U. S. DEPARTMENT OF AGRICULTURE AGRICULTURAL RESEARCH SERVICE SOIL AND WATER CONSERVATION RESEARCH DIVISION

RESERVOIR SEDIMENTATION DATA SUMMARY

Sabetha Lake 31_33
NAME OF RESERVOIR DATA SHEET NO

_		A SUMMAR				<u>_</u> _		E OF RESERV			DATA SHEE	T NO.
Σ	Downer City	of Sabeth	a		2. RIV	er Deer Nema	Cree	ek Trib.	OÍ 3. STATE	Kana	190	
AO	4 LONG 39054N	^ T95054W ^R	ANGE	T2S 13E	5 NEA	REST TOW		Sabetha	6. COUNT	Y Nema		
"	7 STREAM BED ELE	v. 66.0		±311	B. TOP	OF DAM E	LEV.]	108.2	9. SPILLY		ELEV* 100	00.00
	STORAGE ALLOCATION		OF P		\$UI	RFACE ACRES	13.	STORAGE GRE – FEET	14. ACCUM	ULATED -FEET	DATE STOR	RAGE
ا ـ ا	a. FLOOD CONTRO	DL .								·		
OIR	b. POWER										Jan. 1,1	1036
RV	C. WATER SUPPLY	1	.00	0	114	-64	1	1298	1.29	 98	I6. DATE NOR	
ESE	d. IRRIGATION										OPER. BEG	
8	. CONSERVATION					-		· · · · · ·		 		
	f. INACTIVE					· · · ·			 		July 193	86
	17. LENGTH OF RES	SERVOIR		- 	63 2/	MILES	AV. WI	OTH OF RESE	RVOIR	377		EET
a	18. TOTAL DRAINAG	E AREA		9.		SQ. MI.	22. ME	AN ANNUAL P	RECIPITATIO	N 34.0	3/ IN	CHES
	19. NET SEDIMENT	CONTRIBUTING	ARE			•		AN ANNUAL F		92 (34)		CHES
띮	20. LENGTH 4.	32 MIL	ES A	V. WIDTH	2.12			AN ANNUAL F		2406		. – F T.
WAT	21. MAX. ELEV.	<u> </u>	IN. ELEV.	66.0			IMATIC CLASS		Humid			
П	26. DATE OF				TYPE OF	30. NO. OF R		31. SURFACE	1	ACITY	33. C RATIO	
	SURVEY	SURVEY YEARS YEARS			URVEY	OR CONTO	UR INT.			E-FEET	AC-FT. PER SQ.	
	Jan. 1,1936		0 0					114.64	10	200	141.5	
	Jun.11,1951	0 15.5 1		5.5	D	D 25 Rang		99.02		1298 721) -)
	Aug. 28, 1952	1.2		- 1	- R	25 "	500	98.19		645		
	Oct.22,1953	1.1			- R	25 "		99.53		568	70.3 72.8	
	, ,,,		,	, .		, _ ,		////		,,,,		
	26. DATE OF	34.		35. PF.	RIOD W	ATER INF	'I OW	ACRE-FEE	T 36. WAT	FR INFI	TO DATE A	C-ET
	DATE OF SURVEY	PERIOD ANNI PRECIPITATI		O MEAN A		b. MAX. AN		C PERIOD TO			b. TOTAL TO	
	Jan. 1,1936		- 5/							- AMIDAL	70172 101	DATE
	Jun.11,1951	31.6	31.6 275		٦	6513	₹	42,670	27	753	42,670	1
	Aug.28,1952		49.0 7436 18.5 3797			7436		8,924		2753 3089		
l Ì	Oct.22,1953							4,177		.33	51,594 55,771	
ATA		-										
	26	37 050:0-		N 18 4 F 8 - ** :		<u> </u>	FEET 38. TOTAL SED.					
Ę	DATE OF	a negration	5 5 E [JIMENT I	DEPOSI	IS ACRE-	FEET	TOTAL SI	D. DEPOSI			
l > i		PERIOD TO	IAL	AV. AN	NUAL	PER SU.M	1TEAR	TOTAL TO DA	AIE - AV. A	NNUAL	C.PER SQ.MI-	YEAR
	Jan. 1,1936 Jun.11,1951	577 (624)	\	97 27	• •	4.14	ı	- 577 (624) 27	<u> </u>	4.14(4.	1.01
	Aug. 28, 1952		{	37. 63.		7.04		653(700		.2 .1	4.14(4. 4.35(4.6	,
	Oct.22,1953	-23 (- 25)	ſΙ	-20.		-2.32		630(675	35	· 4	3.94(4.8	
	,- -,-	-3 \ - 2\	'	_5.			•	30(01)	, , , ,	· • ·	J•/T\T•	/
				40.ces = :	- D - T	7.055.55		Al ozos : =	1000	- 42		
	26	39			FP IONS	TONS PER SO.M		*"STORAGE		LOSS PCT. 42.SED.		PM
	26. DATE OF	39. AV. DRY WG	· · · ·					0.41, 44,41.4				
	DATE OF SURVEY	LBS. PER CU	· · · ·	a. PERI		b. TOTAL TO	DATE	a.AV ANNUAL	b. TOT. TO DATE	+	. + .	DATE
	Jan. 1,1936	LBS. PER CU	I.FT.	a. PERI	OD	b TOTAL TO		-	-	5/6	/ 5/	
	Jan. 1,1936 Jun.11,1951	8/ 54.7(12)	LFT.	4932(5	5337)	6 TOTAL TO	337)	2. 86	ተ ተ• ተ	5/ <u>6</u> 1282	/ <u>5/</u> 7 1282	27
	Jan. 1,1936 Jun.11,1951 Aug.28,1952	8/ 54.7(12) 53.7(12)) }	4932(5	5337) 5980)	4932(5 5088(5	337) 450)	2.86 3.01	- 44.4 50.3	5/ <u>6</u> 1282 622	/ 5/ 7 1282 2 1167	27 76
	Jan. 1,1936 Jun.11,1951	8/ 54.7(12)) }	4932(5	5337) 5980)	6 TOTAL TO	337) 450)	2. 86	ተ ተ• ተ	5/ <u>6</u> 1282	/ <u>5/</u> 7 1282 2 1167	27 76

