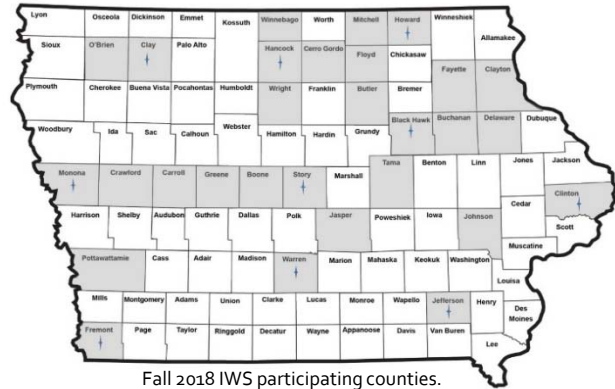


# IOWA WELL SURVEY

An ongoing study to characterize private well water quality in Iowa

FALL 2018 SUMMARY REPORT

Iowa Well Survey fall sampling took place for 10 weeks between mid-September and mid-November 2018. Twenty-nine counties from across the state cumulatively provided 564 samples from 457 private wells. 66% were raw/untreated samples, 29% were treated, and 5% were uncharacterized. A total of 107 wells were sampled before and after in-home treatment systems for a limited comparison of results. Samples were analyzed for total coliform bacteria, *E. coli* bacteria, nitrate + nitrite nitrogen as N, total arsenic, and manganese.



Fall 2018 IWS participating counties.

A secondary study took place during the same time frame with ten counties. A total of 103 samples were collected from 90 unique wells for common chloroacetanilide herbicides and the associated degradates ethane sulfonic acid (ESA) and oxanilic acid (OXA).

The tables below provide a comprehensive summary of all compounds present with a quantifiable concentration.

**Primary Study:** 564 samples from 457 unique wells in 29 counties

	Nitrate as N MCL 10 mg/L	<i>E. Coli</i> Bacteria MCL zero	Total Coliform Bacteria MCL zero	Total Arsenic MCL 0.01 mg/L	Manganese MCL <sup>†</sup>	
RAW	Total Detections	198	48	200	160	155
	<i>Total Detections above MCL</i>	48	48	200	34	N/A
TREATED	Total Detections	66	6	55	47	24
	<i>Total Detections above MCL</i>	10	6	55	11	N/A

**Secondary Study:** 103 samples from 90 unique wells in 10 counties

	Acetochlor <sup>†</sup>	Alachlor <sup>†</sup>	Dimethenamid <sup>†</sup>	Metolachlor <sup>†</sup>
Parent Compound	1	0	0	1
Degradate Compound (ESA)	15	23	1	39
Degradate Compound (OXA)	10	2	1	14

\* MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are enforceable standards.

† Compound does not have an established Maximum Contaminant Level as set by the EPA. Additional guidance may be available in the EPA 2012 Edition of the Drinking Water Standards and Health Advisories.



# IOWA WELL SURVEY

MONONA COUNTY

2018 FALL SUMMARY REPORT

Mononoa County submitted 31 samples from a total of 29 unique wells for analysis. In the summary of results below, quantifiable detections of a compound are indicated by yellow shading, while concentrations that exceed the EPA Maximum Contamination Level for drinking water are shaded red. Wells that were sampled for both pre- and post- treatment are paired for comparison.

Sample #	City	Raw/Treated	Nitrate + Nitrite mg/L	E.coli [MPN]/100mL	Total Coliform [MPN]/100mL	Arsenic mg/L	Manganese mg/L
717899	WHITING	Raw	<1	<1	<1	0.003	0.38
718368	SLOAN	Raw	<1	<1	1	0.012	0.19
718395	UTE	Raw	<0.10	<1	<1	<0.001	0.22
718396	SLOAN	Raw	<0.10	<1	<1	0.013	0.21
721134	SOLDIER	Raw	<0.10	<1	109.1	<0.001	0.12
721141	CASTANA	Raw	5.1	<1	<1	<0.001	<0.02
721150	CASTANA	Raw	24	<1	<1	<0.001	<0.02
724283	SLOAN	Raw	<0.10	<1	<1	0.018	0.25
724284	CASTANA	Unknown	6.3	<1	<1	0.001	0.6
724285	UTE	Raw	1.9	<1	<1	<0.001	<0.02
724357	CASTANA	Unknown	13	<1	<1	<0.001	<0.02
725023	RODNEY	Raw	7.8	<1	<1	<0.001	<0.02
725024	WHITING	Raw	<0.10	<1	<1	0.01	<0.02
725025	ONAWA	Raw	<0.10	<1	<1	0.008	0.31
725026	ONAWA	Raw	<0.10	<1	<1	0.002	0.68
726168	SMITHLAND	Raw	3.4	<1	1	0.003	0.03
726169	SMITHLAND	Treated	3.5	<1	<1	<0.001	<0.02
728206	ONAWA	Raw	1.2	<1	>200.5	0.003	<0.02
728207	ONAWA	Treated	0.98	<1	<1	0.004	<0.02
728809	ONAWA	Raw	<0.10	<1	<1	0.008	<0.02
733406	UTE	Raw	26	<1	144.5	0.001	<0.02
733407	MAPLETON	Raw	<0.10	<1	<1	<0.001	<0.02
733860	UTE	Raw	4.6	<1	<1	<0.001	<0.02
733863	MOORHEAD	Raw	<0.10	<1	1	0.004	<0.02
738112	WHITING	Raw	<0.10	<1	<1	0.011	<0.02
738113	WHITING	Raw	<0.10	<1	<1	0.011	<0.02
739569	UTE	Raw	0.29	<1	<1	0.001	<0.02
739574	SOLDIER	Unknown	<0.10	<1	<1	0.001	<0.02
739628	MAPLETON	Raw	<0.10	<1	>200.5	<0.001	0.16
739655	WHITING	Raw	<0.10	<1	101.3	0.003	0.39



A subset of samples were collected for the analysis of Chloroacetanilide herbicides and associated ethanesulfonic acid (ESA) and oxanilic acid (OXA) degradates as part of a research study. These compounds do not have an established Maximum Contaminant Level as set by the EPA. Due to unknown health effects, any quantifiable detection is noted in red. Results are reported in units of ug/L.

Sample #	City	Raw/Treated	Acetochlor	Acetochlor ESA	Acetochlor OXA	Alachlor	Alachlor ESA	Alachlor OXA	Dimethenamid	Dimethenamid ESA	Dimethenamid OXA	Metolachlor	Metolachlor ESA	Metolachlor OXA
717899	WHITING	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
718368	SLOAN	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
718395	UTE	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
718396	SLOAN	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
721134	SOLDIER	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
721141	CASTANA	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
721150	CASTANA	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.026	<0.025
724283	SLOAN	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
724284	CASTANA	Unknown	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
724285	UTE	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
724357	CASTANA	Unknown	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
725023	RODNEY	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
725024	WHITING	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
725025	ONAWA	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
725026	ONAWA	Raw	<0.025	0.74	0.42	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.15	0.17
726168	SMITHLAND	Raw	<0.025	0.1	0.057	<0.025	0.14	<0.025	<0.025	<0.025	<0.025	<0.025	0.31	0.28
726169	SMITHLAND	Treated	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
728206	ONAWA	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
728207	ONAWA	Treated	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
728809	ONAWA	Raw	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025