Water-Data Report 2012

05457700 Cedar River at Charles City, IA

Iowa Basin
Upper Cedar Subbasin

LOCATION.--Lat 43°03'44.0", long 92°40'25.3" referenced to North American Datum of 1927, in NE ¼ SE ¼ NE ¼ sec.12, T.95 N., R.16 W., Floyd County, IA, Hydrologic Unit 07080201, on right bank 800 ft downstream from bridge on U.S. Highway 18 (Brantingham Street) in Charles City, 10.6 mi upstream from Gizzard Creek, and 231.3 mi upstream from mouth.

DRAINAGE AREA.--1,054 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Discharge records from October 1964 to September 1995, October 2000 to current year; stage-only records from October 1995 to September 2000.

GAGE.--Water-stage recorder. Datum of gage is 973.02 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor. Occasional minor regulation caused by dam 0.2 mi upstream. Daily wire-weight gage-height readings available for period September 13, 1945, to June 30, 1954, at same site and datum. Discharge not published for this period because of extreme regulation of streamflow by dam. U.S. Geological Survey data collection platform with satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 27, 1961, reached a stage of 21.6 ft, from floodmarks, discharge 29,200 ft^3/s.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 05457700, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/05457700.2012.pdf

05457700 Cedar River at Charles City, IA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	249	231	215	e216	196	1,810	285	444	503	332	171	137
2	248	242	211	e163	203	1,580	286	617	469	313	169	134
3	250	236	223	154	208	839	281	767	448	293	165	140
4	259	230	237	e194	211	482	269	751	432	286	191	139
5	250	230	221	e220	209	367	262	1,020	412	269	189	154
6	245	231	198	e226	e200	407	251	2,590	391	252	178	144
7	240	234	171	213	e129	345	248	2,700	374	239	171	154
8	240	232	198	201	e137	327	245	2,110	360	226	176	139
9	235	238	e175	210	e138	325	245	1,660	350	224	180	138
10	233	226	163	208	e135	277	237	1,280	329	219	171	135
11	235	221	e171	205	e131	272	233	1,050	318	213	170	129
12	261	223	e193	e194	e135	307	233	896	320	210	184	133
13	285	224	e199	e193	e158	315	220	784	313	212	196	141
14	280	225	e208	e171	e168	345	238	710	304	217	190	134
15	272	224	235	e176	e172	340	315	657	303	211	182	135
16	267	222	e198	201	e172	321	334	603	306	210	173	136
17	251	217	e206	180	e171	308	306	561	324	203	165	133
18	246	217	e199	e200	e166	296	291	522	374	207	156	129
19	247	223	e204	e194	e163	289	412	507	360	197	157	124
20	247	225	e164	e187	189	301	811	486	336	198	159	121
21	290	223	e179	e175	200	318	806	444	363	205	156	123
22	242	220	e183	e215	206	325	791	447	561	202	157	119
23	237	218	161	229	201	350	615	427	743	201	153	118
24	230	220	e169	213	e200	328	540	435	723	203	162	114
25	245	219	201	207	e176	312	489	430	588	196	152	114
26	246	225	215	203	185	295	444	551	487	195	146	116
27	237	223	223	199	199	272	367	547	430	173	163	119
28	237	220	208	194	194	283	383	560	410	174	158	121
29	234	219	212	190	505	280	387	649	361	177	150	123
30	234	216	228	185	---	292	412	535	347	179	148	124
31	233	---	229	192	---	283	---	515	---	174	148	---
Total	7,705	6,754	6,197	6,108	5,457	13,191	11,236	26,255	12,339	6,810	5,186	3,920
Mean	249	225	200	197	188	426	375	847	411	220	167	131
Max	290	242	237	229	505	1,810	811	2,700	743	332	196	154
Min	230	216	161	154	129	272	220	427	303	173	146	114
Ac-ft	15,280	13,400	12,290	12,120	10,820	26,160	22,290	52,080	24,470	13,510	10,290	7,780
Cfsm	0.24	0.21	0.19	0.19	0.18	0.40	0.36	0.80	0.39	0.21	0.16	0.12
In.	0.27	0.24	0.22	0.22	0.19	0.47	0.40	0.93	0.44	0.24	0.18	0.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2012, BY WATER YEAR (WY)

