Water-Data Report 2008

07336820 RED RIVER NEAR DE KALB, TX

Red-Little Basin
Pecan-Waterhole Subbasin

LOCATION.--Lat 33°41′02″, long 94°41′39″ referenced to North American Datum of 1927, Bowie County, Hydrologic Unit 11140106, on right bank at downstream side of bridge on U.S. Highway 259, 4.8 mi upstream from North Mill Creek, 13 mi north of De Kalb, and at mile 556.9.

DRAINAGE AREA.--47,348 mi^2 of which 5,936 mi^2 probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--December 1967 to September 1988, October 2004 to current year.

GAGE.--Water-stage recorder. Datum of gage is 302.92 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records poor. Since installation of gage in December 1967, at least 10% of contributing drainage area has been regulated by Lake Texoma (station 07331500) located approximately 169 mi upstream, and low flows may be affected by releases for the generation of electric power. Storage and/or releases from Lake Hugo on the Kiamichi River, a tributary to the Red River about 45 mi upstream, may also affect flows. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1957, 205,000 ft^3/s June 1957 (gage height, 32.2 ft), from rating curve extended above 186,500 ft^3/s. The greatest flood since 1936 occurred in February 1938, stage unknown.

07336820 RED RIVER NEAR DE KALB, TX—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	8,700	2,530	3,300	3,970	2,520	12,100	31,800	35,100	7,630	4,610	3,160	4,060
2	8,760	2,710	2,990	3,840	3,580	9,270	32,300	32,400	7,150	5,090	3,190	3,870
3	8,810	3,530	3,210	3,310	4,130	9,480	33,600	26,200	6,080	4,540	3,280	3,140
4	7,120	2,850	3,440	3,300	3,770	21,300	40,500	21,900	6,080	4,120	3,150	2,430
5	5,930	2,970	2,500	2,660	3,920	38,300	47,600	18,400	3,920	4,030	2,810	3,510
6	6,250	4,430	2,380	2,940	3,860	44,500	43,600	13,200	3,780	4,050	1,870	4,640
7	6,000	3,130	3,050	3,750	2,910	42,500	34,600	10,500	3,910	4,010	1,280	4,720
8	5,820	2,240	3,050	4,110	2,470	36,500	26,200	11,500	4,400	3,900	1,490	4,730
9	5,290	2,450	3,030	3,580	2,490	32,900	25,300	10,600	4,490	3,810	2,140	4,600
10	4,650	3,180	3,030	3,400	2,920	30,800	26,000	9,720	4,630	3,760	2,260	3,110
11	4,730	2,760	2,270	3,040	3,580	28,400	28,100	8,590	3,690	3,820	2,420	2,230
12	4,990	2,160	3,260	3,310	3,940	26,900	34,200	8,620	3,150	4,010	2,560	3,160
13	4,260	2,340	4,820	3,230	3,820	26,500	40,300	9,540	5,460	4,000	1,880	4,470
14	4,030	2,240	5,360	3,060	3,390	23,900	40,500	9,940	7,680	3,920	1,350	5,330
15	4,160	1,700	5,970	3,540	3,510	19,800	39,500	13,300	9,340	3,880	1,830	6,120
16	6,470	1,660	9,200	3,150	4,860	16,200	40,800	9,790	12,800	3,890	2,440	6,410
17	7,990	1,830	9,160	3,630	13,200	14,800	40,500	9,840	12,900	3,870	2,930	3,840
18	10,100	1,750	7,940	3,570	30,000	12,200	36,600	9,340	10,600	3,820	3,510	2,590
19	7,610	2,340	7,960	2,810	36,100	38,400	36,800	8,520	9,890	3,890	3,060	3,700
20	4,700	3,010	7,570	3,150	28,400	80,600	42,800	7,980	10,500	3,880	2,110	4,880
21	4,700	2,080	6,850	3,360	20,800	97,800	46,600	6,890	9,410	3,750	1,480	5,080
22	5,680	1,970	5,980	3,240	16,600	74,800	45,600	7,460	7,450	3,680	2,140	5,120
23	4,930	2,780	5,400	3,430	15,900	46,400	42,900	7,570	6,530	3,630	3,850	4,940
24	4,380	3,860	4,790	4,300	15,600	35,400	38,900	6,550	6,060	3,630	6,850	3,440
25	5,330	3,650	4,610	4,510	15,500	36,300	34,200	5,540	5,480	3,570	6,580	2,540
26	3,540	3,460	4,420	7,670	15,300	36,400	32,400	5,660	4,710	3,510	5,470	3,440
27	2,700	5,730	5,130	7,270	13,300	32,200	32,300	7,240	4,440	3,520	5,120	4,810
28	3,310	6,630	4,350	6,570	12,300	27,900	36,300	8,260	4,330	3,480	4,910	5,650
29	2,900	6,270	3,570	6,520	12,200	25,200	40,200	10,900	4,370	3,400	4,560	5,860
30	3,950	4,330	3,400	6,050	---	25,000	40,600	10,800	4,530	3,200	4,290	5,430
31	2,920	---	3,940	4,310	---	29,900	---	7,950	---	3,160	4,150	---
Total	170,710	92,570	145,930	124,580	300,870	1,032,650	1,111,600	369,800	195,390	119,430	98,120	127,850
Mean	5,507	3,086	4,707	4,019	10,370	33,310	37,050	11,930	6,513	3,853	3,165	4,262
Max	10,100	6,630	9,200	7,670	36,100	97,800	47,600	35,100	12,900	5,090	6,850	6,410
Min	2,700	1,660	2,270	2,660	2,470	9,270	25,300	5,540	3,150	3,160	1,280	2,230
Ac-ft	338,600	183,600	289,500	247,100	596,800	2,048,000	2,205,000	733,500	387,600	236,900	194,600	253,600

