	280	Cjdn	8	Coates	6.9	<1	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	6.9	0.9	0.0	11
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	7.9	<1	0.7	0.9	0.8	0.6	<0.5	0.7	0.5	0.7	2.4	<0.5	7.9	1.4	0.7	11
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	4.3	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1.1	<0.5	4.3	0.6	0.0	11
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	9	<1	0.8	1.3	0.8	0.8	0.5	0.7	0.7	0.9	2.6	<1	9.0	1.6	0.8	11
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	1.6	0.3	0.0	6
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	9.5	1.1	0.7	0.8	0.6	<0.5	<0.5	0.6	<0.5	0.6	2	<0.5	9.5	1.4	0.6	11
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	6.3	<1	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	6.3	0.7	0.0	11
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	12	<1	1.1	1.3	1.1	1	0.8	1.3	0.9	1	3.2	<1	12.0	2.2	1.1	11
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	7.6	<1	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1.6	<0.5	7.6	1.0	0.0	11
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	7.2	<1	<0.5	0.7	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	1.5	<0.5	7.2	0.9	0.0	11
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	9.1	<1	0.6	0.8	0.7	0.5	1.8	0.7	0.5	0.7	2.3	<1	9.1	1.6	0.7	11
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	6.7	<1	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	6.7	0.8	0.0	11
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	6.7	<1	0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	6.7	1.0	0.0	10
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<1	<0.5	0.9	<0.5	<0.5	<0.5	0.7	<0.5	0.6	1.8	<0.5	1.8	0.4	0.0	10
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0.9	1.4	0.9	0.8	1.1	2.4	0.8	2.4	1.3	1.0	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0.5	<0.5	0.5	<0.5	0.6	2	<0.5	2.0	0.6	0.5	6
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			0.7	<0.5	<0.5	<0.5	0.9	<0.5	<0.5		<0.5	0.9	0.2	0.0	7	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	11	1.4	1.3	1.7	1.3	1.1	0.8	1.3	1.1	1.3	3.2	0.8	11.0	2.3	1.3	11
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<0.5	1	0.5	0.7	2.3	<0.5	2.3	0.8	0.6	6	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						1.1	0.8	1.1	1	1	8.8	0.8	8.8	2.3	1.1	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		1.3	0.9	1.3	1	0.9	0.6	0.8	0.7	0.9		0.6	1.3	0.9	0.9	9
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	6.2	<1	0.6	0.8	<0.5	<0.5	0.7	0.5	<0.5	0.5	1.8	<0.5	6.2	1.0	0.5	11
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<1	0.5	0.8	<0.5	<0.5	<0.5	0.6	<0.5	0.6	1.9	<0.5	1.9	0.4	0.3	10
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<1	0.6	<0.5	<0.5	<0.5	<0.5	0.6	0.5	0.5	1.1	<0.5	1.1	0.3	0.3	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<1	0.8	1	0.5	<0.5	0.8	<0.5	0.6	0.9	2	<1	2.0	0.7	0.7	10
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0.9	0.8	1.3	0.9	1.1	3.5	0.8	3.5	1.4	1.0	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.5	<0.5	0.6	0.5	0.7	1.6	<0.5	1.6	0.7	0.6	6
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.8	1.4	1.1				0.8	1.4	1.1	1.1	3

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2013	Min	Max	Avg	Median	Counts
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.5	<0.5	<0.5	<0.5	0.6	2.3	<0.5	2.3	0.5	0.0	6
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.5	<0.5	0.7	0.5	<0.5		<0.5	0.7	0.2	0.0	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.5	<0.5	0.5	0.5	0.5	1.8	<0.5	1.8	0.6	0.5	6
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						3.1	2.6	3.3	2.9	3.6	4	2.6	4.0	3.3	3.2	6
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.8	0.5	0.7	0.6	0.9	1.9	0.5	1.9	0.9	0.8	6
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.8	<0.5	0.9	<0.5	0.5	2.7	<0.5	2.7	0.8	0.7	6
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	13	<1	1.1	1.1	1	1.1	1.6	1.2	0.6	0.8	3.2	<1	13.0	2.2	1.1	11
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.5	1.1	0.7	0.7		<0.5	1.1	0.6	0.7	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									1.4	2.8		1.4	2.8	2.1	2.1	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<1	0.6									<1	0.6	0.3	0.3	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<1	0.9									<1	0.9	0.5	0.5	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		1.2	0.6									0.6	1.2	0.9	0.9	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp											2.5	2.5	2.5	2.5	2.5	1
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											1.8	1.8	1.8	1.8	1.8	1
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											1.2	1.2	1.2	1.2	1.2	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											1.6	1.6	1.6	1.6	1.6	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp											1.3	1.3	1.3	1.3	1.3	1
Muni-24	Deep	312	400	Cjdn		Hastings							<0.5					<0.5	<0.5	<0.5	<0.5	1
Muni-25	Deep	277	356	Cjdn		Hastings							<0.5					<0.5	<0.5	<0.5	<0.5	1
Muni-26	Mid	240	332	Cjdn		Hastings							<0.5					<0.5	<0.5	<0.5	<0.5	1
Muni-27	Mid	205	285	Cjdn		Hastings							<0.5					<0.5	<0.5	<0.5	<0.5	1
Muni-28	Mid	208	299	Cjdn		Hastings							<0.5					<0.5	<0.5	<0.5	<0.5	1

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	Gross Alpha (pCi/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)
AGQS-01	Shallow	100	197	Opdc	8	Coates	6.210	0.058	0.572
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	4.910	0.720	1.110
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	1.650	0.284	0.542
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	6.250	0.062	1.530
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	5.720	1.370	0.801
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	1.590	0.100	0.560
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	0.898	0.400	0.487
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.799	0.259	0.500
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	6.000	0.277	0.646
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0.251	0.058	0.144
AGQS-82	Mid	167	175	Ucs		Ravenna Twp	0.661	0.134	0.165
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.901	0.193	0.565
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	0.674	0.390	0.391
AGQS-14	Deep	385	415	Cjdn	2	Hampton	2.400	0.480	0.770
AGQS-17	Deep	276	280	Ucs	15	Rosemount	1.170	0.160	1.030
AGQS-18	Deep	265	280	Opdc	11	Rosemount	2.170	0.250	0.150
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	1.150	0.100	1.070
AGQS-21	Mid	133	137	Ucs		Burnsville	3.920	0.736	0.396
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0.898	-0.180	0.510
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	0.854	0.412	0.459
AGQS-26	Deep	342	360	Opdc		Lakeville	15.200	3.360	1.470
AGQS-27	Mid	176	180	Ucs	11	Rosemount	0.903	0.110	0.640
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	16.200	2.940	0.960
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	3.040	0.978	0.218
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	2.070	0.700	0.380
AGQS-31	Mid	135	140	Ucs		Lakeville	3.870	0.712	1.560
AGQS-32	Mid	179	218	Opdc	15	Rosemount	-0.077	0.110	0.280
AGQS-33	Deep	260	280	Cjdn	8	Coates	0.694	0.096	0.786
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	5.810	1.760	0.499
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	4.230	1.120	0.340
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	-1.620	0.310	0.376
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	0.755	-0.055	0.428
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	6.020	1.120	1.680
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	4.770	0.940	0.780
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	6.350	3.240	1.440
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	1.640	0.853	0.410

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	Gross Alpha (pCi/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	1.140	0.140	1.210
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	1.200	0.236	0.894
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	2.870	0.672	0.268
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		1.360	0.587
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	11.900	1.120	1.950
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	-0.150	0.255	0.277
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	-2.730	0.167	0.924
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	0.863	0.000	0.226
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	3.710	3.350	1.340
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	1.180	0.190	0.800
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	2.110	0.178	0.942
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.307	0.181	0.855
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	3.660	2.010	0.630
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	1.030	-0.154	0.595
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	1.140	0.337	0.369
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	2.890	0.260	1.270
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	1.460	0.180	0.530
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	5.090	0.760	0.420
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	-0.121	0.324	-0.006
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	2.380	0.000	1.170
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	-1.100	-0.120	-0.030
AGQS-66	Shallow	75	80	Ucs	8	Coates	1.170	0.196	0.825
AGQS-20	Shallow	55	60	Ucs		Empire Twp	3.220	-0.270	0.350
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp	0.473	0.155	0.990
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	-0.915	0.220	0.130

Shaded cells with underline result indicates greater than drinking water guideline.

Drinking Water Guidelines:

15 pCi/L (EPA MCL)

5 pCi/L combined (EPA MCL)

Appendix C

Table Results by Well – Pesticides

Tables of Total Herbicides – parent plus breakdown products:

Table C.1. Summary of Total Atrazines (ug/L)
Sum of Atrazine, DIA, DEA, DIHA, HA, DDA, DEHA

Table C.2. Summary of Total Hydroxyatrazine (ug/L)
Sum of Hydroxyatrazine, DIHA and DEHA

Table C.10. Summary of Sum of Cyanazine (ug/L)
Sum of Cyanazine, DIA, CAM, DEC, DCAC, DCAM, DDA, and CAC

Table C.17. Summary of Total Simazines (ug/L)
Sum of Simazine, DIA, hydroxysimazine, and DEDI Atrazine

Table C.27. Summary of Total Alachlor (ug/L)
Sum of Alachlor, -ESA, -OXA, -SAA, Dechloroalachlor, Hydroxyalachlor, Alachlor-2nd amide & Alachlor
ESA -2nd amide

Table C.36. Summary of Total Metolachlor (ug/L)
Sum of Metolachlor, -ESA, -OXA, Dechlorometolachlor, Hydroxymetolachlor,
Aceto/Meto 2nd Amide, & Aceto/Meto ESA 2nd Amide

Table C.44. Summary of Total Acetochlor (ug/L)
Sum of Acetochlor, -ESA, -OXA, -SAA, dechloroacetochlor, hydroxyacetochlor

Table C.51. Summary of Total Dimethanamid (ug/L)
Sum of Dimethanamid, -ESA, -OXA, Dechlorodimethanamid, Dimethanamid hydroxy

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0	0	0.2	0.08	0.07	0.13	0.17	0.09	0.08	0	0.06	0.13	0.13		0.15	0.00	0.20	0.09	0.09	14
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0	0	0	0	0		0.07	0	0.03	0	0	0.047	0		0	0.00	0.07	0.00	0.01	13
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						0.05	0.05	0	0.05	0	0					0.00	0.05	0.03	0.03	6
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				0.43	0.37		0.3	0.28		0.25	0.28	0.61	0.4		0.24	0.24	0.61	0.30	0.35	9
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						0.24	0.23	0.17						0.37		0.17	0.37	0.24	0.25	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0	0	0.11	0.18	0.15		0.15	0.22	0.13	0.04	0.14	0.08	0.14		0.077	0.00	0.22	0.13	0.11	13
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0	0	0	0	0		0.05	0.03	0	0	0	0.053	0.095		0	0.00	0.10	0.00	0.02	13
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0	0	0.2	0.08	0		0.14	0.08	0.06	0	0.09	0.13	0.18		0.21	0.00	0.21	0.08	0.09	13
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0	0	0	0			0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	10
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0	0	0.32	0.37	0.25		0.43	0.42	0.38	0.1	0.39	0.19	0.36		0.18	0.00	0.43	0.32	0.26	13
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0	0	0	0		0		0	0	0	0				0.00	0.00	0.00	0.00	9
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0	0	0	0	0		0.04	0	0	0	0	0			0	0.00	0.04	0.00	0.00	12
AGQS-15	Mid	166	170	Ucs	5	Hastings						0.03	0.03	0	0.03	0	0	0.044				0.00	0.04	0.03	0.02	7
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0	0	0.31	0		0.05	0.06	0.05	0	0.04	0.04	0.068			0.00	0.31	0.04	0.06	11
AGQS-17	Deep	276	280	Ucs	15	Rosemount						0	0.06	0.05	0.06	0	0.1	0.1	0.089		0.054	0.00	0.10	0.06	0.06	9
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0	0	0	0	0		0	0		0	0	0			0	0.00	0.00	0.00	0.00	11
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0	0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	8
AGQS-20	Shallow	55	60	Ucs		Empire Twp						0	0	0	0	0	0	0.03	0		0	0.00	0.03	0.00	0.00	9
AGQS-21	Mid	133	137	Ucs		Burnsville						0	0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	8
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0	0	0	0	0		0	0	0	0	0	0				0.00	0.00	0.00	0.00	11
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.27	0.3	0.25	0.2	0.14	0.06	0.03	0.029		0.078	0.03	0.30	0.14	0.15	9
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0	0	0	0	0		0	0	0.05	0	0	0			0	0.00	0.05	0.00	0.00	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0	0	0	0		0.05	0.05	0.11	0	0.16	0.053	0.034		0	0.00	0.16	0.02	0.04	12
AGQS-26	Deep	342	360	Opdc		Lakeville						0	0.03	0	0	0	0	0			0	0.00	0.03	0.00	0.00	8
AGQS-27	Mid	176	180	Ucs	11	Rosemount						0	0	0	0	0	0	0	0		0	0.00	0.00	0.00	0.00	9
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0	0	0	0		0		0	0	0	0			0	0.00	0.00	0.00	0.00	10
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0	0	0	0		0	0	0	0	0	0.19	0		0	0.00	0.19	0.00	0.02	12
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0	0	0.3	0.42	0.23		0.41	0.41	0.33	0.08	0.35	0.22	0.18		0.15	0.00	0.42	0.23	0.24	13
AGQS-31	Mid	135	140	Ucs		Lakeville							0.03	0	0	0	0	0			0	0.00	0.03	0.00	0.00	8
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0	0	0.2	0.06	0.08		0.12	0.6	0.08	0	0.19	0.16		0.11	0.12	0.00	0.60	0.11	0.13	13
AGQS-33	Deep	260	280	Cjdn	8	Coates	0	0	0.2	0.05	0.05	0.07	0.06	0.05		0.03	0.05	0.15	0.15	0.1	0.14	0.00	0.20	0.06	0.08	14
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0	0	0	0	0		0.05	0	0	0	0	0.031	0		0	0.00	0.05	0.00	0.01	13
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						0	0	0	0	0	0	0	0		0	0.00	0.00	0.00	0.00	9
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0	0	0	0	0		0	0	0	0	0	0	0.025		0.085	0.00	0.09	0.00	0.01	13
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0	0	0	0	0		0		0	0	0	0			0	0.00	0.00	0.00	0.00	11
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0	0	0.2	0.07	0.05		0.06	0.1	0.07	0	0.05	0.11		0.1	0.16	0.00	0.20	0.07	0.07	13
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0	0	0	0	0		0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	12
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0	0	0	0	0		0.03	0	0	0	0	0			0	0.00	0.03	0.00	0.00	12
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0	0	0	0	0		0		0	0	0	0			0	0.00	0.00	0.00	0.00	11
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		0	0	0	0		0	0.03	0	0	0	0			0	0.00	0.03	0.00	0.00	11
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0	0		0	0	0	0			0	0.00	0.00	0.00	0.00	7
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0	0	0	0	0	0	0			0	0.00	0.00	0.00	0.00	9
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				0	0		0.03	0.04		0.02	0.04	0.057	0.064	0.11	0.099	0.00	0.11	0.04	0.05	10
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0	0	0	0	0		0		0		0	0			0	0.00	0.00	0.00	0.00	10
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						0	0	0			0	0			0	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							0	0		0	0	0.65	1.1	0	0	0.00	1.10	0.00	0.22	8
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0	0	0	0		0.04	0	0	0	0	0				0.00	0.04	0.00	0.00	10
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0	0	0.2	0.12	0.1		0.11	0.12	0.11	0.08	0.08	0.83	0.094		0.19	0.00	0.83	0.11	0.16	13
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0	0.2	0.09	0.07		0.17	0.16	0.17	0.05	0.09	0.18	0.13		0.092	0.00	0.20	0.11	0.12	12

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0	0.2	0.15	0.14		0.07	0.08	0.11	0.07	0.11	0.07	0.08		0.2	0.00	0.20	0.10	0.11	12
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0	0.3	0	0.32		0.32	0.27	0.3	0.12	0.25	0.2	0.18		0.24	0.00	0.32	0.25	0.21	12
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0	0	0	0	0	0	0				0.00	0.00	0.00	0.00	7
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.18	0.18	0.21	0.14	0.08	0.14	0.15	0.068		0.081	0.07	0.21	0.14	0.14	9
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.75	0.44	0.26								0.26	0.75	0.44	0.48	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.41	0.39	0.09	0.05	0.08	0.29	0.074	0.15		0.045	0.05	0.41	0.09	0.18	9
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.57	0.27	0.18	0.29	0.07	0.21					0.07	0.57	0.24	0.27	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.21	0.16	0.13	0.18	0.1	0.19	0.43	0.36		0.23	0.10	0.43	0.19	0.22	9
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.05	0.03	0.05	0	0	0.05	0.15	0.074		0.1	0.00	0.15	0.05	0.06	9
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0	0	0	0	0	0	0			0.01	0.00	0.01	0.00	0.00	8
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.13	0.11	0.1	0.06	0	0.1	0.097	0.14		0.13	0.00	0.14	0.10	0.10	9
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0.3	0.25	0.21		0.22	0.17	0.15	0.09	0.28	0.15	0.17		0.13	0.00	0.30	0.17	0.16	13
AGQS-68	Mid	158	163	Ucs		Apple Valley							0	0	0	0						0.00	0.00	0.00	0.00	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.3	0.05	0.14					0.05	0.30	0.14	0.16	3
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0	0													0.00	0.00	0.00	0.00	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0	0													0.00	0.00	0.00	0.00	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0	0													0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0.08		0.13	0.12	0.38	0.17	0.08	0.38	0.13	0.18	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										0.16		0.22	0.29	0.14	0.28	0.14	0.29	0.22	0.22	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												0	0	0	0	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.26	0.13	0.085	0.12	0.09	0.26	0.13	0.15	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													0.44		0.25	0.25	0.44	0.35	0.35	2
Muni-01	Deep	406	500	Cjdn		Eagan						0										0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph						0										0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire						0									0	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul						0										0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington						0									0	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton						0.05										0.05	0.05	0.05	0.05	1
Muni-07	Mid	218	298	Cjdn		Burnsville						0										0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire						0									0	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier						0										0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville						0										0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul						0										0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount						0										0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington						0									0	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley						0										0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount						0.05										0.05	0.05	0.05	0.05	1
Muni-16	Deep	345	400	Cjdn		Rosemount						0.07										0.07	0.07	0.07	0.07	1
Muni-17	Deep	389	498	Cjdn		Rosemount						0										0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion						0										0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville						0										0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington						0.06									0	0.00	0.06	0.03	0.03	2
Muni-21	Deep	384	500	Cjdn		Eagan						0										0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						0										0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton						0.06										0.06	0.06	0.06	0.06	1
Muni-24	Deep	312	400	Cjdn		Hastings						0.035	0.16								0.076	0.04	0.16	0.08	0.09	3
Muni-25	Deep	277	356	Cjdn		Hastings						0.055	0.02								0.062	0.02	0.06	0.06	0.05	3
Muni-26	Mid	240	332	Cjdn		Hastings						0.025	0.017								0.067	0.02	0.07	0.03	0.04	3
Muni-27	Mid	205	285	Cjdn		Hastings						0.085	0.04								0.14	0.04	0.14	0.09	0.09	3
Muni-28	Mid	208	299	Cjdn		Hastings						0.26	0.037								0.11	0.04	0.26	0.11	0.14	3
Muni-29	Deep	197	402	OpCj		Farmington															0.00	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington															0.06	0.06	0.06	0.06	0.06	1
Muni-31	Deep	386	485	Cjdn		Farmington															0.00	0.00	0.00	0.00	0.00	1

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0	0	0	0		0.00	0.06	0		0	0.00	0.06	0.00	0.01	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		0.07	0	0		0.00	0.05	0		0	0.00	0.07	0.00	0.02	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	0	0	0	0		0.00					0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.04	0			0.03	0.68	0		0	0.00	0.68	0.04	0.14	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	0	0.08	0						0.11		0.00	0.11	0.04	0.05	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		0.05	0	0.09		0.00	0.07	0		0.032	0.00	0.09	0.05	0.05	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		0.08	0	0		0.00	0.09	0		0	0.00	0.10	0.00	0.04	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount		0.03	0	0		0.00	0.03	0		0	0.00	0.04	0.00	0.01	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		0.06	0	0		0.00	0.00	0		0.007	0.00	0.06	0.00	0.02	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0	0	0		0.00	0.00				0.00	0.00	0.00	0.00	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-15	Mid	166	170	Ucs	5	Hastings	0	0	0	0		0.00	0.04				0.00	0.04	0.00	0.01	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.04	0	0.05		0.00	0.04	0			0.00	0.07	0.04	0.03	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	0	0.03	0	0		0.00	0.00	0		0	0.00	0.03	0.00	0.00	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		0	0			0.00	0.00			0	0.00	0.00	0.00	0.00	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	0	0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp	0	0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville	0	0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		0	0	0		0.00	0.00				0.00	0.00	0.00	0.00	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0	0.03	0	0		0.00	0.00	0		0	0.00	0.03	0.00	0.00	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		0	0	0.05		0.00	0.00			0	0.00	0.05	0.00	0.01	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0	0	0		0.00	0.05	0		0	0.00	0.05	0.00	0.01	7
AGQS-26	Deep	342	360	Opdc		Lakeville	0	0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount	0	0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0		0		0.00	0.00			0	0.00	0.00	0.00	0.00	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0	0	0		0.00	0.19	0		0	0.00	0.19	0.00	0.03	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		0	0	0		0.00	0.20	0		0.007	0.00	0.20	0.00	0.03	7
AGQS-31	Mid	135	140	Ucs		Lakeville		0.03	0	0		0.00	0.00	0		0	0.00	0.03	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount		0.06	0	0		0.00	0.00		0	0	0.00	0.06	0.00	0.01	7
AGQS-33	Deep	260	280	Cjdn	8	Coates	0	0	0			0.00	0.04	0	0.033	0	0.00	0.04	0.00	0.01	8
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		0	0	0		0.00	0.03	0		0	0.00	0.03	0.00	0.00	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	0	0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		0		0		0.00	0.00			0	0.00	0.00	0.00	0.00	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		0.05	0	0		0.00	0.05		0.041	0	0.00	0.05	0.00	0.02	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		0.03	0	0		0.00	0.00			0	0.00	0.03	0.00	0.01	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		0		0		0.00	0.00			0	0.00	0.00	0.00	0.00	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		0	0	0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	0	0		0		0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	0	0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		0	0			0.00	0.00	0	0.026	0	0.00	0.03	0.00	0.00	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		0		0		0.00	0.00			0	0.00	0.00	0.00	0.00	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	0	0	0			0.00	0.00			0	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		0	0			0.00	1.17	0	0	0	0.00	1.17	0.00	0.19	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0.04	0	0		0.00	0.00				0.00	0.04	0.00	0.01	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		0	0	0		0.00	0.87	0		0	0.00	0.87	0.00	0.12	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0	0	0		0.00	0.06	0		0	0.00	0.06	0.00	0.01	7
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	7

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0.05	0	0		0.00	0.05	0		0.011	0.00	0.09	0.01	0.03	7
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	0	0	0	0		0.00	0.00				0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	0	0	0	0		0.00	0.10	0		0	0.00	0.10	0.00	0.01	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	0	0	0								0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.04	0.1	0	0		0.04	0.10	0		0	0.00	0.11	0.04	0.05	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp	0	0.08	0	0.03		0.00					0.00	0.08	0.00	0.02	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0	0	0	0.04		0.00	0.49	0		0	0.00	0.49	0.00	0.08	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	0	0.03	0.05	0		0.05	0.06	0		0.1	0.00	0.10	0.05	0.05	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	0	0	0	0		0.00	0.00			0.01	0.00	0.01	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates	0	0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		0	0	0		0.00	0.00	0		0	0.00	0.00	0.00	0.00	7
AGQS-68	Mid	158	163	Ucs		Apple Valley		0	0	0							0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				0		0.00					0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					0		0.00	0	0	0	0.00	0.00	0.00	0.00	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					0.04		0.14	0	0.072	0	0.00	0.14	0.07	0.07	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							0.00	0	0	0	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							0.00	0	0	0	0.00	0.00	0.00	0.00	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								0	0	0	0.00	0.09	0.05	0.05	2
Muni-01	Deep	406	500	Cjdn		Eagan		0									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		0									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		0								0	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul		0									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		0								0	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton		0									0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		0									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		0								0	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier		0									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		0									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		0									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		0									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		0								0	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		0									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		0									0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		0									0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		0									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		0									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		0									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		0								0	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan		0									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		0									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		0									0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings		0.03	0.013							0	0.00	0.03	0.01	0.01	3
Muni-25	Deep	277	356	Cjdn		Hastings		0	0							0	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings		0	0.013							0	0.00	0.01	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings		0.035	0.013							0	0.00	0.04	0.01	0.02	3
Muni-28	Mid	208	299	Cjdn		Hastings		0.285	0.027							0	0.00	0.29	0.03	0.10	3
Muni-29	Deep	197	402	OpCj		Farmington										0	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										0	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington										0	0.00	0.00	0.00	0.00	1

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.13	0.17	0.11	0.09	E0.08	0.14	0.085	0.067	0.067	0.07	0.17	0.09	0.10	9		
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.025	<0.025	<0.025								0.00	0.00	0.00	0.00	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.41	0.39	0.09	<0.025	E0.08	0.29	0.074	0.15		0.045	0.00	0.41	0.09	0.17	9	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.03	0.11	0.05	0.1	E0.07	0.1					0.03	0.11	0.09	0.08	6	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.09	0.09	0.04	0.12	E0.10	0.1	0.096	0.09		0.069	0.04	0.12	0.09	0.09	9	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.03	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.03	0.00	0.00	9	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025			<0.03	0.00	0.00	0.00	0.00	8	
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.03	0.06	0.07	0.05	<0.20	0.05	0.045	0.054		0.053	0.00	0.07	0.05	0.05	9	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.2	<0.5	0.3	0.19	0.14		0.1	0.08	0.07	E0.09	0.06	0.047	0.05		0.035	0.00	0.30	0.07	0.09	13	
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.025	<0.025	<0.025	<0.20						0.00	0.00	0.00	0.00	4	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.06	E0.05	<0.025					0.00	0.06	0.05	0.04	3	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										E0.06		0.057	0.066	0.046	0.058	0.05	0.07	0.06	0.06	5	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.025		0.041	0.051	0.03	0.077	0.00	0.08	0.04	0.04	5	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.008	<0.025	<0.02	<0.03	0.00	0.00	0.00	0.00	4	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.039	0.034	0.021	<0.03	0.00	0.04	0.03	0.02	4	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													0.047		0.081	0.05	0.08	0.06	0.06	2	
Muni-01	Deep	406	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph							<0.025									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							<0.025								<0.03	0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.025									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							<0.025								<0.03	0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							0.05									0.05	0.05	0.05	0.05	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							<0.025								<0.03	0.00	0.00	0.00	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier							<0.025									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							<0.025									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							<0.025								<0.03	0.00	0.00	0.00	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.025									0.00	0.00	0.00	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion							<0.025									0.00	0.00	0.00	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							<0.025								<0.03	0.00	0.00	0.00	0.00	2	
Muni-21	Deep	384	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.025									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							0.06									0.06	0.06	0.06	0.06	1	
Muni-24	Deep	312	400	Cjdn		Hastings							0.04	0.48								0.034	0.03	0.48	0.04	0.18	3
Muni-25	Deep	277	356	Cjdn		Hastings							0.07	0.05								0.046	0.05	0.07	0.05	0.06	3
Muni-26	Mid	240	332	Cjdn		Hastings							0.03	0.03								0.032	0.03	0.03	0.03	0.03	3
Muni-27	Mid	205	285	Cjdn		Hastings							0.07	0.07								0.043	0.04	0.07	0.07	0.06	3
Muni-28	Mid	208	299	Cjdn		Hastings							0.06	0.04								0.047	0.04	0.06	0.05	0.05	3
Muni-29	Deep	197	402	OpCj		Farmington																<0.03	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington																<0.03	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington																<0.03	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 3 ug/L (HRL MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.08	0.08	0.1	0.05		0.04	0.067	0.026		<0.025	0.00	0.10	0.06	0.06	8	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.08	0.05	0.04								0.04	0.08	0.05	0.06	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.08	0.06	<0.025	<0.025		0.04	<0.025	<0.025		<0.025	0.00	0.08	0.00	0.02	8	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.05	0.05	<0.025	0.05		<0.025				<0.025	0.00	0.05	0.05	0.03	5	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.04	0.03	<0.025	0.05		<0.025	0.099	0.043		<0.025	0.00	0.10	0.04	0.03	8	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	7	
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.025	<0.025	<0.025	0.03		<0.025	<0.025	<0.025		<0.025	0.00	0.03	0.00	0.00	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	0.05		0.03	0.03	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.05	0.00	0.01	12	
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.03		<0.025					0.00	0.03	0.02	0.02	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.025		<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	5	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.025		<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	5	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	4	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.025	<0.025	0.024	<0.025	0.00	0.02	0.00	0.01	4	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													<0.025		0.065	0.00	0.07	0.03	0.03	2	
Muni-01	Deep	406	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph							<0.025									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							<0.025							<0.025		0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.025									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							<0.025							<0.025		0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							<0.025									0.00	0.00	0.00	0.00	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							<0.025							<0.025		0.00	0.00	0.00	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier							<0.025									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							<0.025									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							<0.025							<0.025		0.00	0.00	0.00	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.025									0.00	0.00	0.00	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion							<0.025									0.00	0.00	0.00	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							<0.025							<0.025		0.00	0.00	0.00	0.00	2	
Muni-21	Deep	384	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.025									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							<0.025									0.00	0.00	0.00	0.00	1	
Muni-24	Deep	312	400	Cjdn		Hastings							<0.025	0.03						<0.025		0.00	0.03	0.00	0.01	3	
Muni-25	Deep	277	356	Cjdn		Hastings							<0.025	<0.025						<0.025		0.00	0.00	0.00	0.00	3	
Muni-26	Mid	240	332	Cjdn		Hastings							<0.025	0.03						<0.025		0.00	0.03	0.00	0.01	3	
Muni-27	Mid	205	285	Cjdn		Hastings							0.05	0.04							<0.025		0.00	0.05	0.04	0.03	3
Muni-28	Mid	208	299	Cjdn		Hastings							0.04	0.03							<0.025		0.00	0.04	0.03	0.02	3
Muni-29	Deep	197	402	OpCj		Farmington														<0.025		0.00	0.00	0.00	0.00	1	
Muni-30	Deep	408	501	Cjdn		Farmington															<0.025		0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington															<0.025		0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.5	0.3	<0.05	0.32		0.23	0.27	0.25		0.2	0.19	0.15		0.24	0.00	0.32	0.23	0.195	11
AGQS-58	Shallow	60	65	Ucs		Greenville Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.000	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.18	0.18	0.21	0.14		0.13	0.15	0.068		0.081	0.07	0.21	0.15	0.142	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.05	0.04	<0.025								0.00	0.05	0.04	0.030	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.16	0.13	0.03	0.05		0.11	0.025	0.031		<0.05	0.00	0.16	0.04	0.067	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.2	0.19	0.12	0.16		0.13					0.12	0.20	0.16	0.160	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.21	0.15	0.13	0.18		0.17	0.19	0.36		0.23	0.13	0.36	0.19	0.203	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.03	0.03	<0.025	<0.025		<0.025	0.06	0.036		<0.05	0.00	0.06	0.02	0.020	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.000	7
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.09	0.08	0.09	0.06		0.08	0.069	0.086		0.096	0.06	0.10	0.08	0.081	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	0.3	0.25	0.21		0.15	0.13	0.11		0.13	0.094	0.09		0.079	0.00	0.30	0.12	0.129	12
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.025	<0.025	<0.025							0.00	0.00	0.00	0.000	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.21		0.08					0.08	0.21	0.15	0.145	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.000	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.000	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1													0.00	0.00	0.00	0.000	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0.08		E0.057	0.12	0.38	0.17	0.06	0.38	0.12	0.161	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										0.15		0.16	0.2	0.14	0.28	0.14	0.28	0.16	0.186	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.006	<0.025	<0.02	<0.05	0.00	0.00	0.00	0.000	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												E0.034	0.064	0.041	0.051	0.03	0.06	0.05	0.048	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												0.44		0.25		0.25	0.44	0.35	0.345	2
Muni-01	Deep	406	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.000	1
Muni-02	Deep	258	356	Cjdn		Randolph							<0.025									0.00	0.00	0.00	0.000	1
Muni-03	Deep	355	457	Cjdn		Empire							<0.025								<0.05	0.00	0.00	0.00	0.000	2
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.025									0.00	0.00	0.00	0.000	1
Muni-05	Mid	132	424	OpCj		Farmington							<0.025								<0.05	0.00	0.00	0.00	0.000	2
Muni-06	Mid	248	302	Cjdn		Hampton							0.05									0.05	0.05	0.05	0.050	1
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.025									0.00	0.00	0.00	0.000	1
Muni-08	Deep	340	410	Cjdn		Empire							<0.025								<0.05	0.00	0.00	0.00	0.000	2
Muni-09	Deep	580	680	Cjdn		New Trier							<0.025									0.00	0.00	0.00	0.000	1
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.025									0.00	0.00	0.00	0.000	1
Muni-11	Mid	240	342	OpCj		South St Paul							<0.025									0.00	0.00	0.00	0.000	1
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.000	1
Muni-13	Deep	392	477	Cjdn		Farmington							<0.025								<0.05	0.00	0.00	0.00	0.000	2
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.025									0.00	0.00	0.00	0.000	1
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.000	1
Muni-16	Deep	345	400	Cjdn		Rosemount							0.03									0.03	0.03	0.03	0.030	1
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.000	1
Muni-18	Deep	267	293	Ucs		Vermillion							<0.025									0.00	0.00	0.00	0.000	1
Muni-19	Deep	425	616	OpCj		Lakeville							<0.025									0.00	0.00	0.00	0.000	1
Muni-20	Deep	417	512	Cjdn		Farmington							<0.025								<0.05	0.00	0.00	0.00	0.000	2
Muni-21	Deep	384	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.000	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.025									0.00	0.00	0.00	0.000	1
Muni-23	Deep	256	305	Cjdn		Hampton							0.06									0.06	0.06	0.06	0.060	1
Muni-24	Deep	312	400	Cjdn		Hastings							0.07	0.05							0.076	0.05	0.08	0.07	0.065	3
Muni-25	Deep	277	356	Cjdn		Hastings							0.11	0.06							0.062	0.06	0.11	0.06	0.077	3
Muni-26	Mid	240	332	Cjdn		Hastings							0.04	0.04							0.067	0.04	0.07	0.04	0.049	3
Muni-27	Mid	205	285	Cjdn		Hastings							0.08	0.07							0.1	0.07	0.10	0.08	0.083	3
Muni-28	Mid	208	299	Cjdn		Hastings							0.1	0.11							0.11	0.10	0.11	0.11	0.107	3
Muni-29	Deep	197	402	OpCj		Farmington															<0.05	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington															<0.05	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington															<0.05	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025			0.00	0.00	0.00	0.000	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.025	<0.025	<0.025						<0.02		0.00	0.00	0.00	0.000	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.025	<0.025	0.05		<0.025	<0.025	<0.025		0.032	0.00	0.05	0.00	0.012	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.0068	0.00	0.01	0.00	0.001	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025		<0.025		<0.025	<0.025				0.00	0.00	0.00	0.000	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.000	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.025	<0.025	0.05		<0.025	<0.025	<0.025			0.00	0.05	0.00	0.008	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.000	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.0069	0.00	0.01	0.00	0.001	7
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		<0.02	<0.0067	0.00	0.00	0.00	0.000	7
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.025	<0.025	<0.025			<0.025	<0.025	<0.025	<0.02	<0.0067	0.00	0.00	0.00	0.000	8
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025		<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025		<0.02	<0.0067	0.00	0.00	0.00	0.000	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025	<0.02	<0.0067	0.00	0.00	0.00	0.000	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.025		<0.025		<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025			<0.0067	0.00	0.00	0.00	0.000	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	0.075	0.19	<0.02	<0.0067	0.00	0.19	0.00	0.038	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.000	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	0.015	<0.025		<0.0067	0.00	0.02	0.00	0.002	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.011	0.00	0.01	0.00	0.002	7
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.000	6

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.025	<0.025	<0.025								0.00	0.00	0.00	0.000	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.04	0.04	<0.025	<0.025		0.04	0.027	0.03		<0.0067	0.00	0.04	0.03	0.022	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.025	<0.025	<0.025	<0.025		<0.025					0.00	0.00	0.00	0.000	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	0.05	<0.025		0.05	0.06	0.074		0.1	0.00	0.10	0.05	0.042	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.0099	0.00	0.01	0.00	0.001	7
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.0067	0.00	0.00	0.00	0.000	7
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025							0.00	0.00	0.00	0.000	3
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.025		<0.025					0.00	0.00	0.00	0.000	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.025		<0.025	<0.025	<0.02	<0.0067	0.00	0.00	0.00	0.000	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.025		<0.025	<0.025	<0.02	<0.0067	0.00	0.00	0.00	0.000	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02	<0.0067	0.00	0.00	0.00	0.000	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.025	<0.025	<0.02	<0.0067	0.00	0.00	0.00	0.000	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.025		<0.0067	0.00	0.00	0.00	0.000	2
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.000	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025									0.00	0.00	0.00	0.000	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								<0.0067	0.00	0.00	0.00	0.000	2
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025									0.00	0.00	0.00	0.000	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								<0.0067	0.00	0.00	0.00	0.000	2
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.000	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025									0.00	0.00	0.00	0.000	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								<0.0067	0.00	0.00	0.00	0.000	2
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025									0.00	0.00	0.00	0.000	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025									0.00	0.00	0.00	0.000	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025									0.00	0.00	0.00	0.000	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.000	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								<0.0067	0.00	0.00	0.00	0.000	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025									0.00	0.00	0.00	0.000	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.000	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.000	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.000	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025									0.00	0.00	0.00	0.000	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025									0.00	0.00	0.00	0.000	1
Muni-20	Deep	417	512	Cjdn		Farmington		<0.025								<0.0067	0.00	0.00	0.00	0.000	2
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.000	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025									0.00	0.00	0.00	0.000	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.000	1
Muni-24	Deep	312	400	Cjdn		Hastings		<0.025	<0.025							<0.0067	0.00	0.00	0.00	0.000	3
Muni-25	Deep	277	356	Cjdn		Hastings		<0.025	<0.025							<0.0067	0.00	0.00	0.00	0.000	3
Muni-26	Mid	240	332	Cjdn		Hastings		<0.025	<0.025							<0.0067	0.00	0.00	0.00	0.000	3
Muni-27	Mid	205	285	Cjdn		Hastings		<0.025	<0.025							<0.0067	0.00	0.00	0.00	0.000	3
Muni-28	Mid	208	299	Cjdn		Hastings		<0.025	<0.025							<0.0067	0.00	0.00	0.00	0.000	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.0067	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										<0.0067	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington										<0.0067	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.13	0.1	0.09	0.08		0.06	0.13	0.13		0.15	0.06	0.15	0.12	0.11	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		0.03	<0.025	<0.025		<0.025	<0.025	<0.025		<0.05	0.00	0.03	0.00	0.00	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.025	0.03	<0.025	<0.025		<0.025					0.00	0.03	0.00	0.01	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.21	0.23			0.22	0.54	0.27		0.24	0.21	0.54	0.24	0.29	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	0.19	0.2	0.16						0.37		0.16	0.37	0.20	0.23	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		0.15	0.22	0.13		0.14	0.07	0.14		0.077	0.07	0.22	0.14	0.13	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.025	0.03	<0.025		<0.025	0.029	<0.025		<0.05	0.00	0.03	0.00	0.01	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount		0.14	0.08	0.06		0.09	0.13	0.18		0.21	0.06	0.21	0.13	0.13	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		0.43	0.42	0.38		0.39	0.19	0.36		0.18	0.18	0.43	0.38	0.34	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025		<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		0.04	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.04	0.00	0.01	6
AGQS-15	Mid	166	170	Ucs	5	Hastings	0.03	0.03	<0.025	0.03		<0.025	0.044				0.00	0.04	0.03	0.02	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.05	0.06	0.03		0.03	0.03	0.048			0.03	0.06	0.04	0.04	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.025	0.06	0.05	0.06		0.1	0.1	0.089		0.054	0.00	0.10	0.06	0.06	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025			<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.025	<0.025	<0.025	<0.025		<0.025	0.03	<0.025		<0.05	0.00	0.03	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0.2	0.24	0.15	0.15		0.06	0.03	0.029		0.078	0.03	0.24	0.11	0.12	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0.05	0.05	0.11		0.16	0.048	0.034		<0.05	0.00	0.16	0.05	0.06	7
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.05	0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025		<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	0.067	<0.025		<0.05	0.00	0.07	0.00	0.01	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		0.41	0.41	0.33		0.35	0.22	0.18		0.15	0.15	0.41	0.33	0.29	7
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.05	0.00	0.00	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount		0.12	0.09	0.08		0.19	0.16		0.11	0.12	0.08	0.19	0.12	0.12	7
AGQS-33	Deep	260	280	Cjdn	8	Coates	0.07	0.06	0.04			0.05	0.15	0.15	0.1	0.14	0.04	0.15	0.09	0.10	8
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		0.05	<0.025	<0.025		<0.025	<0.025	<0.025		<0.05	0.00	0.05	0.00	0.01	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.05	0.00	0.00	0.00	0.00	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	0.025		0.085	0.00	0.09	0.00	0.02	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025		<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		0.06	0.07	0.05		0.04	0.11		0.075	0.16	0.04	0.16	0.07	0.08	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025		<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.05	0.00	0.00	0.00	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		0.03	<0.025			<0.025	0.037	<0.025	<0.02	<0.05	0.00	0.04	0.00	0.01	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.025		<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	0.17	1.1	<0.02	<0.05	0.00	1.10	0.00	0.18	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		0.1	0.11	0.11		0.06	0.13	0.088		0.081	0.06	0.13	0.10	0.10	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0.17	0.16	0.17		0.09	0.18	0.13		0.092	0.09	0.18	0.16	0.14	7
AGQS-56	Mid	165	220	Opdc	2	Hampton		0.04	<0.025	0.07		0.07	0.05	0.075		<0.05	0.00	0.08	0.05	0.04	7

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0.32	0.25	0.3		0.25	0.2	0.18		0.2	0.18	0.32	0.25	0.24	7
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	0.12	0.13	0.15	0.06		0.07	0.095	0.043		0.057	0.04	0.15	0.08	0.09	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	0.75	0.44	0.26								0.26	0.75	0.44	0.48	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.14	0.12	0.03	0.03		0.06	<0.025	<0.025		<0.05	0.00	0.14	0.03	0.05	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp	0.57	0.27	0.18	0.29		0.21					0.18	0.57	0.27	0.30	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0.19	0.16	0.11	0.18		0.19	0.42	0.3		0.12	0.11	0.42	0.19	0.21	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	0.05	<0.025	<0.025	<0.025		<0.025	0.15	0.041		<0.05	0.00	0.15	0.00	0.03	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.05	0.00	0.00	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates	0.13	0.11	0.1	0.06		0.1	0.097	0.14		0.13	0.06	0.14	0.11	0.11	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		0.22	0.17	0.15		0.28	0.15	0.17		0.13	0.13	0.28	0.17	0.18	7
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				0.3		0.14					0.14	0.30	0.22	0.22	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					0.06		0.13	0.095	0.08	0.17	0.06	0.17	0.10	0.11	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					0.16		0.22	0.29	0.1	0.27	0.10	0.29	0.22	0.21	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02	<0.05	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							0.26	0.13	0.085	0.12	0.09	0.26	0.13	0.15	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								0.28		0.17	0.17	0.28	0.23	0.23	2
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								<0.05	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								<0.05	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton		0.05									0.05	0.05	0.05	0.05	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								<0.05	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								<0.05	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		0.05									0.05	0.05	0.05	0.05	1
Muni-16	Deep	345	400	Cjdn		Rosemount		0.07									0.07	0.07	0.07	0.07	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		0.06								<0.05	0.00	0.06	0.03	0.03	2
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		0.06									0.06	0.06	0.06	0.06	1
Muni-24	Deep	312	400	Cjdn		Hastings		0.05	0.05							0.057	0.05	0.06	0.05	0.05	3
Muni-25	Deep	277	356	Cjdn		Hastings		0.07	0.05							<0.05	0.00	0.07	0.05	0.04	3
Muni-26	Mid	240	332	Cjdn		Hastings		0.05	0.05							0.067	0.05	0.07	0.05	0.06	3
Muni-27	Mid	205	285	Cjdn		Hastings		0.17	0.12							0.14	0.12	0.17	0.14	0.14	3
Muni-28	Mid	208	299	Cjdn		Hastings		0.12	0.1							0.1	0.10	0.12	0.10	0.11	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.05	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										0.064	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington										<0.05	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.025	<0.025	<0.025	<0.025		<0.025				0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.04	<0.025			0.03	0.071	0.077		0.00	0.08	0.04	0.04	5
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.025	0.04	<0.025						0.11	0.00	0.11	0.02	0.04	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		0.05	<0.025	0.04		<0.025	0.07	0.094		0.00	0.09	0.05	0.04	6
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		0.05	<0.025	<0.025		<0.025	0.053	0.095		0.00	0.10	0.03	0.03	6
AGQS-09	Mid	140	185	Opdc	16	Rosemount		0.03	<0.025	<0.025		<0.025	0.03	0.038		0.00	0.04	0.02	0.02	6
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		0.06	<0.025	<0.025		<0.025	<0.025	0.064		0.00	0.06	0.00	0.02	6
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.04	<0.025	<0.025		<0.025	0.04	0.068		0.00	0.07	0.02	0.02	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025			<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.025	0.03	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.03	0.00	0.00	7
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount		0.03	<0.025	<0.025		<0.025	<0.025		<0.02	0.00	0.03	0.00	0.01	6
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.025	<0.025	<0.025			<0.025	<0.025	0.034	0.033	0.00	0.03	0.00	0.01	7
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		0.05	<0.025	<0.025		<0.025	<0.025		0.041	0.00	0.05	0.00	0.02	6
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		0.03	<0.025	<0.025		<0.025	<0.025			0.00	0.03	0.00	0.01	5
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025	0.026	0.00	0.03	0.00	0.00	6
AGQS-50	Mid	173	181	Opdc		Greenville Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	0.65	<0.025	<0.02	0.00	0.65	0.00	0.11	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	0.028	<0.025		0.00	0.03	0.00	0.00	6
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	min	max	median	avg	count
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0.05	<0.025	<0.025		<0.025	0.05	0.087		0.00	0.09	0.03	0.03	6
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.025	0.06	<0.025	<0.025		<0.025	0.043	0.077		0.00	0.08	0.00	0.03	7
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.025	0.04	<0.025	0.03		<0.025				0.00	0.04	0.00	0.01	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.025	<0.025	<0.025	0.04		<0.025	0.06	0.11		0.00	0.11	0.00	0.03	7
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.025		<0.025				0.00	0.00	0.00	0.00	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.025		<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	4
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					0.04		0.051	0.12	0.072	0.04	0.12	0.06	0.07	4
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	3
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	3
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								0.091		0.09	0.09	0.09	0.09	1
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.025								0.00	0.00	0.00	0.00	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.025								0.00	0.00	0.00	0.00	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.025								0.00	0.00	0.00	0.00	1
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025								0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025								0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								0.00	0.00	0.00	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								0.00	0.00	0.00	0.00	1
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025								0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025								0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								0.00	0.00	0.00	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025								0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								0.00	0.00	0.00	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025								0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		<0.025								0.00	0.00	0.00	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan		0.03	0.04							0.03	0.04	0.04	0.04	2
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025	<0.025							0.00	0.00	0.00	0.00	2
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025	0.04							0.00	0.04	0.02	0.02	2
Muni-24	Deep	312	400	Cjdn		Hastings		0.07	0.04							0.04	0.07	0.06	0.06	2
Muni-25	Deep	277	356	Cjdn		Hastings		0.52	0.05							0.05	0.52	0.29	0.29	2
Muni-26	Mid	240	332	Cjdn		Hastings														
Muni-27	Mid	205	285	Cjdn		Hastings														
Muni-28	Mid	208	299	Cjdn		Hastings														
Muni-29	Deep	197	402	OpCj		Farmington														
Muni-30	Deep	408	501	Cjdn		Farmington														
Muni-31	Deep	386	485	Cjdn		Farmington														

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	0.055	<0.025		0.00	0.06	0.00	0.01	7
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		0.07	<0.025	<0.025		<0.025	0.047	<0.025		0.00	0.07	0.00	0.02	6
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.025	<0.025	<0.025	<0.025		<0.025				0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.025	<0.025			<0.025	0.61	<0.025		0.00	0.61	0.00	0.12	5
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.025	0.04	<0.025						<0.02	0.00	0.04	0.00	0.01	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		0.03	<0.025	<0.025		<0.025	0.036	<0.025		0.00	0.04	0.00	0.01	6
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.025	<0.025	<0.025	<0.025		<0.025	0.036			0.00	0.04	0.00	0.01	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.025	0.03	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.03	0.00	0.00	7
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025			<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	0.05		<0.025	<0.025			0.00	0.05	0.00	0.01	5
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	0.053	<0.025		0.00	0.05	0.00	0.01	6
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	0.19	<0.025		0.00	0.19	0.00	0.03	6
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	0.2	<0.025		0.00	0.20	0.00	0.03	6
AGQS-31	Mid	135	140	Ucs		Lakeville		0.03	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.03	0.00	0.01	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount		0.03	<0.025	<0.025		<0.025	<0.025		<0.02	0.00	0.03	0.00	0.01	6
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.025	<0.025	<0.025			<0.025	0.043	<0.025	<0.02	0.00	0.04	0.00	0.01	7
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	0.031	<0.025		0.00	0.03	0.00	0.01	6
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	0.047		<0.02	0.00	0.05	0.00	0.01	6
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	6
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.025		<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	4
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	0.44	<0.025	<0.02	0.00	0.44	0.00	0.07	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0.04	<0.025	<0.025		<0.025	<0.025			0.00	0.04	0.00	0.01	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	0.83	<0.025		0.00	0.83	0.00	0.14	6
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.025	<0.025	<0.025		<0.025	0.056	<0.025		0.00	0.06	0.00	0.01	6

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025				0.00	0.10	0.00	0.01	7
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.025	<0.025	<0.025	<0.025		<0.025	0.032	<0.025		0.00	0.03	0.00	0.00	7
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.025	0.04	<0.025	<0.025		<0.025				0.00	0.04	0.00	0.01	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.025	<0.025	<0.025	<0.025		<0.025	0.43	<0.025		0.00	0.43	0.00	0.06	7
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	0.03	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.03	0.00	0.00	7
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.00	0.00	0.00	0.00	6
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025						0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.025		<0.025				0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.025		<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.025		0.086	<0.025	<0.02	0.00	0.09	0.00	0.02	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.025	<0.025	<0.02	0.00	0.00	0.00	0.00	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.025		0.00	0.00	0.00	0.00	1
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025								0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025								0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								0.00	0.00	0.00	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								0.00	0.00	0.00	0.00	1
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025								0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025								0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								0.00	0.00	0.00	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025								0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								0.00	0.00	0.00	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025								0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025								0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		<0.025								0.00	0.00	0.00	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025								0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025								0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025								0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings		<0.025	<0.025							0.00	0.00	0.00	0.00	2
Muni-25	Deep	277	356	Cjdn		Hastings		<0.025	<0.025							0.00	0.00	0.00	0.00	2
Muni-26	Mid	240	332	Cjdn		Hastings		<0.025	<0.025							0.00	0.00	0.00	0.00	2
Muni-27	Mid	205	285	Cjdn		Hastings		<0.025	<0.025							0.00	0.00	0.00	0.00	2
Muni-28	Mid	208	299	Cjdn		Hastings		<0.025	<0.025							0.00	0.00	0.00	0.00	2

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count			
AGQS-01	Shallow	100	197	Opdc	8	Coates	0	0	0	0	0	0.35	0.54	0.51	0.42		0.28	0.488	0.408		1.301	0.00	1.30	0.35	0.33	13			
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0	0	0	0	0		0.03	0	0.03		0	0	0		0	0.00	0.03	0.00	0.01	12			
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						0.06	0.06	0.04	0.04		0.09					0.04	0.09	0.06	0.06	5			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				0.14	0		1.28	1.46			2.68	1.041	1.585		0.976	0.00	2.68	1.16	1.15	8			
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						5.71	3.92	3.45						1.698		1.70	5.71	3.69	3.69	4			
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0	0	0.05	0.05	0.06		0.8	1.14	0.17		0.59	0.46	0.38		0.312	0.00	1.14	0.24	0.33	12			
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	11			
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0	0	0	0	0		0	0.03	0		0	0.029	0		0	0.00	0.03	0.00	0.00	12			
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0	0	0	0	0		0.57	0.35	0.06		0.4	0.84	0.917		1.069	0.00	1.07	0.21	0.35	12			
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	11			
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	10			
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0	0	0.2	0.14	0.12		1.77	1.25	0.5		2.09	0.64	0.936		0.333	0.00	2.09	0.42	0.66	12			
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake							0	0	0		0	0				0.00	0.00	0.00	0.00	8			
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0	0	0	0	0		0.07	0	0		0	0			0.034	0.00	0.07	0.00	0.01	11			
AGQS-15	Mid	166	170	Ucs	5	Hastings						0.36	0.45	0.49	0.41		0.25	0.449				0.25	0.49	0.43	0.40	6			
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp				0.11	0		0.13	0.18	0.06		0.13	0.17	0.285			0.00	0.29	0.12	0.11	10			
AGQS-17	Deep	276	280	Ucs	15	Rosemount						0.04	0.06	0.08	0.1		0.23	0.37	0.284		0.786	0.04	0.79	0.17	0.24	8			
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	10			
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	7			
AGQS-20	Shallow	55	60	Ucs		Empire Twp						0	0	0	0		0	0.03	0		0	0.00	0.03	0.00	0.00	8			
AGQS-21	Mid	133	137	Ucs		Burnsville						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	7			
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0	0	0	0	0		0	0	0		0	0				0.00	0.00	0.00	0.00	10			
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.7	0.74	0.53	0.41		0.21	0.17	0.13		0.218	0.13	0.74	0.31	0.39	8			
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0	0	0	0	0		0	0	0.03		0.06	0			0.029	0.00	0.06	0.00	0.01	11			
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp							0.05	0.05	0.11		0.16	0.073	0.034		0	0.00	0.16	0.03	0.04	11			
AGQS-26	Deep	342	360	Opdc		Lakeville						0.06	0	0	0		0	0			0	0.00	0.06	0.00	0.01	7			
AGQS-27	Mid	176	180	Ucs	11	Rosemount						0	0	0	0		0	0	0		0.048	0.00	0.05	0.00	0.01	8			
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	9			
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp						0	0	0	0		0	0.095	0.031		0.04	0.00	0.10	0.00	0.02	11			
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0	0	0.37	0.54	0.28		1	1.41	0.54		0.72	0.52	0.384		0.217	0.00	1.41	0.45	0.50	12			
AGQS-31	Mid	135	140	Ucs		Lakeville							0	0	0		0	0	0		0	0.00	0.00	0.00	0.00	7			
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0	0	0	0	0		0.38	0.52	0.08		0.61	0.99		0.471	0.403	0.00	0.99	0.23	0.29	12			
AGQS-33	Deep	260	280	Cjdn	8	Coates	0	0	0	0	0	0.23	0.16	0.2			0.24	0.55	1.082	0.84	0.786	0.00	1.08	0.20	0.31	13			
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0	0	0	0	0		0.05	0	0		0	0	0.034		0	0.00	0.05	0.00	0.01	12			
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0	0	0	0	0		0	0	0		0	0			0.29	0.00	0.29	0.00	0.03	11			
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	11			
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						0.23	0.28	0.19	0.21		0.13	0.18	0.11		0.13	0.11	0.28	0.19	0.18	8			
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0	0	0	0	0		0	0	0		0	0	0.025		1.614	0.00	1.61	0.00	0.14	12			
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	10			
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	11			
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0	0	0	0	0		0	0	0		0	0			0.017	0.00	0.02	0.00	0.00	11			
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0	0	0	0	0		1.46	1.47	0.05		0.61	1.254		0.575	0.77	0.00	1.47	0.31	0.52	12			
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	11			
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	11			
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	10			
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	10			
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	6			
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0	0	0	0		0	0	0		0	0.00	0.00	0.00	0.00	8			
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp						0.06	0.1				0.13	0.225	0.12	0.238	0.161	0.00	0.24	0.12	0.11	9			
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0	0	0	0	0		0	0	0		0	0			0	0.00	0.00	0.00	0.00	10			
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	6			
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						0	0	0	0		0	0.466	1.607	0	0	0.00	1.61	0.00	0.30	7			
AGQS-53	Deep	254	365	Opdc	11	Rosemount						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	9			
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0	0	0	0	0		0.23	0.2	0.26		0.4	0.221	0.157		0.435	0.00	0.44	0.18	0.16	12			
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp							0.43	0.39	0.3		0.21	0.235	0.293		0.17	0.00	0.43	0.21	0.18	11			
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0	0	0	0	0		0.13	0	0.2		0.14	0.12	0.195		0.692	0.00	0.69	0.12	0.13	11			
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp						0	0.47	0	0.14		0.58	0.45	0.54		0.61	0.47	0.421	0.402	0.00	0.61	0.45	0.37	11
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0	0	0	0		0	0			0	0.00	0.00	0.00	0.00	6			
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.27	0.27	0.28	0.15		0.11	0.234	0.103		0.069	0.07	0.28	0.19	0.19	8			

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<u>3.48</u>	<u>1.25</u>	<u>1.26</u>								1.25	3.48	1.26	2.00	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<u>2.49</u>	<u>1.8</u>	<u>1.13</u>	0.44		<u>1.59</u>	0.33	0.53		<u>1.743</u>	0.33	2.49	1.36	1.26	8	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<u>5.36</u>	<u>2.67</u>	<u>1.82</u>	<u>1.84</u>		<u>1.2</u>					1.20	5.36	1.84	2.58	5	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<u>1.32</u>	<u>0.92</u>	<u>1.48</u>	<u>0.8</u>		<u>1</u>	0.721	<u>1.203</u>		<u>5.519</u>	0.72	5.52	1.10	1.62	8	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.05	0	0	0		0.04	0.15	0.074		0.04	0.00	0.15	0.04	0.04	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.19	0	0.03	0		0	0			0	0.00	0.19	0.00	0.03	7	
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.5	0.34	0.23	0.26		0.36	0.324	0.496		0.348	0.23	0.50	0.34	0.36	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0	0	0.05		0.28	0.2	0.15		0.28	0.18	0.198		0.13	0.00	0.28	0.14	0.12	12	
AGQS-68	Mid	158	163	Ucs		Apple Valley							0	0	0							0.00	0.00	0.00	0.00	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<u>2.22</u>		<u>0.75</u>					0.75	2.22	1.49	1.49	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0	0													0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0	0													0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0	0													0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp											0.06		0.159	0.154	0.171	0.323	0.06	0.32	0.16	0.17	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<u>1.92</u>	<u>1.751</u>	<u>2.458</u>	<u>1.113</u>	0.9506	0.95	2.46	1.75	1.64	5	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												0	0	0.033	0	0.00	0.03	0.00	0.01	4	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.39	0.196	0.239	0.29	0.20	0.39	0.26	0.28	4	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													0.39		0.345	0.35	0.39	0.37	0.37	2	
Muni-01	Deep	406	500	Cjdn		Eagan							0									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph							0									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							0								0	0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							0									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							0								0	0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							0.05									0.05	0.05	0.05	0.05	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							0									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							0								0	0.00	0.00	0.00	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier							0									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							0									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							0									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							0									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							0								0	0.00	0.00	0.00	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley							0.05									0.05	0.05	0.05	0.05	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							0.11									0.11	0.11	0.11	0.11	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							0.39									0.39	0.39	0.39	0.39	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							0.08									0.08	0.08	0.08	0.08	1	
Muni-18	Deep	267	293	Ucs		Vermillion							0.03									0.03	0.03	0.03	0.03	1	
Muni-19	Deep	425	616	OpCj		Lakeville							0									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							0.59									0.59	0.86	0.73	0.73	2	
Muni-21	Deep	384	500	Cjdn		Eagan							0									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							0									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							0.06									0.06	0.06	0.06	0.06	1	
Muni-24	Deep	312	400	Cjdn		Hastings							0.24	0.177							0.455	0.18	0.46	0.24	0.29	3	
Muni-25	Deep	277	356	Cjdn		Hastings							0.205	0.197							0.095	0.10	0.21	0.20	0.17	3	
Muni-26	Mid	240	332	Cjdn		Hastings							0.235	0.243							0.516	0.24	0.52	0.24	0.33	3	
Muni-27	Mid	205	285	Cjdn		Hastings							0.35	0.387							0.703	0.35	0.70	0.39	0.48	3	
Muni-28	Mid	208	299	Cjdn		Hastings							0.455	0.517							0.536	0.46	0.54	0.52	0.50	3	
Muni-29	Deep	197	402	OpCj		Farmington															0	0	0.00	0.00	0.00	1	
Muni-30	Deep	408	501	Cjdn		Farmington															0.507	0.507	0.507	0.507	0.507	1	
Muni-31	Deep	386	485	Cjdn		Farmington															0.0159	0.0159	0.0159	0.0159	0.0159	1	

Drinking Water Guideline = 1 ug/L (MDH)

Shaded cells indicate result exceeds half the drinking water standard of > 0.5 ug/L. Shaded cells with underline result indicates the sum of cyanazine is greater than the drinking water standard.

