

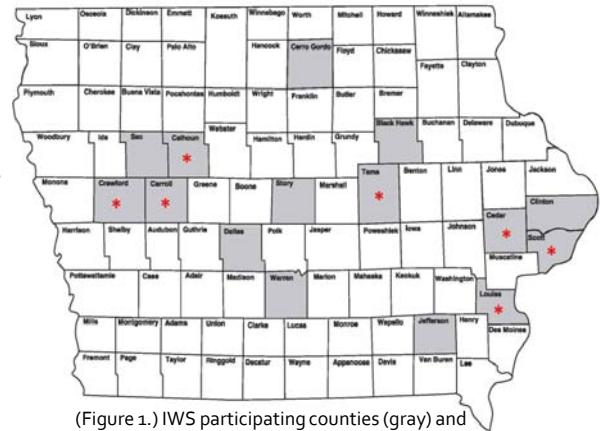


IOWA WELL SURVEY

2017 SUMMARY REPORT

The Iowa Well Survey is an ongoing study by the State Hygienic Laboratory intended to characterize the water quality in private wells in Iowa. The survey expands the knowledge of the concentration and distribution of existing and emerging contaminants that affect the health of Iowans consuming water from private wells.

The initial sampling effort took place in the fall of 2017. Fifteen counties across the state (Figure 1) participated in the survey and provided 238 untreated private well samples for analysis of total coliform bacteria, *E. coli*, nitrite as N, nitrate as N, total arsenic, and neonicotinoid insecticides. An additional 48 treated water samples were submitted for limited comparison of results between treated and untreated samples. Seven of the 15 counties collected samples for analysis of pesticides, including common nitrogen-containing herbicides, glyphosate and degradate compounds associated with pesticide parent compounds. A total of 116 combined pre- and post-treatment pesticide samples were analyzed for the presence of 28 compounds. Table 1 provides a comprehensive summary of all compounds present with a quantifiable concentration.



(Figure 1.) IWS participating counties (gray) and counties sampling for herbicides (asterisk).

Herbicide parent compounds: Acetochlor, Alachlor, Ametryn, Atrazine, Butachlor, Butylate, Cyanazine, Dimethenamid, EPTC, Glyphosate, Metolachlor, Metribuzin, Prometon, Propachlor, Propazine, Simazine, Trifluralin.

Herbicide degradate compounds: Acetochlor ESA, Acetochlor OXA, Alachlor ESA, Alachlor OXA, Desethyl Atrazine, Desisopropyl Atrazine, Dimethenamid ESA, Dimethenamid OXA, AMPA (Glyphosate degradate), Metolachlor ESA, Metolachlor OXA.

Compound	Total Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL*	% with Detected Contamination
Total Coliform Bacteria	280	100	100	36%
<i>E. coli</i>	257	9	9	4%
Nitrate as N	279	125	33	45%
Nitrite as N	282	3	1	1%
Total Arsenic	273	94	9	34%
Neonicotinoids†	280	4	4	1%
Acetochlor ESA†	116	27	27	23%
Acetochlor OXA†	116	4	4	3%
Alachlor ESA†	116	31	31	27%
Alachlor OXA†	116	4	4	3%
Glyphosate	116	1	0	1%
Metolachlor†	116	5	5	4%
Metolachlor ESA†	116	47	47	41%
Metolachlor OXA†	116	20	20	17%

(Table 1.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

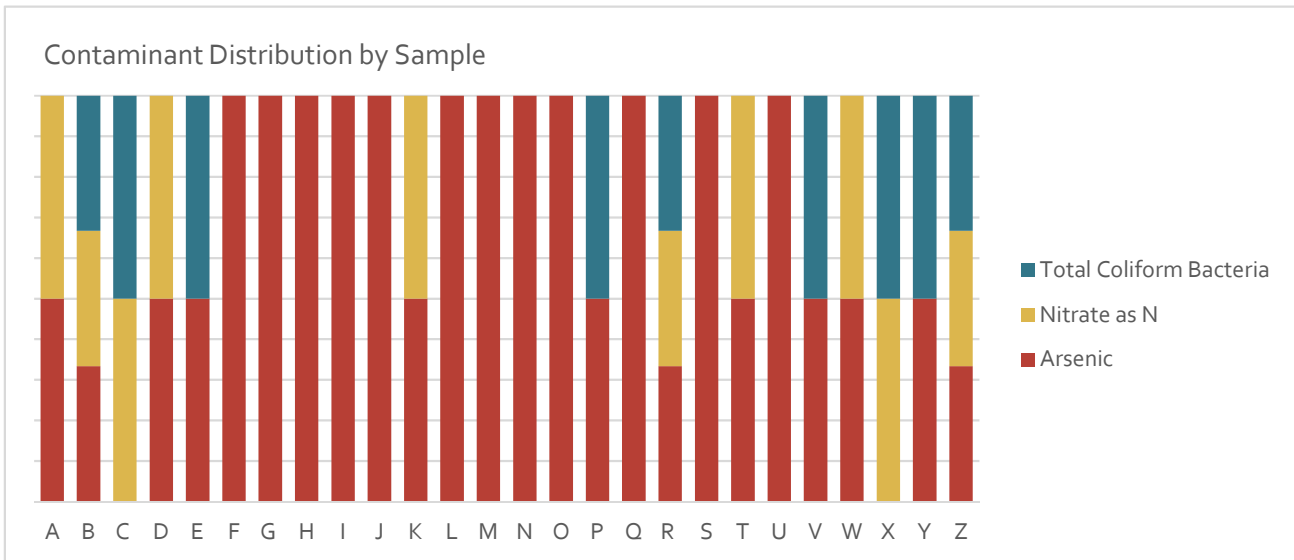
BLACK HAWK COUNTY

2017 SUMMARY REPORT

Black Hawk County submitted 25 untreated and five treated samples for analysis. A general summary of results for all 30 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria‡	30	9	9	<1 - 387	[MPN]/100mL
<i>E. coli</i> ‡	30	0	0	<1	[MPN]/100mL
Nitrate as N‡	30	10	2	<1 - 12.1	10 mg/L
Nitrite as N	30	0	0	<0.12	1.0 mg/L
Total Arsenic‡	30	24	0	<0.001 - 0.006	0.010 mg/L
Neonicotinoids†	30	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.
 ‡ Data reported by an unaffiliated laboratory.



