
TABLES

Table 1. Monitoring well or sample location names, potential contamination source types, locations, and well construction information

[USGS, U.S. Geological Survey; UTM, universal transverse mercator coordinate system; m, meter; yr, year; A, agricultural; I, industrial; H, highway; RR, railroad; L, landfill; M, surface mining; W, water way; R, residential; S, solid waste; C, commercial; na, not applicable; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

USGS sample location name	City of Independence well name	Potential contamination source types	USGS identifier	East-west UTM coordinate (m)	North-south UTM coordinate (m)	Land-surface altitude above sealevel (m)	Well depth from land surface (m)	Depth to top of screen from land surface (m)	Depth to bottom of screen from land surface (m)
1-5 yr	1-A	A,I,H,RR	390920094243501	378188.531	4334787.000	222.50	22.14	20.62	22.14
1-10 yr	1-B	A,H,RR	390920094243502	378188.531	4334787.000	222.50	11.77	10.25	11.77
2-2 yr	2-A	A,I,H,L,M,RR	390923094242001	378546.094	4334866.000	225.04	18.90	17.38	18.90
2-5 yr	2-B	A,H	390923094242002	378546.094	4334866.000	225.04	14.30	12.78	14.30
3-3 yr	3-A	A,H,L,M,RR	390921094240201	378809.594	4334756.500	223.79	26.54	25.02	26.54
3-10 yr	3-B	A,H,L,M,RR	390921094240202	378809.594	4334756.500	223.79	14.74	13.22	14.74
4-1 yr	4-A	A,H,L,M,RR,W	390931094240001	379026.313	4335095.500	224.18	25.84	24.32	25.84
4-3 yr	4-B	A,H	390931094240002	379026.313	4335095.500	224.18	12.14	10.62	12.14
4-5 yr	4-C	A,H	390931094240003	379026.313	4335095.500	224.18	16.59	15.07	16.59
5-4 yr	5-B	A,H,L,M,RR	390924094234502	379399.375	4334885.000	225.01	27.82	26.30	27.82
5-10 yr	5-C	A,H,L,M,RR	390924094234503	379399.375	4334885.000	225.01	23.45	21.93	23.45
6-5 yr	6-A	A,H,L,M,RR,W	390921094233401	379645.688	4334787.000	223.79	24.86	23.34	24.86
7-1 yr	7-A	A,H,L,M,RR,W	390936094233901	379430.625	4335234.500	225.53	21.96	20.44	21.96
7-5 yr	7-B	A,H	390936094233902	379430.625	4335234.500	225.53	18.92	17.40	18.92
7-10 yr	7-C	A,H	390936094233903	379430.625	4335234.500	225.53	17.24	15.72	17.24
8-0.5 yr	8-A	A,H,R,RR	390942094233901	379432.031	4335442.000	223.22	18.35	16.83	18.35
8-2 yr	8-B	A,H,R	390942094233902	379432.031	4335442.000	223.22	15.77	14.25	15.77
9-0.5 yr	9-A	A,H	390948094234001	379515.969	4335633.000	221.46	15.95	14.43	15.95
9-2 yr	9-B	A,H	390948094234002	379515.969	4335633.000	221.46	11.59	10.07	11.59
9-5 yr	9-C	A,H	390948094234003	379515.969	4335633.000	221.46	9.68	8.16	9.68
10-0.5 yr	10-A	A,H	390951094234501	379411.844	4335716.500	221.05	16.84	15.32	16.84
10-2 yr	10-B	A,H	390951094234502	379411.844	4335716.500	221.05	13.08	11.56	13.08
10-5 yr	10-C	A,H	390951094234503	379411.844	4335716.500	221.05	9.67	8.15	9.67
11-0.5 yr	11-A	A,H,L,M,RR,W	390945094233001	379758.563	4335462.000	222.46	17.47	15.95	17.47
11-1 yr	11-B	A,H,L,M,RR,W	390945094233002	379758.563	4335462.000	222.46	15.27	13.75	15.27
11-3 yr	11-C	A,H	390945094233003	379758.563	4335462.000	222.46	10.84	9.32	10.84
12-0.5 yr	12-A	A,H,RR,W	390945094231501	380130.781	4335520.500	221.72	14.04	12.52	14.04
12-3 yr	12-B	A	390945094231502	380130.781	4335520.500	221.72	12.43	10.91	12.43
13-0.5 yr	13-A	A,RR,W	390950094231501	380128.500	4335659.500	221.37	14.24	12.72	14.24
13-2 yr	13-B	A	390950094231502	380128.500	4335659.500	221.37	11.71	10.19	11.71
14-0.5 yr	14-A	A,H,RR,W	391000094230801	380299.125	4335984.500	220.31	23.97	22.45	23.97
14-1 yr	14-B	A,H,RR,W	391000094230802	380299.125	4335984.500	220.31	19.88	18.36	19.88
14-2 yr	14-C	A,W	391000094230803	380299.125	4335984.500	220.31	7.32	5.80	7.32

Table 1. Monitoring well or sample location names, potential contamination source types, locations, and well construction information—Continued

[USGS, U.S. Geological Survey; UTM, universal transverse mercator coordinate system; m, meter; yr, year; A, agricultural; I, industrial; H, highway; RR, railroad; L, landfill; M, surface mining; W, water way; R, residential; S, solid waste; C, commercial; na, not applicable; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

USGS sample location name	City of Independence well name	Potential contamination source types	USGS identifier	East-west UTM coordinate (m)	North-south UTM coordinate (m)	Land-surface altitude above sea level (m)	Well depth from land surface (m)	Depth to top of screen from land surface (m)	Depth to bottom of screen from land surface (m)
15-1 yr	15-A	A,W	391000094224001	380965.906	4335972.000	220.20	21.71	20.19	21.71
15-2 yr	15-B	A,W	391000094224002	380965.906	4335972.000	220.20	17.81	16.29	17.81
16-5 yr	16-A	A,S,W	390955094244001	378092.313	4335856.500	224.14	24.66	23.14	24.66
16-10 yr	16-B	A,S,W	390955094244002	378092.313	4335856.500	224.14	11.08	9.56	11.08
17-0.5 yr	17-A	A,W	391009094235901	379089.688	4336261.000	220.05	18.46	16.94	18.46
17-3 yr	17-B	A,W	391009094235902	379089.688	4336261.000	220.05	6.06	4.54	6.06
18-0.5 yr	18-A	A,H	391014094235701	379129.500	4336421.500	220.33	16.41	14.89	16.41
18-2 yr	18-B	A	391014094235702	379129.500	4336421.500	220.33	6.58	5.06	6.58
19-0.5 yr	19-A	A,C,H,I,R	391018094234401	379438.188	4336544.500	222.28	16.61	15.09	16.61
19-1 yr	19-B	A,C,H,I,R	391018094234402	379438.188	4336544.500	222.28	8.22	6.70	8.22
20-0.5 yr	20-A	A,H	391023094235601	379147.719	4336692.000	220.73	16.31	14.79	16.31
20-1 yr	20-B	A	391023094235602	379147.719	4336692.000	220.73	10.23	8.71	10.23
21-0.5 yr	21-A	A,C,H,I,R	391023094233701	379602.781	4336684.000	222.97	26.56	25.04	26.56
21-1 yr	21-B	A,C,H,I,R	391023094233702	379602.781	4336684.000	222.97	19.69	18.17	19.69
21-2 yr	21-C	A,H,R	391023094233703	379602.781	4336684.000	222.97	11.00	9.48	11.00
22-1 yr	22-A	A,H,I	391029094234501	379430.656	4336891.000	223.03	30.17	28.65	30.17
22-2 yr	22-B	A,H,I	391029094234502	379430.656	4336891.000	223.03	12.32	10.80	12.32
22-3 yr	22-C	A,H,I,R	391029094234503	379430.656	4336891.000	223.03	10.23	8.71	10.23
23-1 yr	23-A	A,H,I	391029094233701	379610.250	4336890.500	224.26	33.59	32.07	33.59
23-3 yr	23-B	A,H,I	391029094233702	379610.250	4336890.500	224.26	26.13	24.61	26.13
23-10 yr	23-C	A,H,I	391029094233703	379610.250	4336890.500	224.26	14.77	13.25	14.77
24-1 yr	24-A	A,H	391034094235301	379231.156	4337041.500	222.10	36.86	35.34	36.86
24-3 yr	24-B	A,H	391034094235302	379231.156	4337041.500	222.10	24.38	22.86	24.38
24-5 yr	24-C	A,H	391034094235303	379231.156	4337041.500	222.10	9.26	7.74	9.26
25-3 yr	25-A	A	391042094241701	378654.031	4337312.000	220.27	31.84	30.32	31.84
25-5 yr	25-B	A	391042094241702	378654.031	4337312.000	220.27	32.82	31.30	32.82
25-10 yr	25-C	A,H	391042094241703	378654.031	4337312.000	220.27	20.78	19.26	20.78
26-2 yr	26-A	A	391032094243301	378279.125	4336991.500	220.88	31.06	29.54	31.06
26-5 yr	26-B	A,H	391032094243302	378279.125	4336991.500	220.88	26.70	25.18	26.70
27-5 yr	27-B	A,H	391015094245802	377677.906	4336483.500	222.42	37.39	35.87	37.39
27-10 yr	27-C	A,H	391015094245803	377677.906	4336483.500	222.42	15.62	14.10	15.62
INDEP	na	na	na	na	na	na	na	na	na
MORIV	na	na	06818000	na	na	na	na	na	na

Table 2. Potential ground-water contamination sources and associated laboratory analyses

[-, analysis not associated with potential contamination source; X, analysis associated with contamination source]

Potential ground-water contamination source	Gas chromatograph scan	Major ions and trace metals	Nutrients: ammonia, nitrate, nitrite, and phosphorus	Fecal streptococci and fecal coliform	Enzyme linked immunosorbent assay		
					Benzene, toluene, ethyl benzene, and xylene	Atrazine	Alachlor
Agricultural	-	-	X	X	-	X	X
Commercial	X	-	-	-	X	-	-
Highway	X	X	-	-	X	-	-
Industrial	X	X	-	-	X	-	-
Landfill	X	X	-	-	X	-	-
Railroad	-	-	-	-	X	-	-
Residential	X	-	-	X	-	-	-
Solid waste	-	X	X	X	-	-	-
Surface mining	-	X	-	-	-	-	-
Water ways	X	X	X	X	-	-	-

Table 3. Sampling schedule for Independence monitoring well network

[yr, year; I, initial sampling; -, no sampling; AN, annual sampling; Q, quarterly sampling; E, expanded analysis sampling; AG, agricultural sampling; INDEP, combined Independence well field pumpage]

Date sampling completed	Year	1998			1999								2000					
	Month	7	9	11	2	4	5	6	8	10	11	12	2	4	5	7	8	
Sample location name																		
1-5 yr	I	-	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	Q	
1-10 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
2-2 yr	I,E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Q	
2-5 yr	I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	Q	AG	Q	AG	-	AG	
3-3 yr	I	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	Q	
3-10 yr	I	Q	-	Q		AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
4-1 yr	I,E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-3 yr	I	-	-	Q	AG	AN	-	Q	AG	Q	AG	Q	-	-	-	AG	Q	
4-5 yr	I	Q	AG	-	-	AN	AG	-	-	-	-	-	AG	-	-	-	-	
5-4 yr	I	-	-	-	-	AN	-	Q	-	Q	-	Q	-	-	-	-	-	
5-10 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
6-5 yr	I,E	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
7-1 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
7-5 yr	I	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	-	
7-10 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
8-0.5 yr	I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8-2 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	AN	Q	
9-0.5 yr	I	-	-	-	-	-	-	-	-	-	-	-	Q	-	-	-	Q	
9-2 yr	I	Q	-	Q	-	-	-	Q	-	Q	-	-	-	-	-	-	-	
9-5 yr	I	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	-	
10-0.5 yr	I	-	-	-	-	-	-	-	-	-	-	-	Q	-	-	-	-	
10-2 yr	I	Q	-	Q	-	-	-	Q	-	Q	-	-	-	-	-	-	Q	
10-5 yr	I	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	-	
11-0.5 yr	I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11-1 yr	I,E	-	-	-	-	-	-	-	-	-	-	-	Q	AG	AN	AG	Q	
11-3 yr	I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	-	-	-	-	-	-	
12-0.5 yr	I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12-3 yr	I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	Q	AG	Q	AG	AN	AG	
13-0.5 yr	I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
13-2 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	Q	
14-0.5 yr	I	-	-	Q	-	-	-	Q	-	Q	-	Q	-	Q	-	-	Q	
14-1 yr	I	-	-	-	-	-	-	-	-	-	-	-	-	-	AN	-	Q	
14-2 yr	I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	Q	-	-	-	

Table 3. Sampling schedule for Independence monitoring well network—Continued

[yr, year; I, initial sampling; -, no sampling; AN, annual sampling; Q, quarterly sampling; E, expanded analysis sampling; AG, agricultural sampling; INDEP, combined Independence well field pumpage]

Date sampling completed	Year	1998			1999								2000					
	Month	7	9	11	2	4	5	6	8	10	11	12	2	4	5	7	8	
Sample location name																		
15-1 yr		I	-	-	Q	-	-	-	Q	-	Q	-	Q	-	-	-	Q	
15-2 yr		I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	Q	AG	AN	AG	Q	
16-5 yr		I	-	-	Q	-	AN	-	Q	-	Q	-	Q	-	-	-	Q	
16-10 yr		I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	Q	AG	-	AG	Q	
17-0.5 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
17-2 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	AN	-	Q	
18-0.5 yr		I	-	-	-	-	-	-	-	-	-	-	Q	-	AN	-	Q	
18-2 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	-	-	-	-	-	
19-0.5 yr		I,E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19-1 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	AN	-	Q	
20-0.5 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20-1 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	AN	-	Q	
21-0.5 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21-1 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21-2 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	AN	-	Q	
22-1 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22-2 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22-3 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	-	-	Q	
23-1 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23-3 yr		I	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	
23-5 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	-	-	Q	
24-1 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24-3 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24-5 yr		I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	Q	AG	-	AG	Q	
25-3 yr		I	-	-	-	-	-	-	Q	-	Q	-	Q	-	-	-	-	
25-5 yr		I	-	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	
25-10 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	-	-	Q	
26-2 yr		I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26-5 yr		I	Q	-	Q	-	AN	-	Q	-	Q	-	Q	-	-	-	Q	
27-5 yr		I	Q	-	-	-	AN	-	-	-	-	-	-	-	-	-	-	
27-10 yr		I	-	-	Q	-	AN	-	Q	-	Q	-	Q	-	-	-	Q	
INDEP		I	Q	AG	Q	AG	AN	AG	Q	AG	Q	AG	Q	AG	AN	AG	Q	

Table 4. Physical properties, bacteria, major ions, trace elements, and nutrients analyses and methods

[CAS, Chemical Abstract Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; SMCL, secondary maximum contaminant level; -, no data; analytical method number I references U.S. Geological Survey methods and number prefixes; $\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; na, not applicable; $^{\circ}\text{C}$, degrees Celsius; mg/L , milligrams per liter; $\text{col}/100\text{ mL}$, colonies per 100 milliliters; CaCO_3 , calcium carbonate; HCO_3 , bicarbonate; $\mu\text{g}/\text{L}$, micrograms per liter; analytical method number EPA references U.S. Environmental Protection Agency methods and number prefixes]

CAS number	Property or constituent	Analytical method number	MRL	LRL	MCL DNR	SMCL DNR	Units
Physical properties							
-	Specific conductance, laboratory	¹ I-2781-85	-	2.6	-	-	$\mu\text{S}/\text{cm}$
-	Specific conductance, field	na	0.1	-	-	-	$\mu\text{S}/\text{cm}$
-	pH, field	na	.1	-	-	-	pH
-	Temperature	na	.1	-	-	-	$^{\circ}\text{C}$
-	Oxygen dissolved, field	na	.1	-	-	-	mg/L
-	Residue, 180 degrees Celsius	¹ I-1750-85	10	-	-	500	mg/L
Bacteria							
-	Coliform, fecal	-	-	-	0	-	$\text{col}/100\text{ mL}$
-	Streptococci, fecal	-	-	-	0	-	$\text{col}/100\text{ mL}$
Major ions							
7440-70-2	Calcium	² I-1472-87	-	.02	-	-	mg/L
7439-95-4	Magnesium	² I-1472-87	-	.014	-	-	mg/L
7440-23-5	Sodium	² I-1472-87	-	.09	-	-	mg/L
7440-09-7	Potassium	¹ I-1630-85	-	.24	-	-	mg/L
-	Alkalinity CaCO_3 , field	na	-	-	-	-	mg/L
-	Bicarbonate HCO_3 , field	na	-	-	-	-	mg/L
471-34-1	Acid neutralizing capacity	¹ I-2030-85	1	-	-	-	mg/L
14808-79-8	Sulfate	¹ I-2057-85	-	.31	-	250	mg/L
16887-00-6	Chloride	¹ I-2057-85	-	.29	-	250	mg/L
16984-48-8	Fluoride	¹ I-2327-85	.1	-	2	-	mg/L
7631-86-9	Silica	² I-1472-87	-	.09	-	-	mg/L
Trace elements and cyanide							
7429-90-5	Aluminum	³ I-1472-95	-	15	-	50	$\mu\text{g}/\text{L}$
7440-36-0	Antimony	⁴ EPA 200.9	1	-	6	-	$\mu\text{g}/\text{L}$
7440-38-2	Arsenic	⁵ I-2063-98	-	2	50	-	$\mu\text{g}/\text{L}$
7440-39-3	Barium	² I-1472-87	-	1	2,000	-	$\mu\text{g}/\text{L}$
7440-41-7	Beryllium	² I-1472-87	-	1.6	4	-	$\mu\text{g}/\text{L}$
7440-42-8	Boron	³ I-1472-95	-	16	-	-	$\mu\text{g}/\text{L}$
7440-43-9	Cadmium	² I-1472-87	-	8	5	-	$\mu\text{g}/\text{L}$
7440-47-3	Chromium	² I-1472-87	-	14	100	-	$\mu\text{g}/\text{L}$
7440-48-4	Cobalt	² I-1472-87	-	13	-	-	$\mu\text{g}/\text{L}$
7440-50-8	Copper	² I-1472-87	-	10	-	1,000	$\mu\text{g}/\text{L}$
57-12-5	Cyanide	¹ I-4302-85	.01	-	.2	-	mg/L

Table 4. Physical properties, bacteria, major ions, trace elements, and nutrients analyses and methods—Continued

[CAS, Chemical Abstract Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; SMCL, secondary maximum contaminant level; -, no data; analytical method number I references U.S. Geological Survey methods and number prefixes; $\mu\text{S/cm}$, microsiemens per centimeter at 25 degrees Celsius; na, not applicable; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; col/100 mL, colonies per 100 milliliters; CaCO_3 , calcium carbonate; HCO_3 , bicarbonate; $\mu\text{g/L}$, micrograms per liter; analytical method number EPA references U.S. Environmental Protection Agency methods and number prefixes]

CAS number	Property or constituent	Analytical method number	MRL	LRL	MCL DNR	SMCL DNR	Units
Trace elements and cyanide—Continued							
7439-89-6	Iron	² I-1472-87	-	10	-	300	$\mu\text{g/L}$
7439-92-1	Lead	⁶ I-2477-92	-	100	15	-	$\mu\text{g/L}$
7439-93-2	Lithium	² I-1472-87	-	3.9	-	-	$\mu\text{g/L}$
7439-96-5	Manganese	² I-1472-87	-	202	-	50	$\mu\text{g/L}$
7439-97-6	Mercury	⁷ EPA 1631	-	.23	2	-	$\mu\text{g/L}$
7439-98-7	Molybdenum	² I-1472-87	-	34	-	-	$\mu\text{g/L}$
7440-02-0	Nickel	² I-1472-87	-	40	-	-	$\mu\text{g/L}$
7782-49-2	Selenium	⁵ I-2668-98	-	2.4	50	-	$\mu\text{g/L}$
7440-22-4	Silver	² I-1472-87	-	7	100	-	$\mu\text{g/L}$
7440-24-6	Strontium	² I-1472-87	-	1	-	-	$\mu\text{g/L}$
7440-28-0	Thallium	⁸ EPA 279.2	5	-	2	-	$\mu\text{g/L}$
7440-62-2	Vanadium	² I-1472-87	-	10	-	-	$\mu\text{g/L}$
7440-66-6	Zinc	² I-1472-87	-	20	-	5,000	$\mu\text{g/L}$
Nutrients							
766-41-7	Nitrogen, ammonia	I-2522-90	.02	-	-	-	mg/L
14797-65-0	Nitrogen, nitrite	I-2549-90	.01	-	1	-	mg/L
-	Nitrogen, nitrite plus nitrate	I-2545-90	.05	-	10	-	mg/L
14265-44-2	Phosphorus, orthophosphorus	I-2601-90	.01	-	-	-	mg/L

¹ Fishman and Friedman (1989).