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.2	<0.2	<0.1	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.025	<0.025	<0.025						
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.025						
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.2	<0.1												
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.2	<0.1												
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.2	<0.1												
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.025		<0.022	<0.025	<0.02	<0.025
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.025		<0.025	<0.025	<0.02	<0.025
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.022	<0.025	<0.02	<0.025
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.022	<0.025	<0.02	<0.025
AGQS-82	Mid	167	175	Ucs		Ravenna Twp															<0.025
Muni-01	Deep	406	500	Cjdn		Eagan							<0.025								
Muni-02	Deep	258	356	Cjdn		Randolph							<0.025								
Muni-03	Deep	355	457	Cjdn		Empire							<0.025								
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.025								
Muni-05	Mid	132	424	OpCj		Farmington							<0.025								
Muni-06	Mid	248	302	Cjdn		Hampton							<0.025								
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.025								
Muni-08	Deep	340	410	Cjdn		Empire							<0.025								
Muni-09	Deep	580	680	Cjdn		New Trier							<0.025								
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.025								
Muni-11	Mid	240	342	OpCj		South St Paul							<0.025								
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.025								
Muni-13	Deep	392	477	Cjdn		Farmington							<0.025								
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.025								
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.025								
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.025								
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.025								
Muni-18	Deep	267	293	Ucs		Vermillion							<0.025								
Muni-19	Deep	425	616	OpCj		Lakeville							<0.025								
Muni-20	Deep	417	512	Cjdn		Farmington							<0.025								
Muni-21	Deep	384	500	Cjdn		Eagan							<0.025								
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.025								
Muni-23	Deep	256	305	Cjdn		Hampton							<0.025								
Muni-24	Deep	312	400	Cjdn		Hastings							<0.025	<0.025							<0.025
Muni-25	Deep	277	356	Cjdn		Hastings							<0.025	<0.025							<0.025
Muni-26	Mid	240	332	Cjdn		Hastings							<0.025	<0.025							<0.025
Muni-27	Mid	205	285	Cjdn		Hastings							<0.025	0.18							<0.025
Muni-28	Mid	208	299	Cjdn		Hastings							<0.025	<0.025							<0.025
Muni-29	Deep	197	402	OpCj		Farmington															
Muni-30	Deep	408	501	Cjdn		Farmington															
Muni-31	Deep	386	485	Cjdn		Farmington															

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 1 ug/L (MDH HRL₁₉)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.05	<0.025	0.03	<0.025	0.04		<0.025	0.072	0.068		0.021	0.00	0.07	0.00	0.02	11
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	10
AGQS-03	Mid	176	181	Ucs		Ravena Twp				<0.025	<0.025	<0.025	<0.025		<0.025					0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.08	<0.05			0.05	0.03		0.21	0.17	0.22		0.065	0.00	0.22	0.07	0.10	8
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				0.05	<0.025	0.04						0.15		0.00	0.15	0.05	0.06	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.05		0.03	<0.025	<0.025		<0.025	0.05	<0.025		<0.01	0.00	0.05	0.00	0.01	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	9
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	9
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		0.04	0.04	0.057		0.019	0.00	0.06	0.00	0.02	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.06	<0.05	<0.05		0.43	<0.025	<0.025		0.19	0.09	0.11		<0.01	0.00	0.43	0.03	0.09	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.05		<0.025		<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	6
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.05		<0.025	<0.025	0.03		0.03	0.09	0.14			0.00	0.14	0.02	0.04	8
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.025	<0.025	0.03	0.04		0.05	0.18	0.14		0.032	0.00	0.18	0.04	0.06	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.05		<0.025	<0.025			<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	7
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				0.12	0.09	<0.025	0.1		0.06	0.06	0.053		0.075	0.00	0.12	0.07	0.07	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	10
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.08	0.12	0.05		0.05	0.05	0.05		0.03	0.085	0.063		0.011	0.01	0.12	0.05	0.06	10
AGQS-31	Mid	135	140	Ucs		Lakeville					<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.05		<0.025	0.03	<0.025		<0.025	0.07		0.051	0.013	0.00	0.07	0.00	0.02	10
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.05	<0.025	<0.025	<0.025			<0.025	0.07	0.11	0.076	0.037	0.00	0.11	0.00	0.03	11
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	9
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.053	0.00	0.05	0.00	0.01	9
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	0.044		<0.02	<0.01	0.00	0.04	0.00	0.00	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	9
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	8
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.05		<0.025	<0.025			<0.025	0.033	0.037	0.056	0.015	0.00	0.06	0.00	0.02	9
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.05		<0.025		<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.025	<0.025	<0.025			<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.025	<0.025			<0.025	0.098	0.17	<0.02	<0.01	0.00	0.17	0.00	0.04	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	7
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.05		0.04	<0.025	0.04		0.06	0.065	0.035		0.014	0.00	0.07	0.02	0.03	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.05		0.03	<0.025	<0.025		<0.025	0.029	0.033		<0.01	0.00	0.03	0.00	0.01	10
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.05	<0.05	<0.05		0.05	0.												

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.00	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.025	<0.025	0.03	0.03		<0.025	0.037	0.056		0.018	0.00	0.06	0.02	0.02	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.05		0.03	<0.025	<0.025		<0.025	0.03	0.028		<0.01	0.00	0.03	0.00	0.01	10
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							0.09		<0.025					0.00	0.09	0.05	0.05	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp								<0.025		<0.025	<0.025	<0.02	<0.01	0.00	0.00	0.00	0.00	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.025		0.088	0.19	0.073	0.055	0.00	0.19	0.07	0.08	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp										<0.025	<0.025	<0.02	<0.01	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp										<0.025	<0.025	<0.02	<0.01	0.00	0.00	0.00	0.00	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp											<0.025	<0.025	<0.01	0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan					<0.025									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph					<0.025									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire					<0.025								<0.01	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.025									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington					<0.025							<0.01	0.00	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton					<0.025									0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.025									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire					<0.025							<0.01	0.00	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier					<0.025									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.025									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul					<0.025									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.025									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington					<0.025							<0.01	0.00	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.025									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.025									0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.025									0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.025									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion					<0.025									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville					<0.025									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington					<0.025							<0.01	0.00	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan					<0.025									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.025									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton					<0.025									0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings					<0.025	<0.025						<0.01	0.00	0.00	0.00	0.00	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings					<0.025	<0.025						<0.01	0.00	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings					<0.025	<0.025						<0.01	0.00	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings					<0.025	<0.025						<0.01	0.00	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings					<0.025	<0.025						<0.01	0.00	0.00	0.00	0.00	0.00	3
Muni-29	Deep	197	402	OpCj		Farmington												<0.01	0.00	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington												<0.01	0.00	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington												<0.01	0.00	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.20	<0.20	<0.20	<0.20		<0.20					0.00	0.00	0.00	0.00
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20		<0.025	0.00	0.03	0.00	0.01
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.20	<0.20	<0.20						<0.02		0.00	0.04	0.02	0.02
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.20		<0.20		<0.20	<0.20				0.00	0.00	0.00	0.00
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20				0.00	0.00	0.00	0.00
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20			0.00	0.00	0.00	0.00
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.20	<0.20			<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20				0.00	0.00	0.00	0.00
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20		<0.02	<0.025	0.00	0.00	0.00	0.00
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.02	<0.025	0.00	0.00	0.00	0.00
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20		<0.02	<0.025	0.00	0.00	0.00	0.00
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.20	<0.20		<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.025	0.00	0.00	0.00	0.00
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.20		<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.20	<0.20	<0.20			<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.025	0.00	0.00	0.00	0.00
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20				0.00	0.00	0.00	0.00
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20				0.00	0.00	0.00	0.00
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.20	<0.20	<0.20								0.00	0.00	0.00	0.00
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.05	0.00	0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.20	<0.20	<0.20	<0.20		<0.20					0.00	0.05	0.00	0.01
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.025	0.00	0.00	0.00	0.00
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.025	0.00	0.00	0.00	0.00
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.20	<0.20	<0.20							0.00	0.00	0.00	0.00
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.20		<0.20					0.00	0.00	0.00	0.00
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.20		<0.20	<0.20	<0.02	<0.025	0.00	0.00	0.00	0.00
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.20		<0.20	<0.20	<0.02	<0.025	0.00	0.03	0.00	0.01
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp						<0.20	<0.20	<0.02	<0.025	0.00	0.00	0.00	0.00	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp						<0.20	<0.20	<0.02	<0.025	0.00	0.00	0.00	0.00	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp							<0.20		<0.025	0.00	0.00	0.00	0.00	
Muni-01	Deep	406	500	Cjdn		Eagan		<0.20									0.00	0.00	0.00	0.00
Muni-02	Deep	258	356	Cjdn		Randolph		<0.20									0.00	0.00	0.00	0.00
Muni-03	Deep	355	457	Cjdn		Empire		<0.20							<0.025	0.00	0.00	0.00	0.00	
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.20									0.00	0.00	0.00	0.00
Muni-05	Mid	132	424	OpCj		Farmington		<0.20							<0.025	0.00	0.00	0.00	0.00	
Muni-06	Mid	248	302	Cjdn		Hampton		<0.20									0.00	0.00	0.00	0.00
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.20									0.00	0.00	0.00	0.00
Muni-08	Deep	340	410	Cjdn		Empire		<0.20								<0.025	0.00	0.00	0.00	0.00
Muni-09	Deep	580	680	Cjdn		New Trier		<0.20									0.00	0.00	0.00	0.00
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.20									0.00	0.00	0.00	0.00
Muni-11	Mid	240	342	OpCj		South St Paul		<0.20									0.00	0.00	0.00	0.00
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.20									0.00	0.00	0.00	0.00
Muni-13	Deep	392	477	Cjdn		Farmington		<0.20								<0.025	0.00	0.00	0.00	0.00
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.20									0.00	0.00	0.00	0.00
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.20									0.00	0.00	0.00	0.00
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.20									0.00	0.00	0.00	0.00
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.20									0.00	0.00	0.00	0.00
Muni-18	Deep	267	293	Ucs		Vermillion		<0.20									0.00	0.00	0.00	0.00
Muni-19	Deep	425	616	OpCj		Lakeville		<0.20									0.00	0.00	0.00	0.00
Muni-20	Deep	417	512	Cjdn		Farmington		<0.20								<0.025	0.00	0.00	0.00	0.00
Muni-21	Deep	384	500	Cjdn		Eagan		<0.20									0.00	0.00	0.00	0.00
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.20									0.00	0.00	0.00	0.00
Muni-23	Deep	256	305	Cjdn		Hampton		<0.20									0.00	0.00	0.00	0.00
Muni-24	Deep	312	400	Cjdn		Hastings		<0.20	<0.20							<0.025	0.00	0.00	0.00	0.00
Muni-25	Deep	277	356	Cjdn		Hastings		<0.20	<0.20							<0.025	0.00	0.00	0.00	0.00
Muni-26	Mid	240	332	Cjdn		Hastings		<0.20	<0.20							<0.025	0.00	0.00	0.00	0.00
Muni-27	Mid	205	285	Cjdn		Hastings		<0.20	<0.20							<0.025	0.00	0.00	0.00	0.00
Muni-28	Mid	208	299	Cjdn		Hastings		<0.20	<0.20							<0.025	0.00	0.00	0.00	0.00
Muni-29	Deep	197	402	OpCj		Farmington										<0.025	0.00	0.00	0.00	0.00
Muni-30	Deep	408	501	Cjdn		Farmington										<0.025	0.00	0.00	0.00	0.00
Muni-31	Deep	386	485	Cjdn		Farmington										<0.025	0.00	0.00	0.00	0.00

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.025	<0.025	<0.025	<0.025		<0.025					0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.03	<0.025			<0.025	<0.025	<0.025		<0.025	0.00	0.03	0.00	0.01	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	0.04	0.04	<0.025						<0.02		0.00	0.04	0.02	0.02	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025		<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025			0.00	0.00	0.00	0.00	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.00	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		<0.02	<0.025	0.00	0.00	0.00	0.00	7
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.025	<0.025	<0.025			<0.025	<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	8
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025		<0.02	<0.025	0.00	0.00	0.00	0.00	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	6

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.025	<0.025	<0.025								0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.05	0.04	<0.025	<0.025		0.03	<0.025	<0.025		<0.025	0.00	0.05	0.00	0.02	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp	0.05	<0.025	<0.025	<0.025		<0.025					0.00	0.05	0.00	0.01	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	7
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.025		<0.025					0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.025		<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.025		<0.025	<0.025	<0.02	0.027	0.00	0.03	0.00	0.01	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.025		<0.025	0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								<0.025	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								<0.025	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								<0.025	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								<0.025	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		<0.025								<0.025	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings		<0.025	<0.025							<0.025	0.00	0.00	0.00	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings		<0.025	<0.025							<0.025	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings		<0.025	<0.025							<0.025	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings		<0.025	<0.025							<0.025	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings		<0.025	<0.025							<0.025	0.00	0.00	0.00	0.00	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.025	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										<0.025	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington										<0.025	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	trend	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.19	0.2	0.38	0.24		0.19	0.26	0.21		1.1	0.19	1.10	0.23	0.35	Stable	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	<MRL	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	0.06	0.03	0.04	0.04		0.09					0.03	0.09	0.04	0.05	Stable	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.61	0.8			1.6	0.1	0.79		0.54	0.10	1.60	0.70	0.74	Stable	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	5	3.4	2.9						1.1		1.10	5.00	3.15	3.10	SS	4
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		0.43	0.68	<0.025		0.3	0.29	0.21		0.22	0.00	0.68	0.29	0.30	Stable	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	<MRL	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount		0.4	0.27	<0.025		0.15	0.67	0.68		0.84	0.00	0.84	0.40	0.43	Stable	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		0.58	0.58	<0.025		1	0.26	0.33		0.14	0.00	1.00	0.33	0.41	Stable	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025		<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	SS	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		0.03	<0.025	<0.025						0.034	0.00	0.03	0.00	0.01	<MRL	6
AGQS-15	Mid	166	170	Ucs	5	Hastings	0.3	0.34	0.36	0.32		0.25	0.38				0.25	0.38	0.33	0.33	Stable	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.08	0.12	<0.025		0.07	0.05	0.097			0.00	0.12	0.08	0.07	Stable	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	0.04	<0.025	<0.025	<0.025		0.08	0.09	0.055		0.62	0.00	0.62	0.05	0.11	Up	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025			<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	<MRL	8
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	<MRL	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0.26	0.3	0.25	0.16		0.09	0.08	0.048		0.065	0.05	0.30	0.13	0.16	Down	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	0.03		0.06	<0.025			0.029	0.00	0.06	0.01	0.02	Stable	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	0.025	<0.025		<0.025	0.00	0.03	0.00	0.00	<MRL	7
AGQS-26	Deep	342	360	Opdc		Lakeville	0.06	<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.06	0.00	0.01	<MRL	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		0.048	0.00	0.05	0.00	0.01	<MRL	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	0.028	0.031		0.04	0.00	0.04	0.00	0.01	Up	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		0.22	0.49	<0.025		0.13	0.08	0.054		0.044	0.00	0.49	0.08	0.15	Stable	7
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	<MRL	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount		0.26	0.4	<0.025		0.42	0.76		0.31	0.27	0.00	0.76	0.31	0.35	Stable	7
AGQS-33	Deep	260	280	Cjdn	8	Coates	0.16	0.1	0.16			0.19	0.33	0.79	0.64	0.586	0.10	0.79	0.26	0.37	Up	8
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	<0.025	0.034		<0.025	0.00	0.58	0.00	0.09	<MRL	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025			0.28	0.00	0.28	0.00	0.05	<MRL	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	0.23	0.28	0.19	0.21		0.13	0.18	0.11		0.13	0.11	0.28	0.19	0.18	Down	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		1.3	0.00	1.30	0.00	0.19	<MRL	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		1.4	1.4	<0.025		0.57	1.1		0.5	0.61	0.00	1.40	0.61	0.80	Stable	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	<MRL	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		0.03	0.06			0.08	0.11	0.083	0.16	0.13	0.03	0.16	0.08	0.09	Up	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.025		<0.025		<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025			<0.025	0.00	0.00	0.00	0.00	<MRL	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	0.12	0.25	<0.02	<0.025	0.00	0.25	0.00	0.05	<MRL	7
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	<MRL	5
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		0.09	0.09	0.07		0.28	<0.025	0.034		0.34	0.00	0.34	0.09	0.13	Stable	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0.2	0.2	0.09		0.12	<0.025	0.13		0.078	0.00	0.20	0.12	0.12	Stable	7
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0.06	<0.025	0.13		0.07	0.07	0.12		0.66	0.00	0.66	0.07	0.16	Up	7
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0.11	0.03	0.11		0.18	0.11	0.086		0.098	0.03	0.18	0.11	0.10	Stable	7
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025				0.00	0.00	0.00	0.00	<MRL	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	0.03	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.03	0.00	0.00	<MRL	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	2.4	0.76	0.88								0.76	2.40	0.88	1.35	SS	3

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	trend	count
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.5	0.31	0.14	0.08		0.25	0.1	0.17		1.2	0.08	1.20	0.21	0.34	Stable	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp	4.4	2.1	1.4	1.4		0.94					0.94	4.40	1.40	2.05	Down	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0.62	0.43	0.72	0.4		0.51	0.07	0.61		4.6	0.07	4.60	0.56	1.00	Stable	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		0.04	<0.025	<0.025		0.04	0.00	0.04	0.00	0.01	<MRL	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	0.15	<0.025	0.03	<0.025		<0.025	<0.025			<0.025	0.00	0.15	0.00	0.03	<MRL	7
AGQS-66	Shallow	75	80	Ucs	8	Coates	0.32	0.19	0.1	0.14		0.23	0.19	0.3		0.2	0.10	0.32	0.20	0.21	Stable	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.025	0.00	0.00	0.00	0.00	<MRL	7
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	SS	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				1.8		0.61					0.61	1.80	1.21	1.21	SS	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.025		0.029	0.059	0.091	0.13	0.00	0.13	0.06	0.06	Up	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					1.7		1.4	1.9	0.94	0.576	0.58	1.90	1.40	1.30	Stable	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	0.033	<0.025	0.00	0.03	0.00	0.01	SS	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							0.13	0.066	0.13	0.17	0.07	0.17	0.13	0.12	SS	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp									0.11	0.11	0.11	0.11	0.11	0.11	SS	2
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								<0.025	0.00	0.00	0.00	0.00	SS	2
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								<0.025	0.00	0.00	0.00	0.00	SS	2
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								<0.025	0.00	0.00	0.00	0.00	SS	2
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								<0.025	0.00	0.00	0.00	0.00	SS	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		0.05									0.05	0.05	0.05	0.05	SS	1
Muni-15	Deep	345	400	Cjdn		Rosemount		0.06									0.06	0.06	0.06	0.06	SS	1
Muni-16	Deep	345	400	Cjdn		Rosemount		0.32									0.32	0.32	0.32	0.32	SS	1
Muni-17	Deep	389	498	Cjdn		Rosemount		0.08									0.08	0.08	0.08	0.08	SS	1
Muni-18	Deep	267	293	Ucs		Vermillion		0.03									0.03	0.03	0.03	0.03	SS	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-20	Deep	417	512	Cjdn		Farmington		0.49								0.79	0.49	0.79	0.64	0.64	SS	2
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	SS	1
Muni-24	Deep	312	400	Cjdn		Hastings		0.17	0.19							0.37	0.17	0.37	0.19	0.24	SS	3
Muni-25	Deep	277	356	Cjdn		Hastings		0.11	0.1							0.072	0.07	0.11	0.10	0.09	SS	3
Muni-26	Mid	240	332	Cjdn		Hastings		0.16	0.16							0.39	0.16	0.39	0.16	0.24	SS	3
Muni-27	Mid	205	285	Cjdn		Hastings		0.15	0.21							0.52	0.15	0.52	0.21	0.29	SS	3
Muni-28	Mid	208	299	Cjdn		Hastings		0.37	0.44							0.41	0.37	0.44	0.41	0.41	SS	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.025	0.00	0.00	0.00	0.00	SS	1
Muni-30	Deep	408	501	Cjdn		Farmington										0.39	0.39	0.39	0.39	0.39	SS	1
Muni-31	Deep	386	485	Cjdn		Farmington										0.138	0.138	0.138	0.138	0.138	SS	1

Shaded cells indicate result exceeds the laboratory reporting limit.

<MRL - less than the method reporting limit

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	0.25	<0.025	0.08								0.00	0.25	0.08	0.11	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	1.3	0.97	0.84	0.25		0.99	0.11	0.15		0.48	0.11	1.30	0.66	0.64	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp	0.29	0.25	0.21	0.06		0.05					0.05	0.29	0.21	0.17	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0.47	0.27	0.62	0.12		0.27	0.034	0.13		0.77	0.03	0.77	0.27	0.34	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	0.04	<0.025	<0.025	<0.025		<0.025	<0.025			<0.01	0.00	0.04	0.00	0.01	7
AGQS-66	Shallow	75	80	Ucs	8	Coates	0.05	0.04	<0.025	<0.025		0.03	<0.025	<0.025		<0.01	0.00	0.05	0.00	0.02	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025		<0.01	0.00	0.00	0.00	0.00	7
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025							0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.025		<0.025					0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.025		<0.025	<0.025	<0.02	0.023	0.00	0.02	0.00	0.00	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					0.06		0.043	0.078	<0.02	0.0622	0.00	0.08	0.06	0.05	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02	<0.01	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.025	<0.025	<0.02	<0.01	0.00	0.00	0.00	0.00	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.025		<0.01	0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								<0.01	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								<0.01	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								<0.01	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								<0.01	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		0.04								0.071	0.04	0.07	0.06	0.06	2
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings		0.03	0.1							0.028	0.03	0.10	0.03	0.05	3
Muni-25	Deep	277	356	Cjdn		Hastings		0.04	0.1							0.023	0.02	0.10	0.04	0.05	3
Muni-26	Mid	240	332	Cjdn		Hastings		0.04	0.1							0.059	0.04	0.10	0.06	0.07	3
Muni-27	Mid	205	285	Cjdn		Hastings		0.03	0.05							0.043	0.03	0.05	0.04	0.04	3
Muni-28	Mid	208	299	Cjdn		Hastings		0.09	0.12							0.026	0.03	0.12	0.09	0.08	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.01	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										0.053	0.053	0.053	0.053	0.053	1
Muni-31	Deep	386	485	Cjdn		Farmington										0.021	0.021	0.021	0.021	0.021	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0	0.42	0	0.14		0.45	0.35	0.39		0.34	0.23	0.235	<0.075	0.00	0.45	0.29	0.26	10	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0	0	0	0		0	0			0.00	0.00	0.00	0.00	6	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.2	0.21	0.25	0.11		0.11	0.162	0.069	<0.075	0.07	0.25	0.16	0.16	7	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						0.83	0.49	0.3								0.30	0.83	0.49	0.54	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.22	0.21	0.03	0.03		0.1	0	0	<0.075	0.00	0.22	0.03	0.08	7	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.62	0.32	0.18	0.34		0.21				0.18	0.62	0.32	0.33	5	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.23	0.19	0.11	0.23		0.19	0.519	0.343	<0.075	0.11	0.52	0.23	0.26	7	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.05	0	0	0		0	0.15	0.041	<0.075	0.00	0.15	0.00	0.03	7	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0	0	0	0		0	0		<0.075	0.00	0.00	0.00	0.00	6	
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.13	0.11	0.1	0.09		0.1	0.097	0.14	<0.075	0.09	0.14	0.10	0.11	7	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0	0	0.05		0.25	0.2	0.15		0.28	0.15	0.17	<0.075	0.00	0.28	0.15	0.11	11	
AGQS-68	Mid	158	163	Ucs		Apple Valley							0	0	0						0.00	0.00	0.00	0.00	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.33		0.14				0.14	0.33	0.24	0.24	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0	0												0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0	0												0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0	0												0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0.06		0.13	0.095	<0.075	0.06	0.13	0.10	0.10	3	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										0.16		0.22	0.29	<0.075	0.16	0.29	0.22	0.22	3	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												0	0	<0.075	0.00	0.00	0.00	0.00	2	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.26	0.13	<0.075	0.13	0.26	0.20	0.20	2	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												0.28	<0.075	0.28	0.28	0.28	0.28	0.28	1	
Muni-01	Deep	406	500	Cjdn		Eagan						0									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph						0									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire						0								<0.075	0.00	0.00	0.00	0.00	1	
Muni-04	Deep	322	401	Cjdn		South St Paul						0									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington						0								<0.075	0.00	0.00	0.00	0.00	1	
Muni-06	Mid	248	302	Cjdn		Hampton						0.05									0.05	0.05	0.05	0.05	1	
Muni-07	Mid	218	298	Cjdn		Burnsville						0									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire						0								<0.075	0.00	0.00	0.00	0.00	1	
Muni-09	Deep	580	680	Cjdn		New Trier						0									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville						0									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul						0									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount						0									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington						0								<0.075	0.00	0.00	0.00	0.00	1	
Muni-14	Deep	420	516	Cjdn		Apple Valley						0									0.00	0.00	0.00	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount						0.05									0.05	0.05	0.05	0.05	1	
Muni-16	Deep	345	400	Cjdn		Rosemount						0.07									0.07	0.07	0.07	0.07	1	
Muni-17	Deep	389	498	Cjdn		Rosemount						0									0.00	0.00	0.00	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion						0									0.00	0.00	0.00	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville						0									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington						0.06								<0.075	0.06	0.06	0.06	0.06	1	
Muni-21	Deep	384	500	Cjdn		Eagan						0									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						0									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton						0.06									0.06	0.06	0.06	0.06	1	
Muni-24	Deep	312	400	Cjdn		Hastings						0.05	0.027							<0.075	0.03	0.05	0.04	0.04	2	
Muni-25	Deep	277	356	Cjdn		Hastings							0.07	0.04							<0.075	0.04	0.07	0.06	0.06	2
Muni-26	Mid	240	332	Cjdn		Hastings						0.05	0.04								<0.075	0.04	0.05	0.05	0.05	2
Muni-27	Mid	205	285	Cjdn		Hastings						0.205	0.13								<0.075	0.13	0.21	0.17	0.17	2
Muni-28	Mid	208	299	Cjdn		Hastings						0.115	0.087								<0.075	0.09	0.12	0.10	0.10	2
Muni-29	Deep	197	402	OpCj		Farmington															<0.075	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington															<0.075	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington															<0.075	0.00	0.00	0.00	0.00	1

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025			0.00	0.00	0.00	0.000	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	<0.075	0.00	0.00	0.00	0.000	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.025	<0.025	<0.025							0.00	0.00	0.00	0.000	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.025	0.03	<0.025	<0.025		<0.025	<0.025	<0.025	<0.075	0.00	0.03	0.00	0.004	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.025	<0.025	<0.025	<0.025		<0.025				0.00	0.00	0.00	0.000	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	<0.075	0.00	0.00	0.00	0.000	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	<0.075	0.00	0.00	0.00	0.000	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025		<0.075	0.00	0.00	0.00	0.000	7
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	<0.075	0.00	0.00	0.00	0.000	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.2	<0.5	<0.1	<0.05	<0.05		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	<0.075	0.00	0.00	0.00	0.000	12
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.025	<0.025	<0.025						0.00	0.00	0.00	0.000	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.025		<0.025				0.00	0.00	0.00	0.000	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	<0.5	<0.1													0.00	0.00	0.00	0.000	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	<0.5	<0.1													0.00	0.00	0.00	0.000	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp	<0.5	<0.1													0.00	0.00	0.00	0.000	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.025		<0.006	<0.025	<0.075	0.00	0.00	0.00	0.000	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.025		<0.025	<0.025	<0.075	0.00	0.00	0.00	0.000	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											<0.006	<0.025	<0.075	<0.075	0.00	0.00	0.00	0.000	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											<0.006	<0.025	<0.075	<0.075	0.00	0.00	0.00	0.000	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												<0.025	<0.075	<0.075	0.00	0.00	0.00	0.000	2
Muni-01	Deep	406	500	Cjdn		Eagan						<0.025									0.00	0.00	0.00	0.000	1
Muni-02	Deep	258	356	Cjdn		Randolph						<0.025									0.00	0.00	0.00	0.000	1
Muni-03	Deep	355	457	Cjdn		Empire						<0.025							<0.075		0.00	0.00	0.00	0.000	2
Muni-04	Deep	322	401	Cjdn		South St Paul						<0.025									0.00	0.00	0.00	0.000	1
Muni-05	Mid	132	424	OpCj		Farmington						<0.025							<0.075		0.00	0.00	0.00	0.000	2
Muni-06	Mid	248	302	Cjdn		Hampton						<0.025									0.00	0.00	0.00	0.000	1
Muni-07	Mid	218	298	Cjdn		Burnsville						<0.025									0.00	0.00	0.00	0.000	1
Muni-08	Deep	340	410	Cjdn		Empire						<0.025							<0.075		0.00	0.00	0.00	0.000	2
Muni-09	Deep	580	680	Cjdn		New Trier						<0.025									0.00	0.00	0.00	0.000	1
Muni-10	Deep	434	517	Cjdn		Lakeville						<0.025									0.00	0.00	0.00	0.000	1
Muni-11	Mid	240	342	OpCj		South St Paul						<0.025									0.00	0.00	0.00	0.000	1
Muni-12	Deep	388	471	Cjdn		Rosemount						<0.025									0.00	0.00	0.00	0.000	1
Muni-13	Deep	392	477	Cjdn		Farmington						<0.025							<0.075		0.00	0.00	0.00	0.000	2
Muni-14	Deep	420	516	Cjdn		Apple Valley						<0.025									0.00	0.00	0.00	0.000	1
Muni-15	Deep	345	400	Cjdn		Rosemount						<0.025									0.00	0.00	0.00	0.000	1
Muni-16	Deep	345	400	Cjdn		Rosemount						<0.025									0.00	0.00	0.00	0.000	1
Muni-17	Deep	389	498	Cjdn		Rosemount						<0.025									0.00	0.00	0.00	0.000	1
Muni-18	Deep	267	293	Ucs		Vermillion						<0.025									0.00	0.00	0.00	0.000	1
Muni-19	Deep	425	616	OpCj		Lakeville						<0.025									0.00	0.00	0.00	0.000	1
Muni-20	Deep	417	512	Cjdn		Farmington						<0.025							<0.075		0.00	0.00	0.00	0.000	2
Muni-21	Deep	384	500	Cjdn		Eagan						<0.025									0.00	0.00	0.00	0.000	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						<0.025									0.00	0.00	0.00	0.000	1
Muni-23	Deep	256	305	Cjdn		Hampton						<0.025									0.00	0.00	0.00	0.000	1
Muni-24	Deep	312	400	Cjdn		Hastings						<0.025	<0.025						<0.075		0.00	0.00	0.00	0.000	3
Muni-25	Deep	277	356	Cjdn		Hastings						<0.025	0.03						<0.075		0.00	0.03	0.00	0.010	3
Muni-26	Mid	240	332	Cjdn		Hastings						<0.025	<0.025						<0.075		0.00	0.00	0.00	0.000	3
Muni-27	Mid	205	285	Cjdn		Hastings						<0.025	<0.025						<0.075		0.00	0.00	0.00	0.000	3
Muni-28	Mid	208	299	Cjdn		Hastings						<0.025	<0.025						<0.075		0.00	0.00	0.00	0.000	3
Muni-29	Deep	197	402	OpCj		Farmington													<0.075		0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington													<0.075		0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington													<0.075		0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 4 ug/L (HRL MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.025	<0.025	<0.025	<0.025		<0.025			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.025	<0.025	<0.025						<0.02
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.025		<0.025		<0.025	<0.025		
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.025	0.04	<0.025	<0.025		<0.025	<0.025		
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.025		<0.025		<0.025	<0.025		
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		<0.02
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.025	<0.025	<0.025			<0.025	<0.025	<0.025	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.025		<0.025		<0.025	<0.025		
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025		<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.025		<0.025		<0.025	<0.025		
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.025	<0.025		<0.025		<0.025	<0.025		
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.025	<0.025			<0.025	<0.025	<0.025	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.025		<0.025		<0.025	<0.025		
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.025	<0.025	<0.025			<0.025	<0.025		
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.025	<0.025			<0.025	<0.025	<0.025	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.025	<0.025	<0.025		<0.025	<0.025		

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.025	<0.025	<0.025						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.025	<0.025	<0.025	<0.025		<0.025			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025		
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.025	<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025		<0.025	<0.025	<0.025	
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025					
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.025		<0.025			
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.025		<0.025	<0.025	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.025		<0.025	<0.025	<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.025	<0.025	<0.02
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.025	
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025							
Muni-02	Deep	258	356	Cjdn	5	Randolph		<0.025							
Muni-03	Deep	355	457	Cjdn		Empire		<0.025							
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025							
Muni-05	Mid	132	424	OpCj		Farmington		<0.025							
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025							
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025							
Muni-08	Deep	340	410	Cjdn		Empire		<0.025							
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025							
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025							
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025							
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025							
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025							
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025							
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025							
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025							
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025							
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025							
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025							
Muni-20	Deep	417	512	Cjdn		Farmington		<0.025							
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025							
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025							
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025							
Muni-24	Deep	312	400	Cjdn		Hastings		<0.025	<0.025						
Muni-25	Deep	277	356	Cjdn		Hastings		<0.025	<0.025						
Muni-26	Mid	240	332	Cjdn		Hastings		<0.025	<0.025						
Muni-27	Mid	205	285	Cjdn		Hastings		<0.025	<0.025						
Muni-28	Mid	208	299	Cjdn		Hastings		<0.025	<0.025						

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.025		<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	5	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.025		<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	5	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	4	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.025	<0.025	<0.02	<0.025	0.00	0.00	0.00	0.00	4	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													<0.025	<0.025	<0.025	0.00	0.00	0.00	0.00	2	
Muni-01	Deep	406	500	Cjdn		Eagan							<0.025								0.00	0.00	0.00	0.00	1		
Muni-02	Deep	258	356	Cjdn		Randolph							<0.025									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							<0.025								<0.025	0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.025									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							<0.025								<0.025	0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							<0.025									0.00	0.00	0.00	0.00	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							<0.025								<0.025	0.00	0.00	0.00	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier							<0.025									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							<0.025									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							<0.025								<0.025	0.00	0.00	0.00	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.025									0.00	0.00	0.00	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.025									0.00	0.00	0.00	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion							<0.025									0.00	0.00	0.00	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville							<0.025									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							<0.025								<0.025	0.00	0.00	0.00	0.00	2	
Muni-21	Deep	384	500	Cjdn		Eagan							<0.025									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.025									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							<0.025									0.00	0.00	0.00	0.00	1	
Muni-24	Deep	312	400	Cjdn		Hastings							<0.025	<0.025							<0.025	0.00	0.00	0.00	0.00	3	
Muni-25	Deep	277	356	Cjdn		Hastings							<0.025	<0.025								<0.025	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings							<0.025	<0.025								<0.025	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings							<0.025	<0.025								<0.025	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings							<0.025	<0.025								<0.025	0.00	0.00	0.00	0.00	3
Muni-29	Deep	197	402	OpCj		Farmington																<0.025	0.00	0.00	0.00	1	
Muni-30	Deep	408	501	Cjdn		Farmington																<0.025	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington																<0.025	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 10 ug/L (EPA HA)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	8
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025				0.00	0.00	0.00	0.00	7
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	9
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.025	<0.025	<0.025								0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	9
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025					0.00	0.00	0.00	0.00	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	9
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	9
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	8
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.025	<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	9
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.025	<0.025	<0.025	<0.20	<0.025	<0.025	<0.025		<0.03	0.00	0.00	0.00	0.00	8
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.025	<0.025	<0.025	<0.20						0.00	0.00	0.00	0.00	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.025	<0.20	<0.025					0.00	0.00	0.00	0.00	3
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.20		<0.025	<0.025	<0.02	<0.03	0.00	0.00	0.00	0.00	5
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp				<0.20			<0.025	<0.025	<0.02	<0.03	0.00	0.00	0.00	0.00	5
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.025	<0.025	<0.02	<0.03	0.00	0.00	0.00	0.00	4
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.025	<0.025	<0.02	<0.03	0.00	0.00	0.00	0.00	4
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.025	<0.02	<0.03	0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.025									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.025								<0.03	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.025								<0.03	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.025									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.025								<0.03	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier		<0.025									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.025									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.025								<0.03	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.025									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.025									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.025									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.025									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		<0.025								<0.03	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan		<0.025									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.025									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.025									0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings		<0.025	<0.025							<0.03	0.00	0.00	0.00	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings		<0.025	<0.025							<0.03	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings		<0.025	<0.025							<0.03	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings		<0.025	<0.025							<0.03	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings		<0.025	<0.025							<0.03	0.00	0.00	0.00	0.00	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.03	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										<0.03	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington										<0.03	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 70 ug/L (EPA HA)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019	min	max	median	avg	count	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025	<0.025				0.00	0.00	0.00	0.00	7	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025	<0.025	<0.025		<0.1	0.00	0.00	0.00	0.00	9	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.03	<0.03	<0.03								0.00	0.00	0.00	0.00	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.03	0.03	<0.03	<0.025	<0.20	<0.025	<0.025	<0.025		<0.1	0.00	0.00	0.03	0.00	9	
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025					0.00	0.00	0.00	0.00	6	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025	<0.025	<0.025		<0.1	0.00	0.00	0.00	0.00	9	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025	<0.025	<0.025		<0.1	0.00	0.00	0.00	0.00	9	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025	<0.025			<0.1	0.00	0.00	0.00	0.00	8	
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.03	<0.03	<0.03	<0.025	<0.20	<0.025	<0.025	<0.025		<0.1	0.00	0.00	0.00	0.00	9	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	0.06	<0.05	<0.05		0.06	<0.03	0.04	E0.04	0.04	0.025	<0.025		<0.1	0.00	0.06	0.00	0.02	13	
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.03	<0.03	<0.025	<0.20						0.00	0.00	0.00	0.00	4	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.025	<0.20	<0.025					0.00	0.00	0.00	0.00	3	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1													0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.20		<0.012	<0.025	<0.02	<0.1	0.00	0.00	0.00	0.00	5	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.20		<0.025	<0.025	<0.02	<0.1	0.00	0.00	0.00	0.00	5	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.012	<0.025	<0.02	<0.1	0.00	0.00	0.00	0.00	4	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.012	<0.025	<0.02	<0.1	0.00	0.00	0.00	0.00	4	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													<0.025		<0.1	0.00	0.00	0.00	0.00	2	
Muni-01	Deep	406	500	Cjdn		Eagan							<0.03									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph							<0.03									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							<0.03								<0.1	0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.03									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							<0.03								<0.1	0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							<0.03									0.00	0.00	0.00	0.00	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.03									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							<0.03								<0.1	0.00	0.00	0.00	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier							<0.03									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.03									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							<0.03									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.03									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							<0.03									<0.1	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.03									0.00	0.00	0.00	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.03									0.00	0.00	0.00	0.00	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.03									0.00	0.00	0.00	0.00	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.03									0.00	0.00	0.00	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion							<0.03									0.00	0.00	0.00	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville							<0.03									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							<0.03									<0.1	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan							<0.03									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.03									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							<0.03									0.00	0.00	0.00	0.00	1	
Muni-24	Deep	312	400	Cjdn		Hastings							<0.03	<0.03								<0.1	0.00	0.00	0.00	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings							<0.03	<0.03								<0.1	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings							<0.03	<0.03								<0.1	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings							<0.03	<0.03								<0.1	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings							<0.03	<0.03								<0.1	0.00	0.00	0.00	0.00	3
Muni-29	Deep	197	402	OpCj		Farmington																<0.1	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington																<0.1	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington																<0.1	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 100 ug/L (MDH HRL₉₃)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.20	<0.20	<0.20	<0.20		<0.20		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.20	<0.20	<0.20					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.20		<0.20		<0.20	<0.20	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.20	<0.20	<0.20			<0.20	<0.20	<0.20
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.20		<0.20		<0.20	<0.20	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.20		<0.20		<0.20	<0.20	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.20	<0.20	<0.20			<0.20	<0.20	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.20	<0.20			<0.20	<0.20	<0.20
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.20	<0.20	<0.20					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.20	<0.20	<0.20	<0.20		<0.20		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.20	<0.20	<0.20				
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.20		<0.20		
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.20		<0.20	<0.20
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.20		<0.20	<0.20
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.20	<0.20
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.20	<0.20
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.20
Muni-01	Deep	406	500	Cjdn		Eagan		<0.20						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.20						
Muni-03	Deep	355	457	Cjdn		Empire		<0.20						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.20						
Muni-05	Mid	132	424	OpCj		Farmington		<0.20						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.20						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.20						
Muni-08	Deep	340	410	Cjdn		Empire		<0.20						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.20						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.20						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.20						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.20						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.20						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.20						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.20						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.20						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.20						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.20						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.20						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.20						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.20						
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.20						
Muni-23	Deep	256	305	Cjdn		Hampton		<0.20						
Muni-24	Deep	312	400	Cjdn		Hastings		<0.20	<0.20					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.20	<0.20					
Muni-26	Mid	240	332	Cjdn		Hastings		<0.20	<0.20					
Muni-27	Mid	205	285	Cjdn		Hastings		<0.20	<0.20					
Muni-28	Mid	208	299	Cjdn		Hastings		<0.20	<0.20					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.20	<0.20	<0.20	<0.20		<0.20				
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.20	<0.20	<0.20		<0.20		<0.20		<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.20	<0.20	<0.20						<0.02	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.20		<0.20		<0.20	<0.20			
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.20		<0.20		<0.20	<0.20			<0.02
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20		<0.02	<0.02
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.20	<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.20		<0.20		<0.20	<0.20			<0.02
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20		<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.20		<0.20		<0.20	<0.20			<0.02
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.20	<0.20		<0.20		<0.20	<0.20			<0.02
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.20		<0.20		<0.20	<0.20			<0.02
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.20	<0.20	<0.20			<0.20	<0.20			<0.02
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.20	<0.20	<0.20							
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.20	<0.20	<0.20	<0.20		<0.20				
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.02
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.20	<0.20	<0.20						
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.20		<0.20				
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.20		<0.20	<0.20	<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.20		<0.20	<0.20	<0.02	<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.20	<0.20	<0.02	<0.02
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.20	<0.20	<0.02	<0.02
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.20		<0.02
Muni-01	Deep	406	500	Cjdn		Eagan		<0.20								
Muni-02	Deep	258	356	Cjdn		Randolph		<0.20								
Muni-03	Deep	355	457	Cjdn		Empire		<0.20								<0.02
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.20								
Muni-05	Mid	132	424	OpCj		Farmington		<0.20								<0.02
Muni-06	Mid	248	302	Cjdn		Hampton		<0.20								
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.20								
Muni-08	Deep	340	410	Cjdn		Empire		<0.20								<0.02
Muni-09	Deep	580	680	Cjdn		New Trier		<0.20								
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.20								
Muni-11	Mid	240	342	OpCj		South St Paul		<0.20								
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.20								
Muni-13	Deep	392	477	Cjdn		Farmington		<0.20								<0.02
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.20								
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.20								
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.20								
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.20								
Muni-18	Deep	267	293	Ucs		Vermillion		<0.20								
Muni-19	Deep	425	616	OpCj		Lakeville		<0.20								
Muni-20	Deep	417	512	Cjdn		Farmington		<0.20								<0.02
Muni-21	Deep	384	500	Cjdn		Eagan		<0.20								
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.20								
Muni-23	Deep	256	305	Cjdn		Hampton		<0.20								
Muni-24	Deep	312	400	Cjdn		Hastings		<0.20	<0.20							<0.02
Muni-25	Deep	277	356	Cjdn		Hastings		<0.20	<0.20							<0.02
Muni-26	Mid	240	332	Cjdn		Hastings		<0.20	<0.20							<0.02
Muni-27	Mid	205	285	Cjdn		Hastings		<0.20	<0.20							<0.02
Muni-28	Mid	208	299	Cjdn		Hastings		<0.20	<0.20							<0.02
Muni-29	Deep	197	402	OpCj		Farmington										<0.1
Muni-30	Deep	408	501	Cjdn		Farmington										<0.1
Muni-31	Deep	386	485	Cjdn		Farmington										<0.1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 1 ug/L (MDH HRL₉₃)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.20	<0.20	<0.20	<0.20		<0.20			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.20	<0.20	<0.20						<0.05
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.20	<0.20			<0.20	<0.20		
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.05
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.20	<0.20	<0.20			<0.20	<0.20	<0.20	<0.05
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.20		<0.20		<0.20	<0.20		
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20		<0.05
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.20	<0.20		<0.20		<0.20	<0.20		
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.05
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.20		<0.20		<0.20	<0.20		
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.20	<0.20	<0.20			<0.20	<0.20		
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.05
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.20	<0.20	<0.20						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.20	<0.20	<0.20	<0.20		<0.20			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20		
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.20	<0.20	<0.20					
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.20		<0.20			
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.20		<0.20	<0.20	<0.05
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.20		<0.20	<0.20	<0.05
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.20	<0.20	<0.05
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.20	<0.20	<0.05
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.20	
Muni-01	Deep	406	500	Cjdn		Eagan		<0.20							
Muni-02	Deep	258	356	Cjdn		Randolph		<0.20							
Muni-03	Deep	355	457	Cjdn		Empire		<0.20							
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.20							
Muni-05	Mid	132	424	OpCj		Farmington		<0.20							
Muni-06	Mid	248	302	Cjdn		Hampton		<0.20							
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.20							
Muni-08	Deep	340	410	Cjdn		Empire		<0.20							
Muni-09	Deep	580	680	Cjdn		New Trier		<0.20							
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.20							
Muni-11	Mid	240	342	OpCj		South St Paul		<0.20							
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.20							
Muni-13	Deep	392	477	Cjdn		Farmington		<0.20							
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.20							
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.20							
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.20							
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.20							
Muni-18	Deep	267	293	Ucs		Vermillion		<0.20							
Muni-19	Deep	425	616	OpCj		Lakeville		<0.20							
Muni-20	Deep	417	512	Cjdn		Farmington		<0.20							
Muni-21	Deep	384	500	Cjdn		Eagan		<0.20							
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.20							
Muni-23	Deep	256	305	Cjdn		Hampton		<0.20							
Muni-24	Deep	312	400	Cjdn		Hastings		<0.20	<0.20						
Muni-25	Deep	277	356	Cjdn		Hastings		<0.20	<0.20						
Muni-26	Mid	240	332	Cjdn		Hastings		<0.20	<0.20						
Muni-27	Mid	205	285	Cjdn		Hastings		<0.20	<0.20						
Muni-28	Mid	208	299	Cjdn		Hastings		<0.20	<0.20						

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 90 ug/L (EPA HA)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.20	<0.20	<0.20	<0.20		<0.20				
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20		<0.013
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.20	<0.20	<0.20						<0.02	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.20	<0.20			<0.20	<0.20			<0.013
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20		<0.02	<0.013
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.20	<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.013
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20		<0.02	<0.013
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.20		<0.20		<0.20	<0.20			<0.013
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.20	<0.20		<0.20		<0.20	<0.20			<0.013
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.013
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.20		<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.20	<0.20	<0.20			<0.20	<0.20			<0.013
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.20	<0.20			<0.20	<0.20	<0.20	<0.02	<0.013
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	2017	2019
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.20	<0.20	<0.20							
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.20	<0.20	<0.20	<0.20		<0.20				
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20			<0.013
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.20	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.20	<0.20	<0.20		<0.20	<0.20	<0.20		<0.013
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.20	<0.20	<0.20						
AGQS-77	Deep	267	285	Cjdn		Empire Twp				<0.20		<0.20				
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.20		<0.20	<0.20	<0.02	<0.013
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.20		<0.20	<0.20	<0.02	<0.013
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.20	<0.20	<0.02	<0.013
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.20	<0.20	<0.02	<0.013
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.20		<0.013
Muni-01	Deep	406	500	Cjdn		Eagan		<0.20								
Muni-02	Deep	258	356	Cjdn		Randolph		<0.20								
Muni-03	Deep	355	457	Cjdn		Empire		<0.20								<0.013
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.20								
Muni-05	Mid	132	424	OpCj		Farmington		<0.20								<0.013
Muni-06	Mid	248	302	Cjdn		Hampton		<0.20								
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.20								
Muni-08	Deep	340	410	Cjdn		Empire		<0.20								<0.013
Muni-09	Deep	580	680	Cjdn		New Trier		<0.20								
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.20								
Muni-11	Mid	240	342	OpCj		South St Paul		<0.20								
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.20								
Muni-13	Deep	392	477	Cjdn		Farmington		<0.20								<0.013
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.20								
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.20								
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.20								
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.20								
Muni-18	Deep	267	293	Ucs		Vermillion		<0.20								
Muni-19	Deep	425	616	OpCj		Lakeville		<0.20								
Muni-20	Deep	417	512	Cjdn		Farmington		<0.20								<0.013
Muni-21	Deep	384	500	Cjdn		Eagan		<0.20								
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.20								
Muni-23	Deep	256	305	Cjdn		Hampton		<0.20								
Muni-24	Deep	312	400	Cjdn		Hastings		<0.20	<0.20							<0.013
Muni-25	Deep	277	356	Cjdn		Hastings		<0.20	<0.20							<0.013
Muni-26	Mid	240	332	Cjdn		Hastings		<0.20	<0.20							<0.013
Muni-27	Mid	205	285	Cjdn		Hastings		<0.20	<0.20							<0.013
Muni-28	Mid	208	299	Cjdn		Hastings		<0.20	<0.20							<0.013
Muni-29	Deep	197	402	OpCj		Farmington										<0.013
Muni-30	Deep	408	501	Cjdn		Farmington										<0.013
Muni-31	Deep	386	485	Cjdn		Farmington										<0.013

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 100 ug/L (EPA HA)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.81	1.1	0.76	0.97		0.85	0.14	0.25	0.28	0.14	1.10	0.79	0.65	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.25	0.29	0.35	0.22		0.03	0		0.12	0.00	0.35	0.22	0.18	7	
AGQS-66	Shallow	75	80	Ucs	8	Coates						1.47	1.52	1.37	0.9		0.94	0.68	0.64	0.19	0.19	1.52	0.92	0.96	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0.86	0.54	0.58		0.45	0.34	0.42		0.25	0.3	0.23	0.095	0.00	0.86	0.32	0.34	12	
AGQS-68	Mid	158	163	Ucs		Apple Valley						0	0	0							0.00	0.00	0.00	0.00	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									2.03		0.45				0.45	2.03	1.24	1.24	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0	0												0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0	0												0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0	0												0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0.88		1.5	1.52	2.3	0.88	2.30	1.51	1.55	4	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										1.98		1.97	1.35	0.19	0.19	1.98	1.66	1.37	4	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												0	0	0.057	0.00	0.06	0.00	0.02	3	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.41	0.25	0.15	0.15	0.41	0.25	0.27	3	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp														1.46	0.725	0.73	1.46	1.09	1.09	2
Muni-01	Deep	406	500	Cjdn		Eagan						0									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph						0									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire						0								0	0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul						0									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington						0								0	0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton						0.34									0.34	0.34	0.34	0.34	1	
Muni-07	Mid	218	298	Cjdn		Burnsville						0									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire						0								0	0.00	0.00	0.00	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier						0									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville						0									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul						0.04									0.04	0.04	0.04	0.04	1	
Muni-12	Deep	388	471	Cjdn		Rosemount						0.21									0.21	0.21	0.21	0.21	1	
Muni-13	Deep	392	477	Cjdn		Farmington						0								0	0.00	0.00	0.00	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley						0.25									0.25	0.25	0.25	0.25	1	
Muni-15	Deep	345	400	Cjdn		Rosemount						0.09									0.09	0.09	0.09	0.09	1	
Muni-16	Deep	345	400	Cjdn		Rosemount						0.44									0.44	0.44	0.44	0.44	1	
Muni-17	Deep	389	498	Cjdn		Rosemount						0.32									0.32	0.32	0.32	0.32	1	
Muni-18	Deep	267	293	Ucs		Vermillion						0.27									0.27	0.27	0.27	0.27	1	
Muni-19	Deep	425	616	OpCj		Lakeville						0									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington						0.13								0	0.00	0.13	0.07	0.07	2	
Muni-21	Deep	384	500	Cjdn		Eagan						0									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						0									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton						0.44									0.44	0.44	0.44	0.44	1	
Muni-24	Deep	312	400	Cjdn		Hastings						1.145	1.275							1.009	1.01	1.28	1.15	1.14	3	
Muni-25	Deep	277	356	Cjdn		Hastings						0.43	1.835							0.63	0.43	1.84	0.63	0.97	3	
Muni-26	Mid	240	332	Cjdn		Hastings						1.215	2.02							0.863	0.86	2.02	1.22	1.37	3	
Muni-27	Mid	205	285	Cjdn		Hastings						0.785	1.03							0.472	0.47	1.03	0.79	0.76	3	
Muni-28	Mid	208	299	Cjdn		Hastings						1.79	2.245							0.876	0.88	2.25	1.79	1.64	3	
Muni-29	Deep	197	402	OpCj		Farmington														0	0.00	0.00	0.00	0.00	1	
Muni-30	Deep	408	501	Cjdn		Farmington															0	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington															0.152	0.152	0.152	0.152	1	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				0.27	0.22		0.35	0.17			0.07	0.14	0.03	0.037
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.02	<0.02	<0.02						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.4	<0.5	<0.05	<0.05	<0.02		0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.4	<0.5	<0.1	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.4	<0.5	<0.1	<0.05	0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-20	Shallow	55	60	Ucs		Empire Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-21	Mid	133	137	Ucs		Burnsville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						1.56	1.09	1.62	1.41		0.1	<0.02	<0.02	0.032
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-26	Deep	342	360	Opdc		Lakeville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-31	Mid	135	140	Ucs		Lakeville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						<0.02	<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<0.02	<0.02	<0.02			<0.02	<0.02		<0.03
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.02	<0.02	<0.02						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.02	<0.02	<0.02	<0.02		0.02	<0.02	<0.02	<0.03
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.02	0.09	0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02					
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.02		<0.02			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1											
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1											
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1											
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02		<0.02	<0.02	<0.03
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.02		<0.02	<0.02	<0.03
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.02	<0.02	<0.03
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.02	<0.02	<0.03
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													<0.02	<0.03
Muni-01	Deep	406	500	Cjdn		Eagan							<0.02							
Muni-02	Deep	258	356	Cjdn		Randolph							<0.02							
Muni-03	Deep	355	457	Cjdn		Empire							<0.02							<0.03
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.02							
Muni-05	Mid	132	424	OpCj		Farmington							<0.02							<0.03
Muni-06	Mid	248	302	Cjdn		Hampton							<0.02							
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.02							
Muni-08	Deep	340	410	Cjdn		Empire							<0.02							<0.03
Muni-09	Deep	580	680	Cjdn		New Trier							<0.02							
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.02							
Muni-11	Mid	240	342	OpCj		South St Paul							<0.02							
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.02							
Muni-13	Deep	392	477	Cjdn		Farmington							<0.02							<0.03
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.02							
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.02							
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.02							
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.02							
Muni-18	Deep	267	293	Ucs		Vermillion							<0.02							
Muni-19	Deep	425	616	OpCj		Lakeville							<0.02							
Muni-20	Deep	417	512	Cjdn		Farmington							<0.02							<0.03
Muni-21	Deep	384	500	Cjdn		Eagan							<0.02							
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.02							
Muni-23	Deep	256	305	Cjdn		Hampton							<0.02							
Muni-24	Deep	312	400	Cjdn		Hastings							<0.02	<0.02						<0.03
Muni-25	Deep	277	356	Cjdn		Hastings							<0.02	<0.02						<0.03
Muni-26	Mid	240	332	Cjdn		Hastings							<0.02	<0.02						<0.03
Muni-27	Mid	205	285	Cjdn		Hastings							<0.02	<0.02						<0.03
Muni-28	Mid	208	299	Cjdn		Hastings							<0.02	<0.02						<0.03
Muni-29	Deep	197	402	OpCj		Farmington														<0.03
Muni-30	Deep	408	501	Cjdn		Farmington														<0.03
Muni-31	Deep	386	485	Cjdn		Farmington														<0.03

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 2 (EPA MCL)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	trend	count	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				0.83	1.07	1.02	0.87		0.8	0.85	0.52	0.2	0.20	1.07	0.84	0.77	Down	8	
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				0.45	0.28	0.25							0.25	0.45	0.28	0.33	SS	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				0.3	0.39	0.2	0.11		0.33	0.16	0.23	<0.042	0.00	0.39	0.22	0.22	Stable	8	
AGQS-62	Mid	145	149	Ucs		Marshan Twp				2.37	2	1.59	1.16		1.04				1.04	2.37	1.59	1.63	Down	5	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				3.01	3.02	3.14	2.03		2.49	2.28	1.8	0.085	0.09	3.14	2.39	2.23	Down	8	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				0.76	1.04	0.76	0.92		0.8	0.14	0.25	0.28	0.14	1.04	0.76	0.62	Stable	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				0.25	0.29	0.35	0.2		0.03	<0.02		0.12	0.00	0.35	0.20	0.18	Stable	7	
AGQS-66	Shallow	75	80	Ucs	8	Coates				1.43	1.45	1.37	0.87		0.92	0.68	0.64	0.19	0.19	1.45	0.90	0.94	Down	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0.86	0.54	0.58		0.45	0.34	0.42		0.25	0.3	0.23	0.095	0.10	0.86	0.38	0.41	Down	10	
AGQS-68	Mid	158	163	Ucs		Apple Valley													0.00	0.00	0.00	0.00	SS	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							2.03		0.45				0.45	2.03	1.24	1.24	SS	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								0.86		1.5	1.5	2.3	0.86	2.30	1.50	1.54	SS	4	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp							1.9			1.9	1.3	0.19	0.19	1.90	1.60	1.32	SS	4	
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02	0.057	0.00	0.06	0.00	0.02	SS	3	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0.41	0.25	0.15	0.15	0.41	0.25	0.27	SS	3	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											1.4	0.69	0.69	1.40	1.05	1.05	SS	2	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02								0.00	0.00	0.00	0.00	SS	1	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02								0.00	0.00	0.00	0.00	SS	1	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.042	0.00	0.00	0.00	0.00	SS	2	
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02								<0.042	0.00	0.00	0.00	0.00	SS	2
Muni-03	Deep	355	457	Cjdn		Empire					0.34								0.34	0.34	0.34	0.34	SS	1	
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.042	0.00	0.00	0.00	0.00	SS	2	
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-08	Deep	340	410	Cjdn		Empire					0.04								0.04	0.04	0.04	0.04	SS	1	
Muni-09	Deep	580	680	Cjdn		New Trier					0.21								0.21	0.21	0.21	0.21	SS	1	
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.042	0.00	0.00	0.00	0.00	SS	2	
Muni-11	Mid	240	342	OpCj		South St Paul					0.25								0.25	0.25	0.25	0.25	SS	1	
Muni-12	Deep	388	471	Cjdn		Rosemount					0.09								0.09	0.09	0.09	0.09	SS	1	
Muni-13	Deep	392	477	Cjdn		Farmington					0.44								0.44	0.44	0.44	0.44	SS	1	
Muni-14	Deep	420	516	Cjdn		Apple Valley					0.32								0.32	0.32	0.32	0.32	SS	1	
Muni-15	Deep	345	400	Cjdn		Rosemount					0.27								0.27	0.27	0.27	0.27	SS	1	
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-17	Deep	389	498	Cjdn		Rosemount					0.13							<0.042	0.00	0.13	0.07	0.07	SS	2	
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02								0.00	0.00	0.00	0.00	SS	1	
Muni-20	Deep	417	512	Cjdn		Farmington					0.44								0.44	0.44	0.44	0.44	SS	1	
Muni-21	Deep	384	500	Cjdn		Eagan					1.25	1.3						0.95	0.95	1.30	1.25	1.17	SS	3	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					0.86	1.48						0.57	0.57	1.48	0.86	0.97	SS	3	
Muni-23	Deep	256	305	Cjdn		Hampton					1.4	1.57						0.8	0.80	1.57	1.40	1.26	SS	3	
Muni-24	Deep	312	400	Cjdn		Hastings					0.94	0.91						0.43	0.43	0.94	0.91	0.76	SS	3	
Muni-25	Deep	277	356	Cjdn		Hastings					2.33	1.76						0.81	0.81	2.33	1.76	1.63	SS	3	
Muni-29	Deep	197	402	OpCj		Farmington												<0.042	0.00	0.00	0.00	0.00	SS	1	
Muni-30	Deep	408	501	Cjdn		Farmington												<0.042	0.00	0.00	0.00	0.00	SS	1	
Muni-31	Deep	386	485	Cjdn		Farmington												0.152	0.152	0.152	0.152	0.152	SS	1	

Shaded cells indicate result exceeds the laboratory reporting limit.

