Notes about Operation Record

Mathews Canyon Dam, Nevada

US Army Corps of Engineers

General Notes		
Location	Mathews Canyon Dam is an ungated/unmanned structure located about 20 miles southeast of Caliente, Nevada. It has a drainage area of about 34 square miles.	
Outlet Facilities	The dam is equipped with a ungated outlet conduit that measures 3.5 feet in diameter, is 368 feet long, and has a capacity of 260 cfs.	
Monitoring of Reservoir Water Levels	The dam is equipped with a float well system that can monitor water levels from a few inches above the outlet invert to the top of dam. Because the float well cannot monitor water levels all the way to the invert, water levels that produce small outflows (<10 cfs) are often below detection at the dam. These low flows are monitored with the d/s stream gage. There is also a dead pool area upstream of the outlet that is below detection of the float well system. The original construction survey estimated the volume of the dead pool area as 20 ac-ft. This dead volume is ignore in the reservoir storage record. The dam water level record begins in June 1958. From June 1958 until October 2000 a Stevens graphic recorde was used to create a continuous record of water stored at the dam. In October 2000, a data logger was installed to replace the graphic recorder. Since the mid-1980's the reservoir has been equipped with a GOES DCP that transmits water and rainfall data. Until September 1984, the USGS maintained the graphic recorder and collected the charts, since october 1984 the Corps of Engineers has peformed all maintenance and collected all of the data at the dam.	
D/S Stream gage	Immediately below the dam is stream gage equipped with a float well monitoring system. The gage has been in continuous operation since June 1958. From June 1958 to Septembe 1984, the USGS maintained the gage and published the data. Since October 1984, the gage has been maintained and operated by the Corps of Engineers.	
General Data Issues & Assumptions	No. 1	In July of 2001 a survey was performed at the dam to check the datum of the float tape. It was determined that the float tape datum needed to be increased by 0.58 feet. Based on high water marks from 1962 to 1983 it was concluded that the float datum had been in error since the equipment was installed in 1958. The water levels for the period of record were adjusted by 0.58 feet.
	No. 2	The outflow record is largely based on the outlet rating curve which relates water level to discharge. The d/s stream gage was used to fill in missing data during periods when the water level gage at the dam failed and when the water levels were too low to detect. The rating table for the d/s gage was developed by the USGS and was last updated in 1984.
	No. 3	It is common for the chart, and now the data logger output, to show a small rise in the water surface. These rises, which are called trace rises here, typically range from .01' to .08'. We are not exactly sure what causes the small rises or whether all of them are legitimate but we can usually tell that they caused no outflow. For that reason these "trace rises" are noted under General Notes but are not reflected in the tabulated record. Possible cause of the small rises include rainfall getting into the well somehow, melting ice, equipment anomaly, ???

Mathews Canyon Dam Data Notes by Water Year

Water Year	Data Source			Field Visits			General Notes	Record Check	
	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
1958	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	4-Dec-57		reservoir Dry	Looks like an attempt was made to begin data collection on 04Dec57 but the graphic chart recorder did not work properly. The USGS d/s gage didn't come online until 01Jun58. No data 04dec57-31may58, no outflow rest of year	14-Apr-01	GP/CC
				5-Jun-58		storage in borrow pits only			
1959	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	19-Nov-58				14-Apr-01	GP/CC
				22-May-59		reservoir dry			
1960	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	24-Nov-59			No outflow all year, well rose small amount on 12/24-25, 6/6, 7/29, 8/12, 9/5	18-Apr-01	GP/CC
				2-May-60		reservoir Dry			
				12-May-60					
1961	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	21-Nov-60			No outflow all year. The 5/3 field visit revealed that the clock had stopped on 2/12. The USGS reported no flow during this period the reservoir was assumed to have no outflow. Well rose by trace amount 10/9-10, 11/6, 8/31, & 9/17	25-Apr-01	GP/CC
				3-May-61		clock found stopped			
1962	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	14-Nov-61			Well rose by trace amount on 12/2. The adjusted water level instrumentation recorded a peak water level of 5424.58, .28 feet lower than the estimated HWM of 5424.86. Because of the uncertainties of HWM the match was judge to be reasonable.	25-Sep-01	GP/CC
				1-May-62	5424.86				
1963	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	14-Nov-62			No outflow all year. Well rose by a trace amount on 4/28, 8/31, and 9/18-19	25-Apr-01	GP/CC
				21-May-63		reservoir dry			
1964	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	20-Nov-63			No outflow all year. Well rose by a trace amount on 11/8, 6/7, 8/4.	18-Apr-01	GP/CC
				19-May-64		reservoir Dry			
1965	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	17-Nov-64		Cold! 2.5 ft of snow on top of dam	The clock badly failed and it is probably impossible to pinpoint when the April event occurred. An attempt was made to roughly position it in relation to the USGS flow record but it could be off by as much as 24hrs. Well rose by a trace amount on 3/23, 327-28, 4/3-4.	24-Sep-01	GP/CC
				18-May-65		dead storage at borrow pit			
1966	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	16-Nov-65		dead storage at borrow pit	Clock stopped May 12-18. USGS report no flows so reservoir was presumed dry. Well rose by trace amount on 11/16-17, 11/22-23, 11/24, 12/9, and 9/18-19.	24-Sep-01	GP/CC
				18-May-66		reservoir dry, clocked stopped May 12th			
1967	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	16-Nov-66		reservoir dry	Well rose by trace amount on: 12/3, 12/5, 7/6, 7/31, 8/2, 8/5, 8/16	24-Sep-01	GP/CC
				16-May-67					
				20-Jun-67					
				20-Jul-67		dry			
				23-Aug-67		dry			
				19-Sep-67					
				24-Oct-67					