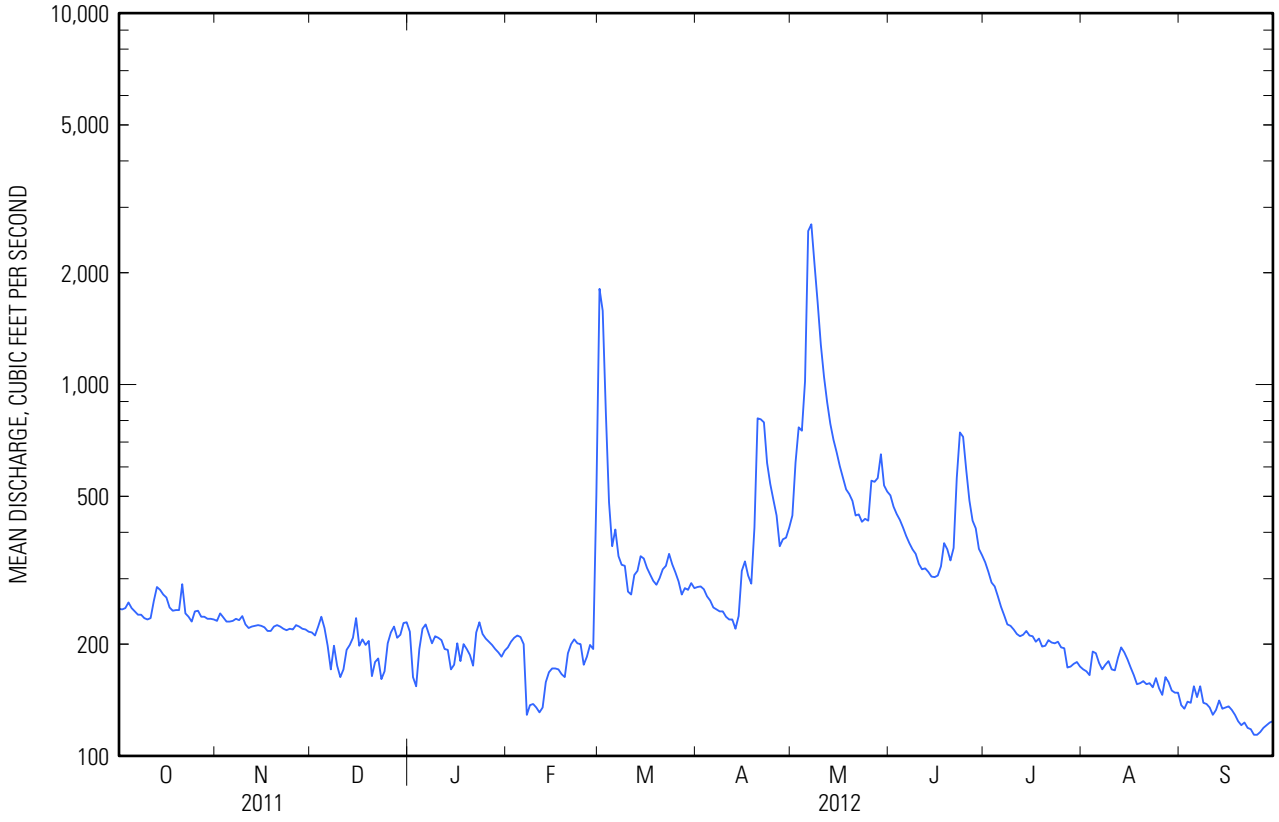
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	598	502	355	291	392	1,307	1,573	1,130	1,180	830	632	589
Max	2,431	1,639	1,396	888	1,707	3,667	6,010	3,434	5,892	3,009	4,704	2,987
(WY)	(2008)	(1983)	(1983)	(1973)	(1984)	(2011)	(2001)	(1991)	(2008)	(1993)	(1993)	(2004)
Min	126	97.7	85.4	86.3	127	176	251	197	130	159	114	116
(WY)	(1977)	(1977)	(1990)	(1990)	(1990)	(1968)	(1968)	(1977)	(1977)	(1988)	(1988)	(1976)