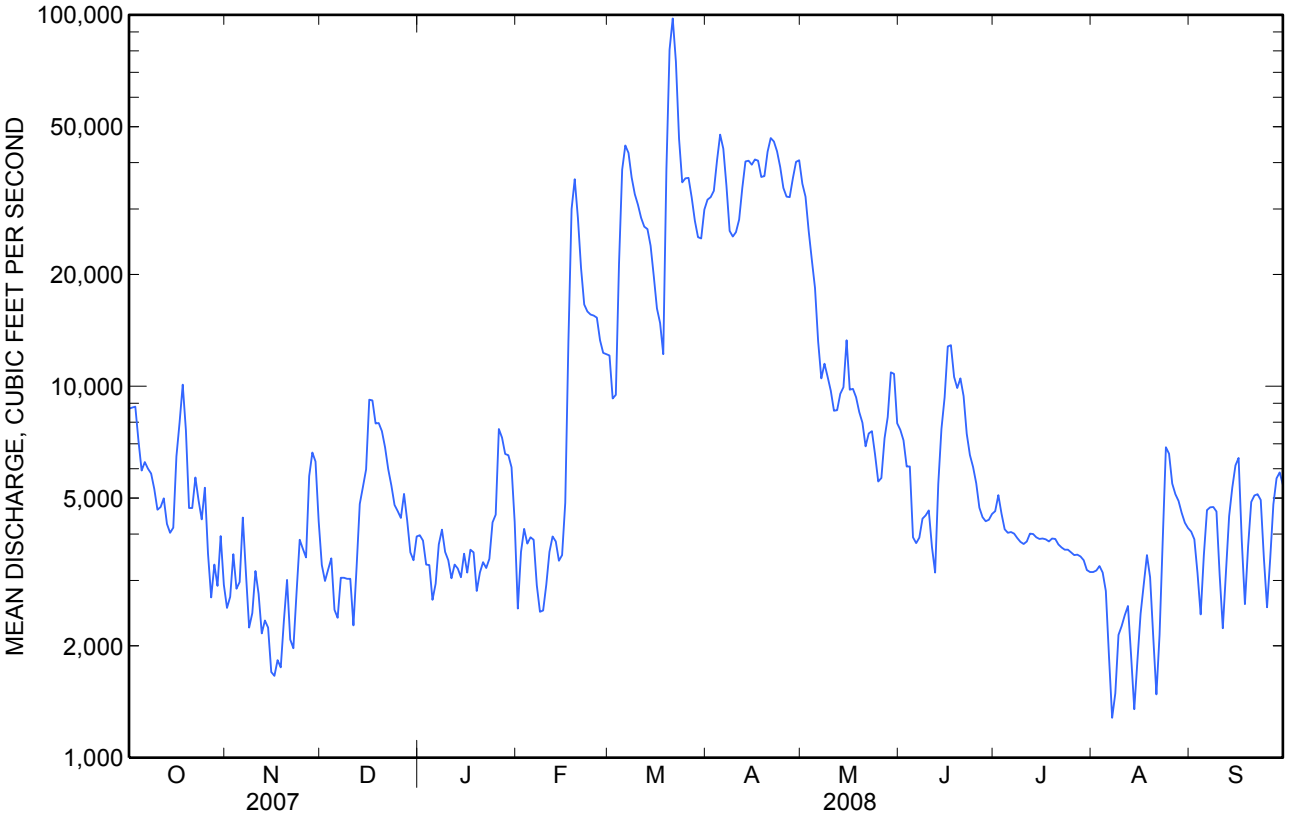
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	8,326	13,580	14,180	13,630	13,880	19,340	18,530	23,120	23,930	10,450	6,685	6,113
Max	39,980	53,170	45,440	56,380	31,000	48,590	62,330	125,500	67,360	62,090	44,720	24,010
(WY)	(1982)	(1975)	(1972)	(1998)	(1969)	(1987)	(1990)	(1990)	(1987)	(2007)	(2007)	(1974)
Min	1,557	1,292	865	1,005	1,652	2,242	2,361	3,491	1,948	2,193	1,418	881
(WY)	(2007)	(2006)	(2006)	(2006)	(2006)	(2007)	(2006)	(2005)	(2006)	(2006)	(1972)	(2006)