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	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
1968	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	21-Nov-67		dry	No outflow all year.	25-Apr-01	GP/CC
				28-Dec-67		no discharge from reservoir			
				24-Jan-68		dry			
				21-Feb-68		ponded water			
				20-Mar-68		ponded water			
				23-Apr-68		dry			
				22-May-68		dry			
				18-Jun-68					
				22-Jul-68					
				11-Aug-68					
				10-Sep-68					
1969	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	2-Oct-68			There were 2 main storm periods: Jan 21-31 & Mar 21- Apr 15. Some notes: (1) In the files there is reference to a HWM of 5432 in January but it isn't clear where it came from since it doesn't appear to be a USGS note. Its reliability is unclear. (2) The daily average flow as recorded by the USGS did not always agree with the outflow estimates generated using the outlet rating curve. Generally the USGS reported lower flows than those derived using the outlet rating, although there was strong agreement during the peak of the mar/apr event. The outlet rating curve was used to estimate the outflow for this record. (3) The USGS made a flow measurement on April 1 of 134 cfs but only recorded the float tape reading at the dam, did not record a staff reading (unfortunately) (4) A plot of the water level between Mar 26th and April 2nd looks like a saw blade. It appears to be a classic example of snow melt inflow with the inflow peaking each day around 2:00 pm. A check of the NWS gage at Caliente showed that temperature varied from the 20's at night to the 60's & 70's	25-Sep-01	GP/CC
				12-Nov-68					
				19-Dec-68					
				2-Mar-69		water below 5422			
				1-Apr-69		Float Tape at 1755 = 5428.39.			
				10-Apr-69					
				1-May-69					
				9-Jun-69					
				7-Jul-69					
				11-Aug-69					
1970	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	1-Oct-69			No outflow all year. Well rose trace amount on 2/28 and 3/1	14-Apr-01	GP/CC
				10-Nov-69					
				6-Dec-69					
				3-Feb-70					
				17-Mar-70					
				20-Apr-70					
				13-Jun-70					
				15-Sep-70					
1971	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	22-Nov-70			No outflow all year. Well rose trace amount on 11/29, 11/26, 2/17, 5/6-7, 7/19, 7/31, 8/5, 8/19, 8/28	14-Apr-01	GP/CC
				6-Jan-71					
				8-Feb-71		no evidence of flow			
				14-Mar-71					
				26-Apr-71					
				21-May-71					

