DEPARTMENT OF THE ARMY — CORPS OF ENGINEERS

RESERVOIR SEDIMENTATION DATA SUMMARY

JOHN MARTIN RESERVOIR
(formerly Caddoa Reservoir Project)
NAME OF RESERVOIR

48-1
DATA SHEET NO.

DAM

1. OWNER Dept of Army, C. of E.	2. RIVER Arkansas River	3. STATE Colorado
4. SEC. 6,7&8 TWP. 23 S. RANGE 49 W.	5. NEAREST TOWN Caddoa	6. COUNTY Bent
7. STREAM BED ELEV. 3760	8. TOP OF DAM ELEV. 3880	9. SPILLWAY CREST ELEV. 3870 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. SURFACE AREA ACRES	13. STORAGE ACRE-FEET	14. ACCUMULATED ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	3870	18,147	281,150	701,218	
b. POWER					1 Apr 1942
c. WATER SUPPLY					
d. IRRIGATION	3851	12,107	420,068	420,068	16. DATE NORMAL OPER. BEGAN
e. CONSERVATION					
f. INACTIVE			0		11 Mar 1943

17. LENGTH OF RESERVOIR 14.8 MILES — AV. WIDTH OF RESERVOIR 1.9 MILES

WATERSHED

18. TOTAL DRAINAGE AREA 18,933 SQ.MI.		22. MEAN ANNUAL PRECIPITATION (86 yrs) 14.88	INCHES
19. NET SEDIMENT CONTRIBUTING AREA 17,080 SQ.MI.		23. MEAN ANNUAL RUNOFF (35 yrs) 0.33 2/	INCHES
20. LENGTH 206 MILES AV. WIDTH 73 MILES		24. MEAN ANNUAL RUNOFF (35 yrs) 329,478	AC.-FT.
21. MAX. ELEV. 14,000 MIN. ELEV. 3760		25. CLIMATIC CLASSIFICATION Semi-arid	

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA ACRES	32. CAPACITY ACRE-FEET	33. C/W RATIO AC.-FT. PER SQ.MI.
1 Apr 1942					18,147	701,218	37
July 1942	.3	.3	Contour	(D) 5 feet	18,147	690,345	37
Dec 1943	1.4	1.7	Contour	(D) 5 feet	18,147	688,550	36
Sep 1944	.7	2.4	Contour	(D) 5 feet	18,147	683,257	36
May 1948	3.7	6.1	Contour	(D) 5 feet	18,147	675,087	36

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW ACRE-FEET			36. WATER INFL. TO DATE AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
July 1942	9.87			1,114,400		1,114,400
Dec 1943	13.63			394,301	887,471	1,508,701
Sep 1944	13.71			299,794	753,540	1,808,495
May 1948	15.87	258,362		955,940	453,186	2,764,435

26. DATE OF SURVEY	37. PERIOD SEDIMENT DEPOSITS ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ.MI.-YR.	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ.MI.-YR.
July 1942	10,873			10,873		
Dec 1943	1,795			12,668	7,452	.436
Sep 1944	5,293			17,961	7,484	.438
May 1948	8,170	2,208	.129	26,131	4,284	.251

26. DATE OF SURVEY	39. AV. DRY WGT. LBS. PER CU.FT.	40. SED. DEP. TONS PER SQ.MI.-YR.		41. STORAGE LOSS PCT.		42. SED. INFLOW PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANNUAL	b. TO DATE	a. PERIOD	b. TO DATE
July 1942	75.7				1.55	11,836	11,836
Dec 1943	75.7		719	1.06	1.81	5,524	10,186
Sep 1944	75.7		722	1.07	2.56	21,419	12,048
May 1948	75.7	213	414	.61	3.72	10,368	11,467

ENG FORM 1 AUG 49 1787

26. DATE OF SURVEY	43. DEPTH DESIGNATION — RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	110-105	105-100	100-90	90-80	80-70	70-60	60-50	50-40	40-30	30-20	20-10	10-CR'ST
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
July 1942	9	24	51	12	4							
Dec 1943	8	22	52	14	4							
Sep 1944	6	17	35	15	9	13	4	1				
May 1948	4	11	30	17	10	18	7	0	0	1	1	1

26. DATE OF SURVEY	44. REACH DESIGNATION — PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
DATA NOT AVAILABLE DUE TO CONTOUR METHOD OF SEDIMENT COMPUTATION.															