26.	43.	r	FPTH	DESIG	NATIO	N RANG	FINE	FET N	AOVE	AND RE	I OW C	REST EL	E'MATION	
DATE OF		T					,	T	•			1		
SURVEY	<u>33-30</u>	<u> 30-2</u>									9-7		<u> [5-2.5]</u>	2.5-0
			PERC	ENT O	F TOT	AL SEC	IMEN	T LOC.	ATED	WITHIN	DEPT	H DESIGN	IATION	
Apr.11,1956	0.81	8.4	7 7	.95 h	0.60	14.56	9.0	2 17.	.00	8.13	8.34	7.56	5.11	2.43
Apr. 2,1958	0.81	8.4	2 7	.90 L	0.54	15.11	8.9	95 I16.	30	7.77	8.23	7.78	5.51	2.66
Jul.16,1960	0.75	7.5	6 7	• Ó9 G	9.46	14.95	9.0	4 16	.09	7.18	7.68	7.78 8.42	7.72	4.30
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26.	44.	REA	CH DE	SIGNA	TION	PERCEI	NT OF	TOTAL	ORI	GINAL L	ENGH	OF RES	ERVOIR	
DATE OF	0-10 1	0 -20	20-30	30~40	40-50	50-60	50-70	70-80	80-0	90-100	-105	-110	-115 -12	0 -125
SURVEY	} 					l		L	L	ــــــــــــــــــــــــــــــــــــــ		DESIGN		
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Ann 11 1056	1,, ,	7.1.	175	اء ۔ا		ا م د ا	<i>-</i> -		٠,	_		ibutari		-
Apr.11,1956	17.4	14.0	13.5	13.5	77.5	0.5	6.0		0.	·	<u> 10</u> /	J 7/	. 1.	1
Apr. 2,1958	14.9	72.3	13.5	13.0	12.0	8.0	6.0		0.7				-5•}	
Jul.16,1960	14.0	<u> </u>	130	12.5	11.0	9.5	6.5	4.2	0.8	3		1.4 1	.3•∮	
	i													
i		-												
45.	<u> </u>			E	NGE U	N RESE	PVOI	OPE	2 A T (C	`N				
WATER YEAR	MAX. E	LEV	MIN	. ELEV.		W ACF				MAX, ELE		4141 51 51	Tare:	
MATER TEAR	IMAN. E		18711	. ELEV.	INF LO	W AU	WAI	EN IEM	- r	WAX, ELE	v. '	MIN. ELEV.	INFLOW	AC FT.
		Doto	0770	וו בער וו			1				- 1		ŀ	
		Da va	ava.	rTSIDTE	pul	not p	roce	ssea	-					
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46.			[FII	EVATIO	N-ARE	1 C 4	DACIT		ΓΛ			<u> </u>	
EL EMATION.	A DE A		NA CITY	Ţ		1		1		. 1			 	
ELEVATION	AREA	(-AF	PACITY	- ELE	VATION	AR	EA	CAPA	CITY	ELEV	TION	AREA	CAP	ACITY
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47. DEMARKS A		<u> </u>					· · · · · · · · · · · · · · · · · · ·	<u> </u>						
UEMIANNS A						a	_	a .		a			_	
Advance Repo	ν στυ on	tne	beal	menta	T101	surve;	y of	Sabe	tha	City F	eser	701r, b	y Lou i s	M.
Glymph, Jr.	, nugu:	ST T	172 -	Linc	oin,	мерга	ska.							