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Water Year	Data Source			Field Visits			General Notes	Record Check	
	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
				26-Jul-71					
				13-Sep-71					
1972	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	19-Oct-71		no evidence of flow	No outflow all year.	14-Apr-01	GP/CC
				21-Dec-71		outlet dry			
				16-Feb-72		outlet dry			
				20-Mar-72					
				30-May-72		no flow			
				26-Jun-72					
				25-Jul-72		no flow			
				14-Sep-72		no flow			
1973	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	10-Nov-72		no flow	(1) Clock stopped 12/11/72-1/16/73. No outflow per USGS d/s gage and Pine Canyon received no inflow during this period so assumed dry conditions. (2) USGS gage show small outflow <3.1 cfs 2/28/73 – 3/4/73 but no change in elev registered by water level recorder. (3) Well rose by trace amounts (.02 to .04') on Mar 16, 17, 25 & Apr 4th.· (4) Clock weight stuck 8/9/73-9/18/73. Notes indicate that there was no evidence of flow and d/s gage shows no flow, therefore assumed dry conditions for this period. (5) Chart suddenly jumped from 5421 to 5423.68 on April 13th. It appears something was stuck because the USGS published flows starting on 4/6 and continuing until 4/24. The chart looks reasonable after it started working on 4/13. Missing data markers were entered for the water level for 4/6 to 4/13. The USGS daily estimates of outflow were used for 4/6-4/12.	25-Sep-01	GP/CC
				16-Jan-73		clock stopped no record			
				6-Apr-73					
				8-May-73					
				22-Jun-73					
				9-Aug-73					
				18-Sep-73					
1974	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	10-Nov-73		no flow	(1) Clock stopped 12/31/73-2/21/74. No outflow per USGS d/s gage and Pine Canyon received no inflow during this period so assumed dry conditions. (2) No outflow all year but well rose by trace amount on 11/18	25-Apr-01	GP/CC
				29-Nov-73		found clock stopped, clock 4 day 7.5 hours slow, clock may have stopped for short period			
				21-Feb-74		clock stopped, record lost 12/31-2/21			
				9-Apr-74		in/out dry			
				17-May-74		no flow			
				12-Jun-74		no flow			
				7-Aug-74		no flow			
1975	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	19-Nov-74		clock stopped 11/2, installed new clock	No flow all year but well rose by trace amounts on 10/26, 10/28-29, 11/1, 3/5, 5/20-21, and 7/11	25-Apr-01	GP/CC
				20-Nov-74		reservoir dry			
				11-Dec-74					
				23-Jan-75					
				13-Feb-75					
				20-Mar-75		no flow			
				23-Apr-75					
				28-May-75		dry			
				17-Jun-75		no flow			

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	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
				23-Jul-75		no flow			
				19-Aug-75		no flow			
				22-Sep-75					
1976	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	8-Oct-75		no flow	(1) No outflow all year but well rose by trace amounts on 2/8-9, 7/18, 7/24, 7/31, 9/10 (2) Clock failed 2/25/76-4/14/76. USGS reported no outflow during this period so assumed dry conditions.	25-Apr-01	GP/CC
				21-Nov-75		no water			
				21-Jan-76		no water			
				14-Apr-76		no storage, clock failed to move, malfunction corrected			
				16-Jun-76		no flow & no water behind dam			
				18-Aug-76		no impoundment			
				22-Sep-76		outlet dry			
1977	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	6-Oct-76		no impoundment	(1) Clock failed 10/20-11/15 & 12/17-1/20. Field notes indicate that there was no physical evidence of flow and the USGS reported no outflow during this period. So I assumed dry conditions. (2) No outflow all year· Well rose by trace amount on: 8/17	9-Apr-01	GP/CC
				23-Nov-76		clock stopped, no evidence of flow			
				20-Jan-77		dry, clock stopped 12/17			
				29-Mar-77		dry			
				24-May-77		no impoundment			
				21-Jun-77		dry			
				25-Jul-77		no impoundment			
				23-Aug-77		no impoundment			
				27-Sep-77		no impoundment			
1978	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	26-Oct-77		dry	(1) The outlet rating was used to estimate the out flow but it should be noted that the USGS estimates of the outflow are consistently less. (2) Observed high water mark of 5440.3/5440.5 on 2/22, peak recorded chart value is 5440.19.	25-Sep-01	GP/CC
				22-Nov-77		dry			
				20-Dec-77		no impoundment			
				22-Feb-78	5440.3 5440.5	2 acre surface impoundment at visit, high OSS water elev = 5440.3 & 5440.5			
				30-Mar-78					
				26-Apr-78					
				1-Jun-78		dry			
				13-Jul-78					
				30-Aug-78		dry			
				20-Sep-78					
1979	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	21-Nov-78		dry	Note in the files indicates that charts for Jan 79 thru' 9 Oct 79 are missing. The USGS does report outflow during the period of 3/8-4/6 and peaks of 29cfs (daily) and 41 cfs (instant) on 3/16/79. During the other periods the USGS reports no flow. The reservoir was assumed empty when the USGS reported no flow. The peak water level for the year was estimated to be 5423 which matches the outflow of 41 cfs on the outlet rating curve	10-Apr-01	GP/CC
				28-Dec-79					
				records missing Jan 79 - 09 Oct 79					
				27-Nov-79					
				19-Dec-79					