² Fishman (1993).

³ Struzeski and others (1996).

⁴ U.S. Environmental Protection Agency (1991b).

⁵ Jones and Garbarino (1999).

⁶ Faires (1993).

⁷ U.S. Environmental Protection Agency (1996).

⁸ U.S. Environmental Protection Agency (1983).

Table 5. Reporting levels and cross-reactive compounds for total benzene, toluene, ethyl benzene, and xylene (BTEX), atrazine, and alachlor from enzyme linked immunosorbent assay (ELISA)

[na, not applicable; mg/L, milligrams per liter; µg/L, micrograms per liter]

Constituent	Minimum reporting level	Maximum contaminant level	Reporting unit
Total BTEX	na	na	mg/L
Benzene	na	5	µg/L
Toluene	na	1,000	µg/L
Ethyl benzene	na	700	µg/L
Xylene	na	10,000	µg/L
Cross-reactive compounds for ELISA total BTEX analysis include naphthalene, 1,2,4-trimethylbenzene, anthracene, styrene, hexachlorobenzene, phenanthrene, creosote, 1,3,5-trimethylbenzene, acenaphthene, <i>n</i> -propylbenzene, <i>n</i> -hexane, <i>n</i> -octane, <i>n</i> -nonane, <i>n</i> -heptane, cyclohexane, <i>n</i> -decane, gasoline, mineral spirits, diesel, kerosene, jet-A fuel, and household lubricant.			
Atrazine	0.05	3	µg/L
Cross-reactive compounds for ELISA atrazine analysis include ametryn, propazine, prometon, simazine, terbutryn, terbutylazine, desethyl atrazine, cyanazine, 2-hydroxy atrazine, and desisopropyl atrazine.			
Alachlor	0.05	2	µg/L
Cross-reactive compounds for ELISA alachlor analysis include alachlor, ethane sulfonic acid (ESA), butachlor, metolachlor, and propachlor.			

Table 6. Volatile organic compounds analyzed for and detected in initial sampling

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; x, constituent does not have a MCL but is monitored; µg/L, micrograms per liter; -, no data; yr, year; analytical method number O-4127-96 used for all volatile organic compounds analyses (Connor and others, 1998)]

CAS number	Compound	MRL	MCL DNR	Units	Detections		
					Sample location name	Concentration	Units
630-20-6	1,1,1,2-Tetrachloroethane	0.2	x	µg/L	-	-	-
71-55-6	1,1,1-Trichloroethane	.1	200	µg/L	-	-	-
79-34-5	1,1,2,2-Tetrachloroethane	.2	x	µg/L	-	-	-
79-00-5	1,1,2-Trichloroethane	.2	5.0	µg/L	-	-	-
76-13-1	1,1,2-Trichlorotrifluoroethane	.1	-	µg/L	-	-	-
75-34-3	1,1-Dichloroethane	.1	x	µg/L	-	-	-
75-35-4	1,1-Dichloroethylene	.2	7.0	µg/L	-	-	-
563-58-6	1,1-Dichloropropene	.2	x	µg/L	-	-	-
87-61-6	1,2,3-Trichlorobenzene	.2	x	µg/L	-	-	-
96-18-4	1,2,3-Trichloropropane	.2	x	µg/L	-	-	-
120-82-1	1,2,4-Trichlorobenzene	.2	70	µg/L	-	-	-
95-63-6	1,2,4-Trimethylbenzene	.2	x	µg/L	-	-	-
96-12-8	1,2-Dibromo-3-chloropropane	1.0	.2	µg/L	-	-	-
106-93-4	1,2-Dibromoethane	.2	.05	µg/L	-	-	-
95-50-1	1,2-Dichlorobenzene	.1	600	µg/L	-	-	-
107-06-2	1,2-Dichloroethane	.2	5.0	µg/L	-	-	-
78-87-5	1,2-Dichloropropane	.1	5.0	µg/L	-	-	-
108-67-8	1,3,5-Trimethylbenzene	.2	x	µg/L	-	-	-
541-73-1	1,3-Dichlorobenzene	.1	-	µg/L	-	-	-
142-28-9	1,3-Dichloropropane	.2	x	µg/L	-	-	-
106-46-7	1,4-Dichlorobenzene	.1	-	µg/L	-	-	-
594-20-7	2,2-Dichloropropane	.2	x	µg/L	-	-	-
95-49-8	2-Chlorotoluene	.2	x	µg/L	-	-	-
106-43-4	4-Chlorotoluene	.2	x	µg/L	-	-	-
99-87-6	4-Isopropyl-1-methylbenzene	.2	x	µg/L	-	-	-
107-13-1	Acrylonitrile	2.5	-	µg/L	-	-	-
71-43-2	Benzene	.1	5.0	µg/L	-	-	-
108-86-1	Bromobenzene	.2	x	µg/L	-	-	-
74-97-5	Bromochloromethane	.2	x	µg/L	-	-	-
75-27-4	Bromodichloromethane	.1	x	µg/L	-	-	-
75-25-2	Bromoform	.2	x	µg/L	-	-	-
74-83-9	Bromomethane	.2	x	µg/L	-	-	-
104-51-8	Butylbenzene	.2	x	µg/L	-	-	-
108-90-7	Chlorobenzene	.1	100	µg/L	-	-	-
75-00-3	Chloroethane	.2	x	µg/L	-	-	-

Table 6. Volatile organic compounds analyzed for and detected in initial sampling—Continued

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; x, constituent does not have a MCL but is monitored; µg/L, micrograms per liter; -, no data; yr, year; analytical method number O-4127-96 used for all volatile organic compounds analyses (Connor and others, 1998)]

CAS number	Compound	MRL	MCL DNR	Units	Detections		
					Sample location name	Concentration	Units
67-66-3	Chloroform	0.1	x	µg/L	-	-	-
74-87-3	Chloromethane	.2	x	µg/L	-	-	-
156-59-2	cis-1,2-Dichloroethylene	.1	70	µg/L	-	-	-
10061-01-5	cis-1,3-Dichloropropene	.2	-	µg/L	-	-	-
124-48-1	Dibromochloromethane	.2	x	µg/L	-	-	-
74-95-3	Dibromomethane	.2	x	µg/L	-	-	-
75-71-8	Dichlorodifluoromethane	.2	x	µg/L	-	-	-
75-09-2	Dichloromethane	.2	5.0	µg/L	-	-	-
100-41-4	Ethylbenzene	.1	700	µg/L	11-1 yr	0.21	µg/L
87-68-3	Hexachlorobutadiene	.2	x	µg/L	-	-	-
98-82-8	Isopropylbenzene	.2	x	µg/L	-	-	-
91-20-3	Naphthalene	.2	x	µg/L	-	-	-
103-65-1	<i>n</i> -Propylbenzene	.2	x	µg/L	-	-	-
135-98-8	sec-Butylbenzene	.2	x	µg/L	-	-	-
100-42-5	Styrene	.1	100	µg/L	-	-	-
1634-04-4	tert-Butyl methyl ether	.2	-	µg/L	-	-	-
98-06-6	tert-Butylbenzene	.2	x	µg/L	-	-	-
127-18-4	Tetrachloroethylene	.1	5.0	µg/L	-	-	-
56-23-5	Tetrachloromethane	.2	-	µg/L	-	-	-
108-88-3	Toluene	.1	1,000	µg/L	11-1 yr	1.1	µg/L
156-60-5	trans-1,2-Dichloroethylene	.1	100	µg/L	-	-	-
10061-02-6	trans-1,3-Dichloropropene	.2	x	µg/L	-	-	-
79-01-6	Trichloroethylene	.1	5.0	µg/L	-	-	-
75-69-4	Trichlorofluoromethane	.2	x	µg/L	-	-	-
75-01-4	Vinyl chloride	.2	2.0	µg/L	-	-	-
1330-20-7	Xylene	.2	10,000	µg/L	11-1 yr	.45	µg/L

Table 7. Semi-volatile organic compounds analyzed for in initial sampling

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; -, no data; µg/L, micrograms per liter; x, constituent does not have a MCL but is monitored]

CAS number	Compound	1Analytical method number	MRL	LRL	MCL DNR	Units
120-82-1	1,2,4-Trichlorobenzene	O-3118-83	-	2.2	5.0	µg/L
95-50-1	1,2-Dichlorobenzene	O-3118-83	-	2.0	-	µg/L
122-66-7	1,2-Diphenylhydrazine	O-3116-87	-	2.1	-	µg/L
541-73-1	1,3-Dichlorobenzene	O-3116-87	-	1.9	-	µg/L
106-46-7	1,4-Dichlorobenzene	O-3116-87	-	1.9	75	µg/L
88-06-2	2,4,6-Trichlorophenol	O-3117-83	-	2.8	-	µg/L
120-83-2	2,4-Dichlorophenol	O-3117-83	-	2.9	-	µg/L
105-67-9	2,4-Dimethylphenol	O-3117-83	-	3.3	-	µg/L
51-28-5	2,4-Dinitrophenol	O-3117-83	20	-	-	µg/L
121-14-2	2,4-Dinitrotoluene	O-3116-87	-	2.6	-	µg/L
606-20-2	2,6-Dinitrotoluene	O-3116-87	-	2.3	-	µg/L
91-58-7	2-Chloronaphthalene	O-3116-87	-	1.9	-	µg/L
95-57-8	2-Chlorophenol	O-3117-83	-	2.4	-	µg/L
88-75-5	2-Nitrophenol	O-3117-83	-	2.8	-	µg/L
91-94-1	3,3'-Dichlorobenzidine	O-3118-83	-	2.6	-	µg/L
534-52-1	4,6-Dinitro-2-methylphenol	O-3117-83	-	3.2	-	µg/L
101-55-3	4-Bromophenylphenylether	O-3118-83	-	2.1	-	µg/L
59-50-7	4-Chloro-3-methylphenol	O-3117-83	-	3.0	-	µg/L
7005-72-3	4-Chlorophenyl phenyl ether	O-3116-87	-	2.2	-	µg/L
100-02-7	4-Nitrophenol	O-3117-83	-	2.6	-	µg/L
83-32-9	Acenaphthene	O-3118-83	-	1.8	-	µg/L
208-96-8	Acenaphthylene	O-3118-83	-	1.9	-	µg/L
120-12-7	Anthracene	O-3118-83	-	2.0	-	µg/L
56-55-3	Benz[a]anthracene	O-3118-83	-	2.4	-	µg/L
92-87-5	Benzidine	O-3118-83	40	-	-	µg/L
50-32-8	Benzo[a]pyrene	O-3118-83	-	2.8	.2	µg/L
205-99-2	Benzo[b]fluoranthene	O-3118-83	-	3.0	-	µg/L
191-24-2	Benzo[g,h,i]perylene	O-3118-83	-	2.8	-	µg/L
207-08-9	Benzo[k]fluoranthene	O-3118-83	-	3.2	-	µg/L
111-91-1	bis(2-Chloroethoxy)methane	O-3118-83	-	2.6	-	µg/L
111-44-4	bis(2-Chloroethyl)ether	O-3118-83	-	2.2	-	µg/L
108-60-1	bis(2-chloroisopropyl) ether	O-3118-83	-	2.2	-	µg/L
117-81-7	bis(2-Ethylhexyl) phthalate	O-3118-83	-	18	6	µg/L
85-68-7	Butylbenzyl phthalate	O-3118-83	-	4.2	-	µg/L
218-01-9	Chrysene	O-3118-83	-	2.7	-	µg/L

Table 7. Semi-volatile organic compounds analyzed for in initial sampling—Continued

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; -, no data; µg/L, micrograms per liter; x, constituent does not have a MCL but is monitored]

CAS number	Compound	1Analytical method number	MRL	LRL	MCL DNR	Units
53-70-3	Dibenz[a,h]anthracene	O-3118-83	-	3.4	-	µg/L
84-66-2	Diethyl phthalate	O-3118-83	-	2.4	-	µg/L
131-11-3	Dimethyl phthalate	O-3118-83	-	2.4	-	µg/L
84-74-2	Di-n-butyl phthalate	O-3118-83	-	2.9	-	µg/L
117-84-0	Di-n-octyl phthalate	O-3118-83	-	5.0	-	µg/L
206-44-0	Fluoranthene	O-3118-83	-	2.4	-	µg/L
86-73-7	Fluorene	O-3118-83	-	2.0	-	µg/L
118-74-1	Hexachlorobenzene	O-3118-83	-	2.2	1.0	µg/L
87-68-3	Hexachlorobutadiene	O-3118-83	-	2.6	x	µg/L
77-47-4	Hexachlorocyclopentadiene	O-3118-83	-	2.0	50	µg/L
67-72-1	Hexachloroethane	O-3118-83	-	2.0	-	µg/L
193-39-5	Indeno[1,2,3-c,d]pyrene	O-3118-83	-	3.0	-	µg/L
78-59-1	Isophorone	O-3118-83	-	2.2	-	µg/L
91-20-3	Naphthalene	O-3118-83	-	1.8	x	µg/L
98-95-3	Nitrobenzene	O-3118-83	-	2.0	-	µg/L
62-75-9	N-Nitrosodimethylamine	O-3118-83	-	2.8	-	µg/L
621-64-7	N-Nitrosodi-n-propylamine	O-3118-83	-	2.4	-	µg/L
86-30-6	N-Nitrosodiphenylamine	O-3118-83	-	3.2	-	µg/L
87-86-5	Pentachlorophenol	O-3117-83	-	3.8	1.0	µg/L
85-01-8	Phenanthrene	O-3118-83	-	2.0	-	µg/L
108-95-2	Phenol	O-3117-83	-	3.4	-	µg/L
129-00-0	Pyrene	O-3118-83	-	2.2	-	µg/L

¹ Wershaw and others (1987).

Table 8. Pesticides, polychlorinated biphenyls, polychlorinated naphthalenes, and herbicides analyzed for and detected in initial sampling

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; -, no data; µg/L, micrograms per liter; x, constituent does not have a MCL but is monitored; PCB, polychlorinated biphenyl; PCN, polychlorinated naphthalene]

CAS number	Compound	Analytical method number	MRL	LRL	MCL DNR	Units	Detections		
							Sample location name	Concentration	Units
Organonitrogen pesticides									
15972-60-8	Alachlor	¹ O-3106-83	0.1	-	2.0	µg/L	-	-	-
834-12-8	Ametryn	¹ O-3106-83	.1	-	-	µg/L	-	-	-
1912-24-9	Atrazine	¹ O-3106-83	.1	-	3.0	µg/L	-	-	-
314-40-9	Bromacil	¹ O-3106-83	.2	-	-	µg/L	-	-	-
23184-66-9	Butachlor	¹ O-3106-83	.1	-	x	µg/L	-	-	-
2008-41-5	Butylate	¹ O-3106-83	.1	-	-	µg/L	-	-	-
5234-68-4	Carboxin	¹ O-3106-83	.2	-	-	µg/L	-	-	-
21725-46-2	Cyanazine	¹ O-3106-83	.2	-	-	µg/L	-	-	-
1134-23-2	Cycloate	¹ O-3106-83	.1	-	-	µg/L	-	-	-
6190-65-4	Deethylatrazine	¹ O-3106-83	.2	-	-	µg/L	-	-	-
1007-28-9	Deisopropylatrazine	¹ O-3106-83	.2	-	-	µg/L	-	-	-
957-51-7	Diphenamid	¹ O-3106-83	.1	-	-	µg/L	-	-	-
51235-04-2	Hexazinone	¹ O-3106-83	.2	-	-	µg/L	-	-	-
51218-45-2	Metolachlor	¹ O-3106-83	.2	-	x	µg/L	-	-	-
21087-64-9	Metribuzin	¹ O-3106-83	.1	-	x	µg/L	-	-	-
1610-18-0	Prometon	¹ O-3106-83	.2	-	-	µg/L	-	-	-
7287-19-6	Prometryn	¹ O-3106-83	.1	-	-	µg/L	-	-	-
1918-16-7	Propachlor	¹ O-3106-83	.1	-	x	µg/L	-	-	-
139-40-2	Propazine	¹ O-3106-83	.1	-	-	µg/L	-	-	-
122-34-9	Simazine	¹ O-3106-83	.1	-	4	µg/L	-	-	-
1014-70-6	Simetryn	¹ O-3106-83	.1	-	-	µg/L	-	-	-
5902-51-2	Terbacil	¹ O-3106-83	.2	-	-	µg/L	-	-	-
1582-09-8	Trifluralin	¹ O-3106-83	.1	-	-	µg/L	-	-	-
1929-77-7	Vernolate	¹ O-3106-83	.1	-	-	µg/L	-	-	-
Organophosphate and organochlorine pesticides plus gross PCBs and PCNs									
309-00-2	Aldrin	¹ O-3104-83	-	0.001	x	µg/L	-	-	-
959-98-8	alpha-Endosulfan	¹ O-3104-83	-	.001	-	µg/L	-	-	-
786-19-6	Carbophenothion	¹ O-3104-83	0.014	-	-	µg/L	-	-	-
57-74-9	Chlordane, technical mix	¹ O-3104-83	-	.1	2.0	µg/L	-	-	-
2921-88-2	Chlorpyrifos	¹ O-3104-83	.014	-	-	µg/L	-	-	-
333-41-5	Diazinon	¹ O-3104-83	.02	-	-	µg/L	-	-	-
60-57-1	Dieldrin	¹ O-3104-83	-	.001	x	µg/L	11-1 yr	0.001	µg/L
298-04-4	Disulfoton	¹ O-3104-83	.033	-	-	µg/L	-	-	-
72-20-8	Endrin	¹ O-3104-83	-	.001	2.0	µg/L	-	-	-
563-12-2	Ethion	¹ O-3104-83	.013	-	-	µg/L	-	-	-
944-22-9	Fonofos	¹ O-3104-83	.013	-	-	µg/L	-	-	-
76-44-8	Heptachlor	¹ O-3104-83	-	.001	.4	µg/L	-	-	-

