

Water-Data Report 2011

10260855 Grass Valley Lake Tunnel Outlet at Lake Arrowhead, CA

Mojave River Basin

LOCATION.--Lat 34°15'36", long 117°12'16" referenced to North American Datum of 1983, in SW ¼ NW ¼ sec.16, T.2 N., R.3 W., San Bernardino County, CA, Hydrologic Unit 18090208, on left bank, 20 ft below outlet of tunnel connecting Grass Valley Lake and Lake Arrowhead, and 0.2 mi above Lake Arrowhead, in the town of Lake Arrowhead.

DRAINAGE AREA.--Indeterminate.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 2008 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 5,150 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good above 5 ft³/s and fair below. Records of daily discharge for this station represent flows leaving Grass Valley Lake by way of the east spillway. The natural flow of Grass Valley Creek, into Grass Valley Lake, is unregulated and unaffected by diversion. Lake elevations may be affected, at times, by discharges of treated domestic water and pumping for nearby irrigation. Outflow from lake is by two identical spillways. Flow over north spillway is gaged at station 10260865 (Grass Valley Creek below Grass Valley Lake, near Lake Arrowhead), and is regulated by the spillway crest. Flow over east spillway is gaged at station 10260855 (Grass Valley Lake Tunnel Outlet, at Lake Arrowhead), and is regulated by the spillway crest and a gated entrance to the Grass Valley Lake Tunnel, 200 ft east of the spillway. See schematic diagram of Mojave River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78 ft³/s, Feb. 6, 2010, gage height, 3.23 ft, from rating curve extended above 19 ft³/s, on basis of critical-depth computations; no flow for many days each year.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.00	0.00	0.16	1.7	0.36	0.35	0.93	0.65	0.51	0.66	0.43	0.02
2	0.00	0.00	0.15	1.5	0.36	0.42	0.86	0.64	0.51	0.61	0.16	0.03
3	0.00	0.00	0.14	1.5	0.36	0.63	0.82	0.63	0.48	0.50	0.13	0.03
4	0.00	0.00	0.13	1.4	0.36	0.52	0.79	0.64	0.49	0.49	0.10	0.04
5	0.00	0.00	0.22	1.3	0.34	0.49	0.78	0.63	0.46	0.48	0.10	0.05
6	0.00	0.00	1.9	1.0	0.35	0.52	0.77	0.65	0.46	0.49	0.10	0.07
7	0.00	0.00	0.24	0.97	0.34	0.65	0.69	0.64	0.48	0.51	0.09	0.05
8	0.00	0.02	0.15	0.89	0.34	0.51	0.67	0.62	0.49	0.46	0.08	0.04
9	0.00	0.00	0.14	0.76	0.34	0.46	0.63	0.61	0.49	0.44	0.07	0.03
10	0.00	0.00	0.14	0.72	0.34	0.44	0.62	0.62	0.50	0.42	0.06	0.03
11	0.00	0.01	0.13	0.67	0.34	0.43	0.72	0.65	0.50	0.36	0.06	0.02
12	0.00	0.01	0.14	0.64	0.34	0.42	0.75	0.59	0.48	0.36	0.06	0.02
13	0.00	0.01	0.13	0.61	0.34	0.40	0.74	0.58	0.46	0.35	0.06	0.40
14	0.00	0.01	0.12	0.59	0.33	0.39	0.76	0.56	0.37	0.34	0.06	0.30
15	0.00	0.01	0.14	0.57	0.35	0.39	0.77	0.76	0.34	0.34	0.05	0.19
16	0.00	0.02	0.34	0.58	1.1	0.38	0.75	0.60	0.29	0.33	0.05	0.16
17	0.00	0.02	3.8	0.56	0.54	0.37	0.74	0.59	0.28	0.34	0.04	0.14
18	0.00	0.01	7.5	0.54	1.2	0.37	0.74	0.64	0.18	0.35	0.05	0.12
19	0.00	0.01	39	0.54	1.2	0.42	0.74	0.58	0.24	0.32	0.05	0.11
20	0.01	12	40	0.52	0.56	0.39	0.71	0.59	0.23	0.33	0.05	0.11
21	0.00	2.7	27	0.48	0.47	0.39	0.72	0.60	0.48	0.31	0.05	0.07
22	0.00	0.44	35	0.46	0.47	0.40	0.69	0.60	0.46	0.30	0.04	0.05
23	0.00	0.24	21	0.43	0.45	0.41	0.66	0.60	0.27	0.32	0.05	0.05
24	0.00	0.45	11	0.39	0.45	0.40	0.65	0.58	0.19	0.23	0.05	0.05
25	0.00	0.24	3.5	0.37	0.41	0.82	0.64	0.54	0.17	0.19	0.04	0.05
26	0.00	0.15	3.3	0.37	0.34	0.57	0.66	0.54	0.15	0.28	0.04	0.05
27	0.00	0.19	2.6	0.37	0.33	0.74	0.66	0.55	0.16	0.30	0.04	0.05
28	0.00	0.22	2.4	0.37	0.34	0.75	0.66	0.54	0.54	0.31	0.04	0.04
29	0.00	0.17	2.3	0.36	---	0.72	0.63	0.55	0.70	0.30	0.04	0.05
30	0.01	0.16	1.7	0.37	---	0.76	0.63	0.53	0.65	0.29	0.03	0.05
31	0.00	---	1.6	0.35	---	0.77	---	0.53	---	2.8	0.02	---
Total	0.02	17.09	206.07	21.88	13.05	15.68	21.58	18.63	12.01	14.11	2.29	2.47
Mean	0.00	0.57	6.65	0.71	0.47	0.51	0.72	0.60	0.40	0.46	0.07	0.08
Max	0.01	12	40	1.7	1.2	0.82	0.93	0.76	0.70	2.8	0.43	0.40
Min	0.00	0.00	0.12	0.35	0.33	0.35	0.62	0.53	0.15	0.19	0.02	0.02
Ac-ft	0.04	34	409	43	26	31	43	37	24	28	4.5	4.9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2009 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	0.00	0.19	2.81	1.54	2.99	1.31	0.67	0.47	0.23	0.15	0.02	0.03
Max	0.00	0.57	6.65	2.61	4.91	2.46	0.88	0.81	0.40	0.46	0.07	0.08
(WY)	(2010)	(2011)	(2011)	(2010)	(2010)	(2009)	(2010)	(2010)	(2011)	(2011)	(2011)	(2011)
Min	0.00	0.00	0.69	0.71	0.47	0.51	0.40	0.01	0.00	0.00	0.00	0.00
(WY)	(2009)	(2010)	(2009)	(2011)	(2011)	(2011)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)

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	Calendar Year 2010	Water Year 2011	Water Years 2009 - 2011	
Annual total	531.45	344.88		
Annual mean	1.46	0.94	0.86	
Highest annual mean			0.94	2011
Lowest annual mean			0.69	2009
Highest daily mean	47 Feb 6	40 Dec 20	47 Feb 6, 2010	
Lowest daily mean	0.00 Jun 24	0.00 Oct 1	0.00 Oct 1, 2008	
Annual seven-day minimum	0.00 Jun 24	0.00 Oct 1	0.00 Oct 1, 2008	
Maximum peak flow		70 Dec 20	78 Feb 6, 2010	
Maximum peak stage		3.11 Dec 20	3.23 Feb 6, 2010	
Annual runoff (ac-ft)	1,050	684	620	
10 percent exceeds	2.4	0.77	1.6	
50 percent exceeds	0.24	0.36	0.19	
90 percent exceeds	0.00	0.00	0.00	