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Water Year	Data Source			Field Visits			General Notes	Record Check	
	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
1980	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	27-Feb-80	5433.98	OSHWM=5433.98, outflow=4.28cfs	(1) Problem with pen on 21/4, appears that it was stuck from about noon to 1900. (2) Observed HWM of 5433.98 close to peak per adjusted chart value of 5433.83· Plot of USGS flows versus those estimated via outlet rating show that the USGS consistently estimated higher flows. In 1969 & 1978 it was the other way around. (3) Well rose by trace amount on 1/14, 1/18, 1/28-29	26-Sep-01	GP/CC
				26-Mar-80		dry			
				22-Apr-80		dry			
				22-May-80		dry			
				18-Jun-80					
				23-Jul-80		dry			
				22-Aug-80		dry			
				24-Sep-80		no impoundment			
1981	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	17-Nov-80		dry	No outflow all year but well rose by trace amounts on 3/20, 5/18-20, 9/9-10, 9/13	18-Apr-01	GP/CC
				16-Dec-80		ice ponded back away from inlet			
				29-Jan-81		dry			
				24-Feb-81		dry			
				26-Mar-81		dry			
				28-Apr-81		dry			
				27-May-81		dry			
				9-Jun-81		dry			
				25-Jun-81		dry			
				28-Jul-81		dry			
				24-Sep-81		dry			
1982	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	29-Dec-81		dry	(1) Added a bit of outflow recorded by the USGS on Sep 6, they also noted a HWM of 420.97 (2) Well rose by trace amount on 3/14-17	26-Sep-01	GP/CC
				24-Feb-82		dry			
				25-Mar-82		dry			
				27-Apr-82		dry			
				25-May-82		dry			
				16-Jun-82		dry			
				23-Jun-82		dry			
				28-Jul-82		dry			
				26-Aug-82		dry			
				28-Sep-82	5420.97	dry			
1983	Graphic Recorder	d/s USGS Gage and Outlet Rating	1954	26-Oct-82		dry	(1)There was a small inflow event on 12/23/82 but the float well became stuck. The part of the chart record that appears to work suggests that the event largely began and finished the same day. The USGS reported a HWM of 5422.84. The USGS estimate of daily discharge of 50 cfs for that day seems high considering the low peak water level. (2) Clock dead 12/29-1/26. USGS reported dry conditions during this period.(3) Clock dead 1/31/83-2/20/83. USGS noted a HWM of 5422.98 and outflow 2/8-2/12. The USGS estimates of daily outflow were added to the record. Also, the HWM was added to the record as occurring at 1200 on 2/9. (4) On Feb 27th the float tape became stuck for several hours but	27-Sep-01	GP/CC
				22-Nov-82		dry			
				26-Jan-83		dry			
				20-Feb-83	5422.98	dry, clock stopped			
				29-Mar-83	5445.75	flowing, clock dead			
				26-Apr-83		clock dead, 3/31-4/26 dry			
				24-May-83		dry			
				28-Jun-83		dry			
				26-Jul-83		dry			
				23-Aug-83		dry			
				27-Sep-83		dry			
1984	Graphic	d/s USGS Gage	1954	29-Nov-83		dry	(1) Dry all year except for some small flows in Jul and Aug· (2) Clock non-functional 3/25-4/25, no flows during this period per	27-Sep-01	GP/CC
				28-Dec-83		dry			
				28-Jan-84		dry			
				25-Feb-84		dry			
				25-Mar-84		dry			

