SARDIS LAKE
JACKFORK CREEK, OKLAHOMA
WATER CONTROL MANUAL

APPENDIX M
TO
MASTER WATER CONTROL MANUAL
RED RIVER BASIN

ORIGINAL EDITION – JULY 1984
REVISED EDITION – AUGUST 2010

DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
OKLAHOMA

NOTICE TO USERS OF THIS MANUAL

Regulations specify that this Water Control Manual be used in loose-leaf form, and only those sections, or parts thereof; requiring changes will be revised and printed. Therefore, this copy should be preserved in good condition so that inserts can be made to keep the Manual current. All elevations referred to in this manual, unless noted otherwise, are in feet, NGVD (National Geodetic Vertical Datum).

EMERGENCY REGULATION ASSISTANCE PROCEDURES

In the event that unusual conditions arise during duty hours and at various hours during weekends and holidays, contact can be made by telephone to the Water Management Section, Tulsa District Office (918/669-7085). If the above office cannot be contacted, assistance can be achieved by contacting, in the order listed, one of persons shown below. Section VII of this Manual contains detailed instructions for emergency regulations. All project personnel associated with regulation of the project must be thoroughly familiar with the procedure outlined in this section.

EMERGENCY

PERSONNEL

ROSTER

TITLE AND NAME	RESIDENCE TELEPHONE
Coordinator (b) (6)	
Backup Coordinator (b) (6)	
Backup Coordinator (b) (6)	
Chief, Water Control Section	(b) (6)
Chief, Hydrology-Hydraulics Branch	(b) (6)

OUTLET WORKS TOWER AT SARDIS LAKE

LOOKING NORTHEAST AT SARDIS DAM EMBANKMENT AND OUTLET WORKS TOWER

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PERTINENT DATA

LOCATION:
In Pushmatah County, Oklahoma, E.M, 2.8 on the Jackfork Creek about 2-1/2 miles north of Clayton.

DRAINAGE AREA:
275 square miles above the dam
One inch of runoff equals 14,667 a.f.

DAM: Type: Rolled earth fill Embankment

Length: 14,138 feet

Max.height: 101 feet

Top width: 32 feet

SPILLWAY:

Location: Right abutment
Crest elevation: 611.0
Width: 215 feet
Type: Uncontrolled

LAND ACQUISITION:

	Guide Contour	Area (acres)
Fee Simple	611.0	21,400
Easement	Varies	1,150

CONDUIT:
Type: Cut and cover oblong concrete conduit.

Location: About 1,800 feet left at the right abutment.

Dimension: 9.0 feet by 12.25 feet

Invert Elevation: 534.0

CONTROL: Two service and two emergency 4.25 feet by 12.25 feet hydraulically operated wheel gates.

WATER SUPPLY - LOW FLOW SLUICE:

Size:			2.5 feet by 5.25 feet Conduit		
Location:			splitter pier		
Control:			2.5 feet by 5.25 feet slide gate		
Wet Well Intakes:					
Level	1	- Size:	4 feet	by	8.5 feet
		Invert:	534.0		
Level	2	- Size:	5 feet	by	7.5 feet
		Invert:	567.0		
Level	3	- Size:	5 feet	by	7.5 feet
		Invert:	583.0		

Feature	Elevation feet NGVD	Area (acres)	Lake Capacity		
			Accumulative (acre-feet)	Runoff (inches)	Incremental (acre-feet)
Top of dam	631.0	27,580	974,000	66.41	182,900
Maximum pool	624.0	24,690	791,100	53.94	287,000
Spillway crest	611.0	19,480	504,100	34.37	38,100
Top of induced surcharge	609.0	18,640	466,000	31.77	36,400
Top of flood control pool	607.0	17,740	429,600	29.29	128,200
Top of conservation pool	599.0	14,360	301,400	20.55	301,140
Top of inactive pool	542.0	90	260	0.02	260
Invert of lowest intake	534.0	10	10	-	10
Streambed	530.0		-	-	-

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RED RIVER BASIN

I - INTRODUCTION

1-01. Authorization. This manual is submitted in accordance with ER 1110-2-240 and prepared in accordance with EM 1110-2-3600 and ER 1110-2-8156. The name Clayton Reservoir was changed to Clayton Lake in accordance with ER 1120-2-111, dated 11 February 1971. The name Clayton Lake was changed to Sardis Lake by PL 97-88, dated 4 December 1981.

1-02. Purpose and scope. The purpose of this manual is to document the plan of water control; to present detailed information to higher authority; and to give guidance to personnel who will become concerned with, or responsible for, regulation of the lake during the life of the project.

1-03. Related manuals. This manual is Appendix M to the Red River Basin Reservoir Regulation Master Manual. Other related manuals in this District are:

Appendix A - Texoma
Appendix B - Altus
Appendix C - Fort Cobb
Appendix D – Foss
Appendix Dq –De Queen
Appendix E - Little River System
    Part I - Pine Creek
    Part III - Broken Bow
    Part VII - Millwood
Appendix F - Arbuckle
Appendix G - Pat Mayse
Appendix H - Hugo
Appendix J - Lake Kemp
Appendix K - Mountain Park Dam and Tom Steed Reservoir
Appendix L – Waurika

The locations of existing and authorized projects are shown on Plate 1-1.

1-04. Project owner. Sardis Lake is owned by the U.S. Government.

1-05. Operating agency. The U.S. Army Corps of Engineers is the operating agency for Sardis Lake. The Lake Manager, Sardis Lake, through the Operations Project Manager, Red River Area, and the Operations Division, Tulsa District, has the responsibility for project operations. The project will be manned on a 7-day work week

June through August. The remainder of the year, the project will be manned on a 5-day work week. However, when the project is in a flood control operation, Sardis Lake personnel will closely monitor the project and the downstream river reaches. The project will be manned 24 hours a day when the lake level is above elevation 605.0. The project office has furnished a list of the Water Management personnel to contact when necessary. The Lake Manager will furnish the Water Management Section a list of project personnel, giving their office and home telephone numbers and addresses. The Lake Manager resides as close to the project as is considered prudent to carry out his official duties.

1-06. Regulating agencies. The regulating agency for Sardis Lake is the Corps of Engineers, with the lake's regulation being the responsibility of the Water Management Section, Hydrology-Hydraulics Branch, Tulsa District.

II - DESCRIPTION OF PROJECT

2-01. Location. Sardis Lake is located at mile 2.8 on Jackfork Creek, a tributary of the Kiamichi River, approximately 2 1/2 miles north of Clayton and 5 miles northwest of Tuskahoma, Oklahoma. The project location is shown on Plate 2-1.

2-02. Purpose. Sardis Lake is a multiple-purpose project for flood control, water supply, recreation, and fish and wildlife. Furthermore, it is a unit of the multiple-purpose system which regulates flood control, generation of hydropower, navigation, and other beneficial water uses on the Red River and its tributaries.

2-03. Physical components.

a. Embankment. The main embankment is a rolled earth fill structure about 14,000 feet long with a maximum height of 101 feet above the streambed. The top of dam, at elevation 631.0, is 32 feet wide with a 24-foot double bituminous road and 4-foot double bituminous shoulders to provide a continuous throughway for traffic. A cutoff trench is provided from station 5+40 of the right abutment to station 83+00. A grout curtain is constructed along the entire length of the cutoff trench. The upstream slope is protected by riprap. The downstream slope was mulched and seeded. A general plan and section of the embankment is shown on Plate 2-2.

b. Spillway. The uncontrolled spillway is located in the right abutment, at the end of the embankment and is 215 feet wide with a concrete inverted 'V' sill section at elevation 611.0. The approach and exit channel of the spillway slope away from the weir at a one and two percent slope, respectively. The plan view of the spillway is shown on Plate 2-2.

c. Outlet works. The outlet works consist of a cut-and-cover 9' x 12.25' oblong reinforced concrete conduit, about 420 feet long, located in the main embankment to the right of the former river channel. Flows through the outlet works are controlled by two 4.25' x 12.25' hydraulically operated wheel gates with two emergency gates provided. Low flow releases will normally be made through a 2.5' x 5.25' low flow sluice. The multilevel intake for the low flow sluice is through two 5.0' x 7.5' and one 4.0' x 8.5' openings into a wet well, each controlled by a slide gate. The invert elevations of the wet well intakes are 583.0, 567.0, and 534.0. The location and a section of the outlet works are shown on Plate 2-3. Detailed views of the intake tower with the multi-level intakes are shown on Plate 2-3.

d. Sediment and degradation ranges. Thirteen sediment ranges were established in and above the lake area, their ends marked with permanent monuments. The location of the sediment ranges are shown on Plate 2-4. Three degradation ranges were established below Sardis Dam to provide information on the downstream channel conditions. The locations of the degradation ranges are shown on Plate 2-5.

2-04. Related control facilities. Presently there are no related control facilities in the immediate vicinity of Sardis Lake.

2-05. Real estate acquisition. The acquisition guideline is elevation 611.0 (spillway crest), which is the standard project flood elevation. The guideline is 5 feet above the 50-year pool. The envelope curves of backwater effects of the 50-year flood (see Plates 2-6, 2-7 and 2-8) are below the acquisition guideline. Reservoir land (surface) was purchased in fee to a blocked perimeter that encompasses the acquisition guideline with a minimum distance of 300 feet measured horizontally from the top of the conservation pool, elevation 599.0. Fee simple title has been acquired to land required for construction of the dam and for operation and maintenance purposes in the area designated as the dam site and public use areas. Flowage easements to occasionally and intermittently flood and submerge were purchased where the acquisition guideline in the main body of the lake, and in the upper limits of the main stem and tributaries, extends beyond the fee purchase limits. There are 21,400 acres in fee simple title and 1,150 acres in easement.

2-06. Public facilities. Four recreational areas have been developed: (1) Potato Hill Park, (2) Sardis Cove, (3) The Narrows, and (4) Mathies Park. Yanush Landing and Green Bohanon Ridge are not operational but have been reserved for future development. See Plate 2-9. Facilities provided at most of these areas consist of roads, parking areas, boat ramps, camping and picnicking facilities, and potable water and sanitary facilities. Mathies Park is located near the outlet works of the project. A public overlook with a panoramic view of the main part of the lake is located on the main embankment at the intake structure. The overlook has parking and sanitary facilities.

Ill - HISTORY OF PROJECT

3-01. Authorization. The general plan for flood control of the Red River, Texas, Oklahoma, Arkansas, and Louisiana, below Denison Dam, Texas and Oklahoma, was authorized by the Flood Control Act of 1946, substantially in accordance with House Document No. 602, 79th Congress, 2d Session. Senate Document No. 145, 87th Congress, 2d Session, recommended the modification and expansion of the general plan by reducing the final flood control storage in Hugo Lake and by adding two additional reservoirs upstream. The plan retained the degree of flood protection on the Red River and afforded additional flood protection on the Kiamichi River. Sardis Lake was authorized for construction by Public Law 874 as recommended by the Chief of Engineers in Senate Document No. 145, 87th Congress, 2d Session, 1962.

3-02. Planning and design. The survey report, published in 1961 as Senate Document No. 145, 87th Congress, 2d Session, presented studies made to determine the most feasible plan for flood control, water supply, and other conservation storages in the Kiamichi River Basin. This report included Hugo, Sardis, and Tuskahoma Lakes. A series of design memoranda have been prepared in connection with planning and construction of Sardis Lake. These reports cover the site selection, hydrology, structural features of the plan, sedimentation and degradation ranges, reservoir clearing, relocation of roads and utilities, and real estate.

3-03. Construction. A resume of construction activities for Sardis Lake is presented in Table 3-1.

TABLE 3-1

RESUME OF CONSTRUCTION ACTIVITIES

Activity	Date
Construction began	August 1975
Date of diversion	4 May 1981
Final storage began	27 December 1982
Conservation pool filled to stage filling plan (596.0)	17 March 1984
Conservation pool filled to Elevation 599.0	20 October 1984

3-04. Related projects. Sardis Lake is a component of the multiple-purpose Kiamichi River system. The projects of the Kiamichi River system are Hugo and Sardis Lakes (completed), and Tuskahoma Lake (de-authorized on 19 July 1998). This system, in conjunction with other units of the Red River and Little River system, is regulated for the control of floods and other beneficial uses on the Red River and its tributaries in Oklahoma, Arkansas, Texas and Louisiana.

3-05. Modifications to regulations. None.

3-06. Principle regulation problems. None.

IV - WATERSHED CHARACTERISTICS

4-01. General characteristics. Jackfork Creek rises in the Kiamichi Mountains in northwestern Pushmataha County and flows in a northeasterly direction through the southeastern corner of Pittsburg County, then in an easterly direction back into Pushmataha County to its junction with North Jackfork Creek and on east to its junction with Anderson Creek. Jackfork Creek then flows in a southeasterly direction to its confluence with Buffalo Creek and then in a more southerly direction to its confluence with the Kiamichi River. Jackfork Creek is a right bank tributary of the Kiamichi River, entering the river about 104.4 miles above the mouth. The total drainage area of the Jackfork Creek basin is 280 square miles, with 275 square miles above Sardis Lake. The drainage area above the lake is roughly fan-shaped, with a length of about 28 miles in a northwesterly direction and about 11 miles in both a northerly and a northeasterly direction. The length of the stream above the dam site is about 34 miles and the weighted slope is about 6.3 feet per mile. The slope varies from about 4.2 feet per mile near the dam site to more than 100 feet per mile at the source of the creek. Elevations in the basin vary from about 2,100 feet in the mountains near the source of Buffalo Creek to about 530 feet near the dam site. Jackfork Creek's streambed profile is shown on Plate 4-1. The Jackfork Creek Basin is located in the rugged Kiamichi Mountain area, with cultivation generally confined to valley portions near the stream. Larger towns within 50 miles of the project include: Antlers, Atoka, Hartshorne, Heavener, Hugo, McAlester, Poteau, Wilburton, and Wister, Oklahoma. The nearest town downstream of the dam site is Clayton, Oklahoma and it is downstream of the confluence with the Kiamichi River. Oklahoma Highway 2 crosses Jackfork Creek downstream of the dam site. Oklahoma Highways 2 and 43 and several county roads provide access to various parts of the basin.

4-02. Topography. The topography of Sardis Lake drainage basin varies from rugged mountainous terrain with generally narrow, steep sided valleys in the upper elevations of the basin, to gently rolling terrain in the flood plains of the lower elevations.

4-03. Geology and soils. Sardis Lake is in the northwestern part of the Ouachita Mountain physiographic province. The rock in the area is upper Paleozoic in age and consists almost entirely of shale and sandstone. Folds and faults are common in the area. Overburden outside the floodplain consists mainly of clays, clayey sands and gravel. Overburden in the floodplain is alluvial material composed of lean clays in the upper layer and silty, clayey, sand and gravel in the basal layer. The overburden in the floodplain averages about 15 feet in depth at the dam site.

4-04. Sediment. Jackfork Creek is a mountain stream with stable banks and bed. A large percentage of the area is covered with forest or grasslands that greatly retard erosion. Cultivated areas in the valleys near the streambed produce some sheet erosion. Average annual sediment yield of Jackfork Creek is estimated at 0.25 acre-feet per square mile of sediment contributing drainage area (253 square miles) or about 64.25 acre-feet. Initial trap efficiency, using the capacity-inflow ratio method of

computation, would be 97.5 percent. Trap efficiency would remain almost constant during the first 100 years of operation, because the low rate of sedimentation would reduce storage capacity only slightly. The resulting 100-year sediment deposition in Sardis Lake would be 6,250 acre-feet. Source areas of sediment (consisting of hard resistant sandstone ridges, soft shale valleys, and flint hills) indicate the sediment would consist mostly of clays, with small amounts of sands and gravels. Clay sediment would tend to distribute throughout the reservoir due to multiple feeder streams and the shape of the lake. Sands and gravels would tend to deposit near the intersection of inflowing streams with the lake. Approximately 5 percent of the sediment would deposit above the flood control pool, 15 percent within the flood control pool, and 80 percent below the top of the conservation pool. No significant problem areas caused by sediment deposition are expected for Sardis Lake.

4-05. Climate. The watershed above Sardis Lake is in an area characterized by mild winters and comparatively long summers. Summer rains usually occur as thunderstorms of short duration with intense rainfall and are of limited areal extent. Winter rains are generally of several days duration and are more extensive in areal distribution.

a. Temperature. (Period of Record is January 1926 – December 2009)

Mean annual	62 degrees F
Maximum recorded (Tuskahoma, Oklahoma, (10 August 1937)	113 degrees F
Minimum recorded (Clayton, Oklahoma, 2 February 1951)	-14 degrees F

b. Precipitation. (Period of Record is January 1926 – December 2009)

Mean Annual	45.23 inches
Maximum annual (1990)	83.19 inches
Minimum annual (1963)	23.45 inches
Percent during growing season (April through September)	57.8%
Average Annual Snowfall	4.5 inches

The average monthly and annual rainfall and runoff data are shown in Table 4-1. The locations of precipitation and stream gaging stations are shown on Plate 5-1.

TABLE 4-1

AVERAGE MONTHLY AND ANNUAL RAINFALL
AND RUNOFF UPSTREAM OF SARDIS DAM

Month	Average Rainfall (inches)	Percent of Average Annual Rainfall	Average (acre-feet)	Runoff (1)(2) (inches)	Percent of Average Annual Runoff
January	2.53	5.6	23,670	1.61	9.0
February	2.98	6.6	27,870	1.90	10.7
March	3.69	8.2	33,600	2.29	12.9
April	4.66	10.3	40,770	2.78	15.6
May	6.16	13.6	42,100	2.87	16.1
June	4.27	9.4	19,730	1.35	7.6
July	3.52	7.8	7,920	0.54	3.0
August	3.17	7.0	3,250	0.22	1.2
September	4.38	9.7	9,090	0.62	3.5
October	3.61	8.0	10,800	0.74	4.2
November	3.45	7.6	18,750	1.28	7.2
December	2.81	6.2	23,730	1.62	9.0
TOTAL	45.23	100.0	261,280	17.82	100.0

(1) Period of record - January 1926 through December 2009.
(2) Drainage area upstream of Sardis Dam is 275 square miles.

c. Evaporation. Following the construction of Sardis project, evaporation data was collected from an evaporation pan on site. In 1996, Tulsa District migrated from physical evaporation measurements to using an empirical formula, based on meteorology data collected on site. The formula incorporates electronically collected data for solar radiation, wind speed, air temperature and relative humidity. Average monthly evaporation figures are shown in Table 4-2, for the period January 1982 – December 2009.

TABLE 4-2

ESTIMATED MONTHLY
EVAPORATION AT SARDIS LAKE
JANUARY 1982 – DECEMBER 2009

Month	Evaporation (inches)(1)	
	Normal	Drought Periods(2)
January	2.26	2.29
February	2.85	3.10
March	4.75	4.68
April	6.28	6.65
May	6.97	6.86
June	7.88	8.59
July	9.39	9.82
August	8.79	9.27
September	6.30	7.07
October	4.80	5.32
November	3.16	3.42
December	2.39	2.13
Total Inches Per Year	65.82	69.20

(1) National Weather Service Class "A" pan.
(2) Using February 1954 through January 1957 and December 1962 through January 1966 as an example drought period.

d. Wind. The prevailing winds are from the south and southeast during the summer and from the northwest in the winter. A study of available wind velocity data indicates that the highest wind velocity that can reasonably be expected for a duration of one hour or more is 45 miles per hour.

4-06. Storms and floods. Major flood-producing storms above Sardis Lake are shown in Table 4-3. Rainfall data were computed from published precipitation records of stations in and adjacent to the watershed (Plate 5-1). Most floods on Jackfork Creek are 3 to 6 days in duration and occur during the winter and early spring months, although severe floods may occur at any time of the year. Major floods at gages downstream of Sardis Lake are shown in Table 4-4. Pertinent data for stream gaging stations in the Kiamichi River basin area are given in Table 4-5.