IOWA WELL SURVEY

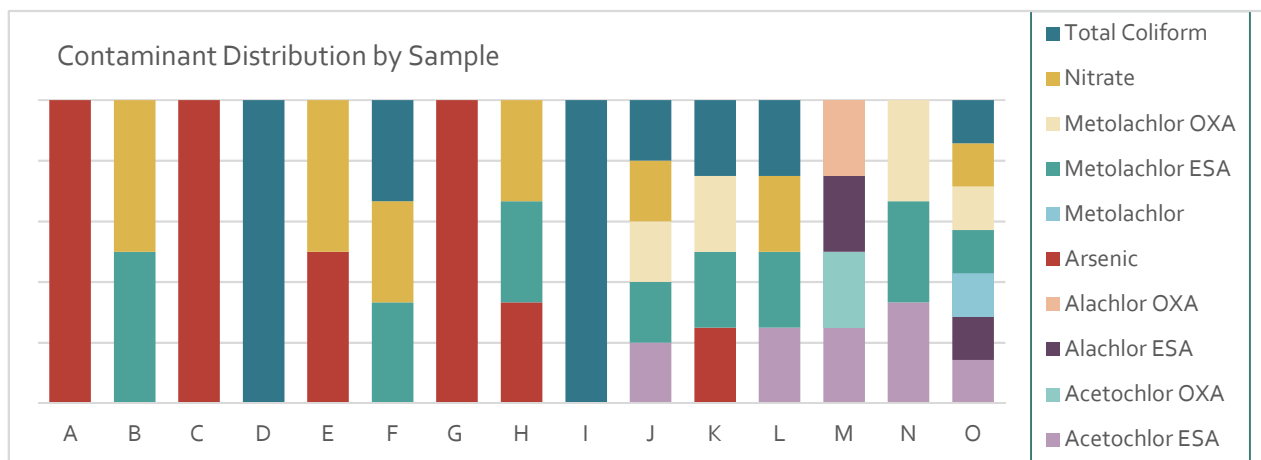
CALHOUN COUNTY

2017 SUMMARY REPORT

Calhoun County submitted 17 untreated and four treated samples for analysis. A general summary of results for all 21 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria‡	16	7	7	<1 - >200	0 [MPN]/100mL
<i>E. coli</i> ‡	1	0	0	<1	0 [MPN]/100mL
Nitrate as N‡	16	7	2	<1 - 25	10 mg/L
Nitrite as N	19	0	0	<0.12	1.0 mg/L
Total Arsenic‡	9	6	1	<0.001 - 0.015	0.010 mg/L
Neonicotinoids†	19	0	0	<0.02	µg/L
Acetochlor ESA†	21	5	5	<0.025 - 0.35	µg/L
Acetochlor OXA†	21	1	1	<0.025 - 0.053	µg/L
Alachlor ESA†	21	2	2	<0.025 - 0.32	µg/L
Alachlor OXA†	21	1	1	<0.025 - 0.44	µg/L
Glyphosate	21	0	0	<0.010	0.7 mg/L
Metolachlor†	21	1	1	<0.025 - 0.062	µg/L
Metolachlor ESA†	21	8	8	<0.025 - 4.5	µg/L
Metolachlor OXA†	21	4	4	<0.025 - 3.5	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.
 ‡ Data reported by a non-affiliated laboratory.