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Water Year	Data Source			Field Visits			General Notes	Record Check	
	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
1984	Recorder	and Outlet Rating	1954	25-Apr-84		dry, clock jumped off base	USGS (3) Clock dead 5/10-5/23, no flows during this period per USGS· (4) Recorder dead 9/30-10/7 (5) Well rose by .25' 7/21-22	27-Sep-01	GP/CC
				23-May-84		clock stopped on 5/10			
				20-Jun-84		dry			
				26-Jul-84		dry			
				22-Aug-84		ponded water			
1985	Graphic Recorder	d/s Gage and Outlet Rating	1954	7-Oct-84		dry	(1) Presumed dry all year· (2) Clock stopped and chart at its end on 11/25 so no data 11/26-12/14. No flow at Pine for same period. (3) No data in files for 11/25-2/7/85. No flow at Pine for same period. (4) Well rose by .05' 7/18-19 and by .04 on 9/18-19 (5) COE took over maintenance of d/s gage and equipment at the dam.	27-Sep-01	GP/CC
				14-Dec-84		found clock stopped & chart ran out, small pond			
				7-Feb-85		dry, snow cover			
				4-Jun-84		dry			
1986	Graphic Recorder	d/s Gage and Outlet Rating	1954	20-Oct-85			(1) Well rose by .16' 10/8-9, no outflow· (2) Trace rise in the well on 11/29, 6/3, 7/2, 7/22, 8/13, 8/26, 9/23· (3) A high water mark of 8.7 ft was noted at the d/s station. Per the USGS rating curve that would indicate a peak outflow of 20 cfs. That matches well with the peak outflow of 22 cfs estimated with the outlet rating	27-Sep-01	GP/CC
				1-Apr-86		pond in reservoir but dry by intake			
				30-Apr-86		dry			
				6-Aug-86		dry			
1987	Graphic Recorder	d/s Gage and Outlet Rating	1954	6-Nov-86		dry	No outflow all year but well rose by trace amounts 2/13, 3/13-14, 7/16, & 7/21	27-Sep-01	GP/CC
				24-Feb-87		snowing, reservoir covered with about 1ft of snow			
				21-Apr-87		dry			
				26-Sep-87		dry			
1988	Graphic Recorder	d/s Gage and Outlet Rating	1954	6-Apr-88		small pond in reservoir, away from outlet	No outflow all year but well rose by trace amounts on 10/23-24, 10/31-11/1, 4/18, 4/20-22, 7/28, 8/28.	27-Sep-01	GP/CC
				30-Sep-88		dry			
1989	Graphic Recorder	d/s Gage and Outlet Rating	1954	14-Dec-88		dry	No outflow all year but well rose by trace amounts on 11/14, 3/25, & 5/13	27-Sep-01	GP/CC
				28-Mar-89		dry except for small pond			
1990	Graphic Recorder	d/s Gage and Outlet Rating	1954	14-Oct-89		dry	No outflow all year but well rose by trace amounts on 10/25, 1/14, 4/23, 5/10, 5/28, 5/30, 5/31, 6/13, 8/17-18, 9/25, 9/28. Inconsistent pen inking 7/10-9/23 so missed some trace amounts	6-Apr-91	GP/CC
				28-Mar-90		dry			
				27-Sep-90		Small puddle in basin, no flow			
1991	Graphic Recorder	d/s Gage and Outlet Rating	1954	5-Apr-91		dry	No outflow all year but well rose by trace amounts on 2/27-3/1(>.08'), 5/30-31(>.08'), 7/31, 8/2, 8/4, 9/9	6-Apr-01	GP/CC
1992	Graphic Recorder	d/s Gage and Outlet Rating	1954	25-Oct-91		dry	Float stuck for 8 hours during annual peak (3/4/92). Peak taken from float tape peak indicator. Well rose by trace amounts 1/5(>.08), 2/10-11 (>.08'), and 5/5		GP/CC
				2-May-92		Large pond in basin, no flow			
1993	Graphic Recorder	d/s Gage and Outlet Rating	1954	8-Oct-92		dry	Significant inflow several times Jan-Mar plus well rose by trace amounts 10/30, 12/29, 1/8, 1/10, 1/14, 8/30.		GP/CC
				12-May-93		Small pond in basin, no flow			
1994	Graphic Recorder	d/s Gage and Outlet Rating	1954	13-Oct-92		dry	No outflow all year but well rose by trace amounts on 2/7, 2/17, 4/9, 8/10		GP/CC
				20-May-93		dry			

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	Water Level	Outflow	Elev -Stor Table	Date	HWM	Observation		Date	Who
1995	Graphic Recorder	d/s Gage and Outlet Rating	1954	11-Nov-94		dry	Inflow in Jan, Feb & Mar. On March 14 the float was stuck for 12 hours. Downstream station used to fill in data. Well rose by trace amounts on 10/15, 12/24-25 (+.08'), 1/10-11 (+.08'), 3/10, 4/118, 5/24, 6/16		GP/CC
				27-Jun-95		dry			
1996	Graphic Recorder	d/s Gage and Outlet Rating	1954	15-Nov-95		dry	No outflow all year but well rose by trace amounts on 12/13-14, 2/20		GP/CC
				25-Apr-96		Small pond, no flow			
1997	Graphic Recorder	d/s Gage and Outlet Rating	1954	5-Nov-96		dry	No outflow all year but well rose by trace amounts on 11/21-22(+.08'), 7/20, 9/3, 9/13, 9/25(+.08')		GP/CC
				1-May-97		dry			
1998	Graphic Recorder	d/s Gage and Outlet Rating	1954	21-Oct-97		dry	Significant inflow periods Feb-Apr and well rose trace amount 10/2, 2/7-8, 2/14, 7/6, 8/25, 9/5		GP/CC
				17-Jun-98		Pond in basin, no flow			
1999	Graphic Recorder	d/s Gage and Outlet Rating	1954	17-Nov-98		Small pond, no flow	No outflow all year but well rose by trace amounts on 10/27, 2/9, 6/4, 7/9, 7/15-16, 8/9, 8/30(+.08'), 8/31, 9/1(+.08')		GP/CC
				17-Jun-99		dry			
2000	Graphic Recorder	d/s Gage and Outlet Rating	1954	16-Nov-99		Small pond, no flow	No outflow all year but well rose by trace amounts on 2/20-21(+.08'), 2/23, 3/8, 8/24, 8/29-30(+.08'), 9/1(+.08')		GP/CC
				20-Jun-00		dry			
2001	Graphic Recorder	d/s Gage and Outlet Rating	1954	26-Oct-00		Small pond, no flow	Data logger installed on 10/26. Surveyed datum (DD, GP, CC, BT) of float tape and determined tape was low by .58'. Well rose by trace amounts on 10/30, 1/11, 7/6, 7/14	8-May-02	GP/CC
				31-Jul-01		dry			
2002	Data Logger	d/s Gage and Outlet Rating	1954	8-Apr-02		dry		2-Oct-03	GP/CC
				29-Nov-02		dry			
2003	Data Logger	d/s Gage and Outlet Rating	1954	29-Nov-02		reservoir dry	Data logger installed at the d/s precip gage on 11/29.	9-Mar-04	CC/GP
				15-May-02		reservoir dry			
2004	Data Logger	d/s Gage and Outlet Rating	1954	22-Oct-03		reservoir dry			