<MRL - less than the method reporting limit

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = 50 ug/L (RAA₁₆)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.16	0.12	0.14		0.15	0.1	0.11		0.09	0.07	0.05	0.034	0.00	0.10	0.05	0.05	11
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.08	0.06	0.08	0.06	0.05	<0.02	0.04		0.1	0.03	0.02	<0.033	0.00	0.05	0.00	0.01	10
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	0.18	0.17	0.2		0.19	0.15	0.16		0.06	0.09	0.06	<0.033	0.00	0.03	0.02	0.02	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	0.08	0.05	0.09		0.07	0.07	0.07		0.02	0.04	0.02	<0.033	0.10	0.54	0.26	0.28	8
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		0.33	0.4		0.28	0.54			0.15	0.23	0.19	0.1	0.11	0.14	0.12	0.12	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp				0.23	0.3	0.13	0.07		0.32	0.07	0.09	<0.033	0.03	0.16	0.11	0.10	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp				0.14	0.1	0.27	0.1		0.11	0.08	0.08	<0.033	0.00	0.00	0.00	0.00	9
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp				0.05	0.06	0.11	0.08		0.1	0.15			0.00	0.00	0.00	0.00	9
AGQS-09	Mid	140	185	Opdc	16	Rosemount				1.2	1.45	1.17	0.48		0.09	<0.02	<0.02	0.14	0.00	0.00	0.00	0.00	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.05	<0.05	<0.02		0.02	<0.02	0.04		0.02	0.04	0.03	<0.033	0.00	0.00	0.00	0.00	8
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0.06	0.06	0.05		0.05	<0.02	0.05		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.05	0.04		<0.02	<0.02	0.03		0.05	<0.02	0.05	<0.033	0.00	0.20	0.16	0.13	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake					0.02	<0.02	<0.02		0.03	0.02	0.02	<0.033	0.00	0.00	0.00	0.00	6
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		0.03	0.02	0.04	0.033	0.00	0.00	0.00	0.00	8
AGQS-15	Mid	166	170	Ucs	5	Hastings				0.1	0.07	<0.02	0.06		0.02				0.05	0.15	0.09	0.09	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp				0.05	0.06	<0.02	0.05		0.05	<0.02	<0.02	<0.033	0.00	0.02	0.00	0.01	8
AGQS-17	Deep	276	280	Ucs	15	Rosemount				0.04	0.07	<0.02	0.03		0.02	<0.02	<0.02	<0.033	0.00	0.03	0.00	0.01	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount				<0.02	0.03	<0.02	0.03		0.02				0.00	0.00	0.00	0.00	7
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				0.14	0.12	0.11							0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.05	<0.05	<0.02	<0.02	0.03	<0.02			<0.02	0.02	0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.05	<0.02		0.03	<0.02			0.03	<0.02	0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake								0.08		0.07	0.05	<0.033	0.00	0.00	0.00	0.00	7
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights					0.06	0.12						0.059	0.00	1.45	0.31	0.57	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp					0.06	0.13						0.063	0.00	0.00	0.00	0.00	8
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp					0.1	0.12						0.066	0.00	0.00	0.00	0.00	10
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.05	<0.05	<0.02		0.04	<0.02	0.05		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	0.02	0.02		0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp				<0.02	0.03	<0.02	0.03		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<0.05	<0.05	<0.02		0.03	<0.02	0.03		<0.02	<0.02	<0.02	<0.033	0.00	0.05	0.00	0.02	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp					<0.02	<0.02			<0.02	0.05	0.07	<0.033	0.00	0.09	0.06	0.05	10
AGQS-31	Mid	135	140	Ucs		Lakeville	<0.05	<0.05	<0.02		0.03	<0.02	0.03		<0.02	<0.02	<0.02	<0.033	0.00	0.03	0.02	0.01	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount				0.02	<0.02	<0.02	0.04		<0.02	<0.02	<0.02	<0.033	0.00	0.03	0.00	0.01	9
AGQS-33	Deep	260	280	Cjdn	8	Coates								0.02		<0.02	0.02	<0.033	0.00	0.03	0.00	0.01	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp											0.06	0.035	0.00	0.04	0.00	0.01	9
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp				<0.02	0.1							0.06	0.00	0.00	0.00	0.00	8
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights					0.03	<0.02						0.042	0.00	0.00	0.00	0.00	8
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		0.02	<0.02	<0.02	<0.033	0.00	0.02	0.00	0.00	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		0.06	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	9
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.05	<0.05	<0.02		<0.02	<0.02	0.03		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp				<0.02	<0.02	<0.02	0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	8
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.04	0.01	0.02	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	9
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.06	0.00	0.01	8
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.03	0.00	0.01	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.07	0.00	0.02	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.06	0.03	0.03	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.03	0.00	0.01	10
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.03	0.00	0.00	10
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.04	0.00	0.01	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	3

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.32	0.11	0.15	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.10	0.06	0.05	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.27	0.10	0.11	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.06	0.03	0.03	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.02	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.07	0.01	0.02	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp				<0.02	<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	10
AGQS-68	Mid	158	163	Ucs		Apple Valley				<0.02	<0.02	<0.02		<0.02	<0.02		<0.02	<0.033	0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp				<0.02	<0.02	<0.02			<0.02	<0.02		<0.033	0.00	0.02	0.01	0.01	4
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.08	0.06	0.05	4
AGQS-77	Deep	267	285	Cjdn		Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	3
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	3
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02							0.04	0.06	0.05	0.05	2
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02	<0.02	<0.02						0.00	0.00	0.00	0.00	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp									<0.02				0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan										<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph										<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	2
Muni-03	Deep	355	457	Cjdn		Empire				<0.02									0.00	0.00	0.00	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02								0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02							<0.033	0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire					<0.02								0.00	0.00	0.00	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02								0.00	0.00	0.00	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02								0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02							<0.033	0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02								0.00	0.00	0.00	0.00	2
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02								0.00	0.00	0.00	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan					<0.02								0.06	0.12	0.06	0.08	3
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02							<0.033	0.00	0.10	0.06	0.05	3
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02								0.06	0.13	0.06	0.08	3
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02								0.00	0.04	0.03	0.02	3
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02								0.07	0.12	0.10	0.10	3
Muni-29	Deep	197	402	OpCj		Farmington												<0.033	0.00	0.10	0.06	0.05	1
Muni-30	Deep	408	501	Cjdn		Farmington												<0.033	0.00	0.10	0.06	0.05	1
Muni-31	Deep	386	485	Cjdn		Farmington												<0.033	0.00	0.10	0.06	0.05	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 50 ug/L (RAA₁₆)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp		<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-11	Deep	265	280	Cjdn	5	Hastings			<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<0.02		0.03		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.02		<0.02	<0.02			<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights		<0.02	0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights		<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp		<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley			<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp					<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp						<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp						<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp								<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp								<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp									<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp			<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp			<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp			<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan			<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph			<0.02						
Muni-03	Deep	355	457	Cjdn		Empire			<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul			<0.02						
Muni-05	Mid	132	424	OpCj		Farmington			<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton			<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville			<0.02						
Muni-08	Deep	340	410	Cjdn		Empire			<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier			<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville			<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul			<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount			<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington			<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley			<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount			<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount			<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount			<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion			<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville			<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington			<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan			<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights			<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton			<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings			<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings			<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02			<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	0.06	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		0.07	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02		<0.02		<0.02	<0.02	<0.02
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013	min	max	med	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	0.03	0.03	<0.02	<0.02		<0.02	<0.02	<0.02	0	0.03	0	0.01	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.02		0.04	<0.02	0.05		<0.02	<0.02	<0.02	0	0.05	0	0.01	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp		0.03	0.06	0.03	0.03		<0.02			0	0.06	0.03	0.03	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	<0.02		0.04	<0.02			<0.02	<0.02	<0.02	0	0.04	0	0.01	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		0.03	0.05	<0.02						0	0.05	0.03	0.03	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.05		0.03	0.06	0.06		<0.02	0.03	<0.02	0	0.06	0.03	0.03	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	0.02		<0.02	<0.02	<0.02	0	0.02	0	0.00	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.02		<0.02	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings			<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.02		<0.02	<0.02	0.05		<0.02	<0.02	<0.02	0	0.05	0	0.01	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-15	Mid	166	170	Ucs	5	Hastings		0.03	0.05	<0.02	0.02		<0.02	<0.02		0	0.05	0.01	0.02	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.02		0.03	<0.02	0.05		0.03	0.04	0.05	0	0.05	0.03	0.03	7
AGQS-17	Deep	276	280	Ucs	15	Rosemount		<0.02	0.03	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.02		<0.02	<0.02			<0.02	<0.02		0	0	0	0.00	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights		0.02	0.02	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0.04		0.1	0.05	0.06		0.02	0.05		0.02	0.1	0.05	0.05	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.02		<0.02	<0.02	0.02		<0.02	<0.02	<0.02	0	0.02	0	0.00	7
AGQS-26	Deep	342	360	Opdc		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.02	0.02	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	0.03		0.02	0.02	0.05		0.02	0.05	<0.02	0	0.05	0.02	0.03	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.02		0.02	<0.02	0.05		<0.02	<0.02	<0.02	0	0.05	0	0.01	7
AGQS-31	Mid	135	140	Ucs		Lakeville			<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.02		0.03	<0.02	0.04		<0.02	<0.02		0	0.04	0	0.01	6
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.02		<0.02	<0.02	0.02		0.04	0.03	0.12	0	0.12	0.02	0.03	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.02		0.02	<0.02	0.03		0.02	<0.02		0	0.03	0.01	0.01	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp		0.06	0.06	0.02	0.03		<0.02	<0.02	0.02	0	0.06	0.02	0.03	7
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.02		<0.02	<0.02	0.04		<0.02	<0.02	0.05	0	0.05	0	0.01	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.02		0.02	0.03	0.05		<0.02	<0.02	<0.02	0	0.05	0	0.01	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.02		0.02	<0.02	<0.02		<0.02	<0.02		0	0.02	0	0.00	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.02		0.05	<0.02	<0.02		<0.02	<0.02		0	0.05	0	0.01	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.02	<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.02	0.03	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	0.08		0.08	0.15			<0.02	<0.02	<0.02	0	0.15	0.04	0.05	6
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights		<0.02	<0.02	<0.02			<0.02	<0.02		0	0	0	0.00	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp			<0.02	<0.02			<0.02	0.03	0.04	0	0.04	0	0.01	5
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013	min	max	med	avg	count
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.02		0.04	<0.02	0.05		<0.02	<0.02	<0.02	0	0.05	0	0.02	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.02		0.04	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.02		<0.02	<0.02	0.02		<0.02	<0.02	<0.02	0	0.02	0	0.00	7
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.02		0.02	<0.02	0.05		0.02	<0.02	<0.02	0	0.05	0	0.01	7
AGQS-58	Shallow	60	65	Ucs		Greenville Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		<0.02	<0.02	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		<0.02	<0.02	<0.02						0	0	0	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		0.02	<0.02	<0.02	0.02		<0.02	<0.02	<0.02	0	0.02	0	0.01	7
AGQS-62	Mid	145	149	Ucs		Marshan Twp		<0.02	0.03	<0.02	0.04		<0.02			0	0.04	0	0.01	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		<0.02	0.03	<0.02	0.04		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		0.06	0.07	0.04	0.07		<0.02	<0.02	<0.02	0	0.07	0.04	0.03	7
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp		0.02	0.02	<0.02	0.03		<0.02	<0.02		0	0.03	0.01	0.01	6
AGQS-66	Shallow	75	80	Ucs	8	Coates		0.03	0.04	<0.02	<0.02		<0.02	<0.02	<0.02	0	0.04	0	0.01	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.02		0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0.02	0	0.00	7
AGQS-68	Mid	158	163	Ucs		Apple Valley			<0.02	<0.02	<0.02					0	0	0	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp					0.02		<0.02			0	0.02	0.01	0.01	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp						<0.02		<0.02	<0.02	0	0	0	0.00	3
AGQS-76	Shallow	74	100	Opdc		Randolph Twp						<0.02		<0.02	<0.02	0	0	0	0.00	3
AGQS-77	Deep	267	285	Cjdn		Empire Twp								<0.02	<0.02	0	0	0	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp								<0.02	<0.02	0	0	0	0.00	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02		0	0	0	0.00	1
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp			<0.02							0	0	0	0.00	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp			<0.02							0	0	0	0.00	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp			<0.02							0	0	0	0.00	1
Muni-01	Deep	406	500	Cjdn		Eagan			<0.02							0	0	0	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph			<0.02							0	0	0	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire			0.02							0.02	0.02	0.02	0.02	1
Muni-04	Deep	322	401	Cjdn		South St Paul			<0.02							0	0	0	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington			<0.02							0	0	0	0.00	1
Muni-06	Mid	248	302	Cjdn		Hampton			<0.02							0	0	0	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville			<0.02							0	0	0	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire			<0.02							0	0	0	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier			0.02							0.02	0.02	0.02	0.02	1
Muni-10	Deep	434	517	Cjdn		Lakeville			<0.02							0	0	0	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul			0.02							0.02	0.02	0.02	0.02	1
Muni-12	Deep	388	471	Cjdn		Rosemount			<0.02							0	0	0	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington			0.02							0.02	0.02	0.02	0.02	1
Muni-14	Deep	420	516	Cjdn		Apple Valley			0.03							0.03	0.03	0.03	0.03	1
Muni-15	Deep	345	400	Cjdn		Rosemount			0.02							0.02	0.02	0.02	0.02	1
Muni-16	Deep	345	400	Cjdn		Rosemount			<0.02							0	0	0	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount			0.02							0.02	0.02	0.02	0.02	1
Muni-18	Deep	267	293	Ucs		Vermillion			<0.02							0	0	0	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville			<0.02							0	0	0	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington			0.03							0.03	0.03	0.03	0.03	1
Muni-21	Deep	384	500	Cjdn		Eagan			0.09	0.06						0.06	0.09	0.075	0.08	2
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights			0.03	0.04						0.03	0.04	0.035	0.04	2
Muni-23	Deep	256	305	Cjdn		Hampton			0.08	0.05						0.05	0.08	0.065	0.07	2
Muni-24	Deep	312	400	Cjdn		Hastings			0.1	0.06						0.06	0.1	0.08	0.08	2
Muni-25	Deep	277	356	Cjdn		Hastings			0.08	0.05						0.05	0.08	0.065	0.07	2

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	0.04	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count	
AGQS-01	Shallow	100	197	Opdc	8	Coates	0	0	0.13	0.1	0.14	0.13	0.27	0.34	0.2	0	2.02	0.41	0.46	0.289	0.00	2.02	0.17	0.32	14	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0	0	1.21	1.68	1.76		3.04	3.01	3.75	0	1.59	1.79	1.15	0.54	0.00	3.75	1.59	1.50	13	
AGQS-03	Mid	176	181	Ucs	0	Ravenna Twp						0.27	0.41	0.37	0.43	0	0.26				0.00	0.43	0.32	0.29	6	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				5.94	5.3		6.61	7.28		0.09	4.47	5.12	4.2	5.03	0.09	7.28	5.12	4.89	9	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						4.16	4.33	3.29							3.29	4.33	4.16	3.93	3	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0	0	1.55	1.46	1.87		1.63	1.95	1.76	0	1.37	1.57	1.3	1.17	0.00	1.95	1.46	1.20	13	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0	0	0	0.38	0		0	0	0	0	0	0			0.00	0.38	0.00	0.03	12	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0	0	0	0	0		0	0	0	0	0.06	0.06	0.06	0.013	0.00	0.06	0.00	0.01	13	
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0	0	0.72	0.78	0.41		0.73	0.44	0.57	0	1.19	0.65	0.94	0.94	0.00	1.19	0.65	0.57	13	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	12	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0	0	0	0			0	0	0.02		0	0			0.00	0.02	0.00	0.00	10	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0	0	1.89	2.11	2.61		1.89	1.86	1.77	0	1.05	1.82	1.62	0.95	0.00	2.61	1.77	1.35	13	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0	0	0	0		0			0	0	0			0.00	0.00	0.00	0.00	9	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0	0	0	0	0		0.05	0	0	0	0	0.02		0.503	0.00	0.50	0.00	0.05	12	
AGQS-15	Mid	166	170	Ucs	5	Hastings						1.18	1.56	2.01	1.61	0	1.28	1.67			0.00	2.01	1.56	1.33	7	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0	0	2.24	0.46		0.39	0.36	0.3	0	0.39	0.38			0.00	2.24	0.38	0.46	11	
AGQS-17	Deep	276	280	Ucs	15	Rosemount						0.07	0.08	0.11	0.1	0	0.08	0.15	0.21	0.036	0.00	0.21	0.08	0.09	9	
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	11	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0	0	0	0	0	0	0			0.00	0.00	0.00	0.00	8	
AGQS-20	Shallow	55	60	Ucs	0	Empire Twp						0	0	0	0	0	0.07	0.04	0.05	0.041	0.00	0.07	0.00	0.02	9	
AGQS-21	Mid	133	137	Ucs	0	Burnsville						0	0	0	0	0	0	0			0.00	0.00	0.00	0.00	8	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0	0	0	0	0		0	0	0	0	0.02	0			0.00	0.02	0.00	0.00	11	
AGQS-23	Mid	175	180	Ucs	0	Inver Grove Heights						0.85	0.74	0.61	0.57	0.11	0.28	0.14	0.11	0.68	0.11	0.85	0.57	0.45	9	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0	0	0	0.23	0.27		0.49	0.47	0.43	0	0.34	0.66			1.58	0.00	1.58	0.31	0.37	12
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0	0.24	0.45	0.47		0.56	0.44	0.75	0	1.18	0.49	0.38	0.26	0.00	1.18	0.45	0.44	12	
AGQS-26	Deep	342	360	Opdc	0	Lakeville						0	0	0	0	0	0	0			0.00	0.00	0.00	0.00	8	
AGQS-27	Mid	176	180	Ucs	11	Rosemount						0	0.03	0	0.02	0	0	0.03	0.05	0	0.00	0.05	0.00	0.01	9	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0	0	0	0		0		0	0	0	0			0.00	0.00	0.00	0.00	10	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0	0	0.26	0.19		0.12	0.12	0.14	0	0.11	0.97	0.5	1.31	0.00	1.31	0.13	0.31	12	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0	0	0.06	0.14	0.05		0.2	0.4	0.18	0	0.07	0.29	0.42	0.58	0.00	0.58	0.14	0.18	13	
AGQS-31	Mid	135	140	Ucs		Lakeville							0	0	0	0	0	0			0.00	0.00	0.00	0.00	8	
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0	0	0.42	0.41	0.46		0.52	0.35	0.45	0	0.74	0.47		0.666	0.00	0.74	0.44	0.37	12	
AGQS-33	Deep	260	280	Cjdn	8	Coates	0	0	0.05	0.06	0.05	0.09	0.15	0.08		0	0.16	0.37	0.43	0.063	0.00	0.43	0.06	0.12	13	
AGQS-34	Shallow	105	137	Opdc	18	Sciota Twp	0	0	0	0	0		0	0	0	0	0.21	0.5	0.13	0.07	0.00	0.50	0.00	0.07	13	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0	0	0	0.34	0.45		0.53	0.83	0.72	0	0.87	0.82			0.082	0.00	0.87	0.40	0.39	12
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	12	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						2.23	2.46	2.13	1.56	0	0.26	0	2.45	2.02	0.00	2.46	2.02	1.46	9	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0	0	0	0	0		0	0	0.03	0	0	0	0		0.00	0.03	0.00	0.00	13	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0	0	0	0	0		0		0	0	0	0			0.00	0.00	0.00	0.00	11	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	12	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	12	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0	0	1.7	1.78	1.69		1.88	2.46	0.95	0	1.28	1.94	1.94		0.00	2.46	1.69	1.32	13	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	12	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	12	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0	0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	11	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		0	0	0	0		0.72	0	0	0	0	0			0.00	0.72	0.00	0.07	11	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0	0		0	0	0	0			0.00	0.00	0.00	0.00	7	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				0	0.04		0.09	0	0	0	0.25	0	0.22	0.59	0.00	0.59	0.04	0.13	9	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0	0	0	0	0		0		0	0	0	0			0.00	0.00	0.00	0.00	10	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						0	0	0	0	0	0	0			0.00	0.00	0.00	0.00	6	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							0	0		0	0	0.4	0.03	0	0.00	0.40	0.00	0.06	7	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0	0	0	0		0	0	0	0	0	0			0.00	0.00	0.00	0.00	10	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0	0	0.96	1.05	1.59		2.24	2.24	2.07	0.02	1.48	2.74	2.7	0.5	0.00	2.74	1.48	1.35	13	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0	2.67	3.08	3.45		3.16	3.74	2.78	0	2.84	1.52	2.25	1.49	0.00	3.74	2.73	2.25	12	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0	0.69	0.92	1.34		0.96	1.29	1.35	0	2.81	1.37	1.47	0.306	0.00	2.81	1.13	1.04	12
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0	2.42	0.43	2.21		3.46	3.32	3.95	0	5.69	2.9	2.62	1.85	0.00	5.69	2.52	2.40	12
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0	0	0	0	0	0	0			0.00	0.00	0.00	0.00	7
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.04	0.07	0.09	0.12	0	0.07	0.1	0.05	0	0.00	0.12	0.07	0.06	9
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						6.07	9.02	9.44							6.07	9.44	9.02	8.18	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						1.4	2.03	1.07	0.58	0.06	1.32	0.67	0.81	0.207	0.06	2.03	0.81	0.91	9
AGQS-62	Mid	145	149	Ucs		Marshan Twp						4.86	4.5	3.86	3.45	0	2.51				0.00	4.86	3.66	3.20	6
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						5.12	4.86	5.62	3.33	0.03	3.94	3.44	3.31	0.278	0.03	5.62	3.44	3.33	9
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						1.27	1.33	1	1.44	0	1.22	0.92	0.98	2.559	0.00	2.56	1.22	1.19	9
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.33	0.42	0.5	0.27	0	0	0		0.354	0.00	0.50	0.30	0.23	8
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.32	0.43	0.5	0.12	0	0.4	0.51	0.6	0.402	0.00	0.60	0.40	0.36	9
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0.05	0.06	0.06		0.07	0	0.03	0	0.03	0	0	0.12	0.00	0.12	0.03	0.03	13
AGQS-68	Mid	158	163	Ucs		Apple Valley							0	0	0	0					0.00	0.00	0.00	0.00	4
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									5.08	0	1				0.00	5.08	1.00	2.03	3
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0	0												0.00	0.00	0.00	0.00	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0	0												0.00	0.00	0.00	0.00	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0	0												0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0		0	0.02	0.833	0.00	0.83	0.01	0.21	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										1.75		2.08	2.34	0.8	0.80	2.34	1.92	1.74	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											0	0	0.021	0.00	0.02	0.00	0.01	0.01	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												1.29	1.14	0.784	0.78	1.29	1.14	1.07	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													0.88	0.56	0.56	0.88	0.72	0.72	2
Muni-01	Deep	406	500	Cjdn		Eagan							0								0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph							0								0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire							0						0	0.00	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul							0								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington							0							0	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton							0.3								0.30	0.30	0.30	0.30	1
Muni-07	Mid	218	298	Cjdn		Burnsville							0								0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire							0							0	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier							0								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville							0								0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul							0								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount							0								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington							0							0	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley							0.27								0.27	0.27	0.27	0.27	1
Muni-15	Deep	345	400	Cjdn		Rosemount							0								0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount							0								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount							0.12								0.12	0.12	0.12	0.12	1
Muni-18	Deep	267	293	Ucs		Vermillion							0								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville							0								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington							0.35							0.189	0.19	0.35	0.27	0.27	2
Muni-21	Deep	384	500	Cjdn		Eagan							0								0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							0								0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton							0.3								0.30	0.30	0.30	0.30	1
Muni-24	Deep	312	400	Cjdn		Hastings							0.34	0.243						0.38	0.24	0.38	0.34	0.32	3
Muni-25	Deep	277	356	Cjdn		Hastings							0.035	0.18						0.095	0.04	0.18	0.10	0.10	3
Muni-26	Mid	240	332	Cjdn		Hastings							1.205	1.477						1.57	1.21	1.57	1.48	1.42	3
Muni-27	Mid	205	285	Cjdn		Hastings							0.315	0.323						0.43	0.32	0.43	0.32	0.36	3
Muni-28	Mid	208	299	Cjdn		Hastings							0.42	0.58						0.54	0.42	0.58	0.54	0.51	3
Muni-29	Deep	197	402	OpCj		Farmington														0	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington															0.021	0.02	0.02	0.02	1
Muni-31	Deep	386	485	Cjdn		Farmington															0.128	0.128	0.128	0.128	1

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	count		
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.02	<0.025	0	0	0	0.00	14		
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.02	<0.025	0	0	0	0.00	13		
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02				0	0	0	0.00	6		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				0.07	0.08		0.22	0.11		0.09	0.07		0.15	0.05	0.13	0.05	0.22	0.09	0.11	9	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.02	<0.02	<0.02							0	0	0	0.00	3		
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.4	<0.5	<0.05	<0.05	<0.02	<0.02	<0.02	0.27	<0.20	<0.02	<0.02	<0.02	<0.025	0	0.27	0	0	0.02	13		
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	13			
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	13			
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.4	<0.5	<0.1	<0.05			<0.02	<0.02	0.02	<0.02	<0.02	<0.025	0	0.02	0	0.00	10				
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0.02	0	0.00	13			
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.5	<0.1	<0.05	<0.02		<0.02		<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	9			
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02			0	0	0	0.00	7		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	11			
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	9			
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	11			
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	8			
AGQS-20	Shallow	55	60	Ucs		Empire Twp						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	9			
AGQS-21	Mid	133	137	Ucs		Burnsville						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	8			
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02			0	0	0	0.00	11		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.38	0.15	0.33	0.23	0.11	0.07	<0.02	<0.02	<0.025	0	0.38	0.11	0.14	9		
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-26	Deep	342	360	Opdc		Lakeville						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	8			
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.02	<0.02	<0.02	0.02	<0.20	<0.02	<0.02	<0.025	0	0.02	0	0.00	9			
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	10			
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0.029	0	0.029	0	0.00	13	
AGQS-31	Mid	135	140	Ucs		Lakeville							<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	8			
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	13			
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	13			
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.02	<0.02	<0.02	0.1	<0.20	<0.02	<0.02	<0.025	0	0.1	0	0.01	9			
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	0.03	<0.20	<0.02	<0.02	<0.025	0	0.03	0	0.00	13			
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	11			
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	13			
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	12			
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	11			
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	11			
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake							<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	7			
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	9			
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp							<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	9			
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	10			
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<0.02	<0.02	<0.02			<0.02	<0.02	<0.025	0	0	0	0.00	6			
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							<0.02	<0.02		<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	7			
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.025	0	0	0	0.00	10			
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	E0.02	<0.02	<0.02	<0.025	0	0.02	0	0.00	13			
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<													

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	count	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.02	<0.025	0	0	0	0.00	8	
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.02	<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.02	<0.025	0	0	0	0.00	9	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02	<0.20	<0.02	<0.02	<0.02	<0.025	0	0	0	0.00	13	
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02	<0.20				<0.025	0	0	0	0.00	4	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.02	<0.20	<0.02				<0.025	0	0	0	0.00	3
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1												<0.025	0	0	0	0.00	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1												<0.025	0	0	0	0.00	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1												<0.025	0	0	0	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp									<0.20		<0.02	<0.02	<0.02	<0.025	0	0	0	0.00	4	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp									<0.20		<0.02	<0.02	<0.025	0	0	0	0.00	4		
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											<0.02	<0.02	<0.025	0	0	0	0.00	3		
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											<0.02	<0.02	<0.025	0	0	0	0.00	3		
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												<0.02	<0.02	<0.025	0	0	0	0.00	2	
Muni-01	Deep	406	500	Cjdn		Eagan							<0.02							<0.025	0	0	0	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph							<0.02							<0.025	0	0	0	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							<0.02							<0.025	0	0	0	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.02							<0.025	0	0	0	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							<0.02							<0.025	0	0	0	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							<0.02							<0.025	0	0	0	0.00	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.02							<0.025	0	0	0	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							<0.02							<0.025	0	0	0	0.00	2	
Muni-09	Deep	580	680	Cjdn		New Trier							<0.02							<0.025	0	0	0	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.02							<0.025	0	0	0	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							<0.02							<0.025	0	0	0	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.02							<0.025	0	0	0	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							<0.02							<0.025	0	0	0	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.02							<0.025	0	0	0	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.02							<0.025	0	0	0	0.00	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.02							<0.025	0	0	0	0.00	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.02							<0.025	0	0	0	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion							<0.02							<0.025	0	0	0	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville							<0.02							<0.025	0	0	0	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							<0.02							<0.025	0	0	0	0.00	2	
Muni-21	Deep	384	500	Cjdn		Eagan							<0.02							<0.025	0	0	0	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.02							<0.025	0	0	0	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							<0.02							<0.025	0	0	0	0.00	1	
Muni-24	Deep	312	400	Cjdn		Hastings							<0.02	0.02						<0.025	0	0.02	0	0.01	3	
Muni-25	Deep	277	356	Cjdn		Hastings							<0.02	<0.02						<0.025	0	0	0	0.00	3	
Muni-26	Mid	240	332	Cjdn		Hastings							<0.02	0.02						<0.025	0	0.02	0	0.01	3	
Muni-27	Mid	205	285	Cjdn		Hastings							<0.02	<0.02						<0.025	0	0	0	0.00	3	
Muni-28	Mid	208	299	Cjdn		Hastings							<0.02	<0.02						<0.025	0	0	0	0.00	3	
Muni-29	Deep	197	402	OpCj		Farmington							<0.025							<0.025	0	0	0	0.00	1	
Muni-30	Deep	408	501	Cjdn		Farmington							<0.025							<0.025	0	0	0	0.00	1	
Muni-31	Deep	386	485	Cjdn		Farmington							<0.025							<0.025	0	0	0	0.00	1	

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 300 ug/L (MDH HRL₁₁ and HBV₁₈)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	trend	count	
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.13	0.1	0.11	0.1	0.21	0.24	0.14		1.24	0.31	0.37	0.22	0.1	1.24	0.21	0.29	Up	11	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.89	1.15	1.1		2.31	1.88	2.44		0.95	1.23	0.79	0.42	0.42	2.44	1.125	1.32	Stable	10	
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				0.18	0.28	0.22	0.26		0.14				0.14	0.28	0.22	0.22	Stable	5	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		3.7	3.1		4.47	4.06			3.08	3.4	2.6	4.2	2.6	4.47	3.55	3.58	Stable	8	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				2.54	3	1.9			0.95				1.9	3	2.54	2.48	SS	3	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	1.07	1.03	1.25		1.09	1.32	1.03		3.08	1.11	0.96	0.99	0.95	1.32	1.05	1.08	Stable	10	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	0.38	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0.38	0	0.04	<MRL	9	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		0.06	0.06	0.06	0.013	0	0.06	0	0.02	Stable	9	
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.58	0.62	0.32		0.56	0.32	0.45		0.93	0.53	0.72	0.77	0.32	0.93	0.57	0.58	Stable	10	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	1.33	1.52	1.8		1.23	1.27	1.22		0.71	1.32	1.2	0.78	0.71	1.8	1.25	1.24	Down	10	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	6	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		0.03	<0.02	<0.02		<0.02	0.02		0.44	0	0.44	0	0.06	Stable	8	
AGQS-15	Mid	166	170	Ucs	5	Hastings				0.6	1	1.06	0.9		0.68	0.91			0.6	1.06	0.905	0.86	Stable	6	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		1.73	0.34		0.3	0.27	0.21		0.29	0.27	0.34		0.21	1.73	0.295	0.47	Stable	8	
AGQS-17	Deep	276	280	Ucs	15	Rosemount				0.07	0.08	0.11	0.1		0.08	0.15	0.18	0.036	0.036	0.18	0.09	0.10	Stable	8	
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		0.07	0.04	0.03	0.023	0	0.07	0.0115	0.02	Stable	8	
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		0.02	<0.02			0	0.02	0	0.00	<MRL	7	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				0.27	0.34	0.12	0.19		0.13	0.11	0.09	0.56	0.09	0.56	0.16	0.23	Stable	8	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		0.14	0.17		0.29	0.34	0.28		0.22	0.47		1.3	0.14	1.3	0.285	0.40	Up	8	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	0.24	0.4	0.45		0.54	0.44	0.71		1.14	0.47	0.38	0.26	0.24	1.14	0.445	0.50	Stable	10	
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	0.03	0.05	<0.01	0	0.05	0	0.01	<MRL	8	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0.19	0.12		0.09	0.12	0.09		0.05	0.74	0.32	1.2	0.05	1.2	0.12	0.32	Stable	9	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.06	0.14	<0.02		0.16	0.34	0.1		0.07	0.18	0.37	0.51	0	0.51	0.15	0.19	Up	10	
AGQS-31	Mid	135	140	Ucs		Lakeville					<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	7	
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0.42	0.41	0.43		0.46	0.35	0.4		0.68	0.44		0.59	0.35	0.68	0.43	0.46	Stable	9	
AGQS-33	Deep	260	280	Cjdn	8	Coates	0.05	0.06	0.05	0.06	0.1	0.08			0.11	0.28	0.31	0.046	0.046	0.31	0.07	0.11	Up	10	
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		0.16	0.5	0.11	0.07	0	0.5	0	0.09	Stable	9	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		0.25	0.34		0.4	0.63	0.55		0.68	0.6		0.047	0.047	0.68	0.475	0.44	Stable	8	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				1.68	1.85	1.57	1.07		0.17	<0.02	1.5	1.6	0	1.85	1.535	1.18	Stable	8	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	9	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	1.16	1.28	1.12		1.18	1.5	0.52		0.94	1.3	1.3	1.1	0.52	1.5	1.17	1.14	Stable	10	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	9	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		0.5	<0.02	<0.02		<0.02	<0.02		<0.01	0	0.5	0	0.06	<MRL	8	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	6	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	8	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	0.04		0.05	<0.02			0.16	<0.02	0.15	0.46	0	0.46	0.045	0.11	Stable	8	
AGQS-50	Mid	173	181	Opdc		Greenville Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02			<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	6	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.02	<0.02			<0.02	0.4	0.03	<0.01	0	0.4	0	0.07	<MRL	6	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	7	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.74	0.75	1.09		1.64	1.58	1.49		1.04	2.11	2	0.39	0.39	2.11	1.29	1.28	Stable	10	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	1.77	2.31	2.08		2.28	2.38	2		2	0.8	1.6	1.3	0.8	2.38	2	1.85	Down	10	
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0.51	0.66	0.86		0.66	0.9	1.03		2.14	0.92	1.1	0.22	0.22	2.14	0.88	0.90	Stable	10	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	1.82	0.31	1.69			2.58	2.47	3.14	4.89	2.2	2	1.4	0.31	4.89	2.1	2.25	Stable	10	
AGQS-58	Shallow	60	65	Ucs		Greenville Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	6	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	0.02	<0.02	0.03		0.04	0.02		0.02	<0.01	0	0.04	0.02	0.02	Stable	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				4.93	6.77	7.87							4.93	7.87	6.77	6.52	SS	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				0.6															

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	trend	count	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				3.5	3.52	3.42	2.36		2.81	2.5	2.3	0.21	0.21	3.52	2.655	2.58	Down	8	
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				0.92	1	0.78	1.2		0.87	0.89	0.51	1.8	0.51	1.8	0.905	1.00	Stable	8	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				0.28	0.37	0.44	0.23		<0.02	<0.02		0.31	0	0.44	0.28	0.23	Stable	7	
AGQS-66	Shallow	75	80	Ucs	8	Coates				0.22	0.33	0.34	0.08		0.29	0.39	0.46	0.31	0.08	0.46	0.32	0.30	Stable	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0.05	0.06	0.04		0.05	<0.02	0.03		0.03	<0.02	<0.02	0.12	0	0.12	0.035	0.04	Stable	10	
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02					0	0	0	0.00	0.00	SS	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							3.42		0.77				0.77	3.42	2.095	2.10	SS	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	0.02	0.81	0	0.81	0.01	0.21	SS	4	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								1.13		1.3	1.4	0.61	0.61	1.4	1.215	1.11	SS	4	
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02	0.021	0	0.021	0	0.01	SS	3	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										1	0.87	0.7	0.7	1	0.87	0.86	SS	3	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											0.48	0.4	0.4	0.48	0.44	0.44	SS	2	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02								0	0	0	0.00	SS	1	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02								0	0	0	0.00	SS	1	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.01	0	0	0	0.00	SS	2	
Muni-01	Deep	406	500	Cjdn		Egan					<0.02								0	0	0	0.00	SS	1	
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02								<0.01	0	0	0	0.00	SS	2
Muni-03	Deep	355	457	Cjdn		Empire					0.23								0.23	0.23	0.23	0.23	SS	1	
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02								0	0	0	0.00	SS	1	
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.01	0	0	0	0.00	SS	2	
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02								0	0	0	0.00	SS	1	
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02								0	0	0	0.00	SS	1	
Muni-08	Deep	340	410	Cjdn		Empire					<0.02								0	0	0	0.00	SS	1	
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02								0	0	0	0.00	SS	1	
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02								<0.01	0	0	0	0.00	SS	2
Muni-11	Mid	240	342	OpCj		South St Paul					0.21								0.21	0.21	0.21	0.21	SS	1	
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02								0	0	0	0.00	SS	1	
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02								0	0	0	0.00	SS	1	
Muni-14	Deep	420	516	Cjdn		Apple Valley					0.09								0.09	0.09	0.09	0.09	SS	1	
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02								0	0	0	0.00	SS	1	
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02								0	0	0	0.00	SS	1	
Muni-17	Deep	389	498	Cjdn		Rosemount					0.3								0.17	0.17	0.3	0.235	0.24	SS	2
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02								0	0	0	0.00	SS	1	
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02								0	0	0	0.00	SS	1	
Muni-20	Deep	417	512	Cjdn		Farmington					0.24								0.24	0.24	0.24	0.24	SS	1	
Muni-21	Deep	384	500	Cjdn		Egan					0.29	0.27							0.24	0.24	0.29	0.27	0.27	SS	3
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	0.22							0.067	0	0.22	0.067	0.10	SS	3
Muni-23	Deep	256	305	Cjdn		Hampton					1.01	1.08							1	1	1.08	1.01	1.03	SS	3
Muni-24	Deep	312	400	Cjdn		Hastings					0.27	0.31							0.31	0.27	0.31	0.31	0.30	SS	3
Muni-25	Deep	277	356	Cjdn		Hastings					0.42	0.43							0.36	0.36	0.43	0.42	0.40	SS	3
Muni-29	Deep	197	402	OpCj		Farmington													<0.01	0	0	0	0.00	SS	1
Muni-30	Deep	408	501	Cjdn		Farmington													0.45	0.45	0.45	0.45	0.45	SS	1
Muni-31	Deep	386	485	Cjdn		Farmington													0.014	0.014	0.014	0.014	0.014	SS	1

Shaded cells indicate result exceeds the laboratory reporting limit.

<MRL - less than the method reporting limit

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = 800 ug/L (MDH HRL₁₁)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	trend	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	0.03	0.03	0.06	0.07	0.06		0.72	0.1	0.09	0.069	0	0.72	0.06	0.11	Up	11
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.32	0.53	0.62		0.69	1.13	1.23		0.64	0.5	0.33	0.12	0.12	1.23	0.575	0.61	Stable	10
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				0.09	0.1	0.11	0.13		0.09			0.09	0.13	0.1	0.10	Stable	5	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		2.17	2.08		1.88	3.11			1.32	1.5	1.5	0.7	0.7	3.11	1.69	1.78	Down	8
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				1.57	1.24	1.2						1.2	1.57	1.24	1.34	SS	3	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.48	0.43	0.53		0.5	0.53	0.38		0.38	0.36	0.28	0.18	0.18	0.53	0.405	0.41	Down	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	9
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	9
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0.14	0.16	0.09		0.17	0.12	0.12		0.24	0.12	0.2	0.17	0.09	0.24	0.15	0.15	Stable	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.56	0.59	0.7		0.58	0.53	0.45		0.29	0.38	0.34	0.17	0.17	0.7	0.49	0.46	Down	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	6
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		0.02	<0.02	<0.02		<0.02	<0.02		0.063	0	0.063	0	0.01	Stable	8
AGQS-15	Mid	166	170	Ucs	5	Hastings				0.54	0.56	0.88	0.67		0.57	0.68			0.54	0.88	0.62	0.65	Stable	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.51	0.12		0.09	0.09	0.09		0.08	0.09	0.13		0.08	0.51	0.09	0.15	Stable	8
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	0.03	<0.01	0	0.03	0	0.00	<MRL	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	0.02	0.018	0	0.02	0	0.00	<MRL	8
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	7
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				0.2	0.25	0.16	0.15		0.06	0.03	0.02	0.12	0.02	0.25	0.135	0.12	Down	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		0.09	0.08		0.16	0.13	0.13		0.12	0.17		0.28	0.08	0.28	0.13	0.15	Up	8
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	0.05	0.02		0.02	<0.02	0.04		0.04	0.02	<0.02	<0.01	0	0.05	0.02	0.02	Stable	10
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0.07	0.07		0.03	<0.02	0.05		0.06	0.2	0.15	0.11	0	0.2	0.07	0.08	Stable	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	0.03		<0.02	0.02	0.05	0.041	0	0.05	0	0.01	Stable	10
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	0.03		0.06	<0.02	0.05		0.04	0.03		0.076	0	0.076	0.03	0.03	Stable	9
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	0.03	0.05	<0.02			0.05	0.09	0.12	0.017	0	0.12	0.0235	0.04	Stable	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		0.03	<0.02	0.02	<0.01	0	0.03	0	0.01	<MRL	9
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		0.09	0.11		0.13	0.2	0.17		0.16	0.19		0.035	0.035	0.2	0.145	0.14	Stable	8
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				0.44	0.47	0.44	0.34		0.09	<0.02	0.81	0.42	0	0.81	0.43	0.38	Stable	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	9
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0.54	0.5	0.49		0.64	0.81	0.32		0.34	0.55	0.54	0.39	0.32	0.81	0.52	0.51	Stable	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	8
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	9
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		0.22	<0.02	<0.02		<0.02	<0.02		<0.01	0	0.22	0	0.03	Stable	8
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		0.04	<0.02			0.09	<0.02	0.07	0.13	0	0.13	0.02	0.04	Stable	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	7
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01	0	0	0	0.00	<MRL	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.02	<0.02			<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	7
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.22	0.3	0.43		0.55	0.63	0.51		0.44	0.53	0.6	0.11	0.11	0.63	0.475	0.43	Stable	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.9	0.77	1.04		0.77	1.15	0.69		0.78	0.57	0.56	0.19	0.19	1.15	0.77	0.74	Down	10
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0.18	0.26	0.4		0.28	0.34	0.3		0.61	0.37	0.32	0.086	0.086	0.61	0.31	0.31	Stable	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.6	0.12	0.45		0.82	0.74	0.72		0.75	0.62	0.55	0.45	0.12	0.82	0.61	0.58	Stable	10
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	<MRL	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	0.03		<0.02	<0.02	<0.02	<0.01	0	0.03	0	0.00	<MRL	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				0.98	2.11	1.5						0.98	2.11	1				

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	trend	count	
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				0.05	0.05	0.06	0.04		<0.02	<0.02		0.044	0	0.06	0.044	0.03	Stable	7	
AGQS-66	Shallow	75	80	Ucs	8	Coates				0.1	0.1	0.16	0.04		0.11	0.1	0.12	0.092	0.04	0.16	0.1	0.10	Stable	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01	0	0	0	0.00	<MRL	10	
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02						0	0	0	0	0.00	SS	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							1.53		0.19				0.19	1.53	0.86	0.86	SS	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02	0.023	0	0.023	0	0.01	SS	4	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								0.56		0.7	0.84	0.19	0.19	0.84	0.63	0.57	SS	4	
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02	<0.01	0	0	0	0.00	SS	3	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0.18	0.18	0.084	0.084	0.18	0.18	0.15	SS	3	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp												0.24	0.16	0.16	0.24	0.2	0.20	SS	2
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02								0	0	0	0.00	SS	1	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02								0	0	0	0.00	SS	1	
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.01	0	0	0	0.00	SS	2	
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02								0	0	0	0.00	SS	1	
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02							<0.01	0	0	0	0.00	SS	2	
Muni-03	Deep	355	457	Cjdn		Empire					0.07								0.07	0.07	0.07	0.07	SS	1	
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02								0	0	0	0.00	SS	1	
Muni-05	Mid	132	424	OpCj		Farmington												<0.01	0	0	0	0.00	SS	2	
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02								0	0	0	0.00	SS	1	
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02								0	0	0	0.00	SS	1	
Muni-08	Deep	340	410	Cjdn		Empire					<0.02								0	0	0	0.00	SS	1	
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02								0	0	0	0.00	SS	1	
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.01	0	0	0	0.00	SS	2	
Muni-11	Mid	240	342	OpCj		South St Paul					0.06								0.06	0.06	0.06	0.06	SS	1	
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02								0	0	0	0.00	SS	1	
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02								0	0	0	0.00	SS	1	
Muni-14	Deep	420	516	Cjdn		Apple Valley					0.03								0.03	0.03	0.03	0.03	SS	1	
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02								0	0	0	0.00	SS	1	
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02								0	0	0	0.00	SS	1	
Muni-17	Deep	389	498	Cjdn		Rosemount					0.05								0.019	0.019	0.05	0.0345	0.03	SS	2
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02								0	0	0	0.00	SS	1	
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02								0	0	0	0.00	SS	1	
Muni-20	Deep	417	512	Cjdn		Farmington					0.06								0.06	0.06	0.06	0.06	SS	1	
Muni-21	Deep	384	500	Cjdn		Eagan					0.12	0.15							0.14	0.12	0.15	0.14	0.14	SS	3
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					0.07	0.08							0.028	0.028	0.08	0.07	0.06	SS	3
Muni-23	Deep	256	305	Cjdn		Hampton					0.4	0.79							0.57	0.4	0.79	0.57	0.59	SS	3
Muni-24	Deep	312	400	Cjdn		Hastings					0.08	0.08							0.12	0.08	0.12	0.08	0.09	SS	3
Muni-25	Deep	277	356	Cjdn		Hastings					0.25	0.3							0.18	0.18	0.3	0.25	0.24	SS	3
Muni-29	Deep	197	402	OpCj		Farmington													<0.01	0	0	0	0.00	SS	1
Muni-30	Deep	408	501	Cjdn		Farmington													0.05	0.05	0.05	0.05	0.05	SS	1
Muni-31	Deep	386	485	Cjdn		Farmington													0.014	0.014	0.014	0.014	0.014	SS	1

Shaded cells indicate result exceeds the laboratory reporting limit.