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC-FT.
1942	April flood, during construction, discharged through low monoliths at Elev. 3770						
1943	3800.20	River Flow	255,794	No releases Jan to 16 May. Resv empty after 15 Sep 1943			
1944	3817.62	River Flow	325,801	Storage started Dec 1943 & ended in June 1944			
1945	3804.57	River Flow	212,737	Resv empty on 3 June 1945			
1946	3802.65	River Flow	130,682				
1947	3823.43	River Flow	444,468	Irrigation storage began 7 Nov 1946			
1948	3835.70	River Flow	411,734	Resv empty 3 Oct to 1 Nov 1947			

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
	Acres	Acre-feet		Acres	Acre-feet		Acres	Acre-feet
3870	18,147	675,087	3830	7,440	190,704	3790	2,097	18,112
3860	14,326	513,313	3820	5,946	125,982	3780	831	2,981
3850	11,864	382,661	3810	3,863	75,870	3770	5.4	3
3840	9,530	275,469	3800	2,897	43,398			

47. REMARKS AND REFERENCES Report: Final Report on Sedimentation above Caddoa Dam on the Arkansas River in Colorado, 10 April 1939, E. W. Lane.

1/ Spillway crest at Sill Elevation 3840

2/ This figure affected by considerable water for irrigation taken out above reservoir.

Sediment averaged from all samples secured from reservoir is as follows:

M.I.T. Classification	Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand
Percent	7	6	13	24	32	14	4

48. AGENCY SUPPLYING DATA Dept of the Army, Corps of Engineers, Albuquerque District

49. DATE 22 September 1949

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

RESERVOIR SEDIMENTATION DATA SUMMARY

JOHN MARTIN RESERVOIR (Formerly Caddoa Reservoir Project)

NAME OF RESERVOIR

48-1b

DATA SHEET NO.

DAM

1. OWNER Corps of Engineers	2. RIVER Arkansas	3. STATE Colorado
4. SEC. 6, 7 & 8 TWP. 23S RANGE 49W	5. NEAREST TOWN Caddoa	6. COUNTY Bent
7. STREAM BED ELEV. 3,752.8	8. TOP OF DAM ELEV. 3,883	9. SPILLWAY CREST ELEV. 3,870 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. SURFACE AREA ACRES	13. STORAGE ACRE-FEET	14. ACCUMULATED ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	3,870	17,875	278,639	701,775	1 April 1942
b. POWER					
c. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
d. IRRIGATION	3,851	12,160	423,136	423,136	
e. CONSERVATION					11 March 1943
f. INACTIVE					

17. LENGTH OF RESERVOIR 14.8 MILES — AV. WIDTH OF RESERVOIR 1.9 MILES

WATERSHED

18. TOTAL DRAINAGE AREA 18,933 SQ. MI.	22. MEAN ANNUAL PRECIPITATION (89 yrs.) 14.75 INCHES 2/
19. NET SEDIMENT CONTRIBUTING AREA 17,080 SQ. MI.	23. MEAN ANNUAL RUNOFF (43.6 yrs.) .30 3/ INCHES
20. LENGTH 206 MILES AV. WIDTH 73 MILES	24. MEAN ANNUAL RUNOFF (43.6 yrs.) 307,789 AC.-FT.
21. MAX. ELEV. 14,431 MIN. ELEV. 3,752.8	25. CLIMATIC CLASSIFICATION Semi-arid

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA ACRES	32. CAPACITY ACRE-FEET	33. C/W RATIO AC.-FT. PER SQ. MI
1 Apr. 1942			Contour		17,875	701,775	37
Jul. 1942	.3	.3	"	5 ft.		690,345	37
Dec. 1943	1.4	1.7	"	"		688,550	36
Sep. 1944	.7	2.4	"	"		683,257	36
May 1948	3.7	6.1	"	"		675,097	36
Oct. 1951	3.4	9.5	Range	"		662,870	35
Aug. 1957	5.7	15.2	Range	"	17,875	645,512	34

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW ACRE-FEET a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	36. WATER INFL. TO DATE AC.-FT. a. MEAN ANNUAL	b. TOTAL TO DATE
1 Apr. 1942	Inches					
Jul. 1942	9.87			1,114,400		1,114,400
Dec. 1943	13.63			394,301	887,471	1,508,701
Sep. 1944	13.71			299,794	753,540	1,808,495
May 1948	15.87			955,940	453,186	2,764,435
Oct. 1951	10.60			839,287	379,339	3,603,722
Aug. 1957				1,314,957	323,597	4,918,679

26. DATE OF SURVEY	37. PERIOD SEDIMENT DEPOSITS ACRE-FEET a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YR	38. TOTAL SED. DEPOSITS TO DATE ACRE-FEET a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI-YR.
1 Apr. 1942						
Jul. 1942	11,430			11,430		
Dec. 1943	1,795			13,225	7,779	.455
Sep. 1944	5,293			18,518	7,716	.452
May 1948	8,170	2,208	.129	26,688	4,375	.256
Oct. 1951	12,217	3,593	.210	38,905	4,095	.240
Aug. 1957	17,358	3,045	.178	56,263	3,702	.217