TABLE 4-3

MAJOR STORMS
JANUARY 1926 THROUGH DECEMBER 2009
JACKFORK CREEK BASIN
UPSTREAM OF SARDIS LAKE

Storm Dates	Average Basin Rainfall (inches)	Storm Dates	Average Basin Rainfall (inches)
11-16 April 1927	5.59	21-22 September 1957	7.33
18-21 April 1927	4.63	30 April – 5 May 1958	5.84
12-15 December 1927	6.60	20-27 July 1959	7.64
4-6 April 1928	6.18	29 Sep– 5 Oct 1959	5.20
21-23 April 1928	5.81	18-20 May 1960	9.11
9-14 June 1928	6.95	22-25 July 1960	6.39
12-14 May 1929	5.02	4-11 December 1960	5.84
2-9 May 1930	6.72	8-10 February 1966	5.84
22-23 October 1931	5.45	10-13 April 1967	6.66
14-16 February 1932	6.13	4-7 September 1967	6.52
26-30 June 1932	5.88	9-13 May 1968	5.25
23-24 December 1932	5.24	17-20 October 1971	5.47
2-3 September 1934	6.38	8-10 December 1971	6.53
4-5 May 1935	6.23	23-26 November 1973	5.18
14-18 June 1935	9.37	4-9 June 1974	6.74
27-28 September 1936	6.26	16-21 April 1976	5.53
21-24 August 1937	5.87	26-28 March 1977	5.06
20-24 January 1938	4.79	13-17 November 1978	5.46
14-18 February 1938	7.56	21-22 May 1979	5.65
25-29 March 1938	5.52	12-18 October 1981	8.94
16-24 May 1940	5.72	19-21 October 1984	6.40
14-19 April 1941	5.61	15-20 November 1985	5.05

TABLE 4-3 (continued)

Storm Dates	Average Basin Rainfall (inches)	Storm Dates	Average Basin Rainfall (inches)
25-31 October 1941	4.08	11-14 June 1989	5.91
6-10 April 1942	5.04	1-4 May 1990	8.79
9-10 May 1943	9.30	25-29 October 1991	11.24
19-21 February 1945	4.70	14-20 April 1993	7.97
9-16 May 1945	6.46	4-15 November 1994	9.26
8-13 June 1945	8.95	10-15 July 1996	6.13
24-30 September 1945	8.10	24-30 November 1996	5.63
2-11 November 1946	13.70	4-8 January 1998	6.51
9-12 December 1946	5.80	5-6 October 1998	5.89
22-28 January 1949	8.89	2-10 November 2000	5.04
3-7 July 1950	6.15	12-17 December 2001	5.30
12-17 September 1950	8.00	19-21 March 2002	5.87
13-20 February 1951	6.23	7-9 April 2002	6.14
6-12 June 1951	5.29	28 Apr – 11 May 2006	6.00
23-24 April 1953	5.00	26 Jul – 7 Jul 2007	6.53
19-22 July 1953	8.19	30 Apr – 6 May 2009	6.26
22-25 September 1955	9.45	9-17 May 2009	5.42
19-30 April 1957	8.58	10-17 September 2009	5.10
		4-10 October 2009	6.10

TABLE 4-4

MAJOR FLOODS RESULTING IN THE TOP TWENTY ANNUAL PEAK DISCHARGES AT GAGES DOWNSTREAM OF SARDIS LAKE

Belzoni Gage (2) From Oct 1915 to Dec 12, 1971			**Antlers Gage** From Apr 24, 1971 to May 12, 2009			**Arthur City Gage** From Jun 10, 1891 to May 11, 2009		
DATE	DISCHARGE (c.f.s.)	STAGE (ft.)	DATE	DISCHARGE (c.f.s.)	STAGE (ft.)	DATE	DISCHARGE (c.f.s.)	STAGE (ft.)
Oct 1915	72000	44.20	5-3-1990	62300	42.65	5-28-1908	400000	43.20
2-18-1938	71400	44.00	3-28-1977	50000	38.33	5-19-1892	(1)	34.80
6-17-1945	70600	43.90	4-8-2002	48400	36.13	2-19-1938	222000	34.30
1-25-1949	67200	42.93	5-10-1993	43400	35.04	5-4-1990	275000	34.21
6-18-1935	57800	42.20	10-21-1984	42200	34.58	6-10-1915	(1)	33.70
12-10-1971	61700	41.90	7-3-2007	36300	34.51	6-17-1935	(1)	31.70
5-22-1960	61600	41.60	5-23-1979	39700	33.70	4-26-1942	199000	31.55
5-11-1943	55300	41.60	11-26-1973	38500	32.62	6-12-1941	183000	31.27
12-14-1927	51600	41.24	1-5-1998	32900	30.30	6-10-1891	(1)	30.00
2-17-1932	50400	41.00	4-21-1976	34500	30.27	7-5-1903	(1)	28.80
5-3-1958	55200	40.78	11-1-1974	33100	30.22	6-6-1957	136000	28.35
12-12-1946	46900	40.33	11-7-1996	31900	29.81	10-18-1923	(1)	28.20
6-12-1951	49400	40.05	3-19-2008	33700	29.48	6-1-1902	(1)	27.30
9-17-1950	47000	40.02	2-16-2001	32100	28.81	5-15-1929	(1)	26.70
4-25-1942	45200	39.75	1-31-1982	30200	28.58	12-7-1913	(1)	26.70
4-15-1927	43800	39.60	12-4-1993	28700	28.25	5-14-1982	142000	26.65
9-22-1957	42300	38.23	4-24-1973	29300	28.16	12-11-1971	121000	26.35
5-13-1968	46700	37.97	5-8-1995	27300	27.48	5-3-1958	120000	26.35
5-6-1961	39900	37.39	4-20-1986	28400	27.39	5-12-1922	(1)	26.20
12-7-1935	36700	36.81	4-13-1991	27700	27.18	5-4-1906	93800	26.10
Flood stage 28.0 feet			Flood stage 23.5 feet			Flood stage 27.0 feet		

(1) Data Not Available
(2) Taken Out of Operation

TABLE 4-5

PERTINENT DATA FOR STREAM GAGING STATIONS

STATION	STREAM	MILES ABOVE MOUTH	GAGE ZERO (ft.,NGVD)	FLOOD STAGE (ft.)(3)	Drainage Area (sq. mi.)	MAXIMUM FLOOD OF RECORD		
						DATE	STAGE (ft.)	DISCHARGE (c.f.s.)
Big Cedar, OK	Kiamichi River	157.6	886.97	9.0	40.1	5-19-90	19.60	27,400
Clayton, OK	Kiamichi River	101.6	520.00	15.0	708	5-4-90	22.23	40,200
Antlers, OK	Kiamichi River	59.6	419.82	22.0	1,138	5-3-90	42.65	62,300
Dekalb, TX	Red River	556.9	302.92	23.7	47,348 (1)	11-26-96	26.61	97,300
Index, AR	Red River	485.3	246.87	19.8	48,030 (1)	2-23-38	34.25	297,000

STATION	STREAM	2ND LARGEST FLOOD OF RECORD			3RD LARGEST FLOOD OF RECORD			PERIOD OF RECORD
		DATE	STAGE (ft.)	DISCHARGE (c.f.s.)	DATE	STAGE (ft.)	DISCHARGE (c.f.s.)	(FLOW AND / OR STAGE)
Big Cedar, OK	Kiamichi River	10-5-98	18.08	21,200	4-8-02	17.57	19,300	FEB 1966 - Pres
Clayton, OK	Kiamichi River	3-20-08	20.86	31,000	6-7-81	20.21	24,800	JUN 1981 - Pres
Antlers, OK	Kiamichi River	3-28-77	38.33	50,000	4-8-02	36.13	48,400	APR 1973 - Pres
Dekalb, TX	Red River	1-7-98	25.00	79,100	4-6-85	24.01	66,100	DEC 1967 - Pres
Index, AR	Red River	5-10-90	32.30	270,000	5-25-35	31.10	(2)	APR 1918 - Pres

(1) Includes 5,936 sq. mi. of non-contributing area
(2) Not determined
(3) Regulating Flood Stages

4-07. Runoff characteristics. Mountainous areas of the upper Jackfork Creek Basin provide a steep terrain but are heavily covered with timber, while the rolling hills in the lower part of the basin are well covered with grasses. There is little cultivated area in the basin. Initial losses and infiltration rates were studied for several storms at the Belzoni and Miller gages. Results indicate the rainfall needed to satisfy the initial losses before significant runoff began was 0.75 inch of rainfall and an infiltration rate of 0.02 inch per hour. It was determined during design studies that the peak inflow into the lake would occur about 8 hours after the beginning of a rain. Estimated monthly and annual flows at the Sardis Lake dam site are shown in Table 4-6, located in the Supplemental Tables Section. The monthly inflow volume frequency is shown in Table 4-7. The inflow duration curve is shown on Plate 4-2.

4-08. Water quality. There is no specific storage provided for water quality; however, the quality of water in Jackfork Creek is considered good and is suitable for general municipal and industrial purposes. Concentrations of sulfates and chlorides are well below in-stream maximum limits for raw water sources for public water supplies as recommended by the State of Oklahoma's "Water Quality Standards".

TABLE 4-7

INFLOW VOLUME FREQUENCY
(1926-2009)

Frequency Of Occurrence (years)	Monthly Inflow in Thousands of Acre-Feet											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2	18	20	27	29	32	16	3	1	4	5	17	19
5	35	50	51	68	73	33	8	4	14	17	34	43
10	62	71	79	90	95	60	28	7	31	32	61	69
25	101	103	104	127	128	86	51	24	52	81	97	102
50	115	128	148	155	156	103	74	20	94	110	114	127
100	183	184	186	187	188	175	114	26	142	172	176	184

4-09. Channel and flooding characteristics. The regulating channel capacity of Jackfork Creek below Sardis Lake is 4,000 c.f.s.. Even though there is only a short reach from Sardis Dam to the mouth of Jackfork Creek (2.8 miles), agricultural damages would occur from releases in excess of 4,000 c.f.s.. The channel capacity of the Kiamichi River varies from about 7,000 c.f.s. near Tuskahoma, Oklahoma, to 21,300 c.f.s. (23.5 feet) near Antlers, Oklahoma. Discharge rating curves for the Clayton gage and the Antlers gage on the Kiamichi River are shown on Plates 4-3 and 4-4, respectively. These rating curves are valid for rough use only. Discharge rating curves used by the Reservoir Control Section are adjusted for changing conditions and are maintained in current status. The banks and streambed of Jackfork Creek and the Kiamichi River are considered stable. Crest travel time from Sardis Dam to the Clayton gage on the Kiamichi River is 3 hours and from the Clayton gage to the Antlers gage on the Kiamichi River is 22 hours. A simplified diagram showing crest travel is presented on Plate 4-5.

4-10. Upstream structures. There are no upstream structures.

4-11. Downstream structures. Hugo Dam located at river mile 17.6 on the Kiamichi River is the first downstream structure. It has a drainage area of 1,709 square miles and is regulated by the Tulsa District Corps of Engineers.

4-12. Economic Data.

a. Population. The population of counties and cities traversed by the Kiamichi River are shown in Table 4-8. Although varying proportions of the counties listed lie within the watershed boundary, the entire population of each county is included.

b. Industry. Farming is a major industry along with Retail Trade, Health Care & Social Assistance, and Food Services. Tables 4-8A through 4-8C show data on the number of establishments, sales, annual payroll, and employees for the counties in the watershed boundary.

c. Agriculture. Farming and lumbering are the principal occupations within the Kiamichi River Basin. Major crops that are grown in the area include corn, alfalfa, and native hay. Most of the uncultivated areas in the basin have fair grass coverage and are used for pasturing cattle. Table 4-9 shows the annual value of crops that lie within the flood plain below Sardis Dam. Tables 4-10 and 4-11 provide farm land use facts for the counties downstream of Sardis Dam.

d. Flood Damages. The estimated average annual flood damages prevented by Sardis Dam on the Kiamichi River are presented in Table 4-12 while the top five flood events, in terms of flood damages prevented, to pass through Sardis Dam are presented in Table 4-13. Plates 4-6 and 4-7 show the Structural Loss and Area curves for the Antlers and Clayton areas.

TABLE 4-8

POPULATION of COUNTIES AND CITIES
DOWNSTREAM OF SARDIS DAM

County	**Major Cities**	**U.S. Census Population**			**% Change (1990-2000)**
		1990	**2000**	**2008***	
Oklahoma					
Latimer		10,300	10,700	10,600	4 %
	Wilburton	3,100	3,000	2,900	-4 %
Pittsburg		40,600	44,000	45,100	8 %
	McAlester	16,400	17,800	18,200	9 %
	Krebs	2,000	2,000	2,100	5 %
Pushmataha		11,000	11,700	11,700	6 %
	Antlers	2,500	2,600	2,500	1 %
	Clayton	700	700	700	0 %
1990 Census, 2000 Census, *2007 or 2008 Population Estimates http://factfinder.census.gov/					

TABLE 4-8A

2002 ECONOMIC CENSUS FOR LATIMER COUNTY, OK

NAICS Code	Industry Description	Number of Establishments	Sales, Shipments, Receipts, or Revenue ($1,000's)	Annual Payroll ($1,000's)	Number of Employees
31-33	Manufacturing*	2	$ -	$ -	e
42	Wholesale trade	9	$ 20,400	$ 1,400	49
44-45	Retail trade	25	$ 28,100	$ 3,200	198
51	Information	3	N	$ 400	15
53	Real estate & rental & leasing	3	$ 4,700	$ 1,000	23
54	Professional, scientific, & technical services	10	$ 1,200	$ 400	25
56	Administrative & support & waste management & remediation service	4	D	D	a
61	Educational services	-	- -	-	-
62	Health care & social assistance	30	$ 16,200	$ 7,500	388
71	Arts, entertainment, & recreation	1	D	D	a
72	Accommodation & food services	8	D	D	b
81	Other services (except public administration)	12	$ 1,900	$ 300	32

Source: U.S. Bureau of the Census, 2002 Economic Census,
* 2006 County Business Patterns
Key to table:
e = 250 – 499 employees
N = Not available or not comparable
D = Withheld to avoid disclosing data for individual companies; data are included in higher totals
a = 0 – 19 employees
b = 20 – 99 employees

TABLE 4-8B

2002 ECONOMIC CENSUS FOR PITTSBURG COUNTY, OK

NAICS Code	Industry Description	Number of Establishments	Sales, Shipments, Receipts, or Revenue ($1,000's)	Annual Payroll ($1,000's)	Number of Employees
31-33	Manufacturing	26	$ 196,300	$ 21,000	741
42	Wholesale trade	40	D	D	e
44-45	Retail trade	190	$ 430,000	$ 38,500	2,192
51	Information	19	N	$ 6,700	247
53	Real estate & rental & leasing	35	$ 12,400	$ 2,900	164
54	Professional, scientific, & technical services	73	$ 22,900	$ 7,300	288
56	Administrative & support & waste management & remediation service	36	$ 27,100	$ 10,900	567
61	Educational services	3	D	D	a
62	Health care & social assistance	96	$131,100	$ 58,100	2,282
71	Arts, entertainment, & recreation	5	D	D	b
72	Accommodation & food services	83	$ 46,300	$ 12,700	1,308
81	Other services (except public administration)	65	$19,100	$ 5,100	305

Source: U.S. Bureau of the Census, 2002 Economic Census
Key to table:
e = 250 – 499 employees
N = Not available or not comparable
D = Withheld to avoid disclosing data for individual companies; data are included in higher totals
a = 0 – 19 employees
b = 20 – 99 employees

TABLE 4-8C

2002 ECONOMIC CENSUS FOR PUSHMATAHA COUNTY, OK

NAICS Code	Industry Description	Number of Establishments	Sales, Shipments, Receipts, or Revenue ($1,000's)	Annual Payroll ($1,000's)	Number of Employees
31-33	Manufacturing*	9	$ -	$ 2,100	120
42	Wholesale trade	6	$ 2,200	$ 300	13
44-45	Retail trade	53	$ 48,400	$ 4,300	371
51	Information	4	N	D	b
53	Real estate & rental & leasing	3	$ 600	$ 300	11
54	Professional, scientific, & technical services	13	$ 2,400	$ 700	33
56	Administrative & support & waste management & remediation service	1	D	D	b
61	Educational services	-	$ -	$ -	-
62	Health care & social assistance	18	D	D	f
71	Arts, entertainment, & recreation/*	2	$ -	$ -	a
72	Accommodation & food services	14	$ 3,600	$ 900	127
81	Other services (except public administration)	9	D	D	b

Source: U.S. Bureau of the Census, 2002 Economic Census,
* County Business Patterns
Key to table:
e = 250 – 499 employees
N = Not available or not comparable
D = Withheld to avoid disclosing data for individual companies; data are included in higher totals
a = 0 – 19 employees
b = 20 – 99 employees

TABLE 4-9

ANNUAL VALUE OF CROPS
BELOW SARDIS DAM

Kiamichi River Basin		
	Sardis Dam site to Cedar Creek	
Crops	**Area (Acres)**	**Value**
Corn	200	$ 46,100
Alfalfa	130	$ 24,200
Native Hay	340	$ 137,000
Timber	500	$ 7,700
Pasture	2,260	$ 468,900
Wooded Pasture	7,870	$ 66,500
Total	11,300	$ 750,400
Yield Rates from Oklahoma State University Crop Enterprise Budgets 2009, 2009 Current Normalized Prices, Acres maintained from WCM		

TABLE 4-10

COUNTY ACRES IN FARM LAND

County	**Land in Farms 2002 (Acres)**	**Land in Farms 2007 (Acres)**	**Total County (Acres)**	**2002 % Farm Land**	**2007 % Farm Land**
Oklahoma					
Latimer	205,652	213,411	462,080	45 %	46 %
Le Flore	410,923	466,406	1,015,040	40 %	46 %
Arkansas					
Scott	123,526	96,465	572,160	22 %	17 %
Sebastian	121,663	104,459	343,040	35 %	30 %
Source: 2007 Agriculture Census http://www.agcensus.usda.gov/ National Association of Counties http://www.naco.org/					

TABLE 4-11

FARMING FACTS

County	Number of Farms in 2002	Number of Farms in 2007	Average Size of Farms in 2002 (Acres)	Average Size of Farms in 2007 (Acres)	Average Market Value of Production per farm in 2007
Oklahoma					
Latimer	738	760	279	281	$ 26,900
Le Flore	1,927	2,043	213	228	$ 104,300
Arkansas					
Scott	697	593	177	163	$ 189,800
Sebastian	812	931	150	112	$ 72,400
Source: 2007 Agriculture Census http://www.agcensus.usda.gov/					

TABLE 4-12

AVERAGE ANNUAL FLOOD DAMAGES PREVENTED

Average Annual Flood Damages Prevented by Sardis Dam		
Years in Operation	**Cumulative Damages Prevented (2008 $ 1,000's)**	**Average Annual Damages Prevented (2008 $ 1,000's)**
26	$ 53,000	$ 2,000

TABLE 4-13

TOP FIVE FLOOD EVENTS
DOWNSTREAM OF SARDIS DAM

Top Five Floods of Record		
Year	**Damages Prevented ($1,000s)**	**Damages Prevented (2008 $1,000's)**
2007	$ 12,000	$ 12,000
2008	$ 7,000	$ 7,000
2002	$ 6,000	$ 6,000
1993	$ 3,000	$ 5,000
1997	$ 3,000	$ 4,000

V - DATA COLLECTION AND COMMUNICATION NETWORKS

5-01. Hydrometeorological stations.

a. Facilities. The Water Management Section, Hydrology-Hydraulics Branch, Tulsa District Office; the National Weather Service (NWS); and the U.S. Geological Survey (USGS) cooperate to collect data and maintain a reliable communication network. All pertinent and active reporting observation stations are shown on Plate 5-1. Pool elevation data are provided by a bubbler gage connected to a digital recorder and wired to a transmitting type data collection platform. This equipment is located in a gage house on the dam.

All stream gaging stations are automated gages consisting of float wells or bubbler gages connected to digital recorders and data collection platforms. One stream gage is used in forecasting inflows into Sardis Lake. That gage is located on the Kiamichi River near Clayton, Oklahoma. The gages designated for regulation are: the Kiamichi River at Big Cedar, Clayton, and Antlers, Oklahoma, and the Red River near Index, Arkansas, and Arthur City and Dekalb, Texas.

Automated stream gaging stations are equipped with automated rain gages that provide precipitation data transmitted along with stage data. Precipitation and stream gaging stations are shown on Plate 5-1.

b. Reporting. The reporting procedures for precipitation and stream gaging stations are on a cooperative basis with the NWS and the USGS. The reporting of data from pool elevation and stream gaging stations has been automated by using high data rate Data Collection Platforms (DCP's) which record data hourly and transmit the data every hour or when a threshold value is exceeded. The data is transmitted via Geostationary Operational Environmental Satellite (GOES) to a downlink and computer facility owned and operated by the National Oceanic and Atmospheric Administration (NOAA) near Washington, D.C. The data is then transmitted to a domestic satellite (DOMSAT) which in turn passes the data to the Tulsa District's Receive Only Terminal (DROT). The data from the NOAA computer facility may also be transferred via the Internet. When received, the river stage is converted to flow and lake elevation is converted to storage. All the data are then stored in a database on the Tulsa District Water Control Data System (WCDS) for access when needed. Data Collection Platforms also report rainfall data in the same way. Besides DCP data, observer rainfall data is collected and stored in the computer system for use in forecasting. Observers telephone the NWS offices in this region and the NWS then encodes the data into a Standard Hydrologic Exchange Format (SHEF). This data is then transferred to the WCDS by electronic data transmission from the Arkansas-Red Basin River Forecast Center. Once the data is received, it is decoded and handled similarly to the DCP data. Informative display of all data is possible by using several versatile computer programs developed for use on the WCDS. Table 5-1 contains a list of automated stream gage and rainfall stations. Detailed instructions on reporting criteria are presented in paragraph 2. of Exhibit B, Standing Instructions to Lake Manager.

c. Maintenance. Maintenance and repair of stream gages are the responsibility of the administering agency. Both the Corps of Engineers and the USGS have stream-gaging equipment in the Kiamichi River Basin. The Hydraulic Engineering Section, Hydrology-Hydraulics Branch, Tulsa District, is charged with the responsibility for the equipment placed by the Corps of Engineers.

5-02. Water Quality Stations.

a. Facilities. Water quality samples have been taken at Big Cedar, Clayton, Antlers, Belzoni, and Miller, Oklahoma, and Arthur City and Dekalb, Texas. Water quality sample data have not been recorded for Sardis Lake with any regularity. These data are reported directly to the Tulsa District Office.

b. Reporting. Water quality samples taken by Corps of Engineers personnel will be reported directly to the Tulsa District Office.

c. Maintenance. No permanent facilities exist to maintain.

5-03. Sediment Stations.

a. Facilities. The Corps has established 13 sedimentation ranges above Sardis Dam and three degradation ranges below Sardis Dam to be used for sedimentation measurements (paragraph 4-04). These ranges are surveyed periodically to compute sediment deposition and new lake area/capacity data. The ranges are shown on Plates 2-4 and 2-5.

b. Reporting. Sediment surveys are made infrequently for Sardis Lake. The lake has not been resurveyed because of a low sediment load into the lake.

c. Maintenance. Maintenance on the sediment ranges is performed by the Tulsa District.

TABLE 5-1

AUTOMATED GAGES

Station	Operating Agency	Tulsa ID	USGS ID	SHEF ID	LAT	LONG
Automated Stream Gages (1)						
Kiamichi River near Big Cedar, OK	USGS	BCED	07335700	BCDO2	343818	943644
Kiamichi River near Clayton, OK	USGS	CLAY	07335790	CLTO2	343401	952050
Kiamichi River near Antlers, OK	USGS	ANTL	07336200	ANTO2	341454	953618
Red River near Arthur City, TX	USGS	ARTH	07335500	ARCT2	335232	953007
Red River near Dekalb, TX	USGS	DEKA	07336820	DEKT2	334115	944139
Red River near Index, AR	USGS	INDX	07337000	INGA4	333307	940228
Automated Pool Gages (2)						
Sardis Lake	COE	SARD	07335775	CYDO2	343745	952102
Automated Rainfall Gages Used in the Sardis Lake Forecast Model						
Big Cedar, Oklahoma	COE	BCED	07335700	BCDO2	343818	943644
Clayton, Oklahoma	COE	CLAY	07335790	CLTO2	343401	952050
Antlers, Oklahoma	COE	ANTL	07336200	ANTO2	341454	953618
Farris, Oklahoma	COE	FMUD	07334000	FRSO2	341616	955442
Hartshorne, Oklahoma	COE	HART	???	HAHO2	344903	952850
McGee Creek, nr Farris, Oklahoma	COE	MCGE	07333910	MGCO2	341900	955159
Honobia, Oklahoma	USGS	HONO	343142094555201	HNBO2	343130	945600
McGee Creek Wildlife Refuge	USGS	MCGM	???	MGWO2	342730	955200
Red Oak, Oklahoma	USGS	REDO	07247500	RDOO2	345445	950919
Sardis Lake	COE	SARD	07335775	CYDO2	343745	952102
Wister Lake	COE	WIST	07248000	WSLO2	345609	944310
Antlers, Oklahoma	MESO	ANSO2	--	--	341328	954202
Clayton, Oklahoma	MESO	CASO2	--	--	343924	951934
Cloudy, Oklahoma	MESO	CDSO2	--	--	341324	951455
Centrahoma, Oklahoma	MESO	CNSO2	--	--	343632	961959
Lane, Oklahoma	MESO	LNSO2	--	--	341832	955950
McAlester, Oklahoma	MESO	MCSO2	--	--	345256	954652
Stuart, Oklahoma	MESO	SUSO2	--	--	345235	960411
Talihina, Oklahoma	MESO	THSO2	--	--	344239	950041
Wilburton, Oklahoma	MESO	WBSO2	--	--	345403	952053

(1) None of the automated stream gages are in the Sardis Lake Forecast Model
(2) Used in the Sardis Lake Forecast Model

5-04. Recording Hydrologic Data. Hydrologic information is recorded as it is received by the Water Management Section as follows:

a. Stages and Discharges. The raw data that the water management computer retrieves from the central computer are stored as it is received. These raw data are then sorted by station and stored again. Several computer programs convert the raw data into stage/pool elevation data and the corresponding flow/storage values as determined from rating curves. These processed data are then stored in two databases. To prevent the databases from filling, they are periodically archived on tape for permanent storage. Stream flow measurements made by the USGS are reported to the Hydrology and Hydraulics Section. The measurements are entered into the database for storage.

b. Precipitation. Precipitation data from the DCP stations and the project are combined with NWS observer precipitation data that can then be used by computer programs for plotting distribution, determining basin rainfall, and forecasting runoff (see Chapter VI).

c. Water Quality Data. Water quality data has not been recorded with regularity for Sardis Lake.

