05083000 TURTLE RIVER AT MANVEL, ND

Lower Red Basin
Turtle Subbasin

LOCATION.--Lat 48°04′43″, long 97°11′03″ referenced to North American Datum of 1927, in SE ¼ sec.10, T.153 N., R.51 W., Grand Forks County, ND, Hydrologic Unit 09020307, on left bank 10 ft downstream from bridge on State Highway 33, 0.3 mi west of Manvel and 10 mi upstream from mouth.

DRAINAGE AREA.--613 mi² of which 57 mi² probably is noncontributing.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-73, 1980-90, 1992, 2005 to current year.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 1 of 6

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; NTU, nephelometric turbidity unit; P, phosphorus; SiO_2, silicon dioxide; 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]

Date	Sample start time	Barometric pressure, mm Hg (00025)	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)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detection angle 90 +/- 30 degrees to incident light, NTU (63675)
10-30-2012	**1050**	738	12.8	97	8.4	8.1	2,180	2,210	2.1	--
02-04-2013	**1430**	737	1.1	8	7.2	7.5	2,700	2,650	-.1	--
05-01-2013	**1615**	--	9.0	--	7.7	7.7	439	404	5.7	--
05-14-2013	**1020**	726	8.7	89	7.7	8.1	1,090	1,080	14.0	--
05-29-2013	**1145**	--	6.9	--	7.7	7.8	1,910	--	16.5	--
06-19-2013	**0900**	--	6.5	--	7.8	8.0	1,630	1,640	21.1	--
07-08-2013	**1135**	--	9.2	--	8.5	8.3	1,780	1,780	24.2	15
07-30-2013	**1320**	738	7.1	82	7.9	8.0	3,020	2,950	20.5	--

Suggested citation: U.S. Geological Survey, 2014, Water-resources data for the United States, Water Year 2013: U.S. Geological Survey Water-Data Report WDR-US-2013, site 05083000, accessed at http://wdr.water.usgs.gov/wy2013/pdfs/05083000.2013.pdf

05083000 TURTLE RIVER AT MANVEL, ND—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
Part 2 of 6

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; NTU, nephelometric turbidity unit; P, phosphorus; SiO_2, silicon dioxide; 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]

Date	Sample start time	Turbidity, water, unfiltered, monochrome near infrared LED light, 780-900 nm, detection angle 90 +/- 2.5 degrees, FNU (63680)	Dissolved solids, water, filtered, sum of constituents, mg/L (70301)	Hardness, water, mg/L as $CaCO_3$ (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium adsorption ratio, water, number (00931)
10-30-2012	1050	4.2	--	--	10	--	--	--	--
02-04-2013	1430	3.2	1,690	728	7	183	65.8	13.2	5.03
05-01-2013	1615	120	273	162	195	41.4	14.3	8.49	.84
05-14-2013	1020	58	689	355	107	87.1	33.5	8.80	2.21
05-29-2013	1145	26	1,190	506	55	117	52.0	11.4	4.08
06-19-2013	0900	48	1,090	583	80	133	60.8	7.84	2.74
07-08-2013	1135	--	1,170	606	30	139	62.8	8.92	3.09
07-30-2013	1320	7.4	1,910	702	28	153	77.6	15.7	6.34

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
Part 3 of 6

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Date	Sample start time	Sodium fraction of cations, water, percent in equivalents of major cations (00932)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as $CaCO_3$ (90410)	Chloride, water, filtered, mg/L (00940)	Silica, water, filtered, mg/L as SiO_2 (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, filtered, mg/L as N (00608)	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)
10-30-2012	1050	--	--	225	381	--	396	< .030	< .03	< .030
02-04-2013	1430	48	312	362	476	29.0	388	.692	.71	.400
05-01-2013	1615	24	24.5	95.1	22.1	16.6	83.7	.154	.15	.870
05-14-2013	1020	36	95.9	174	98.4	22.9	236	.079	.06	.343
05-29-2013	1145	47	211	187	272	24.9	384	.046	.07	.331
06-19-2013	0900	36	152	282	148	26.2	393	.122	.13	.355
07-08-2013	1135	38	175	286	188	26.3	393	.035	.04	< .030
07-30-2013	1320	54	386	228	554	17.8	563	< .030	< .03	< .030

05083000 TURTLE RIVER AT MANVEL, ND—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
Part 4 of 6

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; NTU, nephelometric turbidity unit; P, phosphorus; SiO_2, silicon dioxide; 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]

