04156000 TITTABAWASSEE RIVER AT MIDLAND, MI

Saginaw Basin
Tittabawassee Subbasin

LOCATION.--Lat 43°35′43″, long 84°14′08″ referenced to North American Datum of 1927, in NW ¼ NE ¼ sec.28, T.14 N., R.2 E., Midland County, MI, Hydrologic Unit 04080201, on right bank 2,000 ft downstream from dam at Dow Chemical Co. in Midland, 0.7 mi upstream from Bullock Creek, 1.4 mi downstream from Chippewa River, and 23 mi upstream from mouth.

DRAINAGE AREA.--2,400 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--March 1936 to current year. Gage-height records for flood seasons collected in this vicinity 1910-26, 1928, are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1045: 1945. WSP 1144: 1948.

GAGE.--Water-stage recorder. Datum of gage is 580.08 ft above sea level (levels by Wade-Trim Assoc.). Prior to Sept. 30, 1955, at datum 10.20 ft higher, Oct. 1, 1955 to Sept. 30, 1993, at datum 0.20 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor. Prior to 1992 water year, diversion was used in computing annual mean discharge and runoff figures, extremes and daily discharge were not adjusted for diversion. Prior to May 20, 1970, discharge below 4,000 ft^3/s regulated by dam 2,000 ft upstream from station; fixed crest dam since. Gage-height telemeter at station.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e727	1,500	8,270	3,900	e1,490	e2,250	3,810	3,920	1,120	406	371	465
2	e817	1,560	7,420	6,940	e1,410	e2,350	2,740	4,430	757	422	362	343
3	e1,050	1,320	5,650	5,980	e1,490	e1,930	4,290	4,800	809	512	343	338
4	e1,330	971	4,280	4,630	e1,320	e1,400	9,420	3,330	1,620	482	334	458
5	e2,090	854	3,250	4,330	e1,350	e1,630	10,700	2,970	2,400	633	323	339
6	e2,510	1,270	2,780	4,070	e1,740	e2,110	6,910	2,050	2,850	760	307	712
7	e2,290	1,190	2,890	3,220	e1,820	e2,240	5,320	2,360	1,780	717	645	699
8	e1,780	1,150	3,490	2,540	e1,770	e2,440	4,600	2,230	1,570	513	433	376
9	e1,530	1,160	1,820	3,450	e2,160	2,580	4,000	2,190	1,310	499	503	326
10	e1,540	1,340	1,660	3,460	e1,680	1,750	3,740	2,830	903	535	489	737
11	e1,540	1,790	1,920	3,310	e987	2,090	3,580	2,820	1,010	690	339	913
12	e1,320	2,620	4,430	3,230	e1,210	4,200	3,900	2,190	1,200	700	283	937
13	e1,160	2,550	11,700	1,950	e1,300	7,570	5,150	1,520	1,110	904	438	818
14	e1,050	2,840	14,900	1,590	e1,390	13,000	5,790	2,030	919	530	511	418
15	e1,010	2,210	10,600	2,140	e1,460	17,200	5,680	2,650	673	441	513	371
16	e902	2,230	6,930	e2,760	e2,080	14,300	4,990	2,530	642	609	593	414
17	e1,050	2,700	5,320	e2,690	e1,910	9,670	4,370	2,230	608	704	591	701
18	e1,880	2,070	4,530	e2,130	e924	6,770	3,810	1,860	591	e787	334	701
19	e2,290	2,110	4,090	e1,820	e1,150	6,210	3,500	1,950	596	e878	300	508
20	e2,610	1,870	3,790	e1,030	e1,340	4,870	4,610	1,400	720	848	571	526
21	2,220	2,370	3,530	e1,000	e1,430	4,440	4,000	1,570	885	755	737	513
22	2,240	1,730	3,620	e1,480	e1,310	8,500	2,940	1,630	935	499	837	342
23	3,170	1,140	4,710	e1,930	e2,050	15,600	2,520	1,450	618	605	944	297
24	3,060	1,550	5,520	e1,790	e1,280	14,700	2,940	1,310	570	651	1,200	574
25	2,530	1,670	4,880	e1,690	e918	10,500	2,340	1,220	555	598	1,410	537
26	2,060	1,040	4,340	e1,420	e1,670	8,600	2,490	1,180	598	576	967	545
27	1,840	1,380	4,050	e1,180	e1,970	7,370	4,660	932	612	434	985	532
28	1,940	1,910	3,790	e1,040	e2,140	5,320	7,460	905	602	400	879	535
29	1,680	2,350	2,820	e1,170	---	4,740	5,280	851	591	387	936	343
30	1,490	4,880	3,220	e1,410	---	4,390	4,130	1,230	467	409	1,070	326
31	1,410	---	2,050	e1,410	---	4,050	---	1,140	---	384	967	---
Total	54,116	55,325	152,250	80,690	42,749	194,770	139,670	65,708	29,621	18,268	19,515	15,644
Mean	1,746	1,844	4,911	2,603	1,527	6,283	4,656	2,120	987	589	630	521
Max	3,170	4,880	14,900	6,940	2,160	17,200	10,700	4,800	2,850	904	1,410	937
Min	727	854	1,660	1,000	918	1,400	2,340	851	467	384	283	297
Cfsm	0.73	0.77	2.05	1.08	0.64	2.62	1.94	0.88	0.41	0.25	0.26	0.22
In.	0.84	0.86	2.36	1.25	0.66	3.02	2.16	1.02	0.46	0.28	0.30	0.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,042	1,444	1,573	1,484	1,803	3,916	3,598	2,272	1,418	732	602	871
Max	6,318	6,097	4,911	5,564	6,455	10,660	8,096	8,080	5,270	4,492	2,236	10,300
(WY)	(1987)	(1986)	(2007)	(1973)	(1938)	(1976)	(1967)	(2004)	(1945)	(1957)	(1972)	(1986)
Min	344	493	462	388	466	1,027	969	567	355	234	217	250
(WY)	(1949)	(1950)	(1964)	(1945)	(1963)	(1964)	(1945)	(1977)	(1964)	(1941)	(1936)	(1948)