07336820 RED RIVER NEAR DE KALB, TX—Continued

SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1969 - 2008	
Annual total	8,235,120		3,889,500			
Annual mean	22,560		10,630		14,450	
Highest annual mean					30,100	1990
Lowest annual mean					2,426	2006
Highest daily mean	83,500	Jul 14	97,800	Mar 21	278,000	May 7, 1990
Lowest daily mean	1,030	Mar 26,27	1,280	Aug 7	254	Nov 29, 1979
Annual seven-day minimum	1,090	Mar 24	1,950	Nov 12	443	Oct 9, 2006
Maximum peak flow			101,000	Mar 21	279,000	May 6, 1990
Maximum peak stage			28.67	Mar 21	34.42	May 6, 1990
Annual runoff (ac-ft)	16,330,000		7,715,000		10,470,000	
10 percent exceeds	51,700		33,100		40,300	
50 percent exceeds	13,600		4,700		6,730	
90 percent exceeds	2,560		2,580		2,000	



07336820 RED RIVER NEAR DE KALB, TX—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1968 to September 1998, February 2007 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1968 to September 1991, March 2007 to current year.
WATER TEMPERATURE: January 1968 to September 1991, March 2007 to current year.

INSTRUMENTATION.--Water-quality monitor January 1968 to September 1991, March 2007 to current year.

REMARKS.--Interruptions in record were due to malfunction of the recording instrument. Samples were collected periodically and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,140 microsiemens, Jul 13, 1980; minimum daily, 114 microsiemens, Oct 31, 1984.
WATER TEMPERATURE (1968-89): Maximum daily, 34.0°C, on several days during Jul and Aug of 1969 and 1970; minimum daily, 0.0°C, Jan 11, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,650 microsiemens, June 21,23; minimum, 145 microsiemens, March 26.
WATER TEMPERATURE: Maximum, 34.0°C, Aug. 3-4; minimum, 3.7°C, Jan. 23-24.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 1 of 3

[Remark codes: <, less than; E, estimated.]

Date	Time	Instantaneous discharge, ft3/s (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Noncarb hardness, wat flt field, mg/L as CaCO3 (00904)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
Oct													
23...	0930	5,110	755	8.3	89	8.3	821	9.0	18.0	230	81	63.5	18.3
Nov													
27...	1520	6,100	760	11.4	101	8.2	952	18.5	9.8	300	140	79.7	24.1
Dec													
18...	1415	7,750	752	11.7	98	8.0	537	18.0	7.2	170	66	47.3	12.2
Jan													
09...	1000	3,550	760	10.0	95	7.9	802	6.0	12.6	240	100	64.6	19.1
Feb													
27...	1420	13,000	755	11.2	99	7.9	334	13.0	9.5	93	32	26.0	6.89
Mar													
26...	0940	36,900	761	11.7	116	8.0	145	19.0	14.6	56	7	17.8	2.69
Apr													
24...	1050	39,500	752	8.9	97	7.9	718	23.0	18.9	210	110	54.5	17.0
May													
21...	0950	6,690	752	8.1	99	8.0	600	24.0	24.3	180	78	46.8	14.6
Jun													
11...	1540	3,530	752	9.8	127	8.3	952	36.0	28.0	270	130	69.8	23.6
Jul													
24...	0945	3,700	752	7.5	101	8.1	1,040	29.0	30.1	280	140	71.7	25.1
Aug													
28...	1425	4,940	750	7.3	101	8.2	932	35.0	30.7	240	120	61.9	21.3
Sep													
18...	0920	2,610	754	8.4	100	8.0	892	17.5	23.3	240	110	61.9	20.2

07336820 RED RIVER NEAR DE KALB, TX—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
Part 2 of 3
[Remark codes: <, less than; E, estimated.]