Table 8. Pesticides, polychlorinated biphenyls, polychlorinated naphthalenes, and herbicides analyzed for and detected in initial sampling—Continued

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; -, no data; µg/L, micrograms per liter; x, constituent does not have a MCL but is monitored; PCB, polychlorinated biphenyl; PCN, polychlorinated naphthalene]

CAS number	Compound	Analytical method number	MRL	LRL	MCL DNR	Units	Detections		
							Sample location name	Concentration	Units
Organophosphate and organochlorine pesticides plus gross PCBs and PCNs—Continued									
1024-57-3	Heptachlor epoxide	¹ O-3104-83	-	0.001	0.2	µg/L	-	-	-
58-89-9	Lindane	¹ O-3104-83	-	.001	.2	µg/L	-	-	-
121-75-5	Malathion	¹ O-3104-83	0.029	-	-	µg/L	-	-	-
2385-85-5	Mirex	¹ O-3104-83	-	.01	-	µg/L	-	-	-
56-38-2	Parathion	¹ O-3104-83	.012	-	-	µg/L	-	-	-
298-00-0	Parathion-methyl	¹ O-3104-83	.015	-	-	µg/L	-	-	-
72-56-0	Perthane	¹ O-3104-83	-	.1	-	µg/L	-	-	-
298-02-2	Phorate	¹ O-3104-83	.019	-	-	µg/L	-	-	-
1336-36-3	Polychlorinated biphenyls	¹ O-3104-83	-	.1	.5	µg/L	-	-	-
-	Polychlorinated naphthalenes	¹ O-3104-83	-	.1	-	µg/L	-	-	-
72-54-8	<i>p,p'</i> -DDD	¹ O-3104-83	-	.001	-	µg/L	-	-	-
72-55-9	<i>p,p'</i> -DDE	¹ O-3104-83	-	.001	-	µg/L	-	-	-
50-29-3	<i>p,p'</i> -DDT	¹ O-3104-83	-	.001	-	µg/L	-	-	-
72-43-5	<i>p,p'</i> -Methoxychlor	¹ O-3104-83	-	.01	40	µg/L	-	-	-
78-48-8	S,S,S-Tributylphosphorotrithioate	¹ O-3104-83	.02	-	-	µg/L	-	-	-
8001-35-2	Toxaphene	¹ O-3104-83	-	1.0	3.0	µg/L	-	-	-
Pesticides									
93-72-1	2-(2,4,5-Trichlorophenoxy)	² O-1131-95	-	0.06	50	µg/L	-	-	-
93-76-5	2,4,5-T	² O-1131-95	-	.04	-	µg/L	-	-	-
94-75-7	2,4-D	² O-1131-95	-	.11	2.0	µg/L	-	-	-
94-82-6	2,4-DB	² O-1131-95	-	.1	-	µg/L	-	-	-
16655-82-6	3-Hydroxycarbofuran	² O-1131-95	-	.11	x	µg/L	-	-	-
534-52-1	4,6-Dinitro-2-methylphenol	² O-1131-95	-	.42	-	µg/L	-	-	-
50594-66-6	Acifluorfen	² O-1131-95	-	.09	-	µg/L	-	-	-
116-06-3	Aldicarb	² O-1131-95	-	.21	x	µg/L	-	-	-
1646-88-4	Aldicarb sulfone	² O-1131-95	-	.1	x	µg/L	-	-	-
1646-87-3	Aldicarb sulfoxide	² O-1131-95	-	.021	x	µg/L	-	-	-
25057-89-0	Bentazon	² O-1131-95	-	.035	-	µg/L	-	-	-
314-40-9	Bromacil	² O-1131-95	-	.06	-	µg/L	-	-	-
1689-84-5	Bromoxynil	² O-1131-95	-	.04	-	µg/L	-	-	-
63-25-2	Carbaryl	² O-1131-95	-	.07	x	µg/L	-	-	-
1563-66-2	Carbofuran	² O-1131-95	-	.29	40	µg/L	-	-	-
7286-84-2	Chloramben, methyl ester	² O-1131-95	-	.14	-	µg/L	-	-	-
1897-45-6	Chlorothalonil	² O-1131-95	-	.48	-	µg/L	-	-	-
1702-17-6	Clopyralid	² O-1131-95	-	.23	-	µg/L	-	-	-
887-54-7	Dacthal monoacid	² O-1131-95	-	.039	-	µg/L	-	-	-
1918-00-9	Dicamba	² O-1131-95	-	.043	x	µg/L	-	-	-
1194-65-6	Dichlobenil	² O-1131-95	-	.07	-	µg/L	-	-	-

Table 8. Pesticides, polychlorinated biphenyls, polychlorinated naphthalenes, and herbicides analyzed for and detected in initial sampling—Continued

[CAS, Chemical Abstracts Services; MRL, minimum reporting level; LRL, lowest reporting level; MCL, maximum contaminant level; DNR, Missouri Department of Natural Resources; -, no data; µg/L, micrograms per liter; x, constituent does not have a MCL but is monitored; PCB, polychlorinated biphenyl; PCN, polychlorinated naphthalene]

CAS number	Compound	Analytical method number	MRL	LRL	MCL DNR	Units	Detections		
							Sample location name	Concentration	Units
Pesticides—Continued									
120-36-5	Dichlorprop	² O-1131-95	-	0.032	-	µg/L	-	-	-
88-85-7	Dinoseb	² O-1131-95	-	.06	7.0	µg/L	-	-	-
330-54-1	Diuron	² O-1131-95	-	.06	-	µg/L	-	-	-
101-42-8	Fenuron	² O-1131-95	-	.07	-	µg/L	-	-	-
2164-17-2	Fluometuron	² O-1131-95	-	.06	-	µg/L	-	-	-
330-55-2	Linuron	² O-1131-95	-	.09	-	µg/L	-	-	-
94-74-6	MCPA	² O-1131-95	-	.17	-	µg/L	-	-	-
94-81-5	MCPB	² O-1131-95	-	.13	-	µg/L	-	-	-
2032-65-7	Methiocarb	² O-1131-95	-	.026	-	µg/L	-	-	-
16752-77-5	Methomyl	² O-1131-95	-	.017	x	µg/L	-	-	-
555-37-3	Neburon	² O-1131-95	-	.07	-	µg/L	-	-	-
27314-13-2	Norflurazon	² O-1131-95	-	.042	-	µg/L	-	-	-
19044-88-3	Oryzalin	² O-1131-95	-	.31	-	µg/L	-	-	-
23135-22-0	Oxamyl	² O-1131-95	-	.018	200	µg/L	-	-	-
1918-02-1	Picloram	² O-1131-95	-	.05	500	µg/L	-	-	-
122-42-9	Propham	² O-1131-95	-	.035	-	µg/L	-	-	-
114-26-1	Propoxur	² O-1131-95	-	.08	-	µg/L	-	-	-
55335-06-3	Triclopyr	² O-1131-95	-	.25	-	µg/L	-	-	-
Herbicides and diquat									
93-72-1	2-(2,4,5-Trichlorophenoxy)	³ EPA 515.1	-	0.5	50	µg/L	-	-	-
94-75-7	2,4-D	³ EPA 515.1	-	1.0	70	µg/L	-	-	-
75-99-0	Dalapon	³ EPA 515.1	-	5.0	200	µg/L	-	-	-
87-86-5	Pentachlorophenol	³ EPA 515.1	-	.6	1.0	µg/L	-	-	-
1918-02-1	Picloram	³ EPA 515.1	-	.6	500	µg/L	-	-	-
103-23-1	bis(2-Ethylhexyl) adipate	⁴ EPA 525.2	1.0	-	6.0	µg/L	-	-	-
50-32-8	Benzo[a]pyrene	⁴ EPA 525.2	.1	-	.2	µg/L	-	-	-
117-81-7	bis(2-Ethylhexyl) phthalate	⁴ EPA 525.2	1.0	-	6.0	µg/L	-	-	-
2764-72-9	Diquat	⁵ EPA 549.1	.27	-	20	µg/L	-	-	-

¹ Wershaw and others (1987).

² Werner and others (1996).

³ U.S. Environmental Protection Agency (1991a).

⁴ U.S. Environmental Protection Agency (1995).

⁵ U.S. Environmental Protection Agency (1992).

Table 9. Concentrations of major ions and trace elements in samples from well 8-2 year and from well 23-5 year

[yr, year; sample, original sample; replicate, replicate sample; blank, equipment blank sample; mg/L, milligrams per liter; <, less than; CaCO₃, calcium carbonate; -, not analyzed; µg/L, microgram per liter; E, estimated]

Constituent (unit)	05/23/2000 Well 8-2 yr		05/19/1999 Well 23-5 yr	
	Sample	Replicate	Sample	Blank
Calcium (mg/L)	170	167	130	0.07
Magnesium (mg/L)	28	28	27	.03
Potassium (mg/L)	6.4	6.1	7.1	<.1
Sodium (mg/L)	27	25	13	3.6
Alkalinity, laboratory (mg/L as CaCO ₃)	453	467	482	3.0
Alkalinity, field (mg/L as CaCO ₃)	434	434	486	-
Bicarbonate (mg/L)	529	529	593	-
Carbonate (mg/L)	-	0	-	-
Chloride (mg/L)	6.8	<.3	5.5	2.0
Fluoride (mg/L)	.26	.3	.27	<.1
Silica (mg/L)	19	18	32	.9
Sulfate (mg/L)	64	64	19	.1
Antimony (µg/L)	<1.0	<1.0	<1.0	<1.0
Arsenic (µg/L)	E2	<2.0	5	<1.0
Barium (µg/L)	152	144	423	E1
Beryllium (µg/L)	<1.6	<2.0	<1.6	<2.0
Boron (µg/L)	99	97	79	81
Cadmium (µg/L)	<8.0	<8.0	<8.0	<8.0
Chromium (µg/L)	<14	<14.0	<14	<14.0
Cobalt (µg/L)	<13	<13	-	<7.0
Copper (µg/L)	<10	<10	<10	<10
Iron (µg/L)	3,800	3,600	16,300	<10
Lead (µg/L)	<100	<100	<100	<100
Lithium (µg/L)	52	47	34	6.1
Manganese (µg/L)	1,050	1,010	611	<3
Mercury (µg/L)	<.2	<.2	<.1	<.1
Molybdenum (µg/L)	E24	E18	<50	<50
Nickel (µg/L)	<40	<40	<40	<40
Selenium (µg/L)	<2.0	<2.4	<1.0	<1.0
Silver (µg/L)	<7.0	<7.0	<4.0	<4.0
Strontium (µg/L)	710	674	999	<1.0
Vanadium (µg/L)	<10	<10	<10	<10
Zinc (µg/L)	<20	<20	<20	<20

Table 10. Concentration of nutrients in samples, replicates, and blanks

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; s, sample; <, less than; r, replicate; b, blank]

Sample location name	Date	Time	Sample type	Dissolved ammonia (mg/L as N)	Dissolved nitrite + nitrate (mg/L as N)	Dissolved nitrite (mg/L as N)	Dissolved orthophosphorus (mg/L as P)
1-10 yr	09/23/1998	1400	s	3.7	<0.05	<0.01	<0.01
1-10 yr	09/23/1998	1401	r	3.7	<.05	<.01	<.01
1-10 yr	08/25/1999	1205	s	3.7	<.05	<.01	<.01
1-10 yr	08/25/1999	1206	r	3.8	<.05	<.01	<.01
1-10 yr	11/19/1999	1510	s	3.7	<.05	<.01	.01
1-10 yr	11/19/1999	1511	r	3.7	<.05	<.01	.03
1-10 yr	02/25/2000	0900	s	3.6	<.05	<.01	.49
1-10 yr	02/25/2000	0901	r	3.6	<.05	<.01	.42
1-10 yr	08/30/2000	1435	s	3.0	<.05	.02	.10
1-10 yr	08/30/2000	1436	r	3.1	<.05	.01	.37
2-5 yr	10/27/1999	1345	s	2.3	<.05	.04	.22
2-5 yr	10/27/1999	1346	r	2.3	.01	.04	.24
3-10 yr	09/23/1998	1115	s	<.02	.84	.03	.03
3-10 yr	09/23/1998	1116	r	.02	.84	.03	.03
4-3 yr	05/18/1999	1200	s	.66	<.05	.01	.04
4-3 yr	05/18/1999	1200	b	.01	.05	<.01	.03
4-5 yr	10/29/1998	1540	s	1.3	<.05	.01	.02
4-5 yr	10/29/1998	1541	r	1.3	<.05	<.01	.02
7-1 yr	12/28/1998	1235	s	.92	<.05	.02	<.01
7-1 yr	12/28/1998	1236	r	.89	.06	.02	.01
7-10 yr	05/13/1999	1145	s	.61	<.05	.01	.18
7-10 yr	05/13/1999	1146	r	.61	<.05	<.01	.02
8-2 yr	09/10/1999	1235	s	.12	.13	<.01	<.01
8-2 yr	09/10/1999	1236	r	.12	.14	<.01	<.01
9-2 yr	10/27/1998	1445	s	.32	<.05	<.01	.02
9-2 yr	10/27/1998	1446	r	.3	<.05	<.01	<.01
15-2 yr	05/12/1999	1245	s	.07	<.05	<.01	.01
15-2 yr	05/12/1999	1246	r	.07	<.05	<.01	.01
15-2 yr	08/23/1999	1115	s	.06	<.05	<.01	.02
15-2 yr	08/23/1999	1116	r	.05	<.05	<.01	.02
15-2 yr	11/23/1999	1045	s	.06	<.05	<.01	.03
15-2 yr	11/23/1999	1046	r	.07	<.05	<.01	.05
15-2 yr	02/25/2000	1235	s	.08	<.05	<.01	.03
15-2 yr	02/25/2000	1236	r	.07	<.05	<.01	.05
15-2 yr	07/13/2000	0950	s	.05	<.05	<.01	.04
15-2 yr	07/13/2000	0951	r	.04	<.05	<.01	.01
15-2 yr	09/07/2000	0940	s	.05	<.05	<.01	.02
15-2 yr	09/07/2000	0941	b	<.02	<.05	<.01	.01

Table 10. Concentration of nutrients in samples, replicates, and blanks—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; s, sample; <, less than; r, replicate; b, blank]

Sample location name	Date	Time	Sample type	Dissolved ammonia (mg/L as N)	Dissolved nitrite + nitrate (mg/L as N)	Dissolved nitrite (mg/L as N)	Dissolved orthophosphorus (mg/L as P)
16-10 yr	08/27/1999	1120	s	1.7	<0.05	<0.01	0.03
16-10 yr	08/27/1999	1121	r	1.8	<.05	<.01	.05
16-10 yr	11/24/1999	0855	s	1.8	<.05	<.01	.02
16-10 yr	11/24/1999	0856	r	1.8	<.05	<.01	.01
16-10 yr	02/23/2000	1050	s	2.1	<.05	<.01	<.01
16-10 yr	02/23/2000	1051	r	2.1	<.05	<.01	.46
16-10 yr	03/31/2000	1205	s	2.0	<.05	.03	.57
16-10 yr	03/31/2000	1206	r	2.0	<.05	.04	.56
16-10 yr	08/28/2000	1035	s	1.5	<.05	<.01	<.01
16-10 yr	08/28/2000	1036	r	1.5	<.05	<.01	.15
22-3 yr	10/08/1998	1605	s	.28	.08	<.01	.01
22-3 yr	10/08/1998	1606	r	.27	.08	<.01	.02
23-5 yr	05/19/1999	1410	s	.47	<.05	<.01	.02
23-5 yr	05/19/1999	1445	b	.29	.11	.02	.03
26-5 yr	09/24/1998	1240	s	2.4	.49	.02	.04
26-5 yr	09/24/1998	1241	r	.74	<.05	<.01	.01

Table 11. Concentration and percent recovery of pesticides in field spiked samples from well 8-2 year

[Sample collected May 23, 2000; µg/L, micrograms per liter; µg/mL, micrograms per milliliter; percent recovery, (spiked sample concentration—unspiked sample concentration) x 100 percent/(spike mixture concentration/(10 x sample volume)); <, less than; E, estimated]

Pesticide	Unspiked sample concentration (µg/L)	Spiked mixture concentration (µg/mL)	Field spiked sample		Replicate field spiked sample	
			Concentration (µg/L)	Percent recovery	Concentration (µg/L)	Percent recovery
2,6-Diethylaniline	<0.003	1.002	0.106	84	0.105	84
Acetochlor	<.002	1.000	.118	95	.119	97
Alachlor	<.002	1.000	.12	97	.123	100
Alpha benzene hexachloride	<.002	1.000	.113	91	.118	96
Atrazine	<.001	1.000	.118	96	.117	96
Butylate	<.002	.999	.114	92	.115	93
Carbaryl	<.003	1.000	E.11	88	E.11	88
Carbofuran	<.003	1.002	E.093	74	E.096	77
Cyanazine	<.004	1.000	.152	121	.128	102
Deethylatrazine	<.002	.998	E.084	67	E.088	71
Diazinon	<.002	1.002	.114	92	.116	94
Dieldrin	<.001	1.002	.121	98	.123	101
Disulfoton	<.017	1.004	.095	64	.073	46
EPTC	<.002	1.000	.11	88	.109	88
Ethalfuralin	<.004	1.000	.093	73	.094	74
Linuron	<.002	1.002	.152	123	.158	129
Malathion	<.005	1.004	.115	90	.117	92
Methyl parathion	<.006	1.004	.086	65	.088	67
Metolachlor	<.002	1.002	.097	78	.1	81
Metribuzin	<.004	1.002	.109	86	.112	89
Molinate	<.004	1.004	.11	86	.111	88
Parathion	<.004	1.002	.102	80	.107	85
Pendimethalin	<.004	1.000	.094	74	.099	78
Phorate	<.002	1.000	.093	75	.093	75
Prometon	<.018	1.000	.082	52	.081	52
Pronamide	<.003	1.004	.109	86	.111	89
Propachlor	<.007	1.002	.122	94	.124	96
Propanil	<.004	1.004	.118	93	.118	94
Simazine	<.005	1.000	.113	88	.113	89
Tebuthiuron	<.01	1.000	.157	120	.156	121
Terbacil	<.007	1.002	E.11	84	E.11	85
Terbufos	<.013	1.004	.091	64	.091	64
Thiobencarb	<.002	1.002	.115	92	.116	94
Tri-allate	<.001	1.004	.11	89	.11	90
Trifuralin	<.002	1.004	.094	75	.101	81