5-05. Communication Network. Wire facilities at the Sardis Lake Office consist of local and long-distance telephone service. Radio Communication is by a VHF-FM fixed station (call signal WUI-330) capable of reaching local mobile stations, the Tulsa District Office, stations on the local loop of the District and other stations on the north and south loop of the District via repeater relay. Maintenance of the telephone lines is the responsibility of the company leasing the lines to the Government. The District radio technician makes quarterly inspections of the project's fixed equipment and makes repairs as conditions warrant. To alert the public of impending gate changes, warning horns are located on the conduit gate tower, on the downstream end of the conduit, and on the spillway. Control buttons for these devices are found on the gate control panels.

5-06. Communication with Project.

a. Water Management Section with Project Office. Instructions for the storage and release of water from the lake will be communicated by the Water Management Section to the responsible project operating personnel for the implementation of the provisions set forth in Chapter IX of this manual. This communication will normally be made by telephone but could on occasion be made by VHF-FM radio. The reports by the project office, described in paragraph 5-07 and Exhibit B of this manual, will be communicated directly to the Water Management Section. Should communication between the project and the District Office be disrupted, the Lake Manager will, on his own initiative, direct regulation of the lake according to emergency regulations as required in Chapter VII and Exhibit B of this manual. A chart, "Organization for Flood Control Regulation – Sardis Lake" is shown on Plate 5-2.

b. Between Project Office and Others. Communications between project personnel and other Federal, State, and local agencies will be sufficient to facilitate the coordination described in Chapter IX of this manual.

5-07. Project Reporting Instructions. Most of the daily lake data from Sardis Lake (see Plate 5-3) will be obtained from the WCDS database. Weather data and other data collected by the Sardis Lake Project will be submitted to the Water Management Section, Hydrology-Hydraulics Branch, Tulsa District Office (telephone 918-669-7085 or VHF-FM radio, call signal WUI-3). The Water Management Section office is manned from 7:00 a.m. to 4:30 p.m. daily and various hours on weekends and holidays, as needed. Data for nonworking days will be read and submitted the following workday. Should unusual conditions arise during nonworking hours, one of the persons listed on page i should be contacted. The following data should be included in the daily report.

a. As of 8:00 a.m. Each Weekday.

(1) The total precipitation amounts for the previous 24-hour periods (7:00 a.m. to 7:00 a.m.).

(2) The current wind direction and wind speed (Beaufort scale).

(3) Number of water supply pumps in operation.

(4) The current gate setting and any gate changes made during the past 24-hour period including the time and pool elevation when the change was made.

b. As of 8:00 a.m. Each Monday.

(1) The same data as required in a. above.

(2) The current pool elevation readings from the pool gage and data logger. If wind or weather prevents readings on Monday, then these readings can be taken on the next day that weather permits.

(3) Wire weight reading to confirm accuracy of DCP data.

c. Weekends and Holidays.

(1) Daily reports are not required on weekends and holidays except during flood periods.

(2) During flood periods, weekend and holiday reports should include the same data as required in a. above plus the 8:00 a.m. pool elevation from the pool gage.

d. During Flood Periods. Besides the data in a. and b. above, additional reports of lake elevations may be requested by the Water Management Section personnel during flood periods.

e. Rainfall Reports. Rainfall reports will be made as follows:

(1) At 8:00 a.m. all precipitation that occurred during the preceding 24 hours (7:00 a.m. to 7:00 a.m.) as shown on Plate 5-3 (covered by routine report on working days).

(2) Report at once the occurrence of 2.00 inches or more of precipitation that occurs during a period of six hours or less. During nonworking hours, the report should be made to one on the persons listed on Page i.

5-08. Warnings. It is the responsibility of the Lake Manager to initiate a warning to the Oklahoma Civil Defense Department and local law enforcement agencies if emergency situations develop. They have the responsibility to properly recognize emergency situations and to seek assistance from supervisory offices, if time permits. They must be knowledgeable of conditions that constitute an emergency such as a dam failure possibility. The downstream population should be notified as early as possible of a potential problem. Minimum notification procedures are as follows: A “General Alert” should be issued by the Lake Manager to the Civil Defense when life-threatening high releases from a dam failure or flooding are predicted to reach the downstream population at risk within 6 hours; An “Evacuation Warning” should be issued by the Lake Manager when analysis of the threatening event and reservoir response indicate that life-threatening floodwaters will reach the downstream population in 4 hours or less. The Sardis Lake project personnel have compiled a list of downstream contacts for use in emergency situations.

5-09. Frequency of Gate Changes. During flood periods, gate changes may be directed by the Water Management Section at anytime. The initial transition to flood releases or vice versa may require gate changes every hour. When floodwater has significantly risen into the flood control pool, gate changes can be expected two or more times daily. Only under the most unusual circumstances will changes be ordered more frequently than once every hour.

VI - HYDROLOGIC FORECASTS

6-01. General. Hydrologic forecasts are necessary in predicting stream flow above and below Sardis Lake to determine if and when releases should be made.

a. Role of Corps of Engineers. Hydrologic forecasts are made by the Forecasting Section, Tulsa District, for use in the regulation of lakes for flood control and other authorized purposes and for the benefit of Corps of Engineers' construction projects and flood management activities. As distinguished from the National Weather Service (NWS) who furnishes weather and flood forecasts to the public, the District furnishes information on current and forecasted lake levels and lake releases, along with technical advice. The Water Management Section (lake levels recording), telephone No. 918-669-7521, is listed in the Tulsa telephone directory to provide the public a means of obtaining current lake information such as pool levels and discharges. General news releases are made by the Public Affairs Office which is kept fully informed of the hydrologic situation as appropriate. Further discussion of the role of the Corps of Engineers in hydrologic forecasts is presented in Section V of the Reservoir Regulation Master Manual for the Red River Basin.

b. Role of other agencies. The National Weather Service, Oklahoma City, Oklahoma, is the official agency making flood forecast information available to the public. This information is distributed by the NWS Automation of Field Operations and Services (AFOS) network to subscribing government agencies and the various news media. The NWS issues routine scheduled reports containing the following forecasts:

(1) Weather forecasts (daily, severe weather, and 5-day extended).

(2) National weather summaries and additional details for the five south-central states (four times daily).

(3) Quantitative precipitation forecasts (four times daily - one 24-hour and one 48-hour quantitative precipitation forecast and two 6-hour quantitative precipitation forecasts).

(4) Three-day river stage forecasts (when available).

(5) Rainfall required to produce bank full stages (weekly).

(6) Urgent priority messages such as severe weather warnings, watches, forecasts and statements, and instructions from Civil Defense during emergency conditions are transmitted immediately, regardless of scheduled traffic. Unscheduled traffic, including the following, is sent any time the circuit is idle.

(a) Damage reports.
(b) Road information and winter weather conditions.
(c) River and flood warning bulletins, forecasts, and statements.

(d) Thirty-day forecast.
(e) Road information and winter weather conditions.

(7) Percent chance of precipitation (twice daily).

6-02. Flood conditions forecasts.

a. Requirements. Flood condition forecasts are necessary whenever substantial rainfall has occurred on the basin above or below Sardis Dam. Personnel in the Forecasting Section have developed a flood-forecasting model for Sardis Lake. This model was calibrated to historical flood events. Basin subdivisions contained in the forecasting model are presented in Plate 6-1. To use this model the following data is required:

(1) Rainfall for stations listed in Table 5-1.

(2) Sardis Lake pool elevation for time of forecast.

(3) Flood hydrographs for stream gages listed in Table 5-1.

(4) Releases from Sardis Lake, including projected releases, from time of forecast until the end of the forecast period.

b. Methods. Inflow forecasts are made using a slightly modified HEC-1 computer program. Precipitation data is received from the NWS observers, the Data Collection Platforms (DCP) by the water control computer, the Oklahoma Mesonet, and also the NWS Stage III digital radar. The average precipitation over the project basin is computed by a computer program called VIEWRAIN. The VIEWRAIN program takes the DCP data and plots isohyetal maps of 24-hour rainfall. The VIEWRAIN program also computes the basin and subbasin average rainfalls for input into the HEC-1 forecasting model. The HEC-1 program uses the hourly DCP rainfalls to distribute the subbasin average rainfalls. Beginning loss rates are chosen based upon historical storm reproductions. Rainfall excess is computed by subtracting the applicable losses from the incremental rainfall amounts. One-hour unit hydrographs are computed using Snyder's coefficients or are entered directly into the data file for each subarea. Flood hydrographs are computed by applying the rainfall excess to the unit hydrographs. Computed flood hydrographs are compared with observed flood hydrographs for gages listed in Table 5-1. Loss rates are adjusted and the HEC-1 model is rerun until the computed and observed hydrographs converge. Calibrated loss rates are applied to ungaged subareas and flood hydrographs are combined and routed to compute an inflow hydrograph. Using projected releases from Sardis Lake, the inflow hydrograph is routed through the lake to determine elevations. Flood control releases are projected based upon conditions on the Red River System and following procedures described in section V of the Red River Basin Water Control Master Manual. Unit hydrographs are presented on Plates 6-2 through 6-6. A sample inflow computation is shown on Plate 6-7.

6-03. Conservation Purpose Forecasts.

a. Requirements. Conservation forecasts may be requested by Project personnel to predict pool levels during fish spawning season, and special recreation events. Forecasts may also be requested for water quality.

b. Methods. Forecasts for conservation purposes during non-flood periods would rely largely on statistical interpretation of historical data. The flow duration curve, Plate 4-2; and the peak inflow probability curve, Plate 8-5; would be considered with NWS forecasts in making conservation forecasts during non-flood periods.

6-04. Long-Range Forecasts.

a. Requirements. The regulatory decision involved in evacuating stored floodwater, sustaining yield during low flow periods, and maintaining constant or slowly changing pool levels for conservation purposes is dependent on accurate estimates of the water volume that will pass through the reservoir.

b. Methods. Reliable methods for long range runoff forecasts are not presently available. The NWS publishes an "Average Monthly Weather Outlook" semi-monthly, which may be used as an estimate of the trend of the weather but should not be given too much weight for one forecast, especially for a specific point. The NWS forecasts described in paragraph 6-01b are more useful in a shorter range.

6-05. Drought Forecasts. Droughts can be forecasted when runoff is dependent upon snowmelt by measuring snow pack in the mountains. However, on projects where runoff is a result of a rainfall event, as in the Tulsa District, no techniques are available at this time to forecast droughts. Future pool draw downs can be forecasted by estimating water supply usage and evaporation rates.

VII - WATER CONTROL PLAN

7-01. General objectives. The primary objectives of Sardis Lake are flood control, water supply, recreation, and fish and wildlife. Sardis Lake will be regulated to provide optimal flood reduction on the Jackfork Creek and the Kiamichi River above Hugo Lake, and in conjunction with other projects in the Red River Basin for flood reduction on the Red and Mississippi Rivers. All of the flood control storage will be utilized to provide optimal benefits, categorized as method A in paragraph 3-02 of EM 1110-2-3600.

7-02. Major constraints. The channel capacity immediately downstream from the dam is estimated at 4,000 c.f.s. while the outlet works has the capacity of releasing up to 4,100 c.f.s. at the top of conservation pool, elevation 599.0. The minimum elevation that water can be released through the flood control conduit is elevation 534.0. The minimum elevation that channel capacity can be released is 596.0. The invert of the low-flow sluices and the water supply sluices is at elevation 534.0.

7-03. Overall plan for water control.

a. General. Sardis Lake will be regulated for the control of floods on Jackfork Creek and the Kiamichi River in a manner to obtain maximum benefits downstream and to meet authorized purposes from the conservation pool. During the periods when floodwaters are being accumulated in the lake, releases will be made considering available storage, predicted inflow into the lake, conditions downstream, and needs for recreation, fish and wildlife, water quality and water supply, and other environmental enhancements downstream. The resource development to be accomplished by the Red River system is discussed in the Reservoir Regulation Master Manual, Red River Basin, while the specific purposes of the various projects are detailed in the appropriate Appendix. The specific objectives and regulation procedures for the various project purposes at Sardis are discussed in the following paragraphs.

b. System regulation. Sardis Lake is a component of the Jackfork Creek-Kiamichi River Flood Control System from which releases into the Red River can only be made from Hugo Lake. Sardis and Hugo Lakes will be regulated as a subsystem of the Red River system. When floodwaters are being accumulated in the system, each subsystem of the Red River shall be regulated so as to retain equivalent flood control capabilities, as much as possible, with priority for releases being made from the subsystem with the greatest percentage of flood control storage utilized considering predicted inflow into the lakes and conditions downstream. Within the subsystem, if Hugo Lake's flood control storage utilized is more than five percent higher than Sardis Lake's and releases from Hugo Lake are restricted due to the flow of the Red River, releases from Sardis Lake will be adjusted to bring the two projects in balance.

7-04. Standing instructions to Lake Manager. During flood periods the lake will be regulated in accordance with the normal regulations for flood control as directed in this Section and Exhibit B of this manual. Instructions for the storage and discharge of floodwater will be issued by the Water Management Section. In the event

communications with the Tulsa District Office are disrupted, the lake will be regulated in accordance with the schedule of emergency regulations for flood control operations instructions in Section 7-05.b. and Exhibit B. In addition, the Lake Manager will immediately make every effort to re-establish communications with the Tulsa District Office. The Lake Manager will make daily observations of the weather station and report those observations as directed in paragraph 5-06 and repeated in Exhibit B. Should an emergency exist, such as inoperable gates, drowning accident, excessive trash in the gates, broken buoy line, or power outage, the Water Management Section will be notified immediately.

7-05. Flood control.

a. Normal flood control regulations. Sardis Lake is regulated to provide flood reduction on Jackfork Creek from Sardis Dam to the confluence of Jackfork Creek with the Kiamichi River, and on the Kiamichi River to Hugo Lake, and is coordinated with the flood control regulation of the Red River reservoir system. The following regulations will govern releases from Sardis Lake (see Table 7-1).

TABLE 7-1

NORMAL FLOOD CONTROL REGULATION SCHEDULE
SARDIS LAKE
JACKFORK CREEK, OKLAHOMA

Lake Stage	Pool Conditions	Regulation
below 599.0	Rising	Releases are made to maintain 599.0 but will not be less than the downstream requirements defined in paragraph 7-10.
599.0 - 607.0	Rising	Make releases using the following schedule as a guide, except that the release, when combined with unregulated flows downstream shall not exceed 4,000 c.f.s. at the dam on the Jackfork Creek; a 15.0 foot regulating stage (15,700 c.f.s.) at the Clayton, OK gage and a 22.0 foot regulating stage (19,700 c.f.s.) at the Antlers, OK gage, both on the Kiamichi River. If the uncontrolled flows exceed any of those listed above, no release will be made that would contribute to flooding. NOTE: When the predicted volume of runoff from the area above the dam exceeds the available flood control storage, the release schedule may be modified to obtain maximum benefits under conditions existing in the lake area and in the downstream reaches of the river. The operation will be coordinated with the Southwestern Division Reservoir Control Center.

Release Schedule

Pool Stages	Normal Maximum Release Rates (c.f.s.)
599.0 - 599.3	1,000
599.3 - 599.6	2,000
599.6 - 600.0	3,000
600.0 - 600.3	3,500
600.3 - 607.0	4,000

TABLE 7-1 (continued)

Lake Stage	Pool Conditions	Regulation
607.0 - 611.0	Rising	If the forecasted pool level will crest at or below elevation 609.0, a maximum release of 4,000 c.f.s. will be made. If the forecasted pool level will crest above elevation 609.0, the flood control conduit gates will be opened in increments of 1,000 c.f.s. every two hours until both gates are fully opened or until the pool begins falling.
Above 611.0	Rising or Falling	Continue maximum release possible.
607.0 - 611.0	Falling	Continue release being made until pool level recedes to elevation 607.0.
599.0 - 607.0	Falling	Make releases using the following schedule as a guide, except that the release, when combined with unregulated flows downstream, shall not exceed those stages listed under the above rising pool conditions.

Release Schedule

Pool Stages	Normal Maximum Release Rates (c.f.s.)
600.5 - 607.0	4,000
600.0 - 600.5	3,000 + Inflow
599.6 - 600.0	2,000 + Inflow
599.3 - 599.6	1,000 + Inflow
599.0 - 599.3	Transition to a release rate that will stabilize the pool at elevation 599.0

Forecasted inflow over a 2 to 5 day period.

NOTE: Do not exceed 4,000 c.f.s. Conduit flows should be closely monitored during uncontrolled spillway discharges, as high tail water can cause problems. If problems are observed, conduits may need to be closed quickly.

b. Emergency flood control regulations. When communication with the Tulsa District Office is disrupted, the Lake Manager will, on his own initiative, direct regulation of the lake in accordance with the following schedule (see Table 7-2) until communication is restored. In addition, the Lake Manager will immediately make every effort to re-establish communication with the Tulsa District Office. The conduit gates shall be operated at a uniform opening.

TABLE 7-2

EMERGENCY FLOOD CONTROL
REGULATION SCHEDULE SARDIS LAKE,
JACKFORK CREEK, OKLAHOMA

Lake Stage	Pool Conditions	Regulation
Below 599.0	Rising	Continue the release being made.
599.0 - 607.0	Rising	Continue present release for 12 hours before making any change in the release rate. If communication has not been reestablished, releases should then be reduced 1,000 c.f.s every 3 hours until there is no discharge being made.
Above 607.0	Rising	Releases should be made according to the following schedule.

Release Schedule

Pool Elevation	Release (c.f.s.)
607.0	1,000
607.5	2,000
608.0	3,000
608.5	4,000
609.0	Flood conduit full open

TABLE 7-2 (Continued)

EMERGENCY FLOOD CONTROL
REGULATION SCHEDULE SARDIS LAKE,
JACKFORK CREEK, OKLAHOMA

Lake Stage	Pool Conditions	Regulation
Above 607.0	Falling	Continue current release until the pool level recedes to elevation 607.0.
607.0 - 599.5	Falling	Maintain release in effect at the time communication was lost or maintain release which was initiated under rising pool conditions. If the release is greater than 4,000 c.f.s., the release rate shall be reduced to 4,000 c.f.s..
599.5 - 599.0	Falling	Begin a gradual reduction of the release rate (not to exceed 500 c.f.s. per 2 hours) to stabilize the pool at conservation level (599.0).
Below 599.0	—	Releases will be made in accordance with the requirements of paragraph 7-10.

NOTE: Do not exceed 4,000 c.f.s. Conduit flows should be closely monitored during uncontrolled spillway discharges, as high tail water can cause problems. If problems are observed, conduits may need to be closed quickly.

c. Constraints. The regulations schedules provide that the channel capacity of 4,000 c.f.s. in the reach from the dam to the confluence of the Jackfork Creek with the Kiamichi River, is not to be exceeded insofar as practical. There are several low water crossings on the Kiamichi River between the confluence with the Jackfork Creek and the upper end of Hugo Lake. Flows greater than about 150 c.f.s. will prevent land owners from crossing the Kiamichi River to conduct their normal farming operations.

d. Operational curves. Area-capacity curves, evaporation curve, spillway rating curve, the conduit rating curve for two gates, tailwater rating curve, and the low flow rating curve are shown on Plates 7-1 through 7-6. Rating curves used by the Water

Management Section are adjusted for changing conditions and are maintained in current status to the extent practical. Table 7-3, located in the Supplemental Tables Section, shows elevation – area - capacity data for Sardis Lake.

7-06. Recreation. Recreation is included as a project purpose; however, there is no storage or releases specifically designated for recreation. All recreation area access roads are constructed above the top of the flood control pool, elevation 607.0. Some campsite facilities will be inundated above elevation 601.0. Locations of the public facilities are listed in paragraph 2-06 of this manual and shown on Plate 2-9.

7-07. Water quality.

a. General. Water quality control is not an authorized project purpose at Sardis Lake, and no specific storage is provided for it. However, water quality releases and flood control releases will aid in maintaining flow in the lower reaches of Jackfork Creek and the Kiamichi River.

b. Regulation procedure for water quality. While water quality control is not an authorized project purpose at Sardis Lake, a multiple level wet well intake with intakes at elevations 534.0, 567.0, and 583.0 is provided on the low flow sluice to maintain high quality releases. Water quality measurements will be made in the lake on an as needed basis to determine which selective wet well inlet level should be used for releases from the conservation pool. Releases may be made as necessary to alleviate or respond to emergency conditions such as fish kills and flow augmentation for pollution abatement or aesthetics. Requests for special releases for water quality control by Federal, State, and local interests will be considered on a case by case basis.

7-08. Fish and wildlife.

a. General. Fish and wildlife is a project purpose; however, no storage or releases are specifically provided in the project.

b. Regulation procedure for fish and wildlife. During periods of thermal stratification, releases from the bottom, cooler portion of the lake should be avoided whenever possible so as to minimize adverse shock effects on downstream fisheries. Lake level fluctuations are primarily influenced by project purposes such as flood control and recreation, and also by lake maintenance. However, to prevent as much adverse impact to biotic organisms as possible, lake level fluctuations in the conservation pool should be kept to a minimum during April and May, considering contracts and other requirements. This action will aid in the fish spawning success of game species and will contribute to the overall primary productivity of the lake. Accordingly, effort will be made to stabilize the lake level during this period insofar as compatible with weather conditions and project purposes.