26. DATE OF SURVEY	39. AV. DRY WGT. LBS. PER CU. FT.	40. SED. DEP. TONS PER SQ. MI.-YR. a. PERIOD	b. TOTAL TO DATE	41. STORAGE LOSS PCT. a. AV. ANNUAL	b. TO DATE	42. SED. INFLOW PPM a. PERIOD	b. TO DATE
1 Apr. 1942							
Jul. 1942	75.7 (Est.)				1.63	12,443	12,443
Dec. 1943	75.7		750	1.1	1.88	5,524	10,186
Sep. 1944	75.7		742	1.1	2.64	21,419	12,048
May 1948	75.7	213	422	.6	3.80	10,368	11,467
Oct. 1951	75.7	346	396	.6	5.54	17,659	13,097
Aug. 1957	75.7	293	358	.5	8.02	16,014	13,877

ENG FORM 1787
1 AUG 49

26. DATE OF SURVEY	43. DEPTH DESIGNATION — RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	117.2-110	110-100	100-90	90-80	80-70	70-60	60-50	50-40	40-30	30-20	20-10	10-Crest
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
1 Apr. 1942												
Jul. 1942	3	30	51	12	4							
Dec. 1943	3	27	52	14	4							
Sep. 1944	2	21	35	15	9	13	4	1				
May 1948	1	14	30	17	10	18	7	0	0	1	1	1
Oct. 1951	1	12	23	15	13	14	13	7	3	-1	0	0
Aug. 1957	1	7	18	22	13	12	12	8	5	1	1	0

26. DATE OF SURVEY	44. REACH DESIGNATION — PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR													
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION													
	Data on previous surveys not available due to Contour Method of computation													
Oct. 1951	25	17	15	20	13	7	3	0	0	0				
Aug. 1957	28	23	5	22	6	8	7	1	0	0				

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC-FT	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT
1943	3800.20	River Flow	255,794	1951	3811.41	3792.55	172,443
1944	3817.62	3779.50	325,801	1952	3802.97	River Flow	137,105
1945	3804.57	River Flow	212,737	1953	3792.79	" "	159,956
1946	3802.65	" "	130,682	1954	3799.96	" "	120,598
1947	3823.43	" "	444,468	1955	3837.90	" "	341,805
1948	3835.70	3791.60	412,743	1956	3806.50	" "	107,272
1949	3834.80	3817.10	257,741	1957	3844.34	" "	453,760
1950	3825.46	3796.25	156,125				

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3,870	17,875	645,512				3,790	1,450	9,126
3,860	14,326	485,644				3,780	245	448
3,850	11,799	355,047				3,770	4	2
3,840	9,415	249,115						
3,830	7,220	165,986						
3,820	5,223	103,939						
3,810	3,630	60,035						
3,800	2,560	29,216						

47. REMARKS AND REFERENCES

1/ Item 9. - Spillway Crest at Sill 3,840.

2/ Item 22. - Rainfall Data has not been determined for 1951-1957 period and figures used are the same as the 1951 Average.

3/ Item 23. - This figure affected by considerable water for irrigation taken out above reservoir.

48. AGENCY SUPPLYING DATA: Corps of Engineers, Southwestern Division, Albuquerque District, Albuquerque, New Mexico

49. DATE: December 1958

ENG FORM 1787
1 AUG 49

RESERVOIR SEDIMENT DATA SUMMARY

JOHN MARTIN RESERVOIR
(formerly Caddoa Reservoir Project)
NAME OF RESERVOIR

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

48-1c
DATA SHEET NO.

DAM

1. OWNER: Corps of Engineers	2. STREAM: Arkansas River	3. STATE: Colorado
4. SEC. 6,7&8 TWP. 23 S RANGE 49 W	5. NEAREST TOWN: Caddoa	6. COUNTY: Bent
7. STREAM BED ELEVATION: 3,752.8	8. TOP OF DAM ELEVATION: 3,883	9. SPILLWAY CREST ELEV.: 3,870 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA ACRES	13. ORIGINAL CAPACITY ACRE-FEET	14. GROSS STORAGE ACRE-FEET	15. DATE STORAGE BEGAN
a. MULTIPLE USE					
b. FLOOD CONTROL	3,870	17,875	278,639	701,775	1 April 1942
c. POWER					
d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
e. IRRIGATION	3,851	12,160	423,136	423,136	
f. CONSERVATION					
g. SEDIMENT					11 March 1943
h. INACTIVE					

17. LENGTH OF RESERVOIR: 14.8 MILES — AV. WIDTH OF RESERVOIR: 1.9 MILES

WATERSHED

18. TOTAL DRAINAGE AREA	18,933 SQ. MI.	22. MEAN ANNUAL PRECIPITATION	(89 yr) 14.75 INCHES 2/
19. NET SEDIMENT CONTRIBUTING AREA	17,080 SQ. MI.	23. MEAN ANNUAL RUNOFF	(48 yr) 0.29 INCHES 3/
20. LENGTH 206 MILES	AV. WIDTH 73 MILES	24. MEAN ANNUAL RUNOFF	(48 yr) 292,775 AC.-FT.
21. MAX. ELEV. 14,431	MIN. ELEV. 3,752.8	25. CLIMATIC CLASSIFICATION	Semi-arid