05457700 Cedar River at Charles City, IA—Continued

SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1965 - 2012	
Annual total	412,597		111,158			
Annual mean	1,130		304		788	
Highest annual mean					2,048	1993
Lowest annual mean					159	1977
Highest daily mean	14,200	Mar 24	2,700	May 7	30,500	Jun 9, 2008
Lowest daily mean	161	Dec 23	114	Sep 24[a]	60	Nov 23, 1976[b]
Annual seven-day minimum	180	Dec 18	117	Sep 22	65	Dec 17, 1989
Maximum peak flow			3,100	May 6	34,600	Jun 9, 2008
Maximum peak stage			5.99	May 6	25.33	Jun 9, 2008
Instantaneous low flow			110	Sep 24[c]	45	Nov 17, 1989
Annual runoff (ac-ft)	818,400		220,500		570,900	
Annual runoff (cfsm)	1.07		0.288		0.748	
Annual runoff (inches)	14.56		3.92		10.16	
10 percent exceeds	2,530		506		1,680	
50 percent exceeds	443		224		393	
90 percent exceeds	223		148		169	

[a] Also Sep 25.
[b] Also Jan 7, 1978.
[c] Also Sep 25, 26.



05457700 Cedar River at Charles City, IA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1988, 1995, 2001-2002, 2011-2012. Period of record includes water-quality data published in USGS annual reports and various project reports.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Barometric pressure, mm Hg (00025)	Discharge, instanta-neous, ft^3/s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	pH, water, unfiltered, laboratory, standard units (00403)	Specific conduc-tance, water, unfiltered, laboratory, µS/cm at 25°C (90095)	Specific conduc-tance, water, unfiltered, µS/cm at 25°C (00095)	Tempera-ture, water, °C (00010)
09-25-2012 1545	731	120	12.0	127	8.7	8.8	532	568	16.0

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Gage height, ft (00065)	Stream width, ft (00004)	alpha-HCH-d6, surrogate, water, filtered (0.7 micron glass fiber filter), percent recovery (91065)	Diazinon-d10, surrogate, water, filtered (0.7 micron glass fiber filter), percent recovery (91063)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)	Dissolved solids, water, filtered, sum of constit-uents, mg/L (70301)	Hardness, water, mg/L as $CaCO_3$ (00900)	Non-carbonate hardness, water, filtered, field, mg/L as $CaCO_3$ (00904)
09-25-2012 1545	E 5.1	1.91	150	94.9	102	332	321	251	50

05457700 Cedar River at Charles City, IA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
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[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)	Magne-sium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium adsorption ratio, water, number (00931)	Sodium fraction of cations, water, percent in equiva-lents of major cations (00932)	Sodium, water, filtered, mg/L (00930)	Alkalinity, water, filtered, inflection-point, incremental titration method, field, mg/L as $CaCO_3$ (39086)	Bicarbonate, water, filtered, inflection-point, incremental titration method, field, mg/L (00453)
09-25-2012 1545	< 15	60.0	24.6	3.77	0.70	18	25.7	201	236

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 4 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Carbonate, water, filtered, inflection-point incremental titration method, field, mg/L (00452)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO_2 (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)
09-25-2012 1545	0.83	4.7	42.6	0.17	< .03	2.06	31.9	0.36	0.46