<MRL - less than the method reporting limit

SS - sample size less than 5 sample events, no trend analysis performed

Drinking Water Guideline = 800 ug/L (MDH HRL_{1,1})

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	0.06	0.07	0.03	<0.02		0.06	<0.02	0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	min	max	med	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	0.06	<0.02	0	0.06	0	0.01	6
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02			0	0	0	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	5
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02						0	0	0	0.00	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	4
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	4
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	0.02		0	0.02	0	0.00	5
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	4
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	0.03	<0.02	0	0.03	0	0.01	6
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	4
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	4
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	5
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	4
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02		0	0	0	0.00	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	5
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013	min	max	med	avg	count
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	0.1	<0.02	0	0.1	0	0.02	6
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	0.15	<0.02	0	0.15	0	0.03	6
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	0.08	<0.02	0	0.08	0	0.01	7
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02						0	0	0	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	0.05	0	0.05	0	0.01	7
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02			0	0	0	0.00	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	0.06	<0.02	0	0.06	0	0.01	7
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02					0	0	0	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02			0	0	0	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.02		<0.02	<0.02	0	0	0	0.00	3
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.02		<0.02	<0.02	0	0	0	0.00	3
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.02	<0.02	0	0	0	0.00	2
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.02	<0.02	0	0	0	0.00	2
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.02	0	0	0	0.00	1
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02							0	0	0	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02							0	0	0	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire		<0.02							0	0	0	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02							0	0	0	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington		<0.02							0	0	0	0.00	1
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02							0	0	0	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02							0	0	0	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire		<0.02							0	0	0	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02							0	0	0	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02							0	0	0	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02							0	0	0	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02							0	0	0	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02							0	0	0	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02							0	0	0	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02							0	0	0	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02							0	0	0	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02							0	0	0	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02							0	0	0	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02							0	0	0	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02							0	0	0	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02							0	0	0	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02							0	0	0	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02							0	0	0	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02						0	0	0	0.00	2
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02						0	0	0	0.00	2
Muni-26	Mid	240	332	Cjdn		Hastings		<0.02	<0.02						0	0	0	0.00	2
Muni-27	Mid	205	285	Cjdn		Hastings		<0.02	<0.02						0	0	0	0.00	2
Muni-28	Mid	208	299	Cjdn		Hastings		<0.02	<0.02						0	0	0	0.00	2

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013	min	max	med	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	0.03	<0.02		0.06	<0.02	<0.02	0	0.06	0	0.01	8
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0.04		0.04	<0.02	0.08		<0.02	<0.02	0.03	0	0.08	0.03	0.03	7
AGQS-03	Mid	176	181	Ucs		Ravenna Twp		<0.02	0.03	0.04	0.04		0.03			0	0.04	0.03	0.03	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	0.04		0.04	<0.02			<0.02	0.07	0.05	0	0.07	0.04	0.03	6
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		0.05	0.09	0.19						0.05	0.19	0.09	0.11	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.09		0.04	0.1	0.08		0.04	0.1	0.06	0.04	0.1	0.08	0.07	7
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.02		<0.02	<0.02	<0.02		0.02	<0.02	0.02	0	0.02	0	0.01	7
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-11	Deep	265	280	Cjdn	5	Hastings			<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.11		0.06	0.06	0.1		0.05	0.12	0.08	0.05	0.12	0.08	0.08	7
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-15	Mid	166	170	Ucs	5	Hastings		0.04	<0.02	0.07	0.04		0.03	0.08		0	0.08	0.04	0.04	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.02		<0.02	<0.02	<0.02		0.02	0.02	0.02	0	0.02	0	0.01	7
AGQS-17	Deep	276	280	Ucs	15	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-20	Shallow	55	60	Ucs		Empire Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		0.02	<0.02	<0.02	0	0.02	0	0.00	7
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0.02		0.04	<0.02	0.02		<0.02	<0.02		0	0.04	0.01	0.01	6
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-26	Deep	342	360	Opdc		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.02	0.03	<0.02	<0.02		<0.02	<0.02	<0.02	0	0.03	0	0.00	7
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	0.03	0	0.03	0	0.00	7
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.05		0.04	0.06	0.05		<0.02	0.09	<0.02	0	0.09	0.05	0.04	7
AGQS-31	Mid	135	140	Ucs		Lakeville			<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.02		<0.02	<0.02	<0.02		0.02	<0.02		0	0.02	0	0.00	6
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.02		<0.02	<0.02	<0.02		0.02	<0.02	<0.02	0	0.02	0	0.00	7
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		0.03	0.03		0	0.03	0	0.01	6
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp		0.11	0.14	0.12	0.05		<0.02	<0.02	0.14	0	0.14	0.11	0.08	7
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0.08		0.06	0.15	0.11		<0.02	0.09	0.1	0	0.15	0.09	0.08	7
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.02	<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0	0	0.00	7
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	6
AGQS-50	Mid	173	181	Opdc		Greenville Twp	<0.02		<0.02		<0.02		<0.02	<0.02		0	0	0	0.00	5
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights		<0.02	<0.02	<0.02			<0.02	<0.02		0	0	0	0.00	5
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp			<0.02	<0.02			<0.02	<0.02	<0.02	0	0	0	0.00	5
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013	min	max	med	avg	count
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0.07		0.05	0.03	0.07		<0.02	<0.02	0.1	0	0.1	0.05	0.05	7
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.33		0.11	0.21	0.09		0.06	<0.02	0.09	0	0.33	0.09	0.13	7
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	0.08		0.02	0.05	0.02		0.06	0.08	0.05	0.02	0.08	0.05	0.05	7
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.07		0.04	0.11	0.09		0.05	0.08	0.07	0.04	0.11	0.07	0.07	7
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		0.04	0.05	0.09	0.06		0.03	<0.02	0.03	0	0.09	0.04	0.04	7
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		0.16	0.14	0.07						0.07	0.16	0.14	0.12	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		<0.02	<0.02	0.03	<0.02		<0.02	<0.02	0.02	0	0.03	0	0.01	7
AGQS-62	Mid	145	149	Ucs		Marshan Twp		0.07	0.08	0.23	0.14		0.05			0.05	0.23	0.08	0.11	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		0.03	0.05	0.17	0.05		0.03	<0.02	0.06	0	0.17	0.05	0.06	7
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		0.05	0.13	0.04	0.07		0.03	<0.02	0.32	0	0.32	0.05	0.09	7
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		0	0	0	0.00	6
AGQS-66	Shallow	75	80	Ucs	8	Coates		<0.02	<0.02	<0.02	<0.02		<0.02	0.02	0.02	0	0.02	0	0.01	7
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0.02		0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0	0.02	0	0.01	7
AGQS-68	Mid	158	163	Ucs		Apple Valley			<0.02	<0.02	<0.02					0	0	0	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp					0.13		0.04			0.04	0.13	0.085	0.09	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp						<0.02		<0.02	<0.02	0	0	0	0.00	3
AGQS-76	Shallow	74	100	Opdc		Randolph Twp						0.06		0.08	0.1	0.06	0.1	0.08	0.08	3
AGQS-77	Deep	267	285	Cjdn		Empire Twp								<0.02	<0.02	0	0	0	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp								0.11	0.09	0.09	0.11	0.1	0.10	2
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								0.16	0.16	0.16	0.16	0.16	0.16	1
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp			<0.02							0	0	0	0.00	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp			<0.02							0	0	0	0.00	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp			<0.02							0	0	0	0.00	1
Muni-01	Deep	406	500	Cjdn		Eagan			<0.02							0	0	0	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph			<0.02							0	0	0	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire			<0.02							0	0	0	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul			<0.02							0	0	0	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington			<0.02							0	0	0	0.00	1
Muni-06	Mid	248	302	Cjdn		Hampton			<0.02							0	0	0	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville			<0.02							0	0	0	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire			<0.02							0	0	0	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier			<0.02							0	0	0	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville			<0.02							0	0	0	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul			<0.02							0	0	0	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount			<0.02							0	0	0	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington			<0.02							0	0	0	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley			<0.02							0	0	0	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount			<0.02							0	0	0	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount			<0.02							0	0	0	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount			<0.02							0	0	0	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion			<0.02							0	0	0	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville			<0.02							0	0	0	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington			<0.02							0	0	0	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan			<0.02	<0.02						0	0	0	0.00	2
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights			<0.02	<0.02						0	0	0	0.00	2
Muni-23	Deep	256	305	Cjdn		Hampton			0.03	0.08						0.03	0.08	0.055	0.06	2
Muni-24	Deep	312	400	Cjdn		Hastings			<0.02	0.09						0	0.09	0.045	0.05	2
Muni-25	Deep	277	356	Cjdn		Hastings			<0.02	0.05						0	0.05	0.025	0.03	2

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0	0	0	0	0	0.1	0	0.03	0		0.06		0	0.06	0	0.00	0.10	0.00	0.02	13	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0	0	0	0	0.04		0.13	0	0.19		0		0.15		0.1	0.038	0.00	0.19	0.02	0.05	12
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						0	0.03	0.04	0.04		0.03					0.00	0.04	0.03	0.03	5	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				0.12	0.04		0.1	0			0		0.07		0.05	0.05	0.00	0.12	0.05	0.05	8
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						0.18	0.09	0.19									0.09	0.19	0.18	0.15	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0	0	0	0.23	0.57		0.58	0.43	0.38		0.41		0.33		0.26	0.078	0.00	0.58	0.30	0.27	12
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0	0	0	0	0		0	0	0		0		0		0	0	0.00	0.00	0.00	0.00	12
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0	0	0	0	0		0	0	0		0.02		0		0.02	0	0.00	0.02	0.00	0.00	12
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0	0	0	0			0	0	0		0		0			0	0.00	0.00	0.00	0.00	10
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0	0	0	0.63	0.74		0.47	0.06	0.42		0.05		0.42		0.29	0.1	0.00	0.74	0.20	0.27	12
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0	0	0	0		0		0		0		0				0.00	0.00	0.00	0.00	8
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-15	Mid	166	170	Ucs	5	Hastings						0.09	0	0.07	0.06		0.08		0.42				0.00	0.42	0.08	0.12	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0	0	0.13	0		0	0	0		0.07		0.02		0.02		0.00	0.13	0.00	0.02	10
AGQS-17	Deep	276	280	Ucs	15	Rosemount						0.04	0	0	0		0		0		0	0	0.00	0.04	0.00	0.01	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	10
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						0	0	0	0		0		0			0	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp						0	0	0	0		0		0		0	0	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville						0	0	0	0		0		0			0	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0	0	0	0	0		0	0	0		0		0				0.00	0.00	0.00	0.00	10
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						0.09	0	0	0.03		0.02		0		0	0	0.00	0.09	0.00	0.02	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0	0	0	0	0.02		0.04	0	0.02		0		0.02			0.089	0.00	0.09	0.00	0.02	11
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0	0	0	0		0	0	0		0		0		0	0.04	0.00	0.04	0.00	0.00	11
AGQS-26	Deep	342	360	Opdc		Lakeville						0	0	0	0		0		0			0	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount						0	0.03	0	0		0		0		0	0	0.00	0.03	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0	0	0	0		0		0		0		0			0	0.00	0.00	0.00	0.00	9
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0	0	0	0		0	0	0.32		0		0.03		0.1	0.16	0.00	0.32	0.00	0.06	11
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0	0	0	0.32	0.67		0.36	0.06	0.33		0		0.74		0.61	0.41	0.00	0.74	0.33	0.29	12
AGQS-31	Mid	135	140	Ucs		Lakeville							0	0	0.02		0		0		0	0	0.00	0.02	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0	0	0	0	0		0	0	0		0.02		0			0	0.00	0.02	0.00	0.00	11
AGQS-33	Deep	260	280	Cjdn	8	Coates	0	0	0	0	0	0.05	0	0			0		0		0.06	0	0.00	0.06	0.00	0.01	12
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0	0	0	0	0		0	0	0.16		0.02		0		0	0	0.00	0.16	0.00	0.02	12
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0	0	0	0	0		0	0	0		0.03		0.03			0	0.00	0.03	0.00	0.01	11
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						0.16	0.14	0.12	0.05		0		0		0.37	0.23	0.00	0.37	0.13	0.13	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0	0	0	0	0		0	0	0		0		0		0	0	0.00	0.00	0.00	0.00	12
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	10
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0	0	0	0	0.08		0.06	0.15	0.11		0		0.11		0.21	0.049	0.00	0.21	0.05	0.06	12
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	11
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0	0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	10
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		0	0	0	0		0.22	0	0		0		0			0	0.00	0.22	0.00	0.02	10
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						0	0.02		0		0		0			0	0.00	0.02	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						0.04	0	0	0		0		0		0	0	0.00	0.04	0.00	0.01	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				0	0		0	0			0		0		0	0	0.00	0.00	0.00	0.00	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0	0	0	0	0		0		0		0		0			0	0.00	0.00	0.00	0.00	10
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						0	0	0			0		0			0	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							0	0			0		0		0	0	0.00	0.00	0.00	0.00	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0	0	0	0		0	0	0		0		0			0	0.00	0.00	0.00	0.00	9
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0	0	0	0.16	0.23		0.33	0.03	0.19		0		0.26		0.29	0	0.00	0.33	0.10	0.12	12
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0	0	0.11	0.59		0.58	0.68	0.44		0.61		0.5		0.42	0.13	0.00	0.68	0.44	0.37	11

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2019	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0	0	0	0.08		0.02	0.05	0.02		0.06		0.08	0.05	0	0.00	0.08	0.02	0.03	11	
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0	0	0	0.28		0.27	0.11	0.12		0.05		0.24	0.23	0.24	0.00	0.28	0.12	0.14	11	
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						0	0	0	0		0		0			0.00	0.00	0.00	0.00	6	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						0.5	0.94	1.02	0.71		0.35		0.74	0.27	0.21	0.21	1.02	0.61	0.59	8	
AGQS-60	Shallow	10	12	Ucs	0	Vermillion Twp						0.16	0.18	0.07								0.07	0.18	0.16	0.14	3	
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.03	0	0.03	0		0		0		0.09	0	0.00	0.09	0.00	0.12	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						0.23	0.74	0.6	0.49		0.38					0.23	0.74	0.49	0.49	5	
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.08	0.29	0.17	0.21		0.07		0.08		0.18	0	0.00	0.29	0.13	0.14	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						0.49	0.39	0.27	0.29		0.3		0		0.61	0.749	0.00	0.75	0.35	0.39	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						0.04	0	0.03	0.03		0.02		0			0	0.00	0.04	0.02	0.02	7
AGQS-66	Shallow	75	80	Ucs	8	Coates						0.09	0	0	0		0		0.07	0.08	0	0.00	0.09	0.00	0.03	8	
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0	0	0.08		0.06	0	0.03		0		0.02	0.03	0	0.00	0.08	0.00	0.02	12	
AGQS-68	Mid	158	163	Ucs		Apple Valley							0	0	0							0.00	0.00	0.00	0.00	3	
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									0.13		0.04					0.04	0.13	0.09	0.09	2	
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0	0													0.00	0.00	0.00	0.00	2	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0	0													0.00	0.00	0.00	0.00	2	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0	0													0.00	0.00	0.00	0.00	2	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										0			0	0	0	0.00	0.00	0.00	0.00	4	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										0.06		0.08	0.25	0	0.00	0.25	0.07	0.10	4		
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												0	0	0	0	0.00	0.00	0.00	0.00	3	
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												0.15	0.12	0.17	0.12	0.17	0.15	0.15	3		
AGQS-82	Mid	167	175	Ucs		Ravenna Twp														0.68	0.282	0.28	0.68	0.48	0.48	2	
Muni-01	Deep	406	500	Cjdn		Eagan							0									0.00	0.00	0.00	0.00	1	
Muni-02	Deep	258	356	Cjdn		Randolph							0									0.00	0.00	0.00	0.00	1	
Muni-03	Deep	355	457	Cjdn		Empire							0								0	0.00	0.00	0.00	0.00	2	
Muni-04	Deep	322	401	Cjdn		South St Paul							0									0.00	0.00	0.00	0.00	1	
Muni-05	Mid	132	424	OpCj		Farmington							0								0	0.00	0.00	0.00	0.00	2	
Muni-06	Mid	248	302	Cjdn		Hampton							0									0.00	0.00	0.00	0.00	1	
Muni-07	Mid	218	298	Cjdn		Burnsville							0									0.00	0.00	0.00	0.00	1	
Muni-08	Deep	340	410	Cjdn		Empire							0									0	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier							0									0.00	0.00	0.00	0.00	1	
Muni-10	Deep	434	517	Cjdn		Lakeville							0									0.00	0.00	0.00	0.00	1	
Muni-11	Mid	240	342	OpCj		South St Paul							0									0.00	0.00	0.00	0.00	1	
Muni-12	Deep	388	471	Cjdn		Rosemount							0									0.00	0.00	0.00	0.00	1	
Muni-13	Deep	392	477	Cjdn		Farmington							0								0	0.00	0.00	0.00	0.00	2	
Muni-14	Deep	420	516	Cjdn		Apple Valley							0									0.00	0.00	0.00	0.00	1	
Muni-15	Deep	345	400	Cjdn		Rosemount							0									0.00	0.00	0.00	0.00	1	
Muni-16	Deep	345	400	Cjdn		Rosemount							0									0.00	0.00	0.00	0.00	1	
Muni-17	Deep	389	498	Cjdn		Rosemount							0									0.00	0.00	0.00	0.00	1	
Muni-18	Deep	267	293	Ucs		Vermillion							0									0.00	0.00	0.00	0.00	1	
Muni-19	Deep	425	616	OpCj		Lakeville							0									0.00	0.00	0.00	0.00	1	
Muni-20	Deep	417	512	Cjdn		Farmington							0								0	0.00	0.00	0.00	0.00	2	
Muni-21	Deep	384	500	Cjdn		Eagan							0									0.00	0.00	0.00	0.00	1	
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							0									0.00	0.00	0.00	0.00	1	
Muni-23	Deep	256	305	Cjdn		Hampton							0									0.00	0.00	0.00	0.00	1	
Muni-24	Deep	312	400	Cjdn		Hastings						0.015	0.01									0.118	0.01	0.12	0.02	0.05	3
Muni-25	Deep	277	356	Cjdn		Hastings						0	0									0	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings						0.03	0.037									0.09	0.03	0.09	0.04	0.05	3
Muni-27	Mid	205	285	Cjdn		Hastings						0	0.03									0.037	0.00	0.04	0.03	0.02	3
Muni-28	Mid	208	299	Cjdn		Hastings						0.015	0.017									0.145	0.02	0.15	0.02	0.06	3
Sum of Acet	Deep	197	402	OpCj		Farmington																0	0	0	0	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington																0	0	0	0	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington																0	0	0	0	0.00	1

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count	
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00	0.00	0.00	0.00	13	
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.02	<0.02	<0.02	<0.02		<0.02				0.00	0.00	0.00	0.00	5	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				<0.05	<0.02		0.06	<0.02			<0.02	<0.02	<0.02	<0.03	0.00	0.06	0.00	0.01	8	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.02	<0.02	<0.02							0.00	0.00	0.00	0.00	3	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.4	<0.5	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.4	<0.5	<0.1	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	10	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	8	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	6	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02		0.00	0.00	0.00	0.00	10	
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8	
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	10	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7	
AGQS-20	Shallow	55	60	Ucs		Empire Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8	
AGQS-21	Mid	133	137	Ucs		Burnsville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	10	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						<0.02	<0.02	<0.02	0.03		<0.02	<0.02	<0.02	<0.03	0.00	0.03	0.00	0.00	8	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	11	
AGQS-26	Deep	342	360	Opdc		Lakeville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7	
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	9	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	11	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-31	Mid	135	140	Ucs		Lakeville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	7	
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12		
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	10	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	11	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	10	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	10	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	6	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	10	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<0.02	<0.02	<0.02			<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	6	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							<0.02	<0.02			<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	6	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	9	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<						

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.02	<0.02	<0.02							0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.02	<0.02	<0.02	<0.02		<0.02				0.00	0.00	0.00	0.00	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	12
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02						0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.02		<0.02				0.00	0.00	0.00	0.00	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp	<0.5	<0.1													0.00	0.00	0.00	0.00	2
AGQS-76	Shallow	74	100	Opdc		Randolph Twp	<0.5	<0.1													0.00	0.00	0.00	0.00	2
AGQS-77	Deep	267	285	Cjdn		Empire Twp	<0.5	<0.1													0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02		<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.02		<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													<0.02	<0.03	0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan							<0.02								0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph							<0.02								0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire							<0.02							<0.03	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.02								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington							<0.02							<0.03	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton							<0.02								0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.02								0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire							<0.02							<0.03	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier							<0.02								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.02								0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul							<0.02								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.02								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington							<0.02							<0.03	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.02								0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.02								0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.02								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.02								0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion							<0.02								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville							<0.02								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington							<0.02							<0.03	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan							<0.02								0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.02								0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton							<0.02								0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings							<0.02	<0.02						<0.03	0.00	0.00	0.00	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings							<0.02	<0.02						<0.03	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings							<0.02	<0.02						<0.03	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings							<0.02	<0.02						<0.03	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings							<0.02	<0.02						<0.03	0.00	0.00	0.00	0.00	3
Muni-29	Deep	197	402	OpCj		Farmington														<0.03	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington														<0.03	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington														<0.03	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 20 ug/L (MDH HRL₁₈)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	0.1	<0.02	<0.02	<0.02		<0.02	<0.02	0.06	<0.03	0.00	0.10	0.00	0.01	11
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		0.09	<0.02	0.11		<0.02	0.09	0.07	0.038	0.00	0.11	0.02	0.04	10
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02				0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		0.12	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	0.05	0.00	0.12	0.00	0.02	8
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				0.13	<0.02	<0.02							0.00	0.13	0.00	0.04	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	0.23	0.39		0.45	0.25	0.23		0.32	0.19	0.18	0.078	0.00	0.45	0.23	0.23	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	9
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	9
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	0.63	0.51		0.31	<0.02	0.24		<0.02	0.26	0.18	0.1	0.00	0.63	0.21	0.22	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	6
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-15	Mid	166	170	Ucs	5	Hastings				0.05	<0.02	<0.02	<0.02		<0.02	0.22			0.00	0.22	0.00	0.05	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0.13	<0.02						0.05	<0.02	<0.02	<0.03	0.00	0.13	0.00	0.02	8
AGQS-17	Deep	276	280	Ucs	15	Rosemount				0.04	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.04	0.00	0.01	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	7
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		0.089	0.00	0.09	0.00	0.01	8
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.04	0.00	0.04	0.00	0.00	10
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	0.32		<0.02	<0.02	0.07	0.16	0.00	0.32	0.00	0.06	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	0.32	0.6		0.32	<0.02	0.28		<0.02	0.63	0.58	0.41	0.00	0.63	0.32	0.31	10
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.02	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	9
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	0.05	<0.02	<0.02			<0.02	<0.02	0.06	<0.03	0.00	0.06	0.00	0.01	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	0.16		<0.02	<0.02	<0.02	<0.03	0.00	0.16	0.00	0.02	9
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				0.05	<0.02	<0.02	<0.02		<0.02	<0.02	0.19	0.23	0.00	0.23	0.00	0.06	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	9
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	0.09	0.049	0.00	0.09	0.00	0.01	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	8
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	9
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		0.18	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.18	0.00	0.02	8
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	0.02	<0.02	<0.02		<0.02	<0.02		<0.03	0.00	0.02	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				0.04	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.04	0.00	0.01	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	7
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02			<0.02	<0.02		<0.03	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.02	<0.02			<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	7
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	0.16	0.16		0.26	<0.02	0.12		<0.02	0.16	0.19	<0.03	0.00	0.26	0.14	0.11	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	0.11	0.21		0.42	0.35	0.28		0.49	0.31	0.3	0.13	0.00	0.49	0.29	0.26	10

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	0.21		0.23	<0.02	<0.02		<0.02	0.16	0.16	0.24	0.00	0.24	0.08	0.10	10
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				0.4	0.74	0.83	0.56		0.29	0.61	0.24	0.21	0.21	0.83	0.48	0.49	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	0.04	<0.02							0.00	0.04	0.00	0.01	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				0.03	<0.02	<0.02	<0.02		<0.02	<0.02	0.02	<0.03	0.00	0.03	0.00	0.01	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.02	0.49	0.21	0.23		0.23				0.00	0.49	0.23	0.23	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.02	0.2	<0.02	0.1		<0.02	<0.02	0.1	<0.03	0.00	0.20	0.00	0.05	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				0.3	0.2	0.23	0.19		0.22	<0.02	0.25	0.67	0.00	0.67	0.23	0.26	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				0.04	<0.02	0.03	0.03		0.02	<0.02		<0.03	0.00	0.04	0.02	0.02	7
AGQS-66	Shallow	75	80	Ucs	8	Coates				0.09	<0.02	<0.02	<0.02		<0.02	0.05	0.06	<0.03	0.00	0.09	0.00	0.03	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	0.06		0.04	<0.02	0.03		<0.02	0.02	0.03	<0.03	0.00	0.06	0.01	0.02	10
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02						0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02				0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp								<0.02		<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02		<0.02	0.12	<0.03	0.00	0.12	0.00	0.03	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp										<0.02	<0.02	<0.03	0.00	0.00	0.00	0.00	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp										0.04	0.03	0.17	0.03	0.17	0.04	0.08	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp											0.45	0.24	0.24	0.45	0.35	0.35	2
Muni-01	Deep	406	500	Cjdn		Eagan				<0.02									0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph				<0.02									0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire				<0.02								<0.03	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul				<0.02									0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington				<0.02								<0.03	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton				<0.02									0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville				<0.02									0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire				<0.02								<0.03	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier				<0.02									0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville				<0.02									0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul				<0.02									0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount				<0.02									0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington				<0.02								<0.03	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley				<0.02									0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount				<0.02									0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount				<0.02									0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount				<0.02									0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion				<0.02									0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville				<0.02									0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington				<0.02								<0.03	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan				<0.02									0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights				<0.02									0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton				<0.02									0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings				<0.02	0.03							0.076	0.00	0.08	0.03	0.04	3
Muni-25	Deep	277	356	Cjdn		Hastings				<0.02	<0.02							<0.03	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings				<0.02	<0.02							0.09	0.00	0.09	0.00	0.03	3
Muni-27	Mid	205	285	Cjdn		Hastings				<0.02	<0.02							0.037	0.00	0.04	0.00	0.01	3
Muni-28	Mid	208	299	Cjdn		Hastings				<0.02	<0.02							0.1	0.00	0.10	0.00	0.03	3
Muni-29	Deep	197	402	OpCj		Farmington												<0.03	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington												<0.03	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington												<0.03	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 300 ug/L (MDH HRL₁₈)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	9
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-03	Mid	176	181	Ucs		Ravenna Twp		<0.02	<0.02	<0.02	<0.02		<0.02				0.00	0.00	0.00	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		<0.02	<0.02	<0.02							0.00	0.00	0.00	0.00	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0.09		0.09	0.08	0.07		0.05	0.04	0.02	<0.033	0.00	0.09	0.06	0.06	8
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-11	Deep	265	280	Cjdn	5	Hastings			<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0.12		0.1	<0.02	0.08		<0.02	0.04	0.03	<0.033	0.00	0.12	0.04	0.05	8
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<0.02		<0.02		<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	5
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-15	Mid	166	170	Ucs	5	Hastings		<0.02	<0.02	<0.02	0.02		0.05	0.12			0.00	0.12	0.01	0.03	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02		0.00	0.00	0.00	0.00	7
AGQS-17	Deep	276	280	Ucs	15	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.02		<0.02	<0.02			<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	6
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-26	Deep	342	360	Opdc		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<0.02		<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.02		<0.02	<0.02	<0.02		<0.02	0.02	0.03	<0.033	0.00	0.03	0.00	0.01	8
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	0.04	<0.033	0.00	0.04	0.00	0.01	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	0.02	0.02	<0.033	0.00	0.02	0.00	0.01	8
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.02		<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.02		0.04	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.04	0.00	0.01	7
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.02	<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	7
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.02		<0.02		<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights		<0.02	<0.02	<0.02			<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp			<0.02	<0.02			<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	6
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.02		0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.02	0.00	0.00	8
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	0.05		0.05	0.12	0.07		0.06	0.04	0.03	<0.033	0.00	0.12	0.05	0.05	8

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.02		<0.02	<0.02	0.03		<0.02	<0.02	<0.02	<0.033	0.00	0.03	0.00	0.00	8
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0.00	0.00	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		0.06	0.15	0.1	0.09		0.03	0.05	<0.02	<0.033	0.00	0.15	0.06	0.06	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		<0.02	<0.02	<0.02							0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp		0.16	0.17	0.16	0.12		0.1				0.10	0.17	0.16	0.14	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		0.05	0.04	<0.02	0.06		0.04	0.02	0.02	<0.033	0.00	0.06	0.03	0.03	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		0.14	0.06	<0.02	0.03		0.05	<0.02	0.04	0.079	0.00	0.14	0.05	0.05	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.033	0.00	0.00	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	8
AGQS-68	Mid	158	163	Ucs		Apple Valley			<0.02	<0.02	<0.02						0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp					<0.02		<0.02				0.00	0.00	0.00	0.00	2
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp						<0.02		<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp						<0.02		<0.02	0.03	<0.033	0.00	0.03	0.00	0.01	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp								<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp								<0.02	<0.02	<0.033	0.00	0.00	0.00	0.00	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp									0.07	0.042	0.04	0.07	0.06	0.06	2
Muni-01	Deep	406	500	Cjdn		Eagan			<0.02								0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph			<0.02								0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire			<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul			<0.02								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington			<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton			<0.02								0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville			<0.02								0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire			<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier			<0.02								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville			<0.02								0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul			<0.02								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount			<0.02								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington			<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley			<0.02								0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount			<0.02								0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount			<0.02								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount			<0.02								0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion			<0.02								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville			<0.02								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington			<0.02							<0.033	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan			<0.02								0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights			<0.02								0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton			<0.02								0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings			0.03	<0.02						0.042	0.00	0.04	0.03	0.02	3
Muni-25	Deep	277	356	Cjdn		Hastings			<0.02	<0.02						<0.033	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings			0.03	<0.02						<0.033	0.00	0.03	0.00	0.01	3
Muni-27	Mid	205	285	Cjdn		Hastings			<0.02	<0.02						<0.033	0.00	0.00	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings			0.03	<0.02						0.045	0.00	0.05	0.03	0.03	3
Muni-29	Deep	197	402	OpCj		Farmington										<0.033	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington										<0.033	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington										<0.033	0.00	0.00	0.00	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline - 90 ug/L (HRL₁₈)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp		<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp		<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings			<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.02		<0.02	<0.02			<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake		<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights		<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp		<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp		<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates		<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley			<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp					<0.02		<0.02		
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp						<0.02		<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp						<0.02		<0.02	<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp								<0.02	<0.02
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp								<0.02	<0.02
AGQS-82	Mid	167	175	Ucs		Ravenna Twp									<0.02
Muni-01	Deep	406	500	Cjdn		Eagan			<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph			<0.02						
Muni-03	Deep	355	457	Cjdn		Empire			<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul			<0.02						
Muni-05	Mid	132	424	OpCj		Farmington			<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton			<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville			<0.02						
Muni-08	Deep	340	410	Cjdn		Empire			<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier			<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville			<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul			<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount			<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington			<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley			<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount			<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount			<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount			<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion			<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville			<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington			<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan			<0.02						
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights			<0.02						
Muni-23	Deep	256	305	Cjdn		Hampton			<0.02						
Muni-24	Deep	312	400	Cjdn		Hastings			<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings			<0.02	<0.02					
Muni-26	Mid	240	332	Cjdn		Hastings			<0.02	<0.02					
Muni-27	Mid	205	285	Cjdn		Hastings			<0.02	<0.02					
Muni-28	Mid	208	299	Cjdn		Hastings			<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	0.09	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.02		<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.02		<0.02	<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.02	<0.02
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.02	<0.02
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.02
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02						
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02						
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02						
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					
Muni-26	Mid	240	332	Cjdn		Hastings		<0.02	<0.02					
Muni-27	Mid	205	285	Cjdn		Hastings		<0.02	<0.02					
Muni-28	Mid	208	299	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp					<0.02		<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp					<0.02		<0.02	<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp							<0.02	<0.02
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp							<0.02	<0.02
AGQS-82	Mid	167	175	Ucs		Ravenna Twp								<0.02
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02						
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02						
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02						
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					
Muni-26	Mid	240	332	Cjdn		Hastings		<0.02	<0.02					
Muni-27	Mid	205	285	Cjdn		Hastings		<0.02	<0.02					
Muni-28	Mid	208	299	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	12
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	11
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				0	0	0	0		0	0	0	0	0.00	0.00	0.00	0.00	5	
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp			0	0	0	0			0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				0	0	0							0.00	0.00	0.00	0.00	3	
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	0	0	0	0	0	0	0	0	0	0	0	0.041	0.00	0.04	0.00	0.00	11	
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	11	
AGQS-09	Mid	140	185	Opdc	16	Rosemount	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	11	
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	0	0	0			0	0	0		0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	0	0	0	0.02		0	0	0.03		0.02	0.03	0.02	0.063	0.00	0.06	0.02	0.02	11
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		0	0	0	0	0	0	0	0	0	0	0		0.00	0.00	0.00	0.00	7
AGQS-14	Deep	385	415	Cjdn	2	Hampton	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-15	Mid	166	170	Ucs	5	Hastings				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	6	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-17	Deep	276	280	Ucs	15	Rosemount				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-18	Deep	265	280	Opdc	11	Rosemount	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights					0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	7	
AGQS-20	Shallow	55	60	Ucs		Empire Twp				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-21	Mid	133	137	Ucs		Burnsville				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	7	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-26	Deep	342	360	Opdc		Lakeville				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	7	
AGQS-27	Mid	176	180	Ucs	11	Rosemount				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0	0	0	0	0	0	0	0	0	0	0	0.02	0.063	0.00	0.06	0.00	0.01	11
AGQS-31	Mid	135	140	Ucs		Lakeville					0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	7	
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0	0	0	0		0.08	0	0		0	0	0	0.00	0.08	0.00	0.01	10	
AGQS-33	Deep	260	280	Cjdn	8	Coates	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	11	
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	0	0	0	0	0	0	0	0	0	0	0	0.008	0.00	0.01	0.00	0.00	11	
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	11	
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0	0	0	0	0	0	0	0	0	0	0	0.011	0.00	0.01	0.00	0.00	11	
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	10	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	6	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	9	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	6	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	6	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	8	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	0	0	0	0	0.06	0	0	0	0	0	0	0	0.00	0.06	0.00	0.01	11	
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		0	0	0	0	0	0	0	0	0	0	0.04	0.11	0.00	0.11	0.00	0.02	10

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	median	avg	count
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		0	0	0		0	0	0		0	0	0	0	0.00	0.00	0.00	0.00	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		0	0	0		0	0	0		0	0	0	0.01	0.00	0.01	0.00	0.00	10
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp					0	0.02	0	0		0	0			0.00	0.02	0.00	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp					0	0	0	0		0	0	0	0.078	0.00	0.08	0.00	0.01	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp					0	0	0							0.00	0.00	0.00	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					0	0	0	0		0	0	0	0	0.00	0.00	0.00	0.00	8
AGQS-62	Mid	145	149	Ucs		Marshan Twp					0	0	0	0		0				0.00	0.00	0.00	0.00	5
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp					0	0	0	0		0	0	0	0	0.00	0.00	0.00	0.00	8
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					0.07	0.02	0.03	0.02		0.03	0	0.1	0.069	0.00	0.10	0.03	0.04	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					0	0	0	0		0	0		0	0.00	0.00	0.00	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates					0	0	0	0		0	0	0	0	0.00	0.00	0.00	0.00	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	0	0	0	0		0	0	0		0	0	0	0	0.00	0.00	0.00	0.00	11
AGQS-68	Mid	158	163	Ucs		Apple Valley						0	0	0						0.00	0.00	0.00	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp								0		0				0.00	0.00	0.00	0.00	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		0												0.00	0.00	0.00	0.00	1
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		0												0.00	0.00	0.00	0.00	1
AGQS-77	Deep	267	285	Cjdn		Empire Twp		0												0.00	0.00	0.00	0.00	1
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp									0		0	0	0	0.00	0.00	0.00	0.00	4
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp									0		0	0	0.064	0.00	0.06	0.00	0.02	4
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp										0	0	0	0	0.00	0.00	0.00	0.00	3
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											0	0	0.013	0.00	0.01	0.00	0.00	3
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												0	0	0.00	0.00	0.00	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan						0								0.00	0.00	0.00	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph						0								0.00	0.00	0.00	0.00	1
Muni-03	Deep	355	457	Cjdn		Empire						0							0	0.00	0.00	0.00	0.00	2
Muni-04	Deep	322	401	Cjdn		South St Paul						0								0.00	0.00	0.00	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington						0							0	0.00	0.00	0.00	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton						0								0.00	0.00	0.00	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville						0								0.00	0.00	0.00	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire						0								0.00	0.00	0.00	0.00	2
Muni-09	Deep	580	680	Cjdn		New Trier						0								0.00	0.00	0.00	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville						0								0.00	0.00	0.00	0.00	1
Muni-11	Mid	240	342	OpCj		South St Paul						0								0.00	0.00	0.00	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount						0								0.00	0.00	0.00	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington						0							0	0.00	0.00	0.00	0.00	2
Muni-14	Deep	420	516	Cjdn		Apple Valley						0								0.00	0.00	0.00	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount						0								0.00	0.00	0.00	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount						0								0.00	0.00	0.00	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount						0								0.00	0.00	0.00	0.00	1
Muni-18	Deep	267	293	Ucs		Vermillion						0								0.00	0.00	0.00	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville						0								0.00	0.00	0.00	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington						0							0	0.00	0.00	0.00	0.00	2
Muni-21	Deep	384	500	Cjdn		Eagan						0								0.00	0.00	0.00	0.00	1
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						0								0.00	0.00	0.00	0.00	1
Muni-23	Deep	256	305	Cjdn		Hampton						0								0.00	0.00	0.00	0.00	1
Muni-24	Deep	312	400	Cjdn		Hastings						0	0					0.007		0.00	0.01	0.00	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings						0	0						0	0.00	0.00	0.00	0.00	3
Muni-26	Mid	240	332	Cjdn		Hastings						0	0						0	0.00	0.00	0.00	0.00	3
Muni-27	Mid	205	285	Cjdn		Hastings						0	0						0.008	0.00	0.01	0.00	0.00	3
Muni-28	Mid	208	299	Cjdn		Hastings						0	0						0.015	0.00	0.02	0.00	0.01	3
Muni-29	Deep	197	402	OpCj		Farmington													0	0.00	0.00	0.00	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington													0	0.00	0.00	0.00	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington													0	0.00	0.00	0.00	0.00	1

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.4	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-03	Mid	176	181	Ucs		Ravenna Twp					<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp			<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.015
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp					<0.02	<0.02	<0.02						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.4	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.4	<0.1	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-15	Mid	166	170	Ucs	5	Hastings					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-17	Deep	276	280	Ucs	15	Rosemount					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-20	Shallow	55	60	Ucs		Empire Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-21	Mid	133	137	Ucs		Burnsville					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.1	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-26	Deep	342	360	Opdc		Lakeville					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-27	Mid	176	180	Ucs	11	Rosemount					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-31	Mid	135	140	Ucs		Lakeville					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.4	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.015
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake					<0.02	<0.02		<0.02		<0.02	<0.02		<0.015
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.015
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights					<0.02	<0.02	<0.02			<0.02	<0.02		<0.015
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						<0.02	<0.02			<0.02	<0.02	<0.02	<0.015
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.4	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp					<0.02	<0.02	<0.02						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-62	Mid	145	149	Ucs		Marshan Twp					<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.015
AGQS-66	Shallow	75	80	Ucs	8	Coates					<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.015
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.1	<0.05	<0.02			<0.02	<0.02	<0.02		<0.02	<0.02	<0.015
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp								<0.02		<0.02			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.1											
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.1											
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.1											
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp									<0.02		<0.02	<0.02	<0.015
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02		<0.02	<0.02	<0.015	
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp											<0.02	<0.02	<0.015
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp											<0.02	<0.02	<0.015
AGQS-82	Mid	167	175	Ucs		Ravenna Twp												<0.02	<0.015
Muni-01	Deep	406	500	Cjdn		Eagan						<0.02							
Muni-02	Deep	258	356	Cjdn		Randolph						<0.02							
Muni-03	Deep	355	457	Cjdn		Empire						<0.02							<0.015
Muni-04	Deep	322	401	Cjdn		South St Paul						<0.02							
Muni-05	Mid	132	424	OpCj		Farmington						<0.02							<0.015
Muni-06	Mid	248	302	Cjdn		Hampton						<0.02							
Muni-07	Mid	218	298	Cjdn		Burnsville						<0.02							
Muni-08	Deep	340	410	Cjdn		Empire						<0.02							<0.015
Muni-09	Deep	580	680	Cjdn		New Trier						<0.02							
Muni-10	Deep	434	517	Cjdn		Lakeville						<0.02							
Muni-11	Mid	240	342	OpCj		South St Paul						<0.02							
Muni-12	Deep	388	471	Cjdn		Rosemount						<0.02							
Muni-13	Deep	392	477	Cjdn		Farmington						<0.02							<0.015
Muni-14	Deep	420	516	Cjdn		Apple Valley						<0.02							
Muni-15	Deep	345	400	Cjdn		Rosemount						<0.02							
Muni-16	Deep	345	400	Cjdn		Rosemount						<0.02							
Muni-17	Deep	389	498	Cjdn		Rosemount						<0.02							
Muni-18	Deep	267	293	Ucs		Vermillion						<0.02							
Muni-19	Deep	425	616	OpCj		Lakeville						<0.02							
Muni-20	Deep	417	512	Cjdn		Farmington						<0.02							<0.015
Muni-21	Deep	384	500	Cjdn		Eagan						<0.02							
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights						<0.02							
Muni-23	Deep	256	305	Cjdn		Hampton						<0.02							
Muni-24	Deep	312	400	Cjdn		Hastings						<0.02	<0.02						<0.015
Muni-25	Deep	277	356	Cjdn		Hastings						<0.02	<0.02						<0.015
Muni-26	Mid	240	332	Cjdn		Hastings						<0.02	<0.02						<0.015
Muni-27	Mid	205	285	Cjdn		Hastings						<0.02	<0.02						<0.015
Muni-28	Mid	208	299	Cjdn		Hastings						<0.02	<0.02						<0.015
Muni-29	Deep	197	402	OpCj		Farmington													<0.015
Muni-30	Deep	408	501	Cjdn		Farmington													<0.015
Muni-31	Deep	386	485	Cjdn		Farmington													<0.015

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 300 ug/L (MDH HRL₁₅)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	count
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	11
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	10
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02				0	0	0	0.00	5
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02							0	0	0	0.00	3
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.03	0	0.03	0	0.00	10
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	9
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	9
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	10
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	0.02		<0.02	<0.02	0.03		0.02	0.03	0.02	0.053	0	0.053	0.02	0.02	10
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	6
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	6
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02		0	0	0	0.00	8
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	7
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	10
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	9
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	0.02	0.063	0	0.063	0	0.01	10
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	7
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	9
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	10
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.0078	0	0.008	0	0.00	9
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	9
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.011	0	0.011	0	0.00	10
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	9
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	8
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	6
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	7
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0067	0	0	0	0.00	6
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.02	<0.02			<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	6
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	7
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		0.06	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0.06	0	0.01	10
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	0.04	0.089	0	0.089	0	0.01	10
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	10
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.01	0	0.01	0	0.00	10
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02			0	0	0	0.00	6
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.064	0	0.064	0	0.01	8
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	<0.02	<0.02	<0.02						0	0	0	0.00	3
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02</								

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019	min	max	med	avg	count
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				0.05	0.02	0.03	0.02		0.03	<0.02	0.07	0.04	0	0.07	0.03	0.03	8
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	7
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	8
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0067	0	0	0	0.00	10
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02						0	0	0	0.00	3
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02				0	0	0	0.00	2
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02	<0.0067	0	0	0	0.00	4
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.02		<0.02	<0.02	0.038	0	0.038	0	0.01	4
AGQS-77	Deep	267	285	Cjdn		Empire Twp									<0.02	<0.02	<0.0067	<0.0067	0	0	0	0.00	3
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp									<0.02	<0.02	0.013	0	0.013	0	0.00	3	
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.02	<0.0067	<0.0067	0	0	0	0.00	2
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02								0	0	0	0.00	1
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02								0	0	0	0.00	1
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.0067	0	0	0	0.00	2
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02								0	0	0	0.00	1
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02							<0.0067	0	0	0	0.00	2
Muni-03	Deep	355	457	Cjdn		Empire					<0.02								0	0	0	0.00	1
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02								0	0	0	0.00	1
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.0067	0	0	0	0.00	2
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02								0	0	0	0.00	1
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02								0	0	0	0.00	1
Muni-08	Deep	340	410	Cjdn		Empire					<0.02								0	0	0	0.00	1
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02								0	0	0	0.00	1
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.0067	0	0	0	0.00	2
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02								0	0	0	0.00	1
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02								0	0	0	0.00	1
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02								0	0	0	0.00	1
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02								0	0	0	0.00	1
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02								0	0	0	0.00	1
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02								0	0	0	0.00	1
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02							<0.0067	0	0	0	0.00	2
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02								0	0	0	0.00	1
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02								0	0	0	0.00	1
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02								0	0	0	0.00	1
Muni-21	Deep	384	500	Cjdn		Eagan					<0.02	<0.02							0	0.007	0	0.00	3
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	<0.02						<0.0067	0	0	0	0.00	3
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02	<0.02						<0.0067	0	0	0	0.00	3
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02	<0.02							0	0.008	0	0.00	3
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02	<0.02							0	0.015	0	0.01	3
Muni-29	Deep	197	402	OpCj		Farmington												<0.0067	0	0	0	0.00	1
Muni-30	Deep	408	501	Cjdn		Farmington												<0.0067	0	0	0	0.00	1
Muni-31	Deep	386	485	Cjdn		Farmington												<0.0067	0	0	0	0.00	1

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 300 ug/L (MDH RAA₁₃)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02		<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02			<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.02	0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp	<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-11	Deep	265	280	Cjdn	5	Hastings		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount		0.08	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp	<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp	<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley		<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp				<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp					<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp					<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp							<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp							<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp								<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp		<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp		<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp		<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan		<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph		<0.02						
Muni-03	Deep	355	457	Cjdn		Empire		<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul		<0.02						
Muni-05	Mid	132	424	OpCj		Farmington		<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton		<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville		<0.02						
Muni-08	Deep	340	410	Cjdn		Empire		<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier		<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville		<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul		<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount		<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington		<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley		<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount		<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount		<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion		<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville		<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington		<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan		<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights		<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton		<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings		<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings		<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.01
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.011
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.01
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-31	Mid	135	140	Ucs		Lakeville					<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.01
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.01
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02			<0.02	<0.02		<0.01
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp				<0.02	<0.02				<0.02	<0.02	<0.02	<0.01
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.021
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	0.014
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	<0.02	<0.02						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				0.02	<0.02	<0.02	<0.02		<0.02	<0.02	0.03	0.029
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02					
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02	<0.01
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.02		<0.02	<0.02	0.026
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02	<0.01
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02	<0.02	<0.01
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<0.02	<0.01
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02							
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02							
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.01
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02							
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02							<0.01
Muni-03	Deep	355	457	Cjdn		Empire					<0.02							
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02							
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.01
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02							
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02							
Muni-08	Deep	340	410	Cjdn		Empire					<0.02							
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02							
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.01
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02							
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02							
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02							
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02							
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02							
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02							
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02							<0.01
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02							
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02							
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02							
Muni-21	Deep	384	500	Cjdn		Eagan					<0.02	<0.02						<0.01
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	<0.02						<0.01
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02	<0.02						<0.01
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02	<0.02						<0.01
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02	<0.02						<0.01
Muni-29	Deep	197	402	OpCj		Farmington												<0.01
Muni-30	Deep	408	501	Cjdn		Farmington												<0.01
Muni-31	Deep	386	485	Cjdn		Farmington												<0.01
Muni-29	Deep	197	402	OpCj		Farmington												<0.01
Muni-30	Deep	408	501	Cjdn		Farmington												<0.01
Muni-31	Deep	386	485	Cjdn		Farmington												<0.01

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 300 ug/L (MDH RAA₁₃)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp				<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02						
Muni-03	Deep	355	457	Cjdn		Empire					<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02						
Muni-05	Mid	132	424	OpCj		Farmington					<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02						
Muni-08	Deep	340	410	Cjdn		Empire					<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan					<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02					
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02	
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-58	Shallow	60	65	Ucs		Greenville Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	<0.02	<0.02					
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.02	<0.02	<0.02	<0.02		<0.02		
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02				
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02		
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.02		<0.02	<0.02
AGQS-77	Deep	267	285	Cjdn		Empire Twp									<0.02	<0.02	<0.02
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02	<0.02
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<0.02
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02						
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02						
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02						
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02						
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02						
Muni-03	Deep	355	457	Cjdn		Empire					<0.02						
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02						
Muni-05	Mid	132	424	OpCj		Farmington					<0.02						
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02						
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02						
Muni-08	Deep	340	410	Cjdn		Empire					<0.02						
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02						
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02						
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02						
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02						
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02						
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02						
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02						
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02						
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02						
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02						
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02						
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02						
Muni-21	Deep	384	500	Cjdn		Eagan					<0.02	<0.02					
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	<0.02					
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02	<0.02					
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02	<0.02					
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02	<0.02					

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.0083
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02		<0.02		<0.02	<0.02		<0.0083
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.02	<0.02			<0.02	<0.02	<0.02	<0.0083
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	<0.02	<0.02						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.0083
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.0083
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02					
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02	<0.0083
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.02		<0.02	<0.02	<0.0083
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02	<0.0083
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02	<0.02	<0.0083
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<0.02	<0.0083
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp				<0.02								
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02							
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.0083
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02							
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02							<0.0083
Muni-03	Deep	355	457	Cjdn		Empire					<0.02							
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02							
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.0083
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02							
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02							
Muni-08	Deep	340	410	Cjdn		Empire					<0.02							
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02							
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.0083
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02							
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02							
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02							
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02							
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02							
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02							
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02							<0.0083
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02							
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02							
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02							
Muni-21	Deep	384	500	Cjdn		Eagan					<0.02	<0.02						<0.0083
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	<0.02						<0.0083
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02	<0.02						<0.0083
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02	<0.02						<0.0083
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02	<0.02						<0.0083
Muni-29	Deep	197	402	OpCj		Farmington												<0.0083
Muni-30	Deep	408	501	Cjdn		Farmington												<0.0083
Muni-31	Deep	386	485	Cjdn		Farmington												<0.0083

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-03	Mid	176	181	Ucs		Ravenna Twp						<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp						<0.02	<0.02	<0.02						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.4	<0.5	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.4	<0.5	<0.1	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-20	Shallow	55	60	Ucs		Empire Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-21	Mid	133	137	Ucs		Burnsville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-26	Deep	342	360	Opdc		Lakeville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-31	Mid	135	140	Ucs		Lakeville						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						<0.02	<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp			<0.05	<0.02		<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.03
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<0.02	<0.02	<0.02			<0.02	<0.02		<0.03
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp							<0.02	<0.02			<0.02	<0.02	<0.02	<0.03
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.03
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp						<0.02	<0.02	<0.02						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-62	Mid	145	149	Ucs		Marshan Twp						<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.03
AGQS-68	Mid	158	163	Ucs		Apple Valley							<0.02	<0.02	<0.02					
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp									<0.02		<0.02			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1											
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1											
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1											
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.02		<0.02	<0.02	<0.03
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp										<0.02		<0.02	<0.02	<0.03
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp												<0.02	<0.02	<0.03
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp												<0.02	<0.02	<0.03
AGQS-82	Mid	167	175	Ucs		Ravenna Twp													<0.02	<0.03
Muni-01	Deep	406	500	Cjdn		Eagan							<0.02							
Muni-02	Deep	258	356	Cjdn		Randolph							<0.02							
Muni-03	Deep	355	457	Cjdn		Empire							<0.02							<0.03
Muni-04	Deep	322	401	Cjdn		South St Paul							<0.02							
Muni-05	Mid	132	424	OpCj		Farmington							<0.02							<0.03
Muni-06	Mid	248	302	Cjdn		Hampton							<0.02							
Muni-07	Mid	218	298	Cjdn		Burnsville							<0.02							
Muni-08	Deep	340	410	Cjdn		Empire							<0.02							<0.03
Muni-09	Deep	580	680	Cjdn		New Trier							<0.02							
Muni-10	Deep	434	517	Cjdn		Lakeville							<0.02							
Muni-11	Mid	240	342	OpCj		South St Paul							<0.02							
Muni-12	Deep	388	471	Cjdn		Rosemount							<0.02							
Muni-13	Deep	392	477	Cjdn		Farmington							<0.02							<0.03
Muni-14	Deep	420	516	Cjdn		Apple Valley							<0.02							
Muni-15	Deep	345	400	Cjdn		Rosemount							<0.02							
Muni-16	Deep	345	400	Cjdn		Rosemount							<0.02							
Muni-17	Deep	389	498	Cjdn		Rosemount							<0.02							
Muni-18	Deep	267	293	Ucs		Vermillion							<0.02							
Muni-19	Deep	425	616	OpCj		Lakeville							<0.02							
Muni-20	Deep	417	512	Cjdn		Farmington							<0.02							<0.03
Muni-21	Deep	384	500	Cjdn		Eagan							<0.02							
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights							<0.02							
Muni-23	Deep	256	305	Cjdn		Hampton							<0.02							
Muni-24	Deep	312	400	Cjdn		Hastings							<0.02	<0.02						<0.03
Muni-25	Deep	277	356	Cjdn		Hastings							<0.02	<0.02						<0.03

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 90 ug/L (MDH HRL₉₃)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.05	<0.05	<0.05	<0.05		<0.05			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.05		<0.05	<0.05			<0.05	<0.05	<0.05	<0.03
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.05	<0.05	<0.05						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.05		<0.05		<0.05		<0.05	<0.05		
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.05		<0.05		<0.05		<0.05	<0.05		<0.03
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-31	Mid	135	140	Ucs		Lakeville					<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.03
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.05		<0.05		<0.05		<0.05	<0.05		<0.03
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.05		<0.05		<0.05		<0.05	<0.05		<0.03
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.05	<0.05		<0.05		<0.05	<0.05		<0.03
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.05		<0.05	<0.05			<0.05	<0.05	<0.05	<0.03
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.05		<0.05		<0.05		<0.05	<0.05		<0.03
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.05	<0.05	<0.05			<0.05	<0.05		<0.03
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.05	<0.05			<0.05	<0.05	<0.05	<0.03
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05		

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.05	<0.05	<0.05						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.05	<0.05	<0.05	<0.05		<0.05			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05		<0.03
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05	<0.05	<0.05	<0.03
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.05	<0.05	<0.05					
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.05		<0.05			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.05		<0.05	<0.05	<0.03
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.05		<0.05	<0.05	<0.03
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.05	<0.05	<0.03
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp										<0.05	<0.05	<0.03
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<0.05	<0.03
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.05							
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.05							
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.05							<0.03
Muni-01	Deep	406	500	Cjdn		Eagan					<0.05							
Muni-02	Deep	258	356	Cjdn		Randolph					<0.05							<0.03
Muni-03	Deep	355	457	Cjdn		Empire					<0.05							
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.05							
Muni-05	Mid	132	424	OpCj		Farmington					<0.05							<0.03
Muni-06	Mid	248	302	Cjdn		Hampton					<0.05							
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.05							
Muni-08	Deep	340	410	Cjdn		Empire					<0.05							
Muni-09	Deep	580	680	Cjdn		New Trier					<0.05							
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.05							<0.03
Muni-11	Mid	240	342	OpCj		South St Paul					<0.05							
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.05							
Muni-13	Deep	392	477	Cjdn		Farmington					<0.05							
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.05							
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.05							
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.05							
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.05							<0.03
Muni-18	Deep	267	293	Ucs		Vermillion					<0.05							
Muni-19	Deep	425	616	OpCj		Lakeville					<0.05							
Muni-20	Deep	417	512	Cjdn		Farmington					<0.05							
Muni-21	Deep	384	500	Cjdn		Eagan					<0.05	<0.05						<0.03
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.05	<0.05						<0.03
Muni-23	Deep	256	305	Cjdn		Hampton					<0.05	<0.05						<0.03
Muni-24	Deep	312	400	Cjdn		Hastings					<0.05	<0.05						<0.03
Muni-25	Deep	277	356	Cjdn		Hastings					<0.05	<0.05						<0.03

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-05	Mid	187	192	Ucs	4	Marshan Twp				<0.02	<0.02	<0.02						
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.05	<0.05			<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-14	Deep	385	415	Cjdn	2	Hampton		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-18	Deep	265	280	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-31	Mid	135	140	Ucs		Lakeville					<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02			<0.02	<0.02	<0.02	<0.01
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights			<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-41	Deep	355	370	Cjdn	16	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.02	<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp		<0.05	<0.02		<0.02	<0.02			<0.02	<0.02	<0.02	<0.01
AGQS-50	Mid	173	181	Opdc		Greenvale Twp		<0.05	<0.02		<0.02		<0.02		<0.02	<0.02		<0.01
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.02	<0.02	<0.02			<0.02	<0.02		<0.01
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp					<0.02	<0.02			<0.02	<0.02	<0.02	<0.01
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2013	2019
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-60	Shallow	10	12	Ucs		Vermillion Twp				<0.02	<0.02	<0.02						
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-62	Mid	145	149	Ucs		Marshan Twp				<0.02	<0.02	<0.02	<0.02		<0.02			
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02		<0.01
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.05	<0.05	<0.02		<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.01
AGQS-68	Mid	158	163	Ucs		Apple Valley					<0.02	<0.02	<0.02					
AGQS-74	Shallow	22	25	Ucs		Vermillion Twp							<0.02		<0.02			
AGQS-75	Deep	336	360	Cjdn		Randolph Twp								<0.02		<0.02	<0.02	<0.01
AGQS-76	Shallow	74	100	Opdc		Randolph Twp								<0.02		<0.02	<0.02	<0.01
AGQS-77	Deep	267	285	Cjdn		Empire Twp										<0.02	<0.02	<0.01
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp									<0.02	<0.02	<0.02	<0.01
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp											<0.02	<0.01
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp					<0.02							
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp					<0.02							
AGQS-82	Mid	167	175	Ucs		Ravenna Twp					<0.02							<0.01
Muni-01	Deep	406	500	Cjdn		Eagan					<0.02							
Muni-02	Deep	258	356	Cjdn		Randolph					<0.02							<0.01
Muni-03	Deep	355	457	Cjdn		Empire					<0.02							
Muni-04	Deep	322	401	Cjdn		South St Paul					<0.02							
Muni-05	Mid	132	424	OpCj		Farmington					<0.02							<0.01
Muni-06	Mid	248	302	Cjdn		Hampton					<0.02							
Muni-07	Mid	218	298	Cjdn		Burnsville					<0.02							
Muni-08	Deep	340	410	Cjdn		Empire					<0.02							
Muni-09	Deep	580	680	Cjdn		New Trier					<0.02							
Muni-10	Deep	434	517	Cjdn		Lakeville					<0.02							<0.01
Muni-11	Mid	240	342	OpCj		South St Paul					<0.02							
Muni-12	Deep	388	471	Cjdn		Rosemount					<0.02							
Muni-13	Deep	392	477	Cjdn		Farmington					<0.02							
Muni-14	Deep	420	516	Cjdn		Apple Valley					<0.02							
Muni-15	Deep	345	400	Cjdn		Rosemount					<0.02							
Muni-16	Deep	345	400	Cjdn		Rosemount					<0.02							
Muni-17	Deep	389	498	Cjdn		Rosemount					<0.02							<0.01
Muni-18	Deep	267	293	Ucs		Vermillion					<0.02							
Muni-19	Deep	425	616	OpCj		Lakeville					<0.02							
Muni-20	Deep	417	512	Cjdn		Farmington					<0.02							
Muni-21	Deep	384	500	Cjdn		Eagan					0.04	<0.02						<0.01
Muni-22	Deep	435	542	Cjdn		Inver Grove Heights					<0.02	<0.02						<0.01
Muni-23	Deep	256	305	Cjdn		Hampton					<0.02	<0.02						<0.01
Muni-24	Deep	312	400	Cjdn		Hastings					<0.02	<0.02						<0.01
Muni-25	Deep	277	356	Cjdn		Hastings					<0.02	<0.02						<0.01
Muni-29	Deep	197	402	OpCj		Farmington												<0.01
Muni-30	Deep	408	501	Cjdn		Farmington												<0.01
Muni-31	Deep	386	485	Cjdn		Farmington												<0.01

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = N/A

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2011
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.2	<0.5	<0.1	<0.0056
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-03	Mid	176	181	Ucs		Ravenna Twp				<0.0056
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.2	<0.5		<0.0056
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	0.28	<0.5	<0.1	<0.0056
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.2	<0.5	<0.1	<0.0056
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.2	<0.5	<0.1	<0.0056
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.2	<0.5	<0.1	<0.0056
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.5	<0.1	<0.0056
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.2	<0.5	<0.1	<0.0056
AGQS-15	Mid	166	170	Ucs	5	Hastings				<0.0056
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.5	<0.1	<0.0056
AGQS-17	Deep	276	280	Ucs	15	Rosemount				<0.0056
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.2	<0.5	<0.1	<0.0056
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights				<0.0056
AGQS-20	Shallow	55	60	Ucs		Empire Twp				<0.0056
AGQS-21	Mid	133	137	Ucs		Burnsville				<0.0056
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.2	<0.5	<0.1	<0.0056
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights				<0.0056
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.5	<0.1	<0.0056
AGQS-26	Deep	342	360	Opdc		Lakeville				<0.0056
AGQS-27	Mid	176	180	Ucs	11	Rosemount				<0.0056
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.5	<0.1	<0.0056
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.5	<0.1	<0.0056
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-31	Mid	135	140	Ucs		Lakeville				<0.0056
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.2	<0.5	<0.1	<0.0056
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.2	<0.5	<0.1	<0.0056
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.2	<0.5	<0.1	<0.0056
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp				<0.0056
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.2	<0.5	<0.1	<0.0056

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2011
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.2	<0.5	<0.1	<0.0056
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.2	<0.5	<0.1	<0.0056
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	0.26	<0.5	<0.1	<0.0056
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.5	<0.1	<0.0056
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake				<0.0056
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp				<0.0056
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				<0.0056
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights				<0.0056
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp				<0.0056
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.5	<0.1	<0.0056
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.5	<0.1	<0.0056
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.5	<0.1	<0.0056
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.5	<0.1	<0.0056
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp				<0.0056
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp				<0.0056
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp				<0.0056
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp				<0.0056
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp				<0.0056
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp				<0.0056
AGQS-66	Shallow	75	80	Ucs	8	Coates				<0.0056
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.2	<0.5	<0.1	<0.0056
AGQS-75	Deep	336	360	Cjdn		Randolph Twp		<0.5	<0.1	
AGQS-76	Shallow	74	100	Opdc		Randolph Twp		<0.5	<0.1	
AGQS-77	Deep	267	285	Cjdn		Empire Twp		<0.5	<0.1	
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp				<0.0056
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp				<0.0056
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp				<0.0056
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp				<0.0056

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 40 ug/L (MDH HRL₁₈)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2011	2019
AGQS-01	Shallow	100	197	Opdc	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp				<0.05	<0.05	0.006	<0.075
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.4	<0.5	<0.05	<0.05	<0.05	<0.012	<0.075
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.4	<0.5	<0.1	<0.05		<0.012	<0.075
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake		<0.5	<0.1	<0.05	<0.05	<0.012	
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-15	Mid	166	170	Ucs	5	Hastings						<0.012	
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp		<0.5	<0.1	<0.05	<0.05	<0.012	
AGQS-17	Deep	276	280	Ucs	15	Rosemount						<0.012	<0.075
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights						<0.012	<0.075
AGQS-20	Shallow	55	60	Ucs	0	Empire Twp						<0.012	<0.075
AGQS-21	Mid	133	137	Ucs	0	Burnsville						<0.012	<0.075
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	
AGQS-23	Mid	175	180	Ucs	0	Inver Grove Heights						<0.012	<0.075
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-26	Deep	342	360	Opdc	0	Lakeville						<0.012	<0.075
AGQS-27	Mid	176	180	Ucs	11	Rosemount						<0.012	<0.075
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-31	Mid	135	140	Ucs	0	Lakeville						<0.012	<0.075
AGQS-32	Mid	179	218	Opdc	15	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp						<0.012	<0.075
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-46	Deep	445	480	Cjdn	15	Rosemount		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	1999	2000	2001	2002	2003	2011	2019
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake						<0.012	<0.075
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp						<0.012	<0.075
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp				<0.05	<0.05	0.002	<0.075
AGQS-50	Mid	173	181	Opdc	0	Greenville Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights						<0.012	<0.075
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp						<0.012	<0.075
AGQS-53	Deep	254	365	Opdc	11	Rosemount		<0.5	<0.1	<0.05	<0.05	<0.012	
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp		<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-58	Shallow	60	65	Ucs	0	Greenville Twp						<0.012	
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp						<0.012	<0.075
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp						0.004	<0.075
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp						0.003	<0.075
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp						<0.012	<0.075
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp						<0.012	<0.075
AGQS-66	Shallow	75	80	Ucs	8	Coates						<0.012	<0.075
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.4	<0.5	<0.1	<0.05	<0.05	<0.012	<0.075
AGQS-75	Deep	336	360	Cjdn	0	Randolph Twp		<0.5	<0.1				
AGQS-76	Shallow	74	100	Opdc	0	Randolph Twp		<0.5	<0.1				
AGQS-77	Deep	267	285	Cjdn	0	Empire Twp		<0.5	<0.1				
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp						<0.012	<0.075
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp						<0.012	<0.075
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp						<0.012	<0.075
AGQS-81	Shallow	75	80	Ucs	0	Vermillion Twp						<0.012	<0.075
AGQS-82	Mid	167	175	Ucs	0	Ravenna Twp							<0.075
Muni-03	Deep	355	457	Cjdn	0	Empire							<0.075
Muni-05	Mid	132	424	OpCj	0	Farmington							<0.075
Muni-08	Deep	340	410	Cjdn	0	Empire							<0.075
Muni-13	Deep	392	477	Cjdn	0	Farmington							<0.075
Muni-20	Deep	417	512	Cjdn	0	Farmington							<0.075
Muni-24	Deep	312	400	Cjdn	0	Hastings							<0.075
Muni-25	Deep	277	356	Cjdn	0	Hastings							<0.075
Muni-26	Mid	240	332	Cjdn	0	Hastings							<0.075
Muni-27	Mid	205	285	Cjdn	0	Hastings							<0.075
Muni-28	Mid	208	299	Cjdn	0	Hastings							<0.075

Shaded cells indicate result exceeds the laboratory reporting limit.