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA ACRES	32. CAPACITY ACRE-FEET	33. C/W RATIO AC.-FT. PER SQ. MI.
1 Apr 1942			Contour		17,875	701,775	37
Jul 1942	0.3	0.3	"	5 Ft.	"	690,345	37
Dec 1943	1.4	1.7	"	"	"	688,550	36
Sep 1944	0.7	2.4	"	"	"	683,257	36
May 1948	3.7	6.1	"	"	"	675,097	36
Oct 1951	3.4	9.5	Range	"	"	662,870	35

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW ACRE-FEET			36. WATER INFL. TO DATE AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
	Inches					
Jul 1942	9.87			1,114,400		1,114,400
Dec 1943	13.63			394,301	887,471	1,508,701
Sep 1944	13.71			299,794	753,540	1,808,495
May 1948	15.87			955,940	453,186	2,764,435
Oct 1951	10.60			839,287	379,339	3,603,722

26. DATE OF SURVEY	37. PERIOD SEDIMENT DEPOSITS ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE ACRE-FEET.		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Jul 1942	11,430			11,430		
Dec 1943	1,795	1,282	0.075	13,225	7,779	0.455
Sep 1944	5,293	7,561	0.443	18,518	7.716	0.452
May 1948	8,170	2,208	0.129	26,688	4,375	0.256
Oct 1951	12,217	3,593	0.210	38,905	4,095	0.240

26. DATE OF SURVEY	39. AV. DRY WGT. LBS. PER CU. FT.	40. SED. DEP. TONS PER SQ. MI.-YR.		41. STORAGE LOSS PCT.		42. SED. INFLOW PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. AN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
July 1942	75.7 (Est)				1.63	12,443	12,443
Dec 1943	75.7	124	750	1.11	1.88	5,523	10,186
Sep 1944	75.7	730	742	1.10	2.64	21,419	12,048
May 1948	75.7	213	422	0.62	3.80	10,368	11,467
Oct 1951	75.7	346	396	0.58	5.54	17,659	13,097

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	1172-110	110-100	100-90	90-80	80-70	70-60	60-50	50-40	40-30	30-20	20-10	10-00
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
	3753-60	60-70	70-80	80-90	90-3800	3800-10	10-20	20-30	30-40	40-50	50-60	60-70
Jul 1942	3	30	51	12	4							
Dec 1943	3	27	52	14	4							
Sep 1944	2	21	35	15	9	13	4	1				
May 1948	1	14	30	17	10	18	7	0	0	1	1	1
Oct 1951	1	12	23	15	13	14	13	7	3	-1	0	0

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
	Data on previous surveys not available due to Contour Method of computation.														
Oct 1951	25	17	15	20	13	7	3	0	0	0					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1943	3800.20	River Flow	255,794				
1944	3817.62	3779.50	325,801				
1945	3804.57	River Flow	212,737				
1946	3802.65	" "	130.682				
1947	3823.43	" "	444,468				
1948	3835.70	3791.60	412,743				
1949	3834.80	3817.10	257,741				
1950	3825.46	3796.25	156,125				
1951	3811.41	3792.55	172,443				

46. ELEVATION–AREA–CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY

47. REMARKS AND REFERENCES

1/ Item 9 - Spillway Crest at Sill 3,840

2/ Item 22 - Rainfall Data has not been determined for 1951-1962 period and figures used are the same as the 1951 Average.

3/ Item 23 - This figure affected by considerable water for irrigation taken out of reservoir.

48. AGENCY MAKING SURVEY

49. AGENCY SUPPLYING DATA

50. DATE October 1962

RESERVOIR SEDIMENT DATA SUMMARY

JOHN MARTIN RESERVOIR
(formerly Caddoa Reservoir Project)
NAME OF RESERVOIR

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

48-1c
DATA SHEET NO.

DAM

1. OWNER: Corps of Engineers	2. STREAM: Arkansas River	3. STATE: Colorado
4. SEC. 6,7&8 TWP. 23 S RANGE 49 W	5. NEAREST TOWN: Caddoa	6. COUNTY: Bent
7. STREAM BED ELEVATION: 3,752.8	8. TOP OF DAM ELEVATION: 3,883	9. SPILLWAY CREST ELEV.: 3,870 [1/]

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA ACRES	13. ORIGINAL CAPACITY ACRE-FEET	14. GROSS STORAGE ACRE-FEET	15. DATE STORAGE BEGAN
a. MULTIPLE USE					
b. FLOOD CONTROL					
c. POWER					
d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
e. IRRIGATION					
f. CONSERVATION					
g. SEDIMENT					
h. INACTIVE					