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River

[$\mu\text{S/cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S/cm}$)	Specific conductance, field ($\mu\text{S/cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
1-5 yr	12/15/1997	1,690	-	6.6	6.8	13.5	3.3
1-5 yr	05/27/1999	1,560	1,340	6.9	7.0	14.6	0
1-5 yr	08/30/2000	-	1,330	6.9	-	15.8	.1
1-5 yr	09/06/2000	-	1,670	6.9	-	14.4	0
1-10 yr	12/15/1997	-	-	6.9	-	13.5	2.7
1-10 yr	09/23/1998	-	1,320	6.9	-	14.4	.1
1-10 yr	12/18/1998	-	1,360	6.7	-	14.1	0
1-10 yr	05/27/1999	-	1,120	6.8	-	14.5	0
1-10 yr	08/25/1999	-	1,100	6.9	-	15.0	.3
1-10 yr	11/19/1999	-	690	7.0	-	13.7	0
1-10 yr	02/25/2000	-	1,290	6.8	-	14.4	0
1-10 yr	08/30/2000	-	1,070	6.8	-	15.3	.1
1-10 yr	09/06/2000	-	1,300	6.9	-	14.5	0
2-2 yr	07/15/1998	-	1,200	7.1	7.2	14.6	0
2-2 yr	08/30/2000	-	887	7.0	-	16.5	.1
2-2 yr	09/06/2000	-	1,030	7.1	-	15.2	0
2-5 yr	09/23/1998	-	1,050	7.1	-	15.4	.1
2-5 yr	12/18/1998	-	930	7.2	-	14.3	0
2-5 yr	05/21/1999	-	976	7.1	-	14.9	0
2-5 yr	08/25/1999	-	1,020	7.0	-	15.4	.3
2-5 yr	10/27/1999	-	783	7.0	-	15.3	0
2-5 yr	11/19/1999	-	739	7.2	-	14.1	0
2-5 yr	12/14/1999	-	1,140	6.9	-	14.0	0
2-5 yr	02/28/2000	-	1,080	7.0	-	15.5	.1
2-5 yr	03/31/2000	-	944	6.9	-	14.6	.1
2-5 yr	07/13/2000	-	909	7.1	-	16.0	0
2-5 yr	08/30/2000	-	957	7.0	-	16.7	.1
2-5 yr	09/06/2000	-	1,120	7.0	-	15.5	0
3-3 yr	01/13/1998	966	-	-	6.9	-	-
3-3 yr	05/18/1999	954	882	6.9	7.0	16.4	0
3-3 yr	08/31/2000	-	817	6.8	-	16.2	0
3-3 yr	09/06/2000	-	860	6.9	-	16.2	.1
3-10 yr	01/15/1998	967	-	6.7	6.9	13.3	.6
3-10 yr	09/23/1998	-	953	6.7	-	15.6	.1
3-10 yr	02/10/1999	-	886	7.1	-	15.7	0
3-10 yr	05/18/1999	931	862	6.7	6.9	16.6	0
3-10 yr	08/25/1999	-	753	6.7	-	17.7	.3
3-10 yr	11/22/1999	-	563	6.9	-	15.1	.1
3-10 yr	02/28/2000	-	734	6.7	-	15.5	0
3-10 yr	08/31/2000	-	818	6.7	-	16.5	.5
3-10 yr	09/06/2000	-	825	6.8	-	15.9	.3
4-1 yr	07/22/1998	1,280	1,450	7.1	7.1	14.7	0
4-3 yr	02/10/1999	-	1,090	7.2	-	15.5	0
4-3 yr	05/18/1999	-	1,060	6.8	-	16.0	0
4-3 yr	10/27/1999	-	756	6.7	-	16.0	0
4-3 yr	11/22/1999	-	615	7.0	-	15.0	0
4-3 yr	12/14/1999	-	990	6.8	-	14.4	0
4-3 yr	02/25/2000	-	930	6.7	-	15.2	0
4-3 yr	03/31/2000	-	741	6.7	-	15.7	.1
4-3 yr	07/13/2000	-	780	6.8	-	16.7	0
4-3 yr	08/31/2000	-	982	6.7	-	16.2	0

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
4-5 yr	10/29/1998	-	1,510	6.9	-	16.3	0
4-5 yr	10/29/1998	-	1,510	6.9	-	16.3	0
4-5 yr	05/18/1999	-	1,050	6.7	-	16.0	-
5-4 yr	05/05/1998	633	1,220	7.1	7.3	15.1	0
5-4 yr	05/26/1999	1,100	976	6.9	7.1	15.5	0
5-4 yr	11/20/1999	-	564	7.1	-	14.8	.1
5-10 yr	05/05/1998	1,100	1,180	7.0	7.0	15.3	0
5-10 yr	10/27/1998	-	1,140	6.8	-	15.1	.2
5-10 yr	02/10/1999	-	995	7.4	-	15.6	0
5-10 yr	05/26/1999	-	904	6.9	-	15.4	0
5-10 yr	08/25/1999	-	816	7.0	-	15.9	.3
5-10 yr	11/20/1999	-	596	7.0	-	14.7	.2
5-10 yr	02/28/2000	-	853	7.0	-	15.8	.2
5-10 yr	08/30/2000	-	828	6.9	-	16.0	.1
6-5 yr	07/22/1998	992	1,090	7.1	7.1	15.1	0
6-5 yr	10/01/1998	-	1,020	7.0	-	15.7	0
6-5 yr	02/17/1999	-	927	7.1	-	14.7	0
6-5 yr	05/26/1999	1,000	915	6.8	7.1	16.4	0
6-5 yr	11/22/1999	-	603	7.3	-	15.2	0
6-5 yr	02/25/2000	-	947	6.9	-	15.5	0
6-5 yr	08/31/2000	-	834	6.9	-	16.6	0
7-1 yr	04/21/1998	884	895	7.1	7.1	15.6	0
7-1 yr	10/01/1998	-	850	7.1	-	16.1	0
7-1 yr	12/28/1998	-	826	7.1	-	14.3	0
7-1 yr	05/13/1999	-	1,040	7.0	-	16.6	0
7-1 yr	11/20/1999	-	548	7.2	-	15.2	0
7-1 yr	02/28/2000	-	913	7.0	-	15.3	-
7-1 yr	08/30/2000	-	922	7.0	-	16.5	.1
7-5 yr	04/21/1998	-	1,000	7.0	-	15.6	0
7-5 yr	05/13/1999	-	877	7.0	-	16.5	0
7-10 yr	04/21/1998	-	1,040	7.0	-	15.6	0
7-10 yr	10/01/1998	-	1,000	7.0	-	16.2	0
7-10 yr	12/28/1998	-	-	7.1	-	13.9	0
7-10 yr	05/13/1999	-	897	7.0	-	16.6	0
7-10 yr	05/13/1999	-	897	7.0	-	16.6	0
7-10 yr	11/20/1999	-	550	7.1	-	15.1	.1
7-10 yr	02/28/2000	-	827	6.9	-	15.5	0
7-10 yr	08/30/2000	-	913	6.9	-	16.3	.1
8-0.5 yr	04/21/1998	-	741	7.1	-	15.2	1.2
8-2 yr	04/21/1998	837	837	7.1	7.2	15.5	.5
8-2 yr	10/27/1998	-	852	6.7	-	15.9	.1
8-2 yr	12/28/1998	-	855	7.1	-	14.1	0
8-2 yr	05/13/1999	912	858	7.0	7.0	17.3	0
8-2 yr	11/20/1999	-	587	7.1	-	15.4	0
8-2 yr	05/23/2000	1,020	952	6.8	7.2	16.6	.2
8-2 yr	08/30/2000	-	832	6.8	-	17.0	0
9-0.5 yr	03/30/1998	-	886	7.0	-	14.5	0
9-0.5 yr	03/01/2000	-	740	7.1	-	15.6	0
9-0.5 yr	08/30/2000	-	737	7.0	-	17.2	0
9-2 yr	03/30/1998	-	1,050	6.9	-	14.6	0
9-2 yr	10/27/1998	-	986	6.6	-	16.0	.1
9-2 yr	10/27/1998	-	986	6.6	-	16.0	.1

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
9-2 yr	12/28/1998	-	928	6.9	-	14.0	0
9-2 yr	08/27/1999	-	779	6.8	-	16.9	.3
9-2 yr	11/22/1999	-	651	6.9	-	15.2	.1
9-5 yr	05/13/1999	1,110	1,060	6.8	6.9	18.4	0
10-0.5 yr	03/02/2000	-	715	7.3	-	15.5	0
10-2 yr	10/29/1998	-	1,080	6.4	-	16.3	.1
10-2 yr	02/10/1999	-	1,310	7.3	-	15.8	0
10-2 yr	11/22/1999	-	565	7.2	-	15.3	0
10-2 yr	09/06/2000	-	911	6.8	-	16.4	0
10-5 yr	05/18/1999	1,320	1,210	6.8	6.9	17.4	1.3
11-0.5 yr	01/22/1998	725	-	-	7.3	-	-
11-1 yr	07/22/1998	726	784	7.5	7.4	14.5	0
11-1 yr	03/02/2000	-	666	7.2	-	14.8	0
11-1 yr	04/03/2000	-	656	7.2	-	15.2	0
11-1 yr	05/19/2000	-	861	7.2	-	16.1	-
11-1 yr	07/13/2000	-	718	7.2	-	17.3	0
11-3 yr	10/01/1998	-	895	6.7	-	14.9	0
11-3 yr	02/17/1999	-	986	6.9	-	14.0	0
11-3 yr	05/21/1999	-	791	6.7	-	14.8	.1
11-3 yr	10/28/1999	-	785	6.8	-	15.1	0
11-3 yr	11/23/1999	-	600	6.8	-	14.5	.1
11-3 yr	12/15/1999	-	984	6.9	-	14.4	0
12-0.5 yr	01/27/1998	803	-	-	6.9	-	-
12-3 yr	09/16/1998	-	917	7.1	-	16.1	.1
12-3 yr	02/16/1999	-	973	6.9	-	15.2	0
12-3 yr	05/21/1999	-	859	6.9	-	15.8	0
12-3 yr	10/28/1999	-	664	7.0	-	15.3	0
12-3 yr	11/23/1999	-	554	6.9	-	14.9	.1
12-3 yr	12/15/1999	-	833	7.2	-	15.0	0
12-3 yr	03/02/2000	-	801	6.9	-	15.1	0
12-3 yr	04/03/2000	-	705	7.0	-	15.3	0
12-3 yr	05/22/2000	-	954	7.0	-	16.8	0
12-3 yr	07/13/2000	-	812	7.0	-	16.3	0
12-3 yr	09/05/2000	-	943	6.9	-	16.4	0
13-0.5 yr	02/04/1998	-	-	7.0	-	14.0	0
13-0.5 yr	02/04/1998	1,150	-	7.0	7.0	14.2	0
13-0.5 yr	09/16/1998	-	1,360	6.9	-	16.3	.1
13-0.5 yr	02/16/1999	-	1,240	6.9	-	15.1	0
13-0.5 yr	05/12/1999	-	1,180	7.0	-	15.8	0
13-0.5 yr	08/23/1999	-	959	6.9	-	16.5	.3
13-0.5 yr	11/23/1999	-	617	7.0	-	15.0	.1
13-0.5 yr	03/01/2000	-	915	6.9	-	15.5	-
13-0.5 yr	09/07/2000	-	1,290	6.9	-	15.8	.3
14-0.5 yr	02/03/1998	761	-	7.7	7.4	15.4	0
14-0.5 yr	02/09/1999	-	638	7.5	-	16.9	.1
14-0.5 yr	08/23/1999	-	615	7.4	-	15.1	.2
14-0.5 yr	11/23/1999	-	532	7.5	-	16.9	0
14-0.5 yr	03/01/2000	-	754	7.5	-	17.3	0
14-0.5 yr	09/06/2000	-	745	7.5	-	15.1	0
14-1 yr	02/03/1998	-	-	7.6	-	16.6	0
14-1 yr	05/22/2000	-	803	7.6	-	16.0	0
14-1 yr	09/06/2000	-	793	7.5	-	14.2	0
14-2 yr	02/03/1998	-	-	6.8	-	14.0	0

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
14-2 yr	09/16/1998	-	1,260	6.7	-	16.4	0.9
14-2 yr	02/09/1999	-	1,180	6.6	-	16.4	-
14-2 yr	05/12/1999	-	1,120	6.7	-	16.3	0
14-2 yr	08/23/1999	-	942	6.7	-	17.5	.9
14-2 yr	11/23/1999	-	591	6.7	-	16	.7
14-2 yr	03/01/2000	-	996	6.8	-	18.3	-
15-1 yr	02/02/1998	769	-	7.6	7.5	17.2	0
15-1 yr	02/09/1999	-	687	7.5	-	17.4	.1
15-1 yr	08/23/1999	-	609	7.5	-	16.6	.2
15-1 yr	11/23/1999	-	583	7.4	-	19.4	0
15-1 yr	02/25/2000	-	765	7.4	-	15.9	0
15-1 yr	09/07/2000	-	766	7.4	-	18.6	.1
15-2 yr	02/02/1998	-	-	7.7	-	20.5	0
15-2 yr	09/16/1998	-	657	7.3	-	16.6	.1
15-2 yr	05/12/1999	-	765	7.5	-	20.1	0
15-2 yr	05/12/1999	-	765	7.5	-	20.1	0
15-2 yr	08/23/1999	-	630	7.5	-	11.3	.2
15-2 yr	10/28/1999	-	655	7.5	-	20.4	0
15-2 yr	11/23/1999	-	691	7.4	-	23.3	0
15-2 yr	12/15/1999	-	768	7.7	-	23.3	0
15-2 yr	02/25/2000	-	788	7.4	-	23.6	0
15-2 yr	03/31/2000	-	757	7.4	-	23.4	.1
15-2 yr	05/22/2000	-	801	7.6	-	18.4	0
15-2 yr	06/01/2000	-	791	7.6	-	17	0
15-2 yr	07/13/2000	-	749	7.7	-	12.6	0
15-2 yr	09/07/2000	-	776	7.5	-	19.6	0
16-5 yr	06/05/1998	997	1,050	7.1	7.0	15.3	.3
16-5 yr	12/10/1998	-	1,020	7.2	-	15	.2
16-5 yr	05/05/1999	-	972	7.0	-	15.4	0
16-5 yr	08/27/1999	-	799	7.1	-	16.3	.4
16-5 yr	11/24/1999	-	553	7.4	-	14.8	.1
16-5 yr	02/23/2000	-	752	7.1	-	15	0
16-5 yr	08/28/2000	-	937	7.0	-	16.1	.1
16-10 yr	06/05/1998	844	935	7.1	7.1	15.7	.3
16-10 yr	09/15/1998	-	915	7.0	-	16.1	.1
16-10 yr	12/10/1998	-	1,070	7.2	-	15	.2
16-10 yr	05/05/1999	1,120	1,110	7.1	7.1	16	0
16-10 yr	08/27/1999	-	878	7.1	-	16.8	.4
16-10 yr	10/27/1999	-	888	6.9	-	16	0
16-10 yr	11/24/1999	-	734	7.2	-	-	.1
16-10 yr	12/14/1999	-	1,190	7.0	-	14.6	0
16-10 yr	02/23/2000	-	929	7.0	-	15.9	0
16-10 yr	03/31/2000	-	768	7.0	-	16.1	.1
16-10 yr	07/12/2000	-	833	7.1	-	16.6	0
16-10 yr	08/28/2000	-	857	7.0	-	16.4	.1
17-0.5 yr	05/05/1998	959	1,060	7.0	7.1	15.3	0
17-3 yr	10/08/1998	-	830	7.0	-	16	0
17-3 yr	12/11/1998	-	789	7.2	-	16	0
17-3 yr	05/11/1999	-	753	7.3	-	14.9	0
17-3 yr	08/26/1999	-	649	7.2	-	16.2	.4
17-3 yr	11/18/1999	-	529	7.3	-	16.9	0
17-3 yr	02/22/2000	-	656	7.2	-	17.2	1.5
17-3 yr	05/18/2000	-	666	7.2	-	16.6	.4

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
17-3 yr	08/29/2000	-	685	7.0	-	18.3	0.2
18-0.5 yr	07/09/1998	1,070	1,170	6.9	7.1	14.7	-
18-0.5 yr	02/24/2000	-	994	7.0	-	16.9	.1
18-0.5 yr	05/18/2000	-	868	7.1	-	16.1	0
18-0.5 yr	08/29/2000	-	972	6.9	-	15.7	0
18-2 yr	07/08/1998	-	1,060	6.7	-	16.9	1.4
18-2 yr	10/08/1998	-	992	6.7	-	17	0
18-2 yr	12/17/1998	-	936	6.7	-	16	1.4
18-2 yr	05/11/1999	-	933	6.8	-	15.4	1.4
18-2 yr	08/26/1999	-	762	6.7	-	17	2.5
18-2 yr	11/18/1999	-	617	6.8	-	20.1	1.3
19-0.5 yr	07/15/1998	845	904	7.2	7.3	15	0
19-1 yr	07/15/1998	-	1,010	6.7	-	14.3	0
19-1 yr	10/08/1998	-	997	6.8	-	15.4	0
19-1 yr	12/17/1998	-	963	6.7	-	15.4	0
19-1 yr	05/06/1999	-	968	6.7	-	15.4	0
19-1 yr	08/27/1999	-	746	6.7	-	16.3	.4
19-1 yr	11/19/1999	-	755	6.8	-	15.1	.1
19-1 yr	02/24/2000	-	976	6.7	-	16.2	.1
19-1 yr	05/18/2000	-	717	6.8	-	16.4	0
19-1 yr	08/29/2000	-	844	6.6	-	16.7	.1
20-0.5 yr	07/14/1998	653	688	7.3	7.4	15.3	0
20-1 yr	07/14/1998	-	673	7.1	-	14.6	.2
20-1 yr	10/08/1998	-	641	7.0	-	15.2	0
20-1 yr	12/17/1998	-	597	7.2	-	15.3	0
20-1 yr	05/11/1999	-	582	7.3	-	16	0
20-1 yr	08/26/1999	-	544	7.2	-	16	.3
20-1 yr	02/24/2000	-	679	7.1	-	16.2	0
20-1 yr	05/18/2000	-	527	7.3	-	16.1	0
20-1 yr	08/29/2000	-	579	7.1	-	16.2	0
21-0.5 yr	02/12/1998	1,070	1,100	7.1	7.0	14.8	0
21-1 yr	02/12/1998	-	730	7.3	-	14.8	0
21-2 yr	04/20/1998	-	1,110	7.0	-	16.1	0
21-2 yr	09/15/1998	-	1,100	6.8	-	16.6	.1
21-2 yr	12/11/1998	-	992	6.9	-	15.7	0
21-2 yr	05/06/1999	-	960	6.8	-	16	0
21-2 yr	11/23/1999	-	525	6.9	-	15.3	.1
21-2 yr	02/23/2000	-	881	6.8	-	16.7	0
21-2 yr	05/22/2000	-	1,560	6.8	-	17.2	0
21-2 yr	09/05/2000	-	1,550	6.7	-	15.9	0
22-1 yr	04/17/1998	-	631	7.2	-	15.8	0
22-2 yr	04/17/1998	-	930	6.9	-	15.8	0
22-3 yr	04/17/1998	1,020	1,040	6.9	6.9	15.5	0
22-3 yr	10/08/1998	-	1,060	6.8	-	15.5	0
22-3 yr	10/08/1998	-	1,060	6.8	-	15.5	0
22-3 yr	12/17/1998	-	935	6.9	-	15.6	0
22-3 yr	05/19/1999	1,020	943	6.9	7.0	17.9	0
22-3 yr	08/27/1999	-	652	7.0	-	16.3	.3
22-3 yr	11/19/1999	-	523	7.0	-	15.4	0
22-3 yr	02/24/2000	-	647	7.2	-	15.7	0
22-3 yr	08/29/2000	-	740	6.9	-	17.4	.1
23-1 yr	02/12/1998	-	1,080	7.2	-	15.0	0
23-3 yr	02/12/1998	-	657	7.6	-	14.8	0