USDA, ARS, Sedimentation Section, Lincoln, Nebr. -- Annual Reports for 1953, 1956, 1957, 1958, and 1960.

"Volume-Weight of Reservoir Sediment," by H. G. Heinemann--presented at the ASCE Hydraulics Division Conference at Urbana, Illinois, on August 1%, 1961. (All reports unpublished.)

USDA, Agricultural Research Service

Sedimentation Studies, Room 505 49. 134 South 12th Street, Lincoln, Nebr 48. AGENCY SUPPLYING DATA 49. DATE <u>Jan. 10, 1962</u>

		R SEDIMENT		_	Sabeth					31.	- 33	
_		A-SUMMARY		1-	Deer	N AN	K TILD.	/01R		DAT	A SHEET NO.	
Z	L. ·	of Sabet		2. RIV						nsas	3	
MO	4-LONG 39054NL		NGE TES		REST TOW		abetha	6. COUN		naha		
L	7. STREAM BED ELE	ev. 66.0		^{8.} TOP	OF DAM E	.EV.1	12.8	9. SPILL	WAY CREST	ELE	v. * 105.0	
	IO. STORAGE ALLOCATION	,	VATION OF POOL	II.	RFACE ACRES	13. A	STORAGE CRE - FEET	ACCUI	IULATED E-FEET	15.	TE STORAGE BEGAN	
_	a. FLOOD CONTRO	DL.					····			+		
RVOIR	b. POWER	· ·	·					-		1	. 1 1026	
2	C. WATER SUPPLY	7.01	5.0	7 1.7	•37		7001		-1	16	1. 1,1936	
SE	d. IRRIGATION		<i></i>	141	•		1934		34		ATE NORMAL Per Began	
RE	. CONSERVATION	- 		 				· -		+-		
	f. INACTIVE			 				 				
	17. LENGTH OF RE	SERVOIR	1.80 2	/	No se	AL MI	DTH OF RESE	21.4.0	12 - 1	Jul	y,` 1936	
┝	18. TOTAL DRAINAG			/					434		FEET	
🖳	1		9.17	8 00			AN ANNUAL F				INCHES	
WATERSHED	19. NET SEDIMENT			8.99			AN ANNUAL I		4.92((34)	INCHES	
빝		.32 MILE		гн 2.12	MILES		AN ANNUAL I		2406	ACFT.		
≩	^{21.} MAX. ELEV.			EV 66.0		^{25.} CL	MATIC CLASS	SIFICATION	Humid	1		
	26. DATE OF	27.PERIOD 2	8. ACCL.	29. TYPE OF	30. NO. OF R	ANGES	31. SURFACE	32. CA	PAGITY	33.	C/W RATIO	
	SURVEY	YEARS	YEARS	SURVEY	OR CONTO	JR INT.	AREA ACR	ES ACR	E-FEET	ÁC-F	T. PER SQ.MI.	
	Apr.11,1956	1.0	20.3	D - R	26 Rang	red	137.58	1205		<u> </u>	131.4	
1	Apr. 2,1958					,00	136.36	l l	200 200		130.9	
	Jul.16, 1960	2.3	24.6	D - R	26 " 33 "	,	131.98		117		121.8	
							252.70			•	121.0	
l										l	1	
	26.	34.			<u> </u>					<u> </u>		
	DATE OF	PERIOD ANNIL					ACRE-FEE			. TO (DATE AG-FT.	
	SURVEY	PRECIPITATIO	N "MEA	N ANNUAL	b. MAX. AN	NUAL	C. PERIOD TO	TAL O. MEA	N ANNUAL	b. TC	TAL TO DATE	
	Apr.11,1956			489	2489)	2489	2	974	6	0381 ,	
	Apr. 2,1958	24.7		310	2810)	5619	2960		* 6	6000 I/	
	Jul.16,1960	40.9	52	200	5200	10400		3106		* 7	6400	
				. \					3			
ATA												
Q	26.	37. PERIOD	SEDIMEN	T DEBOO	TS ACRE-	FFFT	38. 70.74	- L	TO TO -:			
ΕŢ	DATE OF SURVEY	a. PERIOD TOT			C. PER SQ. MI		38. TOTAL S			I E	ACRE-FEET	
SURVEY					<u> </u>		TOTAL TO D		NNUAL	_	SQ.MI-YEAR	
S	Apr.11,1956	1 (2)		L.O	0.11		729(732)	1 -	5•9		99(4.01)	
	Apr. 2,1958	5 (5)	2	2.5	0.28		734(737)		2.9		66(3.68)	
	Jul.16,1960	83(89)	36	5.1	4.02		817(826)	' 3	3.2	3.4	69(3.73)	
					•							
											}	
	26. DATE OF	39. AV, DRY WG	T. 40.SED	DEP. TONS	PER SQ.M	IYR.	41. STORAGE	LOSS PC	T. ^{42.} SED	INF	OW PPM	
	SURVEY	LBS, PER CU.	FT, 0. p		b. TOTAL TO		GAV. ANNUAL				b. TOT. TO DATE	
	Apr.11,1956	55.0(72)	1790	(1858)	4780(4		1.86	37•7	4661			
	Apr. 2,1958	56.2(72)		(1404)	4480(4		1.70	37•1 37•9	,		10685	
	Jul.16,1960	54.6(253		(3877)	4388(4		1.72	42.2	3577 5728		10057 9460	
	=-,-,-	9/	. 3,5,5	100117	.500(-	.507	-4-₹ ←	-76- ♦ 6-	7,20		7400	
												