WATERSHED

17. LENGTH OF RESERVOIR: MILES		AV. WIDTH OF RESERVOIR: MILES	
18. TOTAL DRAINAGE AREA: SQ. MI.		22. MEAN ANNUAL PRECIPITATION: INCHES	
19. NET SEDIMENT CONTRIBUTING AREA: SQ. MI.		23. MEAN ANNUAL RUNOFF: INCHES	
20. LENGTH: MILES	AV. WIDTH: MILES	24. MEAN ANNUAL RUNOFF: AC.-FT.	
21. MAX. ELEV.	MIN. ELEV.	25. CLIMATIC CLASSIFICATION	

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA ACRES	32. CAPACITY ACRE-FEET	33. C/W RATIO AC.-FT. PER SQ. MI.
Aug 1957	5.7	15.2	Range	5 Ft	17,875	645,512	34
Mar 1962	4.6	19.8	"	"	"	642,390	34

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW ACRE-FEET			36. WATER INFL. TO DATE AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
Aug 1957				1,314,957	323,597	4,918,679
Mar 1962				652,396	281,367	5,571.075

26. DATE OF SURVEY	37. PERIOD SEDIMENT DEPOSITS ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE ACRE-FEET.		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Aug 1957	17,358	3,045	0.178	56,263	3,702	0.217
Mar 1962	3,122	679	0.0398	59,385	2,999	0.176

26. DATE OF SURVEY	39. AV. DRY WGT. LBS. PER CU. FT.	40. SED. DEP. TONS PER SQ. MI.-YR.		41. STORAGE LOSS PCT.		42. SED. INFLOW PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. AN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
Aug 1957	75.7 (Est)	293	358	0.53	8.02	16,014	13,877
Mar 1962	75.7	65.6	290	0.43	8.46	5,805	12,932

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	1172-110	110-100	100-90	90-80	80-70	70-60	60-50	50-40	40-30	30-20	20-10	10-00
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
	3753-60	60-70	70-80	80-90	90-3800	3800-10	10-20	20-30	30-40	40-50	50-60	60-70
Aug 1957	1	7	18	22	13	12	12	8	5	1	1	0
Mar 1962	1	7	18	19	11		11	8	6	5	2	1

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Aug 1957	28	23	5	22	6	8	7	1	0	0					
Mar 1962	22	17	13	16	11	9	7	3	1	1					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1952	3802.97	River Flow	137,105	1961	3797.23	River Flow	136,636
1953	3792.79	" "	159,956	1962	3802.06	" "	57,617 4/
1954	3798.96	" "	120,598				
1955	3837.90	" "	341,805				
1956	3806.50	" "	107,272				
1957	3844.34	" "	453,760				
1958	3850.44	3836.38	271,008				
1959	3841.65	River Flow	60,136				
1960	3809.11	" "	120,822				

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3,870	17,875	642,390	3,830	7,210	166,908	3,790	1,572	8,648
3,860	14,326	482,522	3,820	5,292	104,584	3,780	120	344
3,850	11,690	352,624	3,810	3,618	60,577	3,770	4	9
3,840	9,190	248,415	3,800	2,536	29,904			

47. REMARKS AND REFERENCES

4/ Item 45 - Through March 1962.

48. AGENCY MAKING SURVEY

49. AGENCY SUPPLYING DATA CE

50. DATE October 1962

RESERVOIR SEDIMENT DATA SUMMARY

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

JOHN MARTIN RESERVOIR
(formerly Caddoa Reservoir Project)
NAME OF RESERVOIR

48-1d
DATA SHEET NO.

(Data prior to Mar 62 published on ENG Form 1787 dtd Jun 63)

DAM

1. OWNER Corps of Engineers	2. STREAM Arkansas	3. STATE Colorado
4. SEC. 6,7,&8 TWP. 23S RANGE 49W	5. NEAREST P.O. Hasty	6. COUNTY Bent
7. LAT. 38° 04' 05" LONG. 102° 56' 13"	8. TOP OF DAM ELEVATION 3,880	9. SPILLWAY CREST ELEV. 3,870 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	3,870	17,875	278,639	701,775	1 April 1942
b. MULTIPLE USE					
c. POWER					
d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
e. IRRIGATION	3,851	12,160	423,136	423,136	
f. CONSERVATION					11 March 1943
g. INACTIVE					

17. LENGTH OF RESERVOIR 14.8 MILES | AV. WIDTH OF RESERVOIR 1.9 MILES

WATERSHED

18. TOTAL DRAINAGE AREA 18,915 2/ SQ. MI.		22. MEAN ANNUAL PRECIPITATION (89 yrs) 14.75 INCHES 3/	
19. NET SEDIMENT CONTRIBUTING AREA 18,102 2/ SQ. MI.		23. MEAN ANNUAL RUNOFF (54.7 yrs) 0.28 INCHES 4/	
20. LENGTH 206 MILES	AV. WIDTH 92 MILES	24. MEAN ANNUAL RUNOFF (54.7 yrs) 283,642 AC.-FT.	
21. MAX. ELEV. 14,431	MIN. ELEV. 3,752.8	25. ANNUAL TEMP. MEAN	RANGE