Drinking Water Guideline = 10 ug/L (MDH HRL₁₃)

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011 - 1 amide 4 hydroxy chlorthalonil	2011 - Chlorothalonil	2011 - Diamide chlorothalonil	2011 - Hydroxy chlorothalonil
AGQS-01	Shallow	100	197	Opdc	8	Coates	0.013	<0.010	<0.010	<0.010
AGQS-02	Shallow	55	66	Opdc	9	Empire Twp	<0.010	<0.010	<0.010	<0.010
AGQS-04	Mid	130	157	Opdc	7	Nininger Twp	<0.010	<0.010	<0.010	<0.010
AGQS-06	Deep	260	275	Cjdn	6	Marshan Twp	<0.010	<0.010	<0.010	<0.010
AGQS-07	Mid	188	223	Opdc	17	Eureka Twp	<0.010	<0.010	<0.010	<0.010
AGQS-08	Shallow	113	142	Opdc	17	Eureka Twp	<0.010	<0.010	<0.010	<0.010
AGQS-09	Mid	140	185	Opdc	16	Rosemount	<0.010	<0.010	<0.010	<0.010
AGQS-10	Mid	206	261	Opdc	13	Inver Grove Heights	<0.010	<0.010	<0.010	<0.010
AGQS-11	Deep	265	280	Cjdn	5	Hastings	<0.010	<0.010	<0.010	<0.010
AGQS-12	Mid	204	249	Opdc	6	Marshan Twp	<0.010	<0.010	<0.010	<0.010
AGQS-13	Mid	239	310	Opdc	12	Sunfish Lake	<0.010	<0.010	<0.010	<0.010
AGQS-14	Deep	385	415	Cjdn	2	Hampton	<0.010	<0.010	<0.010	<0.010
AGQS-15	Mid	166	170	Ucs	5	Hastings	0.38	<0.010	<0.010	<0.010
AGQS-16	Deep	343	378	Cjdn	3	Douglas Twp	<0.010	<0.010	<0.010	<0.010
AGQS-17	Deep	276	280	Ucs	15	Rosemount	<0.010	<0.010	<0.010	<0.010
AGQS-18	Deep	265	280	Opdc	11	Rosemount	<0.010	<0.010	<0.010	<0.010
AGQS-19	Deep	270	275	Ucs	13	Inver Grove Heights	<0.010	<0.010	<0.010	<0.010
AGQS-20	Shallow	55	60	Ucs		Empire Twp	<0.010	<0.010	<0.010	<0.010
AGQS-21	Mid	133	137	Ucs		Burnsville	<0.010	<0.010	<0.010	<0.010
AGQS-22	Deep	420	445	Cjdn	12	Sunfish Lake	<0.010	<0.010	<0.010	<0.010
AGQS-23	Mid	175	180	Ucs		Inver Grove Heights	<0.010	<0.010	<0.010	<0.010
AGQS-24	Mid	190	220	Opdc	10	Castle Rock Twp	<0.010	<0.010	<0.010	<0.010
AGQS-25	Deep	357	395	Cjdn	17	Eureka Twp	<0.010	<0.010	<0.010	<0.010
AGQS-26	Deep	342	360	Opdc		Lakeville	<0.010	<0.010	<0.010	<0.010
AGQS-27	Mid	176	180	Ucs	11	Rosemount	<0.010	<0.010	<0.010	<0.010
AGQS-28	Deep	285	300	Cjdn	9	Castle Rock Twp	<0.010	<0.010	<0.010	<0.010
AGQS-29	Shallow	105	140	Opdc	10	Castle Rock Twp	<0.010	<0.010	<0.010	<0.010
AGQS-30	Shallow	80	120	Opdc	18	Castle Rock Twp	0.03	<0.010	<0.010	<0.010
AGQS-31	Mid	135	140	Ucs		Lakeville	0.042	<0.010	<0.010	<0.010
AGQS-32	Mid	179	218	Opdc	15	Rosemount	0.27	<0.010	<0.010	<0.010
AGQS-33	Deep	260	280	Cjdn	8	Coates	<0.010	<0.010	<0.010	<0.010
AGQS-34	Shallow	105	137	Opdc	19	Sciota Twp	<0.010	<0.010	<0.010	<0.010
AGQS-35	Shallow	81	120	Opdc	1	Randolph Twp	<0.010	<0.010	<0.010	<0.010
AGQS-36	Deep	267	302	Opdc	14	Inver Grove Heights	<0.010	<0.010	<0.010	<0.010
AGQS-37	Shallow	60	64	Ucs	1	Randolph Twp	<0.010	<0.010	<0.010	<0.010
AGQS-38	Deep	310	340	Cjdn	18	Castle Rock Twp	<0.010	<0.010	<0.010	<0.010
AGQS-39	Deep	305	320	Cjdn	1	Randolph Twp	<0.010	<0.010	<0.010	<0.010
AGQS-40	Deep	300	320	Cjdn	20	Waterford Twp	<0.010	<0.010	<0.010	<0.010
AGQS-41	Deep	355	370	Cjdn	16	Rosemount	<0.010	<0.010	<0.010	<0.010
AGQS-42	Mid	204	240	Opdc	4	Marshan Twp	0.36	<0.010	<0.010	<0.010
AGQS-43	Deep	345	360	Cjdn	14	Inver Grove Heights	<0.010	<0.010	<0.010	<0.010
AGQS-44	Deep	315	360	Cjdn	4	Marshan Twp	<0.010	<0.010	<0.010	<0.010
AGQS-45	Deep	280	300	Cjdn	19	Sciota Twp	<0.010	<0.010	<0.010	<0.010
AGQS-46	Deep	445	480	Cjdn	15	Rosemount	<0.010	<0.010	<0.010	<0.010
AGQS-47	Mid	211	220	Ucs	12	Sunfish Lake	<0.010	<0.010	<0.010	<0.010
AGQS-48	Mid	155	160	Ucs	10	Castle Rock Twp	<0.010	<0.010	<0.010	<0.010
AGQS-49	Deep	294	320	Cjdn	7	Nininger Twp	<0.010	<0.010	<0.010	<0.010
AGQS-50	Mid	173	181	Opdc		Greenvale Twp	<0.010	<0.010	<0.010	<0.010
AGQS-51	Mid	230	240	Ucs	14	Inver Grove Heights	<0.010	<0.010	<0.010	<0.010
AGQS-52	Shallow	70	80	Ucs	17	Eureka Twp	0.052	<0.010	<0.010	<0.010
AGQS-53	Deep	254	365	Opdc	11	Rosemount	<0.010	<0.010	<0.010	<0.010

Alias	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Municipality	2011 - 1 amide 4 hydroxy chlorthalonil	2011 - Chlorothalonil	2011 - Diamide chlorothalonil	2011 - Hydroxy chlorothalonil
AGQS-54	Shallow	65	90	Opdc	9	Empire Twp	<0.010	<0.010	<0.010	<0.010
AGQS-55	Shallow	50	200	Opdc	5	Marshan Twp	<0.010	<0.010	<0.010	<0.010
AGQS-56	Mid	165	220	Opdc	2	Hampton Twp	<0.010	<0.010	<0.010	<0.010
AGQS-57	Shallow	12	136	Opdc	3	Douglas Twp	0.06	<0.010	<0.010	<0.010
AGQS-58	Shallow	60	65	Ucs		Greenvale Twp	<0.010	<0.010	<0.010	<0.010
AGQS-59	Shallow	50	55	Ucs	18	Castle Rock Twp	<0.010	<0.010	<0.010	<0.010
AGQS-61	Shallow	100	110	Ucs	2	Hampton Twp	<0.010	<0.010	<0.010	<0.010
AGQS-63	Shallow	100	105	Ucs	7	Nininger Twp	0.03	<0.010	<0.010	<0.010
AGQS-64	Shallow	15	18	Ucs	19	Sciota Twp	<0.010	<0.010	<0.010	<0.010
AGQS-65	Shallow	75	80	Ucs	19	Sciota Twp	<0.010	<0.010	<0.010	<0.010
AGQS-66	Shallow	75	80	Ucs	8	Coates	0.04	<0.010	<0.010	<0.010
AGQS-67	Shallow	55	60	Opdc	20	Waterford Twp	<0.010	<0.010	<0.010	<0.010
AGQS-78	Shallow	102	135	Opdc	21	Vermillion Twp	0.021	<0.010	<0.010	<0.010
AGQS-79	Mid	182	188	Ucs	4	Marshan Twp	0.01	<0.010	<0.010	<0.010
AGQS-80	Mid	245	260	Cjdn	21	Vermillion Twp	<0.010	<0.010	<0.010	<0.010
AGQS-81	Shallow	75	80	Ucs		Vermillion Twp	4.1	<0.010	<0.010	<0.010
Shaded cells indicate result exceeds the laboratory reporting limit.										

Drinking Water Guideline =

N/A

30 ug/L (MDH HRL₉₄)

N/A

N/A

ALIAS	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Year Introduced	1975	1987	2004	1985	2008	1985	1994	1973	1964	1997	2009	
						Use (Status)	H-corn & soybean	H-lawns, turf, pastures, & ROW	I-Neonic, flea & Tick	H-corn & soybean	H-aquatic use	H-pasture & certain turf, aquatic use	H-aquatic	I-neonic (Cancelled May 2020)	H-corn soybean & potatoes	H-pastures & ROW	H-lawns & turf	H-corn & soybean
						Municipality	Bentazon	Clopyralid	Dinotefuran	Flumetsulam	Imazamox	Imazapic	Imazapyr	Imidacloprid	Metribuzin-Diketo	Picloram	Sulfentrazone	Safufenacil
AGQS-01	Shallow	100	197	Opdc	8	COATES	0.046	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-02	Shallow	55	66	Opdc	9	EMPIRE TWP	0.02	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	0.11	<0.05	<0.015
AGQS-04	Mid	130	157	Opdc	7	NININGER TWP	0.05	<0.05	0.099	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-06	Deep	260	275	Cjdn	6	MARSHAN TWP	0.035	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-07	Mid	188	223	Opdc	17	EUREKA TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-08	Shallow	113	142	Opdc	17	EUREKA TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-09	Mid	140	185	Opdc	16	ROSEMOUNT	0.026	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-10	Mid	206	261	Opdc	13	INVER GROVE HEIGHTS	<0.005	0.067	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	4.00	<0.05	<0.015
AGQS-11	Deep	265	280	Cjdn	5	HASTINGS	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-12	Mid	204	249	Opdc	6	MARSHAN TWP	0.038	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-14	Deep	385	415	Cjdn	2	HAMPTON	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-17	Deep	276	280	Ucs	15	ROSEMOUNT	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-18	Deep	265	280	Opdc	11	ROSEMOUNT	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-19	Deep	270	275	Ucs	13	INVER GROVE HEIGHTS	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	2.3	<0.042	<0.05	<0.015
AGQS-20	Shallow	55	60	Ucs		EMPIRE TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	0.015	<0.005	<0.5	0.12	<0.05	<0.015
AGQS-21	Mid	133	137	Ucs		BURNSVILLE	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-23	Mid	175	180	Ucs		INVER GROVE HEIGHTS	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	0.02	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-24	Mid	190	220	Opdc	10	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-25	Deep	357	395	Cjdn	17	EUREKA TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-26	Deep	342	360	Opdc		LAKEVILLE	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-27	Mid	176	180	Ucs	11	ROSEMOUNT	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-28	Deep	285	300	Cjdn	9	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-29	Shallow	105	140	Opdc	10	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-30	Shallow	80	120	Opdc	18	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	0.055	<0.015
AGQS-31	Mid	135	140	Ucs		LAKEVILLE	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	0.25	<0.05	<0.015
AGQS-32	Mid	179	218	Opdc	15	ROSEMOUNT	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-33	Deep	260	280	Cjdn	8	COATES	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-34	Shallow	105	137	Opdc	19	SCIOTA TWP	0.012	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-35	Shallow	81	120	Opdc	1	RANDOLPH TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-36	Deep	267	302	Opdc	14	INVER GROVE HEIGHTS	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-37	Shallow	60	64	Ucs	1	RANDOLPH TWP	0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-38	Deep	310	340	Cjdn	18	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-39	Deep	305	320	Cjdn	1	RANDOLPH TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-40	Deep	300	320	Cjdn	20	WATERFORD TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-41	Deep	355	370	Cjdn	16	ROSEMOUNT	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-42	Mid	204	240	Opdc	4	MARSHAN TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-43	Deep	345	360	Cjdn	14	INVER GROVE HEIGHTS	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-44	Deep	315	360	Cjdn	4	MARSHAN TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-45	Deep	280	300	Cjdn	19	SCIOTA TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-46	Deep	445	480	Cjdn	15	ROSEMOUNT	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	2.1	<0.042	<0.05	<0.015
AGQS-47	Mid	211	220	Ucs	12	SUNFISH LAKE	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-48	Mid	155	160	Ucs	10	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-49	Deep	294	320	Cjdn	7	NININGER TWP	0.0094	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-50	Mid	173	181	Opdc		GREENVALE TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-51	Mid	230	240	Ucs	14	INVER GROVE HEIGHTS	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-52	Shallow	70	80	Ucs	17	EUREKA TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-54	Shallow	65	90	Opdc	9	EMPIRE TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-55	Shallow	50	200	Opdc	5	MARSHAN TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-56	Mid	165	220	Opdc	2	HAMPTON TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-57	Shallow	12	136	Opdc	3	DOUGLAS TWP	0.0071	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-59	Shallow	50	55	Ucs	18	CASTLE ROCK TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-61	Shallow	100	110	Ucs	2	HAMPTON TWP	0.0098	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	0.68	<0.05	<0.015
AGQS-63	Shallow	100	105	Ucs	7	NININGER TWP	0.0088	<0.05	<0.025	<0.05	0.046	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-64	Shallow	15	18	Ucs	19	SCIOTA TWP	<0.005	<0.05	<0.025	0.056	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	0.077	0.019
AGQS-65	Shallow	75	80	Ucs	19	SCIOTA TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-66	Shallow	75	80	Ucs	8	COATES	<0.005	<0.05	<0.025	<0.05	<0.013	0.023	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-67	Shallow	55	60	Opdc	20	WATERFORD TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-78	Shallow	102	135	Opdc	21	VERMILLION TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-79	Mid	182	188	Ucs	4	MARSHAN TWP	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
AGQS-80	Mid	245	260	Cjdn	21	VERMILLION TWP</												

ALIAS	Casing Category	Casing Depth	Total Depth	Aquifer	Cluster	Year Introduced	1975	1987	2004	1985	2008	1985	1994	1973	1964	1997	2009	
						Use (Status)	H-corn & soybean	H-lawns, turf, pastures, & ROW	I-Neonic, flea & Tick	H- corn & soybean	H-aquatic use	H-pasture & certain turf, aguatic use	H-aquatic	I-neonic (Cancelled May 2020)	H-corn soybean & potatoes	H-pastures & ROW	H-lawns & turf	H corn & soybean
						Municipality	Bentazon	Clopyralid	Dinotefuran	Flumetsulam	Imazamox	Imazapic	Imazapyr	Imidacloprid	Metribuzin-Diketo	Picloram	Sulfentrazone	Saflufenacil
Muni-13	Deep	392	477	Cjdn		Farmington	<0.0050	<0.050	<0.025	<0.050	<0.013	<0.010	<0.0083	<0.0050	<0.50	<0.042	<0.05	<0.015
Muni-20	Deep	417	512	Cjdn		Farmington	<0.0050	<0.050	<0.025	<0.050	<0.013	<0.010	<0.0083	<0.0050	<0.50	<0.042	<0.05	<0.015
Muni-24	Deep	312	400	Cjdn		Hastings	0.0077	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
Muni-25	Deep	277	356	Cjdn		Hastings	<0.005	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
Muni-26	Mid	240	332	Cjdn		Hastings	0.0098	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	0.012	<0.5	<0.042	<0.05	<0.015
Muni-27	Mid	205	285	Cjdn		Hastings	0.012	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
Muni-28	Mid	208	299	Cjdn		Hastings	0.0085	<0.05	<0.025	<0.05	<0.013	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
Muni-29	Deep	197	402	OpCj		Farmington	<0.005	<0.0416	<0.025	<0.05	<0.0133	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
Muni-30	Deep	408	501	Cjdn		Farmington	<0.005	<0.0416	<0.025	<0.05	<0.0133	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015
Muni-31	Deep	386	485	Cjdn		Farmington	<0.005	<0.0416	<0.025	<0.05	<0.0133	<0.01	<0.0083	<0.005	<0.5	<0.042	<0.05	<0.015

Shaded cells indicate result exceeds the laboratory reporting limit.

H = Herbicide

I = Insecticided

Drinking Water Guideline = 30 ug/L (MDH HRL₁₅) N/A N/A N/A N/A N/A N/A N/A ug/L (MDH HBV) 10 ug/L (MDH RAA₁₂) 500 ug/L (MDH HRL₉₃) N/A N/A

Number of Detections per Pesticide from 1999 - 2019			
Pesticide Name	No. of Wells with Detection	No. of Wells Sampled	% Detected
Alachlor ESA	54	74	73%
Metolachlor ESA	49	74	66%
Deethylcyanazine acid (DCAC)	45	74	61%
Metolachlor OXA	43	74	58%
Alachlor ESA - 2nd amide	42	74	57%
Didealkylatrazine (DDA)	42	74	57%
Acetochlor/ Metolachlor ESA- 2nd amide	36	74	49%
Deethylatrazine (DEA)	37	77	48%
Acetochlor ESA	35	74	47%
Alachlor OXA	35	74	47%
Atrazine	36	77	47%
Cyanazine amide (CAM)	28	74	38%
Deisopropylhydroxyatrazine (DIHA)	26	74	35%
Cyanazine-acid (CAC)	25	74	34%
Deisopropylatrazine (DIA)	25	77	32%
Deethylhydroxyatrazine (DEHA)	21	74	28%
Acetochlor OXA	16	74	22%
Bentazon	12	61	20%
simazine	15	77	19%
1 amide 4 hydroxy chlorthalonil	13	67	19%
Dimethenamid ESA	12	74	16%
Metolachlor	12	77	16%
Hydroxyatrazine (HA)	10	74	14%
Acetochlor/ Metolachlor - 2nd amide	8	74	11%
Dimethenamid OXA	6	74	8%
Alachlor	6	77	8%
Deethylcranazine amide (DCAM)	5	74	7%
Picloram	5	62	8%
Metribuzin	4	70	6%
Metribuzin-Diketo	2	62	3%
Sulfentrazone	2	62	3%
Imazapyr	2	62	3%
Clopyralid	1	62	2%
Flumetsulam	1	62	2%
Dinotefuran	1	62	2%
Imazamox	1	62	2%
Imazapic	1	62	2%
Imidacloprid	1	62	2%
Saflufenacil	1	62	2%
Ethyl dipropylthiocarbamate (EPTC)	2	70	3%

Number of Pesticide Detections per Well from 1999 - 2019	
Alias	No. of Pesticides Detected
AGQS-01	18
AGQS-02	15
AGQS-03	10
AGQS-04	22
AGQS-05	17
AGQS-06	23
AGQS-07	3
AGQS-08	6
AGQS-09	13
AGQS-10	2
AGQS-11	0
AGQS-12	23
AGQS-13	0
AGQS-14	5
AGQS-15	15
AGQS-16	16
AGQS-17	13
AGQS-18	0
AGQS-19	0
AGQS-20	6
AGQS-21	0
AGQS-22	0
AGQS-23	23
AGQS-24	9
AGQS-25	9
AGQS-26	4
AGQS-27	6
AGQS-28	0
AGQS-29	12
AGQS-30	23
AGQS-31	5
AGQS-32	15
AGQS-33	13
AGQS-34	12
AGQS-35	7
AGQS-36	0
AGQS-37	11
AGQS-38	11
AGQS-39	0
AGQS-40	0

Pesticide Name	No. of Wells with Detection	No. of Wells Sampled	% Detected
bromacil	2	74	3%
Acetochlor	2	77	3%
Propazine	2	77	3%
Alachlor SAA	1	74	1%
Alachlor-2nd amide	1	74	1%
Dechloroacetochlor	1	74	1%
Dechloroalachlor	1	74	1%
Dechlorometolachlor	1	74	1%
Hydroxyalachlor	1	74	1%
Hydroxydimethenamid	1	74	1%
hydroxysimazine	1	74	1%
Deethylcyanazine (DEC)	0	74	0%
Acetochlor SAA	0	74	0%
Chlorothalonil	0	67	0%
Cyanazine	0	77	0%
Dechlorodimethenamid	0	74	0%
Diamide chlorothalonil	0	67	0%
Dimethenamid	0	77	0%
Diuron	0	74	0%
Demethylfluometuron (DMFM)	0	74	0%
Flufenacet	0	74	0%
Flufenacet ESA	0	74	0%
Flufenacet OXA	0	74	0%
Fluometuron	0	74	0%
Hydroxy chlorothalonil	0	67	0%
Hydroxyacetochlor	0	74	0%
Hydroxymetolachlor	0	74	0%
Linuron	0	74	0%
Prometon	0	77	0%
Propachlor	0	77	0%
Propachlor ESA	0	74	0%
Propachlor OXA	0	74	0%

Alias	No. of Pesticides Detected
AGQS-41	0
AGQS-42	17
AGQS-43	0
AGQS-44	3
AGQS-45	0
AGQS-46	9
AGQS-47	0
AGQS-48	4
AGQS-49	13
AGQS-50	0
AGQS-51	0
AGQS-52	14
AGQS-53	3
AGQS-54	19
AGQS-55	18
AGQS-56	11
AGQS-57	22
AGQS-58	0
AGQS-59	18
AGQS-60	10
AGQS-61	25
AGQS-62	18
AGQS-63	23
AGQS-64	21
AGQS-65	9
AGQS-66	16
AGQS-67	11
AGQS-68	0
AGQS-74	11
AGQS-75	0
AGQS-76	0
AGQS-77	0
AGQS-78	10
AGQS-79	19
AGQS-80	3
AGQS-81	12
AGQS-82	13

Well data censored for frequency analysis. Well had only one or two pesticide detections at or near the MDL.

Cluster	Alias	Herbicide Breakdown Product	Well Casing Category	Trend	P value (Kendall)
1	AGQS-37	DCAC	Shallow	Down	0.025
2	AGQS-56	Alachlor ESA	Mid	Down	0.049
2	AGQS-56	DCAC	Mid	Up	0.095
2	AGQS-61	Metolachlor ESA	Shallow	Down	0.025
2	AGQS-61	Metolachlor OXA	Shallow	Down	0.108
4	AGQS-42	Alachlor ESA	Mid	Down	0.049
5	AGQS-15	Alachlor ESA	Mid	Up	0.035
5	AGQS-55	Alachlor ESA	Shallow	Down	0.000
5	AGQS-55	Metolachlor ESA	Shallow	Down	0.088
5	AGQS-55	Metolachlor OXA	Shallow	Down	0.025
6	AGQS-06	Alachlor ESA	Deep	Down	0.000
6	AGQS-06	Metolachlor OXA	Deep	Down	0.012
6	AGQS-12	Alachlor ESA	Mid	Down	0.004
6	AGQS-12	Metolachlor ESA	Mid	Down	0.032
6	AGQS-12	Metolachlor OXA	Mid	Down	0.004
7	AGQS-04	Alachlor ESA	Mid	Down	0.035
7	AGQS-04	Metolachlor OXA	Mid	Down	0.046
7	AGQS-49	DCAC	Deep	Up	0.016
7	AGQS-63	Alachlor ESA	Shallow	Down	0.035
7	AGQS-63	Metolachlor ESA	Shallow	Down	0.009
7	AGQS-63	Metolachlor OXA	Shallow	Down	0.025
8	AGQS-01	Alachlor ESA	Shallow	Down	0.005
8	AGQS-01	Metolachlor ESA	Shallow	Up	0.024
8	AGQS-01	Metolachlor OXA	Shallow	Up	0.073
8	AGQS-33	DCAC	Deep	Up	0.025
8	AGQS-33	Metolachlor ESA	Deep	Up	0.071
8	AGQS-66	Alachlor ESA	Shallow	Down	0.004
9	AGQS-54	Alachlor ESA	Shallow	Down	0.001
10	AGQS-24	Metolachlor ESA	Mid	Up	0.035
10	AGQS-24	Metolachlor OXA	Mid	Up	0.081
10	AGQS-29	DCAC	Shallow	Up	0.019
15	AGQS-17	DCAC	Deep	Up	0.075

Cluster	Alias	Herbicide Breakdown Product	Well Casing Category	Trend	P value (Kendall)
15	AGQS-32	Alachlor ESA	Mid	Down	0.005
17	AGQS-08	Alachlor ESA	Shallow	Down	0.009
17	AGQS-25	Alachlor ESA	Deep	Down	0.001
18	AGQS-30	Alachlor ESA	Shallow	Down	0.001
18	AGQS-30	Metolachlor ESA	Shallow	Up	0.032
18	AGQS-38	Alachlor ESA	Deep	Up	0.012
18	AGQS-59	Alachlor ESA	Shallow	Down	0.035
20	AGQS-67	Alachlor ESA	Shallow	Down	0.001
21	AGQS-78	DCAC	Shallow	Up	0.027
	AGQS-20	Alachlor ESA	Shallow	Peaked	0.046
	AGQS-23	Alachlor ESA	Mid	Down	0.063
	AGQS-23	DCAC	Mid	Down	0.004
	AGQS-23	Metolachlor OXA	Mid	Down	0.019
	AGQS-62	Alachlor ESA	Mid	Down	0.027
	AGQS-62	DCAC	Mid	Down	0.043
	AGQS-62	Metolachlor ESA	Mid	Down	0.086
	AGQS-62	Metolachlor OXA	Mid	Down	0.043

Appendix D

Statistical Analysis Tables –
Analysis by Aquifer, Casing Depth, Grout, and Clusters

Table D.1. Median Statistical Significant of Differences for General Chemical Parameters by Well Casing Depth and Total Well Depth (Kendall)

Parameter	Well Casing Depth p-value	Direction with Well Casing Depth	Total Well Depth p-value
alkalinity	0.44	none	0.55
arsenic	0.18	none	0.26
calcium	0.001	decreasing	0.001
calcium : magnesium	0.003	decreasing	0.002
chloride	0.000001	decreasing	0.0000006
dissolved oxygen	0.02	decreasing	0.12
Eh	0.01	decreasing	0.03
fluoride	0.05	increasing	0.053
iron	0.003	increasing	0.004
magnesium	0.18	none	0.13
manganese	0.11	increasing	0.10
nitrate	0.01	decreasing	0.0007
pH	0.01	increasing	0.005
potassium	0.24	none	0.76
silica	0.04	decreasing	0.052
sodium	0.00001	decreasing	0.000004
specific conductance	0.00004	increasing	0.0001
sulfate	0.05	decreasing	0.004
temperature in Celsius	0.91	none	0.93
total dissolved solids	0.00001	increasing	0.0004
total hardness	0.001	decreasing	0.0018
total Kjeldahl nitrogen	0.002	decreasing	0.001
total milliequivalents	0.00001	increasing	0.005
total organic carbon	0.27	none	0.23

Blue shaded cells and red text indicate 95% or higher statistical significance

Blue shaded cells and black text indicates 90% to 95% statistical significance

No shading indicates no statistical significance

Table D.2. Median Statistical Significant of Differences for General Chemical Parameters by Aquifer (Mann-Whitney)

Parameter	Median level by Aquifer			p-value for Aquifer differences			Median differences where significant**		
	Cjdn	Opdc	Ucs	Opdc vs Cjdn	Opdc vs Ucs	Ucs vs Cjdn	Opdc vs Cjdn	Opdc vs Ucs	Ucs vs Cjdn
alkalinity	245	251	253	0.45	0.84	0.27			
arsenic	1.27	1.25	0.50	0.698	0.004	0.001		0.75	0.75
calcium	66.6	73.9	80.6	0.005	0.44	0.001	7		14
calcium : magnesium	1.56	1.64	1.69	0.11	0.96	0.18			
chloride	3.0	12.8	15.4	0.000	0.44	0.000	9.80		12.4
dissolved oxygen	2.9	4.9	5.8	0.020	0.59	0.002	1.80		2.70
Eh	-48	-34	-45	0.33	0.42	0.88			
fluoride	0.14	0.12	0.13	0.59	0.89	0.64			
iron	1.11	0.27	0.16	0.22	0.62	0.22			
magnesium	25.8	27.6	29.1	0.11	0.13	0.004			3.3
manganese	0.400	0.013	0.020	0.34	0.37	0.96			
nitrate	0.2	3.8	3.0	0.01*	0.46	0.01*	3.60		2.8
pH	7.57	7.47	7.48	0.04	0.85	0.01	-0.10		-0.09
potassium	1.46	1.58	1.57	0.32	0.93	0.35			
silica	8.2	10.0	11.9	0.01	0.24	0.003	1.80		3.7
sodium	3.0	5.8	5.1	0.000	0.87	0.000	2.76		2.10
specific conductance	518	581	602	0.001	0.84	0.005	63		84
sulfate	21.9	27.6	30.1	0.26	0.37	0.08			8.2
temperature in Celsius	11.06	11.23	11.5	0.23	0.18	0.069			-0.27
total dissolved solids	282	329	367	0.001	0.34	0.000	47		85
total hardness	278	300	330	0.010	0.15	0.001	22		52
total Kjeldahl nitrogen	0.000	0.250	0.290	0.06	0.23	0.02	0.25		0.29
total milliequivalents	11.7	12.9	13.8	0.002	0.4	0.001	1.19		2.1
total organic carbon	1.80	2.00	2.25	0.10	0.37	0.01	0.40		0.5

Blue shaded cells and red text indicate 95% or higher statistical significance

Blue shaded cells and black text indicates 90% to 95% statistical significance

No shading indicates no statistical significance

* NO3 has a large fraction of ND, Quantile test replace Mann Whitney for better resolution

**The median differences listed are point estimates of the median difference which is not the same as the direct arithmetic differences, but often is close.

Table D.3. Median Statistical Significant of Differences for General Chemical Parameters by Casing Depth (Mann-Whitney)

Parameter	Median level by Casing Depth			p-value for Casing Depth Differences			Differences between Medians (mg/L) where Significant**		
	Deep >250 ft	Mid 125 -250 ft	Shallow < 125 ft	Mid vs Deep	Shallow vs Deep	Mid vs Shallow	Deep vs Mid	Deep vs Shallow	Mid vs Shallow
alkalinity	264	253	241	0.78	0.41	0.57			
arsenic	1.28	0.53	1.10	0.136	0.008	0.98		0.720	
calcium	68.4	75.3	80.0	0.03	0.005	0.43	-8.2	-12.4	
calcium : magnesium	1.55	1.64	1.74	0.10	0.001	0.27		-0.17	
chloride	3.0	13.0	18.0	0.001	0.000	0.099	-9.1	-14.6	-4.9
dissolved oxygen	3.8	6.8	5.4	0.003	0.13	0.26	2.6		
Eh	-50	-48	-25	0.78	0.03	0.032		-16.15	-16.5
fluoride	0.14	0.12	0.13	0.35	0.03	0.34		0.023	
iron	1.35	0.22	0.11	0.25	0.036	0.17		0.49	
magnesium	27.6	29.1	27.6	0.10	0.42	0.41	-2.30		
manganese	0.044	0.017	0.023	0.11	0.19	0.74			0.01
nitrate	0.2	2.5	5.8	0.01*	0.005	0.01*	-5.6	-3.9	-2.3
pH	7.54	7.48	7.42	0.15	0.007	0.25		0.11	
potassium	1.60	1.57	1.54	0.77	0.74	0.63			
silica	9.0	10.0	11.4	0.11	0.07	0.69		-1.7	
sodium	3.1	4.3	7.5	0.012	0.000	0.015	-1.1	-4.2	-2.70
specific conductance	519	537	609	0.081	0.002	0.099	-54	-111	-61
sulfate	20.7	27.8	30.1	0.10	0.006	0.20		-7.1	
temperature in Celsius	11.2	11.3	11.1	0.44	0.96	0.5			
total dissolved solids	298	327	358	0.009	0.004	0.210	-42	-70	
total hardness	286	301	324	0.026	0.007	0.62	-29	-41	
total Kjeldahl nitrogen	0.000	0.250	0.400	0.097	0.02	0.33	0.00	-0.25	
total milliequivalents	11.7	12.9	13.8	0.055	0.001	0.34	-0.59	-0.96	
total organic carbon	1.17	1.00	0.90	0.14	0.37	0.98			

Blue shaded cells and red text indicate 95% or higher statistical significance

Blue shaded cells and black text indicates 90% to 95% statistical significance

No shading indicates no statistical significance

* NO3 has a large fraction of ND, Quantile test replace Mann Whitney for better resolution

**The median differences listed are point estimates of the median difference which is not the same as the direct arithmetic differences, but often is close.

Table D.4. Differences for Nitrate by Aquifer in Well Clusters

Cluster #	AGQS Wells	Estimated median difference in Nitrate (mg/L) and Statistical Significance p-values (Wilcoxon)																	
		Ucs vs. Ucs (2)		Ucs vs. Opdc		Ucs vs. Opdc(2)		Ucs vs. Cjdn		Ucs (2) vs. Opdc		Ucs (2) vs. Cjdn		Opdc (1) vs. Opdc (2)		Opdc (2) vs. Cjdn		Opdc vs. Cjdn	
		mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value
1	35, 36, & 39			ND	NS			ND	NS									ND	NS
2	14, 56 & 61			-9.6	0.006			0.1	0.11									9.2	0.002
3	16 & 57																	14.6	0.001
4	05, 42, 44, & 79	6.3	0.371	14.8	0.036			10.2	0.66	6.2	0.036	17.9	0.059					9.5	0.001
5	11, 15 & 55			-3.5	0.022			6.1	0.022									9.9	0.001
6	06 & 12																	9.1	0.001
7	04, 49 & 55			-4.6	0.006			12.7	0.006									17.2	0.003
8	01, 33 & 66			1.6	0.053			2.9	0.014									1.6	0.001
9	02, 28 & 54													-6.6	0.001	-4.4	0.017	4.7	0.001
10	24, 29 & 48			ND	NS			ND	NS									ND	NS
11	18, 27, & 53			ND	NS			ND	NS									ND	NS
12	13, 22 & 47			ND	NS			ND	NS									ND	NS
13	10 & 19			ND	NS														
14	36, 43 & 51			ND	NS			ND	NS									ND	NS
15	17, 32 & 46			-3.3	0.006			4.8	0.006									7.7	0.001
16	09 & 41																	12.0	0.001
17	07, 08, 25 & 52			ND	NS	-2.9	0.006	-3.0	0.006					-2.70	0.001	-0.81	0.117	-3.5	0.001
18	30, 38 & 59			-3.2	0.009			8.0	0.006									10.5	0.001
19	34, 45, 64 & 65	2.9	0.004	2.9	0.004			3.4	0.009	ND	NS	ND	NS					ND	NS
20	40 & 67																	6.7	0.001
21	78 & 80																	17.6	0.1
Negative median with significance		0		5		1		1		0		0		2		2		1	
Positive median with significance		1		3		0		6		1		1		0		0		13	
No significant difference NS or >90% (0.10)		1		7		0		7		1		1		0		0		6	
Total		2		15		1		14		2		2		2		2		20	

The median differences listed are point estimates of the median difference which is not the same as the direct arithmetic differences, but oft A negative number means that the first aquifer listed has a lower nitrate level than its comparison.

Findings:

The Ucs vs Opdc wells are all statistically significantly different (>95% or pval <0.05) in all 18 clusters where nitrate is not ND.

In the 10 clusters that are different the Opdc well has higher nitrate (negative number) in 6 cluster pairs and the nitrate is higher Ucs (positive number) in 4 cluster pairs.

The Ucs vs Cjdn wells are statistically significantly different (>95% or pval <0.05) in 8 of the 10 clusters where nitrate is not ND.

In the 8 clusters that are different, the estimated difference in medians is positive/higher nitrate in the Ucs in 7 clusters.

The Opdc vs Cjdn wells are statistically different (>90% or pval <0.1) in 15 of the 16 clusters where nitrate is not ND.

In the 15 clusters that are different, the estimated difference in medians is positive/higher nitrate in the Opdc in 13 clusters.

There are two clusters with two Opdc wells; both are statistically different (>95% or pval <0.05).

There are two clusters with two Ucs wells; one is statistically significant (>95% or pval <0.05) and one is not (<90% or pval >0.10).

In general the statistical pattern is the Opdc>Ucs, Opdc>Cjdn and Ucs>Cjdn.

90 to 95% statistical significance in red text in grey shaded cell

>95% statistical significance in red text

NS = <90% - not significant in cell shaded gray

ND = non-detect or <0.2 mg/L the MRL

Table D.5. Differences for Chloride by Aquifer in Well Clusters

Estimated median difference in Chloride (mg/L) and Statistical Significance p-values (Wilcoxon)																			
Cluster #	AGQS Wells	Ucs vs. Ucs (2)		Ucs vs. Opdc		Ucs vs. Opdc(2)		Ucs vs. Cjdn		Ucs (2) vs. Opdc		Ucs (2) vs. Cjdn		Opdc (1) vs. Opdc (2)		Opdc (2) vs. Cjdn		Opdc vs. Cjdn	
		mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value	mg/L	p-value
1	35, 36, & 39			4.7	0.006			8.1	0.006									2.3	0.003
2	14, 56 & 61			-6.5	0.019			4.0	0.009									10.2	0.002
3	16 & 57																	17	0.001
4	05, 42, 44, & 79	-3.7	NS	3.2	0.036			14.7	0.059	7.4	0.059	14.5	0.1					7.4	0.059
5	11, 15 & 55			-11.7	0.022			4.6	0.022									17.6	0.001
6	06 & 12																	2.6	0.001
7	04, 49 & 55			-19.6	0.006			10.8	0.006									29.3	0.003
8	01, 33 & 66			128.2	0.000			189.1	0.000									60.3	0.000
9	02, 28 & 54													-65.1	0.001	73.4	0.002	8.75	0.001
10	24, 29 & 48			-1.3	0.036			0	0.37									0.2	0.059
11	18, 27, & 53			9.0	0.006			3.9	0.022									-0.8	0.014
12	13, 22 & 47			1.6	0.1			7	0.014									5.1	0.004
13	10 & 19			-124.6	0.006														
14	36, 43 & 51			-6.6	0.006			-0.9	0.022									4.45	0.001
15	17, 32 & 46			16.5	0.006			29.5	0.006									11.1	0.001
16	09 & 41																	12	0.001
17	07, 08, 25 & 52			-8.4	0.006	1.56	0.1	-4.9	0.006					8.7	0.001	-6.54	0.001	2.5	0.024
18	30, 38 & 59			11.0	0.006			23.9	0.006									13.7	0.001
19	34, 45, 64 & 65	-17.35	0.006	-8.4	NS			0.6	0.272	1.6	0.006	17.6	0.009					0.1	0.263
20	40 & 67																	62.8	0.001
21	78 & 80																	23.5	0.1
Negative median with significance		2		7		0		2		0		0		1		1		1	
Positive median with significance		0		7		1		10		1		2		1		1		17	
No significant difference NS or >90% (0.10)		0		1		0		2		0		0		0		0		2	
Total		2		15		1		14		1		2		2		2		20	

The median differences listed are point estimates of the median difference which is not the same as the direct arithmetic differences, but often is close.

A negative number means that the first aquifer listed has a lower nitrate level than its comparison

Findings:

The Ucs vs Opdc wells are all significantly different (>90% or pval <0.10) in 16 of the 17 clustered pairs

In the 16 clusters that are statistically different, the estimated difference in medians is positive/higher chloride in 9 Ucs wells and 7 Opdc wells clustered pairs

The Ucs vs Cjdn wells are statistically different (> 90% or pval<0.10) 14 of the 16 clusters; 12 have a positive/higher chloride in the Ucs wells

The Opdc vs Cjdn wells are statistically different (>90% or pval<0.10) in 20 of the 22 clustered pairs

In the 20 clusters that are statistically different, the estimated difference in medians is positive/higher chloride in the Opdc in 18 clustered pairs

There are two clusters with two Opdc wells; both are statistically different (> 95% or <0.05).

There are two clusters with two Ucs wells; one is significantly different, and one is not.

In general, the statistical pattern is the Ucs>Opdc, Opdc>Cjdn and Ucs>Cjdn.

90 to 95% statistical significance in red text in grey shaded cell

>95% statistical significance in red text

NS = <90% - not significant in cell shaded gray

ND = non-detect or <0.2 mg/L the MRL

Table D.6. Differences for Nitrate and Chloride by Grout in Well Clusters

Cluster	Alias	Well Casing Category	Grout	Casing Depth (ft)	Total Depth (ft)	Aquifer	Median Nitrate (mg/L)	Pattern of well with highest median nitrate in a cluster	Median Chloride (mg/L)	Pattern of well with highest median chloride in a cluster	Nitrate & Chloride Same or Different Pattern	Shallow UngROUTED well lower?	Neat Cement well lower?	Is the deeper well neat cement grouted?
1	AGQS-35	Shallow	Bentonite	81	120	Opdc	<0.25		3.9		Same		Yes	Yes
	AGQS-37	Shallow	Bentonite	60	64	Ucs	<0.25		8.7	shallow grouted>shallow grouted>deep grouted				
	AGQS-39	Deep	neat cement	305	320	Cjdn	<0.25		<3.0					
2	AGQS-14	Deep	neat cement	385	415	Cjdn	<0.2		<3.0		Same	No	Yes	Yes
	AGQS-56	Mid	none	165	220	Opdc	9.55	mid ungrouted > shallow ungrouted > deep grouted	12.8	mid ungrouted > shallow ungrouted > deep grouted				
	AGQS-61	Shallow	none	100	110	Ucs	0.30		6.4					
3	AGQS-16	Deep	neat cement	343	378	Cjdn	0.85		3.5		Same	Yes	Yes	Yes
	AGQS-57	Shallow	none	12	136	Opdc	16.70	shallow ungrouted > deep grouted	19.3	shallow ungrouted > deep grouted				
4	AGQS-05	Mid	none	187	192	Ucs	26.05	mid ungrouted > mid grouted >mid grouted > deep grouted	17.8	mid ungrouted > mid grouted >mid grouted > deep grouted	Same		Yes	Yes
	AGQS-42	Mid	Bentonite	204	240	Opdc	9.90		10.9					
	AGQS-44	Deep	neat cement	315	360	Cjdn	<0.25		<3.0					
	AGQS-79	Mid	none	182	188	Ucs	18.35		15.4					
5	AGQS-11	Deep	neat cement	265	280	Cjdn	4.27		<3.0		Same	Yes	Yes	
	AGQS-15	Mid	Bentonite	166	170	Ucs	10.40		6.1					
	AGQS-55	Shallow	none	50	200	Opdc	14.35	shallow ungrouted > mid grouted > deep grouted	18.1	shallow ungrouted > mid grouted > deep grouted				
6	AGQS-06	Deep	neat cement	260	275	Cjdn	5.59		11.7		Same			
	AGQS-12	Mid	neat cement	204	249	Opdc	15.20	mid grouted > deep grouted	14.6	mid grouted > deep grouted				
7	AGQS-04	Mid	none	130	157	Opdc	23.15	mid ungrouted > shallow ungrouted > deep grouted	35.5	mid ungrouted > shallow ungrouted > deep grouted	Same	No	Yes	Yes
	AGQS-49	Deep	neat cement	294	320	Cjdn	5.64		6.5					
	AGQS-63	Shallow	none	100	105	Ucs	19.00		19.0					
8	AGQS-01	Shallow	Bentonite	100	197	Opdc	9.70		53.4		Same	Yes	Yes	Yes
	AGQS-33	Deep	neat cement	260	280	Cjdn	8.32		15.0					
	AGQS-66	Shallow	none	75	80	Ucs	12.05	shallow ungrouted > shallow grouted > deep grouted	199.9	shallow ungrouted > shallow grouted > deep grouted				
9	AGQS-02	Shallow	none	55	66	Opdc	4.57		78.6	shallow ungrouted > shallow ungrouted > deep grouted	Different	Yes*		Yes
	AGQS-28	Deep	neat cement	285	300	Cjdn	<0.25		<3.0					
	AGQS-54	Shallow	none	65	90	Opdc	11.80	shallow ungrouted > shallow ungrouted > deep grouted	10.9					
10	AGQS-24	Mid	Bentonite	190	220	Opdc	<0.2		<3.0		Different			
	AGQS-29	Shallow	Bentonite	105	140	Opdc	<0.25		2.8	shallow grouted > mid grouted				
	AGQS-48	Mid	Bentonite	155	160	Ucs	<0.25		<3.0					
11	AGQS-18	Deep	Bentonite	265	280	Opdc	<0.25		<3.0		Different			
	AGQS-27	Mid	Bentonite	176	180	Ucs	<0.2		10.9	mid grouted > deep ungrouted > deep grouted				
	AGQS-53	Deep	none	254	365	Opdc	<0.2		3.5					
12	AGQS-13	Mid	none	239	310	Opdc	<0.2		12.3		Different		No	No
	AGQS-22	Deep	none	420	445	Cjdn	<0.25		7.1					
	AGQS-47	Mid	neat cement	211	220	Ucs	<0.25		18.4	mid grouted > mid ungrouted > deep ungrouted				
13	AGQS-10	Mid	Bentonite	206	261	Opdc	<0.25		121.0	mid grouted > deep ungrouted	Different			
	AGQS-19	Deep	Bentonite	270	275	Ucs	<0.2		2.8					
14	AGQS-36	Deep	Bentonite	267	302	Opdc	<0.25		6.6	deep grouted > deep grouted > mid grouted	Different			
	AGQS-43	Deep	Bentonite	345	360	Cjdn	<0.25		3.1					
	AGQS-51	Mid	Bentonite	230	240	Ucs	<0.25		<3.0					
15	AGQS-17	Deep	Bentonite	276	280	Ucs	5.06		31.0	deep grouted > mid grouted > deep grouted	Different		Yes	Yes
	AGQS-32	Mid	Bentonite	179	218	Opdc	7.97	mid grouted > deep grouted>deep grouted	13.1					
	AGQS-46	Deep	neat cement	445	480	Cjdn	<0.25		<3.0					
16	AGQS-09	Mid	Bentonite	140	185	Opdc	9.15	mid grouted > deep grouted	13.0	mid grouted > deep grouted	Same		Yes	Yes
	AGQS-41	Deep	neat cement	355	370	Cjdn	0.80		<3.0					

Table D.6. Differences for Nitrate and Chloride by Grout in Well Clusters

Cluster	Alias	Well Casing Category	Grout	Casing Depth (ft)	Total Depth (ft)	Aquifer	Median Nitrate (mg/L)	Pattern of well with highest median nitrate in a cluster	Median Chloride (mg/L)	Pattern of well with highest median chloride in a cluster	Nitrate & Chloride Same or Different Pattern	Shallow UngROUTED well lower?	Neat Cement well lower?	Is the deeper well neat cement grouted?
17	AGQS-07	Mid	Bentonite	188	223	Opdc	<0.25		3.4				Yes	No
17	AGQS-08	Shallow	Bentonite	113	142	Opdc	2.98		10.3	shallow grouted > deep grouted > shallow ungrouted>mid grouted	Different	No		
17	AGQS-25	Deep	neat cement	357	395	Cjdn	4.59	deep grouted > shallow grouted> shallow ungrouted = mid grouted	10.0					
17	AGQS-52	Shallow	none	70	80	Ucs	<0.25		5.0					
18	AGQS-30	Shallow	Bentonite	80	120	Opdc	10.85	shallow grouted > shallow ungrouted>deep grouted	18.2					
18	AGQS-38	Deep	neat cement	310	340	Cjdn	<0.2		<3.0		Different	Yes for chloride		
18	AGQS-59	Shallow	none	50	55	Ucs	8.54		29.2	shallow ungrouted > shallow grouted > deep grouted				
19	AGQS-34	Shallow	Bentonite	105	137	Opdc	<0.25		1.8		Same		Yes	Yes
19	AGQS-45	Deep	neat cement	280	300	Cjdn	<0.2		<3.0					
19	AGQS-64	Shallow	none	15	18	Ucs	2.90	shallow ungrouted > shallow ungrouted=shallow grouted=deep grouted	22.6	shallow ungrouted > shallow ungrouted and shallow grouted> deep grouted				
19	AGQS-65	Shallow	none	75	80	Ucs	<0.25		3.6					
20	AGQS-40	Deep	neat cement	300	320	Cjdn	<0.25		<3.0		Same	Yes	Yes	Yes
20	AGQS-67	Shallow	none	55	60	Opdc	6.80	shallow ungrouted> deep grouted	65.4	shallow ungrouted> deep grouted				
21	AGQS-78	Shallow	none	102	135	Opdc	17.90	shallow ungrouted >mid grouted	23.7	shallow ungrouted >mid grouted	Same	Yes	Yes	Yes
21	AGQS-80	Mid	neat cement	245	260	Cjdn	<0.25		0.5					

Shaded cells indicate the higher result in the cluster.

*Two shallow ungrouted well in cluster, one is higher for nitrate and the other higher for chloride

Appendix E

MDH Home Water Treatment Fact Sheet

MDH Guidance Values

Where Does Our Drinking Water Come From

Environmental Health Division
625 North Robert Street
P.O. Box 64975
St. Paul, MN 55164-0975
651-201-4600 or 800-383-9808
health.wells@state.mn.us



Home Water Treatment

Most Minnesotans do not need to install water treatment at home to protect their health. If you know your drinking water is contaminated or you are concerned about the color, taste, or odor of your water, first try to remove the source(s) of contamination or replace the contaminated water supply with a safer supply. If this is not possible, then home water treatment may be appropriate. Use this resource to help decide if home water treatment makes sense for you and what treatment options may be best for you. **Contaminant-specific information starts on page 3.**

Step 1: Know where your drinking water comes from

- **If you get your drinking water from a public water system**, your water system and the Minnesota Department of Health (MDH) regularly test the water for over 100 different contaminants and make sure it meets all Safe Drinking Water Act standards. You can learn more about your water quality by reading your water system's annual report (called a Consumer Confidence Report [CCR]). You can request the report from your water system or [Search for your CCR](https://mnccr.web.health.state.mn.us/index.faces) (<https://mnccr.web.health.state.mn.us/index.faces>).
- **If you get your drinking water from a private well**, you are responsible for regularly testing your well water to make sure it is safe for drinking and cooking. Learn more about testing recommendations and how to test your water at [Water Quality/Well Testing](http://health.mn.gov/wellwater) (health.mn.gov/wellwater).

Step 2: Think about why you want water treatment

Knowing what you want from water treatment will help you choose the best treatment option. Some common reasons people think about water treatment for their home:

- They do not like the way their water tastes, smells, looks, or feels.
- They are concerned about a specific contaminant (such as lead, arsenic, or nitrate) in their water. [Beware of Water Treatment Scams](http://health.state.mn.us/communities/environment/water/factsheet/beware.html) (health.state.mn.us/communities/environment/water/factsheet/beware.html).

Step 3: Select a water treatment option

There are many water treatment options. Deciding what option is best for you depends on what you want from your water treatment. This information sheet gives an overview of water treatment considerations and options. You may need to do additional research or contact a water treatment professional to find the best option for you. Below are some key questions to consider.

What contaminant would you like to remove?

Select a treatment unit certified by NSF, Underwriter's Laboratory (UL), or Water Quality Association (WQA) to remove the contaminant(s) you are concerned about, if a certification is available. These organizations do not certify treatment units for all contaminants. In this case, you may need to contact a water treatment professional.

- [Search for NSF Certified Drinking Water Treatment Units, Water Filters](http://info.nsf.org/Certified/DWTU/) (<http://info.nsf.org/Certified/DWTU/>)
- [Residential Drinking Water Standards](http://www.nsf.org/services/by-industry/water-wastewater/residential-water-treatment/residential-drinking-water-treatment-standards) (www.nsf.org/services/by-industry/water-wastewater/residential-water-treatment/residential-drinking-water-treatment-standards)
- [Find WQA-Certified Water Treatment Products](https://www.wqa.org/find-products#/) (<https://www.wqa.org/find-products#/>)



No single treatment unit can remove all contaminants in water. Depending on your water quality, or if you want to remove more than one contaminant, you may need to combine several treatment units into a treatment system.

Do you want to treat all of the water in your home or just drinking water?

There are two main types of home water treatment:

- **Point-of-use (POU)** units treat water at one faucet or one location. Examples include pour-through pitchers or units that sit on the counter, attach to a faucet, are part of a refrigerator water/ice dispenser, or are under the sink. POU is a good option for treating only the water you use for drinking and cooking.
- **Point-of-entry (POE)** units are installed on the water line as it enters the home. POE units treat all of the water in your home.

What is your budget?

Prices vary widely for treatment options—anywhere from less than twenty dollars to thousands of dollars. Things to consider for your water treatment budget include whether you want to treat just your drinking water at one tap or all of the water in your home, maintenance costs, and whether you will install the treatment yourself or hire a professional. Your household may qualify for one of the following loans (which you have to pay back) or grants (which you do not have to pay back) to help pay for water treatment.

- **AgBMP Loan Program** provides low interest loans to farmers, rural landowners, and agriculture supply businesses. Contact your local Soil and Water Conservation District or see [Agriculture Best Management Practices \(BMP\) Loan Program](http://www.mda.state.mn.us/agbmploan) (www.mda.state.mn.us/agbmploan).
- **Single Family Housing Repair Loans and Grants** provide low interest loans for homeowners with income below 50 percent of the area's median income and grants for people over the age of 62 years. See [Single Family Housing Repair Loans and Grants](https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants) (<https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants>).
- **Fix Up Program** provides fixed interest rate loans to homeowners. Go to [Minnesota Housing](http://www.mnhousing.gov) (www.mnhousing.gov) and click on "Homebuyers & Homeowners—Improve Your Home".

Step 4: Install water treatment

You can purchase and install a treatment unit on your own, or you can work with a water treatment professional. Search for water treatment professionals in your telephone book, online, or at [Find Water Treatment Providers](http://www.wqa.org/find-providers) (www.wqa.org/find-providers). If you work with a treatment professional, make sure they are a licensed plumber or licensed water conditioning contractor by using the Minnesota Department of Labor and Industry's [License Lookup](https://secure.doli.state.mn.us/lookup/licensing.aspx) (<https://secure.doli.state.mn.us/lookup/licensing.aspx>). Here are some [Recommended Questions to Ask a Water Treatment Professional](https://www.wqa.org/improve-your-water/questions-to-ask) (<https://www.wqa.org/improve-your-water/questions-to-ask>).

Step 5: Test and maintain water treatment

After installing treatment, test the treated water to make sure the treatment is working. Then, follow the manufacturer's recommendations for cleaning and maintenance. All water treatment units require regular maintenance to work properly. Maintenance can include changing filters, disinfecting the unit, backwashing, or cleaning out mineral build-up (scale). **Water treatment units that are not properly maintained will lose their effectiveness over time. In some cases, unmaintained units can make water quality worse and make you sick.**

Resources

- Centers for Disease Control and Prevention. [A Guide to Drinking Water Treatment Technologies for Household Use](https://www.cdc.gov/healthywater/drinking/home-water-treatment/household_water_treatment.html) (https://www.cdc.gov/healthywater/drinking/home-water-treatment/household_water_treatment.html).
- MDH. [A - Z List of Contaminants in Water](http://health.state.mn.us/communities/environment/water/contaminants/index.html) (health.state.mn.us/communities/environment/water/contaminants/index.html).
- MDH. [Home Water Softening](http://health.state.mn.us/communities/environment/water/factsheet/softening.html) (health.state.mn.us/communities/environment/water/factsheet/softening.html).
- MDH. [Water Quality/Well Testing](http://health.mn.gov/wellwater) (health.mn.gov/wellwater).
- NSF. [Drinking Water Filters, Testing and Treatment](http://www.nsf.org/consumer-resources/water-quality/water-filters-testing-treatment) (www.nsf.org/consumer-resources/water-quality/water-filters-testing-treatment).
- The Private Well Class. [Water Treatment Solutions](http://privatewellclass.org/lesson-10) (privatewellclass.org/lesson-10).