L_			_ [1			

26.	43.	DEPTH	DESIGNATION	RANGE IN	FEET ABOV	E, AND BELOV	V, CREST ELE	VATION		
DATE OF SURVEY Jan. 1,1936 Jun. 11,1951	28_25	25_20 20	17917515	15-125 125	-10 10-75	7.5-5 5-2	.5 2.5-0	bgve grest		
	20-23	PERCE	NT OF TOTA	AL SEDIME	NT LOCATE	D WITHIN DE	WITHIN DEPTH DESIGNATION			
Tan 1 7026	-	T 1	1		1			T		
		1. 0. 1.	- -	70 01 70	77 070	0.7011	70075	E 00 0 EE		
		9.89 9.2	29 11.93	10.94 10	·11 9.20	9.10 11	19 9 10	5.00 2.55		
Aug. 28, 1952		5.79 8.2	29 11.04	11.00 10	06 10.22	10.29 11		4.49 2.18		
0ct.22,1953	0.91	9.15 8.5	99 11.40	11.05 10	•96 10•44	# TO • 09 TT	.01 9.01	4.47 2.10		
			j							
				į						
26	44.	PEACH DE	SIGNATION F	PERCENT	F TOTAL OF	PIGINAL LEN	IGH OF RESE	BYOLE		
DATE OF		10 -20 20-30								
SURVEY	0-10				4			115 -120 -125		
		PERCE	T OF TOTAL	SEDIMENT	LOCATED	WITHIN REA	ACH DESIGNA	TION 10/		
Jan. 1,1936							Tr	<u>ibutaries</u>		
Jun.11,1951		11.0 11.0				0 2.0 0.	5 0.2	1.2% 14.19		
Aug.28,1952	10.0	10.5 11.0	10.5 10.0	10.0 8.5	6.5 4.	5 2.5 0.	4 0.4	1.1 14.1		
Pet.22,1953		11.2 10.8				0 3.5 0.	4 0.2	1.2 14.2		
				İ						
			1							
				<u></u>						
45.					IR OPERAT	ION				
WATER YEAR	MAX. I	ELEV. MIN.	ELEV. INFLO	N ACFT. WA	TER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC-FT.		
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	Da	ta a√aila}	ole but no	t prodes:	sed.					
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	1							İ		
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46.			ELEVATIO	N-AREA-C	APACITY D	ATA				
ELEVATION	AREA	CAPACITY	ELÉVATION	AREA	CAPACITY	r ELEVATIO	N AREA	CAPACITY		
85.2	0.744		 	F7 26	201 5	105.0	720.00	1050 2		
		- 7	95.0	57.36		105.0	139.09	, 1259•3		
86.0	10.29	3.7	97.5	67.82						
87.5	18.68	25.1	99.0	85.25				1		
90.0	29.53	84.8	100.0	99.53						
92.5	44.79	177.1	102.5	117.62	938.7					
				1				1		
)			
				1			1			
47 PEMARKS	AND 55	FERENCES	1	<u> </u>			1	-1		
REMARKS	AND RE	FERENCES								
				,						
								•		
48. AGENCY S	UPPLYING	DATA				49. DA	TE			
					····	···				

Notes for Sabetha Lake summary sheets

These notes apply to all three summary sheets.