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

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[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrite, water, filtered, mg/L as N (00613)	Organic nitrogen, water, unfiltered, mg/L (00605)	Orthophosphate, water, filtered, mg/L as P (00671)	Particulate nitrogen, suspended in water, mg/L (49570)	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Escherichia coli, Defined Substrate Technology, water, MPN/100 mL (50468)
09-25-2012 1545	0.020	2.09	0.029	0.44	0.054	0.132	0.076	0.108	6

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 6 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Total coliform, Defined Substrate Technology, water, MPN/100 mL (50569)	Chlorophyll a, phytoplankton, chromatographic-fluorometric method, µg/L (70953)	Pheophytin a, phytoplankton, µg/L (62360)	Iron, water, filtered, µg/L (01046)	Manganese, water, filtered, µg/L (01056)	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82660)	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, µg/L (04040)	Acetochlor, water, filtered, recoverable, µg/L (49260)	Alachlor, water, filtered, recoverable, µg/L (46342)
09-25-2012 1545	110	5.6	E 4.1	5.7	12.1	< .0060	E .029	< .010	< .008

05457700 Cedar River at Charles City, IA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 7 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	alpha-HCH, water, filtered, recoverable, µg/L (34253)	Atrazine, water, filtered, recoverable, µg/L (39632)	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82686)	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82673)	Butylate, water, filtered, recoverable, µg/L (04028)	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82680)	Carbofuran, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82674)	Chlorpyrifos, water, filtered, recoverable, µg/L (38933)	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82687)
09-25-2012 1545	< .0040	0.021	< .120	< .014	< .0040	< .060	< .060	< .0036	< .010

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
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[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Cyanazine, water, filtered, recoverable, µg/L (04041)	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82682)	Desulfinylfipronil amide, water, filtered, recoverable, µg/L (62169)	Desulfinylfipronil, water, filtered, recoverable, µg/L (62170)	Diazinon, water, filtered, recoverable, µg/L (39572)	Dieldrin, water, filtered, recoverable, µg/L (39381)	Disulfoton, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82677)	EPTC, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82668)	Ethalfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82663)
09-25-2012 1545	< .022	< .0076	< .029	0.003	< .0060	< .008	< .040	< .0056	< .006

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 9 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Ethoprop, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82672)	Fipronil sulfide, water, filtered, recoverable, µg/L (62167)	Fipronil sulfone, water, filtered, recoverable, µg/L (62168)	Fipronil, water, filtered, recoverable, µg/L (62166)	Fonofos, water, filtered, recoverable, µg/L (04095)	Lindane, water, filtered, recoverable, µg/L (39341)	Linuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82666)	Malathion, water, filtered, recoverable, µg/L (39532)	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82667)
09-25-2012 1545	< .016	< .012	< .024	< .018	< .0048	< .0040	< .060	< .016	< .008

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 10 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Metolachlor, water, filtered, recoverable, µg/L (39415)	Metribuzin, water, filtered, recoverable, µg/L (82630)	Molinate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82671)	Napropamide, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82684)	p,p'-DDE, water, filtered, recoverable, µg/L (34653)	Parathion, water, filtered, recoverable, µg/L (39542)	Pebulate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82669)	Pendimethalin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82683)	Phorate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82664)
09-25-2012 1545	0.063	< .012	< .0040	< .008	< .002	< .020	< .0160	< .012	< .020

05457700 Cedar River at Charles City, IA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 11 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Prometon, water, filtered, recoverable, µg/L (04037)	Propachlor, water, filtered, recoverable, µg/L (04024)	Propanil, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82679)	Propargite, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82685)	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82676)	Simazine, water, filtered, recoverable, µg/L (04035)	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82670)	Terbacil, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82665)	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82675)
09-25-2012 1545	0.007	< .006	< .010	< .020	< .0036	< .006	< .028	< .024	< .018

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 12 of 12

[%, percent; $CaCO_3$, calcium carbonate; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; E, estimated]

Sample date-time	Thiobencarb, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82681)	Triallate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82678)	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82661)	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
09-25-2012 1545	< .016	< .0046	< .018	0.83	3.02	48	16