7-09. Water supply.

7-09. Water supply.

a. General. There are 297,200 acre-feet of storage reserved for water supply in Sardis Lake. It is estimated this will yield 140 million gallons per day (m.g.d.) There is currently a contract with the Oklahoma Water Resources Board for all the water supply storage in Sardis lake with 141,700 acre-feet (66.75 m.g.d.) for initial use and 155,500 acre-feet (73.25 m.g.d.) for future use.

b. Regulation procedure for water supply. Water supply requirements will be released downstream through the 2.5' x 2.5' low flow sluice with its invert at elevation 534.0. The multi-level wet well intake enables selection of better quality water for release downstream. The sluice is capable of supplying the estimated peak water supply and water rights requirements of 247 m.g.d. at elevation 559.3 and can supply 100 m.g.d. at the bottom of the conservation pool, elevation 542.0. If the total water supply requirement is needed at the bottom of the conservation pool, the additional discharge would be made through the flood control gates.

c. Accounting procedure for water supply. Accounting procedures for conservation storage in multipurpose projects have been developed by the Tulsa District and approved by the Southwestern Division to account for the withdrawal of water from lakes by each water supply user. Losses are charged to each user in proportion to his average remaining storage. Inflows, after deductions for downstream water rights and vested rights, are credited to the storage account of the user in proportion to his contracted storage. Inflows occurring when the lake is above the conservation pool will be passed through the lake, and even though they may be satisfying an annual water right, they will not affect the conservation pool accounting procedure. When conservation storage falls to 75%, monthly accounting of water supply usage is initiated. Each user will periodically be notified of his remaining water supply storage, and when a user's storage is depleted, no withdrawals from storage will be made for that user. An example of the water storage accounting procedures is shown on Plate 7-7. No accounting is necessary where all conservation storage is contracted for by one user or when the Corps is not the contracting agency.

7-10. Water Rights.

a. General. Exactly 33,408 acre-feet of water rights has been appropriated by the Oklahoma Water Resources Board on both Jackfork Creek (Sardis Dam to confluence with Kiamichi River) and the Kiamichi River (from Jackfork Creek to Hugo Lake). The general location of these water rights is shown in Table 7-4.

TABLE 7-4

WATER RIGHTS BELOW SARDIS LAKE

Downstream of Sardis Dam to Kiamichi River

		Diversion Point Legal Descriptions										
WATER RT #	**NAME**	1/4	1/4	1/4	SECTION	TOWNSHIP	RANGE	**COUNTY**	**AMT (AF/YR)**	**PRIMARY PURPOSE**	**DATE FILED**	**DATE ISSUED**
		SE	SE	NE	30	02N	19E	Pushmataha	228.0	Irrigation	8/21/1998	11/10/1998

Downstream of Jackfork Creek/Kiamichi River Confluence to Hugo Dam on Kiamichi River

		Diversion Point Legal Descriptions										
19540795	Hugo Municipal Authority	SE	NE	NE	26	06S	18EI	Choctaw	1700.0	Public Supply	10/7/1954	1/12/1965
19540874	Antlers Public Works Authority				35	03S	16EI	Pushmataha	235.0	Public Supply	10/21/1954	1/12/1965
19620087	Clayton Public Works Authority	SE	SE	NE	06	01N	19EI	Pushmataha	50.0	Public Supply	6/7/1962	1/12/1965
19660677	Wildlife Conservation, Dept of			NW	19	05S	18EI	Choctaw	90.0	Recreation, Fish, Wildlife	11/22/1966	2/6/1967
19720048	Hugo Municipal Authority	SE	NE	NE	26	06S	18EI	Choctaw	28800.0	Public Supply	2/28/1972	4/11/1972
19720060	Antlers Public Works Authority		SE	SE	14	04S	17EI	Pushmataha	523.0	Public Supply	2/23/1972	6/13/1972
		SW	SW	SE	36	03S	16EI	Pushmataha	262.0	Irrigation	12/7/1982	5/10/1983
		NW	SW	SE	36	03S	16EI	Pushmataha				
		NW	SE	SW	31	03S	17EI	Pushmataha	82.0	Irrigation	5/5/1986	9/9/1986
		SE	SW	SW	31	03S	17EI	Pushmataha				
19920022	Pushmataha Co Rural Water Dist #3	SW	SE	SE	14	04S	17EI	Pushmataha	400.0	Public Supply	7/31/1992	12/8/1992
19930017	Pushmataha Co Rural Water Dist #3	SW	SE	SE	14	04S	17EI	Pushmataha	300.0	Public Supply	4/14/1993	7/13/1993
19930039	Decker Revocable Trust	NW	NE	NE	03	01S	17EI	Pushmataha	428.0	Irrigation	9/22/1993	1/10/1995
		NE	NE	NE	03	01S	17EI	Pushmataha				
		NW	NE	NW	02	01S	17EI	Pushmataha				
		NW	NW	NW	02	01S	17EI	Pushmataha				
		NE	SW	SE	12	01N	18EI	Pushmataha	310.0	Irrigation	2/24/1998	10/13/1998
		SW	SW	NW	07	01N	19EI	Pushmataha				
		NE	NE	SE	04	01S	17EI	Pushmataha				
		SW	NE	NE	14	01N	18EI	Pushmataha				
		NW	SE	NW	03	01S	17EI	Pushmataha				

b. Regulation procedure for water rights. If flow from the Kiamichi River above Clayton is insufficient to meet the downstream water rights, then releases from inflow to satisfy downstream water rights will be made at the request of the Oklahoma Water Resources Board. The Oklahoma Water Resources Board will inform the Water Management Section as to the amount and time distribution of the required release. No withdrawal from storage in the lake will be made for downstream water rights unless the water right holder has contracted for storage in the lake.

7-11. Hydroelectric power. No provisions were made to include hydroelectric power production as a project purpose of Sardis Lake.

7-12. Navigation. Navigation is not considered in the regulation of Sardis Lake at the present time.

7-13. Sedimentation. There are no regulation procedures for sediment.

7-14 Drought Contingency Plans. The Drought Contingency Plan for The Lower Red River, including Sardis Lake, dated January 1993, was prepared by the Water Management Section.

7-15. Flood Emergency Action Plans. A flood emergency action plan is outlined in the Operation and Maintenance Manual, Volume II, for Sardis Dam, Jackfork Creek, Oklahoma, dated August 1982. The purpose of the manual is to specify procedures to protect the public from possible property damage or loss of life as a result of uncontrolled releases of water due to failure, or severe damage to the dam appurtenant works.

7-16. Deviation From Normal Flood Control Regulation. Deviation from normal flood control regulation of the reservoir is occasionally necessary. Prior approval for a deviation is obtained from the Corps of Engineers Southwestern Division (SWD) except as noted in subparagraph 7-15.a, shown below. Deviation requests fall into the following categories:

a. Emergencies. The water control plan is subject to temporary modification by the Corps if found necessary in time of emergency. Request for and actions on such modifications may be made by the fastest means of communication available. Also, the Lake Manager may temporarily deviate from the water control plan in the event an immediate short-term departure is deemed necessary for emergency reasons to avoid serious hazards. The Lake Manager may deviate from the water control plan whenever necessary to protect the safety of the dam. Such actions shall be immediately reported by the fastest means of communication available. Actions shall be confirmed in writing as soon as possible to the Water Management Section and shall include justification for the action. Continuation of the deviation will require the express approval of the Southwestern Division (SWD). A written confirmation showing the deviation and conditions will be furnished by the Water Management Section to SWD.

b. Unplanned Minor Deviations. There are unplanned instances that create a temporary need for minor deviations from the normal regulations of the reservoir, although they are not considered emergencies. Construction accounts for the major portion of the incidents and include utility stream crossings, bridge work, and major construction contracts. Changes in releases are sometimes necessary for maintenance and inspection. Requests for changes of release rates are generally from a few hours to a few days. Each request is analyzed on its own merits. Consideration is given to upstream watershed conditions, potential flood threat, conditions of the lakes, and possible alternative measures. In the interest of maintaining good public relations, the requests are complied with providing there are no adverse effects on the overall operation of the project (or projects) for the authorized purposes. Approval for these minor deviations will normally be obtained by the Water Management Section from SWD by telephone or email. The Southwestern Division is normally advised by telephone of these minor deviations with written follow-up to confirm the deviation.

c. Unplanned Major Deviations. There are unplanned instances that create a temporary need for major deviations from the normal regulation plan and may be considered, but are not, emergencies. Flood control releases account for the major portion of these incidents and typical examples include project pre-releases or exceeding downstream channel capacity, incidents that have a short window of opportunity in an effort to minimize damages or optimize benefits. Requests for changes in release rates generally involve time periods ranging from a few hours to a few days. Each request is analyzed on its own merits. In evaluating the proposed deviation, consideration must be given to upstream watershed conditions, potential flood threat, and condition of the lake, and alternative measures that can be taken. Approval for these major deviations normally will be obtained from the Southwestern Division Office by telephone or email. Written confirmation explaining the deviation and its cause will be furnished to the Division water control manager.

d. Planned Deviations. Advance approval of the Southwestern Division water control manager is required prior to any deviation from the plan of regulation prescribed or approved by the Corps in the interest of flood control, except in emergency conditions provided for in subparagraph 7-15a. Each condition will be analyzed on its own merits. When conditions appear to warrant a prolonged deviation from the approved plan, the Water Management Section will investigate and evaluate the proposed deviation to insure that the overall integrity of the plan would not be unduly compromised. Approval of prolonged deviations will not be granted unless such investigation and evaluations have been conducted to the extent deemed necessary by the Southwestern Division water control manager.

7-17. Rate of release change. During normal operation, increases in the discharge from Sardis Lake will be limited to 700 c.f.s or less in a 3 hour time period. In attempting to reduce bank caving downstream of the dam, decreases in the discharge will be limited to 700 c.f.s in 3 hours when possible.

VIII - EFFECT OF WATER CONTROL PLAN

8-01. General. The effects of emergency flood control regulations on the spillway design flood, the standard project flood (one-half spillway design flood), and an example of the normal and emergency regulations applied to a major flood are presented in the following paragraphs.

8-02. Flood control.

a. Spillway design flood. The spillway design flood was developed from the probable maximum precipitation storm in accordance with Hydrometeorological Report No. 33. A 10 percent reduction of the probable maximum precipitation was used for basin shape factor and maximum storm-enveloping effects. The resulting 72-hour total rainfall is 31.31 inches and the maximum 6-hour period rainfall is 21.62 inches. The rainfall excess was applied against the unit hydrograph to determine the spillway design flood into full pool. The flood has a duration of 96 hours with a peak inflow of 335,000 c.f.s. and total volume of 436,700 acre-feet (29.78 inches over drainage area). When the flood was routed through the reservoir on a full pool, it reached a maximum elevation of 624.0 feet and discharged a peak flow of 29,500 c.f.s. When the flood was routed through the reservoir on an empty pool, it reached a maximum elevation of 619.5 feet and discharged a peak flow of 17,700 c.f.s. Plate 8-1 shows the operational hydrograph of the spillway design flood routed through Sardis Lake under emergency regulations on empty and full flood control pools.

b. Standard project flood. There are no urban areas in the pool area affected by Sardis reservoir; therefore, a detailed derivation of the standard project flood was not considered necessary. One-half of the spillway design flood was used as the standard project flood for design purposes. The flood was routed through the reservoir on a full and an empty pool and reached the maximum elevations of 616.3 and 611.1, respectively, with peak discharges of 11,100 c.f.s. and 4,530 c.f.s., respectively. See Plate 8-2 for the operational hydrograph.

c. Flood of April - May 1990. The flood of 20 April - 20 May 1990 produced the highest estimated peak inflow (93,100 c.f.s.) of record at the Sardis dam site and the maximum volume (271,200 acre-feet) of record. The maximum pool elevation reached was 612.14 and the peak outflow was 6,000 c.f.s. Plate 8-3 shows the actual historical hydrograph for that flood and the operational hydrographs as regulated by using both normal and emergency regulations for Sardis Lake. Plate 8-4 shows the results of normal and emergency regulation at the Clayton gage for the 1990 flood.

8-03. Recreation. The project is located in the foothills of the Jackfork Mountains of the rugged Ouachita Mountains system in southeastern Oklahoma. The project changed recreation in the lake area from seasonally limited stream fishing and big

game hunting to a more stable lake-oriented environment. Studies indicate the 14,360 acre lake received visitor hours of 1,812,000 in 2009. As water supply needs from the lake increase, the pool will be drawn during drought conditions. The bottoms of the boat ramps are at elevation 568.0, which is 5 feet below the 10-year drawdown frequency. Once this elevation is reached, activities on the lake would be greatly reduced. During flood situations, some picnic areas, camp pullouts, and loop roads start being inundated at about elevation 605.0. The access roads are all above the top of the flood control pool, elevation 607.0. The top of the boat ramps vary from 604.0 to 617.0.

8-04. Water quality. Water quality is not a project purpose and no specific storage is provided for water quality control. However, water quality releases and flood control releases aid in maintaining flow in the lower reaches of Jackfork Creek and on the Kiamichi River. The smaller releases will be made through the low flow sluice with the multilevel intake. Releases from the upper intake generally provide better quality releases.

8-05. Fish and wildlife. The lake provides the habitat for the production of a wide variety of game fish while replacing a small stream game fish population. Deer were reduced as a result of the loss of vital winter habitat as well as squirrels due to the removal of food producing trees. However, cottontail, bobwhite, and dove increased with the conversion of timbered areas to croplands downstream of the project. Without the lake, the stream hunting for migratory waterfowl was poor. The project's conservation storage, however, provides a good water fowl habitat and results in net gains in fish and wildlife resources.

8-06. Water supply. The water in the lake is of excellent quality and suitable for general municipal and industrial purposes. Currently, the only facility for taking water supply from the lake is to release the water downstream through the low-flow sluice. The sluice is equipped with a multilevel intake to draw the better quality water from the lake. The lake includes storage to provide for a dependable yield of 140.0 m.g.d.

8-07. Hydroelectric power. Hydroelectric power generation is not a project purpose of Sardis Lake.

8-08. Navigation. Navigation is not a project purpose of Sardis Lake.

8-09. Frequencies.

a. Peak inflow probability. Estimated natural flows at the dam site for the period January 1938 through December 2007 were used to compute the maximum annual peak inflow probability. The inflow probability was derived from studies based on methods discussed in "Statistical Methods in Hydrology", by Leo R. Beard, dated January 1962. The peak inflow probability curve is shown on Plate 8-5.

b. Pool elevation duration and frequency. The pool elevation - probability curve for maximum and minimum pool, Plate 8-6, was computed from the results of a simulated routing of the estimated natural flows at the dam site for the period January 1942 through December 2007. Maximum storages on an annual basis from October through September each year and minimum storages on an annual basis from April through March each year were used in the analysis. These maximums and minimums were then plotted on a logarithmic probability grid using Weibull plotting positions and a best fit curve was drawn. Plate 8-6 also shows the pool elevation duration curve developed from the above-mentioned simulation routing. A reservoir routing for the period January 1942 through December 2007 was made based on a top of conservation pool of 599.0 feet NGVD and assuming ultimate reservoir conditions and 100 years sediment. The resulting pool elevation hydrographs are shown on Plates 8-7 through 8-10.

c. Key control points. Discharge rating curves used in the regulation of Sardis Lake are shown on Plates 4-3 and 4-4.

8-10. Other studies.

a. Examples of Regulation. Studies are in progress to improve the forecasting techniques presented in section VI of this manual. Computer programs have been developed to forecast inflows into the lake, the resulting pool elevations, and the effects of releases at downstream gages. Use of these programs would greatly shorten the reaction time in preparing regulation schedules.

b. Channel and Floodway Improvement. The limiting non-damaging flow used in regulation is currently estimated to be 4,000 c.f.s.

IX - WATER CONTROL MANAGEMENT

9-01. Responsibilities and Organizations.

a. Corps of Engineers. Sardis Lake is a Corps of Engineers project, with the Tulsa District Corps prescribing and directing the flood control releases. Operation and Maintenance, as well as regulation of the conservation storage, will be the responsibility of the Corps. Project reporting instructions and an organization chart are presented in Chapter V, and project regulating instructions are presented in Chapter VII of this manual.

(1) Responsibilities and Duties During Normal Operations. The Water Management Section, Hydrology-Hydraulics Branch, Tulsa District Office, is charged with the following responsibilities and duties under general supervision of the Engineering and Construction Division.

(a) Routine regulation of lakes and distribution of routine data.

(b) Investigations and refinement of regulation procedures.

1). Analysis of past floods.

2). Reconnaissance to determine channel capacities.

3). Improvement of forecasting techniques.

4). Plan and coordinate the hydrologic reporting network with the National Weather Service and the U.S. Geological Survey.

(c) Train personnel in flood control duties.

1). Make periodic visits to projects by Section personnel to familiarize themselves with regulation facilities, become acquainted with the operating personnel, discuss emergency regulation procedures with operating personnel, and provide the background for improving facilities and methods.

2). Instruct personnel of the Hydrology-Hydraulics Branch in flood control procedures to supplement the Water Management Section during flood emergencies, when necessary.

(d) Prepare reports on lake regulation.

1). Recurring reports.

2). Water control manuals.

3). Post flood reports.

(2) Responsibilities and Duties During Flood Emergencies. During flood emergencies, the Water Management Section is responsible for the following:

(a) Evaluation of current hydrologic, hydraulic, and meteorological data.

(b) Performing or obtaining reservoir forecasts.

(c) Presentation of storm and flood analysis to the District Commander and other interested District personnel.

(d) When necessary, furnish personnel to help project operating personnel in flood regulations.

(e) Regulation of lakes according to flood control regulation schedules.

(f) Furnish information to higher authority.

1). Provide initial reports to the Southwestern Division and the Office of the Chief of Engineers by telephone or email.

2). Provide hydrologic data for situation reports.

(g) Furnish information to the Reservoir Information Control Center. The duties of the Lake Manager under flood conditions are set forth in Chapter VII of this manual. The details of the overall procedures of the Tulsa District under emergency conditions are set forth in Tulsa District Supplement A, Natural Disaster Activities, to ER 500-1-1.

(3) Assignment of Personnel. During non-flood periods, the Water Management Section accomplishes the routine regulation of the lake. However, during flood periods, assistance of other personnel may be required to maintain effective regulation of the lake. Plate 5-2 shows the organization of the Water Management Section during a major flood. The area and size of the flood will determine the number of people engaged in each activity.

(4) Provision for 24-hour Alert. The National Weather Service (NWS) and project personnel are provided with a list of names, addresses, and telephone numbers of key personnel of the Engineering Division with instructions to provide warning if unusual conditions occur. Responsible personnel will be on duty at the Tulsa District Office 24 hours a day whenever basin and/or project conditions warrant and during flood emergencies. Responsible personnel will be on duty at the project or on call at all times.

(5) Role of Lake Manager. The Lake Manager will regulate the lake during flood periods according to instructions issued by personnel of the Water Management Section. The instructions follow the "Normal Regulations for Flood Control," included in Chapter VII. If the Lake Manager loses communication with the District Office, he will immediately attempt to reestablish communication with the District Office while following the instructions outlined in the Section “Emergency Regulations for Flood Control” included in Chapter VII and Exhibit B of this manual. The Lake Manager will make daily observations as directed in paragraph 5-07.

b. Other Federal Agencies. The NWS and the U.S. Geological Survey (USGS) cooperate with the Water Management Section, Hydrology-Hydraulics Branch, Tulsa District Office, to accumulate rainfall and stream flow data. The Environmental Protection Agency, together with the State of Oklahoma, establishes the standards for water quality releases.

c. State Agencies. Management of the fish and wildlife resources of the Sardis project is the responsibility of the Oklahoma Department of Wildlife Conservation.

d. Private Organizations. Presently, there are no privately owned flood control protection facilities at Sardis Lake whose regulation is coordinated with the Corps of Engineers.

9-02. Interagency Coordination. Cooperative arrangements with other Federal agencies, State agencies and local interests are discussed in the following subparagraphs.

a. Local Press and Corps Bulletins. The Corps of Engineers, the NWS, and USGS coordinate in forecasting flood stages, stream flow, and pool elevations. The NWS is officially responsible for issuing flood warnings to the public. This information will be supplemented by the Corps of Engineers bulletins from the Public Affairs Office (PAO) on observed conditions and with technical advice to enable local interests, within the limits of their capabilities, to obtain optimal flood protection and to perform rescue and relief functions. The Corps of Engineers further assists in flood control, through the office of the Emergency Operations Manager, who furnishes sandbags and other necessary equipment based on equipment on hand and need. To facilitate the distribution of these data, a Reservoir Information Control Center (RICC) is in operation when conditions warrant.

b. National Weather Service. The Tulsa District Office and the Arkansas-Red Basin River Forecast Center (NWS) exchange hydrometeorological data and reports to prevent duplication of effort in obtaining and distributing data. This exchange of data is discussed in greater detail in Chapter VI of this manual. The NWS is the responsible agency for issuing public forecasts of stream stages.

c. U.S. Geological Survey. The Corps of Engineers and the USGS cooperate in a program for the construction, maintenance, and operation of stream gaging stations

throughout the Tulsa District. During floods, the Corps of Engineers and the USGS coordinate field activities to maximize the number of stream discharge measurements.

d. Power Marketing Agency. Presently, hydropower is not a project purpose.

9-03. Interagency Agreements. There are presently no agreements.

9-04. Commissions, River Authorities, Compacts, and Committees.

Presently, no commissions, compacts, or committees are established in the Kiamichi River Basin. A Red River Compact Commission is established, and a compact was ratified by all the states on 12 May 1978 and passed Congress as PL 96-564 on 22 December 1980.