- 1/ Item 9. The spillway elevation was raised 5 feet in 1954. A complete summary using the new spillway elevation (105 ft.) is given and a summary using the original spillway elevation (100 ft.) is given through the 1953 survey.
- 2/ Item 17. There are two major tributaries. Referring to the 100 ft. spillway elevation, the tributaries are 0.17 and 0.53 miles long. The corresponding values for the 105 ft. spillway elevation are 0.20 and 0.69 miles long.
- 3/ Item 22. Taken from an isohyetal map of the Delaware River and the Nemaha River Watersheds.
- 4/ Item 23. This value was measured on the Delaware River Watershed which is directly south and east of the Sabetha Watershed. It was assumed that the runoff characteristics were similar.
- 5/ Items 35a, 42a, and 42b. The water inflow was computed using the runoff values from the Delaware Watershed. Better data are available from a stage recorder at Sabetha Lake but have not been processed.
- 6/ Item 42a. Item 42a was computed as follows:

Period Sed. Inflow =

(Total wt. at last survey - Total wt. at previous survey, lbs.) x 1,000,000 Water inflow, ft³, x 62.4

- 7/ Item 7. These estimated values were used to compute 35a, b, c, and 36a.
- 8/ Item 39. In 1951 and 1952, surface samples were obtained with a 1.60 diameter brass tube sampler. In 1955 the same sampler was used for below water samples and a USGS sampler (1-19/32" dia.) was used for above water samples. In 1953, 1956, 1958, and 1960 a piston-type sampler (2-7/8" dia.) was used, and samples were obtained from depths up to 9 ft.
- 9/ Item 39. In 1960 a total of 283 density readings were also obtained with a radioactive sediment density probe. These results are still being studied.
- 10/ Item 44. 83% to 85% of the total accumulated sediment is located in the main part of the lake. About 1% is located in the first tributary and 14% to 15% is located in the second tributary. Referring to the 100 ft. spillway elevation, the first tributary flows into the main lake at about 18% of the total reservoir length from the dam and the second tributary at 45% of the length. The corresponding values for the 105 ft. elevation are 13.8% and 34.5%. Distribution throughout the length of the tributaries is very nearly the same as in the main lake.

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		R SEDIMENT		_	Sabeth					31.	- 33	
_		A-SUMMARY		1-	Deer	N AN	K TILD.	/01R		DAT	A SHEET NO.	
Z	L. ·	of Sabet		2. RIV						nsas	3	
MO	4-LONG 39054NL		NGE TES		REST TOW		abetha	6. COUN		naha		
L	7. STREAM BED ELE	ev. 66.0		^{8.} TOP	OF DAM E	.EV.1	12.8	9. SPILL	WAY CREST	ELE	v. * 105.0	
	STORAGE ALLOCATION	,	VATION OF POOL	II.	RFACE ACRES	13. A	STORAGE CRE - FEET	ACCUI	IULATED E-FEET	15.	TE STORAGE BEGAN	
_	a. FLOOD CONTRO	DL.					····			+		
RVOIR	b. POWER	· ·	·					-		1	1 1026	
2	C. WATER SUPPLY	7.01	5.0	7 1.7	•37		7001		-1	16	1. 1,1936	
SE	d. IRRIGATION		<i></i>	141	•		1934		34		ATE NORMAL Per Began	
RE	. CONSERVATION	 		 				· -		+-		
	f. INACTIVE			 				 				
	17. LENGTH OF RE	SERVOIR	1.80 2	/	No se	AL MI	DTH OF RESE	21.4.0	12 - 1	Jul	y,` 1936	
┝	18. TOTAL DRAINAG			/					434		FEET	
🖳	1		9.17	8 00			AN ANNUAL F				INCHES	
WATERSHED	19. NET SEDIMENT			8.99			AN ANNUAL I		4.92((34)	INCHES	
빝		.32 MILE		гн 2.12	MILES		AN ANNUAL I		2406	ACFT.		
≩	^{21.} MAX. ELEV.			EV 66.0		^{25.} CL	MATIC CLASS	SIFICATION	Humid	1		
	26. DATE OF	27.PERIOD 2	8. ACCL.	29. TYPE OF	30. NO. OF R	ANGES	31. SURFACE	32. CA	PAGITY	33.	C/W RATIO	
	SURVEY	YEARS	YEARS	SURVEY	OR CONTO	JR INT.	AREA ACR	ES ACR	E-FEET	ÁC-F	T. PER SQ.MI.	
]	Apr.11,1956	1.0	20.3	D - R	26 Rang	red	137.58	1205		<u> </u>	131.4	
1	Apr. 2,1958					,00	136.36	l l	200 200		130.9	
	Jul.16, 1960	2.3	24.6	D - R	26 " 33 "	,	131.98		117		121.8	
							252.70			•	121.0	
l										l	1	
	26.	34.			<u> </u>					<u> </u>		
	DATE OF	PERIOD ANNIL					ACRE-FEE			. TO (DATE AG-FT.	
	SURVEY	PRECIPITATIO	N "MEA	N ANNUAL	b. MAX. AN	NUAL	C. PERIOD TO	TAL O. MEA	N ANNUAL	b. TC	TAL TO DATE	
	Apr.11,1956			489	2489)	2489	2	974	6	0381 ,	
	Apr. 2,1958	24.7		310	2810)	5619	2960		* 6	6000 I/	
	Jul.16,1960	40.9	52	200	5200	10400		3106		* 7	6400	
				. \					3			
ATA												
Q	26.	37. PERIOD	SEDIMEN	T DEBOO	TS ACRE-	FFFT	38. 70.74	- L	TO TO -:			
ΕŢ	DATE OF SURVEY	a. PERIOD TOT			C. PER SQ. MI		38. TOTAL S			I E	ACRE-FEET	
SURVEY					<u> </u>		TOTAL TO D		NNUAL	_	SQ.MI-YEAR	
S	Apr.11,1956	1 (2)		L.O	0.11		729(732)	1 -	5•9		99(4.01)	
	Apr. 2,1958	5 (5)	2	2.5	0.28		734(737)		2.9		66(3.68)	
	Jul.16,1960	83(89)	36	5.1	4.02		817(826)	' 3	3.2	3.4	69(3.73)	
					•							
											}	
	26. DATE OF	39. AV, DRY WG	T. 40.SED	DEP. TONS	PER SQ.M	IYR.	41. STORAGE	LOSS PC	T. ^{42.} SED	INF	OW PPM	
	SURVEY	LBS, PER CU.	FT, 0. p		b. TOTAL TO		GAV. ANNUAL				b. TOT. TO DATE	
	Apr.11,1956	55.0(72)	1790	(1858)	4780(4		1.86	37•7	4661			
	Apr. 2,1958	56.2(72)		(1404)	4480(4		1.70	37•1 37•9	,		10685	
	Jul.16,1960	54.6(253		(3877)	4388(4		1.72	42.2	3577 5728		10057 9460	
	=-,-,-	9/	. 3,5,5	100117	.500(-	.507	-4-₹ ←	-76- ♦ 6-	7,20		7400	
												