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
23-3 yr	05/06/1999	581	561	7.2	7.3	15.7	0
23-5 yr	04/20/1998	801	845	7.2	7.1	15.9	0
23-5 yr	09/15/1998	-	878	7.0	-	16.6	.1
23-5 yr	12/11/1998	-	862	7.1	-	16.0	0
23-5 yr	05/19/1999	887	842	7.0	7.0	16.4	0
23-5 yr	11/24/1999	-	511	7.3	-	15.6	.1
23-5 yr	02/23/2000	-	1,010	6.8	-	16.2	0
23-5 yr	09/05/2000	-	841	7.0	-	15.9	0
24-5 yr	06/10/1998	853	873	7.0	7.1	16.1	.1
24-5 yr	10/08/1998	-	864	6.7	-	15.8	0
24-5 yr	12/17/1998	-	893	6.9	-	15.7	0
24-5 yr	05/11/1999	857	831	6.9	7.0	16	.1
24-5 yr	08/26/1999	-	726	6.8	-	15.9	.4
24-5 yr	10/27/1999	-	747	6.8	-	16.3	0
24-5 yr	11/18/1999	-	652	6.9	-	16.8	.2
24-5 yr	12/14/1999	-	984	6.5	-	15.3	0
24-5 yr	02/24/2000	-	1,110	6.7	-	16.2	0
24-5 yr	03/31/2000	-	830	6.7	-	16.1	.1
24-5 yr	07/12/2000	-	878	6.9	-	16.7	-
24-5 yr	08/28/2000	-	934	6.7	-	16.8	.1
25-10 yr	05/11/1998	1,100	1,200	7.2	7.1	15.5	0
25-10 yr	10/28/1998	-	1,100	7.1	-	16.3	3
25-10 yr	02/10/1999	-	1,060	7.4	-	14.1	0
25-10 yr	05/26/1999	1,110	1,060	7.0	7.2	14.1	-
25-10 yr	11/18/1999	-	743	7.2	-	19.1	.4
25-10 yr	02/22/2000	-	963	7.1	-	17.4	2.5
25-10 yr	08/28/2000	-	972	7.0	-	17.8	.3
25-3 yr	05/11/1998	-	1,230	7.1	-	15.2	0
25-3 yr	11/18/1999	-	731	7.2	-	15.7	.2
25-3 yr	02/22/2000	-	950	7.1	-	15.1	0
25-5 yr	05/11/1998	-	1,270	7.0	-	15.2	0
25-5 yr	05/26/1999	-	-	7.0	-	14.9	-
26-2 yr	05/11/1998	-	1,150	7.1	-	15.2	0
26-2 yr	05/11/1998	1,060	1,140	7.1	7.1	15.3	0
26-2 yr	09/24/1998	-	1,110	6.9	-	15.5	.2
26-2 yr	12/10/1998	-	1,110	7.1	-	14.9	.1
26-2 yr	05/19/1999	1,100	1,030	7.0	7.1	15.3	0
26-2 yr	11/18/1999	-	687	7.2	-	15.3	0
26-2 yr	02/22/2000	-	946	7.1	-	15.3	0
26-2 yr	08/28/2000	-	1,010	7.0	-	16.1	.1
27-5 yr	05/11/1998	-	1,110	7.2	-	15.3	0
27-5 yr	10/29/1998	-	1,060	7.0	-	19.4	2.5
27-5 yr	05/14/1999	-	1,020	7.1	-	14.8	0
27-10 yr	05/11/1998	704	994	7.3	7.2	15.3	0
27-10 yr	12/10/1998	-	960	7.2	-	14.6	.2
27-10 yr	05/14/1999	960	919	7.1	7.1	14.8	0
27-10 yr	11/18/1999	-	638	7.2	-	15.2	0
27-10 yr	02/22/2000	-	893	7.1	-	15.2	0
27-10 yr	08/28/2000	-	808	7.0	-	16.3	0
INDEP	06/03/1998	738	765	7.2	7.4	15.1	.2
INDEP	10/29/1998	-	703	6.9	-	18.2	2.4
INDEP	02/17/1999	-	856	7.7	-	6.5	0
INDEP	05/27/1999	678	645	7.4	7.5	13	0

Table 12. Selected constituents and physical properties measured in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25 degrees Celsius; pH, in standard units; field, measured in field; laboratory, measured in laboratory; $^{\circ}\text{C}$, degrees Celsius; mg/L, milligrams per liter; yr, year; -, data not available; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Specific conductance, laboratory ($\mu\text{S}/\text{cm}$)	Specific conductance, field ($\mu\text{S}/\text{cm}$)	pH, field	pH, laboratory	Water temperature, field ($^{\circ}\text{C}$)	Dissolved oxygen, field (mg/L)
INDEP	10/28/1999	-	615	7.4	-	17.3	0
INDEP	11/24/1999	-	558	7.6	-	-	.1
INDEP	12/15/1999	-	763	7.6	-	16.5	0
INDEP	03/02/2000	-	698	7.4	-	5.8	0
INDEP	04/03/2000	-	685	7.3	-	13.5	0
INDEP	05/23/2000	821	801	7.4	7.7	16.1	.2
INDEP	07/13/2000	-	666	7.5	-	22.9	0
INDEP	09/07/2000	-	804	7.2	-	20.4	.1
MORIV	01/21/1997	-	830	8.1	-	1.0	12.6
MORIV	02/13/1997	-	740	8.2	-	.5	12.7
MORIV	03/18/1997	-	650	8.0	-	3.0	11.2
MORIV	04/22/1997	-	715	8.1	-	10.5	9.6
MORIV	05/28/1997	-	685	8.2	-	14.5	8.2
MORIV	06/18/1997	-	745	8.2	-	22.5	7.0
MORIV	07/30/1997	-	777	8.2	-	27.5	6.2
MORIV	08/20/1997	-	745	8.2	-	23.5	6.6
MORIV	09/10/1997	-	699	8.3	-	23	7.6
MORIV	10/22/1997	-	690	8.3	-	13	9.6
MORIV	11/18/1997	-	685	8.4	-	4.0	12.1
MORIV	12/15/1997	-	671	8.3	-	1.0	13
MORIV	01/13/1998	-	750	8.4	-	0	16.3
MORIV	02/19/1998	-	726	8.3	-	6.5	17.6
MORIV	03/12/1998	-	780	8.4	-	0	16.9
MORIV	04/21/1998	-	750	7.9	-	13.1	9.2
MORIV	05/18/1998	-	725	8.2	-	20	6.2
MORIV	06/10/1998	-	717	8.2	-	18	7.6
MORIV	07/22/1998	-	776	8.2	-	30	5.8
MORIV	08/19/1998	-	718	8.2	-	28	5.1
MORIV	09/01/1998	-	753	8.4	-	27	5.0
MORIV	10/29/1998	-	740	8.4	-	16	8.5
MORIV	11/17/1998	-	727	8.2	-	7.0	11.0
MORIV	12/02/1998	-	781	8.3	-	9.0	1.4
MORIV	01/27/1999	-	799	8.1	-	2.0	12.6
MORIV	02/22/1999	-	766	7.2	-	2.0	12.9
MORIV	03/26/1999	-	729	8.2	-	8.0	1.5
MORIV	04/16/1999	-	531	8.1	-	10	8.3
MORIV	05/21/1999	-	726	8.1	-	19	6.7
MORIV	06/18/1999	-	808	8.3	-	20.5	7.7
MORIV	07/30/1999	-	804	8.2	-	30	5.8
MORIV	08/13/1999	-	778	8.1	-	25	5.9
MORIV	09/08/1999	-	786	8.3	-	24	6.5
MORIV	10/22/1999	-	803	8.6	-	12.5	9.4
MORIV	11/03/1999	-	801	8.3	-	11	9.8
MORIV	12/07/1999	-	784	8.7	-	7.2	11.4
MORIV	01/06/2000	-	809	8.2	-	2.0	14.4
MORIV	02/15/2000	-	793	8.5	-	3.5	12.3
MORIV	03/16/2000	-	785	8.3	-	8.0	11.8
MORIV	04/13/2000	-	798	8.5	-	10	11.0
MORIV	05/24/2000	-	785	8.2	-	20.5	6.0
MORIV	06/16/2000	-	726	8.3	-	23.5	5.6
MORIV	07/20/2000	-	783	8.2	-	27	5.9
MORIV	08/15/2000	-	810	8.5	-	28.5	7.4
MORIV	09/12/2000	-	806	8.6	-	24.5	8.4

Table 13. Densities of fecal coliform and fecal streptococci in bacteria samples from wells and the Missouri River

[col/100 mL, colonies per 100 milliliters; yr, year; -, data not available; MORIV, Missouri River]

Sample location name	Date	Fecal coliform (col/100 mL)	Fecal streptococci (col/100 mL)
6-5 yr	10/01/1998	0	3
7-1 yr	10/01/1998	0	41
7-10 yr	10/01/1998	0	4
8-2 yr	10/27/1998	0	1
11-3 yr	01/22/1998	2	0
11-3 yr	10/01/1998	0	5
11-3 yr	05/21/1999	1	0
15-2 yr	09/16/1998	0	1
18-2 yr	10/08/1998	0	27
20-1 yr	10/08/1998	0	7
20-1 yr	05/11/1999	0	4
21-2 yr	09/08/1999	4	0
22-3 yr	10/08/1998	0	20
23-5 yr	09/08/1999	1	0
24-5 yr	10/08/1998	0	7
25-10 yr	05/26/1999	500	0
MORIV	01/13/1998	400	140
MORIV	02/19/1998	800	2,600
MORIV	03/12/1998	430	300
MORIV	04/21/1998	300	460
MORIV	05/18/1998	3,800	1,100
MORIV	06/10/1998	4,200	2,300
MORIV	07/22/1998	120	12
MORIV	08/19/1998	1,800	140
MORIV	09/01/1998	17,000	4,200
MORIV	10/29/1998	1,600	240
MORIV	11/17/1998	7,300	3,700
MORIV	12/02/1998	1,200	83
MORIV	01/27/1999	280	410
MORIV	02/22/1999	510	270
MORIV	03/26/1999	260	80
MORIV	04/16/1999	35,000	20,000
MORIV	05/21/1999	8,400	2,800
MORIV	06/18/1999	4,000	660
MORIV	07/30/1999	220	90
MORIV	08/13/1999	54	260
MORIV	09/08/1999	1,100	200
MORIV	10/22/1999	340	33
MORIV	11/03/1999	190	7
MORIV	12/07/1999	490	78
MORIV	01/06/2000	620	110
MORIV	02/15/2000	580	210
MORIV	03/16/2000	380	73
MORIV	04/13/2000	200	71
MORIV	05/24/2000	1,100	680
MORIV	06/16/2000	6,200	3,000
MORIV	07/20/2000	380	140
MORIV	08/15/2000	43	18
MORIV	09/12/2000	73	-

Table 14. Median concentrations of major ions and iron in samples from wells, combined Independence well field pumpage, and the Missouri River

[meq/L, milliequivalents per liter; -, data not available]

Ion	Wells (meq/L)	Combined Independence well field pumpage (meq/L)	Missouri River (meq/L)
Calcium	6.63	3.79	3.20
Magnesium	2.59	1.81	1.94
Sodium	1.41	2.22	2.80
Potassium	.15	.17	.10
Bicarbonate	8.73	3.93	3.13
Sulfate	1.66	3.12	4.02
Chloride	.42	.68	.48
Fluoride	.01	.02	.02
Silica	.91	.47	-
Iron	.17	.02	-

Table 15. Dissolved major ions and iron detected in samples from wells, combined Independence well field pumpage, and the Missouri River

[mg/L, milligrams per liter; laboratory, measured in laboratory; CaCO₃, calcium carbonate; field, measured in field; µg/L, micrograms per liter; yr, year; -, data not available; <, less than; E, estimated value; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity, laboratory (mg/L as CaCO ₃)	Alkalinity, field (mg/L as CaCO ₃)	Bicarbonate (mg/L)	Carbonate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Iron (µg/L)
1-5 yr	12/15/1997	240	75	46	9.1	750	-	-	-	260	23	0.24	36	28,000
1-5 yr	05/27/1999	200	63	37	8.7	712	703	858	-	210	18	.21	35	24,800
2-2 yr	07/15/1998	140	39	52	7.2	542	476	581	-	77	23	.30	35	17,300
3-3 yr	01/13/1998	140	24	38	3.2	443	-	-	-	97	13	.23	25	340
3-3 yr	05/18/1999	140	24	26	3.4	439	426	519	-	89	12	.21	26	710
3-10 yr	01/15/1998	170	24	13	3.8	467	457	557	-	63	17	.23	22	<10
3-10 yr	05/18/1999	160	21	13	3.3	414	389	475	-	100	6.3	.18	24	E6.4
4-1 yr	07/22/1998	180	52	62	7.4	506	490	598	-	250	25	.28	30	14,800
5-4 yr	05/05/1998	60	18	59	-	247	658	803	0	130	22	.32	15	540
5-4 yr	05/26/1999	170	30	26	4.1	614	608	742	-	4.1	13	.20	30	12,400
5-10 yr	05/05/1998	170	30	33	5.2	616	624	761	-	19	15	.27	27	8,400
6-5 yr	07/22/1998	150	27	38	4.2	414	388	473	-	100	44	.17	30	9,700
6-5 yr	05/26/1999	150	26	26	3.7	376	401	489	-	81	48	.15	29	11,000
7-1 yr	04/21/1998	110	26	38	4.6	372	368	449	-	91	19	.23	30	8,300
8-2 yr	04/21/1998	110	18	44	5.7	269	272	332	0	150	23	.32	15	810
8-2 yr	05/13/1999	130	20	33	6.0	383	247	302	0	110	14	.34	16	2,600
8-2 yr	05/23/2000	170	28	27	6.4	453	434	529	-	64	6.8	.26	19	3,800
9-5 yr	05/13/1999	160	33	27	7.6	543	379	462	0	91	11	.26	30	16,200
10-5 yr	05/18/1999	180	50	21	7.6	695	699	853	-	19	40	.22	51	14,600
11-0.5 yr	01/22/1998	66	18	59	5.7	175	-	-	-	160	25	.46	15	4,200
11-1 yr	07/22/1998	77	18	59	5.5	227	216	264	-	150	21	.42	18	5,000
12-0.5 yr	01/27/1998	97	22	38	5.2	280	-	-	-	130	22	.32	26	10,900
13-2 yr	02/04/1998	160	48	24	7.6	603	706	861	0	55	7.7	.23	41	15,200
14-0.5 yr	02/03/1998	72	20	60	6.5	178	202	246	0	180	19	.45	14	2,200
14-1 yr	02/03/1998	-	-	-	-	-	224	273	0	-	-	-	-	-
14-2 yr	02/03/1998	-	-	-	-	-	756	922	0	-	-	-	-	-
15-1 yr	02/02/1998	74	22	57	6.8	204	188	229	0	170	19	.46	13	4,200
15-2 yr	02/02/1998	-	-	-	-	-	148	181	0	-	-	-	-	-
16-5 yr	06/05/1998	140	39	24	5.4	587	570	695	-	5.1	6.1	.26	31	13,300
16-10 yr	06/05/1998	-	34	12	6.4	476	404	493	-	3.5	6.2	.21	31	14,700
16-10 yr	05/05/1999	180	43	18	6.5	651	482	588	0	6.3	4.9	.19	37	21,800
17-0.5 yr	05/05/1998	120	29	42	7.0	225	567	692	-	92	12	.33	27	7,000
18-0.5 yr	07/09/1998	160	43	21	6.3	627	-	-	-	19	6.7	.26	30	10,700
19-0.5 yr	07/15/1998	130	33	10	6.2	489	-	-	-	2.6	3.7	.26	28	6,100

Table 15. Dissolved major ions and iron detected in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; laboratory, measured in laboratory; CaCO₃, calcium carbonate; field, measured in field; µg/L, micrograms per liter; yr, year; -, data not available; <, less than; E, estimated value; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity, laboratory (mg/L as CaCO ₃)	Alkalinity, field (mg/L as CaCO ₃)	Bicarbonate (mg/L)	Carbonate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Iron (µg/L)
20-0.5 yr	07/14/1998	100	18	11	5.4	329	300	366	-	26	9.6	0.23	21	2,200
21-0.5 yr	02/12/1998	140	39	22	5.9	606	581	708	0	14	7.9	.21	27	8,700
21-1 yr	02/12/1998	-	-	-	-	-	350	427	0	-	-	-	-	-
22-3 yr	04/17/1998	160	34	9.3	8.9	555	540	659	-	42	2	.25	28	12,000
22-3 yr	05/19/1999	160	35	9.5	9.0	554	-	692	0	32	4.1	.23	29	13,900
23-1 yr	02/12/1998	-	-	-	-	-	533	650	0	-	-	-	-	-
23-3 yr	02/12/1998	-	-	-	-	-	310	378	0	-	-	-	-	-
23-3 yr	05/06/1999	81	20	12	4.4	-	174	212	0	22	9.8	.30	25	5,600
23-5 yr	04/20/1998	120	25	20	6.7	443	416	508	-	29	3.6	.30	30	12,100
23-5 yr	05/19/1999	130	27	13	7.1	482	486	593	-	19	5.5	.27	32	16,300
24-5 yr	06/10/1998	-	22	20	6.0	409	386	471	-	67	11	.32	21	160
24-5 yr	05/11/1999	130	20	15	6.0	419	276	336	0	35	16	.33	23	<10
25-10 yr	05/11/1998	160	40	42	5.9	656	652	795	0	27	6.3	.24	29	9,500
25-10 yr	05/26/1999	160	40	27	5.6	593	616	751	-	13	5.6	.22	31	9,400
26-5 yr	05/11/1998	140	38	50	5.6	648	594	725	-	17	5.7	.26	28	9,400
26-5 yr	05/19/1999	150	40	27	5.5	637	624	761	0	.68	5.1	.25	31	13,400
27-10 yr	05/11/1998	47	11	57	7.8	281	568	693	0	150	21	.29	18	1,700
27-10 yr	05/14/1999	140	38	22	5.3	556	555	677	-	<.10	3.9	.31	32	14,400
INDEP	06/03/1998	76	22	51	7.1	210	206	251	-	150	24	.39	14	1,700
INDEP	05/27/1999	66	21	39	5.7	202	197	240	-	110	20	.33	13	780
INDEP	05/23/2000	79	23	65	6.6	230	178	218	0	180	29	.41	14	1,100
MORIV	01/21/1997	72	24	62	5.8	-	200	246	0	190	20	.40	-	-
MORIV	06/18/1997	70	26	65	6.0	-	170	204	0	210	15	.40	-	-
MORIV	08/20/1997	57	21	68	6.0	-	160	194	0	220	15	.40	-	-
MORIV	11/18/1997	59.7	22.4	67.7	6.0	-	160	191	0	208	13.5	.40	-	-
MORIV	01/13/1998	69.5	24.5	64.4	6.2	-	200	-	-	190	20.5	.40	-	-
MORIV	06/10/1998	63.7	23.2	50.3	6.1	-	180	215	0	155	16.7	.40	-	-
MORIV	08/19/1998	60.7	22.2	54.5	6.5	-	170	209	0	157	16.7	.40	-	-
MORIV	11/17/1998	64.1	23.1	54.7	6.4	-	180	215	0	165	16.9	.30	-	-
MORIV	01/27/1999	70.2	25	63.3	7.0	-	190	232	0	178	20.5	.40	-	-
MORIV	06/18/1999	73.1	26	52.3	3.9	-	190	231	0	49	7	.40	-	-
MORIV	08/13/1999	65	23.2	62.8	7.9	-	180	214	0	193	16.7	.40	-	-
MORIV	05/24/2000	62.4	24.4	68.2	6.3	-	176	215	0	214	18.4	.40	-	-
MORIV	07/20/2000	55.7	22.1	69.5	6.2	-	173	211	0	201	17.6	.40	-	-