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium fraction of cations percent (00932)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inf tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt infl pt titr., field, mg/L (00453)	Carbonate, wat flt infl pt titr., field, mg/L (00452)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L as SiO2 (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)
Oct													
23...	5.19	1.9	38	68.5	153	176	6	.19	96.8	.28	5.4	111	461
Nov													
27...	5.78	2.1	37	82.5	158	192	1	.23	113	.26	8.3	151	561
Dec													
18...	5.24	1.5	35	43.3	102	124	<1	.13	52.5	.25	7.5	72.5	302
Jan													
09...	4.99	2.0	38	69.5	134	163	1	.18	92.8	.24	6.2	123	463
Feb													
27...	2.75	1.1	36	25.0	62	75	<1	.09	33.1	E.10	4.5	45.5	E181
Mar													
26...	2.82	.3	17	5.71	49	60	<1	.03	5.37	E.11	5.4	11.7	E81
Apr													
24...	3.90	1.8	38	58.7	94	114	<1	.18	86.7	.16	6.5	117	401
May													
21...	3.40	1.6	37	47.9	99	120	<1	.15	66.2	.21	4.0	85.6	328
Jun													
11...	4.88	2.1	38	79.5	144	176	1	.22	113	.24	7.0	154	539
Jul													
24...	5.21	2.3	40	89.8	143	174	<1	.26	136	.23	7.3	173	595
Aug													
28...	5.24	2.3	42	82.3	118	144	2	.23	119	.25	7.1	147	516
Sep													
18...	5.12	2.3	42	81.3	123	150	1	.23	113	.24	6.8	136	500

07336820 RED RIVER NEAR DE KALB, TX—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007
TO SEPTEMBER 2008
Part 3 of 3
[Remark codes: <, less than;
E, estimated.]

Date	Residue water, fltrd, tons/ acre-ft (70303)	Residue water, dis-solved, tons/d (70302)
Oct		
23...	.63	6,370
Nov		
27...	.76	9,240
Dec		
18...	.41	6,320
Jan		
09...	.63	4,440
Feb		
27...	E.25	E6,370
Mar		
26...	E.11	E8,070
Apr		
24...	.55	42,800
May		
21...	.45	5,920
Jun		
11...	.73	5,140
Jul		
24...	.81	5,940
Aug		
28...	.70	6,890
Sep		
18...	.68	3,530

07336820 RED RIVER NEAR DE KALB, TX—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	813	769	797	1,260	1,180	1,230	957	932	940	695	666	683
2	821	811	818	1,280	1,260	1,270	963	927	939	735	686	712
3	830	817	822	1,280	1,260	1,270	984	963	976	762	710	743
4	832	816	825	1,260	1,250	1,250	1,000	984	994	710	677	694
5	816	802	809	1,250	1,240	1,250	1,000	988	997	721	708	716
6	879	806	843	1,250	1,240	1,250	996	988	994	717	631	676
7	911	879	898	1,250	968	1,220	988	959	972	728	631	670
8	906	884	896	1,000	921	958	1,020	982	1,010	832	728	799
9	909	886	899	937	918	926	1,020	991	1,010	830	751	799
10	903	890	899	929	915	923	991	975	980	753	744	750
11	900	864	876	974	928	948	1,000	986	995	765	741	756
12	884	867	875	991	974	984	992	941	966	741	709	720
13	---	---	---	1,040	987	1,010	1,000	940	975	852	703	761
14	---	---	---	1,050	1,010	1,030	984	930	963	953	852	925
15	---	---	---	1,010	999	1,000	930	834	880	1,010	947	966
16	857	681	824	1,010	998	1,000	834	650	698	1,020	974	1,000
17	681	508	573	1,020	996	1,010	661	562	599	1,000	974	983
18	684	514	618	1,020	993	1,000	562	539	550	1,020	997	1,010
19	742	684	723	995	978	986	539	414	468	1,000	996	999
20	711	656	675	1,020	982	1,000	541	414	484	996	962	976
21	656	650	652	1,050	1,010	1,030	590	541	570	1,030	975	999
22	752	656	708	1,050	1,040	1,050	589	565	574	1,030	991	1,010
23	834	752	812	1,040	997	1,010	565	554	557	1,000	990	995
24	817	802	811	1,020	994	1,010	554	503	538	1,030	990	1,000
25	852	767	812	1,030	1,010	1,020	507	494	502	1,030	976	1,010
26	909	852	882	1,010	984	994	504	460	490	977	681	747
27	920	846	871	1,000	963	980	553	455	500	685	577	640
28	984	826	858	1,000	988	994	717	553	636	577	536	547
29	1,030	850	952	988	961	970	732	683	716	572	539	558
30	1,070	865	1,010	988	957	974	683	624	655	563	430	484
31	1,180	1,070	1,130	---	---	---	666	615	636	587	431	517
Month	---	---	---	1,280	915	1,050	1,020	414	767	1,030	430	801