L_			_ [1			

26.	43.	DEPTH	DESIGNATION	RANGE IN	FEET ABOV	E, AND BELOV	V, CREST ELE	VATION		
DATE OF SURVEY Jan. 1,1936 Jun. 11,1951	28_25	25_20 20	17917515	15-125 125	-10 10-75	7.5-5 5-2	.5 2.5-0	bgve grest		
	20-23	PERCE	NT OF TOTA	AL SEDIME	NT LOCATE	D WITHIN DE	WITHIN DEPTH DESIGNATION			
Tan 1 7026	-	T 1	1		1			T		
		1. 0. 1.	- -	70 01 70	77 070	0.7011	70075	E 00 0 EE		
		9.89 9.2	29 11.93	10.94 10	·11 9.20	9.10 11	19 9 10	5.00 2.55		
Aug. 28, 1952		5.79 8.2	29 11.04	11.00 10	06 10.22	10.29 11		4.49 2.18		
0ct.22,1953	0.91	9.15 8.5	99 11.40	11.05 10	•96 10•44	# TO • 09 TT	.01 9.01	4.47 2.10		
			j							
				į						
26	44.	PEACH DE	SIGNATION F	PERCENT	F TOTAL OF	PIGINAL LEN	IGH OF RESE	BYOLE		
DATE OF		10 -20 20-30								
SURVEY	0-10				4			115 -120 -125		
		PERCE	T OF TOTAL	SEDIMENT	LOCATED	WITHIN REA	ACH DESIGNA	TION 10/		
Jan. 1,1936							Tr	<u>ibutaries</u>		
Jun.11,1951		11.0 11.0				0 2.0 0.	5 0.2	1.2% 14.19		
Aug.28,1952	10.0	10.5 11.0	10.5 10.0	10.0 8.5	6.5 4.	5 2.5 0.	4 0.4	1.1 14.1		
Pet.22,1953		11.2 10.8				0 3.5 0.	4 0.2	1.2 14.2		
				İ						
			1							
45.					IR OPERAT	ION				
WATER YEAR	MAX. I	ELEV. MIN.	ELEV. INFLO	N ACFT. WA	TER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC-FT.		
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	Da	ta a√aila}	ole but no	t prodes:	sed.					
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46.			ELEVATIO	N-AREA-C	APACITY D	ATA				
ELEVATION	AREA	CAPACITY	ELÉVATION	AREA	CAPACITY	r ELEVATIO	N AREA	CAPACITY		
85.2	0.744		 	F7 26	201 5	105.0	720.00	1050 2		
		- 7	95.0	57.36		105.0	139.09	, 1259•3		
86.0	10.29	3.7	97.5	67.82						
87.5	18.68	25.1	99.0	85.25				1		
90.0	29.53	84.8	100.0	99.53						
92.5	44.79	177.1	102.5	117.62	938.7					
				1				1		
)			
				1			1			
47 PEMARKS	AND 55	FERENCES	1	<u> </u>			1	-1		
REMARKS	AND RE	FERENCES								
				,						
								•		
48. AGENCY S	UPPLYING	DATA				49. DA	TE			
					····	···				

Notes for Sabetha Lake summary sheets

These notes apply to all three summary sheets.