IOWA WELL SURVEY

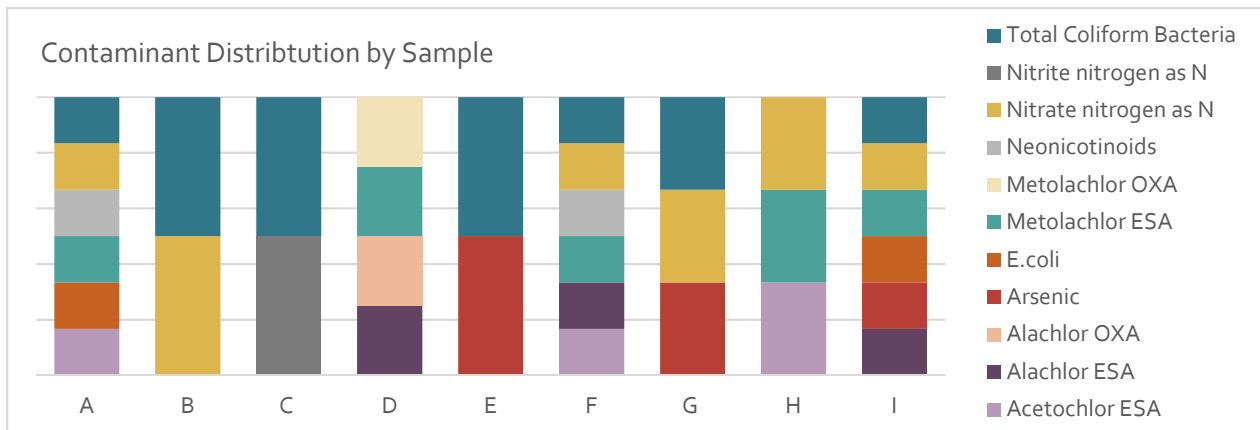
CARROLL COUNTY

2017 SUMMARY REPORT

Carroll County submitted eight untreated and two treated samples for analysis. A general summary of results for all 10 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	10	7	7	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	10	2	2	<1 - >200	0 [MPN]/100mL
Nitrate as N	9	6	2	<1 - 12	10 mg/L
Nitrite as N	9	1	0	<0.12 - 0.71	1.0 mg/L
Total Arsenic	10	3	0	<0.001 - 0.004	0.010 mg/L
Neonicotinoids†	9	2	2	<0.02 - 0.0825	µg/L
Acetochlor ESA†	10	3	3	<0.025 - 0.069	µg/L
Acetochlor OXA†	10	0	0	<0.025	µg/L
Alachlor ESA†	10	3	3	<0.025 - 0.44	µg/L
Alachlor OXA†	10	1	1	<0.025 - 0.36	µg/L
Glyphosate	10	0	0	<0.025	0.7 mg/L
Metolachlor†	10	0	0	<0.025	µg/L
Metolachlor ESA†	10	5	5	<0.025 - 0.83	µg/L
Metolachlor OXA†	10	1	1	<0.025 - 0.35	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.

Questions, comments, or interest in IWS participation?

1.800.421.4692 or shl-gtc@uiowa.edu



IOWA WELL SURVEY

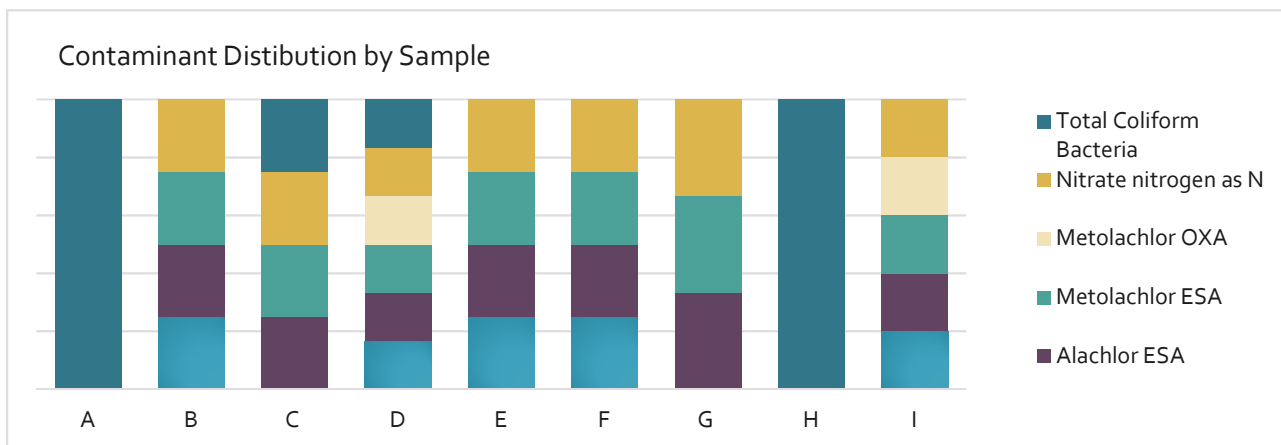
CEDAR COUNTY

2017 SUMMARY REPORT

Cedar County submitted 10 untreated and zero treated samples for analysis. A general summary of results for all 10 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	10	4	4	<1 - 10	0 [MPN]/100mL
<i>E. coli</i>	10	0	0	<1	0 [MPN]/100mL
Nitrate as N	10	7	1	<1- 10	10 mg/L
Nitrite as N	10	0	0	<0.12	1.0 mg/L
Total Arsenic	10	0	0	<0.001	0.010 mg/L
Neonicotinoid†	10	0	0	<0.02	µg/L
Acetochlor ESA†	10	5	5	<0.025 - 0.058	µg/L
Acetochlor OXA†	10	0	0	<0.025	µg/L
Alachlor ESA†	10	7	7	<0.025 - 2.3	µg/L
Alachlor OXA†	10	0	0	<0.025	µg/L
Glyphosate	10	0	0	<0.025	0.7 mg/L
Metolachlor†	10	0	0	<0.025	µg/L
Metolachlor ESA†	10	7	7	<0.025 - 5.0	µg/L
Metolachlor OXA†	10	2	2	<0.025 - 0.074	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.

Questions, comments, or interest in IWS participation?

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IOWA WELL SURVEY

CERRO GORDO COUNTY

2017 SUMMARY REPORT

Cerro Gordo County submitted 25 untreated and four treated samples for analysis. A general summary of results for all 29 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	29	4	4	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	29	0	0	<1	0 [MPN]/100mL
Nitrate as N	29	0	0	<1	10 mg/L
Nitrite as N	29	0	0	<0.12	1.0 mg/L
Total Arsenic	29	12	3	<0.001 - .030	0.010 mg/L
Neonicotinoids†	30	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