07336820 RED RIVER NEAR DE KALB, TX—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	704	587	619	522	292	388	336	297	319	767	670	722
2	957	704	851	528	436	485	336	304	326	789	764	778
3	1,070	957	1,040	436	344	399	371	330	346	766	695	729
4	1,070	984	1,020	407	264	329	373	294	347	732	688	705
5	1,060	987	1,030	383	209	273	342	293	309	732	650	707
6	1,060	903	989	265	210	223	347	253	299	650	546	585
7	908	854	884	290	243	271	253	207	236	912	638	824
8	909	895	902	243	204	215	207	179	190	966	899	933
9	915	891	900	283	214	236	211	178	187	972	897	944
10	933	901	914	337	283	323	340	211	281	918	887	906
11	1,000	933	971	345	301	329	416	340	380	924	889	912
12	1,010	949	989	301	282	290	418	382	399	889	839	857
13	949	693	775	294	258	286	382	275	329	960	866	917
14	706	678	688	258	231	240	284	246	259	1,020	699	956
15	760	706	747	304	238	269	287	259	273	699	524	584
16	788	742	772	310	302	306	370	282	319	682	622	653
17	772	391	553	336	308	321	402	369	387	834	650	752
18	482	299	368	452	336	369	440	402	422	794	730	746
19	325	303	316	498	192	304	581	440	524	747	732	736
20	303	265	281	192	163	176	574	508	540	749	730	741
21	275	254	263	168	157	161	572	516	542	730	516	606
22	293	258	280	173	162	167	663	569	621	542	469	501
23	282	258	270	171	166	169	691	662	679	644	538	605
24	307	275	288	168	158	163	821	681	732	811	641	756
25	---	307	---	160	146	152	843	741	808	1,000	811	913
26	364	---	---	150	145	148	741	447	595	1,020	860	994
27	369	297	344	166	150	162	502	430	456	1,170	996	1,090
28	297	266	274	224	166	181	628	502	586	1,170	1,080	1,140
29	292	260	268	373	224	321	640	577	612	1,120	842	1,030
30	---	---	---	381	370	374	670	579	607	910	766	861
31	---	---	---	381	336	358	---	---	---	766	567	637
Month	---	---	---	528	145	271	843	178	430	1,170	469	801

07336820 RED RIVER NEAR DE KALB, TX—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	602	560	577	1,030	978	1,000	1,220	1,180	1,200	1,160	1,110	1,130
2	901	602	728	978	926	958	1,220	1,180	1,200	1,160	1,130	1,140
3	901	853	873	929	898	915	1,210	1,180	1,200	1,130	1,080	1,100
4	1,100	866	987	898	876	884	1,200	1,140	1,170	1,080	995	1,040
5	1,100	965	1,040	906	881	892	1,190	1,150	1,170	995	951	969
6	965	891	923	932	906	919	1,200	1,170	1,190	1,210	986	1,100
7	897	862	883	962	932	945	1,170	1,120	1,140	1,210	1,180	1,190
8	1,020	880	938	988	953	970	1,120	1,040	1,080	1,210	1,180	1,190
9	1,040	1,020	1,030	1,020	988	1,000	1,110	1,000	1,050	1,230	1,200	1,220
10	1,040	1,000	1,020	1,040	1,020	1,030	1,140	1,080	1,120	1,240	1,180	1,220
11	1,010	926	971	1,120	1,040	1,060	1,160	1,060	1,120	1,180	1,140	1,160
12	926	855	890	1,140	1,120	1,130	1,120	1,060	1,090	1,140	1,050	1,100
13	870	757	816	1,160	1,140	1,150	1,100	1,080	1,090	1,240	1,060	1,180
14	844	656	738	1,190	1,160	1,180	1,080	1,030	1,060	1,240	1,090	1,180
15	708	577	616	1,200	1,190	1,200	1,030	954	992	1,150	1,090	1,120
16	597	474	565	1,200	1,170	1,180	1,060	949	1,010	1,180	846	1,000
17	643	443	505	1,190	1,160	1,170	1,050	967	989	932	875	921
18	1,260	630	928	1,160	1,150	1,150	1,090	985	1,070	930	885	904
19	1,470	1,260	1,360	1,150	1,120	1,130	991	844	893	886	845	876
20	1,640	1,470	1,580	1,120	1,110	1,120	898	874	888	1,150	886	1,030
21	1,650	1,610	1,630	1,120	1,110	1,120	901	863	883	1,160	1,140	1,150
22	1,630	1,510	1,610	1,120	1,090	1,100	865	814	834	1,160	1,110	1,130
23	1,650	950	1,480	1,090	1,080	1,080	981	802	867	1,160	1,120	1,130
24	1,310	964	1,220	1,120	1,080	1,090	1,120	643	977	1,140	1,060	1,120
25	1,370	1,290	1,350	1,130	1,070	1,100	645	584	611	1,060	935	995
26	1,360	1,290	1,340	1,140	1,100	1,120	729	590	651	935	805	869
27	1,290	1,000	1,150	1,140	1,110	1,120	837	729	805	1,160	878	1,060
28	1,000	901	932	1,140	1,100	1,120	945	837	914	1,160	959	1,050
29	1,120	830	964	1,130	1,100	1,120	990	920	967	959	928	945
30	1,040	908	981	1,190	1,130	1,140	1,090	986	1,040	959	929	944
31	---	---	---	1,210	1,190	1,200	1,140	1,080	1,110	---	---	---
Month	1,650	443	1,020	1,210	876	1,070	1,220	584	1,010	1,240	805	1,070