- 1/ Item 9. The spillway elevation was raised 5 feet in 1954. A complete summary using the new spillway elevation (105 ft.) is given and a summary using the original spillway elevation (100 ft.) is given through the 1953 survey.
- 2/ Item 17. There are two major tributaries. Referring to the 100 ft. spillway elevation, the tributaries are 0.17 and 0.53 miles long. The corresponding values for the 105 ft. spillway elevation are 0.20 and 0.69 miles long.
- 3/ Item 22. Taken from an isohyetal map of the Delaware River and the Nemaha River Watersheds.
- 4/ Item 23. This value was measured on the Delaware River Watershed which is directly south and east of the Sabetha Watershed. It was assumed that the runoff characteristics were similar.
- 5/ Items 35a, 42a, and 42b. The water inflow was computed using the runoff values from the Delaware Watershed. Better data are available from a stage recorder at Sabetha Lake but have not been processed.
- 6/ Item 42a. Item 42a was computed as follows:

Period Sed. Inflow =

(Total wt. at last survey - Total wt. at previous survey, lbs.) x 1,000,000 Water inflow, ft³, x 62.4

- 7/ Item 7. These estimated values were used to compute 35a, b, c, and 36a.
- 8/ Item 39. In 1951 and 1952, surface samples were obtained with a 1.60 diameter brass tube sampler. In 1955 the same sampler was used for below water samples and a USGS sampler (1-19/32" dia.) was used for above water samples. In 1953, 1956, 1958, and 1960 a piston-type sampler (2-7/8" dia.) was used, and samples were obtained from depths up to 9 ft.
- 9/ Item 39. In 1960 a total of 283 density readings were also obtained with a radioactive sediment density probe. These results are still being studied.
- 10/ Item 44. 83% to 85% of the total accumulated sediment is located in the main part of the lake. About 1% is located in the first tributary and 14% to 15% is located in the second tributary. Referring to the 100 ft. spillway elevation, the first tributary flows into the main lake at about 18% of the total reservoir length from the dam and the second tributary at 45% of the length. The corresponding values for the 105 ft. elevation are 13.8% and 34.5%. Distribution throughout the length of the tributaries is very nearly the same as in the main lake.