9-05. Reports.

a. Daily Reports. In accordance with Tulsa District policy, this report is prepared following procedures outlined by the Water Management Section on a daily basis, except Saturday, Sunday, and holidays, to cover a period of 24-hours. The report provides data for use by personnel, whose work requires knowledge about the regulation of reservoirs, field investigations, stream gaging, and construction of flood control projects affected by releases from reservoirs, answering public inquiries, and preparing public releases. The report includes information on pool elevation, flood control storage, releases, inflow and rainfall. The report is completed and dispatched from the Hydrology-Hydraulics Branch by 10:00 a.m. daily under normal conditions.

b. Monthly Lake Reports. The Water Management Section prepares monthly reports in accordance with EM 1110-2-3600 and ER 1110-2-240. These reports are records for all flood control, navigation, and multiple-purpose storage lakes under supervision of or of direct interest to the Tulsa District Office. Supplemental information on the regulation of the reservoirs, such as explanation of deviations from approved schedules, is added as a note on the reports or as an attachment. These tabulations are promptly prepared each month and maintained in such form as to be readily available for transmittal to the Chief of Engineers or others, upon request. The monthly lake reports are also available on the Tulsa District Web Page from 1994 to the present at www.swt-wc.usace.army.mil.

c. Flood Situation Reports. The Water Management Section provides daily information to the Readiness and Security Branch for situation reports during floods in accordance with ER 500-1-1 and OM 500-1-6. The report contains various types of information about the floods. Pertinent data specifically required for reservoirs are as follows: name of reservoir, reservoir stage, predicted maximum stage, rates of inflow and outflow in c.f.s., percent of flood control storage used to date and at predicted maximum stage, and any special information particularly pertinent to the flood situation.

d. Post Flood Reports. This report is prepared according to ER 500-1-1 and OM 500-1-6 when practicable after a flood that had caused major damages. The report describes flood emergency operations by the Corps of Engineers and others. Included in summary form are: available hydrologic information, damage estimates, and other engineering data as are considered essential for flood control and flood plain studies or in the review or possible claims against the United States for damages. The District Office Planning Division personnel, using information compiled and prepared by the Water Management Section prepare the report. The report should be completed within approximately three months of the time of flooding, including a statement of final damages.

e. Annual Reports. The Water Management Section prepares this report. The report contains a summation of the general conditions of the river basins and the individual projects in the District for the preceding fiscal year. The report also presents the activities and accomplishments of the Water Management Section for the past year. The report is forwarded to the SWD Water Management Section for inclusion in the Division's annual report.

f. Summary of Reports. Table 9-1 is a summary of the reports required in the regulation of the lakes in the Tulsa District.

TABLE 9-1

TABULATION OF REPORTS

Name of Report	**When Required**	**Regulation Requiring Reporting**
Daily Report	Daily, except Saturday, Sunday, and holidays	Tulsa District Policy
Monthly Lake Report	Monthly	ER 1110-2-3600 EM 1110-2-240
Flood Situation Report	During Floods	OM 500-1-6 ER 500-1-1
Post flood Report	Following a flood causing major damage	OM 500-1-6 ER 500-1-1
Annual Report	Annually	ER 1110-2-1400

SARDIS LAKE, JACKFORK CREEK, OKLAHOMA
WATER CONTROL MANUAL
APPENDIX M
TO
MASTER WATER CONTROL MANUAL
RED RIVER BASIN

SUPPLEMENTAL TABLES

TABLE 4-6

SARDIS MONTHLY INFLOWS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1926	23,290	4,500	9,100	16,840	23,440	1,670	3,530	4,150	770	14,180	10,850	15,630	127,950
1927	42,430	11,940	25,510	145,130	17,320	2,340	3,830	10,000	2,220	12,280	1,450	84,100	358,550
1928	10,530	9,860	2,320	124,500	22,510	62,340	3,210	770	360	180	8,570	19,500	264,650
1929	53,300	20,190	25,920	8,450	99,330	17,120	4,960	100	3,690	6,590	5,630	24,020	269,300
1930	29,120	21,600	15,390	4,680	94,790	4,400	240	160	3,750	17,470	3,390	15,330	210,320
1931	630	44,730	21,960	8,870	18,110	2,140	520	380	40	8,850	9,740	10,650	126,620
1932	99,450	82,280	18,600	12,020	21,880	33,060	19,300	910	160	100	180	42,570	330,510
1933	17,040	10,270	39,690	41,890	38,260	650	160	6,270	3,210	3,390	2,160	3,930	166,920
1934	17,340	4,420	29,180	39,150	29,400	970	40	0	10,060	3,510	16,760	6,190	157,020
1935	28,130	8,530	99,690	28,210	126,860	137,340	2,240	600	360	540	17,300	42,820	492,620
1936	1,880	1,880	9,200	2,700	2,740	3,790	120	0	48,440	23,700	18,820	29,970	143,240
1937	91,500	6,860	16,300	24,730	13,490	17,850	260	10,930	2,240	3,570	13,470	19,990	221,190
1938	48,120	107,090	37,370	44,810	31,340	20,710	1,570	1,110	60	1	280	500	292,961
1939	2,640	33,180	9,800	65,910	11,440	7,100	1,010	160	20	0	20	420	131,700
1940	910	3,900	1,510	34,190	54,760	6,740	6,040	1,090	540	60	7,390	18,520	135,650
1941	26,800	43,580	7,570	81,440	16,750	13,960	970	1,050	280	30,310	9,250	17,200	249,160
1942	9,730	17,220	25,250	121,210	18,420	12,510	10,200	850	2,380	150	9,320	52,410	279,650
1943	2,150	3,860	12,470	2,550	84,120	5,190	910	20	30	1,880	1,710	7,820	122,710
1944	18,020	69,610	68,120	39,350	49,560	20,280	470	150	1,270	900	6,380	11,850	285,960
1945	8,940	120,290	87,990	53,370	78,220	156,400	17,870	12,820	34,710	17,610	4,760	3,390	596,370
1946	34,350	56,680	11,610	48,280	54,620	35,010	990	80	350	70	126,790	115,140	483,970
1947	6,700	1,690	14,500	78,440	51,210	10,560	500	0	1,220	670	2,080	16,360	183,930
1948	10,630	24,280	36,430	5,310	41,960	2,750	2,980	770	10	80	400	2,510	128,110
1949	126,020	64,540	37,600	22,540	40,820	24,640	1,620	1,150	6,330	10,140	1,740	8,440	345,580
1950	64,990	55,530	6,750	4,110	31,170	5,680	98,330	35,540	72,780	1,590	1,180	810	378,460
1951	7,010	69,770	29,790	21,620	10,390	70,750	29,360	1,140	1,930	6,970	24,100	12,010	284,840
1952	5,210	7,290	31,450	76,290	7,600	3,770	250	30	340	60	4,500	5,950	142,740
1953	3,160	15,370	33,340	106,800	47,050	950	49,620	2,240	380	170	380	3,020	262,480
1954	44,100	6,790	3,540	16,220	34,390	1,370	50	0	7,580	14,110	2,370	19,080	149,600
1955	12,810	36,990	56,800	14,800	16,250	1,050	80	1,480	40,130	2,250	140	250	183,030
1956	280	27,200	5,000	6,700	23,970	2,930	210	0	0	0	1,220	5,870	73,380
1957	13,660	37,450	37,000	141,510	91,590	55,450	940	290	50,950	1,220	52,550	11,810	494,420
1958	37,350	12,990	51,550	23,650	63,600	6,800	7,920	6,840	2,340	370	5,420	2,120	220,950
1959	4,140	3,610	23,140	23,120	20,550	3,950	41,160	2,790	5,770	29,680	3,800	40,530	202,240
1960	30,830	20,480	21,410	6,600	127,810	2,980	27,530	5,380	1,120	3,370	2,190	45,590	295,290
1961	9,200	25,980	27,180	18,340	44,390	6,330	14,070	2,490	9,740	8,420	55,110	27,230	248,480
1962	24,240	19,330	27,800	47,150	6,720	8,970	400	200	2,120	22,510	15,900	11,320	186,660
1963	9,450	1,210	21,690	17,590	12,450	500	1,540	430	60	0	10	120	65,050
1964	70	2,140	24,840	29,400	10,610	580	130	6,810	30,800	4,320	27,140	6,520	143,360
1965	8,610	28,700	21,320	12,620	18,920	6,530	1,040	370	20,300	1,690	2,390	700	123,190
1966	3,650	53,630	5,830	46,480	22,960	470	130	2,280	810	130	160	610	137,140
1967	600	590	3,040	66,440	39,030	14,460	3,960	490	42,140	15,560	7,440	33,670	227,420

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1968	43,980	12,350	107,200	60,090	82,940	23,600	5,800	1,730	11,830	6,400	67,460	59,540	482,920
1969	26,380	61,750	33,350	31,380	72,410	5,450	870	380	650	10,740	4,200	17,220	264,780
1970	13,210	12,390	41,200	50,480	20,200	24,250	460	1,570	8,830	40,820	11,110	4,110	228,630
1971	18,980	20,180	11,870	27,110	15,390	4,060	1,540	3,420	380	34,250	9,300	123,510	269,990
1972	10,990	6,990	6,280	16,390	9,060	660	730	3	0	7,280	74,620	9,310	142,313
1973	31,510	33,980	87,430	89,030	48,500	59,570	4,130	2,840	19,380	24,870	66,960	42,020	510,220
1974	12,630	10,050	40,090	25,540	45,770	84,510	600	7,290	85,040	13,770	84,190	30,960	440,440
1975	16,850	52,730	50,480	20,000	31,780	29,530	2,680	1,710	4,530	250	1,430	10,170	222,140
1976	4,520	3,010	22,970	55,270	25,490	6,330	1,390	60	400	2,000	2,550	7,320	131,310
1977	15,610	16,590	92,870	22,790	2,520	690	700	2,720	2,410	140	2,430	1,240	160,710
1978	3,460	16,210	46,540	11,460	21,110	2,620	440	3	350	160	11,430	5,660	119,443
1979	25,080	39,610	64,300	60,440	101,280	32,430	3,320	1,870	60	500	2,620	3,510	335,020
1980	6,020	13,980	3,790	20,390	39,480	4,440	320	1	6,410	19,910	4,830	20,670	140,241
1981	1,590	13,420	28,950	6,560	26,880	42,810	1,460	3,010	370	78,290	34,600	9,550	247,490
1982	61,210	45,460	23,680	4,740	75,870	18,490	6,520	960	1,460	620	5,550	69,280	313,840
1983	9,100	48,660	23,190	35,580	81,280	7,730	590	530	90	2,790	5,460	6,280	221,280
1984	6,520	22,350	69,120	23,610	17,080	5,260	2,770	2,320	3,980	156,110	57,620	68,560	435,300
1985	18,320	52,170	49,690	58,850	13,450	10,280	3,190	500	1,170	7,780	96,530	15,000	326,930
1986	1,050	40,880	26,980	73,290	97,130	37,490	70	2,910	3,070	310	1,360	5,790	290,330
1987	24,610	18,330	37,730	10,350	57,400	10,990	4,990	1,610	8,090	750	38,220	92,330	305,400
1988	17,320	15,860	37,750	20,650	2,930	2,860	7,380	4,360	1,430	250	5,360	11,700	127,850
1989	31,500	58,290	67,040	13,090	34,120	69,240	11,330	3,770	10,870	280	300	230	300,060
1990	54,910	82,770	84,630	120,710	206,960	8,290	28,030	27,040	17,650	3,500	9,540	19,030	663,060
1991	32,330	3,810	31,370	52,930	25,760	8,420	4,020	1,270	2,380	72,790	31,870	73,250	340,200
1992	20,440	18,490	22,200	55,100	51,130	75,660	40,890	34,580	30,850	160	51,320	89,170	489,990
1993	31,120	31,910	35,460	78,290	76,260	19,370	10	2,150	19,490	11,790	22,880	50,960	379,690
1994	19,640	40,130	47,540	42,690	41,160	10,580	6,510	4,380	1,030	2,033	84,973	34,126	334,792
1995	59,297	5,058	24,744	44,371	66,308	43,240	3,243	740	6,704	1,864	61	6,665	262,295
1996	22,552	2,341	24,367	72,794	60,913	8,777	40,106	5,266	8,271	11,544	123,225	19,220	399,376
1997	4,419	80,728	28,612	30,536	9,154	5,336	188	4,875	785	17,306	16,860	69,065	267,864
1998	110,182	16,592	55,577	12,238	8,797	12,575	12	3,195	24,169	50,033	17,197	45,511	356,078
1999	12,793	15,868	43,775	68,886	46,770	34,215	4,076	714	1,250	119	664	14,757	243,887
2000	5,197	9,719	13,805	25,964	20,936	18,010	3,094	0	2,352	3,852	48,109	35,841	186,879
2001	33,917	92,291	21,223	12,020	80,479	14,025	2,777	4,268	15,195	29,593	6,734	58,701	371,223
2002	24,704	27,421	78,000	88,612	13,438	10,840	9,114	1,849	875	2,471	1,232	26,331	284,887
2003	6,050	15,541	34,651	7,140	10,820	5,623	2,634	2,499	4,385	129	5,127	1,938	96,537
2004	18,615	15,521	21,967	28,760	6,704	20,926	10,274	1,133	1,541	9,364	56,301	14,579	205,685
2005	62,479	16,959	25,587	20,241	4,584	4,017	1,269	2,737	2,061	50	1,061	52	141,097
2006	5,127	1,260	21,739	22,165	34,463	3,709	1,236	1,632	942	5,088	52,314	58,314	207,989
2007	66,734	11,772	8,380	33,302	54,000	55,458	76,165	754	3,771	3,800	635	11,226	325,997
2008	2,688	33,094	123,183	102,258	18,783	9,483	2,273	4,820	14,283	569	2,920	3,792	318,146
2009	2,618	8,678	9,586	34,562	106,562	11,742	7,339	3,059	21,015	95,772	12,000	22,086	335,019
MIN	70	590	1,510	2,550	2,520	470	10	0	0	0	10	52	65,050
MEAN	23,634	27,896	33,612	40,770	42,105	19,722	7,914	3,248	9,067	11,890	19,257	24,584	263,700
MAX	126,020	120,290	123,183	145,130	206,960	156,400	98,330	35,540	85,040	156,110	126,790	123,510	663,060

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

AREA

ELEV	0	1	2	3	4	5	6	7	8	9
530	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.008	0.020
540	0.031	0.038	0.044	0.050	0.055	0.065	0.074	0.096	0.118	0.173
550	0.229	0.317	0.405	0.490	0.576	0.672	0.768	0.906	1.044	1.203
560	1.361	1.584	1.808	2.006	2.204	2.449	2.694	2.944	3.195	3.416
570	3.638	3.954	4.270	4.552	4.834	5.169	5.504	5.807	6.111	6.422
580	6.732	7.017	7.301	7.644	7.987	8.348	8.708	8.997	9.285	9.721
590	10.157	10.506	10.856	11.241	11.627	11.943	12.259	12.717	13.175	13.606
600	14.135	14.511	14.888	15.330	15.772	16.139	16.506	16.960	17.501	17.798
610	18.094	18.574	18.589	19.130	19.671	19.956	20.240	20.540	20.839	21.114
620	21.388	21.667	21.945	22.188	22.431	22.676	22.922	23.159	23.396	23.646
630	23.895	24.119	24.343	24.624	24.906	25.138	25.371	25.652	25.932	26.099
640	26.266	0.	0.	0.	0.	0.	0.	0.	0.	0.

CAPACITY

ELEV	0	1	2	3	4	5	6	7	8	9
530	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.009	0.023
540	0.049	0.083	0.124	0.171	0.224	0.284	0.353	0.438	0.545	0.691
550	0.892	1.165	1.526	1.973	2.506	3.130	3.850	4.687	5.662	6.786
560	8.068	9.540	11.236	13.143	15.248	17.575	20.146	22.965	26.035	29.340
570	32.867	36.663	40.775	45.186	49.879	54.881	60.217	65.873	71.832	78.098
580	84.675	91.550	98.709	106.181	113.997	122.164	130.692	139.545	148.686	158.189
590	168.128	178.459	189.140	200.189	211.623	223.408	235.509	247.997	260.943	274.333
600	288.204	302.527	317.226	332.335	347.886	363.842	380.164	396.897	414.128	431.777
610	449.723	468.057	486.639	505.498	524.899	544.712	564.810	585.200	605.890	626.866
620	648.117	669.645	691.451	713.517	735.827	758.380	781.179	804.220	827.497	851.018
630	874.789	898.796	923.027	947.510	972.275	997.297	1022.552	1048.063	1073.855	1099.871
640	1126.053	0.	0.	0.	0.	0.	0.	0.	0.	0.

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
530.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
530.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
531.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
532.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7!

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
533.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
533.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
534.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
535.9	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
536.0	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
536.1	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
536.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
536.3	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
536.4	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
536.5	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
536.6	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
536.7	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
536.8	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
536.9	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
537.0	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
537.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
537.2	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
537.3	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
537.4	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.006
537.5	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
537.6	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007
537.7	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.008
537.8	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
537.9	0.008	0.008	0.008	0.009	0.009	0.009	0.009	0.009	0.009	0.009
538.0	0.009	0.009	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.010
538.1	0.010	0.010	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011
538.2	0.011	0.011	0.011	0.011	0.011	0.011	0.012	0.012	0.012	0.012
538.3	0.012	0.012	0.012	0.012	0.013	0.013	0.013	0.013	0.013	0.013
538.4	0.013	0.013	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
538.5	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.016	0.016	0.016
538.6	0.016	0.016	0.016	0.017	0.017	0.017	0.017	0.017	0.017	0.017
538.7	0.018	0.018	0.018	0.018	0.018	0.018	0.019	0.019	0.019	0.019
538.8	0.019	0.020	0.020	0.020	0.020	0.020	0.020	0.021	0.021	0.021
538.9	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
539.0	0.023	0.023	0.024	0.024	0.024	0.024	0.024	0.025	0.025	0.025
539.1	0.025	0.025	0.026	0.026	0.026	0.026	0.026	0.027	0.027	0.027
539.2	0.027	0.028	0.028	0.028	0.028	0.028	0.029	0.029	0.029	0.029
539.3	0.030	0.030	0.030	0.030	0.031	0.031	0.031	0.031	0.031	0.032
539.4	0.032	0.032	0.032	0.033	0.033	0.033	0.033	0.034	0.034	0.034
539.5	0.034	0.035	0.035	0.035	0.036	0.036	0.036	0.036	0.037	0.037
539.6	0.037	0.037	0.038	0.038	0.038	0.038	0.039	0.039	0.039	0.040
539.7	0.040	0.040	0.040	0.041	0.041	0.041	0.041	0.042	0.042	0.042
539.8	0.043	0.043	0.043	0.043	0.044	0.044	0.044	0.045	0.045	0.045
539.9	0.046	0.046	0.046	0.046	0.047	0.047	0.047	0.048	0.048	0.048
540.0	0.049	0.049	0.049	0.050	0.050	0.050	0.050	0.051	0.051	0.051
540.1	0.052	0.052	0.052	0.053	0.053	0.053	0.054	0.054	0.054	0.055
540.2	0.055	0.055	0.056	0.056	0.056	0.057	0.057	0.057	0.058	0.058
540.3	0.058	0.059	0.059	0.059	0.060	0.060	0.060	0.061	0.061	0.061
540.4	0.062	0.062	0.062	0.063	0.063	0.063	0.064	0.064	0.064	0.065
540.5	0.065	0.065	0.066	0.066	0.066	0.067	0.067	0.067	0.068	0.068
540.6	0.068	0.069	0.069	0.070	0.070	0.070	0.071	0.071	0.071	0.072
540.7	0.072	0.072	0.073	0.073	0.073	0.074	0.074	0.075	0.075	0.075
540.8	0.076	0.076	0.076	0.077	0.077	0.077	0.078	0.078	0.079	0.079
540.9	0.079	0.080	0.080	0.080	0.081	0.081	0.082	0.082	0.082	0.083
541.0	0.083	0.083	0.084	0.084	0.085	0.085	0.085	0.086	0.086	0.087
541.1	0.087	0.087	0.088	0.088	0.088	0.089	0.089	0.090	0.090	0.090
541.2	0.091	0.091	0.092	0.092	0.092	0.093	0.093	0.094	0.094	0.094
541.3	0.095	0.095	0.096	0.096	0.096	0.097	0.097	0.098	0.098	0.098
541.4	0.099	0.099	0.100	0.100	0.100	0.101	0.101	0.102	0.102	0.102
541.5	0.103	0.103	0.104	0.104	0.104	0.105	0.105	0.106	0.106	0.107
541.6	0.107	0.107	0.108	0.108	0.109	0.109	0.109	0.110	0.110	0.111
541.7	0.111	0.112	0.112	0.112	0.113	0.113	0.114	0.114	0.115	0.115
541.8	0.115	0.116	0.116	0.117	0.117	0.118	0.118	0.118	0.119	0.119
541.9	0.120	0.120	0.121	0.121	0.121	0.122	0.122	0.123	0.123	0.124

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7!