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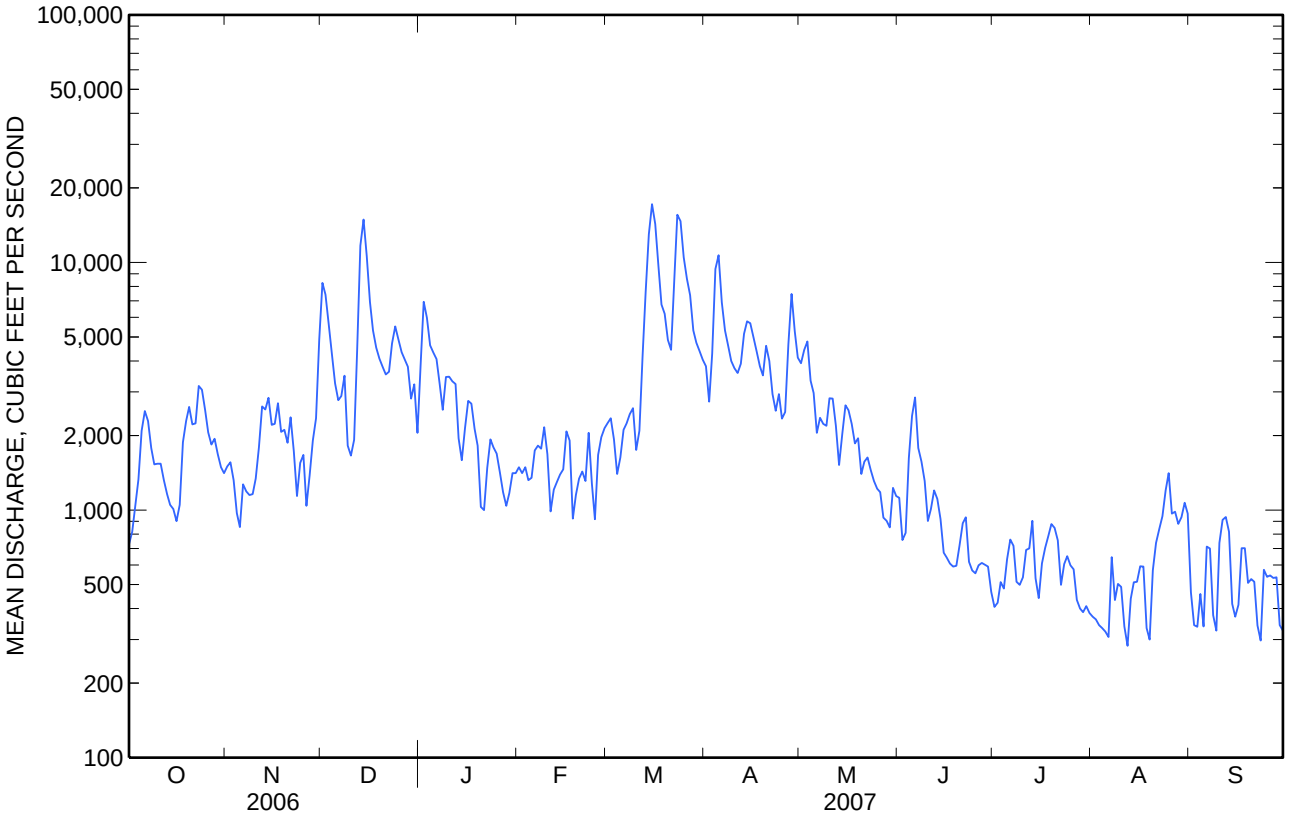
SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1936 - 2007	
Annual total	977,077		868,326			
Annual mean	2,677		2,379		1,734	
Highest annual mean					3,318	1986
Lowest annual mean					699	1964
Highest daily mean	22,000	Mar 14	17,200	Mar 15	36,200	Sep 13, 1986
Lowest daily mean	397	Aug 21	283	Aug 12	111	Aug 21, 1949
Annual seven-day minimum	434	Sep 5	346	Jul 31	126	Aug 11, 1936
Maximum peak flow			17,600	Mar 15	38,700	Sep 13, 1986
Maximum peak stage			24.11	Mar 15	[a]33.89	Sep 13, 1986
Instantaneous low flow			275	Aug 18 [b]	39	Oct 1, 1942
Annual runoff (cfsm)	1.12		0.991		0.723	
Annual runoff (inches)	15.14		13.46		9.82	
10 percent exceeds	5,200		4,880		3,940	
50 percent exceeds	1,820		1,550		976	
90 percent exceeds	657		486		384	

[a] From floodmark.
[b] Also occurred Aug. 19.