. . U. S. DEPARTMENT OF AGRICULTURE AGRICULTURAL RESEARCH SERVICE SOIL AND WATER CONSERVATION RESEARCH DIVISION

		R SEDIMEN' A SUMMARY		ION	_	Sabe						~	33		
_	OWNER City				12 511	Deer		e of Reserv					A SMEE	ET NO.	
DAM	4.LONG-39054M			TZS	5. NEA	ER Nemal	ia_	abetha		STATE	Kans				
5	7. STREAM BED ELE			<u> 135</u>						6 COUNTY Nems					
<u> </u>	IO.	Ev.* _ 66 . i	0	112.		OF DAM E	-ЕV. <u>]</u> Із	12.8		SPILLWA	Y CREST	ELE	v. * 1	05.00	
	STORAGE ALLOCATION	ELE	OF P		SUF	RFAGE ACRES		STORAGE CRE - FEET	14.	ACCUMU ACRE-			TE STO BEGA		
ے ا	. FLOOD CONTRO	DL													
RVOIR	b. POWER								T			Jan	. 1,	1936	
E.B.	C. WATER SUPPLY	10	5.0		141.37			1934		193	4	16	ATE NO		
ESI	d IRRIGATION										٥	PER. B	EGAN		
ॡ	e. CONSERVATION						-								
	f. INACTIVE	-		,									nr 1	936	
	17. LENGTH OF RES	SERVOIR	1.80	o 2/		MILES	AV. WIDTH OF RESERVE			R	434	17 14.1.	~ /	EET	
<u></u>	18. TOTAL DRAINAG	SE AREA	7		S'Q. MI.	22. ME	AN ANNUÂL P	RÉC	IPITATION	34.0(34)	-3/ , ,	NCHES		
WATERSHED	19. NET SEDIMENT	CONTRIBUTING	Α {	3.99	SQ. MI.	23. ME	AN ANNUAL F	RUNO	FF	4.92(NCHES		
EB	20. LENGTH 4.3	32 MIL	ESIA	v. widi		MILES	24. ME	AN ANNUAL F	RUNC	FF	2406	<u> </u>		AG-FT.	
\ <u>₹</u>	21. MAX. ELEV.	<u></u> +)	25. CL	MATIC CLASS	iFIC.	ATION	Humid				
<u> </u>	26 DATE OF	DATE OF 27. PERIOD 28. ACCL				TYPE OF 30. NO. OF RANGES 31. SURFACE 32.						PACITY 33. C/W RATE			
ŀ	SURVEY	SURVEY YEARS YEARS			SURVEY	OR CONTO		**		1	FEET		T. PER		
	Jan. 1,1936	0		5				141.37		19:	317		210.	$\overline{}$	
	Jun.11,1951	, ,		5.5	D	25 Ran	ges	137.99		1310			142.		
	Aug.28,1952			6.7 D - R		25 "		137.77		12			134.		
	Oct.22,1953	4		7.8 D = R		25 "		139.09		12		,	137.		
	Apr.25,1955	1.5	19	9∙ 3	D - R	26 "		137.19		120	06		131.	5	
	26. DATE OF	34. PERIOD ANN				ATER INF	LOW	ACRE-FEE	Т	36. WAT	R INFL.	TO	DATE	AG-FT.	
	SURVEY	PRECIPITATI	ON	a. MEAN ANNUA		b. MAX. AN	NUAL	C.PERIOD TO	TAL	d. MEAN	ANNUAL	b. TC	TAL TO	DATE	
	Jan. 1,1936	_		5/											
	Jun.11,1951	31.6		2753		6513		42,670			53	42,670		70	
	Aug. 28, 1952	49.0	-		7436	7436	, , , , ,					51,594			
		·			3797	3797				3133		55,771			
ATA	Apr.25,1955	33•3			L414	1414	•	2,121	. 3000			57,892		92	
<u>ا</u>	26 DATE OF	37. PERIOD	SFI	DIMEN		TS ACRE-	FEET	38, TOTAL SI	- n .	D DEBOSITS T		TO-DATE ACRE-F		EEET	
SURVEY	SURVEY	a. PERIOD TO						o. TOTAL TO D						I-YEAR	
3	Jan. 1,1936							TOTAL TO B		77. 71			1 3Q. MI	I-TEAN	
જ	Jun.11,1951	624		1	- +0.3	4.48		624		40.	-	1.	- .48		
	Aug. 28, 1952	76			3.3	7.04		700		40.			• 40 • 66	- 1	
	Oct.22,1953	-25			22.7	-2.52		675		37			.22		
	Apr.25,1955	53 (5	55)		35•3	3.93		728(730)	37			.19(4.21	
	ne .)	
	DATE OF SURVEY	39. AV. DRY WG LBS. PER CU	T. I.FT.		DEP. TONS	D TOTAL TO		41. STORAGE O.AV. ANNUAL		SS PCT.	a. PERIC		OW I		
	Jan. 1,1936 Jun.11,1951 Aug.28,1952 Oct.22,1953 Apr.25,1955	8/ 54.7(12 53.7(12 58.0(63 54.1(20	3}	533 698 343 379	30	5337 5450 5331 4937 (2.08 2.17 1.96		5/6 32.3 1282 36.2 622 34.9 624 37.6 242		/ 7 2 4	5/ 128 116 112	827 676 250 932	

26.		43.	DE	PTH DES	IGNATIO	N RANGI	EINFE	ET ABC	OVE,A	ND BEI	LOW, CF	REST EL	EVATION	
	DATE OF SURVEY										<u> </u>			
			Р	ERCENT	OF TO	AL SEC	IMENT	LOCAT	ED V	VITHIN	DEPTH	DESIGN	ATION	
26.		44.	55.5]							
	ATE OF			-30 30-4								OF RES		اما امد
9	JURVEY	0-10				<u> </u>								0 -125
		+ +		KCENT (FIOIA	L SEUIN	TENIL	OCATE	וא ט:	I HIN I	TEACH	DESIGN	ATION	T
45.	<u> </u>		L		RANGE I	N RESE	RVOIR	OPERA	TION					
WA	TER YEAR	MAX. E	LEV.	MIN. ELE	v. INFLO	W ACFT	WATER	YEAR	МА	X. ELEV	/. M	IIN. ELEV.	INFLOW	AC-FT.
46.				F	LEVATIO	N-ARF	A-CAP	ACITY	DATA					
ELEV	VATION	AREA	GAPA		LEVATION	AR		CAPACI	T	ELEVA	TION	AREA	CAP	ACITY
^{47.} F	REMARKS	AND REF	ERENCI	ΞS					<u> </u>					
\$8. Д	GENCY SU	PPLYING	DATA	SO	OIL COM	SERVAT	NON S	ERVIC	Œ	49.	DATE_	NOV-6-	1961	