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
542.0	0.124	0.125	0.125	0.125	0.126	0.126	0.127	0.127	0.128	0.128
542.1	0.129	0.129	0.129	0.130	0.130	0.131	0.131	0.132	0.132	0.133
542.2	0.133	0.133	0.134	0.134	0.135	0.135	0.136	0.136	0.137	0.137
542.3	0.138	0.138	0.138	0.139	0.139	0.140	0.140	0.141	0.141	0.142
542.4	0.142	0.143	0.143	0.144	0.144	0.145	0.145	0.145	0.146	0.146
542.5	0.147	0.147	0.148	0.148	0.149	0.149	0.150	0.150	0.151	0.151
542.6	0.152	0.152	0.153	0.153	0.153	0.154	0.154	0.155	0.155	0.156
542.7	0.156	0.157	0.157	0.158	0.158	0.159	0.159	0.160	0.160	0.161
542.8	0.161	0.162	0.162	0.163	0.163	0.164	0.164	0.165	0.165	0.166
542.9	0.166	0.167	0.167	0.168	0.168	0.169	0.169	0.170	0.170	0.171
543.0	0.171	0.172	0.172	0.173	0.173	0.174	0.174	0.175	0.175	0.176
543.1	0.176	0.177	0.177	0.178	0.178	0.179	0.179	0.180	0.180	0.181
543.2	0.181	0.182	0.182	0.183	0.183	0.184	0.184	0.185	0.185	0.186
543.3	0.186	0.187	0.187	0.188	0.188	0.189	0.189	0.190	0.190	0.191
543.4	0.192	0.192	0.193	0.193	0.194	0.194	0.195	0.195	0.196	0.196
543.5	0.197	0.197	0.198	0.198	0.199	0.199	0.200	0.200	0.201	0.201
543.6	0.202	0.203	0.203	0.204	0.204	0.205	0.205	0.206	0.206	0.207
543.7	0.207	0.208	0.208	0.209	0.209	0.210	0.211	0.211	0.212	0.212
543.8	0.213	0.213	0.214	0.214	0.215	0.215	0.216	0.216	0.217	0.218
543.9	0.218	0.219	0.219	0.220	0.220	0.221	0.221	0.222	0.223	0.223
544.0	0.224	0.224	0.225	0.225	0.226	0.226	0.227	0.227	0.228	0.229
544.1	0.229	0.230	0.230	0.231	0.231	0.232	0.233	0.233	0.234	0.234
544.2	0.235	0.235	0.236	0.237	0.237	0.238	0.238	0.239	0.239	0.240
544.3	0.241	0.241	0.242	0.242	0.243	0.243	0.244	0.245	0.245	0.246
544.4	0.246	0.247	0.248	0.248	0.249	0.249	0.250	0.251	0.251	0.252
544.5	0.252	0.253	0.254	0.254	0.255	0.255	0.256	0.257	0.257	0.258
544.6	0.258	0.259	0.260	0.260	0.261	0.261	0.262	0.263	0.263	0.264
544.7	0.265	0.265	0.266	0.266	0.267	0.268	0.268	0.269	0.270	0.270
544.8	0.271	0.271	0.272	0.273	0.273	0.274	0.275	0.275	0.276	0.277
544.9	0.277	0.278	0.278	0.279	0.280	0.280	0.281	0.282	0.282	0.283

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
545.0	0.284	0.284	0.285	0.286	0.286	0.287	0.288	0.288	0.289	0.289
545.1	0.290	0.291	0.291	0.292	0.293	0.293	0.294	0.295	0.295	0.296
545.2	0.297	0.297	0.298	0.299	0.299	0.300	0.301	0.301	0.302	0.303
545.3	0.304	0.304	0.305	0.306	0.306	0.307	0.308	0.308	0.309	0.310
545.4	0.310	0.311	0.312	0.312	0.313	0.314	0.314	0.315	0.316	0.317
545.5	0.317	0.318	0.319	0.319	0.320	0.321	0.321	0.322	0.323	0.324
545.6	0.324	0.325	0.326	0.326	0.327	0.328	0.328	0.329	0.330	0.331
545.7	0.331	0.332	0.333	0.333	0.334	0.335	0.336	0.336	0.337	0.338
545.8	0.338	0.339	0.340	0.341	0.341	0.342	0.343	0.344	0.344	0.345
545.9	0.346	0.346	0.347	0.348	0.349	0.349	0.350	0.351	0.352	0.352
546.0	0.353	0.354	0.355	0.355	0.356	0.357	0.358	0.358	0.359	0.360
546.1	0.361	0.361	0.362	0.363	0.364	0.364	0.365	0.366	0.367	0.368
546.2	0.368	0.369	0.370	0.371	0.371	0.372	0.373	0.374	0.375	0.375
546.3	0.376	0.377	0.378	0.379	0.380	0.380	0.381	0.382	0.383	0.384
546.4	0.384	0.385	0.386	0.387	0.388	0.389	0.389	0.390	0.391	0.392
546.5	0.393	0.394	0.395	0.395	0.396	0.397	0.398	0.399	0.400	0.401
546.6	0.401	0.402	0.403	0.404	0.405	0.406	0.407	0.408	0.409	0.409
546.7	0.410	0.411	0.412	0.413	0.414	0.415	0.416	0.417	0.418	0.418
546.8	0.419	0.420	0.421	0.422	0.423	0.424	0.425	0.426	0.427	0.428
546.9	0.429	0.430	0.430	0.431	0.432	0.433	0.434	0.435	0.436	0.437
547.0	0.438	0.439	0.440	0.441	0.442	0.443	0.444	0.445	0.446	0.447
547.1	0.448	0.449	0.450	0.451	0.452	0.453	0.454	0.455	0.456	0.457
547.2	0.458	0.459	0.460	0.461	0.462	0.463	0.464	0.465	0.466	0.467
547.3	0.468	0.469	0.470	0.471	0.472	0.473	0.474	0.475	0.476	0.477
547.4	0.478	0.479	0.480	0.481	0.482	0.484	0.485	0.486	0.487	0.488
547.5	0.489	0.490	0.491	0.492	0.493	0.494	0.495	0.496	0.497	0.499
547.6	0.500	0.501	0.502	0.503	0.504	0.505	0.506	0.507	0.508	0.510
547.7	0.511	0.512	0.513	0.514	0.515	0.516	0.517	0.519	0.520	0.521
547.8	0.522	0.523	0.524	0.525	0.527	0.528	0.529	0.530	0.531	0.532
547.9	0.533	0.535	0.536	0.537	0.538	0.539	0.540	0.542	0.543	0.544

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
548.0	0.545	0.546	0.547	0.549	0.550	0.551	0.552	0.553	0.555	0.556
548.1	0.557	0.558	0.560	0.561	0.562	0.563	0.565	0.566	0.567	0.569
548.2	0.570	0.571	0.572	0.574	0.575	0.576	0.578	0.579	0.580	0.582
548.3	0.583	0.584	0.586	0.587	0.588	0.590	0.591	0.593	0.594	0.595
548.4	0.597	0.598	0.600	0.601	0.602	0.604	0.605	0.607	0.608	0.610
548.5	0.611	0.612	0.614	0.615	0.617	0.618	0.620	0.621	0.623	0.624
548.6	0.626	0.627	0.629	0.630	0.632	0.633	0.635	0.637	0.638	0.640
548.7	0.641	0.643	0.644	0.646	0.647	0.649	0.651	0.652	0.654	0.655
548.8	0.657	0.659	0.660	0.662	0.664	0.665	0.667	0.669	0.670	0.672
548.9	0.674	0.675	0.677	0.679	0.680	0.682	0.684	0.685	0.687	0.689
549.0	0.691	0.692	0.694	0.696	0.698	0.699	0.701	0.703	0.705	0.706
549.1	0.708	0.710	0.712	0.714	0.715	0.717	0.719	0.721	0.723	0.724
549.2	0.726	0.728	0.730	0.732	0.734	0.736	0.737	0.739	0.741	0.743
549.3	0.745	0.747	0.749	0.751	0.753	0.755	0.757	0.758	0.760	0.762
549.4	0.764	0.766	0.768	0.770	0.772	0.774	0.776	0.778	0.780	0.782
549.5	0.784	0.786	0.788	0.790	0.792	0.794	0.796	0.798	0.800	0.802
549.6	0.804	0.807	0.809	0.811	0.813	0.815	0.817	0.819	0.821	0.823
549.7	0.825	0.828	0.830	0.832	0.834	0.836	0.838	0.840	0.843	0.845
549.8	0.847	0.849	0.851	0.853	0.856	0.858	0.860	0.862	0.865	0.867
549.9	0.869	0.871	0.873	0.876	0.878	0.880	0.882	0.885	0.887	0.889
550.0	0.892	0.894	0.896	0.899	0.901	0.903	0.905	0.908	0.910	0.913
550.1	0.915	0.917	0.920	0.922	0.925	0.927	0.929	0.932	0.934	0.937
550.2	0.939	0.942	0.944	0.947	0.949	0.952	0.954	0.957	0.959	0.962
550.3	0.964	0.967	0.969	0.972	0.975	0.977	0.980	0.982	0.985	0.988
550.4	0.990	0.993	0.996	0.998	1.001	1.004	1.006	1.009	1.012	1.014
550.5	1.017	1.020	1.023	1.025	1.028	1.031	1.034	1.036	1.039	1.042
550.6	1.045	1.048	1.050	1.053	1.056	1.059	1.062	1.065	1.068	1.071
550.7	1.073	1.076	1.079	1.082	1.085	1.088	1.091	1.094	1.097	1.100
550.8	1.103	1.106	1.109	1.112	1.115	1.118	1.121	1.124	1.127	1.130
550.9	1.133	1.136	1.140	1.143	1.146	1.149	1.152	1.155	1.158	1.161

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
551.0	1.165	1.168	1.171	1.174	1.177	1.181	1.184	1.187	1.190	1.193
551.1	1.197	1.200	1.203	1.207	1.210	1.213	1.216	1.220	1.223	1.226
551.2	1.230	1.233	1.236	1.240	1.243	1.247	1.250	1.253	1.257	1.260
551.3	1.264	1.267	1.271	1.274	1.277	1.281	1.284	1.288	1.291	1.295
551.4	1.298	1.302	1.306	1.309	1.313	1.316	1.320	1.323	1.327	1.330
551.5	1.334	1.338	1.341	1.345	1.349	1.352	1.356	1.360	1.363	1.367
551.6	1.371	1.374	1.378	1.382	1.386	1.389	1.393	1.397	1.401	1.404
551.7	1.408	1.412	1.416	1.419	1.423	1.427	1.431	1.435	1.439	1.442
551.8	1.446	1.450	1.454	1.458	1.462	1.466	1.470	1.474	1.478	1.482
551.9	1.486	1.490	1.493	1.497	1.501	1.505	1.509	1.513	1.518	1.522
552.0	1.526	1.530	1.534	1.538	1.542	1.546	1.550	1.554	1.558	1.562
552.1	1.567	1.571	1.575	1.579	1.583	1.587	1.591	1.596	1.600	1.604
552.2	1.608	1.613	1.617	1.621	1.625	1.630	1.634	1.638	1.642	1.647
552.3	1.651	1.655	1.660	1.664	1.668	1.673	1.677	1.681	1.686	1.690
552.4	1.694	1.699	1.703	1.708	1.712	1.716	1.721	1.725	1.730	1.734
552.5	1.739	1.743	1.748	1.752	1.757	1.761	1.766	1.770	1.775	1.779
552.6	1.784	1.788	1.793	1.798	1.802	1.807	1.811	1.816	1.821	1.825
552.7	1.830	1.835	1.839	1.844	1.849	1.853	1.858	1.863	1.867	1.872
552.8	1.877	1.882	1.886	1.891	1.896	1.901	1.905	1.910	1.915	1.920
552.9	1.925	1.929	1.934	1.939	1.944	1.949	1.954	1.958	1.963	1.968
553.0	1.973	1.978	1.983	1.988	1.993	1.998	2.003	2.008	2.013	2.018
553.1	2.023	2.028	2.033	2.038	2.043	2.048	2.053	2.058	2.063	2.068
553.2	2.073	2.078	2.083	2.088	2.093	2.098	2.103	2.109	2.114	2.119
553.3	2.124	2.129	2.134	2.139	2.145	2.150	2.155	2.160	2.166	2.171
553.4	2.176	2.181	2.186	2.192	2.197	2.202	2.208	2.213	2.218	2.224
553.5	2.229	2.234	2.240	2.245	2.250	2.256	2.261	2.266	2.272	2.277
553.6	2.283	2.288	2.293	2.299	2.304	2.310	2.315	2.321	2.326	2.332
553.7	2.337	2.343	2.348	2.354	2.359	2.365	2.370	2.376	2.381	2.387
553.8	2.393	2.398	2.404	2.409	2.415	2.421	2.426	2.432	2.438	2.443
553.9	2.449	2.455	2.460	2.466	2.472	2.477	2.483	2.489	2.495	2.500

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

CAPACITY [ACRE-FEET]

POOL ELEV [FT. MSL]	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
554.0	2.506	2.512	2.518	2.523	2.529	2.535	2.541	2.547	2.552	2.558
554.1	2.564	2.570	2.576	2.582	2.588	2.594	2.599	2.605	2.611	2.617
554.2	2.623	2.629	2.635	2.641	2.647	2.653	2.659	2.665	2.671	2.677
554.3	2.683	2.689	2.695	2.701	2.707	2.714	2.720	2.726	2.732	2.738
554.4	2.744	2.750	2.756	2.763	2.769	2.775	2.781	2.787	2.794	2.800
554.5	2.806	2.812	2.819	2.825	2.831	2.837	2.844	2.850	2.856	2.863
554.6	2.869	2.875	2.882	2.888	2.894	2.901	2.907	2.914	2.920	2.926
554.7	2.933	2.939	2.946	2.952	2.959	2.965	2.972	2.978	2.985	2.991
554.8	2.998	3.004	3.011	3.017	3.024	3.030	3.037	3.044	3.050	3.057
554.9	3.063	3.070	3.077	3.083	3.090	3.097	3.103	3.110	3.117	3.123
555.0	3.130	3.137	3.144	3.150	3.157	3.164	3.171	3.177	3.184	3.191
555.1	3.198	3.205	3.211	3.218	3.225	3.232	3.239	3.246	3.253	3.260
555.2	3.266	3.273	3.280	3.287	3.294	3.301	3.308	3.315	3.322	3.329
555.3	3.336	3.343	3.350	3.357	3.364	3.371	3.378	3.385	3.392	3.399
555.4	3.407	3.414	3.421	3.428	3.435	3.442	3.449	3.457	3.464	3.471
555.5	3.478	3.485	3.493	3.500	3.507	3.514	3.521	3.529	3.536	3.543
555.6	3.551	3.558	3.565	3.573	3.580	3.587	3.595	3.602	3.609	3.617
555.7	3.624	3.631	3.639	3.646	3.654	3.661	3.669	3.676	3.683	3.691
555.8	3.698	3.706	3.713	3.721	3.728	3.736	3.744	3.751	3.759	3.766
555.9	3.774	3.781	3.789	3.797	3.804	3.812	3.819	3.827	3.835	3.842
556.0	3.850	3.858	3.865	3.873	3.881	3.889	3.896	3.904	3.912	3.920
556.1	3.928	3.935	3.943	3.951	3.959	3.967	3.975	3.983	3.991	3.999
556.2	4.006	4.014	4.022	4.030	4.038	4.046	4.054	4.062	4.071	4.079
556.3	4.087	4.095	4.103	4.111	4.119	4.127	4.136	4.144	4.152	4.160
556.4	4.168	4.177	4.185	4.193	4.201	4.210	4.218	4.226	4.235	4.243
556.5	4.251	4.260	4.268	4.277	4.285	4.293	4.302	4.310	4.319	4.327
556.6	4.336	4.344	4.353	4.361	4.370	4.378	4.387	4.396	4.404	4.413
556.7	4.422	4.430	4.439	4.448	4.456	4.465	4.474	4.482	4.491	4.500
556.8	4.509	4.517	4.526	4.535	4.544	4.553	4.562	4.570	4.579	4.588
556.9	4.597	4.606	4.615	4.624	4.633	4.642	4.651	4.660	4.669	4.678

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7!

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
557.0	4.687	4.696	4.705	4.714	4.723	4.733	4.742	4.751	4.760	4.769
557.1	4.778	4.788	4.797	4.806	4.815	4.825	4.834	4.843	4.852	4.862
557.2	4.871	4.880	4.890	4.899	4.909	4.918	4.927	4.937	4.946	4.956
557.3	4.965	4.975	4.984	4.994	5.003	5.013	5.022	5.032	5.041	5.051
557.4	5.061	5.070	5.080	5.089	5.099	5.109	5.118	5.128	5.138	5.148
557.5	5.157	5.167	5.177	5.187	5.196	5.206	5.216	5.226	5.236	5.246
557.6	5.256	5.265	5.275	5.285	5.295	5.305	5.315	5.325	5.335	5.345
557.7	5.355	5.365	5.375	5.385	5.395	5.405	5.416	5.426	5.436	5.446
557.8	5.456	5.466	5.476	5.487	5.497	5.507	5.517	5.528	5.538	5.548
557.9	5.558	5.569	5.579	5.589	5.600	5.610	5.620	5.631	5.641	5.652
558.0	5.662	5.673	5.683	5.693	5.704	5.714	5.725	5.736	5.746	5.757
558.1	5.767	5.778	5.789	5.799	5.810	5.820	5.831	5.842	5.853	5.863
558.2	5.874	5.885	5.896	5.906	5.917	5.928	5.939	5.950	5.961	5.972
558.3	5.982	5.993	6.004	6.015	6.026	6.037	6.048	6.059	6.070	6.081
558.4	6.092	6.104	6.115	6.126	6.137	6.148	6.159	6.170	6.182	6.193
558.5	6.204	6.215	6.226	6.238	6.249	6.260	6.272	6.283	6.294	6.306
558.6	6.317	6.329	6.340	6.351	6.363	6.374	6.386	6.397	6.409	6.420
558.7	6.432	6.443	6.455	6.467	6.478	6.490	6.501	6.513	6.525	6.536
558.8	6.548	6.560	6.572	6.583	6.595	6.607	6.619	6.631	6.642	6.654
558.9	6.666	6.678	6.690	6.702	6.714	6.726	6.738	6.750	6.762	6.774
559.0	6.786	6.798	6.810	6.822	6.834	6.846	6.858	6.870	6.882	6.895
559.1	6.907	6.919	6.931	6.943	6.956	6.968	6.980	6.992	7.005	7.017
559.2	7.029	7.042	7.054	7.066	7.079	7.091	7.104	7.116	7.129	7.141
559.3	7.154	7.166	7.179	7.191	7.204	7.216	7.229	7.242	7.254	7.267
559.4	7.279	7.292	7.305	7.317	7.330	7.343	7.356	7.368	7.381	7.394
559.5	7.407	7.420	7.433	7.445	7.458	7.471	7.484	7.497	7.510	7.523
559.6	7.536	7.549	7.562	7.575	7.588	7.601	7.614	7.627	7.640	7.653
559.7	7.666	7.680	7.693	7.706	7.719	7.732	7.746	7.759	7.772	7.785
559.8	7.799	7.812	7.825	7.839	7.852	7.865	7.879	7.892	7.905	7.919
559.9	7.932	7.946	7.959	7.973	7.986	8.000	8.013	8.027	8.040	8.054

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.1

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 1

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
560.0	8.068	8.081	8.095	8.109	8.122	8.136	8.150	8.163	8.177	8.191
560.1	8.205	8.219	8.233	8.246	8.260	8.274	8.288	8.302	8.316	8.330
560.2	8.344	8.358	8.372	8.387	8.401	8.415	8.429	8.443	8.457	8.472
560.3	8.486	8.500	8.515	8.529	8.543	8.558	8.572	8.586	8.601	8.615
560.4	8.630	8.644	8.659	8.673	8.688	8.703	8.717	8.732	8.747	8.761
560.5	8.776	8.791	8.805	8.820	8.835	8.850	8.865	8.880	8.894	8.909
560.6	8.924	8.939	8.954	8.969	8.984	8.999	9.014	9.030	9.045	9.060
560.7	9.075	9.090	9.105	9.121	9.136	9.151	9.166	9.182	9.197	9.212
560.8	9.228	9.243	9.259	9.274	9.290	9.305	9.321	9.336	9.352	9.367
560.9	9.383	9.398	9.414	9.430	9.445	9.461	9.477	9.493	9.508	9.524
561.0	9.540	9.556	9.572	9.588	9.604	9.620	9.636	9.652	9.668	9.684
561.1	9.700	9.716	9.732	9.748	9.764	9.780	9.796	9.813	9.829	9.845
561.2	9.861	9.878	9.894	9.910	9.927	9.943	9.960	9.976	9.992	10.009
561.3	10.025	10.042	10.058	10.075	10.092	10.108	10.125	10.142	10.158	10.175
561.4	10.192	10.208	10.225	10.242	10.259	10.276	10.292	10.309	10.326	10.343
561.5	10.360	10.377	10.394	10.411	10.428	10.445	10.462	10.479	10.496	10.514
561.6	10.531	10.548	10.565	10.582	10.600	10.617	10.634	10.652	10.669	10.686
561.7	10.704	10.721	10.739	10.756	10.774	10.791	10.809	10.826	10.844	10.861
561.8	10.879	10.897	10.914	10.932	10.950	10.967	10.985	11.003	11.021	11.039
561.9	11.056	11.074	11.092	11.110	11.128	11.146	11.164	11.182	11.200	11.218
562.0	11.236	11.254	11.272	11.290	11.309	11.327	11.345	11.363	11.381	11.400
562.1	11.418	11.436	11.454	11.473	11.491	11.510	11.528	11.546	11.565	11.583
562.2	11.602	11.620	11.639	11.657	11.676	11.694	11.713	11.731	11.750	11.769
562.3	11.787	11.806	11.825	11.844	11.862	11.881	11.900	11.919	11.937	11.956
562.4	11.975	11.994	12.013	12.032	12.051	12.070	12.089	12.108	12.127	12.146
562.5	12.165	12.184	12.203	12.222	12.241	12.260	12.280	12.299	12.318	12.337
562.6	12.357	12.376	12.395	12.414	12.434	12.453	12.473	12.492	12.511	12.531
562.7	12.550	12.570	12.589	12.609	12.628	12.648	12.667	12.687	12.707	12.726
562.8	12.746	12.766	12.785	12.805	12.825	12.844	12.864	12.884	12.904	12.924
562.9	12.943	12.963	12.983	13.003	13.023	13.043	13.063	13.083	13.103	13.123

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
563.0	13.143	13.163	13.183	13.203	13.223	13.244	13.264	13.284	13.304	13.324
563.1	13.345	13.365	13.385	13.406	13.426	13.446	13.467	13.487	13.507	13.528
563.2	13.548	13.569	13.589	13.610	13.630	13.651	13.671	13.692	13.713	13.733
563.3	13.754	13.774	13.795	13.816	13.837	13.857	13.878	13.899	13.920	13.940
563.4	13.961	13.982	14.003	14.024	14.045	14.066	14.087	14.108	14.129	14.150
563.5	14.171	14.192	14.213	14.234	14.255	14.276	14.298	14.319	14.340	14.361
563.6	14.382	14.404	14.425	14.446	14.467	14.489	14.510	14.532	14.553	14.574
563.7	14.596	14.617	14.639	14.660	14.682	14.703	14.725	14.746	14.768	14.790
563.8	14.811	14.833	14.855	14.876	14.898	14.920	14.941	14.963	14.985	15.007
563.9	15.029	15.051	15.072	15.094	15.116	15.138	15.160	15.182	15.204	15.226
564.0	15.248	15.270	15.292	15.314	15.336	15.359	15.381	15.403	15.425	15.447
564.1	15.470	15.492	15.514	15.537	15.559	15.581	15.604	15.626	15.649	15.671
564.2	15.694	15.716	15.739	15.762	15.784	15.807	15.829	15.852	15.875	15.898
564.3	15.920	15.943	15.966	15.989	16.012	16.035	16.057	16.080	16.103	16.126
564.4	16.149	16.172	16.195	16.218	16.242	16.265	16.288	16.311	16.334	16.357
564.5	16.381	16.404	16.427	16.451	16.474	16.497	16.521	16.544	16.568	16.591
564.6	16.615	16.638	16.662	16.685	16.709	16.732	16.756	16.780	16.803	16.827
564.7	16.851	16.875	16.898	16.922	16.946	16.970	16.994	17.018	17.042	17.066
564.8	17.090	17.114	17.138	17.162	17.186	17.210	17.234	17.258	17.282	17.307
564.9	17.331	17.355	17.379	17.404	17.428	17.452	17.477	17.501	17.526	17.550
565.0	17.575	17.599	17.624	17.648	17.673	17.697	17.722	17.747	17.771	17.796
565.1	17.821	17.845	17.870	17.895	17.920	17.945	17.970	17.994	18.019	18.044
565.2	18.069	18.094	18.119	18.144	18.169	18.195	18.220	18.245	18.270	18.295
565.3	18.320	18.346	18.371	18.396	18.421	18.447	18.472	18.498	18.523	18.548
565.4	18.574	18.599	18.625	18.650	18.676	18.701	18.727	18.753	18.778	18.804
565.5	18.830	18.855	18.881	18.907	18.933	18.959	18.984	19.010	19.036	19.062
565.6	19.088	19.114	19.140	19.166	19.192	19.218	19.244	19.270	19.297	19.323
565.7	19.349	19.375	19.401	19.428	19.454	19.480	19.507	19.533	19.559	19.586
565.8	19.612	19.639	19.665	19.692	19.718	19.745	19.771	19.798	19.825	19.851
565.9	19.878	19.905	19.931	19.958	19.985	20.012	20.039	20.065	20.092	20.119