Table 16. Dissolved trace elements in samples from wells and combined Independence well field pumpage

[µg/L, micrograms per liter; mg/L, milligrams per liter; yr, year; -, data not available; <, less than; E, estimated value; INDEP, combined Independence well field pumpage]

Sample location name	Date	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Cyanide (mg/L)
1-5 yr	12/15/1997	-	1.1	2	286	<1.0	518	<8.0	<14	-	<10	-
1-5 yr	05/27/1999	-	<1.0	7	263	<1.6	457	<8.0	<14	-	<10	-
2-2 yr	07/15/1998	<10	5	23	775	<1.0	118	<8.0	<14	-	<10	<0.010
3-3 yr	01/13/1998	-	<1.0	2	239	<1.0	246	<8.0	<14	<12	<10	-
3-3 yr	05/18/1999	-	<1.0	2	233	<1.6	237	<8.0	<14	<7.0	<10	-
3-10 yr	01/15/1998	-	<1.0	1	125	<1.0	330	<8.0	<14	<12	<10	-
3-10 yr	05/18/1999	-	<1.0	1	103	<1.6	198	<8.0	<14	<7.0	<10	-
4-1 yr	07/22/1998	<10	<1.0	<1	288	<1.0	143	<8.0	<14	-	<10	<.010
5-4 yr	05/05/1998	-	2	<1	187	<1.0	97	<8.0	<14	<12	<10	-
5-4 yr	05/26/1999	-	<1.0	<1	663	<1.6	154	<8.0	<14	-	<10	-
5-10 yr	05/05/1998	-	1	<1	426	<1.0	127	<8.0	<14	-	<10	-
6-5 yr	07/22/1998	<10	1	3	313	<1.0	84	<8.0	<14	-	<10	<.010
6-5 yr	05/26/1999	-	<1.0	5	294	<1.6	99	<8.0	<14	-	<10	-
7-1 yr	04/21/1998	-	<1.0	<1	389	<1.0	103	<8.0	<14	-	<10	-
8-2 yr	04/21/1998	-	<1.0	<1	125	<1.0	82	<8.0	<14	<12	<10	-
8-2 yr	05/13/1999	-	<1.0	<1	113	<1.6	88	<8.0	<14	10	<10	-
8-2 yr	05/23/2000	-	<1.0	E2	152	<1.6	99	<8.0	<14	<13	<10	-
9-5 yr	05/13/1999	-	<1.0	47	333	<1.6	122	<8.0	<14	-	<10	-
10-5 yr	05/18/1999	-	<1.0	3	571	<1.6	138	<8.0	<14	-	<10	-
11-0.5 yr	01/22/1998	-	1.4	<1	293	<1.0	81	<8.0	<14	<12	<10	-
11-1 yr	07/22/1998	<10	<1.0	<1	264	<1.0	79	<8.0	<14	18	<10	<.010
12-0.5 yr	01/27/1998	-	<1.0	<1	386	<1.0	98	<8.0	<14	-	<10	-
13-2 yr	02/04/1998	-	2.3	9	514	<1.0	158	<8.0	<14	-	<10	-
14-0.5 yr	02/03/1998	-	<1.0	1	309	<1.0	127	<8.0	<14	<12	<10	-
15-1 yr	02/02/1998	-	<1.0	<1	411	<1.0	116	<8.0	<14	20	<10	-
16-5 yr	06/05/1998	-	<1.0	<1	2,100	<1.0	104	<8.0	<14	-	<10	-

Table 16. Dissolved trace elements in samples from wells and combined Independence well field pumpage—Continued

[µg/L, micrograms per liter; mg/L, milligrams per liter; yr, year; -, data not available; <, less than; E, estimated value; INDEP, combined Independence well field pumpage]

Sample location name	Date	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Cyanide (mg/L)
16-10 yr	06/05/1998	-	6.7	22	508	<1.0	89	<8.0	<14	-	-	-
16-10 yr	05/05/1999	-	<1.0	33	609	<1.6	146	<8.0	<14	-	<10	-
17-0.5 yr	05/05/1998	-	2	5	515	<1.0	107	<8.0	<14	-	<10	-
18-0.5 yr	07/09/1998	-	<1.0	1	985	<1.0	103	<8.0	<14	-	<10	-
19-0.5 yr	07/15/1998	<10	<1.0	<1	877	<1.0	82	<8.0	<14	-	<10	<0.010
20-0.5 yr	07/14/1998	-	<1.0	<1	524	<1.0	55	<8.0	<14	<12	<10	-
21-0.5 yr	02/12/1998	-	<1.0	1	1,220	<1.0	107	<8.0	<14	-	<10	-
22-3 yr	04/17/1998	-	5.6	13	438	<1.0	83	<8.0	<14	-	<10	-
22-3 yr	05/19/1999	-	<1.0	14	395	<1.6	85	<8.0	<14	-	<10	-
23-3 yr	05/06/1999	-	<1.0	<1	661	<1.6	67	<8.0	<14	<7.0	<10	-
23-5 yr	04/20/1998	-	1.3	4	376	<1.0	80	<8.0	<14	-	<10	-
23-5 yr	05/19/1999	-	<1.0	5	423	<1.6	79	<8.0	<14	-	<10	-
24-5 yr	06/10/1998	-	<1.0	1	265	1.6	74	<8.0	<14	<12	<10	-
24-5 yr	05/11/1999	-	<1.0	<1	191	<1.6	80	<8.0	<14	<7.0	<10	-
25-10 yr	05/11/1998	-	1	1	1,360	<1.0	93	<8.0	<14	-	<10	-
25-10 yr	05/26/1999	-	<1.0	<1	1,370	<1.6	97	<8.0	<14	-	<10	-
26-5 yr	05/11/1998	-	1	1	1,350	<1.0	99	<8.0	<14	-	<10	-
26-5 yr	05/19/1999	-	1.4	<1	1,810	<1.6	91	<8.0	<14	-	<10	-
27-10 yr	05/11/1998	-	1	1	-	<1.0	84	<8.0	<14	<12	<10	-
27-10 yr	05/14/1999	-	<1.0	<1	852	<1.6	104	<8.0	<14	-	<10	-
INDEP	06/03/1998	-	<1.0	<1	211	<1.0	104	<8.0	<14	<12	<10	-
INDEP	05/27/1999	-	<1.0	1	179	<1.6	89	<8.0	<14	E5.2	<10	-
INDEP	05/23/2000	-	1.3	<2	203	<1.6	109	<8.0	<14	<13	<10	-

Table 16. Dissolved trace elements in samples from wells and combined Independence well field pumpage—Continued

[µg/L, micrograms per liter; mg/L, milligrams per liter; yr, year; -, data not available; <, less than; E, estimated value]

Sample location name	Date	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
1-5 yr	12/15/1997	<100	27	1,520	<0.1	<60	<40	<1	<4.0	1,790	-	<10	<20
1-5 yr	05/27/1999	<100	19	1,610	<.1	<50	<40	<1	<4.0	1,540	-	<10	<20
2-2 yr	07/15/1998	<100	29	1,090	<.1	<60	<40	<1	<4.0	1,090	<1	<10	<20
3-3 yr	01/13/1998	<100	22	1,360	<.1	<60	<40	<1	<4.0	677	-	<10	<20
3-3 yr	05/18/1999	<100	19	1,520	<.1	<50	<40	<1	<4.0	655	-	<10	<20
3-10 yr	01/15/1998	<100	27	237	<.1	<60	<40	2	<4.0	564	-	<10	<20
3-10 yr	05/18/1999	<100	18	95	<.1	<50	<40	2	<4.0	504	-	<10	<20
4-1 yr	07/22/1998	<100	39	643	<.1	<60	<40	<1	<4.0	1,260	<1	<10	<20
5-4 yr	05/05/1998	<100	41	253	<.1	<60	<40	<1	<4.0	458	-	<10	<20
5-4 yr	05/26/1999	<100	26	833	<.1	<50	<40	<1	<4.0	713	-	<10	<20
5-10 yr	05/05/1998	<100	33	860	<.1	<60	<40	<1	<4.0	713	-	<10	<20
6-5 yr	07/22/1998	<100	22	861	<.1	<60	<40	<1	<4.0	666	<1	<10	<20
6-5 yr	05/26/1999	<100	18	716	<.1	<50	<40	<1	<4.0	617	-	<10	<20
7-1 yr	04/21/1998	<100	39	844	<.1	<60	<40	<1	<4.0	749	-	<10	<20
8-2 yr	04/21/1998	<100	38	972	<.1	<60	<40	<1	<4.0	553	-	<10	<20
8-2 yr	05/13/1999	<100	38	895	<.1	<50	<40	<1	<4.0	519	-	<10	<20
8-2 yr	05/23/2000	<100	52	1,050	<.2	E24	<40	<2	<7.0	710	-	<10	<20
9-5 yr	05/13/1999	<100	52	1,140	<.1	<50	E22	<1	<4.0	1,070	-	<10	<20
10-5 yr	05/18/1999	<100	47	701	<.1	<50	<40	<1	<4.0	1,450	-	<10	<20
11-0.5 yr	01/22/1998	<100	34	298	.1	<60	<40	<1	<4.0	487	-	<10	<20
11-1 yr	07/22/1998	<100	34	338	<.1	<60	<40	<1	<4.0	506	<1	<10	<20
12-0.5 yr	01/27/1998	<100	38	618	<.1	<60	<40	<1	<4.0	680	-	<10	<20
13-2 yr	02/04/1998	<100	68	283	<.1	<60	<40	<1	<4.0	1,470	-	<10	<20
14-0.5 yr	02/03/1998	<100	41	589	<.1	<60	<40	<1	<4.0	551	-	<10	<20
15-1 yr	02/02/1998	<100	41	478	<.1	<60	<40	<1	<4.0	559	-	<10	<20
16-5 yr	06/05/1998	<100	43	228	<.1	<60	<40	<1	<4.0	1,270	-	<10	<20

Table 16. Dissolved trace elements in samples from wells and combined Independence well field pumpage—Continued

[µg/L, micrograms per liter; mg/L, milligrams per liter; yr, year; -, data not available; <, less than; E, estimated value]

Sample location name	Date	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
16-10 yr	06/05/1998	<100	35	1,720	<0.1	<60	<40	<1	<4.0	1,060	-	<10	<20
16-10 yr	05/05/1999	<100	45	2,010	<.1	<50	<40	<1	<4.0	1,340	-	<10	<20
17-0.5 yr	05/05/1998	<100	41	1,930	<.1	<60	<40	<1	<4.0	946	-	<10	<20
18-0.5 yr	07/09/1998	<100	43	898	<.1	<60	<40	<1	<4.0	1,400	-	<10	<20
19-0.5 yr	07/15/1998	<100	24	842	<.1	<60	<40	<1	<4.0	1,000	<1	<10	<20
20-0.5 yr	07/14/1998	<100	17	1,840	<.1	<60	<40	<1	<4.0	698	-	<10	<20
21-0.5 yr	02/12/1998	<100	41	428	<.1	<60	<40	<1	<4.0	1,250	-	<10	<20
22-3 yr	04/17/1998	<100	47	1,190	<.1	<60	<40	<1	<4.0	1,390	-	<10	<20
22-3 yr	05/19/1999	<100	49	971	<.1	<50	<40	<1	<4.0	1,330	-	<10	<20
23-3 yr	05/06/1999	<100	19	261	<.1	<50	<40	<1	<4.0	605	-	<10	<20
23-5 yr	04/20/1998	<100	35	671	<.1	<60	<40	<1	<4.0	936	-	<10	<20
23-5 yr	05/19/1999	<100	34	611	<.1	<50	<40	<1	<4.0	999	-	<10	<20
24-5 yr	06/10/1998	<100	30	496	<.1	<60	<40	<1	<4.0	927	-	<10	<20
24-5 yr	05/11/1999	<100	26	325	<.1	<50	<40	<1	<4.0	849	-	<10	<20
25-10 yr	05/11/1998	<100	45	367	<.1	<60	<40	<1	<4.0	1,340	-	<10	<20
25-10 yr	05/26/1999	<100	43	289	<.1	<50	<40	<1	<4.0	1,300	-	<10	<20
26-5 yr	05/11/1998	<100	45	398	<.1	<60	<40	<1	<4.0	1,180	-	<10	<20
26-5 yr	05/19/1999	<100	40	259	<.1	<50	<40	<1	<4.0	1,220	-	<10	<20
27-10 yr	05/11/1998	<100	38	197	<.1	<60	<40	<1	<4.0	493	-	<10	<20
27-10 yr	05/14/1999	<100	38	1,030	<.1	<50	<40	<1	<4.0	1,130	-	<10	<20
INDEP	06/03/1998	<100	35	482	<.1	<60	<40	<1	<4.0	558	-	<10	<20
INDEP	05/27/1999	<100	27	484	<.1	<50	<40	<1	<4.0	497	-	<10	<20
INDEP	05/23/2000	<100	44	481	<.2	E24	<40	<2	<7.0	583	-	<10	24

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
1-5 yr	12/15/1997	-	<0.05	-	-
1-5 yr	05/27/1999	3.6	<.05	0.01	0.03
1-10 yr	12/15/1997	-	<.05	-	-
1-10 yr	09/23/1998	3.7	<.05	<.01	<.01
1-10 yr	12/18/1998	3.8	.07	.02	.16
1-10 yr	05/27/1999	4.3	<.05	<.01	.02
1-10 yr	08/25/1999	3.7	<.05	<.01	<.01
1-10 yr	11/19/1999	3.7	<.05	<.01	.01
1-10 yr	02/25/2000	3.6	<.05	<.01	.49
1-10 yr	08/30/2000	3.0	<.05	.02	.10
2-2 yr	07/15/1998	1.8	<.05	.01	.06
2-5 yr	10/27/1999	2.3	<.05	.04	.22
2-5 yr	11/19/1999	2.2	<.05	<.01	.01
2-5 yr	12/14/1999	2.3	<.05	<.01	<.01
2-5 yr	02/28/2000	2.2	<.05	<.01	<.01
2-5 yr	03/31/2000	2.3	<.05	<.01	.01
2-5 yr	07/13/2000	2.0	<.05	.01	.99
2-5 yr	08/30/2000	.16	<.05	<.01	<.01
3-3 yr	01/13/1998	-	<.05	-	-
3-3 yr	05/18/1999	.13	<.05	<.01	.01
3-10 yr	01/15/1998	-	.73	-	-
3-10 yr	09/23/1998	<.02	.84	.03	.03
3-10 yr	02/10/1999	<.02	.77	.03	.04
3-10 yr	05/18/1999	<.02	.26	.03	.02
3-10 yr	08/25/1999	<.02	.11	.05	<.01
3-10 yr	11/22/1999	<.02	.77	.06	.02
3-10 yr	02/28/2000	<.02	.20	.03	.02
3-10 yr	08/31/2000	<.02	.17	<.01	.03
4-1 yr	07/22/1998	1.2	<.05	<.01	.02
4-3 yr	02/10/1999	.71	<.05	<.01	.01
4-3 yr	05/18/1999	.66	<.05	<.01	.04
4-3 yr	10/27/1999	.62	<.05	<.01	.03
4-3 yr	11/22/1999	.59	<.05	<.01	.01
4-3 yr	12/14/1999	.61	<.05	<.01	.02
4-3 yr	02/25/2000	.57	<.05	<.01	<.01
4-3 yr	03/31/2000	.57	<.05	<.01	<.01
4-3 yr	07/13/2000	.64	<.05	<.01	.03
4-3 yr	08/31/2000	.62	<.05	<.01	.06
4-5 yr	01/20/1998	-	<.05	-	-
4-5 yr	10/29/1998	1.3	<.05	.01	.02
4-5 yr	05/18/1999	.03	6.97	.02	.04
5-4 yr	05/05/1998	-	.12	-	-
5-4 yr	05/26/1999	.40	<.05	<.01	.04
5-10 yr	05/05/1998	-	<.05	-	-

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
5-10 yr	10/27/1998	0.4	<0.05	<0.01	0.03
5-10 yr	02/10/1999	.31	<.05	<.01	.07
5-10 yr	05/26/1999	.30	<.05	<.01	.01
5-10 yr	08/25/1999	.17	<.05	<.01	.01
5-10 yr	11/20/1999	.23	<.05	<.01	.08
5-10 yr	02/28/2000	.20	<.05	<.01	<.01
5-10 yr	08/30/2000	.24	<.05	<.01	.14
6-5 yr	07/22/1998	.28	<.05	<.01	.01
6-5 yr	10/01/1998	.27	<.05	<.01	<.01
6-5 yr	05/26/1999	.27	<.05	.01	.10
6-5 yr	11/22/1999	.19	<.05	<.01	<.01
6-5 yr	02/25/2000	.20	<.05	<.01	<.01
6-5 yr	08/31/2000	.17	<.05	.02	.20
7-1 yr	04/21/1998	-	<.05	-	-
7-1 yr	10/01/1998	.88	<.05	<.01	<.01
7-1 yr	12/28/1998	.92	<.05	.02	<.01
7-1 yr	12/28/1998	.82	.06	.02	.01
7-1 yr	05/13/1999	1.1	<.05	<.01	.02
7-1 yr	11/20/1999	.88	<.05	<.01	.02
7-1 yr	02/28/2000	.91	.06	<.01	<.01
7-1 yr	08/30/2000	.94	<.05	<.01	.04
7-5 yr	04/21/1998	-	<.05	-	-
7-5 yr	05/13/1999	.72	<.05	.01	.19
7-10 yr	04/21/1998	-	<.05	-	-
7-10 yr	10/01/1998	.52	<.05	<.01	<.01
7-10 yr	12/28/1998	.54	<.05	.02	<.01
7-10 yr	05/13/1999	.61	<.05	.01	.18
7-10 yr	11/20/1999	.48	<.05	<.01	.02
7-10 yr	02/28/2000	.48	<.05	<.01	<.01
7-10 yr	08/30/2000	.54	<.05	.02	.55
8-0.5 yr	04/21/1998	-	<.05	-	-
8-2 yr	04/21/1998	-	<.05	-	-
8-2 yr	10/27/1998	.15	<.05	<.01	.02
8-2 yr	12/28/1998	.20	.05	.02	<.01
8-2 yr	05/13/1999	.15	<.05	<.01	.02
8-2 yr	09/10/1999	.12	.13	<.01	<.01
8-2 yr	11/20/1999	.12	.31	<.01	<.01
8-2 yr	05/23/2000	.08	<.05	<.01	.02
8-2 yr	08/30/2000	.08	<.05	<.01	<.01
9-0.5 yr	03/30/1998	-	<.05	-	-
9-0.5 yr	03/01/2000	.30	<.05	<.01	<.01
9-0.5 yr	08/30/2000	.30	<.05	<.01	.02
9-2 yr	03/30/1998	-	<.05	-	-
9-2 yr	10/27/1998	.32	<.05	<.01	.02