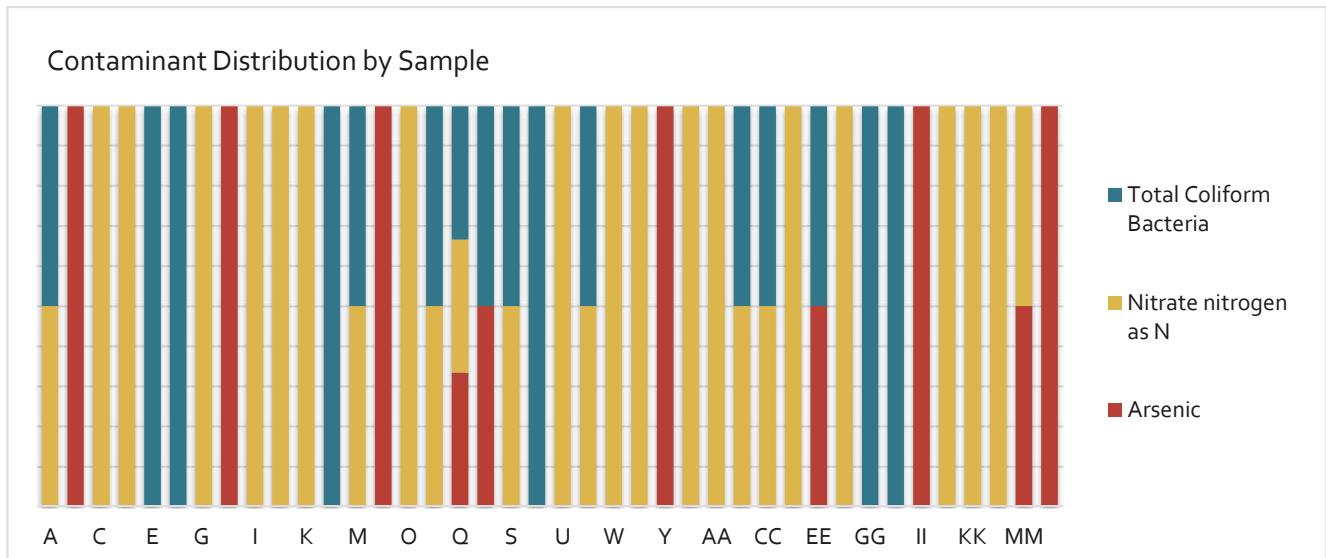
CLINTON COUNTY

2017 SUMMARY REPORT

Clinton County submitted 41 untreated and nine treated samples for analysis. A general summary of results for all 50 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	50	16	16	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	50	0	0	<1	0 [MPN]/100mL
Nitrate as N	50	26	5	<1 - 25	10 mg/L
Nitrite as N	50	0	0	<0.12	1.0 mg/L
Total Arsenic	50	10	0	<0.001 - 0.009	0.010 mg/L
Neonicotinoids†	50	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

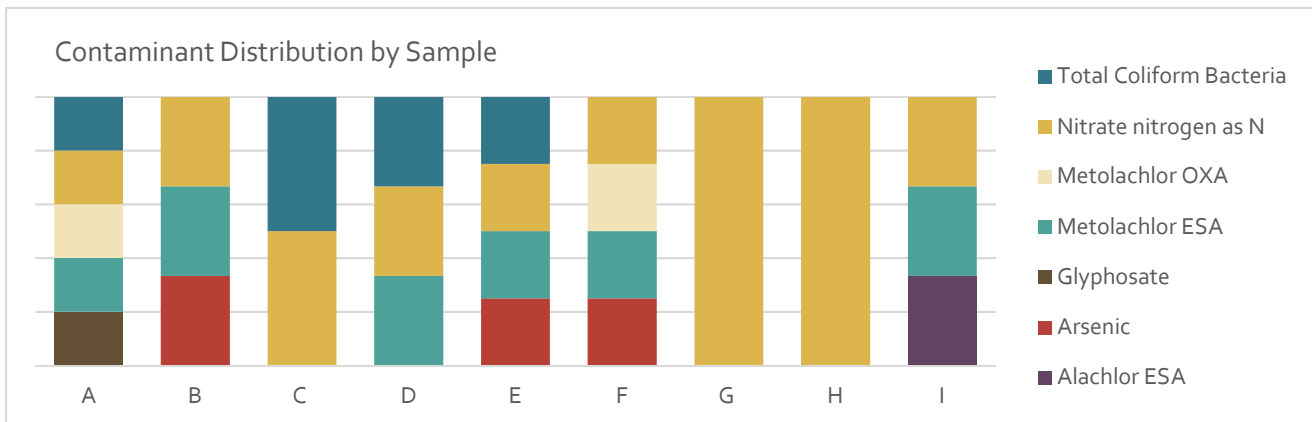
CRAWFORD COUNTY

2017 SUMMARY REPORT

Crawford County submitted seven untreated and two treated samples for analysis. A general summary of results for all 9 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	9	4	4	<1 - 18	0 [MPN]/100mL
<i>E. coli</i>	9	0	0	<1	0 [MPN]/100mL
Nitrate as N	9	9	4	<1 - 69	10 mg/L
Nitrite as N	9	0	0	<0.12	1.0 mg/L
Total Arsenic	9	3	0	<0.001 - 0.004	0.010 mg/L
Neonicotinoids†	8	0	0	<0.02	µg/L
Acetochlor ESA†	9	0	0	<0.025	µg/L
Acetochlor OXA†	9	0	0	<0.025	µg/L
Alachlor ESA†	9	1	1	<0.025 - 0.1	µg/L
Alachlor OXA†	9	0	0	<0.025	µg/L
Glyphosate	9	1	0	<0.025 - 0.028	0.7 mg/L
Metolachlor†	9	0	0	<0.025	µg/L
Metolachlor ESA†	9	6	6	<0.025 - 0.76	µg/L
Metolachlor OXA†	9	2	2	<0.025 - 0.22	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.

Questions, comments, or interest in IWS participation?