MATHEWS CANYON

Elevation-Discharge

Includes Outlet and Spillway Discharge

Ungated Outlet at Elev. 5420 and Spillway Crest at Elev. 5461

Elevation in feet vs. Outflow in cfs

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
5420	0	1	2	3	4	4	5	6	7	8
5421	9	10	12	13	14	15	17	18	19	21
5422	22	24	26	28	30	31	33	35	37	39
5423	41	44	46	49	51	54	57	59	62	64
5424	67	69	72	74	76	78	81	83	85	88
5425	90	91	92	93	94	95	96	97	98	99
5426	100	101	101	102	103	103	104	105	106	106
5427	107	108	108	109	110	110	111	112	113	113
5428	114	115	115	116	117	117	118	119	120	120
5429	121	122	122	123	124	124	125	126	127	127
5430	128	129	129	130	131	131	132	133	134	134
5431	135	136	136	137	137	138	138	139	140	140
5432	141	141	142	143	143	144	144	145	145	146
5433	147	147	148	148	149	149	150	151	151	152
5434	152	153	154	154	155	155	156	156	157	158
5435	158	159	159	160	161	161	162	162	163	163
5436	164	164	165	165	166	166	167	167	168	168
5437	169	169	170	170	170	171	171	172	172	173
5438	173	174	174	175	175	175	176	176	177	177
5439	178	178	179	179	180	180	181	181	181	182
5440	182	183	183	184	184	185	185	186	186	187
5441	187	187	188	188	189	189	190	190	190	191
5442	191	192	192	192	193	193	194	194	195	195
5443	195	196	196	197	197	197	198	198	199	199
5444	200	200	200	201	201	202	202	203	203	203
5445	204	204	205	205	205	206	206	207	207	208
5446	208	208	209	209	210	210	210	211	211	211
5447	212	212	213	213	213	214	214	214	215	215
5448	216	216	216	217	217	217	218	218	219	219
5449	219	220	220	221	221	221	222	222	222	223
5450	223	224	224	224	225	225	225	226	226	227
5451	227	227	228	228	228	229	229	229	230	230
5452	230	231	231	231	232	232	232	233	233	233
5453	234	234	234	235	235	235	236	236	237	237
5454	237	238	238	238	239	239	239	240	240	240

MATHEWS CANYON

Elevation-Discharge

Includes Outlet and Spillway Discharge

Ungated Outlet at Elev. 5420 and Spillway Crest at Elev. 5461

Elevation in feet vs. Outflow in cfs

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
5455	241	241	241	242	242	242	243	243	243	244
5456	244	244	245	245	245	246	246	246	247	247
5457	247	248	248	248	248	249	249	249	250	250
5458	250	251	251	251	252	252	252	253	253	253
5459	254	254	254	255	255	255	256	256	256	256
5460	257	257	257	258	258	258	259	259	259	260
5461	260	275	291	306	321	336	352	267	382	398
5462	413	443	474	504	534	564	595	625	655	686
5463	716	756	797	837	878	918	958	999	1039	1080
5464	1120	1170	1221	1271	1321	1371	1422	1472	1522	1573
5465	1623	1683	1744	1804	1864	1924	1985	2045	2105	2166
5466	2226	2291	2357	2422	2487	2552	2618	2683	2748	2814
5467	2879	2949	3020	3090	3160	3230	3301	3371	3441	3512
5468	3582	3657	3733	3808	3883	3958	4034	4109	4184	4260
5469	4335	4420	4506	4591	4676	4761	4847	4932	5017	5103
5470	5188	5273	5359	5444	5529	5614	5700	5785	5870	5956
5471	6041	6139	6236	6334	6432	6530	6627	6725	6823	6921
5472	7018	7116	7214	7312	7409	7507	7605	7703	7800	7898
5473	7996	8096	8197	8297	8397	8497	8598	8698	8798	8899
5474	8999	9099	9200	9300	9400	9500	9601	9701	9801	9902
5475	10002	10110	10217	10325	10433	10541	10648	10756	10864	10972
5476	11079	11187	11295	11403	11510	11618	11726	11834	11941	12049
5477	12157	12270	12382	12495	12608	12721	12833	12946	13059	13172
5478	13284	13397	13510	13623	13735	13848	13961	14074	14186	14299
5479	14412	14512	14612	14713	14813	14913	15013	15114	15214	15314
5480	15414	15515	15615	15715	15815	15916	16016	16116	16216	16317
5481	16417	16492	16567	16643	16718	16793	16868	16944	17019	17094
5482	17169	17245	17320	17395	17470	17546	17621	17696	17771	17847
5483	17922									

