

U.S. DEPARTMENT OF AGRICULTURE  
**RESERVOIR SEDIMENTATION  
DATA SUMMARY**

Cow Bayou No. 3

SOIL CONSERVATION SERVICE  
53 - 33  
DATA SHEET NO.

DAM		1. OWNER <b>Mangrum</b>		2. RIVER Trib. So. Fk. Cow Bayou		3. STATE <b>Texas</b>		
		4. SEC. TWP. RANGE		5. NEAREST TOWN <b>Moody</b>		6. COUNTY <b>McLennan</b>		
		7. STREAM BED ELEV. <b>654.0</b>		8. TOP OF DAM ELEV. <b>689.0</b>		9. SPILLWAY CREST ELEV. <b>684.0</b>		
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	684.0	49.3	335.2	458.5	Nov. 1, 1955		
	b. POWER							
	c. WATER SUPPLY							
	d. IRRIGATION					16. DATE NORMAL OPER. BEGAN		
	e. CONSERVATION	673.4	16.8	123.3	123.3			
	f. INACTIVE							
17. LENGTH OF RESERVOIR		0.576 <sup>1/</sup>		MILES		AV. WIDTH OF RESERVOIR 0.134 MILES		
WATERSHED	18. TOTAL DRAINAGE AREA		1.400		SQ. MI.		22. MEAN ANNUAL PRECIPITATION 32.95 INCHES	
	19. NET SEDIMENT CONTRIBUTING AREA		1.323		SQ. MI.		23. MEAN ANNUAL RUNOFF 5.0 INCHES	
	20. LENGTH		1.52		MILES		AV. WIDTH 1.17 MILES	
	24. MEAN ANNUAL RUNOFF		267 ac. ft. / sq. mi.		AC-FT.			
21. MAX. ELEV. 750.0		MIN. ELEV. 654.0		25. CLIMATIC CLASSIFICATION <b>Humid</b>				
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 <sub>w</sub> RATIO AC-FT. PER SQ. MI.
	2/ 11-1-55	-	-	Range Detail	12	49.3	458.5	327.5
	3/ 11-1-55	-	-	"	12	16.8	123.3	88.1
	2/ 8-1-60	4.75	4.75	"	12	49.3	393.3	280.9
	3/ 8-1-60	4.75	4.75	"	12	14.3	78.9	56.4
	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	
	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	
11-1-55	-	-	-	-	-	-	-	
2/ 8-1-60	65.2	13.73	10.38	65.2	13.73	10.38		
3/ 8-1-60	44.4	9.35	7.07	44.4	9.35	7.07		
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. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE	
3/ 8-1-60	50.24 (3)	7736.26	7736.26	2/ 2.99	2/ 14.22			
8-1-60				3/ 7.58	3/ 36.01			

1/ Length of north arm = 0.534 miles  
2/ Both pools  
3/ Sediment pool only.

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION													
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													

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														

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
664.0	3.3	4.2	673.4	14.3	78.9	682.0	40.9	303.6
666.0	5.4	12.9	674.0	16.4	88.1	684.0	49.3	393.3
668.0	7.0	25.3	676.0	20.5	125.3	686.0	55.8	498.4
670.0	8.4	40.6	678.0	26.2	172.0	688.0	64.8	618.7
672.0	11.5	60.8	680.0	32.4	230.9			

47. REMARKS AND REFERENCES  
 Land Use: Cultivated 63%; formerly cultivated, 16%; pasture, 21%.  
 Geology: Cretaceous, Gulf series, Eagle Ford shale.  
 Average C/I ratio = 1.14  
 Estimated trap efficiency = 97%.  
 Total Annual Sediment Load, Adjusted for trap efficiency = 10.70 ac.ft./sq.mi. 2/  
 7.29 ac.ft./sq.mi. 3/

48. AGENCY SUPPLYING DATA      Soil Conservation Service  
    Temple, Texas

49. DATE      January 16, 1961



26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											

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														

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV. ♡	INFLOW AC.-FT.

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
Elevation - Area - Capacity Data on attached sheet.								

47. REMARKS AND REFERENCES

1/ Length of north arm = 0.53 miles.  
 2/ Both pools  
 3/ Sediment pool only.

Land Use: Cultivated, 38%; formerly cultivated, 25%; pasture, 37%.  
 Geology: Cretaceous, Gulf Series, Eagle Ford Shale.  
 Physiographic Area: Black Prairie.

48. AGENCY MAKING SURVEY Soil Conservation Service  
 49. AGENCY SUPPLYING DATA Temple, Texas

50. DATE 3-66

Reservoir Sediment  
Data Summary Cont'd.