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IOWA WELL SURVEY

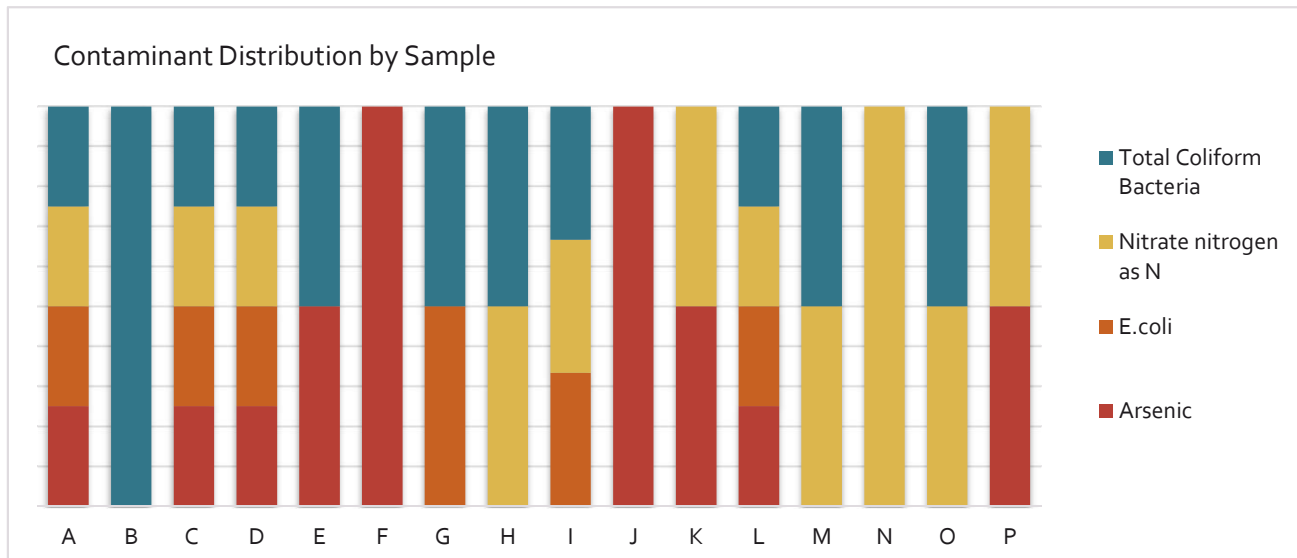
DALLAS COUNTY

2017 SUMMARY REPORT

Dallas County submitted 10 untreated and seven treated samples for analysis. A general summary of results for all 17 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	17	11	11	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	17	6	6	<1 - 11	0 [MPN]/100mL
Nitrate as N	17	11	4	<1 - 25	10 mg/L
Nitrite as N	17	0	0	<0.12	1.0 mg/L
Total Arsenic	17	9	3	<0.001 - 0.039	0.010 mg/L
Neonicotinoids†	18	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

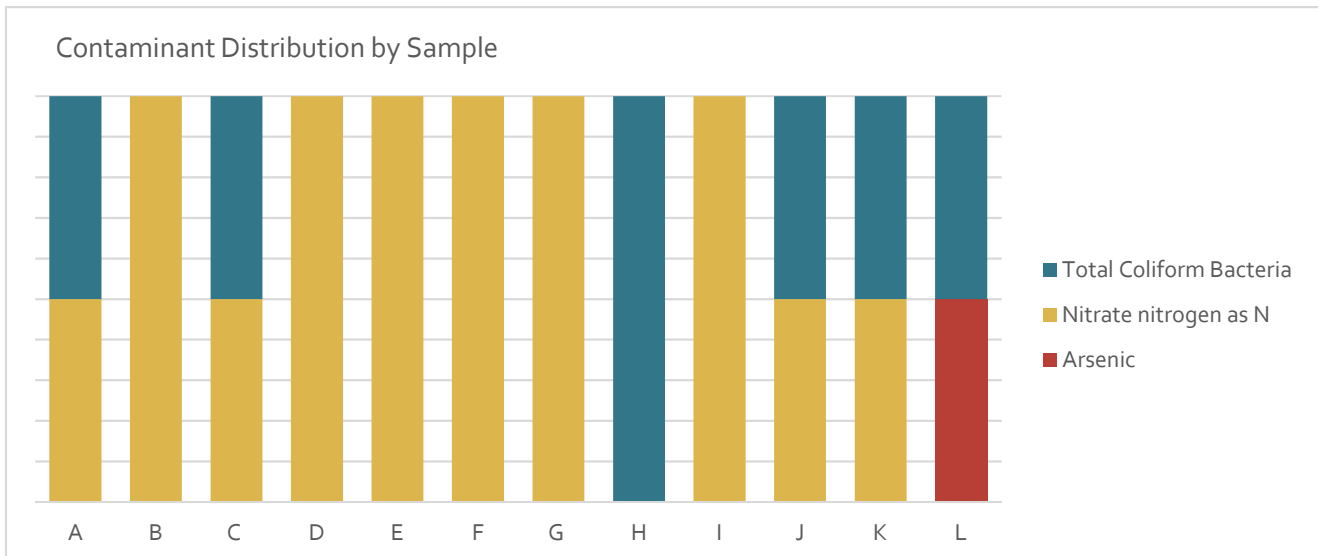
JEFFERSON COUNTY

2017 SUMMARY REPORT

Jefferson County submitted eight untreated and four treated samples for analysis. A general summary of results for all 12 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	12	6	6	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	12	0	0	<1	0 [MPN]/100mL
Nitrate as N	12	10	1	<1 - 14	10 mg/L
Nitrite as N	12	0	0	<0.12	1.0 mg/L
Total Arsenic	12	1	0	<0.001 - 0.002	0.010 mg/L
Neonicotinoids†	12	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