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
566.0	20.146	20.173	20.200	20.227	20.254	20.281	20.308	20.335	20.362	20.390
566.1	20.417	20.444	20.471	20.498	20.526	20.553	20.580	20.608	20.635	20.662
566.2	20.690	20.717	20.745	20.772	20.800	20.827	20.855	20.883	20.910	20.938
566.3	20.966	20.993	21.021	21.049	21.077	21.104	21.132	21.160	21.188	21.216
566.4	21.244	21.272	21.300	21.328	21.356	21.384	21.412	21.440	21.468	21.496
566.5	21.524	21.553	21.581	21.609	21.637	21.666	21.694	21.722	21.751	21.779
566.6	21.808	21.836	21.864	21.893	21.921	21.950	21.979	22.007	22.036	22.064
566.7	22.093	22.122	22.151	22.179	22.208	22.237	22.266	22.295	22.323	22.352
566.8	22.381	22.410	22.439	22.468	22.497	22.526	22.555	22.584	22.614	22.643
566.9	22.672	22.701	22.730	22.760	22.789	22.818	22.848	22.877	22.906	22.936
567.0	22.965	22.995	23.024	23.054	23.083	23.113	23.142	23.172	23.201	23.231
567.1	23.261	23.290	23.320	23.350	23.380	23.410	23.439	23.469	23.499	23.529
567.2	23.559	23.589	23.619	23.649	23.679	23.709	23.739	23.769	23.799	23.829
567.3	23.860	23.890	23.920	23.950	23.981	24.011	24.041	24.072	24.102	24.132
567.4	24.163	24.193	24.224	24.254	24.285	24.315	24.346	24.377	24.407	24.438
567.5	24.468	24.499	24.530	24.561	24.591	24.622	24.653	24.684	24.715	24.746
567.6	24.777	24.808	24.839	24.870	24.901	24.932	24.963	24.994	25.025	25.056
567.7	25.087	25.119	25.150	25.181	25.212	25.244	25.275	25.306	25.338	25.369
567.8	25.401	25.432	25.464	25.495	25.527	25.558	25.590	25.621	25.653	25.685
567.9	25.716	25.748	25.780	25.812	25.843	25.875	25.907	25.939	25.971	26.003
568.0	26.035	26.067	26.099	26.131	26.163	26.195	26.227	26.259	26.291	26.323
568.1	26.355	26.387	26.420	26.452	26.484	26.516	26.549	26.581	26.613	26.646
568.2	26.678	26.710	26.743	26.775	26.808	26.840	26.873	26.905	26.938	26.970
568.3	27.003	27.036	27.068	27.101	27.134	27.166	27.199	27.232	27.265	27.297
568.4	27.330	27.363	27.396	27.429	27.462	27.495	27.528	27.561	27.594	27.627
568.5	27.660	27.693	27.726	27.759	27.792	27.825	27.858	27.892	27.925	27.958
568.6	27.991	28.025	28.058	28.091	28.125	28.158	28.191	28.225	28.258	28.292
568.7	28.325	28.359	28.392	28.426	28.459	28.493	28.527	28.560	28.594	28.628
568.8	28.661	28.695	28.729	28.763	28.796	28.830	28.864	28.898	28.932	28.966
568.9	29.000	29.034	29.068	29.102	29.136	29.170	29.204	29.238	29.272	29.306

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
569.0	29.340	29.374	29.408	29.443	29.477	29.511	29.545	29.580	29.614	29.648
569.1	29.683	29.717	29.752	29.786	29.821	29.855	29.890	29.924	29.959	29.993
569.2	30.028	30.062	30.097	30.132	30.166	30.201	30.236	30.271	30.305	30.340
569.3	30.375	30.410	30.445	30.479	30.514	30.549	30.584	30.619	30.654	30.689
569.4	30.724	30.759	30.794	30.830	30.865	30.900	30.935	30.970	31.005	31.041
569.5	31.076	31.111	31.146	31.182	31.217	31.252	31.288	31.323	31.359	31.394
569.6	31.430	31.465	31.501	31.536	31.572	31.607	31.643	31.679	31.714	31.750
569.7	31.786	31.821	31.857	31.893	31.929	31.965	32.000	32.036	32.072	32.108
569.8	32.144	32.180	32.216	32.252	32.288	32.324	32.360	32.396	32.432	32.468
569.9	32.504	32.541	32.577	32.613	32.649	32.685	32.722	32.758	32.794	32.831
570.0	32.867	32.903	32.940	32.976	33.013	33.049	33.086	33.123	33.159	33.196
570.1	33.232	33.269	33.306	33.343	33.380	33.416	33.453	33.490	33.527	33.564
570.2	33.601	33.638	33.675	33.712	33.749	33.786	33.824	33.861	33.898	33.935
570.3	33.973	34.010	34.047	34.085	34.122	34.160	34.197	34.235	34.272	34.310
570.4	34.348	34.385	34.423	34.461	34.498	34.536	34.574	34.612	34.650	34.688
570.5	34.726	34.764	34.802	34.840	34.878	34.916	34.954	34.992	35.030	35.069
570.6	35.107	35.145	35.183	35.222	35.260	35.299	35.337	35.375	35.414	35.453
570.7	35.491	35.530	35.568	35.607	35.646	35.684	35.723	35.762	35.801	35.840
570.8	35.879	35.918	35.956	35.995	36.035	36.074	36.113	36.152	36.191	36.230
570.9	36.269	36.309	36.348	36.387	36.426	36.466	36.505	36.545	36.584	36.624
571.0	36.663	36.703	36.742	36.782	36.822	36.861	36.901	36.941	36.980	37.020
571.1	37.060	37.100	37.140	37.180	37.220	37.260	37.300	37.340	37.380	37.420
571.2	37.460	37.500	37.541	37.581	37.621	37.661	37.702	37.742	37.783	37.823
571.3	37.864	37.904	37.945	37.985	38.026	38.066	38.107	38.148	38.188	38.229
571.4	38.270	38.311	38.352	38.393	38.433	38.474	38.515	38.556	38.597	38.638
571.5	38.680	38.721	38.762	38.803	38.844	38.886	38.927	38.968	39.010	39.051
571.6	39.092	39.134	39.175	39.217	39.258	39.300	39.342	39.383	39.425	39.467
571.7	39.508	39.550	39.592	39.634	39.676	39.717	39.759	39.801	39.843	39.885
571.8	39.927	39.970	40.012	40.054	40.096	40.138	40.180	40.223	40.265	40.307
571.9	40.350	40.392	40.435	40.477	40.519	40.562	40.605	40.647	40.690	40.732

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
572.0	40.775	40.818	40.861	40.903	40.946	40.989	41.032	41.075	41.118	41.161
572.1	41.204	41.247	41.290	41.333	41.376	41.419	41.462	41.505	41.548	41.591
572.2	41.635	41.678	41.721	41.765	41.808	41.851	41.895	41.938	41.982	42.025
572.3	42.069	42.112	42.156	42.200	42.243	42.287	42.331	42.374	42.418	42.462
572.4	42.506	42.550	42.593	42.637	42.681	42.725	42.769	42.813	42.857	42.901
572.5	42.945	42.989	43.034	43.078	43.122	43.166	43.211	43.255	43.299	43.343
572.6	43.388	43.432	43.477	43.521	43.566	43.610	43.655	43.699	43.744	43.789
572.7	43.833	43.878	43.923	43.967	44.012	44.057	44.102	44.147	44.191	44.236
572.8	44.281	44.326	44.371	44.416	44.461	44.506	44.552	44.597	44.642	44.687
572.9	44.732	44.778	44.823	44.868	44.913	44.959	45.004	45.050	45.095	45.141
573.0	45.186	45.232	45.277	45.323	45.368	45.414	45.460	45.505	45.551	45.597
573.1	45.643	45.689	45.734	45.780	45.826	45.872	45.918	45.964	46.010	46.056
573.2	46.102	46.148	46.194	46.241	46.287	46.333	46.379	46.425	46.472	46.518
573.3	46.564	46.611	46.657	46.704	46.750	46.797	46.843	46.890	46.936	46.983
573.4	47.029	47.076	47.123	47.170	47.216	47.263	47.310	47.357	47.404	47.450
573.5	47.497	47.544	47.591	47.638	47.685	47.732	47.779	47.827	47.874	47.921
573.6	47.968	48.015	48.063	48.110	48.157	48.204	43.252	48.299	48.347	48.394
573.7	48.442	48.489	48.537	48.584	48.632	48.679	48.727	48.775	48.822	48.870
573.8	48.918	48.966	49.014	49.061	49.109	49.157	49.205	49.253	49.301	49.349
573.9	49.397	49.445	49.493	49.541	49.590	49.638	49.686	49.734	49.782	49.831
574.0	49.879	49.927	49.976	50.024	50.073	50.121	50.170	50.218	50.267	50.316
574.1	50.364	50.413	50.462	50.510	50.559	50.608	50.657	50.706	50.755	50.804
574.2	50.853	50.902	50.951	51.000	51.049	51.098	51.147	51.196	51.246	51.295
574.3	51.344	51.394	51.443	51.493	51.542	51.592	51.641	51.691	51.740	51.790
574.4	51.839	51.889	51.939	51.989	52.038	52.088	52.138	52.188	52.238	52.288
574.5	52.338	52.388	52.438	52.488	52.538	52.588	52.639	52.689	52.739	52.789
574.6	52.840	52.890	52.941	52.991	53.041	53.092	53.143	53.193	53.244	53.294
574.7	53.345	53.396	53.446	53.497	53.548	53.599	53.650	53.701	53.752	53.802
574.8	53.853	53.905	53.956	54.007	54.058	54.109	54.160	54.211	54.263	54.314
574.9	54.365	54.417	54.468	54.520	54.571	54.623	54.674	54.726	54.777	54.829

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
575.0	54.881	54.932	54.984	55.036	55.088	55.139	55.191	55.243	55.295	55.347
575.1	55.399	55.451	55.503	55.555	55.608	55.660	55.712	55.764	55.816	55.869
575.2	55.921	55.973	56.026	56.078	56.131	56.183	56.236	56.288	56.341	56.394
575.3	56.446	56.499	56.552	56.605	56.657	56.710	56.763	56.816	56.869	56.922
575.4	56.975	57.028	57.081	57.134	57.187	57.241	57.294	57.347	57.400	57.454
575.5	57.507	57.560	57.614	57.667	57.721	57.774	57.828	57.881	57.935	57.989
575.6	58.042	58.096	58.150	58.204	58.257	58.311	58.365	58.419	58.473	58.527
575.7	58.581	58.635	58.689	53.743	58.797	58.852	58.906	58.960	59.014	59.069
575.8	59.123	59.177	59.232	59.286	59.341	59.395	59.450	59.504	59.559	59.614
575.9	59.668	59.723	59.778	59.833	59.887	59.942	59.997	60.052	60.107	60.162
576.0	60.217	60.272	60.327	60.382	60.438	60.493	60.548	60.603	60.658	60.714
576.1	60.769	60.824	60.880	60.935	60.991	61.046	61.102	61.157	61.213	61.268
576.2	61.324	61.380	61.435	61.491	61.547	61.603	61.658	61.714	61.770	61.826
576.3	61.882	61.938	61.994	62.050	62.106	62.162	62.218	62.274	62.330	62.387
576.4	62.443	62.499	62.556	62.612	62.668	62.725	62.781	62.837	62.894	62.950
576.5	63.007	63.064	63.120	63.177	63.233	63.290	63.347	63.404	63.460	63.517
576.6	63.574	63.631	63.688	63.745	63.802	63.859	63.916	63.973	64.030	64.087
576.7	64.144	64.201	64.259	64.316	64.373	64.430	64.488	64.545	64.602	64.660
576.8	64.717	64.775	64.832	64.890	64.947	65.005	65.063	65.120	65.178	65.236
576.9	65.293	65.351	65.409	65.467	65.525	65.583	65.641	65.699	65.757	65.815
577.0	65.873	65.931	65.989	66.047	66.105	66.163	66.222	66.280	66.338	66.396
577.1	66.455	66.513	66.572	66.630	66.689	66.747	66.806	66.864	66.923	66.981
577.2	67.040	67.099	67.157	67.216	67.275	67.334	67.393	67.452	67.510	67.569
577.3	67.628	67.687	67.746	67.805	67.865	67.924	67.983	68.042	68.101	68.160
577.4	68.220	68.279	68.338	68.398	68.457	68.517	68.576	68.635	68.695	68.755
577.5	68.814	68.874	68.933	68.993	69.053	69.112	69.172	69.232	69.292	69.352
577.6	69.412	69.471	69.531	69.591	69.651	69.711	69.771	69.832	69.892	69.952
577.7	70.012	70.072	70.132	70.193	70.253	70.313	70.374	70.434	70.495	70.555
577.8	70.615	70.676	70.737	70.797	70.858	70.918	70.979	71.040	71.100	71.161
577.9	71.222	71.283	71.344	71.405	71.465	71.526	71.587	71.648	71.709	71.771

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
578.0	71.832	71.893	71.954	72.015	72.076	72.138	72.199	72.260	72.321	72.383
578.1	72.444	72.506	72.567	72.629	72.690	72.752	72.813	72.875	72.937	72.998
578.2	73.060	73.122	73.184	73.245	73.307	73.369	73.431	73.493	73.555	73.617
578.3	73.679	73.741	73.803	73.865	73.927	73.989	74.052	74.114	74.176	74.239
578.4	74.301	74.363	74.426	74.488	74.551	74.613	74.676	74.738	74.801	74.863
578.5	74.926	74.989	75.051	75.114	75.177	75.240	75.303	75.365	75.428	75.491
578.6	75.554	75.617	75.680	75.743	75.806	75.869	75.933	75.996	76.059	76.122
578.7	76.185	76.249	76.312	76.375	76.439	76.502	76.566	76.629	76.693	76.756
578.8	76.820	76.884	76.947	77.011	77.075	77.138	77.202	77.266	77.330	77.394
578.9	77.457	77.521	77.585	77.649	77.713	77.777	77.841	77.906	77.970	78.034
579.0	78.098	78.162	78.227	78.291	78.355	78.420	78.484	78.548	78.613	78.677
579.1	78.742	78.806	78.871	78.936	79.000	79.065	79.130	79.194	79.259	79.324
579.2	79.389	79.454	79.518	79.583	79.648	79.713	79.778	79.843	79.908	79.974
579.3	80.039	80.104	80.169	80.234	80.299	80.365	80.430	80.495	80.561	80.626
579.4	80.692	80.757	80.823	80.888	80.954	81.019	81.085	81.151	81.216	81.282
579.5	81.348	81.414	81.479	81.545	81.611	81.677	81.743	81.809	81.875	81.941
579.6	82.007	82.073	82.139	82.205	82.272	82.338	82.404	82.470	82.537	82.603
579.7	82.669	82.736	82.802	82.869	82.935	83.002	83.068	83.135	83.202	83.268
579.8	83.335	83.402	83.468	83.535	83.602	83.669	83.736	83.803	83.869	83.936
579.9	84.003	84.070	84.138	84.205	84.272	84.339	84.406	84.473	84.541	84.608
580.0	84.675	84.742	84.810	84.877	84.945	85.012	85.080	85.147	85.215	85.282
580.1	85.350	85.417	85.485	85.553	85.620	85.688	85.756	85.824	85.891	85.959
580.2	86.027	86.095	86.163	86.231	86.299	86.367	86.435	86.503	86.571	86.639
580.3	86.708	86.776	86.844	86.912	86.980	87.049	87.117	87.185	87.254	87.322
580.4	87.391	87.459	87.528	87.596	87.665	87.733	87.802	87.871	87.939	88.008
580.5	88.077	88.145	88.214	88.283	88.352	88.421	88.490	88.559	88.628	88.697
580.6	88.766	88.835	88.904	88.973	89.042	89.111	89.180	89.250	89.319	89.388
580.7	89.457	89.527	89.596	89.665	89.735	89.804	89.874	89.943	90.013	90.082
580.8	90.152	90.222	90.291	90.361	90.431	90.500	90.570	90.640	90.710	90.779
580.9	90.849	90.919	90.989	91.059	91.129	91.199	91.269	91.339	91.409	91.479

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET] .00	.01	.02	.03	.04	.05	.06	.07	.08	.09
581.0	91.550	91.620	91.690	91.760	91.831	91.901	91.971	92.041	92.112	92.182
581.1	92.253	92.323	92.394	92.464	92.535	92.605	92.676	92.747	92.817	92.888
581.2	92.959	93.029	93.100	93.171	93.242	93.313	93.384	93.455	93.525	93.596
581.3	93.667	93.739	93.810	93.881	93.952	94.023	94.094	94.165	94.237	94.308
581.4	94.379	94.450	94.522	94.593	94.665	94.736	94.807	94.879	94.950	95.022
581.5	95.094	95.165	95.237	95.308	95.380	95.452	95.524	95.595	95.667	95.739
581.6	95.811	95.883	95.955	96.027	96.099	96.171	96.243	96.315	96.387	96.459
581.7	96.531	96.603	96.675	96.748	96.820	96.892	96.965	97.037	97.109	97.182
581.8	97.254	97.327	97.399	97.472	97.544	97.617	97.689	97.762	97.835	97.907
581.9	97.980	98.053	98.125	98.198	98.271	98.344	98.417	98.490	98.563	98.636
582.0	98.709	98.782	98.855	98.928	99.001	99.074	99.147	99.221	99.294	99.367
582.1	99.440	99.514	99.587	99.661	99.734	99.808	99.881	99.955	100.028	100.102
582.2	100.176	100.249	100.323	100.397	100.471	100.545	100.618	100.692	100.766	100.840
582.3	100.914	100.988	101.062	101.137	101.211	101.285	101.359	101.433	101.508	101.582
582.4	101.656	101.731	101.805	101.880	101.954	102.029	102.103	102.178	102.253	102.327
582.5	102.402	102.477	102.551	102.626	102.701	102.776	102.851	102.926	103.001	103.076
582.6	103.151	103.226	103.301	103.376	103.451	103.527	103.602	103.677	103.753	103.828
582.7	103.903	103.979	104.054	104.130	104.205	104.281	104.356	104.432	104.508	104.583
582.8	104.659	104.735	104.811	104.887	104.962	105.038	105.114	105.190	105.266	105.342
582.9	105.418	105.495	105.571	105.647	105.723	105.799	105.876	105.952	106.028	106.105
583.0	106.181	106.258	106.334	106.411	106.487	106.564	106.640	106.717	106.794	106.870
583.1	106.947	107.024	107.101	107.178	107.255	107.332	107.409	107.486	107.563	107.640
583.2	107.717	107.794	107.871	107.948	108.026	108.103	108.180	108.257	108.335	108.412
583.3	108.490	108.567	108.645	108.722	108.800	108.878	108.955	109.033	109.111	109.188
583.4	109.266	109.344	109.422	109.500	109.578	109.656	109.734	109.812	109.890	109.968
583.5	110.046	110.124	110.202	110.281	110.359	110.437	110.516	110.594	110.672	110.751
583.6	110.829	110.908	110.986	111.065	111.144	111.222	111.301	111.380	111.458	111.537
583.7	111.616	111.695	111.774	111.853	111.932	112.011	112.090	112.169	112.248	112.327
583.8	112.406	112.485	112.564	112.644	112.723	112.802	112.882	112.961	113.041	113.120
583.9	113.200	113.279	113.359	113.438	113.518	113.598	113.677	113.757	113.837	113.917

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
584.0	113.997	114.076	114.156	114.236	114.316	114.396	114.476	114.557	114.637	114.717
584.1	114.797	114.877	114.958	115.038	115.118	115.199	115.279	115.360	115.440	115.521
584.2	115.601	115.682	115.762	115.843	115.924	116.005	116.085	116.166	116.247	116.328
584.3	116.409	116.490	116.571	116.652	116.733	116.814	116.895	116.977	117.058	117.139
584.4	117.220	117.302	117.383	117.464	117.546	117.627	117.709	117.790	117.872	117.954
584.5	118.035	118.117	118.199	118.280	118.362	118.444	118.526	118.608	118.690	118.772
584.6	118.854	118.936	119.018	119.100	119.182	119.264	119.347	119.429	119.511	119.594
584.7	119.676	119.758	119.841	119.923	120.006	120.088	120.171	120.254	120.336	120.419
584.8	120.502	120.584	120.667	120.750	120.833	120.916	120.999	121.082	121.165	121.248
584.9	121.331	121.414	121.497	121.581	121.664	121.747	121.830	121.914	121.997	122.081
585.0	122.164	122.248	122.331	122.415	122.498	122.582	122.666	122.749	122.833	122.917
585.1	123.001	123.085	123.168	123.252	123.336	123.420	123.504	123.588	123.673	123.757
585.2	123.841	123.925	124.009	124.094	124.178	124.262	124.347	124.431	124.516	124.600
585.3	124.685	124.769	124.854	124.939	125.023	125.108	125.193	125.278	125.362	125.447
585.4	125.532	125.617	125.702	125.787	125.872	125.957	126.042	126.127	126.213	126.298
585.5	126.383	126.468	126.554	126.639	126.725	126.810	126.895	126.981	127.066	127.152
585.6	127.238	127.323	127.409	127.495	127.581	127.666	127.752	127.838	127.924	128.010
585.7	128.096	128.182	128.268	128.354	128.440	128.526	128.613	128.699	128.785	128.871
585.8	128.958	129.044	129.130	129.217	129.303	129.390	129.477	129.563	129.650	129.736
585.9	129.823	129.910	129.997	130.083	130.170	130.257	130.344	130.431	130.518	130.605
586.0	130.692	130.779	130.866	130.953	131.041	131.128	131.215	131.302	131.390	131.477
586.1	131.564	131.652	131.739	131.827	131.914	132.002	132.089	132.177	132.264	132.352
586.2	132.439	132.527	132.615	132.703	132.790	132.878	132.966	133.054	133.142	133.230
586.3	133.318	133.405	133.493	133.581	133.670	133.758	133.846	133.934	134.022	134.110
586.4	134.198	134.287	134.375	134.463	134.552	134.640	134.728	134.817	134.905	134.994
586.5	135.082	135.171	135.259	135.348	135.437	135.525	135.614	135.703	135.791	135.880
586.6	135.969	136.058	136.147	136.235	136.324	136.413	136.502	136.591	136.680	136.769
586.7	136.859	136.948	137.037	137.126	137.215	137.304	137.394	137.483	137.572	137.662
586.8	137.751	137.840	137.930	138.019	138.109	138.198	138.288	138.377	138.467	138.557
586.9	138.646	138.736	138.826	138.916	139.005	139.095	139.185	139.275	139.365	139.455