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
9-2 yr	12/28/1998	0.28	<0.05	0.03	<0.01
9-2 yr	08/27/1999	.26	<.05	<.01	<.01
9-2 yr	11/22/1999	.23	<.05	<.01	.02
9-5 yr	05/13/1999	1.2	<.05	.02	.12
10-0.5 yr	01/21/1998	-	<.05	-	-
10-0.5 yr	03/02/2000	.18	<.05	<.01	.01
10-2 yr	01/21/1998	-	<.05	-	-
10-2 yr	10/29/1998	.24	<.05	<.01	.01
10-2 yr	02/10/1999	.35	<.05	<.01	.01
10-2 yr	11/22/1999	.21	<.05	<.01	<.01
10-2 yr	09/06/2000	.16	<.05	<.01	<.01
10-5 yr	05/18/1999	2.7	<.05	.03	.12
11-0.5 yr	01/22/1998	-	<.05	-	-
11-1 yr	07/22/1998	.49	<.05	<.01	.02
11-1 yr	03/02/2000	.34	<.05	<.01	.01
11-1 yr	04/03/2000	.41	<.05	<.01	.13
11-1 yr	07/13/2000	.40	<.05	.01	.38
11-1 yr	09/05/2000	.39	<.05	<.01	.04
11-3 yr	01/22/1998	-	<.05	-	-
11-3 yr	10/01/1998	.41	<.05	<.01	.03
11-3 yr	02/17/1999	.43	<.05	<.01	.04
11-3 yr	05/21/1999	.45	<.05	<.01	.02
11-3 yr	10/28/1999	.44	.08	<.01	.02
11-3 yr	11/23/1999	.42	<.05	<.01	<.01
11-3 yr	12/15/1999	.45	<.05	<.01	<.01
12-0.5 yr	01/27/1998	-	<.05	-	-
12-3 yr	01/27/1998	-	<.05	-	-
12-3 yr	09/16/1998	1.1	<.05	.02	.04
12-3 yr	02/16/1999	1.1	<.05	<.01	<.01
12-3 yr	05/21/1999	1.1	<.05	<.01	.01
12-3 yr	10/28/1999	1.1	<.05	.01	.12
12-3 yr	11/23/1999	1.1	<.05	<.01	<.01
12-3 yr	12/15/1999	1.1	<.05	<.01	<.01
12-3 yr	03/02/2000	1.0	<.05	<.01	<.01
12-3 yr	04/03/2000	1.1	<.05	<.01	.04
12-3 yr	05/22/2000	1.1	<.05	.01	.04
12-3 yr	07/13/2000	1.1	<.05	.06	.56
12-3 yr	09/05/2000	1.0	<.05	<.01	<.01
13-2 yr	02/04/1998	-	.05	-	-
13-2 yr	02/16/1999	2.4	<.05	<.01	<.01
13-2 yr	05/12/1999	2.6	<.05	<.01	.02
13-2 yr	08/23/1999	2.5	<.05	<.01	.03
13-2 yr	11/23/1999	2.4	<.05	<.01	<.01
13-2 yr	03/01/2000	2.0	.49	.05	.03

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
13-2 yr	09/07/2000	2.3	<0.05	<0.01	0.21
14-0.5 yr	02/03/1998	-	<.05	-	-
14-0.5 yr	02/09/1999	.26	<.05	<.01	.06
14-0.5 yr	08/23/1999	.25	<.05	<.01	.06
14-0.5 yr	11/23/1999	.15	<.05	<.01	.02
14-0.5 yr	03/01/2000	.26	<.05	<.01	.01
14-0.5 yr	09/06/2000	.16	<.05	<.01	<.01
14-1 yr	02/03/1998	-	.05	-	-
14-1 yr	05/22/2000	.44	<.05	<.01	.11
14-1 yr	09/06/2000	.43	<.05	<.01	.04
14-2 yr	02/03/1998	-	.06	-	-
14-2 yr	09/16/1998	.50	<.05	.01	.02
14-2 yr	02/09/1999	.82	<.05	<.01	.01
14-2 yr	05/12/1999	.53	<.05	<.01	.02
14-2 yr	08/23/1999	.50	<.05	<.01	<.01
14-2 yr	11/23/1999	.56	<.05	<.01	<.01
14-2 yr	03/01/2000	.36	<.05	<.01	<.01
15-1 yr	02/02/1998	-	<.05	-	-
15-1 yr	02/09/1999	.44	<.05	<.01	.02
15-1 yr	08/23/1999	.37	<.05	<.01	.05
15-1 yr	11/23/1999	.29	<.05	<.01	.02
15-1 yr	02/25/2000	.15	<.05	<.01	.02
15-1 yr	09/07/2000	.32	<.05	<.01	.03
15-2 yr	02/02/1998	-	.06	-	-
15-2 yr	09/16/1998	.12	<.05	.02	.03
15-2 yr	05/12/1999	.07	<.05	<.01	.01
15-2 yr	08/23/1999	.06	<.05	<.01	.02
15-2 yr	10/28/1999	.06	<.05	<.01	.03
15-2 yr	11/23/1999	.06	<.05	<.01	.03
15-2 yr	12/15/1999	.06	<.05	<.01	.02
15-2 yr	02/25/2000	.08	<.05	<.01	.03
15-2 yr	03/31/2000	.08	<.05	<.01	.04
15-2 yr	05/22/2000	.06	<.05	<.01	.04
15-2 yr	07/13/2000	.05	<.05	<.01	.04
15-2 yr	09/07/2000	.05	<.05	<.01	.02
16-10 yr	06/05/1998	-	<.05	-	-
16-10 yr	09/15/1998	2.1	<.05	.01	.10
16-10 yr	12/10/1998	1.8	<.05	<.01	.02
16-10 yr	05/05/1999	1.8	<.05	<.01	.02
16-10 yr	08/27/1999	1.7	<.05	<.01	.03
16-10 yr	10/27/1999	1.8	<.05	.02	.09
16-10 yr	11/24/1999	1.8	<.05	<.01	.02
16-10 yr	12/14/1999	1.9	<.05	<.01	<.01
16-10 yr	02/23/2000	2.1	<.05	<.01	<.01

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
16-10 yr	03/31/2000	2.0	<0.05	0.03	0.57
16-10 yr	07/12/2000	1.6	<.05	<.01	.02
16-10 yr	08/28/2000	1.5	<.05	<.01	<.01
16-5 yr	06/05/1998	-	<.05	-	-
16-5 yr	12/10/1998	.65	<.05	<.01	.02
16-5 yr	05/05/1999	.69	<.05	<.01	.02
16-5 yr	08/27/1999	.66	<.05	<.01	.03
16-5 yr	11/24/1999	.62	<.05	<.01	<.01
16-5 yr	02/23/2000	.66	<.05	<.01	<.01
16-5 yr	08/28/2000	.62	<.05	<.01	<.01
17-0.5 yr	05/05/1998	-	.06	-	-
17-3 yr	05/05/1998	-	<.05	-	-
17-3 yr	10/08/1998	5.1	.08	<.01	.02
17-3 yr	12/11/1998	4.4	<.05	<.01	.02
17-3 yr	05/11/1999	4.1	<.05	<.01	.11
17-3 yr	08/26/1999	3.8	<.05	<.01	.03
17-3 yr	11/18/1999	4.5	<.05	<.01	.01
17-3 yr	02/22/2000	4.6	<.05	<.01	<.01
17-3 yr	05/18/2000	4.3	<.05	.02	.08
17-3 yr	08/29/2000	4.5	<.05	.01	<.01
18-0.5 yr	07/09/1998	-	.06	-	-
18-0.5 yr	02/24/2000	.73	<.05	<.01	<.01
18-0.5 yr	05/18/2000	.78	<.05	.01	.18
18-0.5 yr	08/29/2000	.72	<.05	<.01	.14
18-2 yr	07/08/1998	-	.06	-	-
18-2 yr	10/08/1998	.40	.08	<.01	.01
18-2 yr	12/17/1998	.38	.08	.02	.02
18-2 yr	05/11/1999	.38	<.05	<.01	.02
18-2 yr	08/26/1999	.4	<.05	<.01	<.01
18-2 yr	11/18/1999	.39	<.05	<.01	<.01
19-0.5 yr	07/15/1998	1.1	<.05	.01	.03
19-1 yr	07/15/1998	-	2.4	-	-
19-1 yr	10/08/1998	.02	1.1	.03	.03
19-1 yr	12/17/1998	.05	2.6	.05	.03
19-1 yr	05/06/1999	.08	<.05	<.01	.03
19-1 yr	08/27/1999	<.02	1.3	.02	.02
19-1 yr	11/19/1999	.03	<.05	<.01	.02
19-1 yr	02/24/2000	.05	<.05	<.01	.02
19-1 yr	05/18/2000	.15	<.05	<.01	.02
19-1 yr	08/29/2000	.14	<.05	<.01	.02
20-1 yr	07/14/1998	-	.06	-	-
20-1 yr	10/08/1998	.58	.07	<.01	.02
20-1 yr	12/17/1998	.56	.07	.01	.04
20-1 yr	05/11/1999	.58	<.05	<.01	.05

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
20-1 yr	08/26/1999	0.54	<0.05	<0.01	0.02
20-1 yr	11/18/1999	.50	<.05	<.01	.01
20-1 yr	02/24/2000	.51	<.05	.01	.05
20-1 yr	05/18/2000	.46	<.05	.01	.18
20-1 yr	08/29/2000	.46	<.05	<.01	.18
21-0.5 yr	02/12/1998	-	<.05	-	-
21-1 yr	02/12/1998	-	<.05	-	-
21-2 yr	04/20/1998	-	<.05	-	-
21-2 yr	09/15/1998	.55	<.05	.01	.04
21-2 yr	12/11/1998	.44	<.05	<.01	.01
21-2 yr	05/06/1999	.47	.06	<.01	.03
21-2 yr	11/23/1999	.36	<.05	<.01	<.01
21-2 yr	02/23/2000	.42	<.05	<.01	<.01
21-2 yr	05/22/2000	.52	<.05	<.01	<.01
21-2 yr	09/05/2000	.42	<.05	<.01	.04
22-1 yr	04/17/1998	-	<.05	-	-
22-2 yr	04/17/1998	-	<.05	-	-
22-3 yr	04/17/1998	-	<.05	-	-
22-3 yr	10/08/1998	.28	.08	<.01	.01
22-3 yr	12/17/1998	.26	.08	.01	.02
22-3 yr	05/19/1999	.30	<.05	<.01	.06
22-3 yr	08/27/1999	.21	<.05	<.01	.04
22-3 yr	11/19/1999	.21	<.05	<.01	<.01
22-3 yr	02/24/2000	.75	<.05	<.01	.05
22-3 yr	08/29/2000	.17	<.05	.01	.22
23-1 yr	02/12/1998	-	<.05	-	-
23-3 yr	02/12/1998	-	<.05	-	-
23-3 yr	05/06/1999	.57	<.05	<.01	.02
23-5 yr	04/20/1998	-	<.05	-	-
23-5 yr	09/15/1998	.49	<.05	.01	.10
23-5 yr	12/11/1998	.44	<.05	<.01	.01
23-5 yr	05/19/1999	.47	<.05	<.01	.02
23-5 yr	11/24/1999	.46	<.05	<.01	.01
23-5 yr	02/23/2000	1.0	<.05	<.01	.01
23-5 yr	09/05/2000	.57	<.05	<.01	.05
24-5 yr	10/08/1998	.02	.08	<.01	.02
24-5 yr	12/17/1998	.03	.19	.01	.03
24-5 yr	05/11/1999	<.02	<.05	<.01	.02
24-5 yr	08/26/1999	<.02	<.05	<.01	<.01
24-5 yr	10/27/1999	<.02	1.0	.03	.02
24-5 yr	12/14/1999	<.02	1.3	.05	.02
24-5 yr	02/24/2000	<.02	4.7	.07	.02
24-5 yr	03/31/2000	<.02	3.4	.07	.02
24-5 yr	07/12/2000	<.02	<.05	<.01	.07

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
24-5 yr	08/28/2000	<0.02	6.5	0.09	0.02
25-3 yr	05/11/1998	-	<.05	-	-
25-5 yr	05/11/1998	-	<.05	-	-
25-5 yr	05/26/1999	.76	<.05	<.01	.01
25-10 yr	05/11/1998	-	<.05	-	-
25-10 yr	10/28/1998	.77	<.05	<.01	.02
25-10 yr	02/10/1999	.84	<.05	<.01	.01
25-10 yr	05/26/1999	.80	<.05	<.01	.01
25-10 yr	11/18/1999	.73	<.05	<.01	<.01
25-10 yr	02/22/2000	.73	<.05	<.01	.02
25-10 yr	08/28/2000	.70	<.05	<.01	<.01
26-2 yr	05/11/1998	-	<.05	-	-
26-5 yr	05/11/1998	-	<.05	-	-
26-5 yr	09/24/1998	2.4	.49	.02	.04
26-5 yr	12/10/1998	.68	<.05	<.01	.01
26-5 yr	05/19/1999	.70	<.05	<.01	.02
26-5 yr	11/18/1999	.67	<.05	<.01	<.01
26-5 yr	02/22/2000	.68	<.05	<.01	.01
26-5 yr	08/28/2000	.64	<.05	<.01	.11
27-5 yr	05/11/1998	-	<.05	-	-
27-5 yr	10/29/1998	.67	<.05	<.01	.02
27-5 yr	05/14/1999	.66	<.05	<.01	.02
27-10 yr	05/11/1998	-	<.05	-	-
27-10 yr	12/10/1998	.73	<.05	<.01	.02
27-10 yr	05/14/1999	.77	<.05	<.01	.04
27-10 yr	11/18/1999	.72	<.05	<.01	<.01
27-10 yr	02/22/2000	.74	<.05	<.01	.04
27-10 yr	08/28/2000	.71	<.05	<.01	<.01
INDEP	06/03/1998	-	.70	-	-
INDEP	10/29/1998	.17	<.05	<.01	.05
INDEP	02/17/1999	.10	.99	.01	.01
INDEP	05/27/1999	.08	1.6	.02	.02
INDEP	10/28/1999	.22	<.05	<.01	.03
INDEP	11/24/1999	.25	<.05	<.01	<.01
INDEP	12/15/1999	.22	<.05	<.01	<.01
INDEP	03/02/2000	.06	1.1	.01	<.01
INDEP	04/03/2000	.23	.13	<.01	.03
INDEP	05/23/2000	.11	.07	<.01	.02
INDEP	07/13/2000	.03	.30	.02	<.01
INDEP	09/07/2000	.15	<.05	<.01	<.01
MORIV	01/21/1997	.20	1.7	.02	.07
MORIV	02/13/1997	.20	1.5	.02	.10
MORIV	03/18/1997	.21	1.6	.03	.11
MORIV	04/22/1997	.07	1.7	.02	.05

Table 17. Dissolved nutrients in samples from wells, combined Independence well field pumpage, and the Missouri River—Continued

[mg/L, milligrams per liter; N, nitrogen; +, plus; P, phosphorus; yr, year; -, data not available; <, less than; INDEP, combined Independence well field pumpage; MORIV, Missouri River]

Sample location name	Date	Ammonia (mg/L as N)	Nitrite + nitrate (mg/L as N)	Nitrite (mg/L as N)	Orthophosphorus (mg/L as P)
MORIV	05/28/1997	0.09	1.3	0.03	0.07
MORIV	06/18/1997	.09	1.1	<.01	.03
MORIV	07/30/1997	.04	.80	.01	.07
MORIV	08/20/1997	.06	.50	<.01	.05
MORIV	09/10/1997	.03	.30	<.01	.04
MORIV	10/22/1997	<.015	.56	<.01	.05
MORIV	11/18/1997	<.02	.65	<.01	.05
MORIV	12/15/1997	.05	.92	<.01	.05
MORIV	01/13/1998	.05	1.3	.02	.05
MORIV	02/19/1998	.07	1.7	.02	.07
MORIV	03/12/1998	.05	1.4	<.01	.06
MORIV	04/21/1998	.05	3.0	.02	.12
MORIV	05/18/1998	.46	2.5	.07	.36
MORIV	06/10/1998	.07	2.2	.02	.07
MORIV	07/22/1998	<.02	1.6	.04	.02
MORIV	08/19/1998	.12	1.6	.03	.08
MORIV	09/01/1998	.08	1.1	.02	.09
MORIV	10/29/1998	<.02	1.0	<.01	.05
MORIV	11/17/1998	.05	1.6	.01	.09
MORIV	12/02/1998	.03	1.4	.02	.02
MORIV	01/27/1999	.11	1.7	.02	.06
MORIV	02/22/1999	.05	1.9	<.01	.07
MORIV	03/26/1999	.02	1.4	.03	<.01
MORIV	04/16/1999	.13	3.7	.05	.09
MORIV	05/21/1999	<.02	3.1	.04	.08
MORIV	06/18/1999	<.02	2.5	.01	.08
MORIV	07/30/1999	<.02	2.2	.02	.08
MORIV	08/13/1999	.03	1.4	.01	.10
MORIV	09/08/1999	<.02	.50	.03	.01
MORIV	10/22/1999	<.02	.50	<.01	.03
MORIV	11/03/1999	<.02	.54	<.01	.03
MORIV	12/07/1999	<.02	.72	<.01	.04
MORIV	01/06/2000	.11	1.3	<.01	.06
MORIV	02/15/2000	.12	1.4	.01	.08
MORIV	03/16/2000	<.02	1.2	<.01	.07
MORIV	04/13/2000	<.02	.64	<.01	.04
MORIV	05/24/2000	<.02	.81	.03	.04
MORIV	06/16/2000	.05	.85	.03	.07
MORIV	07/20/2000	.02	.55	.01	.08
MORIV	08/15/2000	<.02	<.05	<.01	.03
MORIV	09/12/2000	<.02	<.05	<.01	.02

Table 18. Enzyme linked immunosorbent assay results for total benzene, toluene, ethyl benzene, and xylene (BTEX) detections in samples from wells and combined Independence well field pumpage

[mg/L, milligrams per liter; yr, year; INDEP, combined Independence well field pumpage]