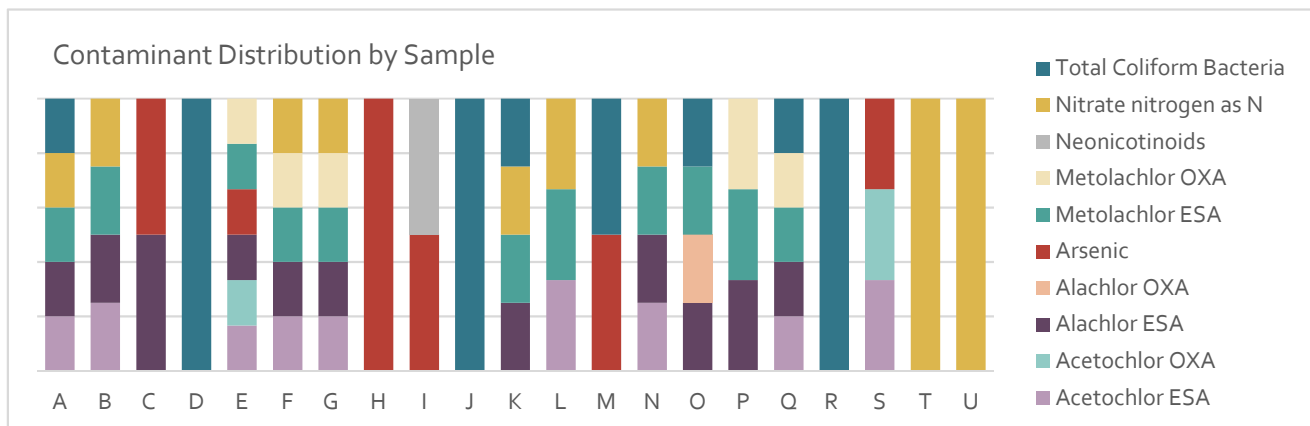
LOUISA COUNTY

2017 SUMMARY REPORT

Louisa County submitted 28 untreated and one treated samples for analysis. A general summary of results for all 29 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	29	8	8	<1 - 140	0 [MPN]/100mL
<i>E. coli</i>	29	0	0	<1	0 [MPN]/100mL
Nitrate as N	29	9	4	<1 - 14	10 mg/L
Nitrite as N	29	0	0	<0.12	1.0 mg/L
Total Arsenic	29	6	0	<0.001 - 0.007	0.010 mg/L
Neonicotinoid†	29	1	1	<0.02 - 0.091	µg/L
Acetochlor ESA†	29	9	9	<0.025 - 1.0	µg/L
Acetochlor OXA†	29	2	2	<0.025 - 0.12	µg/L
Alachlor ESA†	29	11	11	<0.025 - 2.1	µg/L
Alachlor OXA†	29	1	1	<0.025 - 0.36	µg/L
Glyphosate	29	0	0	<0.025	0.7 mg/L
Metolachlor†	29	0	0	<0.025	µg/L
Metolachlor ESA†	29	11	11	<0.025 - 6.3	µg/L
Metolachlor OXA†	29	5	5	<0.025 - 0.66	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.

Questions, comments, or interest in IWS participation?

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IOWA WELL SURVEY

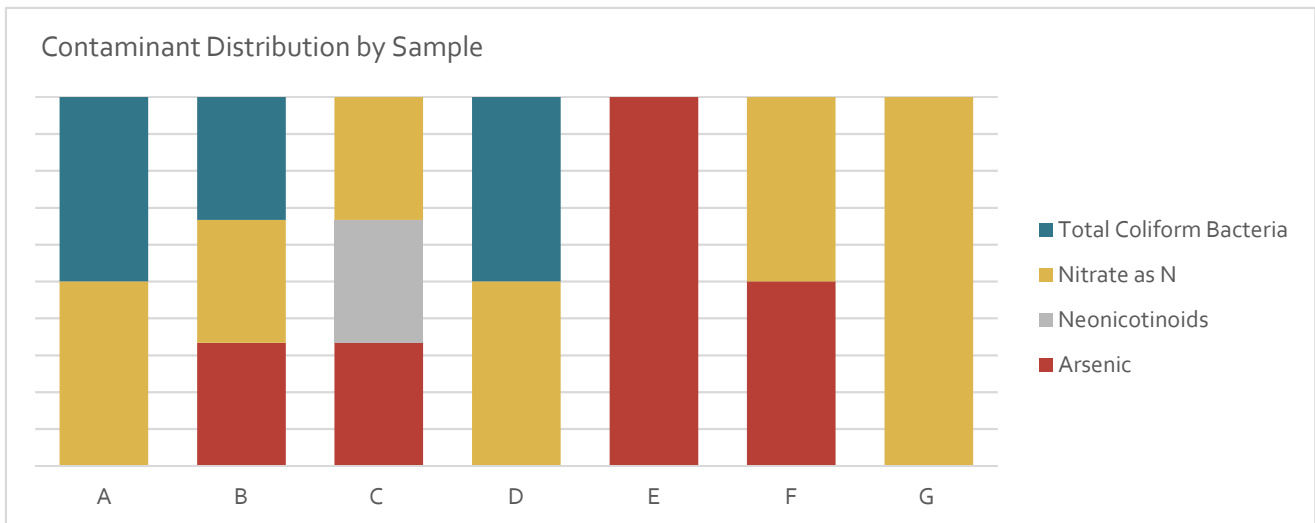
SAC COUNTY

2017 SUMMARY REPORT

Sac County submitted eight untreated and zero treated samples for analysis. A general summary of results for all eight samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria‡	8	3	3	<1 - >200	0 [MPN]/100mL
<i>E. coli</i> ‡	0	0	0	<1	0 [MPN]/100mL
Nitrate as N‡	8	6	2	<1 - 16	10 mg/L
Nitrite as N	8	0	0	<0.12	1.0 mg/L
Total Arsenic	8	4	0	<0.001	0.010 mg/L
Neonicotinoids†	7	1	1	<0.02 - 0.0703	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.
 ‡ Data reported by an unaffiliated laboratory.