07336820 RED RIVER NEAR DE KALB, TX—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	27.1	25.7	26.3	18.2	17.4	17.7	12.4	10.8	11.4	7.8	6.6	7.1
2	27.4	26.1	26.8	17.6	16.9	17.3	14.0	12.4	13.1	6.7	5.4	5.9
3	27.7	26.6	27.1	18.3	17.3	17.7	13.3	11.8	12.5	5.7	4.5	4.9
4	27.9	26.7	27.4	18.9	17.6	18.2	12.4	11.0	11.7	5.8	4.0	4.8
5	27.8	26.7	27.4	19.7	18.4	19.1	12.5	11.3	11.9	9.1	5.8	7.3
6	27.8	27.0	27.4	19.6	17.7	18.4	12.0	10.5	11.1	12.5	9.1	10.7
7	28.0	26.9	27.5	17.7	16.1	16.6	11.6	10.8	11.1	13.8	12.2	12.8
8	27.7	26.8	27.3	16.4	15.3	15.8	13.4	11.4	12.1	14.5	13.8	14.1
9	27.3	26.3	26.6	17.0	15.6	16.4	14.4	13.4	14.0	13.8	12.6	13.0
10	26.4	24.9	25.7	16.9	16.5	16.7	13.8	12.5	12.9	12.6	11.4	11.9
11	25.8	24.2	25.0	18.0	16.6	17.3	13.8	12.5	13.1	11.4	10.2	10.8
12	24.8	23.4	24.2	18.7	17.8	18.1	13.7	12.3	13.0	10.8	9.5	9.9
13	24.2	22.8	23.4	19.7	18.2	18.9	12.3	10.9	11.4	9.6	8.6	9.2
14	23.2	22.1	22.7	20.4	18.5	19.6	10.9	9.4	9.9	9.4	8.3	9.0
15	22.8	21.3	22.0	18.5	15.8	17.4	9.4	8.0	8.7	9.3	8.0	8.8
16	21.8	21.0	21.4	16.1	14.5	15.4	8.0	7.0	7.4	9.2	8.6	8.8
17	21.5	21.0	21.3	15.8	14.5	14.9	7.2	6.4	6.9	9.0	8.0	8.5
18	21.8	21.1	21.4	16.4	14.8	15.6	7.6	6.4	7.0	8.0	6.8	7.2
19	21.9	20.8	21.3	17.0	15.6	16.4	7.9	7.3	7.6	7.1	5.9	6.5
20	21.5	20.2	21.0	17.5	16.7	17.1	9.4	7.9	8.6	6.5	5.2	5.8
21	21.6	20.1	21.0	18.3	15.8	17.3	10.2	9.0	9.6	5.7	4.5	4.8
22	21.6	19.3	20.5	15.8	13.1	14.2	10.9	9.8	10.3	4.9	4.4	4.6
23	19.3	17.7	18.3	13.3	11.7	12.4	9.8	8.6	9.0	4.6	3.7	4.2
24	17.7	16.6	17.1	11.8	10.4	11.0	8.6	7.4	8.1	4.7	3.7	4.3
25	17.1	15.9	16.5	10.4	9.7	9.9	8.4	7.4	7.9	4.5	3.9	4.1
26	16.9	15.6	16.3	9.8	9.5	9.6	8.1	7.2	7.4	4.5	4.0	4.2
27	17.5	16.0	16.7	9.7	9.0	9.4	7.3	7.0	7.1	5.7	4.5	5.0
28	17.7	16.5	17.1	11.1	9.3	10.2	7.4	6.8	7.1	6.1	5.3	5.7
29	17.9	16.8	17.3	11.7	10.8	11.3	7.4	6.3	6.9	8.5	6.1	7.5
30	17.6	16.4	17.1	11.5	11.1	11.3	7.8	6.8	7.4	7.8	7.0	7.4
31	18.0	16.7	17.4	---	---	---	7.9	7.0	7.6	7.3	6.7	6.9
Month	28.0	15.6	22.2	20.4	9.0	15.4	14.4	6.3	9.8	14.5	3.7	7.6