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I. RATIO, AC.-FT. PER AC.-FT.
Mar 1962	4.6	19.8	Constant Factor	5 ft.	17,875	642,390	2.26
Sep 1966	4.5	24.3	Constant Factor	5 ft.	17,881	631,121	2.22
Aug 1968	1.9	26.3	Contour	5 ft.	17,880	618,668	2.18

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
Mar 1962				652,396	281,367	5,571,075
Sep 1966		258,552	678,960	1,163,484	277,142	6,734,559
Aug 1968				276,451	266,578	7,011,010

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Mar 1962	3,122	679	0.0398	59,385	2,999	0.176
Sep 1966	11,269	2,504	0.147	70,654	2,908	0.170
Aug 1968	12,453	6,554	0.362	83,107	3,160	0.175

26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW, PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
Mar 1962	75.7 (Est)	65.6	290	0.43	8.46	5,805	12,932
Sep 1966	75.7 (Est)	242	280	0.41	10.07	11,750	12,727
Aug 1968	75.7 (Est)	597	288	0.45	11.84	54,653	14,380

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION											
	117.2-110	110-100	100-90	90-80	80-70	70-60	60-50	50-40	40-30	30-20	20-10	10-crest
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Mar 1962	1	7	18	19	11	11	11	8	6	5	2	1
Sep 1966	1	6	15	20	13	10	11	10	6	5	2	1
Aug 1968	2	6	13	18	10	8	9	11	5	7	7	4

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR													
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Mar 1962	22	17	13	16	11	9	7	3	1	1					
Sep 1966	21	17	14	14	12	9	7	4	1	1					
Aug 1968	22	13	12	13	13	10	9	5	2	1					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1962	3,802.50	River Flow	170,215				
1963	3,797.25	River Flow	90,433				
1964	3,792.50	River Flow	59,716				
1965	3,856.16	River Flow	678,960				
1966	3,851.98	3,831.10	221,721				
1967	3,834.20	3,805.78	149,255				
1968	3,806.64	River Flow	137,760				

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3,870	17,880	618,668	3,830	6,874	156,019	3,790	1,172	4,496
3,860	13,911	461,963	3,820	4,897	97,068	3,780	28	120
3,850	11,313	336,197	3,810	3,626	54,614	3,770	3	7
3,840	8,953	234,979	3,800	2,602	23,606	3,760	0	0

47. REMARKS AND REFERENCES

1/ Item 9. - Spillway Crest at Sill 3,840

2/ **Drainage area adjusted to conform with the USGS published drainage area.**

3/ Item 22. - Rainfall data have not been determined for 1951-1968 period and figures used are the same as the 1951 average.

4/ Item 23. - This figure affected by considerable water for irrigation taken out above reservoir.

48. AGENCY MAKING SURVEY Corps of Engineers, Albuquerque District

49. AGENCY SUPPLYING DATA Southwestern Division

50. DATE Revised January 1972

RESERVOIR SEDIMENT
DATA SUMMARY

John Martin
NAME OF RESERVOIR

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

48 - 1e
DATA SHEET NO.

DAM

1. OWNER Corps of Engineers	2. STREAM Arkansas	3. STATE Colorado
4. SEC. 6,7,8 TWP. 23S RANGE 49W	5. NEAREST P.O. Hasty 3.2 SE	6. COUNTY Bent
7. LAT. 38° 04'05" LONG 102° 56'13"	8. TOP OF DAM ELEVATION 3,880	9. SPILLWAY CREST ELEV. 3,870 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	3,870	17,875	278,639	701,775	
b. MULTIPLE USE					1 Apr 1942
c. POWER					
d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
e. IRRIGATION	3,851	12,160	423,136	423,136	
f. CONSERVATION					11 Mar 1943
g. INACTIVE					

17. LENGTH OF RESERVOIR	16.7 MILES	AV. WIDTH OF RESERVOIR	1.7 MILES

WATERSHED

18. TOTAL DRAINAGE AREA	2/ 18,130 SQ. MI.	22. MEAN ANNUAL PRECIPITATION	10.0 INCHES
19. NET SEDIMENT CONTRIBUTING AREA	3/ 9,090 SQ. MI.	23. MEAN ANNUAL RUNOFF	0.23 INCHES 4/
20. LENGTH 206 MILES	AV. WIDTH 92 MILES	24. MEAN ANNUAL RUNOFF	226,343 AC.-FT. 4/
21. MAX. ELEV. 14,431	MIN. ELEV. 3,752.8	25. ANNUAL TEMP MEAN 44.6°F	RANGE 32.8°-54.3°F

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I RATIO, AC.-FT. PER AC.-FT.
Mar 1962	4.6	19.8	Constant Factor	5	17,875	642,390	2.26
Sep 1966	4.5	24.3	Constant Factor	5	17,881	631,121	2.22
Aug 1968	1.9	26.3	Contour	5	17,880	618,668	2.18
Mar 1972	3.7	30.0	Constant Factor	5	17,630	621,326	2.19
Jun 1980	8.3	38.3	Range	11	17,670	615,505	2.72