Water treatment units and the contaminants they treat

This table shows the most common home water treatment units and the contaminants the units can remove. Learn more about the treatment units and cost estimates on the following pages.

	Adsorptive media filtration ¹	Aeration and filtration	Anion exchange ¹	Carbon filter ¹	Continuous chlorination and filtration	Distillation	Oxidizing media filtration	Ozonation and filtration	Reverse osmosis	Ultraviolet (UV) disinfection	Water softening
Color, taste, or odor issues		●		●	●	●	●	●	●		
Ammonia		●			○						
Arsenic ²	●	○	●		●	●	●	●	●		
Bacteria ³					●	●		●	●	●	
Calcium						●			●		●
Chloride						●			●		
Chlorine		●		●							
Copper						●			●		●
Fluoride	●		●	●		●			●		
Hydrogen sulfide		●		●	●		●	●			
Iron		●		●	●	●	●	●	●		●
Lead				●		●			●		
Magnesium						●			●		●
Manganese		●		●	●	●	●	●	●		●
Methane		●									
Nitrate			●			●			●		
Nitrite		○	●		●	●		●	●		
Other dissolved solids (ODS)						●			●		
Pesticides and other synthetic organic compounds (SOCs)				●		●			●		
Perfluoroalkyl substances (PFAS)				●					●		
Radium		○			○	●	●		●		●
Radon		●		●							
Selenium	●		●			●			●		
Sodium						●			●		
Sulfate	●		●			●			●		
Trichloroethylene (TCE)		●		●					●		
Trihalomethanes (THMs)		●		●					●		
Uranium	●		●			●			●		
Vinyl chloride		●							●		
Viruses ³					●	●		●	●	●	
Volatile organic compounds (VOCs)		●		●					●		

¹ The substances that these technologies reduce or remove depends on the filter media or resin.

² There are two types of arsenic in Minnesota groundwater: arsenic(III) and arsenic(V). Pre-oxidation (chlorination, aeration, or ozonation) may be needed before water treatment to make sure the treatment removes the type of arsenic present in your water. Sulfate levels above 100 parts per billion may also affect what type of water treatment will remove arsenic. MDH recommends working with a water treatment professional to make sure your treatment unit/system effectively removes arsenic.

³ If you are using a filter, make sure your filter has the necessary pore size for the bacteria or virus you are trying to remove.

Summary of home water treatment options

Treatment option	Description	Pros and cons	Point-of-use cost ⁴ estimate	Point-of-entry cost ⁴ estimate	Designed to fully or partially remove
Adsorptive media filtration	A charged media bed causes ions of the opposite charge (contaminants) to be pulled out of the water and attach to the media.	<p>Pros: Produces very little wastewater. Does not require adding chemicals to the water.</p> <p>Cons: Treatment effectiveness may depend on the pH of the water.</p>	<p><i>Initial:</i> \$300 to \$700</p> <p><i>Maintenance:</i> \$300 to \$500 every 6 to 12 months</p>	<p><i>Initial:</i> \$2,400 to \$4,500</p> <p><i>Maintenance:</i> \$700 to \$900 every year</p>	<p>Depends on the type of media. The two most common media are activated alumina and iron-based.</p> <p>Activated alumina media removes arsenic, fluoride, selenium, sulfate, uranium.</p> <p>Iron-based media removes arsenic. It may not be as effective at removing arsenic if there is also phosphate in the water.</p>
Aeration and filtration	<p>An aerator brings oxygen into the water. The oxygen helps change dissolved contaminants into solid particles. The solid particles are large enough to be filtered out of the water.</p> <p>Some types of aeration cause VOCs and dissolved gases to evaporate out of the water.</p>	<p>Pros: Does not require adding chemicals to the water.</p> <p>Cons: Water with too much oxygen can be corrosive and corrode your pipes; this may be a health concern if you have copper or lead pipes.</p>	N/A ⁵	<p><i>Initial:</i> \$800 to \$4,000</p> <p><i>Maintenance:</i> Extra water to backwash; replacement of the filter media.</p>	<p>Color, taste, or odor issues</p> <p>Ammonia, chlorine, hydrogen sulfide, iron, manganese, methane, other dissolved gases, radon, TCE, THMs, vinyl chloride, VOCs</p> <p><i>May partially remove:</i> arsenic (only if there is also high iron), nitrite, radium.</p>

⁴ Point-of-use and point-of-entry cost estimates are based on quotes obtained in 2017 and research in 2018; actual costs may vary. In general, the low-end cost is for a treatment unit the homeowner installs; the high-end cost is for a treatment unit installed by a water treatment professional.

⁵ N/A: Treatment technology is not typically available in this type.

Treatment option	Description	Pros and cons	Point-of-use cost ⁴ estimate	Point-of-entry cost ⁴ estimate	Designed to fully or partially remove
Anion exchange	Anion exchange removes dissolved minerals in the water. The owner adds sodium chloride or potassium chloride (salt), which replaces negatively charged minerals in the water.	<p>Pros: Sodium chloride and potassium chloride are safe to handle and easy to buy.</p> <p>Cons: Anion exchange may affect how corrosive your water is and can corrode your pipes; this may be a health concern if you have copper or lead pipes. If treatment is not maintained properly, high concentrations of the contaminant can be dumped back into the water. Salt use can negatively affect the environment.</p>	N/A ⁵	<p><i>Initial:</i> \$1,500 to \$2,500</p> <p><i>Maintenance:</i> \$700 to \$900 every 8 to 10 years</p>	<p>Depends on the resin.</p> <p>Resins may be certified to remove arsenic, fluoride, nitrate, nitrite, selenium, sulfate, uranium.</p>
Carbon filter (This includes granular activated carbon filters—GAC)	Contaminants accumulate on the filter while water passes through.	<p>Pros: Point-of-use carbon filters are inexpensive and easy to find and use.</p> <p>Cons: Harmful bacteria can grow if you do not regularly maintain and replace the filter according to the instructions. If the filter is not replaced according to the instructions, it can become saturated and begin to release contaminants into the water.</p>	<p><i>Initial:</i> \$10 to \$100</p> <p><i>Maintenance:</i> \$10 to \$100 every few months to replace the filter.</p>	<p><i>Initial:</i> \$500 to \$3,000</p> <p><i>Maintenance:</i> Extra water to backwash or adding a disinfectant to kill bacterial growth. Replacement of the filter.</p>	<p>Color, taste, or odor issues</p> <p>Contaminant removal depends on the filter's pore size.</p> <p>Some filters are certified to remove chlorine, fluoride, hydrogen sulfide, iron, lead, manganese, radon, TCE, THMs and other disinfection by-products, VOCs.</p> <p>An MDH study showed that GAC filters are effective at removing PFAS.</p> <p><i>POE</i> units may also treat pesticides and other SOCs.</p>

Treatment option	Description	Pros and cons	Point-of-use cost ⁴ estimate	Point-of-entry cost ⁴ estimate	Designed to fully or partially remove
Continuous chlorination and filtration	The owner adds chlorine bleach (a disinfectant that kills bacteria and viruses) to a holding tank. A pump feeds chlorine into the water, which helps change dissolved contaminants into solid particles. The solid particles are large enough to be filtered out of the water.	<p>Pros: Use of chlorination helps prevent microbial growth throughout the plumbing system.</p> <p>Cons: Chlorination systems are complex, may take up a lot of space, and require frequent maintenance and monitoring. May create chemicals (by-products) in the drinking water. If the levels are high enough, by-products can cause long-term health issues. An additional carbon filter may be needed to remove the chlorine taste from drinking water.</p>	N/A ⁵	<p><i>Initial:</i> \$500 to \$2,500</p> <p><i>Maintenance:</i> Cost of bleach; extra water to backwash; replacement of the filter media.</p>	<p>Color, taste, or odor issues</p> <p>Arsenic (only if there is also high iron), bacteria, hydrogen sulfide, iron, manganese, nitrite, viruses</p> <p><i>May partially remove:</i> ammonia, radium.</p>
Distillation	Distillers boil water, which makes steam. The steam rises and leaves contaminants behind. The steam hits a cooling section, where it condenses back to liquid water.	<p>Pros: Removes a wider variety and greater amount of contaminants than many other treatment options. Kills 100% of bacteria, viruses, and pathogens, so you can still drink your water during boil water advisories or if your well becomes contaminated.</p> <p>Cons: Heating the water to create steam can be expensive. Water may taste 'flat' because oxygen and minerals are reduced.</p>	<p><i>Initial:</i> \$300 to \$1,200</p> <p><i>Cost consideration:</i> Energy cost to boil water.</p>	N/A ⁵	<p>Color, taste, or odor issues</p> <p>Arsenic, bacteria, calcium, chloride, copper, fluoride, iron, lead, magnesium, manganese, nitrate, nitrite, ODS, some pesticides and other SOCs, radium, selenium, sodium, sulfate, uranium, viruses</p>

Treatment option	Description	Pros and cons	Point-of-use cost ⁴ estimate	Point-of-entry cost ⁴ estimate	Designed to fully or partially remove
Oxidizing media filtration	A media bed changes dissolved contaminants into solid particles. The solid particles are large enough to be filtered out of the water.	<p>Pros: More effective than other oxidation and filtration methods at removing iron, manganese, arsenic, and radium. Does not require a continuous chemical feed.</p> <p>Cons: Requires periodic regeneration of the media (backwashing or soaking with a chemical solution to make the media work again). Regeneration can be messy, and the chemicals can be harmful, so they must be handled and stored carefully.</p>	N/A ⁵	<p><i>Initial:</i> \$1,500 to \$3,000</p> <p><i>Maintenance:</i> Extra water to backwash; cost for chemicals; replacement of the filter media.</p>	<p>Color, taste, or odor issues</p> <p>Arsenic (only if there is also high iron), hydrogen sulfide, iron, manganese, radium</p>
Ozonation and filtration	Ozone (a disinfectant that kills bacteria and viruses) is generated using electricity and then injected into the water. The ozone changes dissolved contaminants into solid particles. The solid particles are large enough to be filtered out of the water.	<p>Pros: Does not require handling of chemicals. Ozone rapidly degrades, so no ozone reaches the consumer through the drinking water.</p> <p>Cons: Uses a lot of energy.</p>	N/A ⁵	Call a water treatment professional to get a quote.	<p>Color, taste, or odor issues</p> <p>Arsenic (only if there is also high iron), bacteria, hydrogen sulfide, iron, manganese, nitrite, viruses</p>
Reverse osmosis (RO)	RO uses energy to push water through a membrane with tiny pores. The membrane stops many contaminants while allowing water to pass through.	<p>Pros: Removes a wider variety and greater amount of contaminants than many other treatment options.</p> <p>Cons: Can create a lot of wastewater. May require pretreatment to prevent the membrane from getting clogged.</p>	<p><i>Initial:</i> \$300 to \$1,500</p> <p><i>Maintenance:</i> \$100 to \$200 every 1 to 2 years</p>	<p><i>Initial:</i> \$5,000 to \$12,000</p> <p><i>Maintenance:</i> \$250 to \$500 every 1 to 2 years</p>	<p>Color, taste, or odor issues</p> <p>Arsenic, bacteria, calcium, chloride, copper, fluoride, iron, lead, magnesium, manganese, nitrate, nitrite, other dissolved solids, pesticides and other SOCs, PFAS, radium, selenium, sodium, sulfate, other metals, TCE, THMs, uranium, vinyl chloride, viruses, VOCs</p>

Treatment option	Description	Pros and cons	Point-of-use cost ⁴ estimate	Point-of-entry cost ⁴ estimate	Designed to fully or partially remove
Ultraviolet (UV) disinfection	A UV lamp shines UV rays through the water. The UV rays kill bacteria, viruses, and other pathogens.	<p>Pros: Does not require adding chemicals to the water. UV disinfection can be more effective than chlorination.</p> <p>Cons: May require pre-filtration if your water has some cloudiness (turbidity is above 1 NTU).</p>	<p><i>Initial:</i> \$150 to \$300</p> <p><i>Maintenance:</i> \$50 to \$100 per year</p>	<p><i>Initial:</i> \$250-\$800</p> <p><i>Maintenance:</i> about \$100 per year</p>	Bacteria, viruses
Water softening (cation exchange)	<p>Water softeners remove dissolved minerals in the water. The owner adds sodium chloride or potassium chloride (salt), which replaces positively charged minerals in the water. This makes the water softer.</p> <p>Water softeners are sometimes installed to treat only some water in the home. The water softener may not be connected to cold water plumbing or kitchen faucet plumbing.</p>	<p>Pros: Sodium chloride and potassium chloride are safe to handle and easy to buy. Water softening is the cheapest option for removing hardness (calcium and magnesium).</p> <p>Cons: Water softening with sodium chloride adds sodium to the water, which may be a health issue for some people. Water softening may affect how corrosive your water is and can corrode your pipes; this may be a health concern if you have copper or lead pipes. Salt use can negatively affect the environment.</p>	N/A ⁵	<p><i>Initial:</i> \$200 to \$3,000</p> <p><i>Maintenance:</i> \$50 to \$300 per year for salt</p>	Calcium, copper, iron, magnesium, manganese, radium

To obtain this information in a different format, call 651-201-4600.

Printed on recycled paper.

5/7/2019R

Guidance Values and Standards for Contaminants in Drinking Water

Partners in Safe Drinking Water

The United States Environmental Protection Agency (US EPA), the Minnesota Department of Health (MDH), public water systems, and citizens work in partnership to keep our drinking water clean and safe for all Minnesotans.

The 1974 federal Safe Drinking Water Act directs the US EPA to set national drinking water standards for naturally occurring and man-made contaminants in public drinking water. These standards represent legally enforceable limits. The Minnesota Department of Health (MDH) enforces these drinking water standards for public water supplies in Minnesota.

The 1989 Groundwater Protection Act directs MDH to develop health-based guidance values for groundwater that is used for drinking water. These values are used by state programs to protect people and the environment, including the quality of surface water. These values are especially important when no other guidance value is available.

Public water systems regularly test drinking water supplies. Public water supplies must meet the drinking water standards set by the Safe Drinking Water Act. Results of this testing are available to each consumer through an annual consumer confidence report.

Drinking Water Standards and Guidance

MDH uses and develops different types of guidance to protect Minnesotan's health from contaminants in drinking water. Drinking water that is contaminated above the standard or guidance may pose some level of health risk to some people drinking the water.

No water is completely free of contaminants. All Minnesotans can use the various guidance values to determine what level of a contaminant in water is acceptable for themselves and their family. Treatment options may be available to reduce levels of contaminants in your drinking water if testing, either by you or a public water supply, shows that contaminants have been found.

Maximum Contaminant Levels (MCLs)

- **Established By: US EPA**
- **Considerations: Health impact, cost and technology of prevention and/or treatment**
- **Review: Changes to MCLs are rarely made**

All public water supplies in Minnesota must meet these standards. For most people, water that meets all MCLs is safe to drink.

MCLs are established through a scientific process that evaluates the health impacts of the contaminant and the technology and cost required for prevention and/or treatment. States are allowed to enforce lower (more strict) standards than MCLs, but are not allowed to enforce higher (less strict) standards. New MCLs or changes to existing MCLs are rarely made.

Maximum Contaminant Level Goals (MCLGs)

- **Established By: US EPA**
- **Considerations: Health impact only**
- **Review: Changes to MCLGs are rarely made**

MCLGs are very protective, even for sensitive populations like infants, children, and others who may be at increased risk of negative health impacts. MCLGs do not consider cost and technology needs of prevention and/or treatment and may be set at levels that are costly, challenging, or impossible for a water system to meet.

Health Advisories

- **Established By: US EPA**
- **Considerations: Non-cancer health impact only**
- **Review: Changes to the table of Health Advisories are made every two to three years**

Health advisories for contaminants in drinking water are based on non-cancer health effects for different lengths of exposure (one day, ten days, or lifetime). Health advisories provide technical guidance to the US EPA and other public health officials and are not regulatory values.

Health-Based Values (HBVs) and Health Risk Limits (HRLs)

- **Established By: MDH**
- **Considerations: Health impact only**
- **Review: New or revised guidance for eight to ten chemicals per year**

An HBV or HRL is the level of a contaminant that can be present in water and pose little or no health risk to a person drinking that water. HBVs and HRLs are guidance used by the public, risk managers, and other stakeholders to make decisions about managing the health risks of contaminants in groundwater and drinking water. HBVs are updated when significant new information is available. HRLs are guidance values that have been through the Minnesota rulemaking process, which includes at least one public comment period for stakeholders to provide feedback on the proposed guidance values.

HBVs and HRLs do not consider cost and technology of prevention and/or treatment and may be set at levels that are costly, challenging, or impossible for a water system to meet.



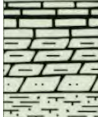


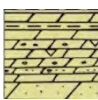



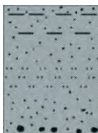
Risk Assessment Advice (RAA)

- **Established By: MDH**
- **Considerations: Health impact only**
- **Review: Rare; only developed when there is not enough information to develop an HBV or HRL**

An RAA can be a level of chemical in drinking water that poses little or no health risk to a person drinking that water, similar to HBVs or HRLs. RAAs can also be a written description of how harmful a chemical is, compared to a similar chemical. RAAs are generally based on more limited information than HBVs and HRLs or use an alternative risk assessment method.

Where Does Our Drinking Water Come From?

Dakota County Groundwater and Geology

Geologic Formation	General Lithology	Presence & Use of Water
Quaternary deposits Surface deposits of sand and gravel; erodes easily		May contain water used for domestic, commercial, and irrigation purposes; Easily contaminated.
Decorah Shale Clay-like shale with thin fossil-bearing limestone		Helps to protect underlying aquifers from contamination.
Platteville and Glenwood Formations Fossil-bearing limestone and sandy shale		Supplies very limited amounts of water to northern Dakota County.
St. Peter Sandstone Poorly-cemented, fine to medium grained sandstone		Supplies limited amounts of water to Dakota County. Easily contaminated in central and southern portions of the County.
Prairie du Chien Group Limestone		Primary source for municipal, industrial and high capacity irrigation wells.
Jordan Sandstone Poorly-cemented, medium to coarse grained sandstone		
St. Lawrence Formation - Tunnel City Group Sandstone, siltstone and shale		Produces small amounts of water in eastern Dakota County.
Wonevok Sandstone Silty to coarse-grained sandstone		Seldom used aquifer.
Eau Claire Formation Siltstone, fine sandstone, and shale		Helps to protect underlying aquifers from contamination.
Mt. Simon Sandstone Fine to coarse-grained sandstone		The deepest high-yielding aquifer in Dakota County; Protected for future use with a restriction on new well drilling.

Groundwater supplies 95 percent of total domestic, municipal, and industrial water used in Dakota County.

Groundwater is contained in aquifers – layers of bedrock saturated with water. Physical characteristics of surface and bedrock geology can affect groundwater quality and quantity. The depth of the bedrock from the surface of the land and the ease with which water moves through the bedrock layers are two important characteristics. These traits and others help determine where aquifers are located, how they are recharged, and whether or not they are at risk of contamination.

The bedrock geology of Dakota County consists of alternating layers of limestone, dolomite, sandstone, and

shale. Ancient seas advanced and retreated over the land depositing sediments which eventually formed these bedrock layers. Sand accumulated near shores in sand bars, on beaches, and in sand dunes. Silt and clay created mud flats or settled in quiet waters farther from shore. Decomposed shells accumulated in small banks and reefs. Over time, these deposits were compressed and hardened to form the sandstone, shale, dolomite and limestone of today.

About 10,000 years ago when the last glacier retreated, sand and gravel were left covering the bedrock. This material is called “glacial drift” and is considered the “surface geology” of the area. Many of the rivers and lakes existing today were created by meltwater from the retreating glacier.

Bedrock Layers and Aquifers Underlying Dakota County

Surface (Quaternary) Deposits

Surface deposits are also referred to as Quaternary or “glacial drift” deposits. These deposits contain poorly-cemented sand and gravel left by glaciers. [Aquifers found in surface deposits can supply moderate quantities of water for domestic wells. In deeper surface deposits, water may be available for commercial and irrigation wells.](#) Aquifers occurring in surface deposits can be easily contaminated.

Decorah Shale

The Decorah Shale bedrock layer is a pale, blue-green shale containing thin layers of fossil-bearing limestone. The Decorah Shale was created when mud and silt were deposited in the quiet, off-shore waters of an ancient sea which covered the County. The Decorah Shale underlies parts of the cities of Mendota, Mendota Heights, and West St. Paul. It can be a barrier between rock layers and protects underlying aquifers from contamination.

Platteville and Glenwood Formations

The Platteville bedrock layer is a fine-grained, fossil-bearing limestone which does not erode easily. The underlying Glenwood bedrock layer is a pale green, sandy shale. These sediments were deposited in the waters of an ancient sea. The Platteville supplies very limited amounts of water for domestic use in Mendota Heights, West St. Paul, and Inver Grove Heights. These two bedrock layers have been eroded from most areas of the County.

St. Peter Sandstone

The St. Peter bedrock layer consists of poorly-cemented, granular sandstone that was deposited near the shore of an ancient area. [The St. Peter Sandstone contains groundwater and is found throughout much of Dakota County. The aquifer supplies limited amounts of water for domestic and use in the northern portion of the County.](#) In the central and southern portions of the County where the bedrock comes close to the surface, the aquifer is very susceptible to contamination.

Prairie du Chien Group

The bedrock layers that make up the Prairie du Chien Formation consist of dolomite which was deposited in the near-shore waters of an ancient sea. [Together, the Prairie du Chien and Jordan aquifers \(see below\) are the primary source of drinking water in the County. Most domestic and municipal wells and most high-volume irrigation wells use the Prairie du Chien and Jordan aquifers.](#) In some areas where surficial cover is minimal, the Prairie du Chien is more susceptible to contamination. New drinking water wells are prohibited in these areas. These aquifers underlie the majority of the County.

[***Together, the Prairie du Chien and Jordan aquifers \(see below\) are the primary source of drinking water in the County.***](#)

Jordan Sandstone

The Jordan Sandstone bedrock layer is made up of poorly-cemented, granular sandstone which was deposited near the shore of an ancient sea. [Because water in the Prairie du Chien aquifer is more susceptible to contamination, most new wells for municipal and domestic use in Dakota County are being drilled in the Jordan aquifer.](#) The St. Lawrence shale layer separates the Jordan aquifer from the underlying Tunnel City Formation. This shale layer helps to protect underlying aquifers from contamination.

St. Lawrence Formation -Tunnel City Group

The St. Lawrence-Tunnel City (formerly known as St. Lawrence-Franconia) bedrock layer consists of sandstone, siltstone and siltstone which underlies all of Dakota County. [The St. Lawrence-Tunnel City Formation supplies a moderate amount of water for domestic use in eastern Dakota County.](#)

Wonewoc Sandstones

The Wonewoc Sandstone (formerly known as Ironton-Galesville) bedrock layers consist of a thin, silty- to coarse-grained sandstone. [Wonewoc Sandstones is a seldom used aquifer.](#)

Eau Claire Formation

The Eau Claire bedrock layer consists of siltstone, fine sandstone, and shale. [It can be a barrier between rock layers and protects underlying aquifers from contamination.](#)

Mt. Simon Sandstone

The Mt. Simon-Hinkley bedrock layer is composed of fine- to coarse-grained sandstone. [The Mt. Simon-Hinkley aquifer is the deepest high-yielding aquifer in Dakota County. The aquifer is used for some high volume industrial and municipal wells. It is not used for domestic water supplies because other, shallower sources of water are available.](#) There is a moratorium on further development of the Mt. Simon-Hinkley aquifer; no new wells will be allowed without approval from the Minnesota Department of Health.

Suggested technical references:

Minnesota Geologic Survey, Geologic Atlas, Dakota County, 1990

Dakota County Groundwater Protection Plan

[Minnesota's Geology](#). Ojakangas, Richard and Charles Matsch. Minneapolis: University of Minnesota Press, 1982.

For further information about Dakota County's groundwater and geology, call:

Dakota County Environmental Resources Department – 952-891-7000

- Groundwater quality and quantity
- Sources and areas of contamination
- Wellhead protection areas
- Dakota County geology
- Well construction, sealing, and water tests
- County ordinances and state rules

For regional and statewide information about groundwater and geology, call:

Minnesota Pollution Control Agency – 651-296-6300

- Groundwater quality
- Chemical spills and clean-up

Minnesota Geologic Survey – 612-626-2969

- Groundwater/geologic maps
- Groundwater levels

www.dakotacounty.us, search water resources



Appendix F

Visualizing Nitrate Presence and Movement

Appendix F

Visualizing nitrate presence and movement in Dakota County aquifers

County staff assembled a data set of 10,700 untreated nitrate samples from wells, and from those selected over 8,000 that came from wells with known depths. The large number of nitrate samples enables a clearer visualization of the spatial distribution of nitrate throughout the county than is possible with the ambient study well data alone. Spatial and temporal (time) patterns of nitrate concentrations in the aquifers can be used to infer likely spatial and temporal patterns for other contaminants, if they are correlated with nitrate. Images of these nitrate patterns have been created in the form of maps, cross sections, and time lapse movies. These can be found the Dakota County website www.co.dakotacounty.mn.us by searching on *nitrate movie*. This appendix provides a non-technical description of how the images are created, and how to interpret them.

While the County's data is extensive, it is very unevenly distributed in both space and time. A moving window weighted percentile interpolator was selected as a relatively robust and fair way to visualize the actual data. Graphics can be generated based on horizontal slices or vertical cross-sections as shown below in figures F(2) and F(3). Change through time can be visualized by displaying time series of graphics on a page, or in movies.

In a moving window interpolator, the value at a point is based on only the samples found within a given distance of the point, which is called the window around the point. It is a moving window because the center of the window moves along so that its center is always at the point being evaluated. The window is defined by a horizontal distance, a vertical distance, and a time difference from the point. All distances are measured as a radius from the window center. The horizontal distance is normally specified much larger than the vertical, so that the spatial window is a pancake shaped ellipsoid. When nearness in time is included, the window becomes a hyper-ellipsoid. Samples closer to the point in space or time are given more weight by the interpolator. Closer is measured using the scaled euclidian distance from the window center.

The interpolator can compute a weighted percentile or a weighted percent exceedence. *Percentile* figures show the estimated concentration of nitrate at a *given percentile*. For example, in a 90th percentile plot, a point would be plotted at 6.5ppm if 90 percent of samples are less than 6.5 mg/L, and 10 percent of samples exceed 6.5 mg/L. The median is defined as the 50th percentile; in a percentile plot, a point would be plotted at 6.5ppm if half of the samples are less than 6.5 mg/L, and half exceed 6.5 mg/L.. *Percent Exceedence* figures are different; they show the percentage of samples exceeding a *selected concentration*. When calculating a *weighted percentile* or a *weighted percent exceedence*, one counts the percentage of the total weights above or below the depicted value.

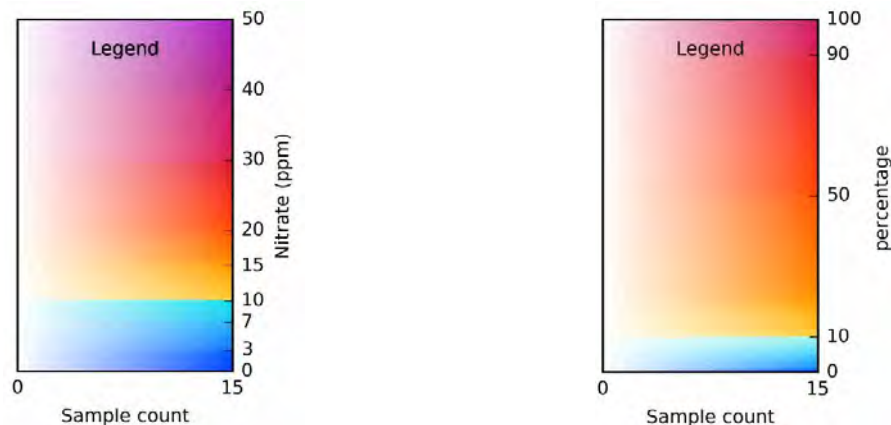
Percentiles are used because the results do not depend on assumptions about the statistical distribution of the data. These figures are not visibly affected by the variable detection limits of the measurements because all of the detection limits are within a range that is not easily visibly distinguishable from zero.

Percent exceedance figures are valid where the selected concentration is above the largest detection limit.

All of the samples are from wells. The depths referred to in the figures are depth below the water table rather than depth below land surface. This is done because the time it takes for water to reach the water table from the land surface is thought to be an insignificant fraction of the time it takes for water to reach the well from the water table, and because the time of travel from the water table to the well is primarily dependent on the vertical distance from the water table to the well opening. By depicting depth below the water table, the depth is more closely related to the age of the groundwater.

All of the figures use a color theme where blue means clean water, and yellow to red means contaminated water. The *percentile* figures use blues for nitrate concentrations below the drinking water standard of 10 mg/L, and yellows to reds for nitrate concentrations above the drinking water standard. The *percent exceedance* figures use the drinking water standard as the exceedance value, and pick a target percentage value to transition from blues to yellows and reds. Examples of color scales are shown in figure F(1). The percent exceedance example uses 10 percent exceedance for the transition from blue to yellow.

Figure F (1). Example legends for nitrate maps and cross sections. See text for explanation.



The color of the plot describes the observed nitrate concentration, but does not tell whether or not there are enough nearby observations to be described. The amount of color, or color saturation, is used for that. When there are no local samples, the amount of color is zero, and the area is drawn white. In figure F(1), the scale on the bottom axis of the legend describes the number of observations within the moving window. The maximum number on this scale is the value above which colors are shown at full saturation. The example legends in figure F(1) use a minimum sample count of 15. Alternatively, this scale may describe the effective sample size. The effective sample size is more meaningful than actual sample size when weights are used. That is because weighted percentiles can be dominated by a small number of observations close to the window center, when most other observations in the window are near the window edge and receive tiny weights.

Figure F(2) shows the median nitrate concentration across Dakota County for a horizontal slice through the aquifers. The moving window is centered 100 feet below the water table. The actual depth below the land surface, or the actual aquifer that the window is centered in varies across the county. In this figure the vertical window distance is large, 180 feet, so samples from the water table down to 280 feet below the water table are included. But samples closest to 100 feet below the water table are most heavily weighted.

Figure F (2). Plan view of median nitrate concentration in year 2016 at 100 feet below the water table

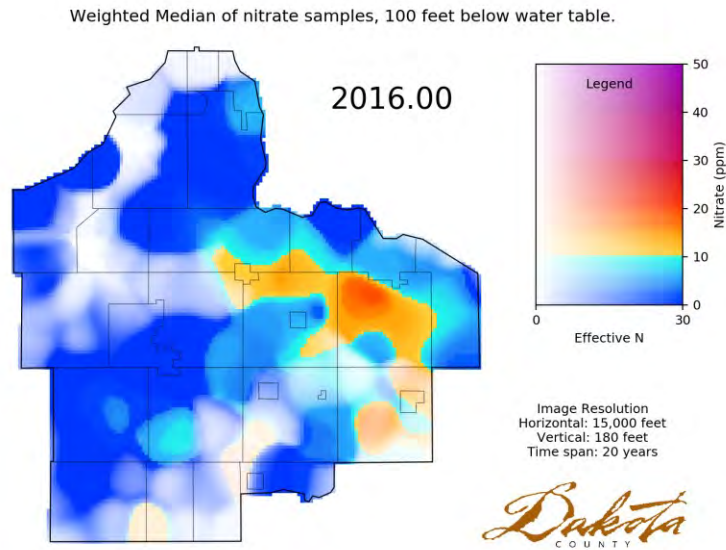
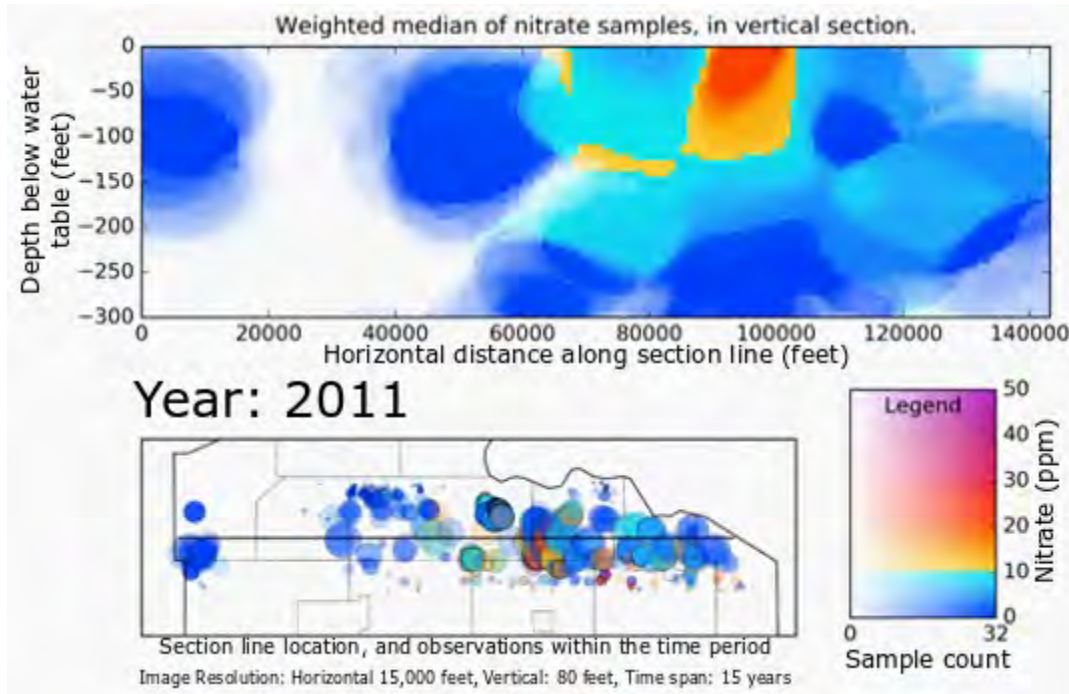


Figure F(3) shows the median nitrate concentration across Dakota County for a vertical cross section. The depth of the cross section is only 300 feet, while the width is 140,000 feet. The horizontal scale of obviously much compressed.

Figure F(3). Vertical cross section of weighted median (50th percentile) along an east-west line - frame from nitrate time series video



The upper figure in the image is the actual vertical cross section. The lower left figure shows the location of the section line, from west to east across central Dakota County. It also shows the actual observations used as circles. Each circle diameter is representative of the weight assigned to the observation, and the circle color is taken from from the legend. Smaller circles far from the section line are small because they are distant in space, but they must be close to year 2011. Smaller circles close to the section line are close in space, but cannot have been observed very close to 2011 if they are small. Their diameter can only be affected by depth if they are from wells deeper than the 300 ft maximum in the cross section.

Scaling and weighting in the moving window.

This is a concise technical description of the weighting scheme. The moving window is a 4-dimensional hyper-ellipsoid in space and time. Three scaling factors are given: horizontal radius, vertical radius, and time radius. The vertical coordinate of a well is taken to be the depth of the center of the well's open interval or well screen below a representative static water level at the well. All data coordinates are measured relative to the center of the interpolator's moving window, then they are scaled by the three scaling factors, and then the 4-dimensional euclidian distance from the window center is computed. After scaling the data, the interpolator window is a hyper-sphere with radius of 1. The euclidian distance from the center is used to compute the scaling weights. Hamming weights are used (the weight is maximum at the center and drops off smoothly to 0 at the radius of 1. Data points exactly on the window boundary get effectively zero weight.

It should be noted that the time window looks forward and backward equally. This does not express that a concentration observed in the future somehow causes a present concentration, but rather that a concentration observed in the future increases the probability that there is a present concentration.

Computing a weighted percentile.

All data points are sorted in order of ascending concentration value. Then weights are assigned to each data point as described above. These weights are then summed. For a percentile plot, the concentration of the data point is selected from the list where the sum of weights to the left of that point is equal to the specified percentile. For a percent exceedance plot, the weights assigned to points above or below the specified concentration are totaled, and expressed as a percentage of the total of all the weights.

Effective sample size.

Kish's Effective Sample Size is used. It is defined as the square of the sum of the weights divided by the sum of the squared weights. Wikipedia contributors, "Effective sample size," *Wikipedia, The Free Encyclopedia*, https://en.wikipedia.org/w/index.php?title=Effective_sample_size&oldid=971528053 (accessed August 7, 2020).

Grids of nitrate concentrations observed in Dakota County

These grids show nitrate concentrations observed in Dakota County, Minnesota. Each grid shows 4 years and 5 depths. The underlying data contains over 8000 nitrate samples from wells, spanning the years 1970 to 2016. Three grids are presented: median, or 50th percentile, 90th percentile, and 95th percentile.

The median plot shows the nitrate concentration that half of the samples exceed, and half do not exceed.

Of more interest for public health are the 90th and 95th percentile plots. These show the nitrate concentrations exceeded by the 10 percent or 5 percent of wells with highest concentrations.

Each plot is made with a moving window weighted percentile interpolator. The moving window is an ellipsoid 15,000 feet in horizontal radius, 80 feet in vertical radius, and 20 years in time radius. Each point in each plot is colored based on the observations inside of the window centered over that point. Observations are weighted using hamming weights as a function of radial distance from the pixel being drawn. The hamming weight is a maximum at the window center, and decreases to nothing at the window radius.

The plots use blue colors for nitrate concentrations below the drinking water standard of 10 mg/L, and yellow to red colors for nitrate concentrations above the drinking water standard. The color is faded out to white where there are no samples in an area near the year being plotted. The legend is shown below. The scale on the bottom is the effective sample size. The number 30 means that colors are shown at full intensity when the effective sample size is at least 30. The effective sample size is typically much smaller than the number of samples actually used, and accounts for the fact that samples far from the window center have very low weights and count for little. A minimum effective sample size of 15 is used for median estimates, and 30 for the 90th and 95th percentiles.

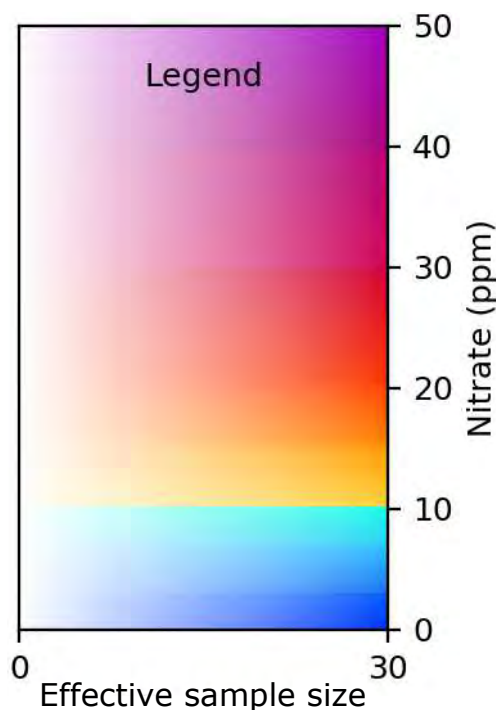


Table 1: Median nitrate concentration in wells, by year and depth.

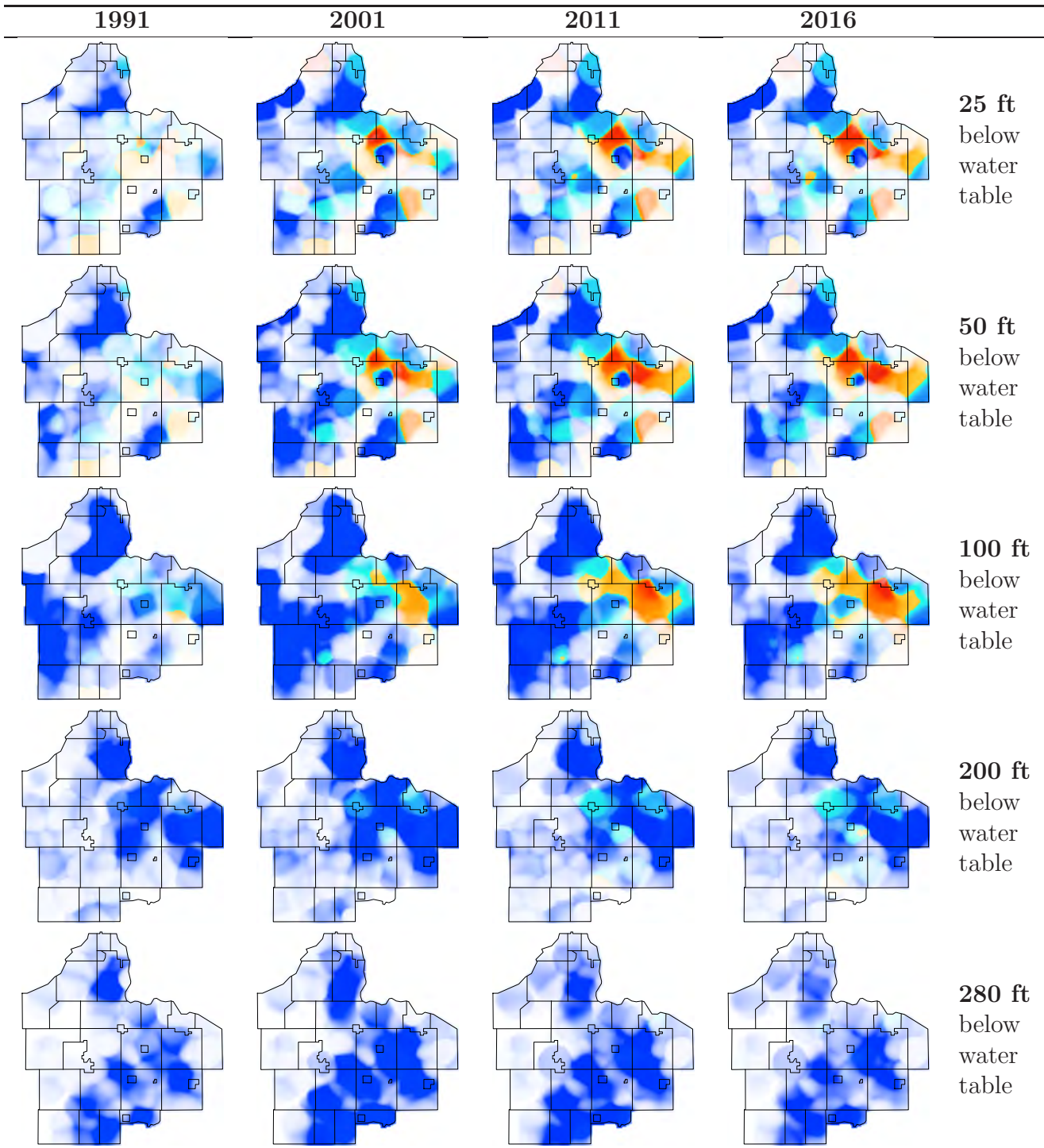


Table 2: *

Moving window weighted median of the nitrate concentration in groundwater at depths of 25, 50, 100, 200, and 280 feet below the water table. Blues are less than 10 ppm, yellows to reds are above 10 ppm. Color saturation is proportional the number of local samples on which the estimate is based. Dakota County. Contact: Bill.Olsen@co.dakota.mn.us

Table 3: Nitrate concentration in wells at the 90th percentile, by year and depth.

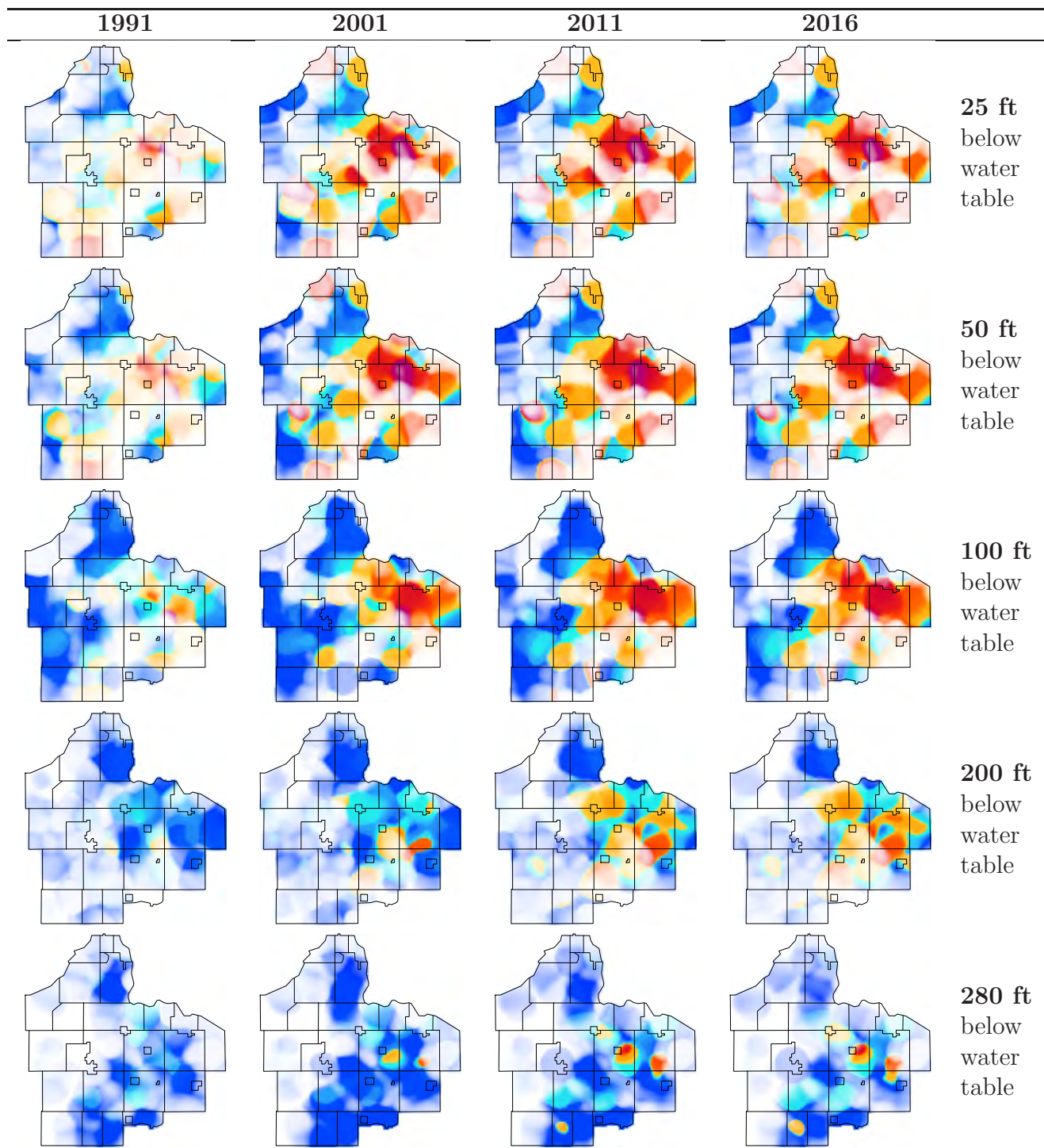


Table 4: *

Moving window weighted upper 90th percentile of the nitrate concentration in groundwater at depths of 25, 50, 100, 200, and 280 feet below the water table. Ten percent of samples had more nitrate than the level shown. Blues are less than 10 ppm, yellows to reds are above 10 ppm. Color saturation is proportional the number of local samples on which the estimate is based. Dakota County. Contact: Bill.Olsen@co.dakota.mn.us

Table 5: Nitrate concentration in wells at the 95th percentile, by year and depth.

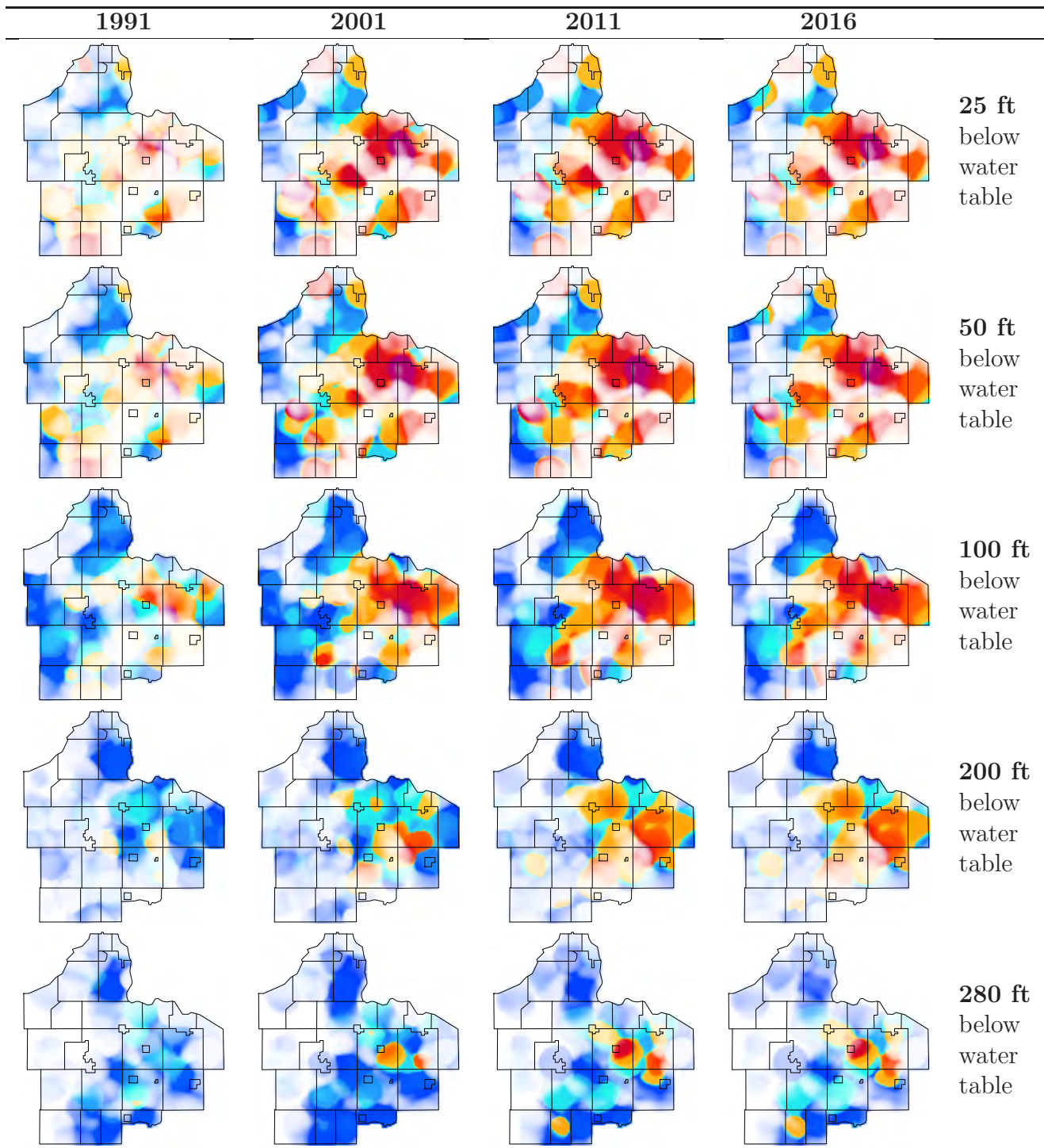


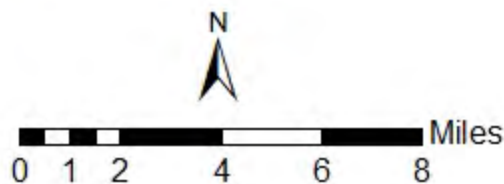
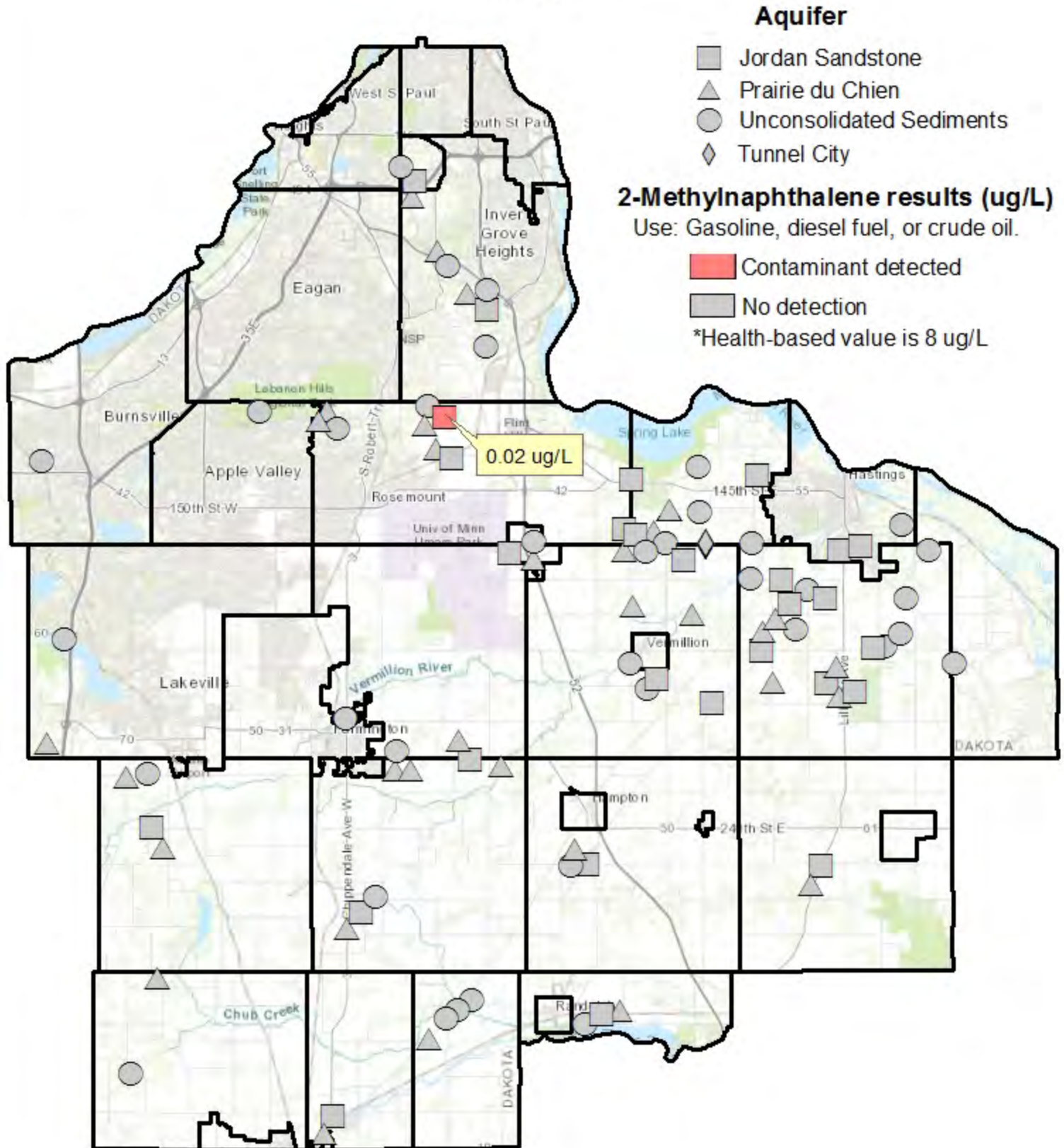
Table 6: *

Moving window weighted upper 95th percentile of the nitrate concentration in groundwater at depths of 25, 50, 100, 200, and 280 feet below the water table. Five percent of samples had more nitrate than the level shown. Blues are less than 10 ppm, yellows to reds are above 10 ppm. Color saturation is proportional the number of local samples on which the estimate is based. Dakota County. Contact: Bill.Olsen@co.dakota.mn.us

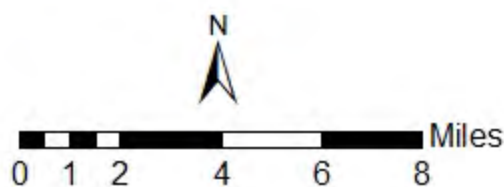
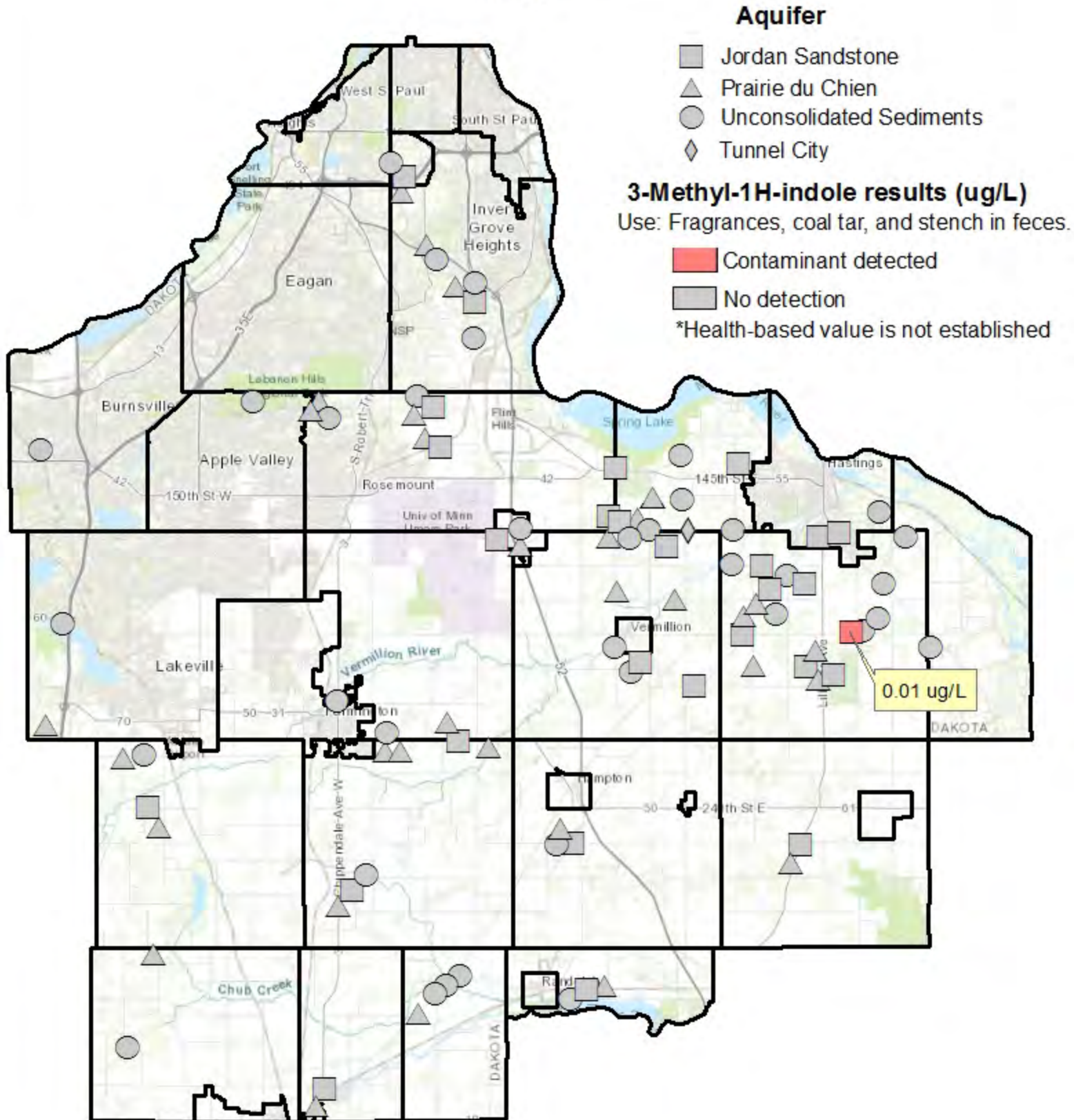
Appendix G