Site No. 3 Cow Bayou

## 46. Elevation-Area-Capacity Data

1960 Survey

Elevation	Area	Capacity
664.0	3.3	4.2
666.0	5.4	12.9
668.0	7.0	25.3
670.0	8.4	40.6
672.0	11.5	60.8
673.4	14.3	78.9
674.0	16.4	88.1
676.0	20.5	125.3
678.0	26.2	172.0
680.0	32.4	230.9
682.0	40.9	303.6
684.0	49.3	393.3
686.0	55.8	498.4
688.0	64.8	618.7

1965 Survey

666.0	4.38	2.92
668.0	6.25	13.47
670.0	8.10	27.80
672.0	10.92	46.74
673.4	13.82	64.03
674.0	16.10	73.00
676.0	20.17	109.21
678.0	25.67	154.96
680.0	32.26	212.79
682.0	40.66	285.59
684.0	49.29	375.44
686.0	55.74	480.45
688.0	64.72	600.85

RESERVOIR SEDIMENT  
DATA SUMMARY

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

Site No. 3, Cow Bayou Watershed

SCS-34 Rev. 6-66

NAME OF RESERVOIR

53-23b

DATA SHEET NO.

DAM	1. OWNER Mangrum			2. STREAM Brazos			3. STATE Texas					
	4. SEC. -- TWP. -- RANGE --			5. NEAREST P.O. Moody			6. COUNTY McLennan					
7. LAT. 31° 21' 30" LONG 97° 19' 00"				8. TOP OF DAM ELEVATION 689.0			9. SPILLWAY CREST ELEV. 684.0					
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		684.0		49.3		335.2		458.5		11-1-55	
	b. MULTIPLE USE											
	c. POWER											
	d. WATER SUPPLY											
	e. IRRIGATION										11-1-55	
	f. CONSERVATION											
g. INACTIVE		673.4		16.8		123.3		123.3				
WATERSHED	17. LENGTH OF RESERVOIR 0.58 1/2 MILES				AV. WIDTH OF RESERVOIR 0.13 MILES							
	18. TOTAL DRAINAGE AREA 1.40 SQ. MI.				2. MEAN ANNUAL PRECIPITATION 32.08 (83) INCHES							
	19. NET SEDIMENT CARRYING AREA 1.32 SQ. MI.				23. MEAN ANNUAL RUNOFF 5.0 INCHES							
	20. LENGTH 1.52 MILES		AV. WIDTH 1.17 MILES		24. MEAN ANNUAL RUNOFF 373.31 AC. FT.							
	21. MAX. ELEV. 750.0		MIN. ELEV. 654.0		25. ANNUAL TEMP: MEAN 66°F RANGE 47°F - 85°F							
SURVEY DATA	26. DATE OF SURVEY		27. PERIOD YEARS	28. ANNUAL YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-Feet	33. C/D RATIO, AC. FT. PER AC. FT.			
	11- 1-55		-	-	Range- Contour (D)	12 R  2' CI	49.3	458.5	1.23			
	8- 1-60		4.75	4.75			49.3	393.3	1.05			
	8-17-65		5.04	9.79			49.3	375.4	1.00			
	4-28-70		4.69	14.48			48.0	366.7	0.98			
	<del>DATE OF SURVEY</del>		<del>PERIOD YEARS</del>	<del>ANNUAL YEARS</del>	<del>TYPE OF SURVEY</del>	<del>NO. OF RANGES OR CONTOUR INT.</del>	<del>SURFACE AREA, ACRES</del>	<del>CAPACITY, ACRE-Feet</del>	<del>C/D RATIO, AC. FT. PER AC. FT.</del>			
	11- 1-55		-	-			16.8	123.3	--			
	8- 1-60		4.75	4.75			14.3	78.9	--			
	8-17-65		5.04	9.79			13.8	64.0	--			
	4-28-70		4.69	14.48			13.5	62.9	--			
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					
2/ 4-28-70		8.70	1.86	1.41	91.8	6.34	4.80					
3/ 4-28-70		1.10	0.23	0.17	60.4	4.17	3.16					
26. DATE OF SURVEY		39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PERSQ. 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				
2/ 4-28-70		-	1,572	5,600	1.38	20.00	--	--				
3/ 4-28-70		44(17)	380	3,028	3.38	48.99	--	--				
4/ 4-28-70		72	1,192	2,572	--	--	--	--				

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION														
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION														
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														
45. RANGE IN RESERVOIR OPERATION															
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.								
46. ELEVATION-AREA-CAPACITY DATA															
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY							
See attached sheet.															
47. REMARKS AND REFERENCES															
<p>1/ Length of north arm = 0.53 miles  2/ Both pools.  3/ Sediment pool only.  4/ Detention pool only.</p>															
48. AGENCY MAKING SURVEY Sedimentation Survey Party															
49. AGENCY SUPPLYING DATA Soil Conservation Service, Texas															
														50. DATE	8-71

Reservoir Sediment  
Data Summary Cont'd.