07336820 RED RIVER NEAR DE KALB, TX—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	7.1	5.6	6.4	11.6	10.2	10.8	16.5	16.4	16.4	19.5	19.1	19.3
2	8.3	6.3	7.3	12.6	11.5	12.0	16.4	15.3	15.9	20.7	19.5	20.0
3	9.7	7.8	8.6	13.0	11.7	12.6	15.6	15.0	15.2	20.5	19.5	20.1
4	12.0	9.7	10.8	11.7	10.4	10.9	15.8	15.5	15.6	21.1	19.7	20.3
5	13.9	11.8	12.8	10.8	10.1	10.5	16.4	15.3	15.8	21.1	20.1	20.6
6	13.2	11.6	12.2	10.4	9.2	9.8	17.0	15.9	16.4	20.7	20.1	20.3
7	12.0	10.3	10.9	9.2	8.3	8.7	17.9	16.7	17.2	20.3	19.9	20.1
8	10.8	9.5	10.3	8.7	7.8	8.2	17.8	17.6	17.7	21.1	19.6	20.3
9	11.2	9.6	10.5	8.9	8.0	8.4	18.4	17.1	17.7	22.7	20.4	21.5
10	11.6	9.8	10.9	9.5	8.7	9.2	19.2	18.3	18.8	23.4	21.9	22.6
11	11.5	10.0	10.6	10.6	9.4	9.9	18.8	17.9	18.3	23.0	21.7	22.3
12	11.1	9.9	10.6	11.9	10.5	11.1	18.1	17.3	17.7	22.4	20.9	21.7
13	9.9	8.5	9.3	12.7	11.7	12.2	17.6	17.0	17.4	21.8	21.2	21.5
14	10.6	8.4	9.5	13.5	12.4	12.9	17.2	16.4	16.8	21.7	21.0	21.4
15	11.1	10.2	10.6	14.5	13.2	13.7	17.0	16.2	16.6	21.5	20.8	21.1
16	11.2	10.8	10.9	14.1	13.2	13.7	17.1	16.1	16.6	22.1	20.3	21.2
17	10.9	9.8	10.4	14.3	13.5	13.8	17.4	16.6	17.0	23.2	21.0	22.0
18	9.8	9.0	9.3	15.4	14.3	14.9	17.3	16.9	17.1	23.9	21.8	22.8
19	9.2	8.4	8.8	15.4	13.9	14.6	17.8	16.6	17.1	24.9	22.6	23.7
20	9.5	8.8	9.1	13.9	13.4	13.7	17.9	17.2	17.6	25.8	23.6	24.7
21	9.7	9.5	9.6	14.5	13.5	14.0	18.5	17.7	18.1	25.3	23.9	24.4
22	9.5	8.6	9.0	15.0	14.2	14.6	18.9	18.2	18.5	25.0	22.8	23.9
23	9.0	8.2	8.6	15.1	14.6	14.9	19.2	18.6	18.9	25.3	23.9	24.5
24	9.3	8.6	8.9	14.7	13.9	14.3	19.6	18.9	19.2	26.5	24.4	25.4
25	---	8.8	---	14.9	13.8	14.3	19.4	19.1	19.2	28.3	25.7	27.0
26	9.5	---	---	15.3	14.6	14.9	19.4	18.7	19.0	29.0	27.0	28.0
27	9.8	8.5	9.1	16.5	15.1	15.7	19.2	18.6	19.0	28.8	26.9	27.7
28	10.3	9.0	9.6	17.0	16.3	16.5	18.7	18.0	18.3	27.6	25.8	26.7
29	10.6	9.8	10.2	16.4	15.2	15.7	18.8	17.8	18.3	26.8	25.9	26.2
30	---	---	---	15.6	15.1	15.3	19.3	18.1	18.7	26.8	25.0	25.9
31	---	---	---	16.6	15.5	15.9	---	---	---	27.7	25.5	26.5
Month	---	---	---	17.0	7.8	12.8	19.6	15.0	17.5	29.0	19.1	23.0