IOWA WELL SURVEY

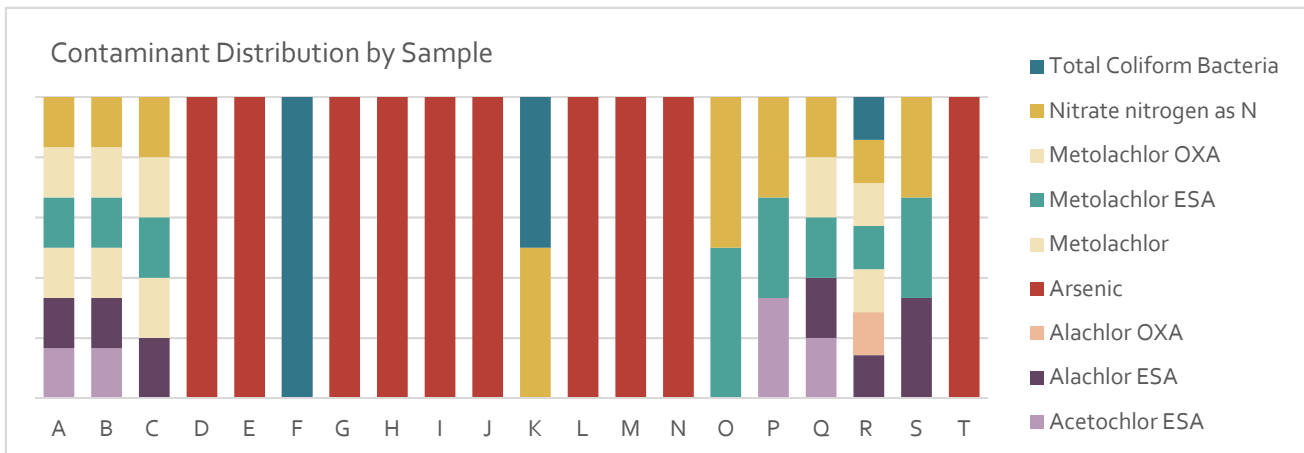
SCOTT COUNTY

2017 SUMMARY REPORT

Scott County submitted 21 untreated and four treated samples for analysis. A general summary of results for all 25 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	25	3	3	<1 - 22	0 [MPN]/100mL
<i>E. coli</i>	25	0	0	<1	0 [MPN]/100mL
Nitrate as N	25	9	6	<1 - 23	10 mg/L
Nitrite as N	25	0	0	<0.12	1.0 mg/L
Total Arsenic	25	10	2	<0.001 - 0.022	0.010 mg/L
Neonicotinoids†	24	0	0	<0.02	µg/L
Acetochlor ESA†	25	4	4	<0.025 - 0.36	µg/L
Acetochlor OXA†	25	0	0	<0.025	µg/L
Alachlor ESA†	25	6	6	<0.025 - 1.7	µg/L
Alachlor OXA†	25	1	1	<0.025 - 0.23	µg/L
Glyphosate	25	0	0	<0.025	0.7 mg/L
Metolachlor†	25	4	4	<0.025 - 7.9	µg/L
Metolachlor ESA†	25	8	8	<0.025 - 21	µg/L
Metolachlor OXA†	25	5	5	<0.025 - 5.3	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

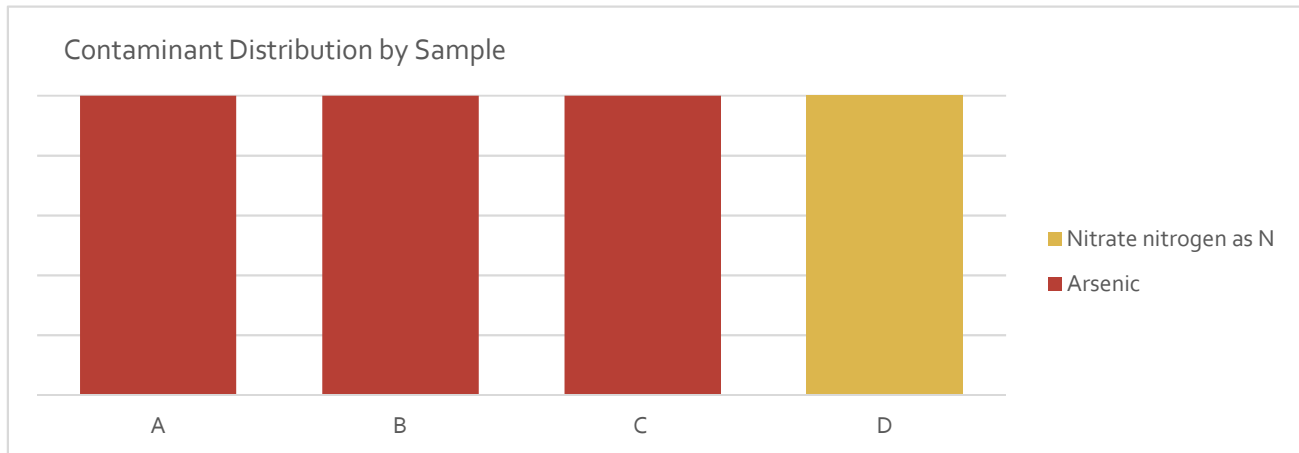
STORY COUNTY

2017 SUMMARY REPORT

Story County submitted five untreated and two treated samples for analysis. A general summary of results for all seven samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	7	0	0	<1	0 [MPN]/100mL
<i>E. coli</i>	7	0	0	<1	0 [MPN]/100mL
Nitrate as N	7	1	0	<1 - 0.7	10 mg/L
Nitrite as N	7	0	0	<0.12	1.0 mg/L
Total Arsenic	7	3	0	<0.001 - 0.008	0.010 mg/L
Neonicotinoids†	6	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

- * 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.

Questions, comments, or interest in IWS participation?
1.800.421.4692 or shl-gtc@uiowa.edu