Date	Sample start time	Nitrate plus nitrite, water, unfiltered, mg/L as N (00630)	Organic nitrogen, water, filtered, mg/L (00607)	Organic nitrogen, water, unfiltered, mg/L (00605)	Phos-phorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, filtered, analytically determined, mg/L (62854)	Total nitrogen, water, unfiltered, analytically determined, mg/L (62855)	Aluminum, water, filtered, µg/L (01106)
10-30-2012	1050	< .030	< .39	< .42	0.034	0.060	0.39	0.42	< 50
02-04-2013	1430	.410	.48	.48	.063	.085	1.57	1.60	< 50
05-01-2013	1615	.850	.67	.54	.257	.419	1.69	1.54	130
05-14-2013	1020	.350	.67	.61	.194	.298	1.09	1.02	< 50
05-29-2013	1145	.330	.89	.86	.194	.251	1.27	1.26	< 50
06-19-2013	0900	.330	.91	.87	.242	.326	1.39	1.33	< 50
07-08-2013	1135	< .030	< .78	< .91	.142	.225	.82	.94	< 50
07-30-2013	1320	< .030	< .91	< .98	.099	.128	.91	.98	< 50

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
Part 5 of 6

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; NTU, nephelometric turbidity unit; P, phosphorus; SiO_2, silicon dioxide; 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]

Date	Sample start time	Barium, water, filtered, µg/L (01005)	Beryllium, water, filtered, µg/L (01010)	Cadmium, water, filtered, µg/L (01025)	Chromium, water, filtered, µg/L (01030)	Copper, water, filtered, µg/L (01040)	Iron, water, filtered, µg/L (01046)	Lead, water, filtered, µg/L (01049)	Manga-nese, water, filtered, µg/L (01056)	Nickel, water, filtered, µg/L (01065)
10-30-2012	1050	43.2	< 5.00	< 5.00	< 5.0	< 5.0	132	< 5.00	64.0	9.8
02-04-2013	1430	70.9	< 5.00	< 5.00	< 5.0	< 5.0	< 50.0	< 5.00	837	7.4
05-01-2013	1615	28.4	< 5.00	< 5.00	< 5.0	< 5.0	183	< 5.00	170	< 5.0
05-14-2013	1020	48.9	< 5.00	< 5.00	< 5.0	< 5.0	< 50.0	< 5.00	225	6.0
05-29-2013	1145	54.3	< 5.00	< 5.00	< 5.0	< 5.0	< 50.0	< 5.00	202	7.4
06-19-2013	0900	61.3	< 5.00	< 5.00	< 5.0	< 5.0	< 50.0	< 5.00	224	9.8
07-08-2013	1135	62.2	< 5.00	< 5.00	< 5.0	< 5.0	< 50.0	< 5.00	100	15.9
07-30-2013	1320	70.1	< 5.00	< 5.00	< 5.0	< 5.0	< 50.0	< 5.00	160	8.0

05083000 TURTLE RIVER AT MANVEL, ND—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 6 of 6

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; NTU, nephelometric turbidity unit; P, phosphorus; SiO_2, silicon dioxide; 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]

Date	Sample start time	Silver, water, filtered, µg/L (01075)	Thallium, water, filtered, µg/L (01057)	Zinc, water, filtered, µg/L (01090)	Antimony, water, filtered, µg/L (01095)	Arsenic, water, filtered, µg/L (01000)	Boron, water, filtered, µg/L (01020)	Selenium, water, filtered, µg/L (01145)	Organic carbon, water, filtered, mg/L (00681)	Organic carbon, water, unfiltered, mg/L (00680)
10-30-2012	**1050**	< 5.00	< 5.00	< 5.0	< 5.00	< 5.0	321	< 5.0	5.03	5.4
02-04-2013	**1430**	< 5.00	< 5.00	< 5.0	< 5.00	< 5.0	584	< 5.0	3.14	3.2
05-01-2013	**1615**	< 5.00	< 5.00	< 5.0	< 5.00	< 5.0	69	< 5.0	11.4	10.1
05-14-2013	**1020**	< 5.00	< 5.00	< 5.0	< 5.00	< 5.0	180	< 5.0	9.50	9.7
05-29-2013	**1145**	< 5.00	< 5.00	< 5.0	< 5.00	< 5.0	413	< 5.0	11.7	11.9
06-19-2013	**0900**	< 5.00	< 5.00	< 5.0	< 5.00	6.2	50	< 5.0	12.9	12.6
07-08-2013	**1135**	< 5.00	< 5.00	< 5.0	< 5.00	8.7	351	< 5.0	77.8	69.8
07-30-2013	**1320**	< 5.00	< 5.00	< 5.0	< 5.00	6.5	755	7.0	7.80	8.0