Site No. 3, Cow Bayou

46. Elevation-Area-Capacity Data

1960 Survey

<u>Elevation</u>	<u>Area</u>	<u>Capacity</u>
664.0	3.3	4.2
666.0	5.4	12.9
668.0	7.0	25.3
670.0	8.4	40.6
672.0	11.5	60.8
673.4	14.3	78.9
674.0	16.4	88.1
676.0	20.5	125.3
678.0	26.2	172.0
680.0	32.4	230.9
682.0	40.9	303.6
684.0	49.3	393.3

1965 Survey

666.0	4.38	2.92
668.0	6.25	13.47
670.0	8.10	27.80
672.0	10.92	46.74
673.4	13.82	64.03
674.0	16.10	73.00
676.0	20.17	109.21
678.0	25.67	154.96
680.0	32.26	212.79
682.0	40.66	285.59
684.0	49.29	375.44

1970 Survey

666.0	4.10	2.73
668.0	6.18	12.94
670.0	8.10	27.18
672.0	10.74	45.96
673.4	13.51	62.89
674.0	15.90	71.71
676.0	19.33	106.88
678.0	24.74	150.84
680.0	31.87	207.30
682.0	39.89	278.91
684.0	48.00	366.68



RESERVOIR SEDIMENT

DATA SUMMARY

SCS-34 Rev. 6-66

Cow Bayou, Site 3

NAME OF RESERVOIR

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

53 - 33c

DATA SHEET NO.

DAM	1. OWNER <b>Mangrum</b>			2. STREAM <b>Trib of Brazos R.</b>			3. STATE <b>Texas</b>					
	4. SEC. <b>TWP. RANGE</b>			5. NEAREST P. O. <b>Moody</b>			6. COUNTY <b>McLennan</b>					
	7. L. <b>N 31° 20' 30" LONG W 97° 19' 00"</b>			8. TOP OF DAM ELEVATION <b>689.0</b>			9. SPILLWAY CREST ELEV. <b>684.0</b>					
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		684.0 1/		49.3		335.2		458.5		11-1-55	
	b. MULTIPLE USE											
	c. POWER											
	d. WATER SUPPLY										16. DATE NORMAL OPER. BEGAN	
	e. IRRIGATION											
	f. CONSERVATION										11-1-55	
g. INACTIVE		673.4 2/		16.8		123.3		123.3				
17. LENGTH OF RESERVOIR <b>0.58 4/</b> MILES				AV. WIDTH OF RESERVOIR <b>0.13</b> MILES								
WATERSHED	18. TOTAL DRAINAGE AREA <b>1.40</b> SQ. MI.				22. MEAN ANNUAL PRECIPITATION <b>32.08(89)</b> INCHES							
	19. NET SEDIMENT CONTRIBUTING AREA <b>1.32</b> SQ. MI.				23. MEAN ANNUAL RUNOFF <b>5.0</b> INCHES							
	20. LENGTH <b>1.52</b> MILES		AV. WIDTH <b>0.92</b> MILES		24. MEAN ANNUAL RUNOFF <b>373.31</b> AC.-FT.							
	21. MAX. ELEV. <b>750.0</b>		MIN. ELEV. <b>654.0</b>		25. ANNUAL TEMP: MEAN <b>66°F</b> RANGE <b>47°F - 85°F</b>							
SURVEY	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.	
	11-1-55		-	-	Range -		12 R	49.3	458.50		1.23	
	8-1-60		4.75	4.75	Contour		2' C.I.	49.3	393.30		1.05	
	8-17-65		5.04	9.79	D			49.3	375.40		1.01	
	4-28-70		4.69	14.48				48.0	366.70		0.98	
	8-5-75		5.25	19.73				48.0	358.52		0.96	
	26. DATE OF SURVEY		34. PERIOD ANNUAL	35. PERIOD ANNUAL	36. PERIOD ANNUAL	37. PERIOD ANNUAL	38. PERIOD ANNUAL	39. PERIOD ANNUAL	40. PERIOD ANNUAL	41. PERIOD ANNUAL	42. PERIOD ANNUAL	43. PERIOD ANNUAL
	11-1-55		-	-				16.80	123.30		--	
	8-1-60		4.75	4.75				14.30	78.90		--	
	8-17-65		5.04	9.79				13.80	64.00		--	
4-28-70		4.69	14.48				13.50	62.90		--		
8-5-75		5.25	19.73				13.47	56.62		--		
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					
8-5-75		8.18	1.56	1.18	99.98	5.07	3.83					
8-5-75		6.28	1.20	0.91	66.68	3.38	2.56					
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		
8-5-75		-		1897.30		1.11 21.81		-- --		-- --		
8-5-75		80		1264.33		- -		-- --		-- --		
8-5-75		43 (19)		632.97		2.74 54.08		-- --		-- --		

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION												
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION												

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														

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
666.0	1.96	1.31	676.0	19.15	100.08			
668.0	5.54	8.50	678.0	24.70	143.77			
670.0	7.57	21.55	680.0	31.63	199.90			
672.0	10.73	39.74	682.0	39.72	271.02			
673.4	13.47	56.62	684.0	48.00	358.52			
674.0	15.67	65.35						

47. REMARKS AND REFERENCES

1/ Total reservoir below emergency spillway crest elevation (684.0)  
 2/ Sediment pool only  
 3/ Detention pool only  
 4/ Length of north arm is 0.53 miles

Land Resource Area - Texas Blackland Prairie  
 Geology - Lake Waco Formation, Upper Cretaceous Age.

48. AGENCY MAKING SURVEY      Soil Conservation Service  
 49. AGENCY SUPPLYING DATA    Temple, TX

50. DATE      1-76