Additional Maps

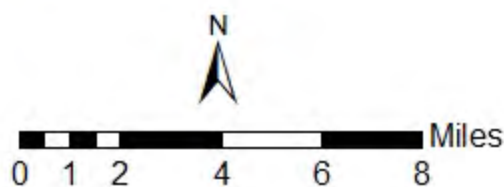
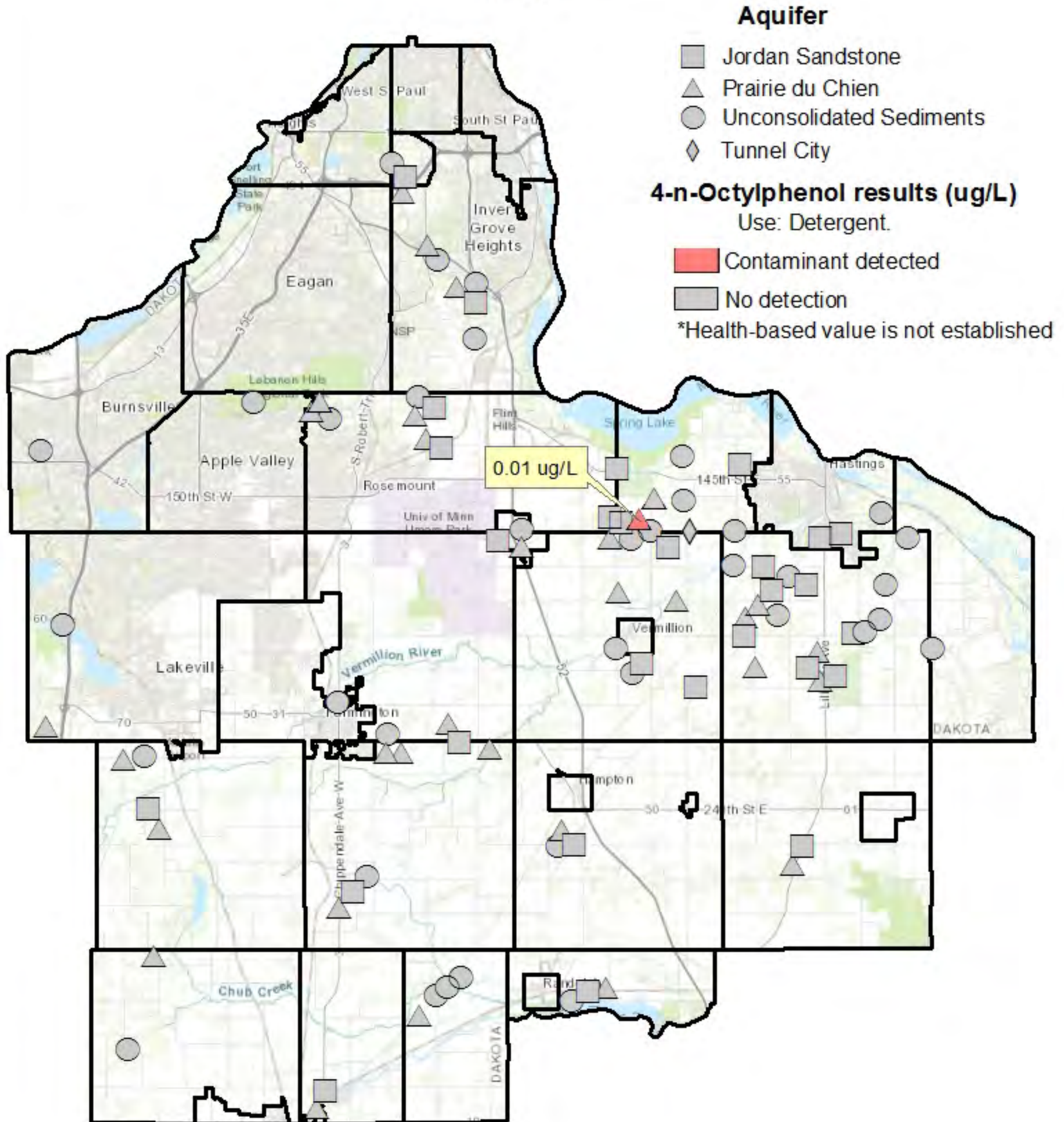
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



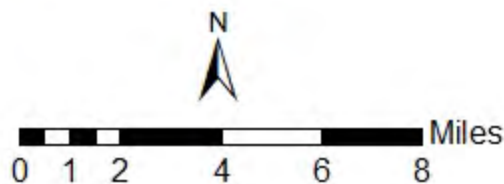
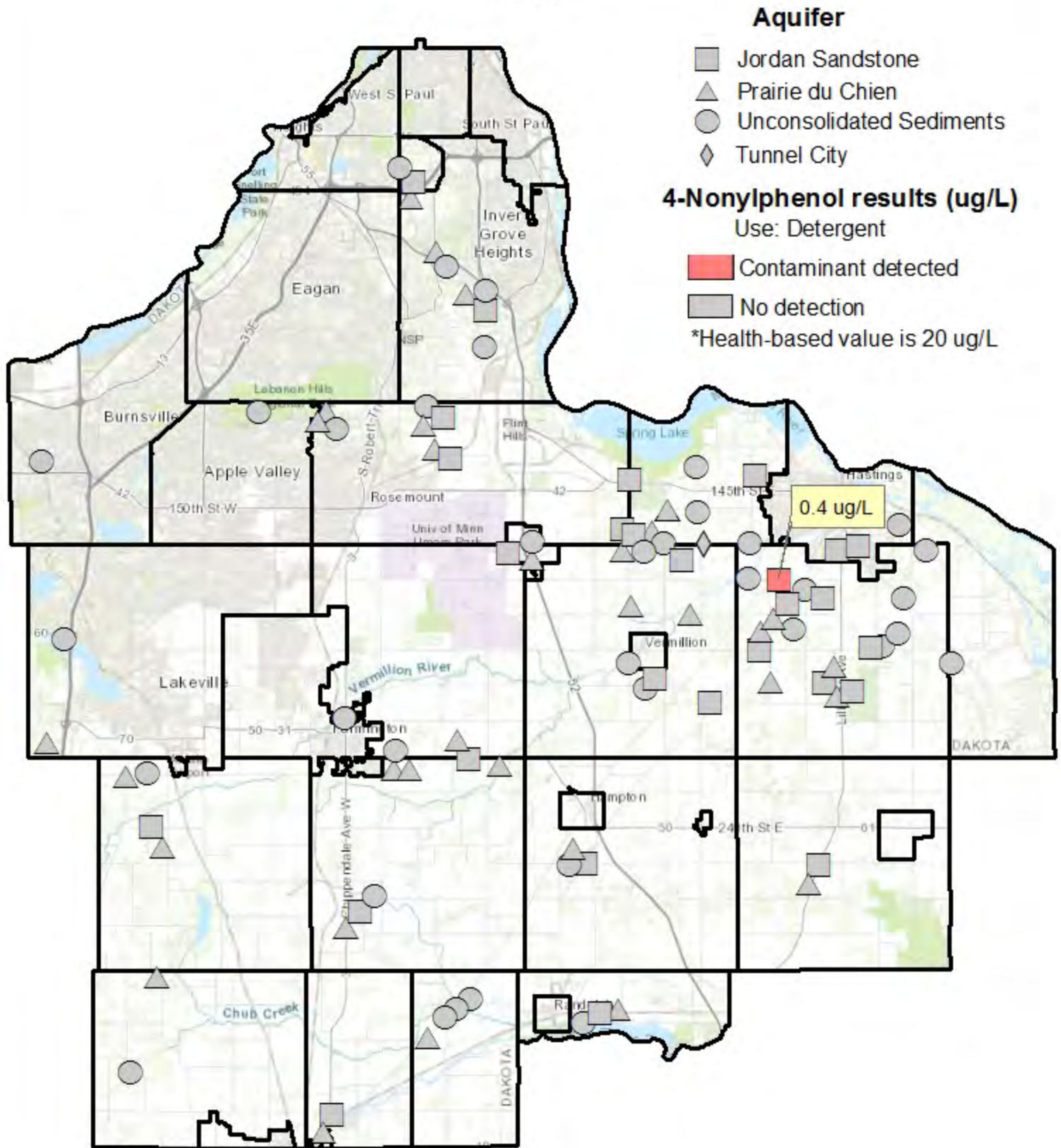
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



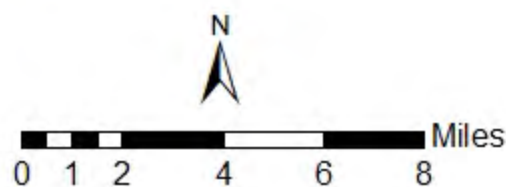
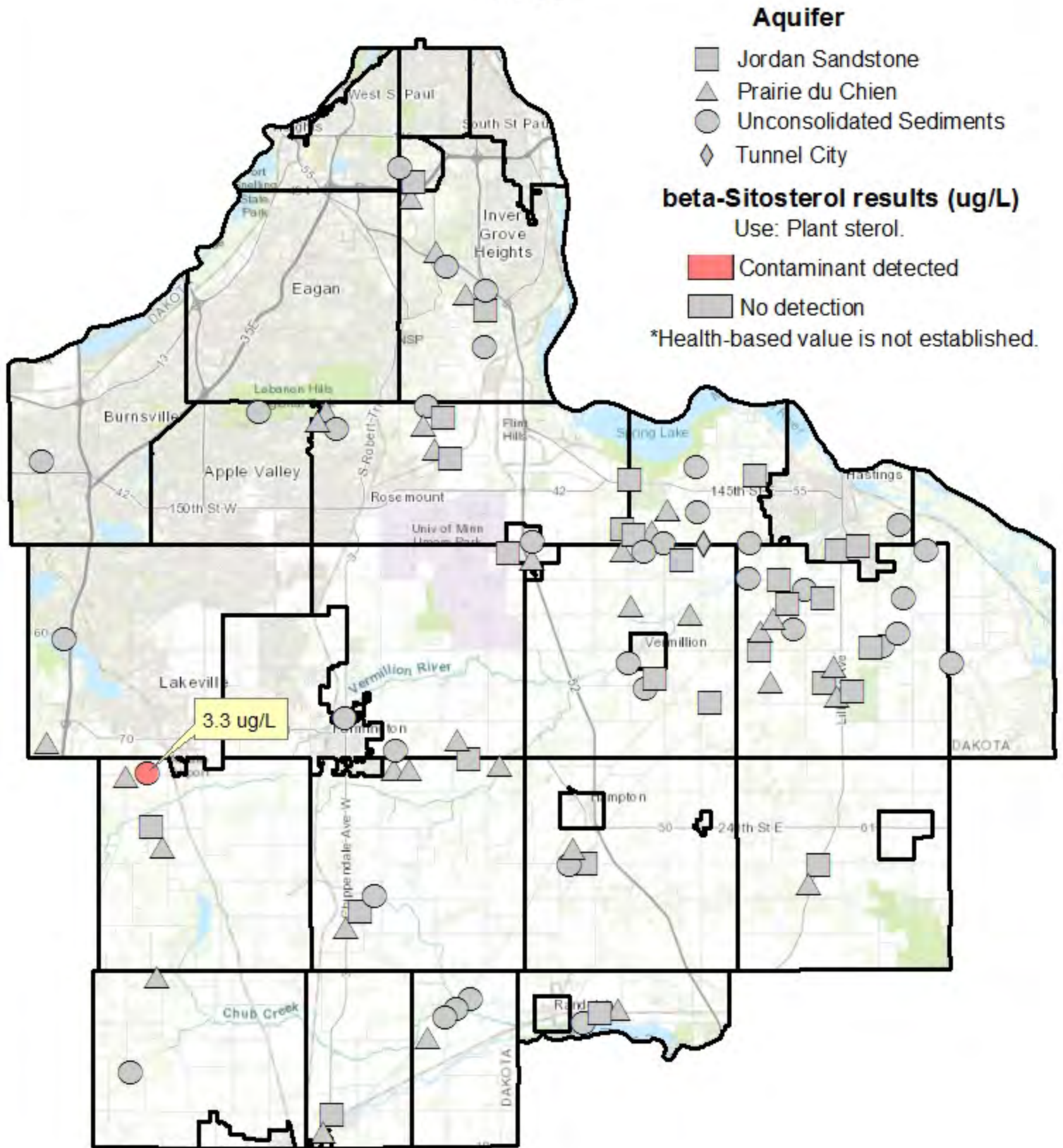
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



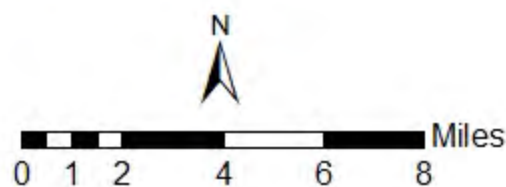
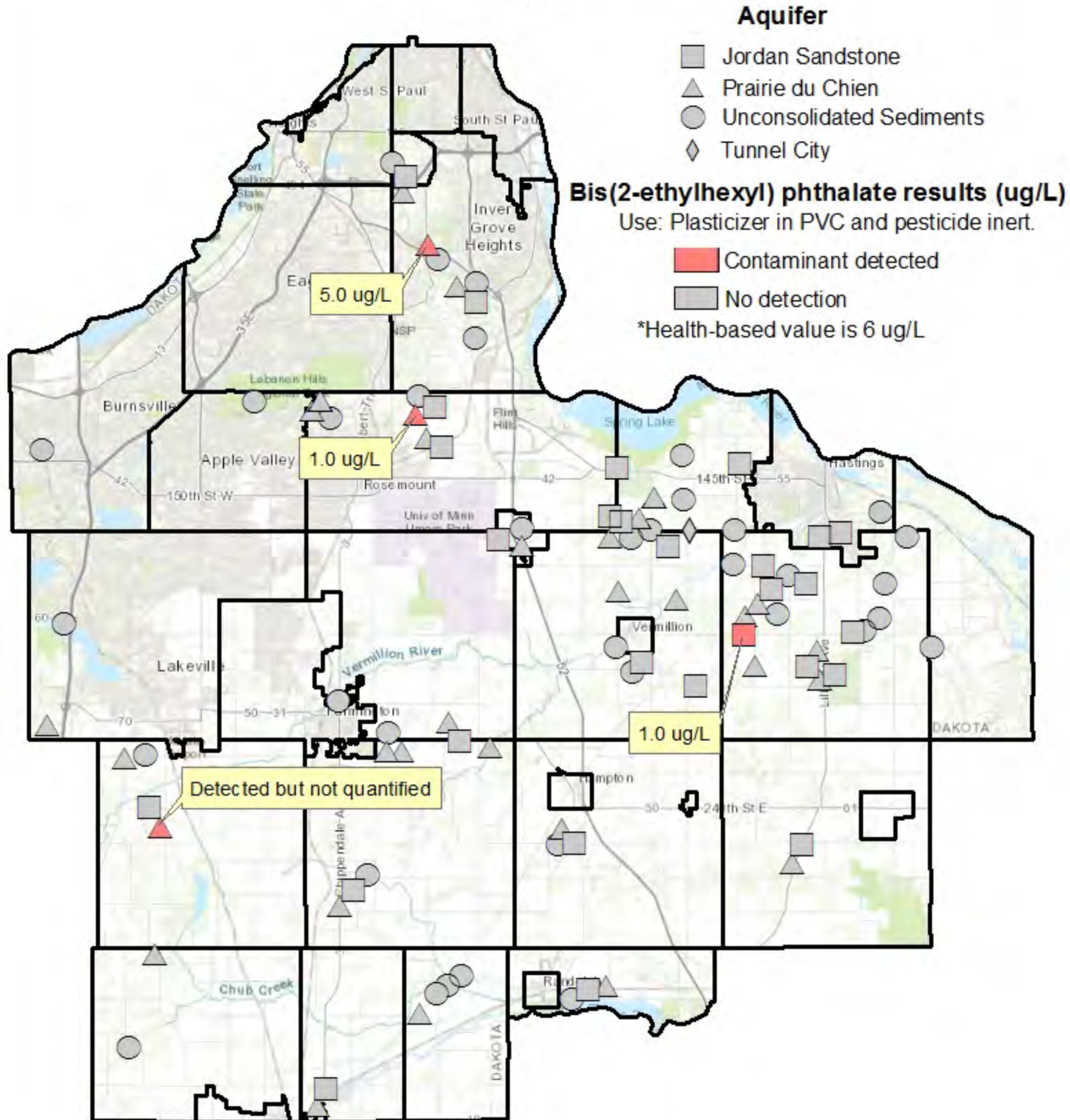
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



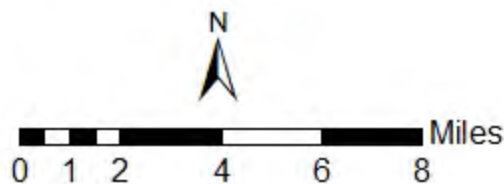
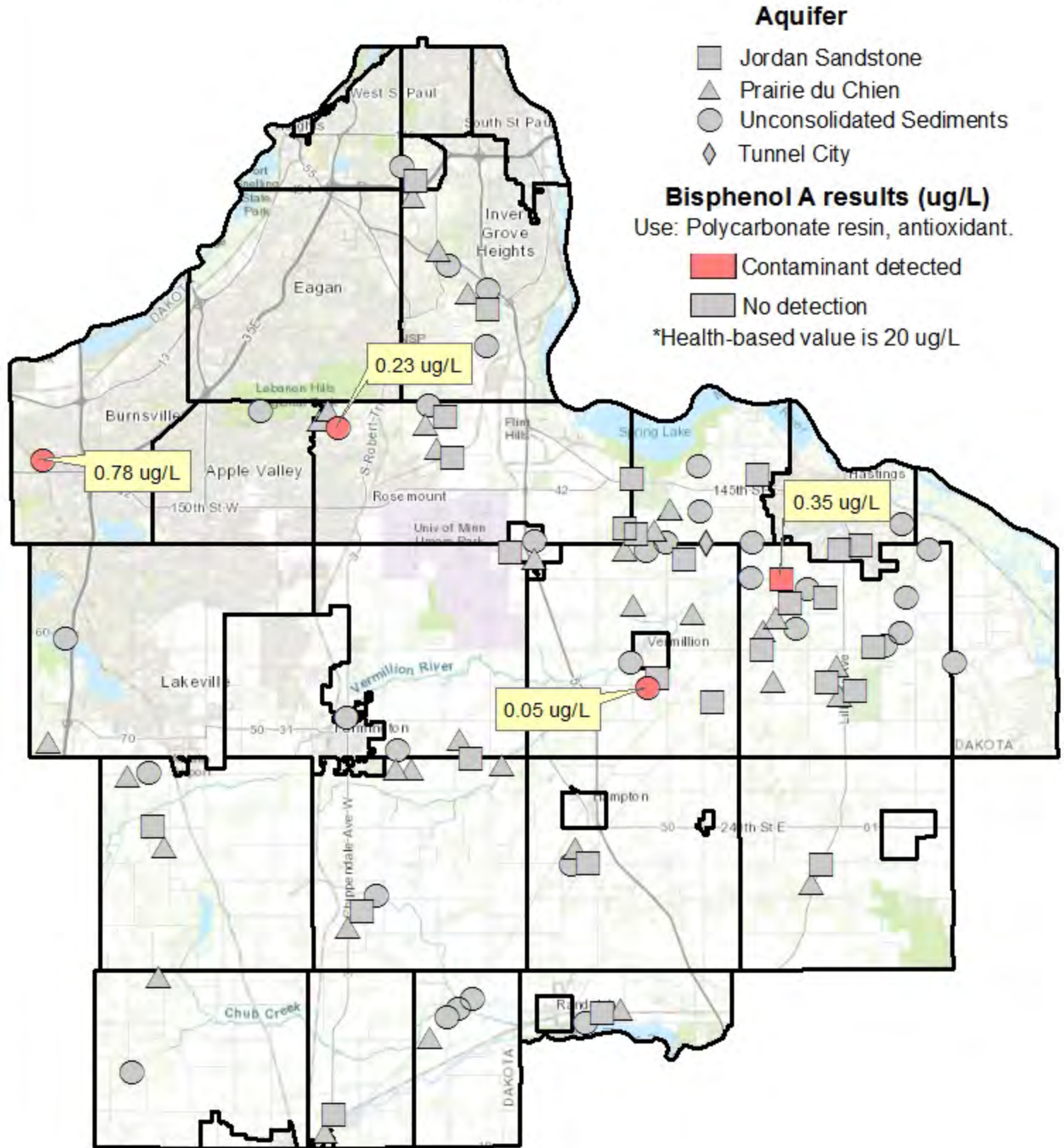
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



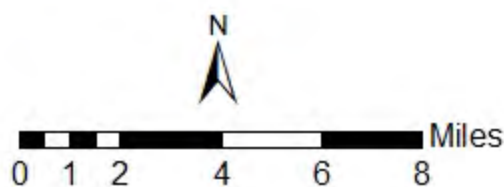
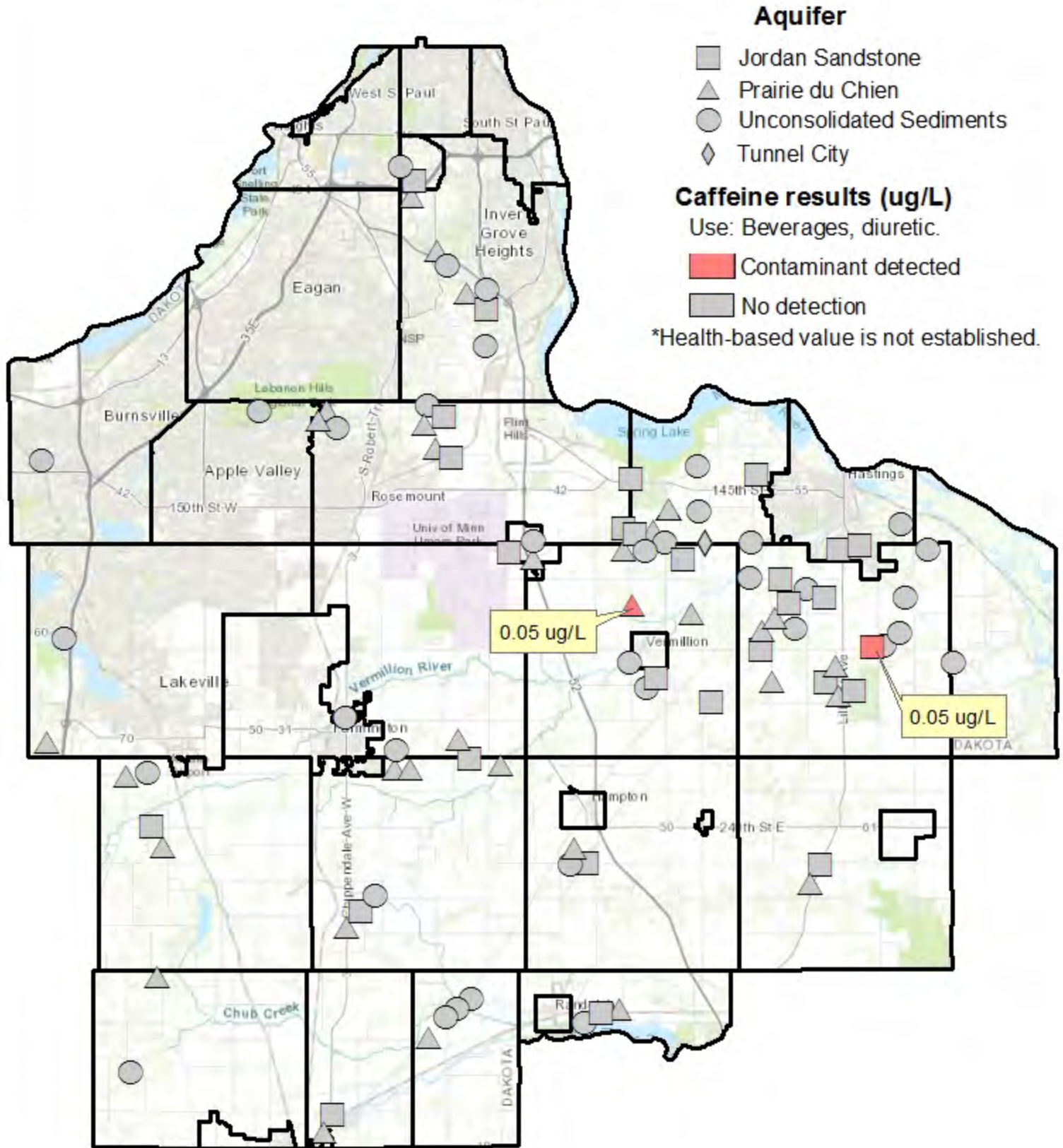
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



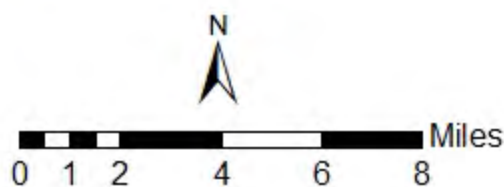
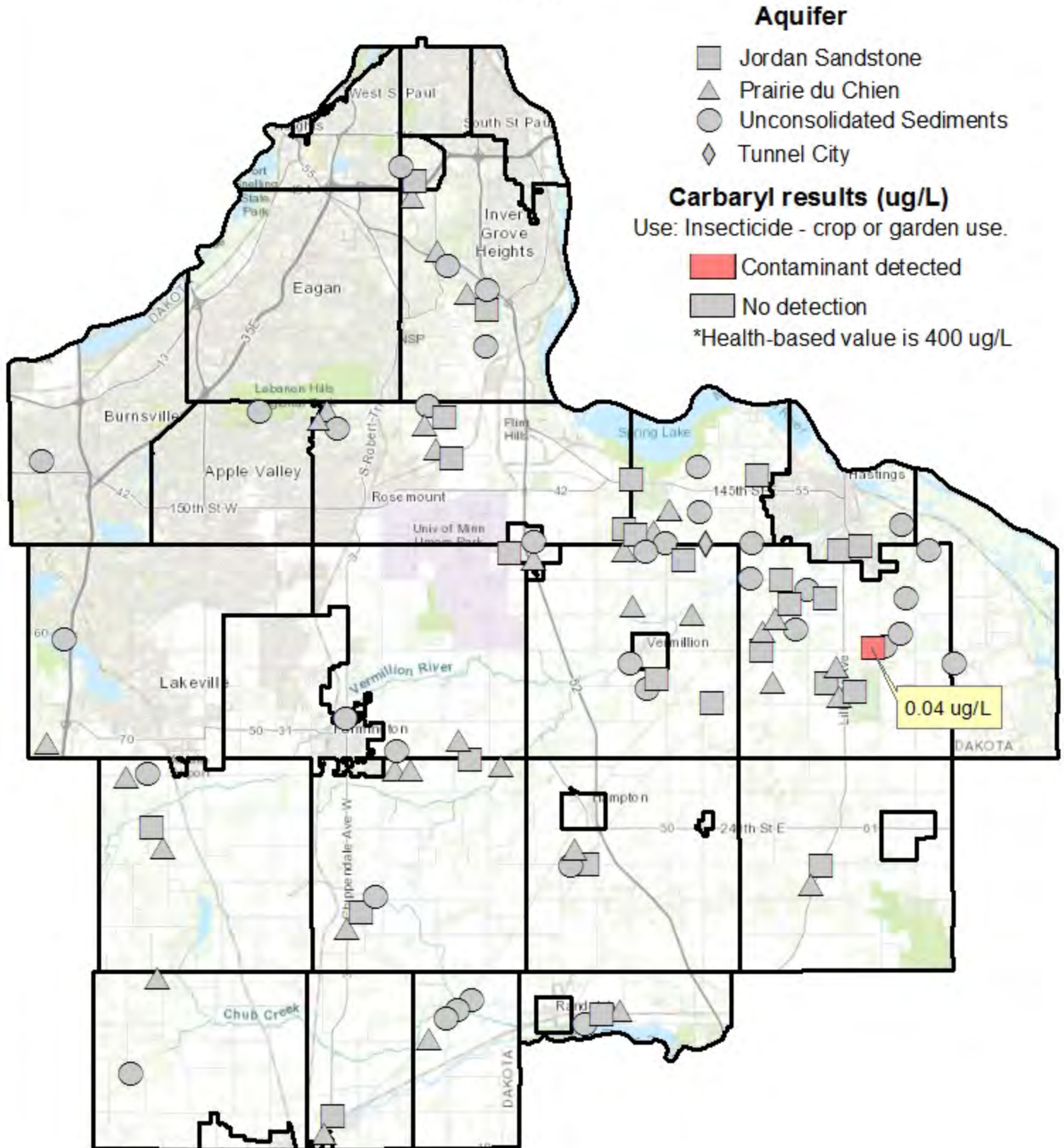
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



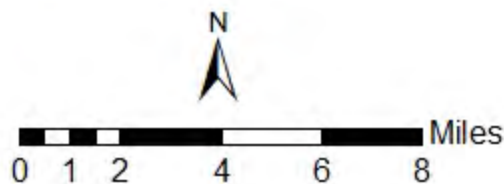
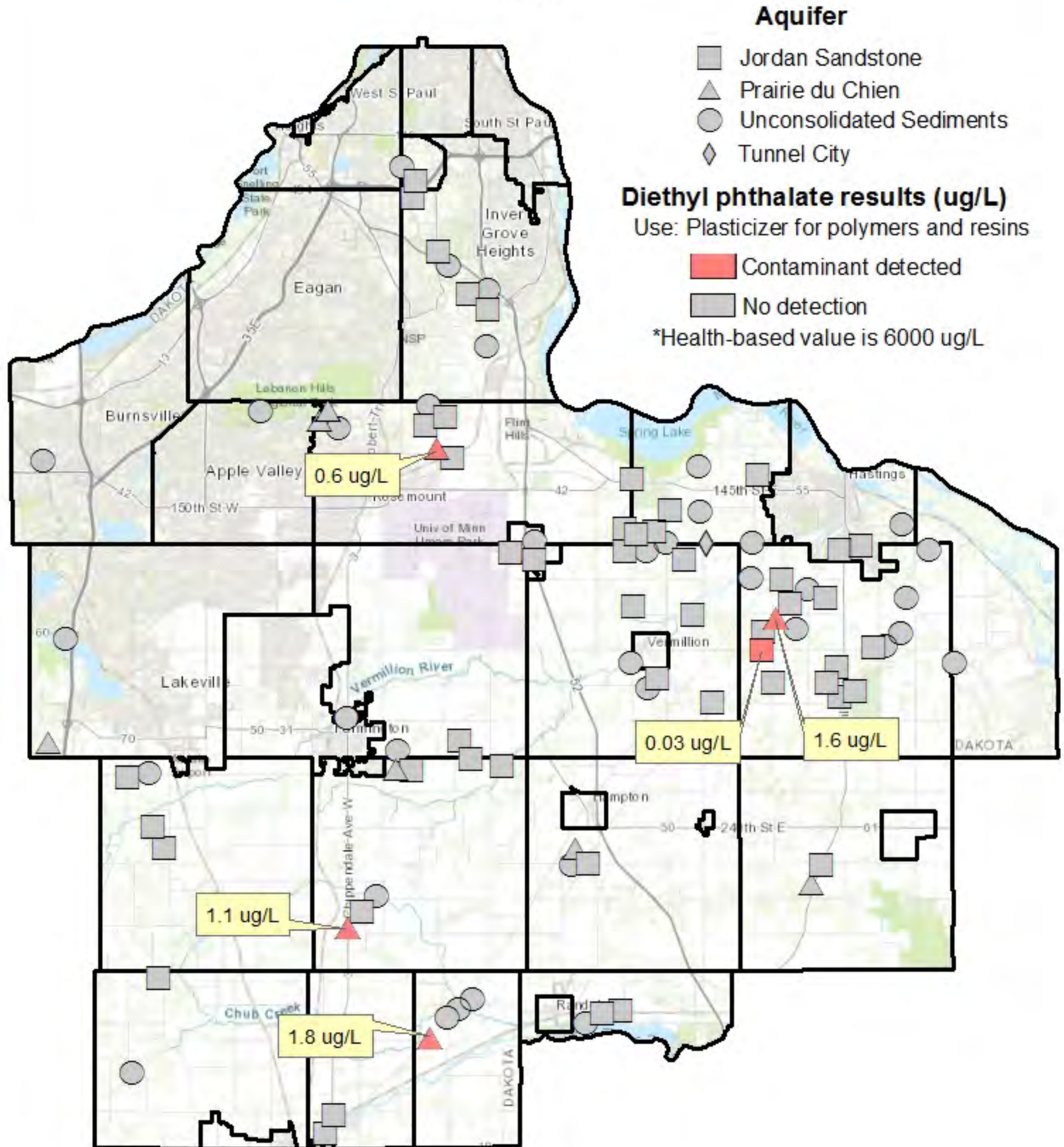
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



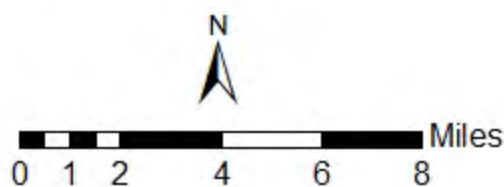
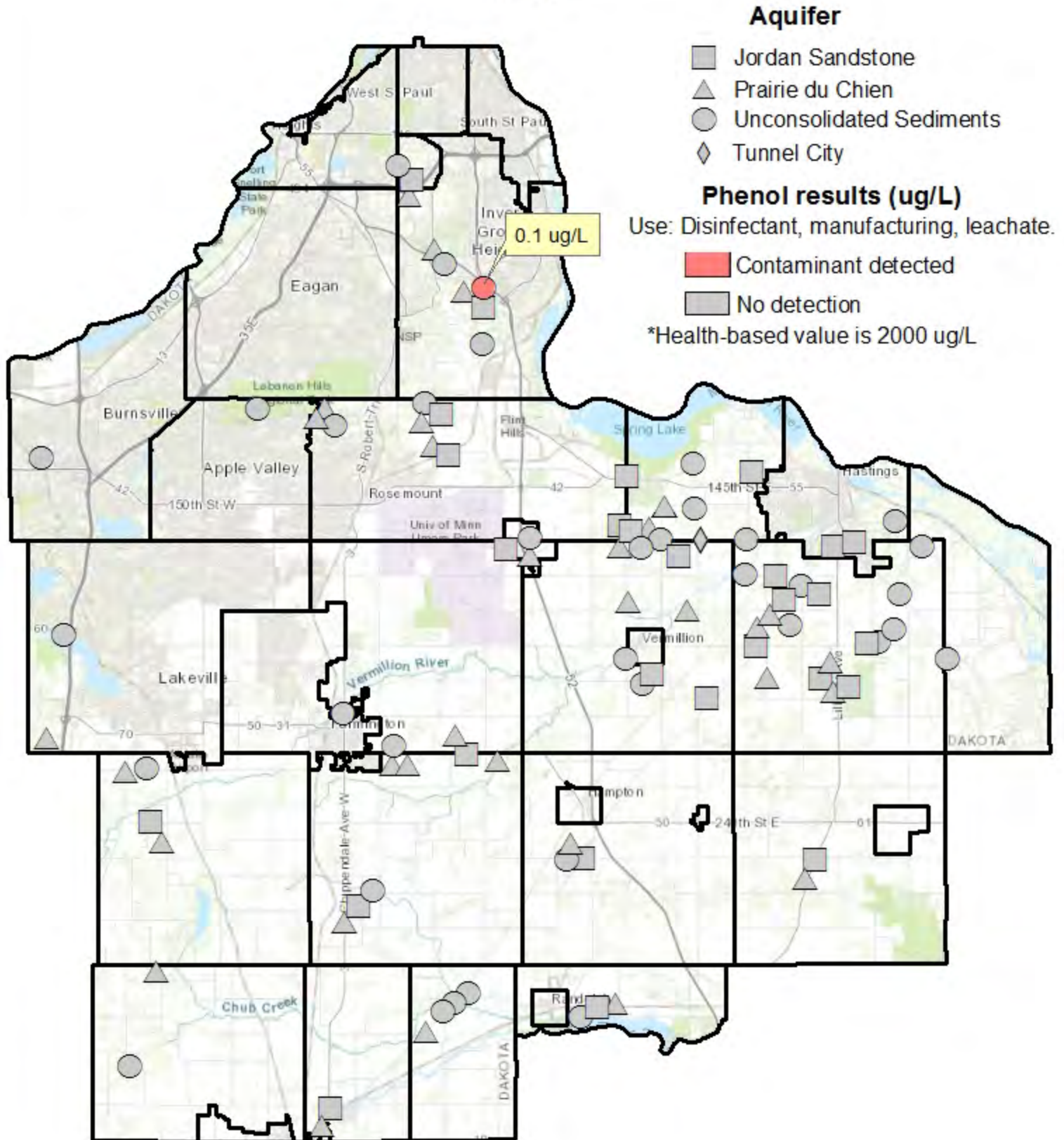
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



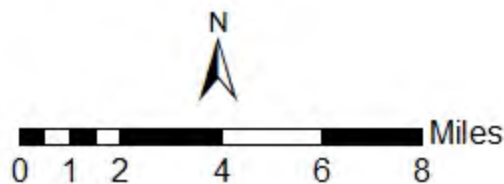
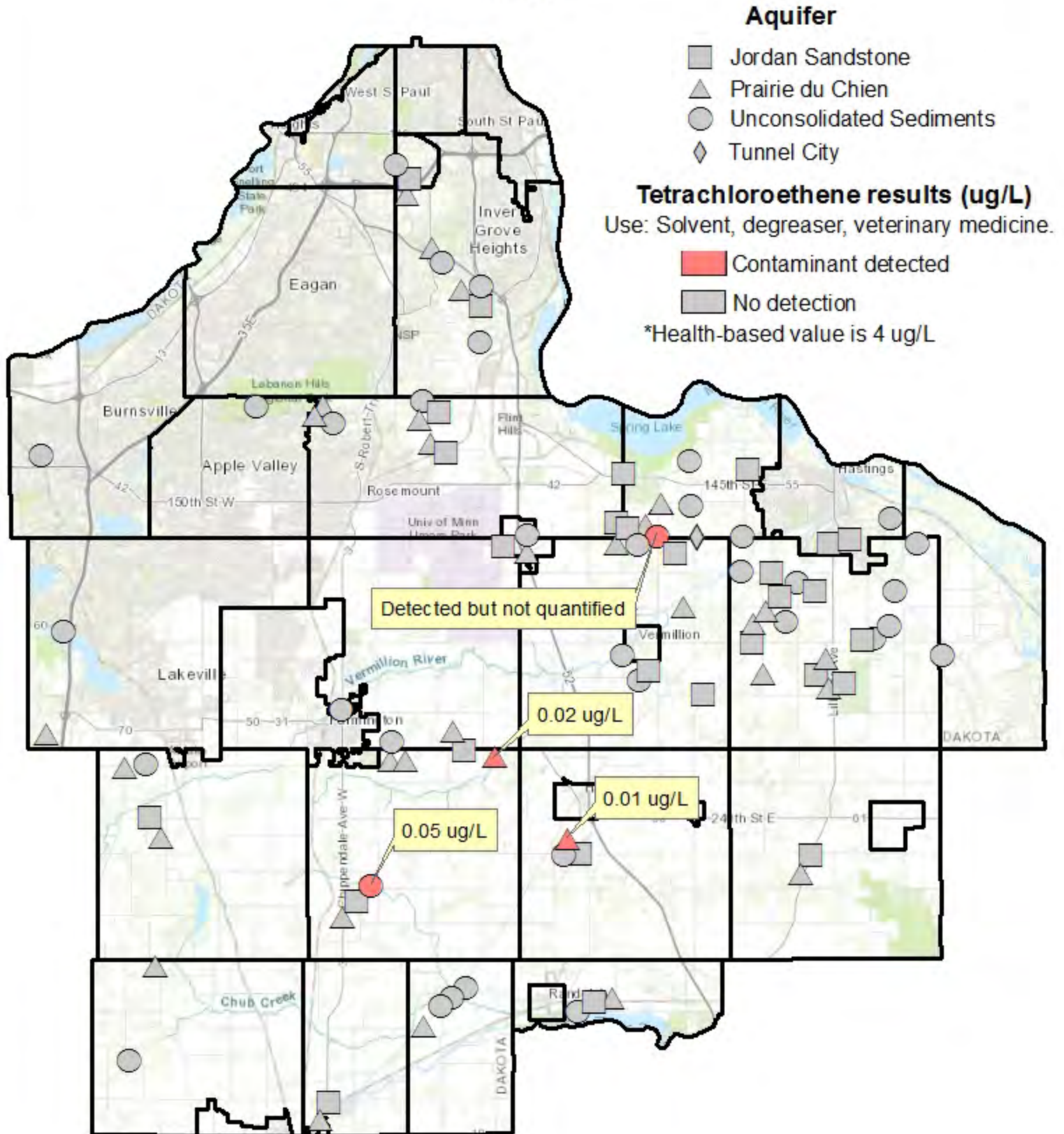
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



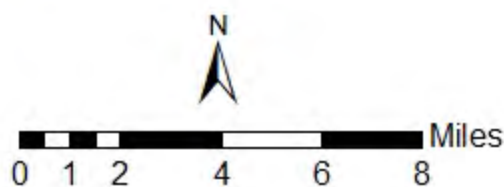
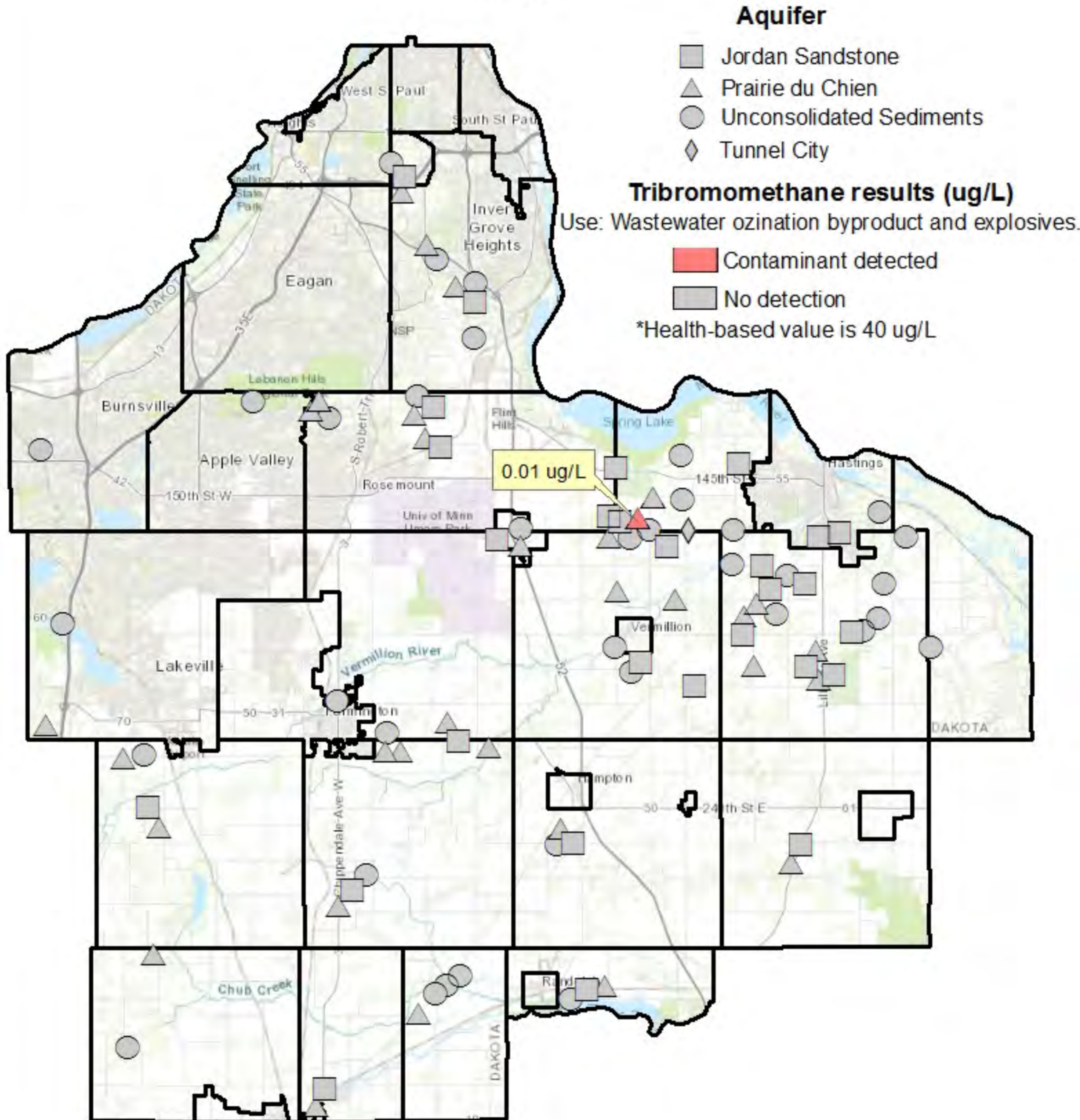
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



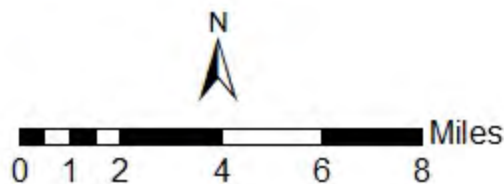
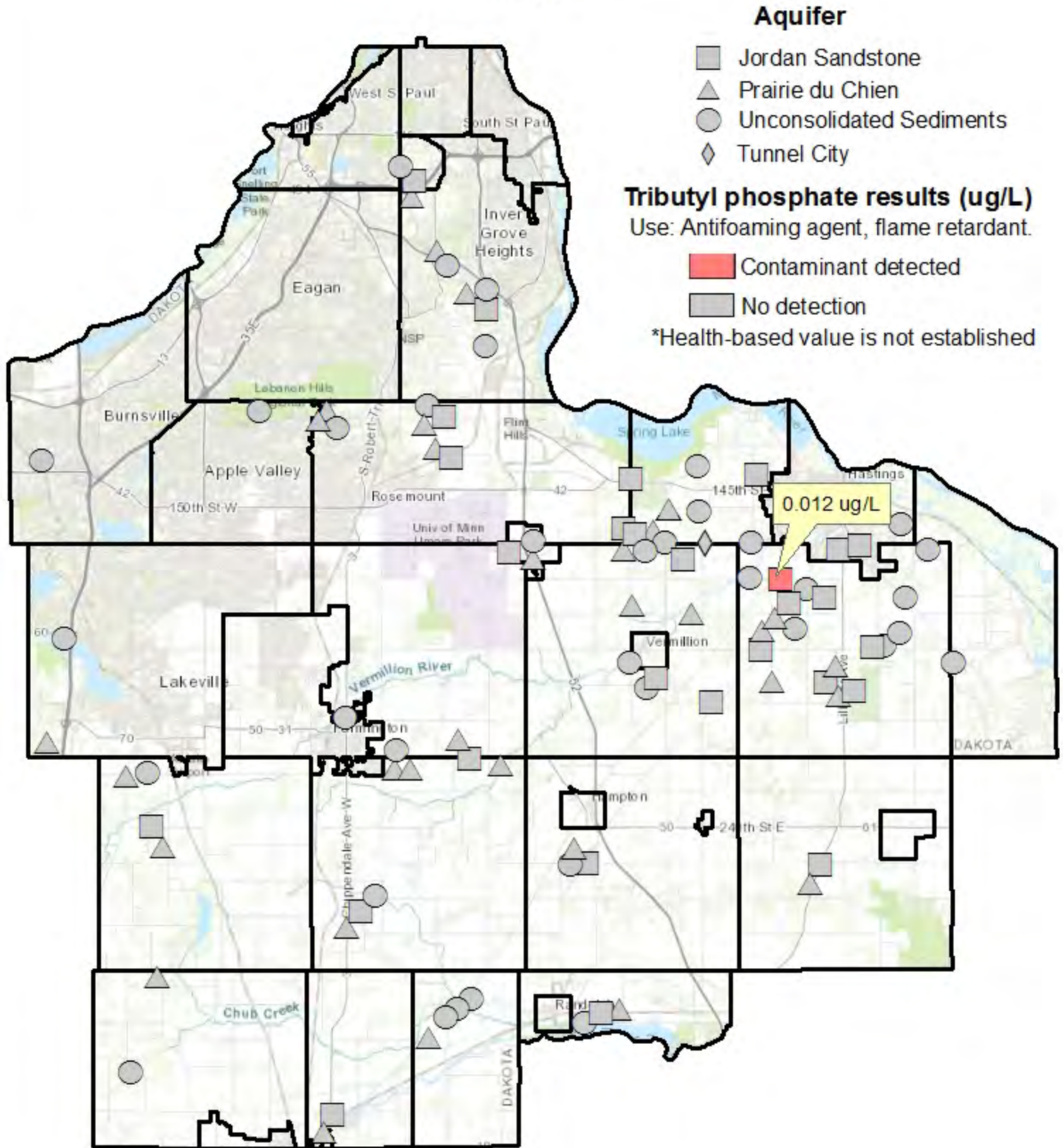
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



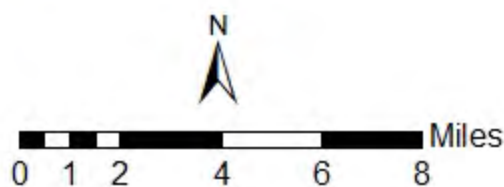
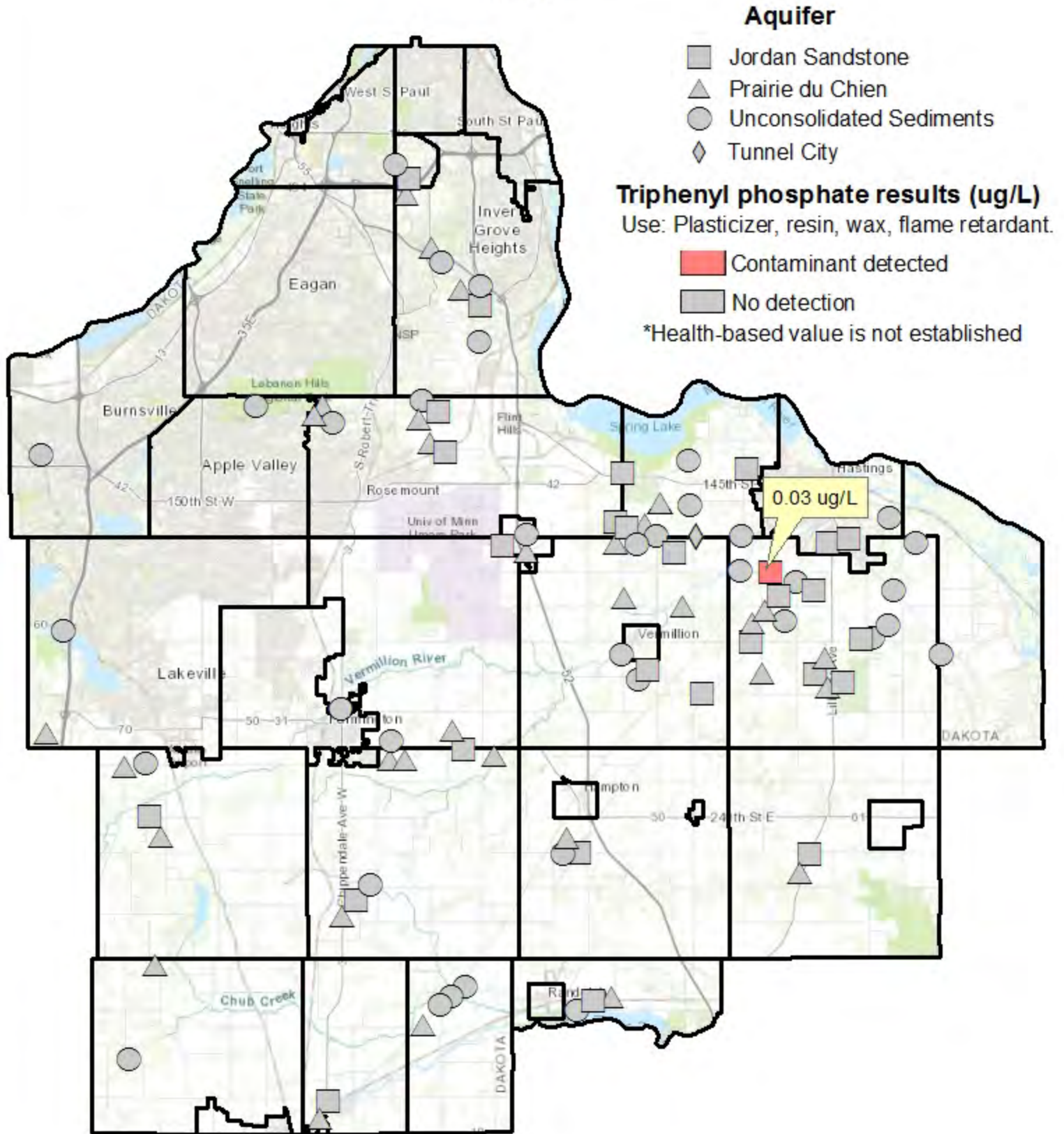
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



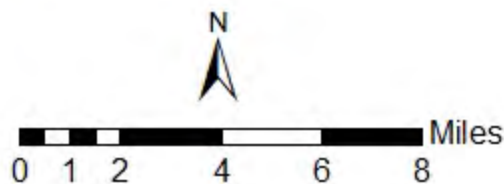
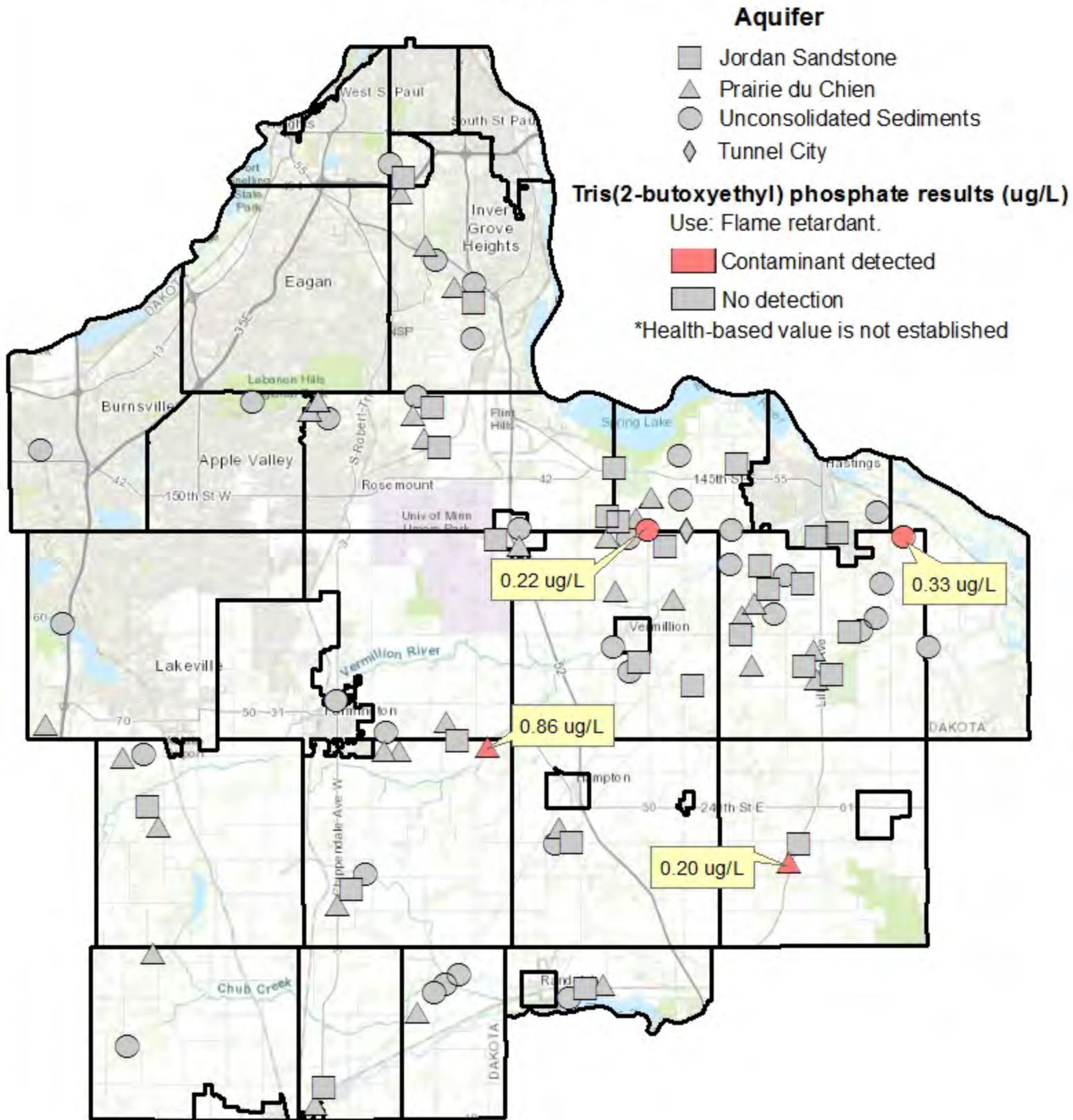
Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



Ambient Groundwater Sampling and Hastings Area Nitrate Studies Organic Wastewater Compounds 2008 Sampling Event n=99