LATEST MATHEWS CANYON DAM CAPACITY

Survey Date August 1954
Elevation in feet vs. Storage in acre-feet

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
5420	20.0	20.8	21.7	22.7	23.6	24.7	25.8	27.0	28.2	29.5
5421	30.8	32.2	33.6	35.1	36.7	38.3	40.0	41.7	43.5	45.3
5422	47.2	49.1	51.2	53.2	55.3	57.5	59.7	62.0	64.4	66.7
5423	69.2	71.7	74.3	76.9	79.6	82.3	85.1	87.9	90.8	93.8
5424	96.8	99.9	103.0	106.2	109.4	112.7	116.0	119.5	122.9	126.4
5425	130.0	133.6	137.4	141.2	145.0	149.0	153.0	157.1	161.3	165.6
5426	169.9	174.3	178.8	183.4	188	192.8	197.6	202.5	207.4	212.5
5427	217.6	222.8	228.1	233.4	238.9	244.4	250.0	255.6	261.4	267.2
5428	273.1	279.1	285.1	291.3	297.5	303.8	310.1	316.6	323.1	329.7
5429	336.4	343.2	350.0	356.9	363.9	371.0	378.1	385.4	392.7	400.0
5430	407.5	415.0	422.6	430.3	438.1	445.9	453.8	461.7	469.7	477.8
5431	486.0	494.2	502.5	510.9	519.4	527.9	536.5	545.1	553.8	562.6
5432	571.5	580.4	589.4	598.5	607.7	616.9	626.2	635.5	644.9	654.4
5433	664.0	673.6	683.3	693.1	703.0	712.9	722.9	732.9	743.0	753.2
5434	763.5	773.8	784.2	794.7	805.3	815.9	826.6	837.3	848.1	859.0
5435	870.0	881.0	892.2	903.4	914.6	926.0	937.4	948.9	960.5	972.2
5436	983.9	995.7	1007.6	1019.6	1031.6	1043.8	1056.0	1068.3	1080.6	1093.1
5437	1105.6	1118.2	1130.9	1143.6	1156.5	1169.4	1182.4	1195.4	1208.6	1221.9
5438	1235.1	1248.5	1261.9	1275.5	1289.1	1302.8	1316.5	1330.4	1344.3	1358.3
5439	1372.4	1386.6	1400.8	1415.1	1429.5	1444.0	1458.5	1473.2	1487.9	1502.6
5440	1517.5	1532.4	1547.5	1562.6	1577.7	1593.0	1608.3	1623.8	1639.3	1654.8
5441	1670.5	1686.2	1702.1	1718.0	1733.9	1750.0	1766.1	1782.4	1798.7	1815.0
5442	1831.5	1848.0	1864.7	1881.4	1898.1	1915.0	1931.9	1949.0	1966.1	1983.2
5443	2000.5	2017.8	2035.3	2052.8	2070.3	2088.0	2105.7	2123.6	2141.5	2159.4
5444	2177.5	2195.6	2213.9	2232.2	2250.5	2269	2287.5	2306.2	2324.9	2343.6
5445	2362.5	2381.4	2400.4	2419.5	2438.6	2457.7	2477.0	2496.3	2515.6	2535.0
5446	2554.5	2574.0	2593.6	2613.3	2633.0	2652.7	2672.6	2692.5	2712.4	2732.4
5447	2752.5	2772.6	2792.8	2813.1	2833.4	2853.7	2874.2	2894.7	2915.2	2935.8
5448	2956.5	2977.2	2998.0	3018.9	3039.8	3060.7	3081.8	3102.9	3124.0	3145.2
5449	3166.5	3187.8	3209.2	3230.7	3252.2	3273.7	3295.4	3317.1	3338.8	3360.6
5450	3382.5	3404.4	3426.5	3448.6	3470.8	3493.1	3515.5	3538	3560.5	3583.2
5451	3605.9	3628.7	3651.6	3674.6	3697.7	3720.9	3744.2	3767.5	3791.0	3814.5
5452	3838.1	3861.8	3885.6	3909.5	3933.4	3957.5	3981.6	4005.9	4030.2	4054.6
5453	4079.1	4103.7	4128.4	4153.1	4178.0	4202.9	4227.9	4253.0	4278.2	4303.5
5454	4328.9	4354.4	4379.9	4405.6	4431.3	4457.1	4483.0	4509.0	4535.1	4561.2
5455	4587.5	4613.8	4640.2	4666.7	4693.2	4719.7	4746.3	4773.0	4799.8	4826.5
5456	4853.4	4880.3	4907.3	4934.3	4961.4	4988.5	5015.7	5043	5070.3	5097.7
5457	5125.1	5152.6	5180.1	5207.7	5235.4	5263.1	5290.9	5318.7	5346.6	5374.6
5458	5402.6	5430.7	5458.8	5487.0	5515.2	5543.5	5571.9	5600.3	5628.8	5657.3
5459	5685.9	5714.5	5743.3	5772.0	5800.8	5829.7	5858.7	5887.7	5916.7	5945.8