07336820 RED RIVER NEAR DE KALB, TX—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	28.2	26.6	27.3	30.4	28.0	29.2	32.7	29.8	31.3	31.2	29.5	30.4
2	29.4	27.2	28.2	30.7	28.4	29.6	33.3	30.6	32.1	30.3	27.1	28.2
3	29.7	27.7	28.7	31.1	28.6	29.9	34.0	31.4	32.8	27.1	26.2	26.5
4	29.4	27.9	28.6	30.6	29.1	29.9	34.0	31.6	33.0	26.2	24.1	24.9
5	28.7	27.4	28.0	30.9	28.4	29.7	33.5	31.7	32.6	26.0	23.5	24.7
6	28.7	27.1	27.9	31.4	28.9	30.2	32.3	30.6	31.4	26.6	24.3	25.6
7	29.4	27.6	28.5	31.7	29.4	30.6	32.4	30.7	31.3	27.6	24.9	26.3
8	29.8	28.0	28.9	32.0	29.7	30.9	31.0	29.7	30.5	28.1	26.0	27.1
9	29.5	28.2	28.7	31.6	30.0	30.9	31.2	29.6	30.5	28.0	27.0	27.3
10	28.2	26.6	27.4	32.1	29.7	30.9	30.9	28.1	29.3	27.4	26.0	26.5
11	28.2	26.5	27.4	31.8	30.0	31.0	28.1	26.4	27.0	28.0	25.7	26.8
12	28.9	27.0	28.0	31.9	29.5	30.7	27.5	25.8	26.5	28.3	27.3	27.9
13	29.9	27.6	28.7	31.4	29.8	30.6	29.2	26.1	27.7	28.0	26.2	26.9
14	29.3	27.2	28.3	30.5	29.2	29.8	30.1	28.0	29.2	26.2	25.1	25.8
15	29.1	27.2	28.1	30.4	28.4	29.5	30.1	27.5	28.6	25.7	24.1	24.9
16	28.6	27.5	28.1	31.0	28.4	29.8	27.5	26.4	27.1	24.9	23.2	24.2
17	28.1	27.4	27.6	31.1	28.5	29.9	28.2	26.4	27.4	24.9	22.9	24.1
18	27.4	26.6	27.0	31.4	28.9	30.2	28.0	26.6	27.2	24.6	23.4	24.0
19	27.9	26.2	27.0	31.9	29.5	30.7	27.3	25.3	26.0	25.6	23.3	24.4
20	28.2	27.1	27.6	32.3	29.8	31.1	25.3	24.6	24.9	26.1	23.9	25.1
21	28.9	27.1	27.9	32.6	30.2	31.5	26.7	24.7	25.6	26.5	24.5	25.6
22	29.9	27.4	28.6	33.0	30.7	32.0	28.5	26.6	27.4	27.0	24.8	25.9
23	30.3	28.2	29.2	32.8	30.8	31.9	29.1	27.2	28.2	27.0	25.1	26.2
24	30.6	28.7	29.7	32.1	29.9	31.1	29.1	27.6	28.3	27.1	25.4	26.4
25	30.6	28.7	29.6	32.0	29.9	31.0	29.4	27.7	28.5	26.8	25.3	26.3
26	30.3	28.3	29.3	32.6	30.1	31.4	30.4	28.0	29.1	27.0	25.1	26.3
27	30.2	28.2	29.3	32.7	30.4	31.7	31.0	28.8	29.9	26.8	24.7	25.9
28	30.4	28.6	29.5	32.7	30.5	31.8	31.9	29.4	30.6	26.5	24.6	25.6
29	29.6	27.8	28.7	32.3	30.2	31.4	32.2	29.6	31.0	26.5	24.5	25.6
30	30.1	27.5	28.8	32.1	29.9	31.1	31.8	29.7	31.0	26.1	24.7	25.5
31	---	---	---	31.9	30.1	31.1	31.6	29.7	30.8	---	---	---
Month	30.6	26.2	28.4	33.0	28.0	30.7	34.0	24.6	29.3	31.2	22.9	26.0