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
Mar 1962				652,396	281,367	5,571,075
Sep 1966		258,552	678,960	1,163,484	277,142	6,734,559
Aug 1968				276,451	266,578	7,011,010
Mar 1972		143,643	179,674	531,479	251,416	7,542,489
Jun 1980	8.4 - 17.8	135,718	269,432 5/	1,126,462	226,343	8,668,951

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Mar 1962	3,122	679	0.040	59,385	2,999	0.176
Sep 1966	11,269	2,504	0.147	70,654	2,908	0.170
Aug 1968	12,453	6,554	0.362	83,107	3,160	0.175
Mar 1972	-2,658 (Gain)	- 718 (Gain)	0.040 (Gain)	80,449	2,682	0.148
Jun 1980	5,821	701	.077 7/	86,270	2,252	.248 7/

26. DATE OF SURVEY	39. AV. DRY WGT., LBS PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED INFLOW, PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
Mar 1962	75.7 (Est.)	65.6	290	0.43	8.46	5,805	12,932
Sep 1966	75.7 (Est.)	242.	280	0.41	10.07	11,750	12,727
Aug 1968	75.7 (Est.)	597.	288	0.45	11.84	54,653	14,380
Mar 1972	75.7 (Est.)	6/	244	0.38	11.46	6/	12,940
Jun 1980	75.7 (Est.)	127 7/	409 7/	.32	12.29	1,256,108 8/	753,337 8/

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION											
	117.2 - 110	110 - 100	100 - 90	90 - 80	80 - 70	70 - 60	60 - 50	50 - 40	40 - 30	30 - 20	20 - 10	10 - Crest
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Mar 1962	1	7	18	19	11	11	11	8	6	5	2	1
Sep 1966	1	6	15	20	13	10	11	10	6	5	2	1
Aug 1968	2	6	13	18	10	8	9	11	5	7	7	4
Mar 1972	0	5	13	18	12	7	10	9	7	7	6	6
Jun 1980	0	0	2	50	21	21	18	-12	-6	15	-9	0

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR													
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Mar 1962	22	17	13	16	11	9	7	3	1	1					
Sep 1966	21	17	14	14	12	9	7	4	1	1					
Aug 1968	22	13	12	13	13	10	9	5	2	1					
Mar 1972	21	13	12	13	14	9	9	6	2	1					
Jun 1980	18	2	15	31	47	1	-5	-7	-2						

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1962	3,802.50	Riverflow	170,215	1973	3,809.95	Riverflow	151,410
1963	3,797.25	Riverflow	90,433	1974	3,802.61	Riverflow	100,768
1964	3,792.50	Riverflow	59,716	1975	3,792.41	Riverflow	93,605
1965	3,856.16	Riverflow	678,960	1976	3,793.24	Riverflow	70,201
1966	3,851.98	3,831.10	221,721	1977	3,798.61	Riverflow	102,761
1967	3,834.20	3,805.78	149,255	1978	3,793.75	Riverflow	109,335
1968	3,806.64	Riverflow	137,760	1979	3,796.48	Riverflow	143,603
1969	3,801.13	Riverflow	158,669	1980	3,832.79	Riverflow	269,432
1970	3,810.88	Riverflow	179,674				
1971	3,804.11	Riverflow	143,882				
1972	3,800.79	Riverflow	124,037				

46. ELEVATION-AREA-CAPACITY DATA (1982)

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3,870	17,670	615,505	3,835	7,873	191,021	3,800	2,585	21,829
3,865	15,500	533,261	3,830	7,036	153,746	3,795	1,931	11,109
3,860	14,015	460,124	3,825	6,023	121,432	3,790	1,118	3,376
3,855	12,680	393,680	3,820	4,923	94,360	3,785	302	448
3,850	11,325	333,814	3,815	4,272	71,676	3,780	12	54
3,845	9,988	280,342	3,810	3,589	52,298	3,775	8	4
3,840	8,955	232,942	3,805	3,054	35,752	3,770	0	0

47. REMARKS AND REFERENCES

1/ Item 9 - Spillway crest at sill 3,840.
2/ Item 18 - 18,915 mi^2 total less closed basin areas (--785mi^2) = 18130 mi^2
3/ Item 19 - The watershed's sediment contributing area reevaluated in Jan 81
4/ Items 23 & 24 - Runoff affected by considerable irrigation above reservoir
5/ Item 35b - Partial water year
6/ Items 40a & 42a - Due to inward erosion, results are negative
7/ Items 37c, 38c, 40a, 40b - New net sediment contributing area used.
8/ Revised computation formula used

48 AGENCY MAKING SURVEY U.S. Army Corps of Engineers
49 AGENCY SUPPLYING DATA Albuquerque District
50 DATE _____

RESERVOIR SEDIMENT DATA SUMMARY

Table 6

John Martin

NAME OF RESERVOIR

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

48-1f

DATA SHEET NO.