LATEST MATHEWS CANYON DAM CAPACITY

Survey Date August 1954
Elevation in feet vs. Storage in acre-feet

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
5460	5975.0	6004.2	6033.5	6062.9	6092.4	6121.9	6151.5	6181.2	6211.0	6240.8
5461	6270.7	6300.7	6330.7	6360.9	6391.1	6421.3	6451.7	6482.1	6512.6	6543.2
5462	6573.8	6604.5	6635.3	6666.2	6697.1	6728.1	6759.2	6790.4	6821.6	6852.9
5463	6884.3	6915.8	6947.3	6978.9	7010.6	7042.3	7074.2	7106.1	7138.0	7170.1
5464	7202.2	7234.4	7266.7	7299.0	7331.4	7363.9	7396.5	7429.1	7461.8	7494.6
5465	7527.5	7560.4	7593.4	7626.5	7659.7	7692.9	7726.2	7759.6	7793.0	7826.5
5466	7860.1	7893.8	7927.5	7961.3	7995.2	8029.1	8063.1	8097.2	8131.4	8165.6
5467	8199.9	8234.3	8268.7	8303.2	8337.8	8372.5	8407.2	8442.0	8476.9	8511.9
5468	8546.9	8582	8617.2	8652.4	8687.7	8723.1	8758.6	8794.1	8829.7	8865.4
5469	8901.1	8936.9	8972.8	9008.8	9044.8	9080.9	9117.1	9153.3	9189.6	9226.0
5470	9262.5	9299.0	9335.6	9372.3	9409.0	9445.8	9482.7	9519.6	9556.5	9593.6
5471	9630.7	9667.9	9705.1	9742.4	9779.8	9817.2	9854.7	9892.2	9929.9	9967.6
5472	10005.3	10043.1	10081.0	10118.9	10156.9	10195.0	10233.1	10271.3	10309.6	10347.9
5473	10386.3	10424.8	10463.3	10501.8	10540.5	10579.2	10618.0	10656.8	10695.7	10734.7
5474	10773.7	10812.8	10851.9	10891.2	10930.5	10969.8	11009.2	11048.7	11088.2	11127.8
5475	11167.5	11207.2	11247.1	11286.9	11326.9	11366.9	11407.1	11447.3	11487.5	11527.9
5476	11568.3	11608.8	11649.4	11690.0	11730.7	11771.5	11812.4	11853.4	11894.4	11935.5
5477	11976.7	12018.0	12059.3	12100.7	12142.2	12183.7	12225.4	12267.1	12308.9	12350.8
5478	12392.7	12434.7	12476.8	12519.0	12561.2	12603.5	12645.9	12688.4	12731.0	12773.6
5479	12816.3	12859.1	12901.9	12944.9	12987.9	13030.9	13074.1	13117.3	13160.7	13204.0
5480	13247.5	13291	13334.6	13378.2	13421.9	13465.7	13509.5	13553.3	13597.2	13641.2
5481	13685.2	13729.2	13773.3	13817.5	13861.7	13906.0	13950.3	13994.7	14039.1	14083.6
5482	14128.2	14172.8	14217.4	14262.1	14306.9	14351.7	14396.5	14441.4	14486.4	14531.4
5483	14576.5									

Rating for Mathews Canyon Wash blw Mathews Canyon Dam

Formerly USGS Gage No. 09418200

Discharge in cubic feet per second (cfs)

Gage Height (ft)	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
7					0	0.1	0.4	0.7	1	1.6
8	2.5	3.7	5.2	7	10	12	16	20	25	31
9	38	46	55	64	71	78	85	92	99	106
10	113	120	127	133	138	143	148	153	158	163
11	168	173	178	183	188	192	196	200	204	208

Notes:

1) USGS Stage-Disharge Rating No. 5
2) Currently maintained by USACOE