Sample location name	Date	Total BTEX (mg/L)
8-0.5 yr	04/21/1998	0.18
16-5 yr	05/05/1999	.03
24-1 yr	06/18/1998	.03
27-10 yr	05/14/1999	.27
INDEP	05/27/1999	.33

Table 19. Enzyme linked immunosorbent assay results for atrazine and alachlor in samples from wells and combined Independence well field pumpage

[µg/L, micrograms per liter; yr, year; nd, not detected; -, not analyzed; bl, equipment blank; spike, laboratory spiked sample; OFW, organic free water]

Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)	Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)
1-5 yr	12/15/1997	nd	nd	4-5 yr	11/19/1998	nd	nd
1-5 yr	05/27/1999	nd	nd	4-5 yr	05/18/1999	nd	0.06
1-10 yr	12/15/1997	nd	nd	4-5 yr	06/21/1999	nd	nd
1-10 yr	09/23/1998	nd	nd	4-5 yr	08/31/2000	nd	nd
1-10 yr	12/18/1998	nd	nd	5-4 yr	05/05/1998	nd	nd
1-10 yr	05/27/1999	nd	nd	5-4 yr	05/26/1999	0.19	.09
1-10 yr	08/25/1999	nd	nd	5-10 yr	05/05/1998	nd	nd
1-10 yr	11/19/1999	nd	nd	5-10 yr	10/27/1998	nd	nd
1-10 yr	02/25/2000	nd	nd	5-10 yr	02/10/1999	nd	nd
1-10 yr	08/30/2000	nd	nd	5-10 yr	05/26/1999	nd	.12
2-2 yr	07/15/1998	nd	nd	5-10 yr	08/25/1999	nd	nd
2-5 yr	01/20/1998	nd	nd	5-10 yr	11/19/1999	nd	nd
2-5 yr	09/23/1998	nd	nd	5-10 yr	02/28/2000	nd	nd
2-5 yr	11/17/1998	nd	nd	5-10 yr	08/30/2000	nd	nd
2-5 yr	12/18/1998	nd	nd	6-5 yr	07/22/1998	nd	nd
2-5 yr	04/20/1999	nd	nd	6-5 yr	10/01/1998	nd	nd
2-5 yr	05/21/1999	nd	nd	6-5 yr	02/17/1999	nd	nd
2-5 yr	06/21/1999	nd	nd	6-5 yr	05/26/1999	nd	nd
2-5 yr	08/25/1999	nd	nd	6-5 yr	09/10/1999	nd	nd
2-5 yr	10/27/1999	nd	nd	6-5 yr	11/22/1999	nd	nd
2-5 yr	11/19/1999	nd	nd	6-5 yr	02/25/2000	nd	nd
2-5 yr	12/14/1999	nd	nd	6-5 yr	08/31/2000	-	nd
2-5 yr	02/28/2000	nd	nd	7-1 yr	04/21/1998	nd	nd
2-5 yr	03/31/2000	nd	nd	7-1 yr	10/01/1998	nd	nd
2-5 yr	07/13/2000	nd	nd	7-1 yr	12/28/1998	nd	nd
2-5 yr	08/30/2000	nd	nd	7-1 yr	05/13/1999	nd	nd
3-3 yr	01/13/1998	nd	nd	7-1 yr	09/10/1999	nd	nd
3-3 yr	05/18/1999	nd	0.07	7-1 yr	11/20/1999	nd	nd
3-10 yr	01/15/1998	nd	nd	7-1 yr	02/28/2000	nd	nd
3-10 yr	09/23/1998	nd	nd	7-1 yr	08/30/2000	-	nd
3-10 yr	02/10/1999	nd	nd	7-5 yr	04/21/1998	nd	nd
3-10 yr	05/18/1999	nd	nd	7-5 yr	05/13/1999	nd	.18
3-10 yr	08/25/1999	nd	nd	7-10 yr	04/21/1998	nd	nd
3-10 yr	11/22/1999	nd	nd	7-10 yr	10/01/1998	nd	nd
3-10 yr	02/28/2000	nd	nd	7-10 yr	12/28/1998	nd	nd
3-10 yr	08/30/2000	nd	nd	7-10 yr	05/13/1999	nd	nd
4-1 yr	07/22/1998	nd	-	7-10 yr	09/10/1999	nd	nd
4-3 yr	02/10/1999	nd	nd	7-10 yr	11/20/1999	nd	nd
4-3 yr	04/20/1999	nd	nd	7-10 yr	02/28/2000	nd	nd
4-3 yr	05/18/1999	nd	nd	7-10 yr	08/30/2000	nd	nd
4-3 yr	09/09/1999	nd	nd	8-0.5 yr	04/21/1998	nd	nd
4-3 yr	10/27/1999	nd	nd	8-2 yr	04/21/1998	nd	nd
4-3 yr	11/22/1999	nd	nd	8-2 yr	10/27/1998	nd	nd
4-3 yr	02/25/2000	nd	nd	8-2 yr	05/13/1999	nd	.09
4-3 yr	03/31/2000	nd	nd	8-2 yr	09/10/1999	nd	nd
4-3 yr	07/13/2000	nd	nd	8-2 yr	11/20/1999	nd	nd
4-3 yr (bl)	05/18/1999	nd	-	8-2 yr	03/01/2000	nd	nd
4-5 yr	01/20/1998	nd	nd	8-2 yr	05/23/2000	nd	nd
4-5 yr	10/29/1998	nd	nd	8-2 yr	08/30/2000	-	nd

Table 19. Enzyme linked immunosorbent assay results for atrazine and alachlor in samples from wells and combined Independence well field pumpage—Continued

[µg/L, micrograms per liter; yr, year; nd, not detected; -, not analyzed; bl, equipment blank; spike, laboratory spiked sample; OFW, organic free water]

Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)	Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)
8-2 yr (spike)	05/23/2000	0.26	-	12-2 yr	04/03/2000	nd	nd
9-0.5 yr	03/30/1998	nd	0.14	12-2 yr	05/22/2000	nd	nd
9-0.5 yr	03/01/2000	nd	nd	12-2 yr	07/13/2000	nd	nd
9-2 yr	03/30/1998	nd	nd	12-2 yr	09/05/2000	nd	nd
9-2 yr	10/27/1998	nd	nd	12-3 yr	05/21/1999	nd	-
9-2 yr	12/28/1998	nd	nd	13-0.5 yr	02/04/1998	nd	nd
9-2 yr	08/27/1999	nd	nd	13-2 yr	02/04/1998	nd	nd
9-2 yr	11/22/1999	nd	nd	13-2 yr	09/16/1998	0.06	nd
9-5 yr	05/13/1999	nd	nd	13-2 yr	02/16/1999	nd	nd
9-5 yr	08/30/2000	-	nd	13-2 yr	05/12/1999	nd	nd
10-0.5 yr	01/21/1998	nd	nd	13-2 yr	08/23/1999	nd	nd
10-0.5 yr	03/02/2000	nd	nd	13-2 yr	11/23/1999	nd	nd
10-2 yr	01/21/1998	nd	.05	13-2 yr	03/01/2000	nd	nd
10-2 yr	10/29/1998	nd	nd	13-2 yr	09/07/2000	nd	nd
10-2 yr	02/10/1999	nd	nd	14-0.5 yr	02/03/1998	nd	0.07
10-2 yr	09/09/1999	nd	nd	14-0.5 yr	02/09/1999	nd	nd
10-2 yr	11/22/1999	nd	.05	14-0.5 yr	08/23/1999	nd	.07
10-2 yr	09/06/2000	-	nd	14-0.5 yr	11/23/1999	nd	.11
10-5 yr	05/18/1999	nd	nd	14-0.5 yr	03/01/2000	nd	.17
11-0.5 yr	01/22/1998	nd	nd	14-0.5 yr	09/06/2000	-	nd
11-1 yr	07/22/1998	nd	nd	14-1 yr	02/03/1998	nd	.08
11-1 yr	03/02/2000	nd	nd	14-1 yr	05/22/2000	nd	nd
11-1 yr	04/03/2000	nd	nd	14-1 yr	09/06/2000	nd	nd
11-1 yr	07/13/2000	nd	nd	14-2 yr	02/03/1998	nd	nd
11-1 yr	09/05/2000	nd	nd	14-2 yr	09/16/1998	nd	nd
11-3 yr	01/22/1998	nd	nd	14-2 yr	02/09/1999	nd	nd
11-3 yr	10/01/1998	nd	nd	14-2 yr	05/12/1999	nd	nd
11-3 yr	11/19/1998	nd	nd	14-2 yr	08/23/1999	nd	nd
11-3 yr	02/17/1999	nd	nd	14-2 yr	11/23/1999	nd	nd
11-3 yr	04/21/1999	nd	.11	14-2 yr	03/01/2000	nd	nd
11-3 yr	05/21/1999	nd	nd	15-1 yr	02/02/1998	nd	.09
11-3 yr	06/22/1999	nd	nd	15-1 yr	02/09/1999	nd	nd
11-3 yr	09/09/1999	nd	nd	15-1 yr	08/23/1999	nd	.11
11-3 yr	10/28/1999	nd	nd	15-1 yr	11/23/1999	nd	.09
11-3 yr	11/23/1999	nd	nd	15-1 yr	02/25/2000	nd	nd
11-3 yr	12/15/1999	nd	.08	15-1 yr	09/07/2000	-	nd
12-0.5 yr	01/27/1998	nd	nd	15-2 yr	02/02/1998	nd	.09
12-2 yr	01/27/1998	nd	nd	15-2 yr	09/16/1998	.38	.37
12-2 yr	09/16/1998	nd	.09	15-2 yr	11/17/1998	.12	.43
12-2 yr	11/19/1998	nd	.07	15-2 yr	02/09/1999	.40	nd
12-2 yr	02/16/1999	nd	nd	15-2 yr	04/21/1999	nd	.09
12-2 yr	04/21/1999	nd	nd	15-2 yr	05/12/1999	nd	nd
12-2 yr	05/21/1999	-	nd	15-2 yr	06/21/1999	.08	.05
12-2 yr	06/22/1999	nd	nd	15-2 yr	08/23/1999	.45	.15
12-2 yr	09/09/1999	nd	nd	15-2 yr	10/28/1999	.18	.16
12-2 yr	10/28/1999	nd	nd	15-2 yr	10/28/1999	.23	-
12-2 yr	11/23/1999	nd	nd	15-2 yr	10/28/1999	.11	-
12-2 yr	12/15/1999	nd	nd	15-2 yr	11/23/1999	.10	.18
12-2 yr	03/02/2000	nd	nd	15-2 yr	12/15/1999	nd	.15

Table 19. Enzyme linked immunosorbent assay results for atrazine and alachlor in samples from wells and combined Independence well field pumpage—Continued

[µg/L, micrograms per liter; yr, year; nd, not detected; -, not analyzed; bl, equipment blank; spike, laboratory spiked sample; OFW, organic free water]

Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)	Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)
15-2 yr	02/25/2000	0.06	0.09	19-1 yr	07/15/1998	nd	0.06
15-2 yr	03/31/2000	.10	.08	19-1 yr	10/08/1998	nd	nd
15-2 yr	05/22/2000	.15	nd	19-1 yr	12/17/1998	nd	nd
15-2 yr	07/13/2000	.25	nd	19-1 yr	05/06/1999	nd	nd
15-2 yr	09/07/2000	.17	.05	19-1 yr	08/27/1999	nd	nd
16-5 yr	06/05/1998	nd	nd	19-1 yr	11/19/1999	nd	nd
16-5 yr	12/10/1998	nd	nd	19-1 yr	02/24/2000	nd	nd
16-5 yr	05/05/1999	nd	nd	19-1 yr	05/18/2000	nd	nd
16-5 yr	08/27/1999	nd	nd	19-1 yr	08/28/2000	-	nd
16-5 yr	11/24/1999	nd	nd	20-0.5 yr	07/14/1998	nd	.11
16-5 yr	02/23/2000	nd	nd	20-1 yr	07/14/1998	nd	nd
16-5 yr	08/28/2000	-	nd	20-1 yr	10/08/1998	nd	nd
16-10 yr	06/05/1998	nd	nd	20-1 yr	12/17/1998	nd	nd
16-10 yr	09/10/1998	.1	nd	20-1 yr	05/11/1999	nd	.08
16-10 yr	11/17/1998	nd	nd	20-1 yr	08/26/1999	nd	.11
16-10 yr	12/10/1998	nd	nd	20-1 yr	11/18/1999	nd	.11
16-10 yr	04/20/1999	nd	nd	20-1 yr	02/24/2000	nd	.1
16-10 yr	05/05/1999	7.51	nd	20-1 yr	05/18/2000	nd	nd
16-10 yr	06/21/1999	nd	nd	20-1 yr	08/29/2000	nd	nd
16-10 yr	08/27/1999	nd	nd	21-0.5 yr	02/12/1998	nd	nd
16-10 yr	10/27/1999	nd	nd	21-1 yr	02/12/1998	nd	nd
16-10 yr	11/24/1999	nd	nd	21-2 yr	04/20/1998	nd	nd
16-10 yr	12/14/1999	nd	nd	21-2 yr	09/15/1998	nd	nd
16-10 yr	02/23/2000	nd	nd	21-2 yr	12/11/1998	nd	nd
16-10 yr	03/31/2000	nd	nd	21-2 yr	05/06/1999	nd	nd
16-10 yr	07/11/2000	nd	nd	21-2 yr	09/88/1999	nd	nd
16-10 yr	08/28/2000	nd	nd	21-2 yr	11/23/1999	nd	nd
17-0.5 yr	05/05/1998	nd	nd	21-2 yr	02/23/2000	nd	nd
17-2 yr	05/05/1998	nd	nd	21-2 yr	05/22/2000	nd	nd
17-2 yr	10/08/1998	nd	nd	21-2 yr	09/05/2000	-	nd
17-2 yr	12/11/1998	nd	nd	21-2 yr (bl OFW)	05/22/2000	nd	-
17-2 yr	05/11/1999	nd	nd	22-1 yr	04/17/1998	nd	nd
17-2 yr	08/26/1999	-	nd	22-2 yr	04/17/1998	nd	nd
17-2 yr	11/18/1999	nd	nd	22-3 yr	04/17/1998	nd	nd
17-2 yr	02/22/2000	nd	nd	22-3 yr	10/08/1998	nd	nd
17-2 yr	05/18/2000	nd	nd	22-3 yr	12/17/1998	nd	nd
17-2 yr	08/29/2000	nd	nd	22-3 yr	05/19/1999	nd	nd
17-3 yr	05/11/1999	nd	-	22-3 yr	08/27/1999	nd	nd
18-0.5 yr	07/09/1998	nd	nd	22-3 yr	11/19/1999	nd	nd
18-0.5 yr	02/24/2000	.06	nd	22-3 yr	02/24/2000	nd	nd
18-0.5 yr	05/18/2000	nd	nd	22-3 yr	08/28/2000	nd	nd
18-0.5 yr	08/29/2000	-	nd	23-1 yr	02/12/1998	nd	nd
18-2 yr	07/08/1998	nd	nd	23-3 yr	02/12/1998	nd	nd
18-2 yr	10/08/1998	nd	nd	23-3 yr	05/06/1999	nd	nd
18-2 yr	12/17/1998	nd	nd	23-5 yr	04/20/1998	nd	.05
18-2 yr	05/11/1999	nd	nd	23-5 yr	09/15/1998	nd	nd
18-2 yr	08/26/1999	nd	nd	23-5 yr	12/11/1998	nd	nd
18-2 yr	11/18/1999	nd	nd	23-5 yr	05/19/1999	nd	nd
19-0.5 yr	07/15/1998	nd	nd	23-5 yr	09/08/1999	nd	nd

Table 19. Enzyme linked immunosorbent assay results for atrazine and alachlor in samples from wells and combined Independence well field pumpage—Continued

[µg/L, micrograms per liter; yr, year; nd, not detected; -, not analyzed; bl, equipment blank; spike, laboratory spiked sample; OFW, organic free water]

Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)	Sample location name	Date	Atrazine (µg/L)	Alachlor (µg/L)
23-5 yr	11/24/1999	nd	nd	26-5 yr	12/10/1998	nd	nd
23-5 yr	02/23/2000	0.06	nd	26-5 yr	05/19/1999	nd	nd
23-5 yr	09/05/2000	-	nd	26-5 yr	09/07/1999	nd	0.05
24-1 yr	06/18/1998	nd	nd	26-5 yr	11/18/1999	nd	nd
24-3 yr	06/18/1998	nd	nd	26-5 yr	02/22/2000	nd	nd
24-5 yr	06/10/1998	nd	0.37	26-5 yr	08/28/2000	nd	nd
24-5 yr	10/08/1998	nd	.06	27-5 yr	05/11/1998	nd	nd
24-5 yr	11/17/1998	nd	.13	27-5 yr	10/29/1998	nd	.05
24-5 yr	12/17/1998	nd	nd	27-5 yr	05/14/1999	nd	nd
24-5 yr	04/20/1999	nd	.07	27-10 yr	05/11/1998	0.07	nd
24-5 yr	05/11/1999	nd	nd	27-10 yr	12/10/1998	nd	nd
24-5 yr	06/21/1999	-	nd	27-10 yr	05/14/1999	nd	nd
24-5 yr	08/26/1999	nd	.07	27-10 yr	09/08/1999	nd	nd
24-5 yr	10/27/1999	nd	nd	27-10 yr	11/18/1999	nd	nd
24-5 yr	11/18/1999	nd	.08	27-10 yr	02/22/2000	nd	nd
24-5 yr	12/14/1999	nd	.08	27-10 yr	08/28/2000	nd	nd
24-5 yr	02/24/2000	nd	nd	INDEP	06/03/1998	.96	nd
24-5 yr	03/31/2000	nd	nd	INDEP	10/29/1998	.07	.17
24-5 yr	07/11/2000	nd	nd	INDEP	11/19/1998	.05	.23
24-5 yr	08/28/2000	nd	nd	INDEP	02/17/1999	nd	nd
25-3 yr	05/11/1998	nd	nd	INDEP	04/21/1999	nd	nd
25-5 yr	05/11/1998	nd	nd	INDEP	05/27/1999	-	.08
25-5 yr	05/26/1999	nd	nd	INDEP	06/22/1999	-	.16
25-10 yr	05/11/1998	nd	nd	INDEP	09/08/1999	nd	.06
25-10 yr	10/28/1998	nd	nd	INDEP	10/28/1999	.06	.09
25-10 yr	02/10/1999	nd	nd	INDEP	10/28/1999	nd	-
25-10 yr	05/26/1999	nd	nd	INDEP	11/24/1999	nd	.07
25-10 yr	09/08/1999	nd	nd	INDEP	12/15/1999	nd	.07
25-10 yr	11/18/1999	nd	nd	INDEP	03/02/2000	.05	nd
25-10 yr	02/22/2000	nd	nd	INDEP	04/03/2000	.10	nd
25-10 yr	08/28/2000	nd	nd	INDEP	05/23/2000	nd	nd
26-2 yr	05/11/1998	.07	nd	INDEP	07/13/2000	.19	nd
26-5 yr	05/11/1998	nd	nd	INDEP	09/07/2000	.09	nd
26-5 yr	09/24/1998	nd	nd				