DAM

1. OWNER Corps of Engineers	2. STREAM Arkansas	3. STATE Colorado
4. SEC. 6,7,8 TWP. 23S RANGE 49W	5. NEAREST P.O. Hasty	6. COUNTY Bent
7. LAT 38° 04'05" LONG 102° 56' 13"	8. TOP OF DAM ELEVATION 3,880	9. SPILLWAY CREST ELEV. 3,870. 1/

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	3870	17,875	278,639	701,775	1 Apr 42
b. MULTIPLE USE					
c. POWER					
d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN
e. IRRIGATION	3851	12,160	423,136	423,136	11 Mar 43
f. CONSERVATION					
g. INACTIVE					

WATERSHED

17. LENGTH OF RESERVOIR 16.7 MILES		AV. WIDTH OF RESERVOIR 1.7	MILES
18. TOTAL DRAINAGE AREA 2/ 18,130	SQ. MI	22. MEAN ANNUAL PRECIPITATION 11.56 (43 yrs)	INCHES
19. NET SEDIMENT CONTRIBUTING AREA 3/ 9,090	SQ. MI	23. MEAN ANNUAL RUNOFF 0.25	INCHES 4/
20. LENGTH 206 MILES	AV. WIDTH 92 MILES	24. MEAN ANNUAL RUNOFF 238,102 (44.38)	AC.-FT. 4/
21. MAX. ELEV. 14,431	MIN. ELEV. 3,752.8	25. ANNUAL TEMP. MEAN 48.8 RANGE 32 - 70 F	

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE FEET	33. C/I RATIO, AC.-FT. PER AC. FT.
Jun 1980	8.3	38.3	Range	11	17,151*	615,505	2.72
Jul 1986	6.08	44.38	Range	18	17,151	608,245	2.55

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
Jun 1980	8.4 - 17.8	135,718	269,432 5/	1,126,462	226,343	8,668,951
Jul 1986	13.45	312,170	511,106	1,897,995	238,102	10,566,946

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI. YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Jun 1980	5,821	701	0.077 7/	86,270	2,252	0.248 7/
Jul 1986	7,260	1,194	0.13	93,530	2,107	0.232

26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW, PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
Jun 1980	75.7 (Est)	127 7/	409 7/	.32	12.29	6,259 8/	12,073 8/ 6/
Jul 1986	74.5	172	376	.30	13.33	3,685	10,568

★ *Previous surface area on ENG Form 1787 for June 1980 is incorrect.*

ENG FORM 1787 NOV 66

PREVIOUS EDITIONS ARE OBSOLETE.

26. DATE OF SURVEY	43 DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEV.											
	90-80	80-70	70-60	60-50	50-40	40-30	30-20	20-10	10-crest	crest-+10		
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Jun 1980	0	0	2	50	21	21	18	-12	-6	-15	-9	0
Jul 1986	13.50	32.80	17.74	11.72	8.51	3.14	2.13	10.45	0	0		

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR														
N.69	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Jun 1980	18	2	15	31	47	1	-5	-7	-2						
Jul 1986	6.8	6.7	38.6	19.7	9.00	1.5	9.1	8.7		0					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1980	3832.79	River Flow	308,663				
1981	3815.11	3795.70	165,330				
1982	3810.22	3794.30	211,679				
1983	3838.29	3795.22	378,894				
1984	3837.49	3814.01	399,178				
1985	3852.40	3828.67	511,106				
1986	3850.28	3835.62	192,577				

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3870	17,151	608,245	3825	5,950	115,651	3780	11	14
3865	15,500	526,004	3820	4,861	88,860	3778	0	0
3860	14,015	452,864	3815	4,094	66,897			
3855	12,529	386,420	3810	3,513	47,649			
3850	11,207	327,313	3805	2,901	31,419			
3845	9,996	274,037	3800	2,291	18,468			
3840	8,975	226,596	3795	1,667	8,508			
3835	7,887	184,517	3790	805	2,396			
3830	6,845	147,628	3785	249	196			

47. REMARKS AND REFERENCES

1/ Item 9 - Spillway crest at sill 3,840.
2/ Item 18 - 18,995 mi^2 total less closed basin areas (--785mi^2) 18,130 mi^2.
3/ Item 19 - The watershed's sediment contributing area reevaluated in Jan 81.
4/ Items 23 & 24 - Runoff affected by considerable irrigation above reservoir

5/ Item 35 b- partial water year.
6/ Items 42a and 42b values based on formulas in EM 1110-2-4000.
7/ Items 37c, 38c, 40a, 40b, - new net sediment contributing area used.
8/ Revised computation for 1980 based on EM 1110-2-4000
9/ Item 43 - Depth Designation for 1986 survey

48. AGENCY MAKING SURVEY

49. AGENCY SUPPLYING DATA

50. DATE _____