IOWA WELL SURVEY

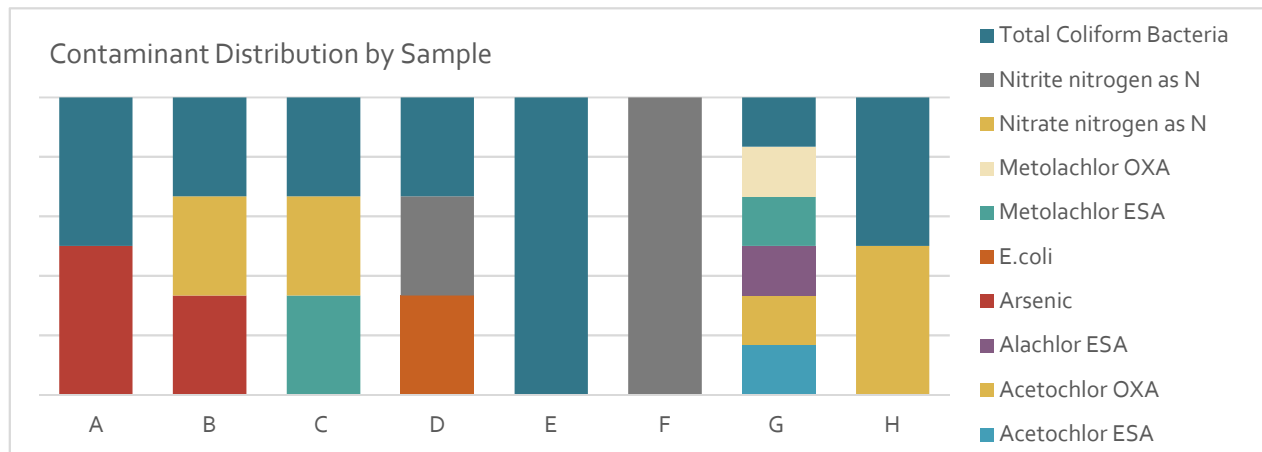
TAMA COUNTY

2017 SUMMARY REPORT

Tama County submitted 11 untreated and one treated samples for analysis. A general summary of results for all 12 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	12	7	7	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	12	1	1	<1 - >200	0 [MPN]/100mL
Nitrate as N	12	3	0	<1 - 4.9	10 mg/L
Nitrite as N	12	2	1	<0.12 - 2.7	1.0 mg/L
Total Arsenic	12	2	0	<0.001 - 0.004	0.010 mg/L
Neonicotinoids†	12	0	0	<0.02	µg/L
Acetochlor ESA†	12	1	1	<0.025 - 0.11	µg/L
Acetochlor OXA†	12	1	1	<0.025 - 0.06	µg/L
Alachlor ESA†	12	1	1	<0.025 - 0.028	µg/L
Alachlor OXA†	12	0	0	<0.025	µg/L
Glyphosate	12	0	0	<0.025	0.7 mg/L
Metolachlor†	12	0	0	<0.025	µg/L
Metolachlor ESA†	12	2	2	<0.025 - 0.67	µg/L
Metolachlor OXA†	12	1	1	<0.025 - 0.23	µg/L

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.



IOWA WELL SURVEY

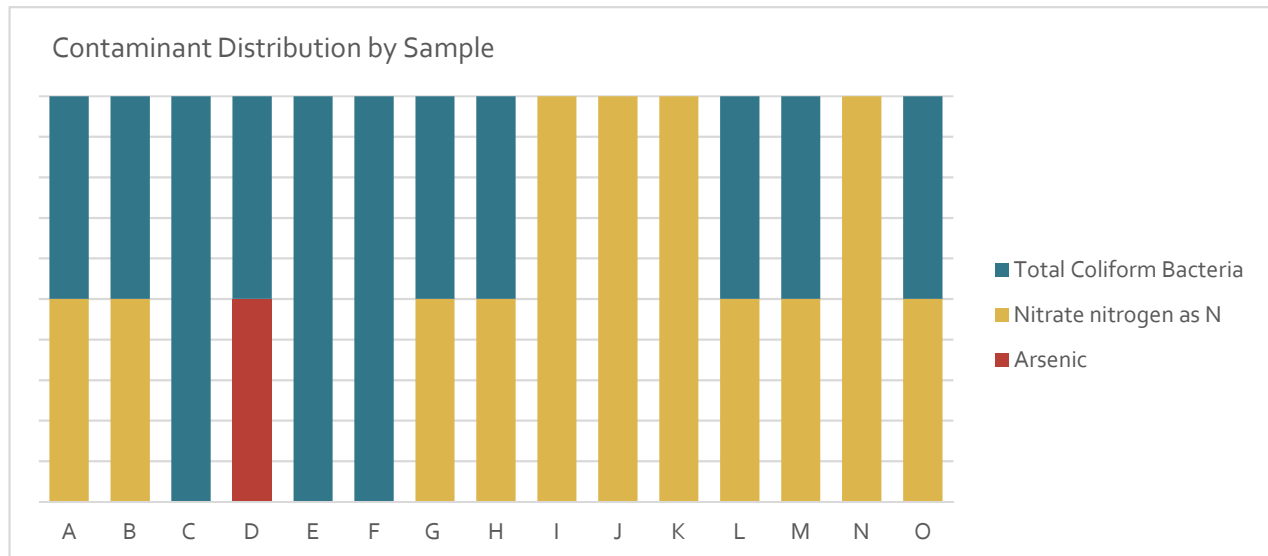
WARREN COUNTY

2017 SUMMARY REPORT

Warren County submitted 13 untreated and three treated samples for analysis. A general summary of results for all 16 samples, including the number of quantifiable concentrations of each analyte and the number of quantifiable concentrations above the EPA Maximum Contaminant Level (MCL) for each analyte, is shown in Table 1. The distribution of quantifiable concentration of analytes per sample is shown in Table 2.

Compound	Wells Tested	Total with Quantifiable Concentration	Total with Concentration above MCL	Results Range	MCL* Unit
Total Coliform Bacteria	16	11	11	<1 - >200	0 [MPN]/100mL
<i>E. coli</i>	16	0	0	<1	0 [MPN]/100mL
Nitrate as N	16	11	0	<1 - 8.7	10 mg/L
Nitrite as N	16	0	0	<0.12	1.0 mg/L
Total Arsenic	16	1	0	<0.001 - 0.003	0.010 mg/L
Neonicotinoids†	16	0	0	<0.02	µg/L
Nitrogen-containing Herbicides	N/A				
Herbicide Degradates	N/A				

(Table 1.)



(Table 2.)

* 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. Due to unknown health affects, any quantifiable detection is noted as an exceedance of the MCL.