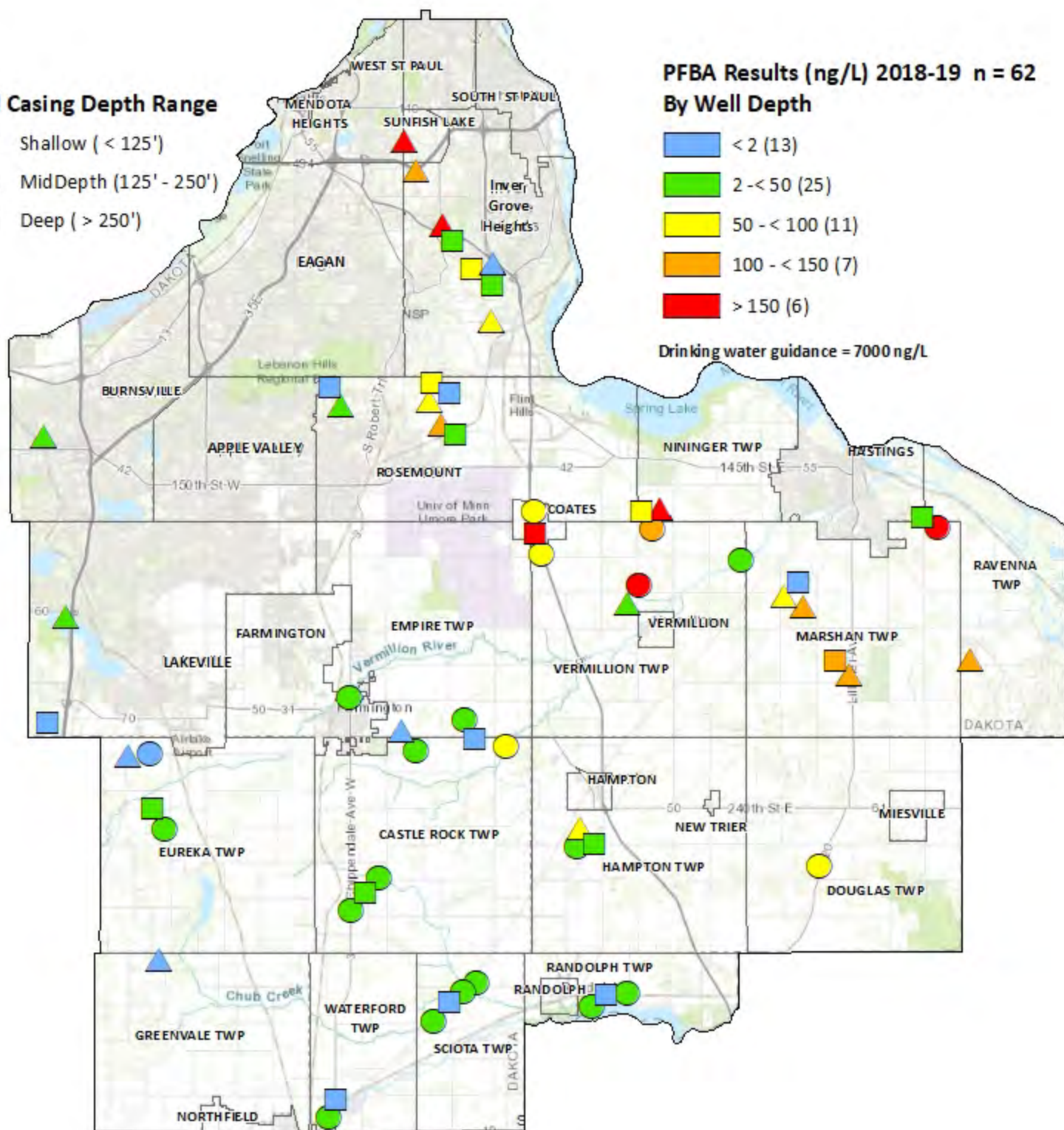
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFBA Results (ng/L) 2018-19 n = 62 By Well Depth

- < 2 (13)
- 2 - < 50 (25)
- 50 - < 100 (11)
- 100 - < 150 (7)
- > 150 (6)

Drinking water guidance = 7000 ng/L



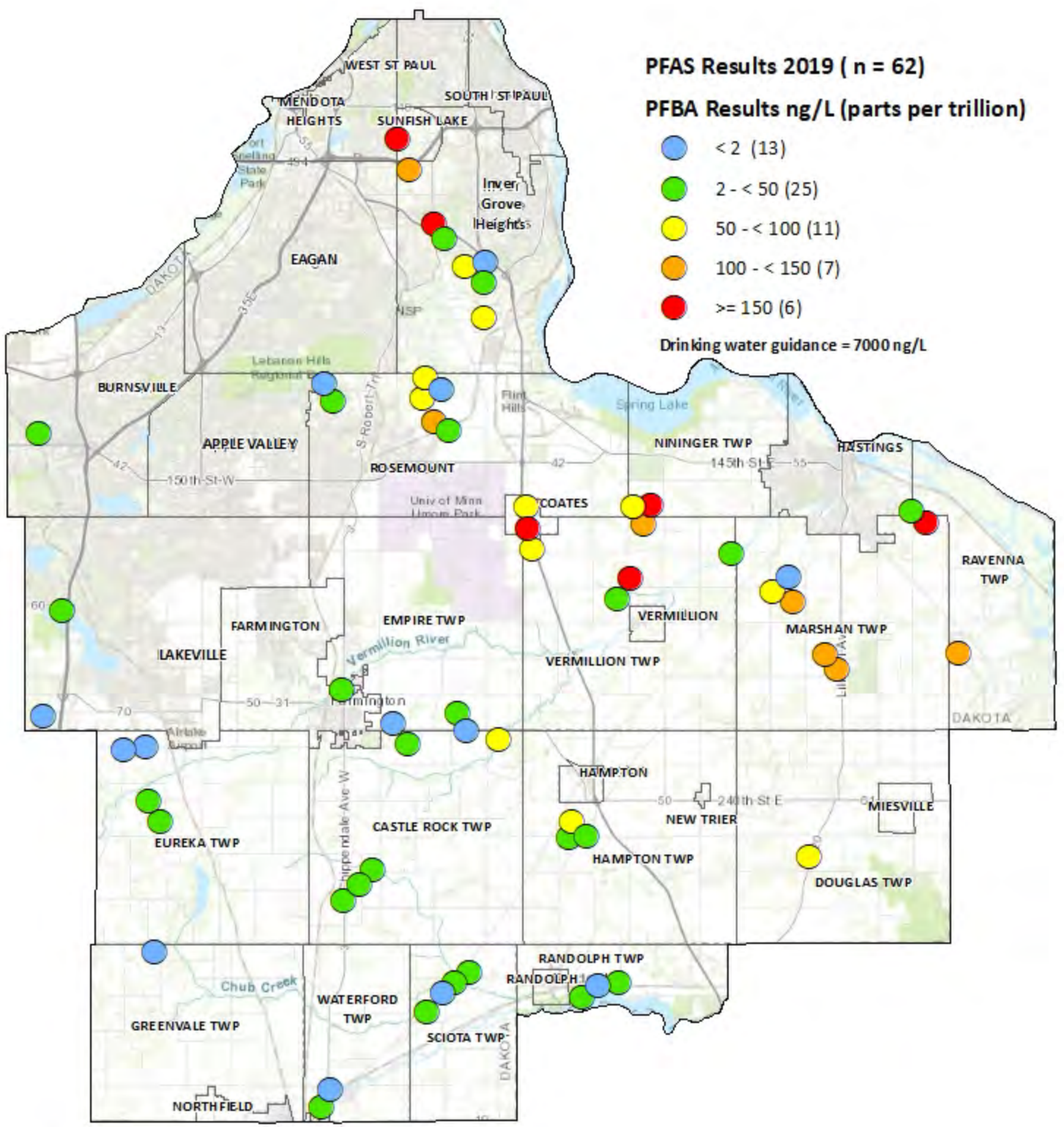
Sources: ESRI; Dakota County Environmental Resources

PFAS Results 2019 (n = 62)

PFBA Results ng/L (parts per trillion)

- < 2 (13)
- 2 - < 50 (25)
- 50 - < 100 (11)
- 100 - < 150 (7)
- >= 150 (6)

Drinking water guidance = 7000 ng/L



Sources: ESRI; Dakota County Environmental Resources

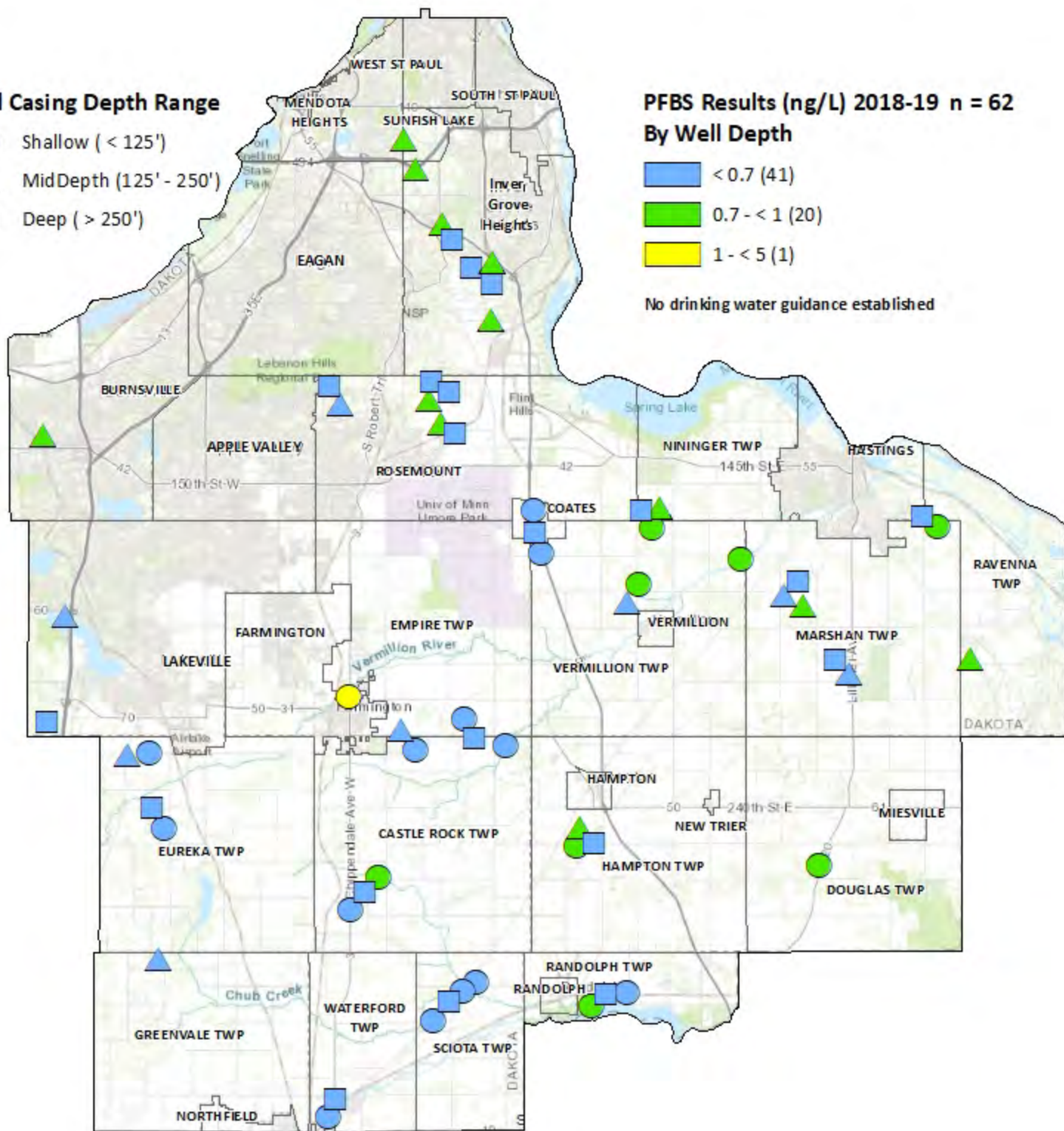
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFBS Results (ng/L) 2018-19 n = 62 By Well Depth

- < 0.7 (41)
- 0.7 - < 1 (20)
- 1 - < 5 (1)

No drinking water guidance established



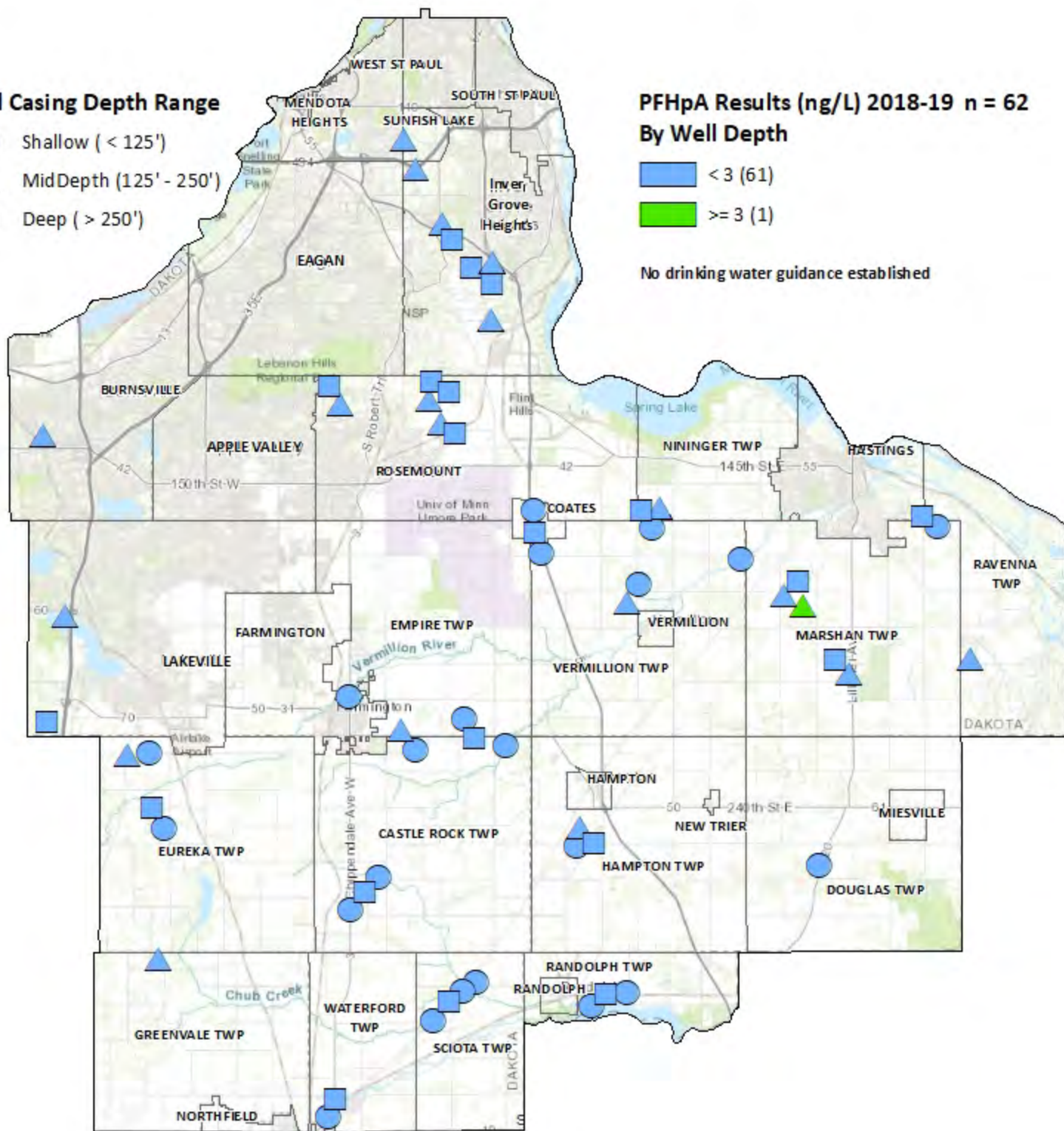
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFHpA Results (ng/L) 2018-19 n = 62 By Well Depth

- < 3 (61)
- ≥ 3 (1)

No drinking water guidance established



Sources: ESRI; Dakota County Environmental Resources

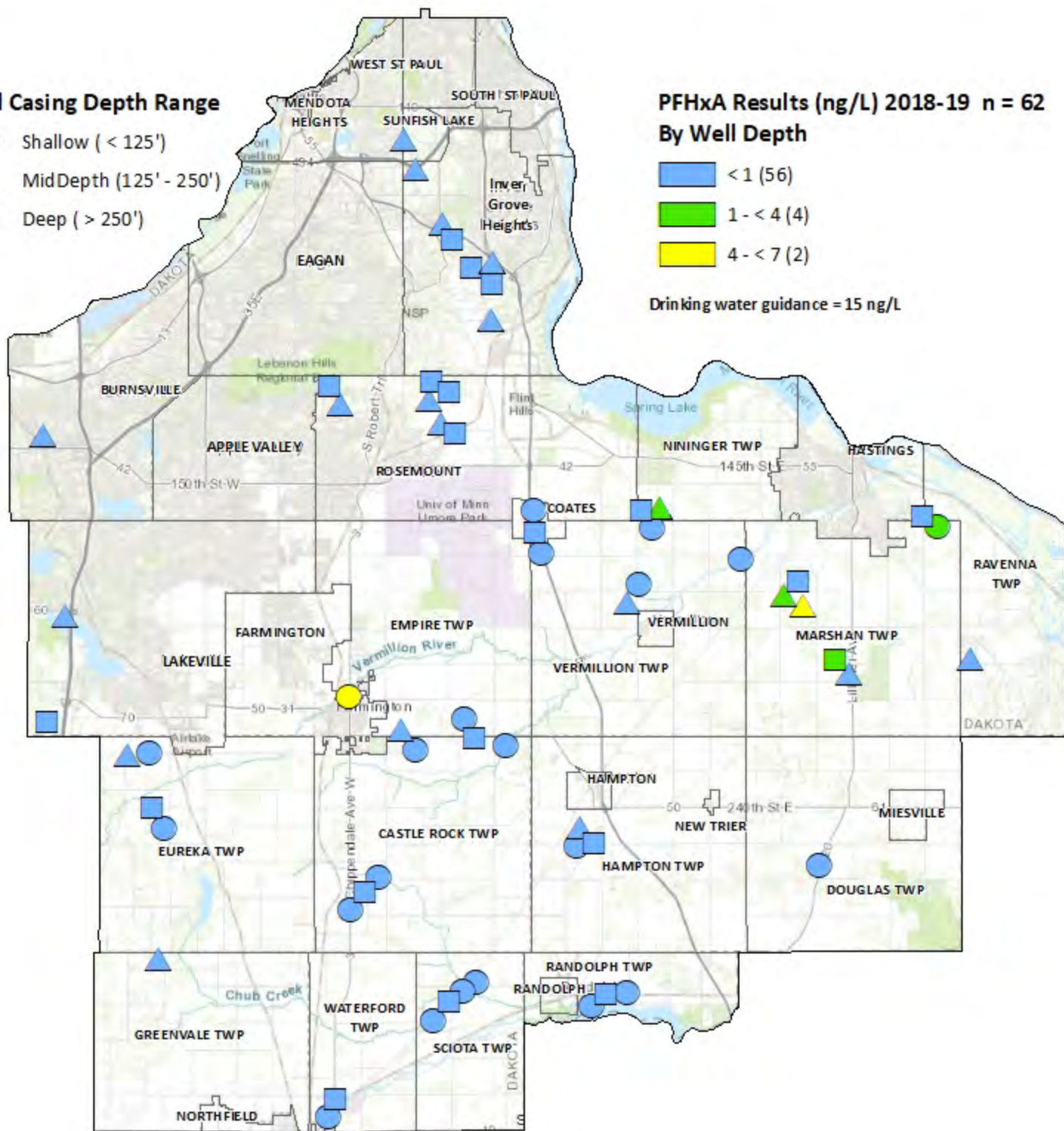
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFHxA Results (ng/L) 2018-19 n = 62 By Well Depth

- < 1 (56)
- 1 - < 4 (4)
- 4 - < 7 (2)

Drinking water guidance = 15 ng/L



Sources: ESRI; Dakota County Environmental Resources

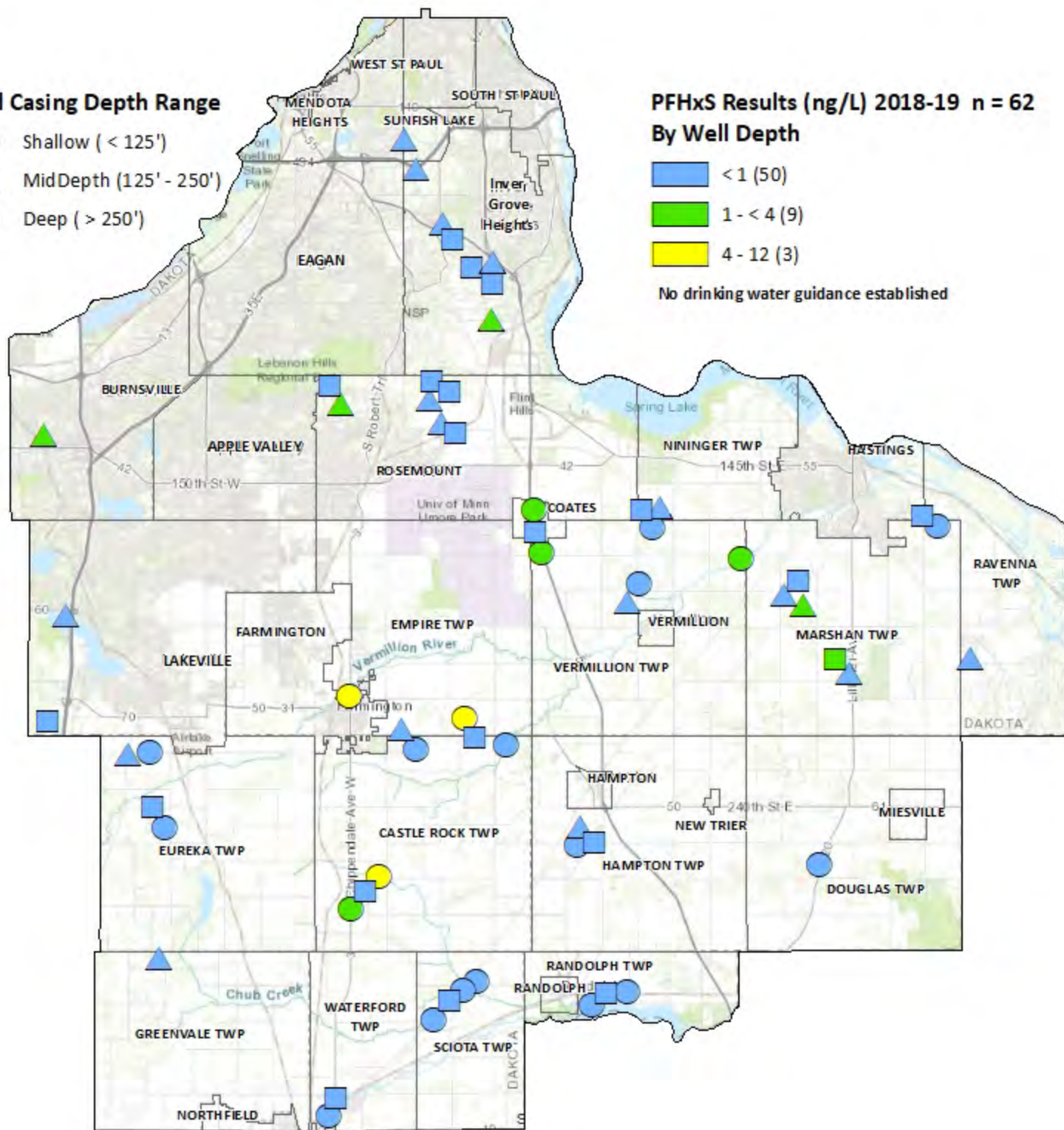
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFHxS Results (ng/L) 2018-19 n = 62 By Well Depth

- < 1 (50)
- 1 - < 4 (9)
- 4 - 12 (3)

No drinking water guidance established



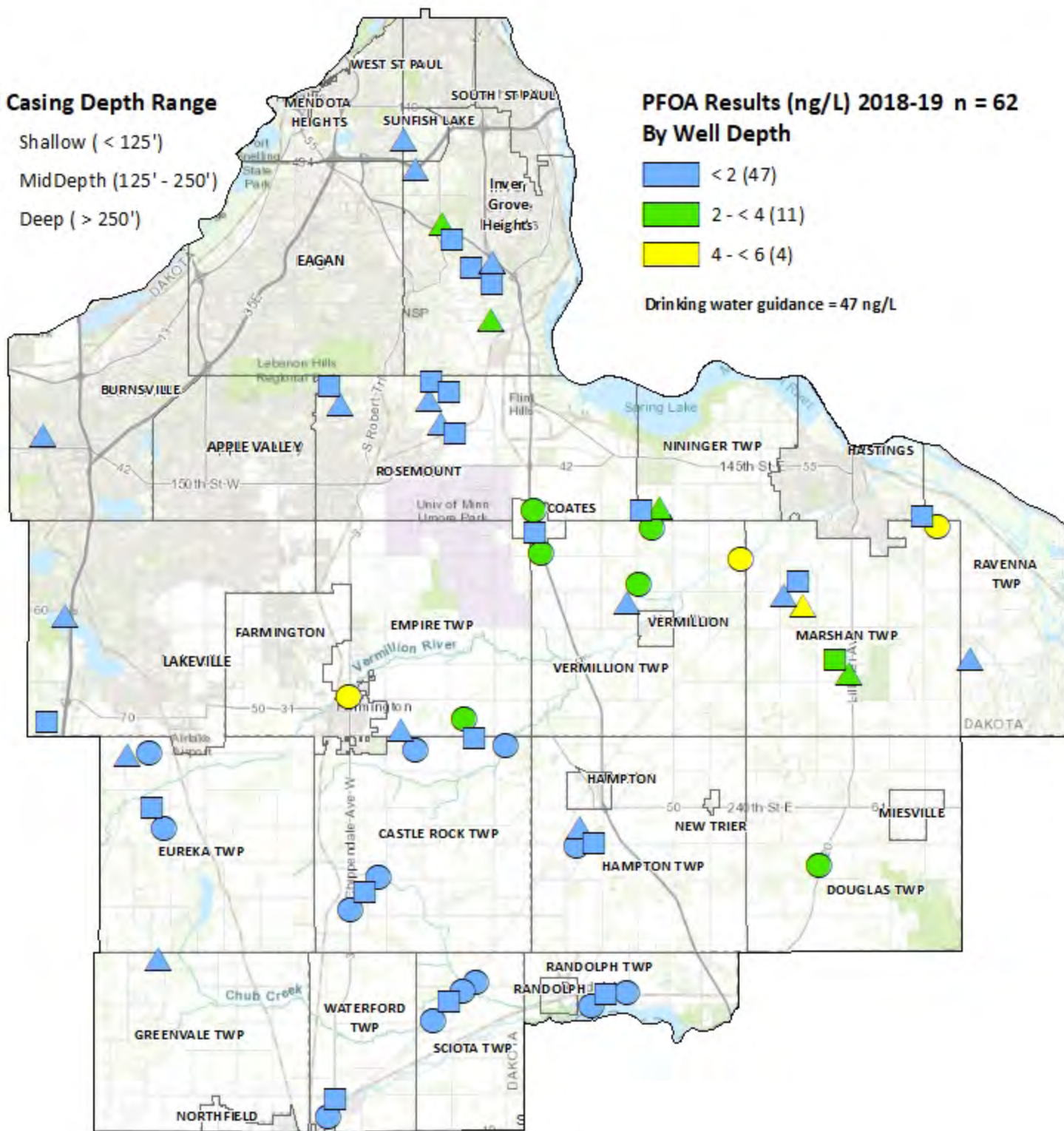
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFOA Results (ng/L) 2018-19 n = 62 By Well Depth

- < 2 (47)
- 2 - < 4 (11)
- 4 - < 6 (4)

Drinking water guidance = 47 ng/L



Sources: ESRI; Dakota County Environmental Resources

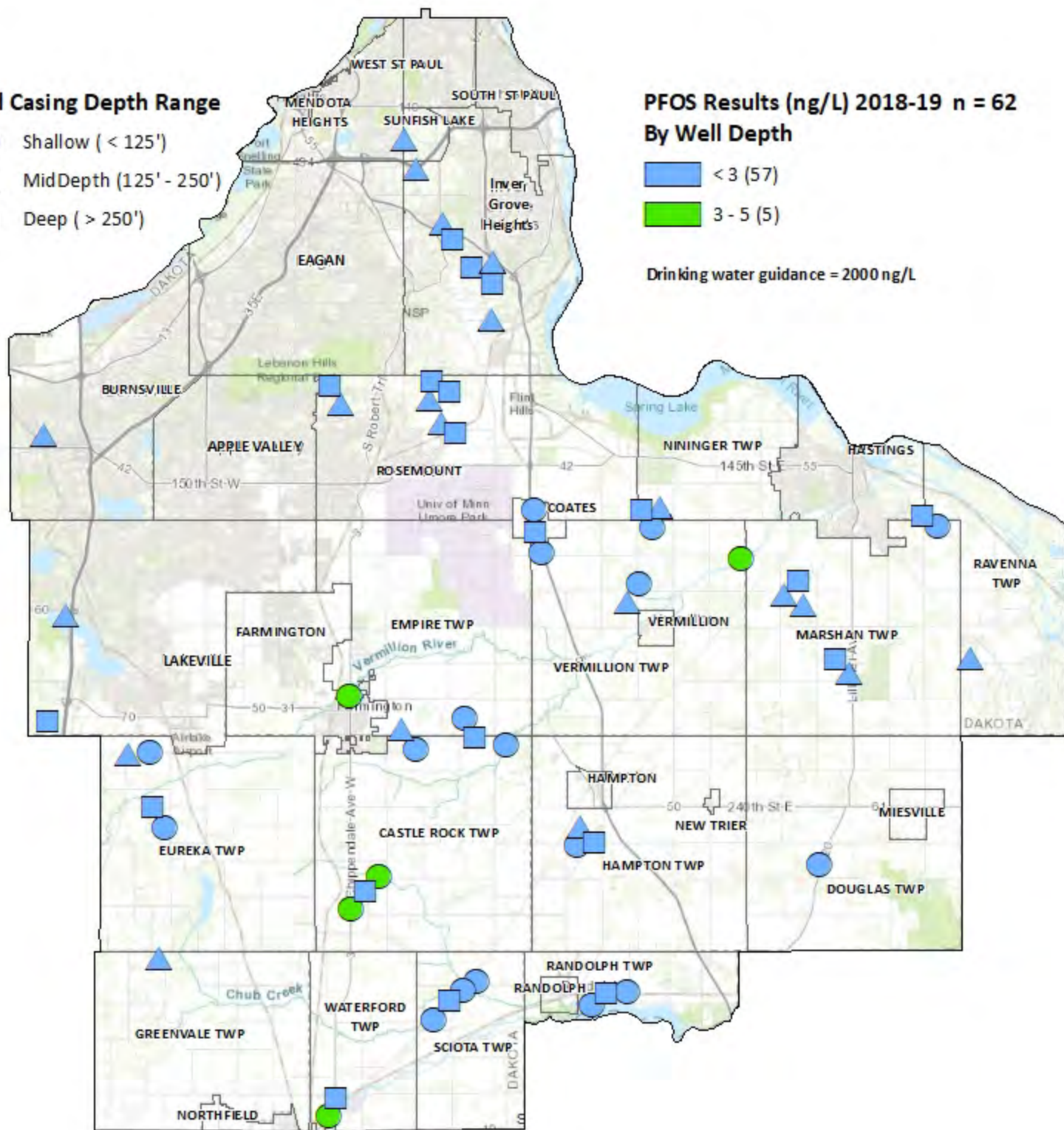
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFOS Results (ng/L) 2018-19 n = 62 By Well Depth

- < 3 (57)
- 3 - 5 (5)

Drinking water guidance = 2000 ng/L



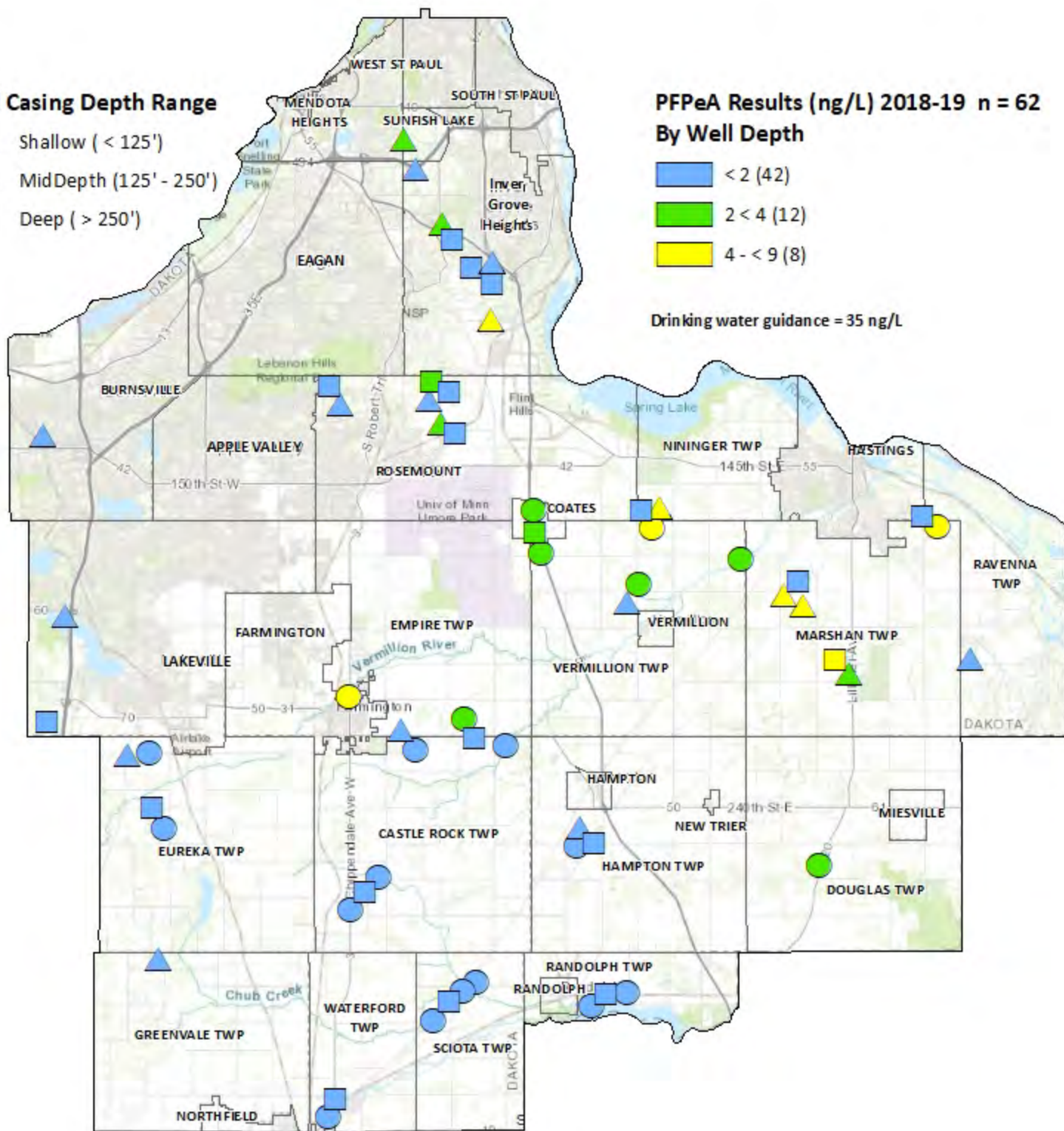
Well Casing Depth Range

- Shallow (< 125')
- △ MidDepth (125' - 250')
- Deep (> 250')

PFPeA Results (ng/L) 2018-19 n = 62 By Well Depth

- < 2 (42)
- 2 < 4 (12)
- 4 < 9 (8)

Drinking water guidance = 35 ng/L



Appendix H

Groundwater Modeling and Land Use Factor Analysis for Wells

Appendix H

Groundwater modeling and land use factor analysis for wells in the Dakota County Ambient Groundwater Study.

William Olsen, Dakota County Environmental Management

June 19, 2015

Introduction.

The objective of the groundwater modeling and land use analysis was to provide a basis for relating land uses to water quality analyses in the the Dakota County Ambient Groundwater Study. Individual land uses were assigned loading factors to quantify the concentration, or relative concentration, of particular substances that enter the groundwater below that land use. In general, loading factors vary from year to year. Groundwater models were used to predict the source areas for each well in the study, and to estimate the times of travel from the source areas to the wells. GIS analysis was used to determine fractions of each land use in the source areas, and to then compute effective loading factors for each well water sample analyzed in the study.

This appendix describes first the groundwater modeling, and second the GIS analysis. A novel method for describing the source areas was used, termed *infiltration circles*, which easily handles the analysis of water samples from wells with long screens of open holes that can mix waters of widely varying ages.

Groundwater modeling

The source area for a well as used in this report is the land surface where the water reaching the well originally infiltrated. A more precise name for this would be the *infiltration area* for a well. The infiltration area is not the same thing as a *capture zone* when the term capture zone is used to define the entire area occupied by the path-lines (projected to the land surface); the infiltration area is only the area where the path-lines actually meet the water table surface.

The time of travel from infiltration areas to wells was also considered in this analysis. That is because land uses in the infiltration areas have been changing through time. It is

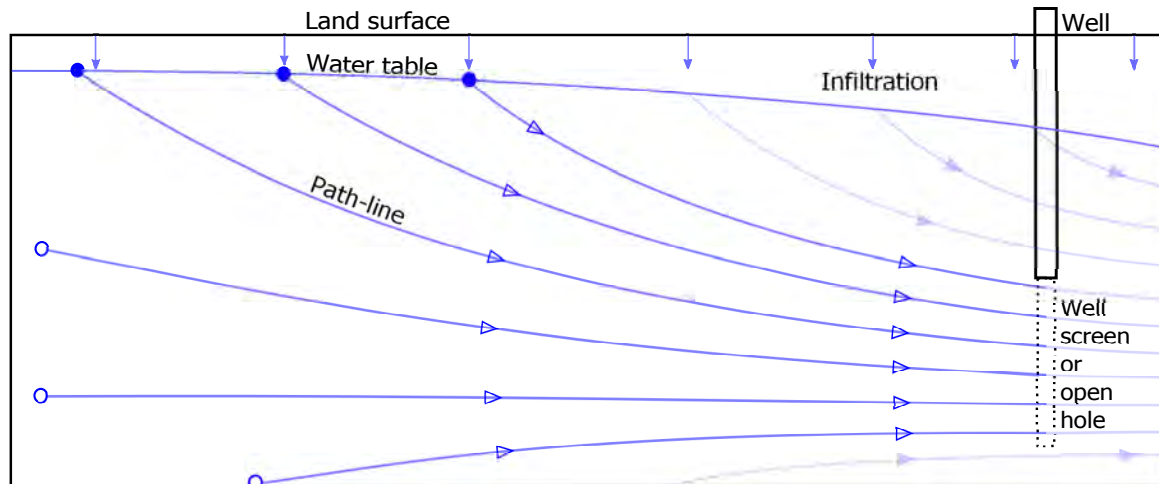


Figure 1: Section view showing path-lines traveling toward a well. In the model, the starting points of path-lines that flow to a well are found by following them backwards in time from the well. Some may enter the model from the water table, some may enter from a deeper aquifer layer, and some may be terminated within the aquifer when the time of travel limit is reached.

necessary to consider the year of infiltration of each water particle that reaches the well and becomes part of a sample.

Figure 1 illustrates our conception of groundwater flow from infiltration to a well screen. Groundwater flow is along path-lines, which can be computed by a groundwater model. Water enters the well along many path-lines, each of which has a different origin, length, and time of travel. Assuming that the water entering a well becomes mixed, then a particular water sample from a well contains water that came along many path-lines having a variety of origins and travel times. When one wishes to estimate the time that the water in a sample originally infiltrated, one subtracts the travel times along the path-lines from the time that the sample was taken. It is apparent that a sample will contain a mixture of water that infiltrated from different locations and over a range of different times.

In figure 1, the well is drawn with a relatively long screen, or open hole. The uppermost path-lines entering the well are drawn with solid dots at the water table to symbolize that the location and time that the water on the path-line infiltrated to the water table has been predicted by the model. The lower path-lines entering the well do not reach the water table inside of the figure, and are drawn with open dots at their ends to symbolize that the location and time that the water on the path-line infiltrated to the water table has not been predicted by the model.

Groundwater models.

Two Analytic Element Strack (1989) groundwater models were used to generate path-lines for the wells. Both are run in version 5.x of MLAEM (Strack Consulting). These are steady state analytic element models, in two dimensions. Flow in the vertical direction is determined to satisfy mass balance.

Version S101 of Metro Model I (MMS101) Seaberg and Hansen (2001) is a 2 layer model with the Prairie du Chien Aquifer as layer 1 and the Jordan Aquifer as layer 2. The HANS model Olsen (2003) is a single layer model of the Prairie du Chien and Jordan Aquifers in eastern Dakota County. The HANS model is believed to give a more accurate representation of the effects on groundwater flow of the Vermillion River and the buried bedrock valley between the cities of Vermillion and Hastings. In eastern Dakota County, only the HANS model was used. Elsewhere model MMS101 was used. In borderline areas where either model might be more accurate, results from both models were averaged.

Both models assume steady state porous media flow in piecewise homogeneous aquifers. In fact the groundwater flow regime is never exactly steady state, but it has been approximately so in the time periods studied. Fracture flow is known to occur in the Prairie du Chien Aquifer, but the models make no attempt to simulate it because the geometry of flowing fractures in the region remains unknown. It is believed that fracture flow can be ignored at a regional scale, but individual path-lines that encounter fracture flow will not be correctly computed in these models; their travel velocities are likely to be underestimated, and their directions may be altered.

Using path-lines to find infiltration areas for wells.

The MLAEM model can predict groundwater flow path-lines by numerical integration. In forward tracing, a starting point is selected, and the model computes the path-line by following it forward through time to an ending point. In backward tracing, an ending point is selected, and the model computes the path-line by following it backward through time to a starting point.

To find the infiltration areas for the wells in the study, a number of path-lines are traced backward from each well to where they reach the water table. The starting points at the well are distributed such that each point represents an equal quantity of water entering the well ¹. The wells evaluated in the Ambient study are all domestic wells with relatively insignificant pumping rates, so they are not entered in the groundwater models as pumping wells. That means that the models do not actually simulate radial flow into the wells; but they do simulate water flowing across the well screens or open holes. Figure 1 illustrates how the elevation of a path-line where it enters the well affects its point of origin.

Under steady state conditions, the infiltration area of these wells would be long and narrow. They would be narrow because the pumping rates are so small, and their length would depend on the length and depth of the *open interval* ² of the well. The approximate shape of the infiltration area would be defined by connecting the points where the various path-lines to the well intersect the water table.

¹The elevations of aquifer layers and water tables in reality are usually shifted a little in the groundwater models. In order to compute more correct travel times, the actual elevations of the top and bottom of the open interval of each well were mapped to elevations in the groundwater model that preserved their relative vertical position in the saturated portion of the aquifer. To make each path-line represent an identical volume of water, starting points were set at equal vertical intervals over the length of the open interval. An important assumption is that, because the pumping rates are relatively small, pumping will not cause significant vertical flows at the top or bottom of the open interval.

²We use the term *open interval* to mean the part of the well where water enters. That is the screen of a screened well, or the open hole of a bedrock well.

It is important to remember that groundwater models are simplifications of reality; actual aquifers are much more complex than what can normally be modeled. Also these models are steady state, meaning that they do not simulate the variations in flow directions and velocities that normally occur through time. Therefore the path-lines generated by these models, and thus the infiltration areas, have uncertainty. This uncertainty can be addressed by additional modeling efforts; but in this project we address it very simply by drawing buffer areas around the model predicted infiltration areas. The meaning of the buffered infiltration area will be that the size of the infiltration area is unchanged, but its location could be anywhere inside the buffer with equal probability.

Infiltration circles

We begin with the path-lines to the wells and the infiltration points where they originate. Recall that the infiltration area is expected to resemble a thick line connecting these points and that we intend to draw a buffer around the thick line. Since each infiltration point represented a distinct fraction of the water entering a well, it would be conceptually possible to separate the delineated thick line into distinct line segments centered on each infiltration point. We could then draw buffers around each segment. These buffers would overlap, which we address below.

If the length of each segment is small relative to the radius of the buffer that we intend to draw, then the buffers will approximate circles centered on the infiltration points. We now choose to omit the intermediate steps, and simply draw circles around the infiltration points. The circles are called the *infiltration circles* for the well. The meaning of an infiltration circle is like that of a buffered infiltration area: water on the associated path-line could originate anywhere inside the infiltration circle with equal probability.

In plan view, the infiltration circles may overlap, and one may ask if they count the same infiltration more than once in overlap area. They do not because each circle is associated with a different travel time to the well, so each circle samples infiltration at a different moment in time. The time of infiltration is equal to the time that the water sample is drawn from the well minus the time of travel along the associated path-line.

The infiltration circle approach has two great advantages. First, we avoid all of the complications and special cases that occur if we try to connect the points into a contiguous infiltration area. Second, we avoid the complication of trying to account for land use changes through time over a contiguous infiltration area that has a continuous distribution of times of travel to the well.

In general, the uncertainty in the location of an infiltration point predicted by the model will increase with the length of its associated path-line. We therefore choose to make the infiltration circle radius proportional to the length of the path-line. Circle radii were chosen to be 1/8 the length of the path-lines, with a minimum radius of 100 feet. Note that although the infiltration circles may have different sizes, each still represents an equal quantity of water entering the well; the infiltration circles will be related to water quality, but not to water quantity. It is stressed that the choices of the number of path-lines used and the circle radii are arbitrary, but we believe that the choices made give reasonable results appropriate for the resolution of this analysis.

A set of infiltration areas is illustrated in figure 2. There are two things to notice in

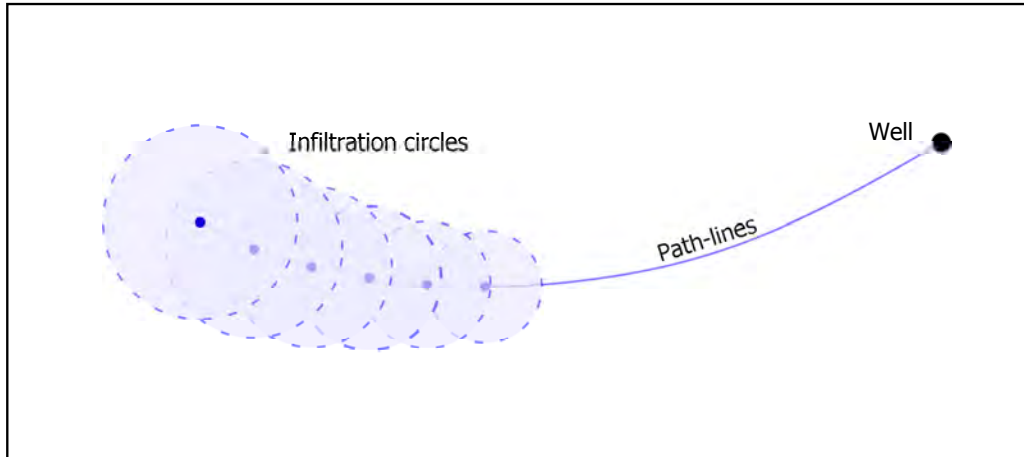


Figure 2: Plan view showing a well at the right, and path-lines leading to it from infiltration points. Circles are drawn around each infiltration point, with diameter proportional to their distance from the well. The path-lines are superimposed on top of each other in plan view, and appear as one.

this figure. First, the circles are drawn with dashed boundaries. That is to emphasize that they are not actual boundaries. The circles are used only as a tool for quantifying the land uses in the infiltration areas. Second, the circles may overlap. Overlapping does not mean that infiltration amounts in the overlaps are counted more than once, but it does mean that land uses in the overlaps are weighted more heavily in later analysis when land use loading factors are computed for the well samples. That is reasonable because the overlapping areas are more likely to contribute.

Data processing

For this report, a script was written to start path-lines at 10 to 20 points distributed vertically along the open interval of each well. More points were used for wells with longer open intervals.

Actual elevations of the top and bottom of the open interval of each well were mapped to elevations in the groundwater model that preserved their relative vertical position in the saturated portion of the aquifer. Actual elevations were determined in a GIS by examining well records and geologic studies; observed lithologic contacts and observed water levels were interpolated to the wells' locations.

For each path-line in the groundwater model simulations, the model reports four key pieces of information: the termination point, the distance traveled, the time of travel, and the termination condition. The three possible termination conditions were: *Exited Top*, *Exited Bottom*, and *Maximum Time Reached*. Only points that terminated as *Exited Top* were used to construct the infiltration areas. These are called the *infiltration points*, and the condition was renamed *Infiltrated* in the working files for clarity. Points terminating as *Exited Bottom* or *Maximum Time Reached* also contribute water to the well, but the water would have infiltrated a very long time ago. A post processing script written for ArcView

3.2 (ESRI) was used to extract the information from the model output, and also to associate each path-line with the correct well.

Because the land use factors that are being analyzed are of recent origin, older infiltration points contribute no contaminants in our analysis. Because of that, it was not necessary to follow path-lines further back in time than the earliest likely origin of contaminants of interest. A time of 100 years was chosen to stop all path-lines, with the assumption that this would be sufficient for all subsequent analyses.

GIS analysis

The purpose of the GIS analysis was to quantify land uses in the infiltration areas for the water samples so that land use loading factors could be computed for each path-line. As explained earlier, the infiltration areas are here replaced by infiltration circles. True path-lines are assumed to surface anywhere inside their infiltration circles with equal likelihood, and we assume that the loading factor for a path line is the same as the loading factor per unit area that would be computed for its associated infiltration circle.

Land uses for which loading factors were computed included:

- Row crop agriculture – as aerial sources of agricultural chemicals.
- Roads – as linear sources of road salt.
- Feedlots – as point sources, with associated number of Animal Units. Land spreading was not evaluated.
- Septic systems – as point sources of domestic contaminants.

Different techniques were used to compute the per unit area loading factors depending on the kind of source and its geometry.

For land uses having time dependent loading factors, such as agricultural chemical applications and road salt, the loading factor for each infiltration circle should be computed for the year of infiltration. The year of infiltration for a particular circle computed for a particular sample is equal to the year that the sample is drawn minus the travel time associated with the circle. As shown in figure 1, the loading factor for a single sample can include water infiltrated at various times. In this analysis time values were rounded to the year.

Nitrate and other field applied chemicals

Nitrate, Chloride and other chemicals applied to row-crops are associated with the aerial row-crop features in the GIS. For land uses with aerial geometry, the loading factor for an infiltration circle is the area weighted average of the loading factors for each land use intersecting the circle.

Let f_c be the loading factor for infiltration circle c , $a_i(t)$ be the loading factor for land use i in the year t of infiltration, A_i be the total area of land use i that is inside of the circle,

and A_c be the total area of circle c . Then the area weighted average loading factor for the circle is

$$f_c = \frac{\sum_{i=1}^n a_i(t)A_i}{A_c} \quad (1)$$

The units and range of f_c are the same as for the land use loading factors a_i .

Since detailed data for the different kinds of agriculture were not available, all areas classified as *row-crop* received the same time-dependent loading factor, and other areas received a loading factor of 0. Letting row-crop agriculture be land use $i = 1$, the loading factor for a circle simplifies to

$$f_c = \frac{a_1(t)A_1}{A_c} \quad (2)$$

Road salt and Chloride

Road salt as a source of Chloride is the only land use type in this analysis with a linear geometry. The loading factor for road salt is expressed as mass per unit length per year. The loading factor for an infiltration circle is the length of linear feature inside the circle, times its loading factor, divided by the area of the circle. Let L_i be the total length of features with application rate $a_i(t)$ inside of the circle. Then the area weighted average loading factor for the circle is

$$f_c = \frac{\sum_{i=1}^n a_i(t)L_i}{A_c} \quad (3)$$

The units of f_c for road salt Chloride are mass per unit area per year.

Septic systems and feedlots

Septic systems and feedlots were treated as point sources. The loading factor for an infiltration circle is the number of points inside the circle, m , times their loading factors, divided by the area of the circle.

$$f_c = \frac{\sum_{i=1}^n a_i(t)m_i}{A_c} \quad (4)$$

where m_i is the number of features with loading factor i inside of the circle. The loading factor $a_i(t)$ for a septic system is 1, and for a feedlot it is the number of animal units. The units of f_c for septic systems is the number of septic systems per unit area, and the units of f_c for feedlots is the number of animal units per unit area.

Chloride

Chloride in the groundwater has several anthropogenic sources, including road salt, potassium-chloride fertilizer applied to row-crop agriculture, septic systems, and livestock manure. As explained in the report, the latter two sources were found to be insignificant and were excluded from further analysis. The first two sources had to be summed. To sum the chloride contributions from crop fertilizer and from road salt, the two sources must be expressed in consistent units.

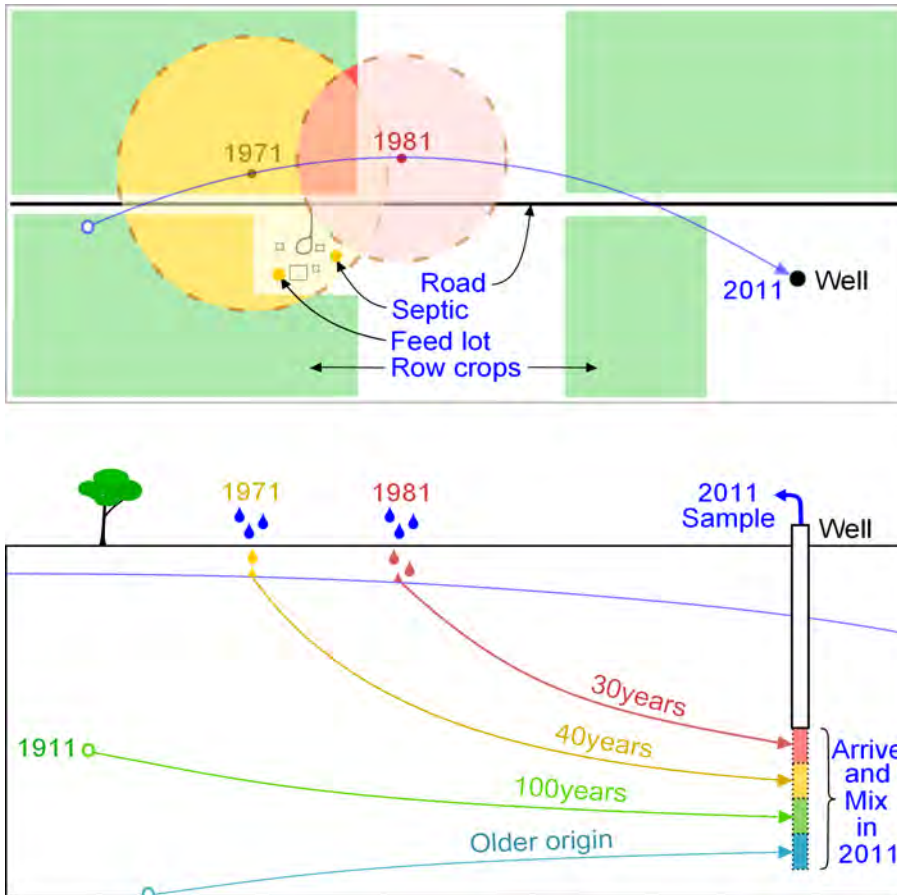


Figure 3: Plan view (above) and section view (below) showing land uses, infiltration circles, and path-lines leading to a well. Intersections of infiltration circles with areal, linear and point type land use features are illustrated in the plan view. Infiltration dates are calculated for each infiltration circle for a sample drawn in year 2011. The figure illustrates an area where two circles overlap in plan view. Since the circles have different years of infiltration, they do not represent infiltration of the same water twice in the area of overlap. Note that in the area of overlap the land use loading factor contribution may be different for each circle because the year of infiltration is used to compute the loading factor.

The fertilizer contribution is initially expressed as a unitless loading factor between 0 and 1. A loading factor of 1 is associated with the annually applied mass of chloride in potassium fertilizer under application rates estimated for the year 2010. Application rates were taken from USDA reports, and the 2010 rate of chloride application was estimated to be 35 lbs/acre/year. That amount times the land use factor for each well has the same dimensions as the loading factor for the road salt contribution, and the two can be summed.

$$f_{c(\text{Cl}^-)} = f_{c(\text{road salt Cl}^-)} + f_{c(\text{fertilizer Cl}^-)} \frac{35\text{lbs}}{\text{acre} \cdot \text{year}} \quad (5)$$

The mass per unit area contribution of Chloride can be also be expressed as mass of Chloride per unit volume of groundwater by dividing by the infiltration rate, N , per year.

$$\text{Cl}^- [\text{mg/L}] = \frac{\text{Cl}^- [\text{mg}][\text{dm}^{-2}][\text{year}^{-1}]}{N [\text{dm}][\text{year}^{-1}]} \quad (6)$$

Data processing

Figure 3 illustrates infiltration circles overlaid by land uses, with path-lines and a well. Each of the land uses, areal, linear, and point were generated as GIS coverages with loading factor attributes. The infiltration circles were generated as GIS coverages with attributes of time of travel, fraction of the well sample, and well identity. The year of infiltration t_j was determined for each circle j as the year of a sample minus the travel time for the circle's path-line. The loading factor for a sample is the sum of the factors computed for the circles, as described above, divided by the number of path-lines drawn for the well.

References

- Olsen, W. (2003). Groundwater model for the hastings area nitrate study (hans). Technical study, Dakota County Water Resources Department, 14955 Galaxie Ave. Apple Valley, MN 55124. (This is a single layer MLAEM groundwater model. Layer 1 includes Q-CJDN. Solution version /mm/HANS/bin/A1DAT.sol).
- Seaberg, J. K. and D. D. Hansen (2001, May). Metropolitan area groundwater model project summary. south province, layers 2 and 3 model. version 1.01. Model and project report, Minnesota Pollution Control Agency. (This is a MLAEM groundwater model. Layer 2 = OPDC. Layer 3 = CJDN).
- Strack, O. D. L. (1989). *Groundwater Mechanics*. Prentice Hall.