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
587.0	139.545	139.635	139.725	139.815	139.905	139.995	140.085	140.175	140.265	140.355
587.1	140.446	140.536	140.626	140.717	140.807	140.897	140.988	141.078	141.169	141.259
587.2	141.350	141.440	141.531	141.622	141.712	141.803	141.894	141.984	142.075	142.166
587.3	142.257	142.348	142.438	142.529	142.620	142.711	142.802	142.893	142.984	143.075
587.4	143.166	143.258	143.349	143.440	143.531	143.622	143.714	143.805	143.896	143.988
587.5	144.079	144.171	144.262	144.353	144.445	144.537	144.628	144.720	144.811	144.903
587.6	144.995	145.086	145.178	145.270	145.362	145.453	145.545	145.637	145.729	145.821
587.7	145.913	146.005	146.097	146.189	146.281	146.373	146.465	146.558	146.650	146.742
587.8	146.834	146.927	147.019	147.111	147.204	147.296	147.389	147.481	147.573	147.666
587.9	147.759	147.851	147.944	148.036	148.129	148.222	148.314	148.407	148.500	148.593
588.0	148.686	148.778	148.871	148.964	149.057	149.150	149.243	149.337	149.430	149.523
588.1	149.616	149.710	149.803	149.896	149.990	150.083	150.177	150.270	150.364	150.458
588.2	150.551	150.645	150.739	150.833	150.927	151.020	151.114	151.208	151.302	151.397
588.3	151.491	151.585	151.679	151.773	151.868	151.962	152.056	152.151	152.245	152.340
588.4	152.434	152.529	152.624	152.718	152.813	152.908	153.003	153.098	153.193	153.288
588.5	153.383	153.478	153.573	153.668	153.763	153.858	153.954	154.049	154.144	154.240
588.6	154.335	154.431	154.526	154.622	154.717	154.813	154.909	155.004	155.100	155.196
588.7	155.292	155.388	155.484	155.580	155.676	155.772	155.868	155.964	156.061	156.157
588.8	156.253	156.349	156.446	156.542	156.639	156.735	156.832	156.929	157.025	157.122
588.9	157.219	157.315	157.412	157.509	157.606	157.703	157.800	157.897	157.994	158.091
589.0	158.189	158.286	158.383	158.480	158.578	158.675	158.773	158.870	158.968	159.065
589.1	159.163	159.261	159.358	159.456	159.554	159.652	159.750	159.847	159.945	160.043
589.2	160.142	160.240	160.338	160.436	160.534	160.632	160.731	160.829	160.928	161.026
589.3	161.125	161.223	161.322	161.420	161.519	161.618	161.716	161.815	161.914	162.013
589.4	162.112	162.211	162.310	162.409	162.508	162.607	162.706	162.806	162.905	163.004
589.5	163.104	163.203	163.302	163.402	163.502	163.601	163.701	163.800	163.900	164.000
589.6	164.100	164.200	164.299	164.399	164.499	164.599	164.699	164.800	164.900	165.000
589.7	165.100	165.200	165.301	165.401	165.502	165.602	165.702	165.803	165.904	166.004
589.8	166.105	166.206	166.306	166.407	166.508	166.609	166.710	166.811	166.912	167.013
589.9	167.114	167.215	167.316	167.418	167.519	167.620	167.722	167.823	167.925	168.026

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
590.0	168.128	168.229	168.331	168.432	168.534	168.636	168.738	168.839	168.941	169.043
590.1	169.145	169.247	169.349	169.451	169.553	169.655	169.757	169.859	169.962	170.064
590.2	170.166	170.268	170.371	170.473	170.575	170.678	170.780	170.883	170.985	171.088
590.3	171.190	171.293	171.396	171.498	171.601	171.704	171.807	171.910	172.012	172.115
590.4	172.218	172.321	172.424	172.527	172.630	172.734	172.837	172.940	173.043	173.146
590.5	173.250	173.353	173.456	173.560	173.663	173.767	173.870	173.974	174.077	174.181
590.6	174.285	174.388	174.492	174.596	174.700	174.803	174.907	175.011	175.115	175.219
590.7	175.323	175.427	175.531	175.635	175.739	175.844	175.948	176.052	176.156	176.261
590.8	176.365	176.469	176.574	176.678	176.783	176.887	176.992	177.096	177.201	177.306
590.9	177.410	177.515	177.620	177.725	177.829	177.934	178.039	178.144	178.249	178.354
591.0	178.459	178.564	178.669	178.774	178.880	178.985	179.090	179.195	179.301	179.406
591.1	179.511	179.617	179.722	179.828	179.933	180.039	180.145	180.250	180.356	180.462
591.2	180.567	180.673	180.779	180.885	180.991	181.097	181.202	181.308	181.415	181.521
591.3	181.627	181.733	181.839	181.945	182.051	182.158	182.264	182.370	182.477	182.583
591.4	182.690	182.796	182.902	183.009	183.116	183.222	183.329	183.436	183.542	183.649
591.5	183.756	183.863	183.970	184.076	184.183	184.290	184.397	184.504	184.611	184.719
591.6	184.826	184.933	185.040	185.147	185.255	185.362	185.469	185.577	185.684	185.792
591.7	185.899	186.007	186.114	186.222	186.329	186.437	186.545	186.652	186.760	186.868
591.8	186.976	187.084	187.192	187.300	187.408	187.516	187.624	187.732	187.840	187.948
591.9	188.056	188.164	188.273	188.381	188.489	188.598	188.706	188.815	188.923	189.032
592.0	189.140	189.249	189.357	189.466	189.575	189.683	189.792	189.901	190.010	190.119
592.1	190.228	190.337	190.446	190.555	190.664	190.773	190.882	190.991	191.100	191.210
592.2	191.319	191.428	191.538	191.647	191.757	191.866	191.976	192.085	192.195	192.305
592.3	192.414	192.524	192.634	192.744	192.853	192.963	193.073	193.183	193.293	193.403
592.4	193.513	193.623	193.734	193.844	193.954	194.064	194.175	194.285	194.395	194.506
592.5	194.616	194.727	194.837	194.948	195.058	195.169	195.280	195.391	195.501	195.612
592.6	195.723	195.834	195.945	196.056	196.167	196.278	196.389	196.500	196.611	196.722
592.7	196.834	196.945	197.056	197.168	197.279	197.390	197.502	197.613	197.725	197.836
592.8	197.948	198.060	198.171	198.283	198.395	198.507	198.619	198.731	198.842	198.954
592.9	199.066	199.178	199.291	199.403	199.515	199.627	199.739	199.852	199.964	200.076

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
593.0	200.189	200.301	200.413	200.526	200.639	200.751	200.864	200.976	201.089	201.202
593.1	201.315	201.427	201.540	201.653	201.766	201.879	201.992	202.105	202.218	202.331
593.2	202.445	202.558	202.671	202.784	202.898	203.011	203.124	203.238	203.351	203.465
593.3	203.578	203.692	203.805	203.919	204.033	204.147	204.260	204.374	204.488	204.602
593.4	204.716	204.830	204.944	205.058	205.172	205.286	205.400	205.515	205.629	205.743
593.5	205.857	205.972	206.086	206.201	206.315	206.430	206.544	206.659	206.773	206.888
593.6	207.003	207.117	207.232	207.347	207.462	207.577	207.692	207.807	207.922	208.037
593.7	208.152	208.267	208.382	208.497	208.613	208.728	208.843	208.959	209.074	209.189
593.8	209.305	209.420	209.536	209.652	209.767	209.883	209.999	210.114	210.230	210.346
593.9	210.462	210.578	210.694	210.810	210.926	211.042	211.158	211.274	211.390	211.506
594.0	211.623	211.739	211.855	211.972	212.088	212.204	212.321	212.437	212.554	212.670
594.1	212.787	212.903	213.020	213.137	213.253	213.370	213.487	213.604	213.721	213.837
594.2	213.954	214.071	214.188	214.305	214.422	214.539	214.656	214.773	214.891	215.008
594.3	215.125	215.242	215.359	215.477	215.594	215.711	215.829	215.946	216.064	216.181
594.4	216.299	216.416	216.534	216.651	216.769	216.887	217.004	217.122	217.240	217.358
594.5	217.476	217.593	217.711	217.829	217.947	218.065	218.183	218.301	218.419	218.538
594.6	218.656	218.774	218.892	219.010	219.129	219.247	219.365	219.484	219.602	219.720
594.7	219.839	219.957	220.076	220.195	220.313	220.432	220.550	220.669	220.788	220.907
594.8	221.025	221.144	221.263	221.382	221.501	221.620	221.739	221.858	221.977	222.096
594.9	222.215	222.334	222.453	222.572	222.692	222.811	222.930	223.049	223.169	223.288
595.0	223.408	223.527	223.647	223.766	223.886	224.005	224.125	224.244	224.364	224.484
595.1	224.603	224.723	224.843	224.963	225.083	225.203	225.323	225.442	225.562	225.682
595.2	225.803	225.923	226.043	226.163	226.283	226.403	226.523	226.644	226.764	226.884
595.3	227.005	227.125	227.246	227.366	227.486	227.607	227.728	227.848	227.969	228.089
595.4	228.210	228.331	228.452	228.572	228.693	228.814	228.935	229.056	229.177	229.298
595.5	229.419	229.540	229.661	229.782	229.903	230.024	230.145	230.266	230.388	230.509
595.6	230.630	230.752	230.873	230.994	231.116	231.237	231.359	231.480	231.602	231.723
595.7	231.845	231.967	232.088	232.210	232.332	232.454	232.576	232.697	232.819	232.941
595.8	233.063	233.185	233.307	233.429	233.551	233.673	233.795	233.918	234.040	234.162
595.9	234.284	234.407	234.529	234.651	234.774	234.896	235.018	235.141	235.263	235.386

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
596.0	235.509	235.631	235.754	235.877	235.999	236.122	236.245	236.368	236.491	236.614
596.1	236.737	236.860	236.983	237.106	237.229	237.353	237.476	237.599	237.723	237.846
596.2	237.970	238.093	238.217	238.340	238.464	238.588	238.711	238.835	238.959	239.083
596.3	239.207	239.331	239.455	239.579	239.703	239.827	239.952	240.076	240.200	240.324
596.4	240.449	240.573	240.698	240.822	240.947	241.072	241.196	241.321	241.446	241.570
596.5	241.695	241.820	241.945	242.070	242.195	242.320	242.445	242.571	242.696	242.821
596.6	242.946	243.072	243.197	243.323	243.448	243.574	243.699	243.825	243.951	244.076
596.7	244.202	244.328	244.454	244.580	244.706	244.832	244.958	245.084	245.210	245.336
596.8	245.462	245.589	245.715	245.841	245.968	246.094	246.221	246.347	246.474	246.601
596.9	246.727	246.854	246.981	247.108	247.234	247.361	247.488	247.615	247.742	247.869
597.0	247.997	248.124	248.251	248.378	248.506	248.633	248.760	248.888	249.015	249.143
597.1	249.271	249.398	249.526	249.654	249.781	249.909	250.037	250.165	250.293	250.421
597.2	250.549	250.677	250.805	250.934	251.062	251.190	251.319	251.447	251.575	251.704
597.3	251.832	251.961	252.089	252.218	252.347	252.476	252.604	252.733	252.862	252.991
597.4	253.120	253.249	253.378	253.507	253.636	253.766	253.895	254.024	254.154	254.283
597.5	254.412	254.542	254.671	254.801	254.931	255.060	255.190	255.320	255.449	255.579
597.6	255.709	255.839	255.969	256.099	256.229	256.359	256.490	256.620	256.750	256.880
597.7	257.011	257.141	257.272	257.402	257.533	257.663	257.794	257.924	258.055	258.186
597.8	258.317	258.448	258.579	258.709	258.840	258.972	259.103	259.234	259.365	259.496
597.9	259.627	259.759	259.890	260.021	260.153	260.284	260.416	260.548	260.679	260.811
598.0	260.943	261.074	261.206	261.338	261.470	261.602	261.734	261.866	261.998	262.130
598.1	262.262	262.394	262.527	262.659	262.791	262.924	263.056	263.189	263.321	263.454
598.2	263.586	263.719	263.852	263.984	264.117	264.250	264.383	264.516	264.648	264.781
598.3	264.914	265.048	265.181	265.314	265.447	265.580	265.714	265.847	265.980	266.114
598.4	266.247	266.381	266.514	266.648	266.781	266.915	267.049	267.182	267.316	267.450
598.5	267.584	267.718	267.852	267.986	268.120	268.254	268.388	268.522	268.657	268.791
598.6	268.925	269.060	269.194	269.328	269.463	269.597	269.732	269.867	270.001	270.136
598.7	270.271	270.405	270.540	270.675	270.810	270.945	271.080	271.215	271.350	271.485
598.8	271.621	271.756	271.891	272.026	272.162	272.297	272.432	272.568	272.703	272.839
598.9	272.975	273.110	273.246	273.382	273.518	273.653	273.789	273.925	274.061	274.197

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.7

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
599.0	274.333	274.469	274.605	274.742	274.878	275.014	275.150	275.287	275.423	275.560
599.1	275.696	275.833	275.970	276.106	276.243	276.380	276.517	276.654	276.791	276.928
599.2	277.065	277.202	277.339	277.476	277.614	277.751	277.889	278.026	278.164	278.301
599.3	278.439	278.576	278.714	278.852	278.990	279.128	279.266	279.404	279.542	279.680
599.4	279.818	279.956	280.094	280.233	280.371	280.509	280.648	280.786	280.925	281.064
599.5	281.202	281.341	281.480	281.619	281.757	281.896	282.035	282.174	282.314	282.453
599.6	282.592	282.731	282.870	283.010	283.149	283.289	283.428	283.568	283.707	283.847
599.7	283.987	284.127	284.267	284.406	284.546	284.686	284.826	284.967	285.107	285.247
599.8	285.387	285.528	285.668	285.808	285.949	286.089	286.230	286.371	286.511	286.652
599.9	286.793	286.934	287.074	287.215	287.356	287.498	287.639	287.780	287.921	288.062
600.0	288.204	288.345	288.486	288.628	288.769	288.911	289.052	289.194	289.336	289.477
600.1	289.619	289.761	289.903	290.044	290.186	290.328	290.470	290.612	290.754	290.896
600.2	291.038	291.180	291.322	291.465	291.607	291.749	291.891	292.034	292.176	292.319
600.3	292.461	292.604	292.746	292.889	293.031	293.174	293.317	293.459	293.602	293.745
600.4	293.888	294.031	294.173	294.316	294.459	294.602	294.745	294.889	295.032	295.175
600.5	295.318	295.461	295.605	295.748	295.891	296.035	296.178	296.322	296.465	296.609
600.6	296.752	296.896	297.040	297.183	297.327	297.471	297.615	297.758	297.902	298.046
600.7	298.190	298.334	298.478	298.622	298.766	298.911	299.055	299.199	299.343	299.488
600.8	299.632	299.776	299.921	300.065	300.210	300.354	300.499	300.643	300.788	300.933
600.9	301.077	301.222	301.367	301.512	301.657	301.802	301.946	302.091	302.236	302.382
601.0	302.527	302.672	302.817	302.962	303.107	303.253	303.398	303.543	303.689	303.834
601.1	303.980	304.125	304.271	304.416	304.562	304.707	304.853	304.999	305.145	305.290
601.2	305.436	305.582	305.728	305.874	306.020	306.166	306.312	306.458	306.604	306.751
601.3	306.897	307.043	307.189	307.336	307.482	307.629	307.775	307.921	308.068	308.215
601.4	308.361	308.508	308.654	308.801	308.948	309.095	309.242	309.388	309.535	309.682
601.5	309.829	309.976	310.123	310.270	310.418	310.565	310.712	310.859	311.006	311.154
601.6	311.301	311.448	311.596	311.743	311.891	312.038	312.186	312.334	312.481	312.629
601.7	312.777	312.924	313.072	313.220	313.368	313.516	313.664	313.812	313.960	314.108
601.8	314.256	314.404	314.552	314.701	314.849	314.997	315.145	315.294	315.442	315.591
601.9	315.739	315.888	316.036	316.185	316.333	316.482	316.631	316.780	316.928	317.077

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
602.0	317.226	317.375	317.524	317.673	317.822	317.971	318.120	318.269	318.419	318.568
602.1	318.717	318.866	319.016	319.165	319.315	319.464	319.614	319.763	319.913	320.063
602.2	320.213	320.362	320.512	320.662	320.812	320.962	321.112	321.262	321.412	321.562
602.3	321.712	321.863	322.013	322.163	322.314	322.464	322.614	322.765	322.915	323.066
602.4	323.217	323.367	323.518	323.669	323.820	323.970	324.121	324.272	324.423	324.574
602.5	324.725	324.876	325.028	325.179	325.330	325.481	325.633	325.784	325.935	326.087
602.6	326.238	326.390	326.542	326.693	326.845	326.997	327.148	327.300	327.452	327.604
602.7	327.756	327.908	328.060	328.212	328.364	328.516	328.669	328.821	328.973	329.126
602.8	329.278	329.430	329.583	329.735	329.888	330.041	330.193	330.346	330.499	330.651
602.9	330.804	330.957	331.110	331.263	331.416	331.569	331.722	331.875	332.029	332.182
603.0	332.335	332.488	332.642	332.795	332.949	333.102	333.256	333.409	333.563	333.717
603.1	333.870	334.024	334.178	334.332	334.486	334.640	334.794	334.948	335.102	335.256
603.2	335.410	335.564	335.718	335.873	336.027	336.181	336.336	336.490	336.645	336.799
603.3	336.954	337.109	337.263	337.418	337.573	337.728	337.883	338.037	338.192	338.347
603.4	338.502	338.658	338.813	338.968	339.123	339.278	339.434	339.589	339.744	339.900
603.5	340.055	340.211	340.366	340.522	340.678	340.833	340.989	341.145	341.301	341.457
603.6	341.613	341.769	341.925	342.081	342.237	342.393	342.549	342.705	342.862	343.018
603.7	343.174	343.331	343.487	343.644	343.800	343.957	344.114	344.270	344.427	344.584
603.8	344.741	344.897	345.054	345.211	345.368	345.525	345.682	345.839	345.997	346.154
603.9	346.311	346.468	346.626	346.783	346.941	347.098	347.256	347.413	347.571	347.728
604.0	347.886	348.044	348.202	348.359	348.517	348.675	348.833	348.991	349.149	349.307
604.1	349.465	349.623	349.781	349.940	350.098	350.256	350.414	350.573	350.731	350.889
604.2	351.048	351.206	351.365	351.523	351.682	351.841	351.999	352.158	352.317	352.475
604.3	352.634	352.793	352.952	353.111	353.270	353.429	353.588	353.747	353.906	354.065
604.4	354.224	354.383	354.543	354.702	354.861	355.021	355.180	355.339	355.499	355.658
604.5	355.818	355.978	356.137	356.297	356.456	356.616	356.776	356.936	357.096	357.255
604.6	357.415	357.575	357.735	357.895	358.055	358.215	358.376	358.536	358.696	358.856
604.7	359.016	359.177	359.337	359.497	359.658	359.818	359.979	360.139	360.300	360.461
604.8	360.621	360.782	360.943	361.103	361.264	361.425	361.586	361.747	361.908	362.069
604.9	362.230	362.391	362.552	362.713	362.874	363.035	363.196	363.358	363.519	363.680

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
605.0	363.842	364.003	364.164	364.326	364.487	364.649	364.811	364.972	365.134	365.296
605.1	365.457	365.619	365.781	365.943	366.105	366.267	366.429	366.591	366.753	366.915
605.2	367.077	367.239	367.401	367.563	367.726	367.888	368.050	368.213	368.375	368.537
605.3	368.700	368.862	369.025	369.187	369.350	369.513	369.675	369.838	370.001	370.164
605.4	370.327	370.489	370.652	370.815	370.978	371.141	371.304	371.467	371.631	371.794
605.5	371.957	372.120	372.283	372.447	372.610	372.774	372.937	373.100	373.264	373.427
605.6	373.591	373.755	373.918	374.082	374.246	374.409	374.573	374.737	374.901	375.065
605.7	375.229	375.393	375.557	375.721	375.885	376.049	376.213	376.377	376.542	376.706
605.8	376.870	377.035	377.199	377.363	377.528	377.692	377.857	378.021	378.186	378.351
605.9	378.515	378.680	378.845	379.010	379.174	379.339	379.504	379.669	379.834	379.999
606.0	380.164	380.329	380.494	380.659	380.825	380.990	381.155	381.321	381.486	381.651
606.1	381.817	381.983	382.148	382.314	382.479	382.645	382.811	382.977	383.143	383.308
606.2	383.474	383.640	383.806	383.972	384.139	384.305	384.471	384.637	384.804	384.970
606.3	385.136	385.303	385.469	385.636	385.802	385.969	386.136	386.302	386.469	386.636
606.4	386.803	386.970	397.137	387.304	387.471	387.638	387.805	387.972	388.139	388.307
606.5	388.474	388.641	388.809	388.976	389.144	389.311	389.479	389.646	389.814	389.982
606.6	390.149	390.317	390.485	390.653	390.821	390.989	391.157	391.325	391.493	391.661
606.7	391.830	391.998	392.166	392.334	392.503	392.671	392.840	393.008	393.177	393.346
606.8	393.514	393.683	393.852	394.020	394.189	394.358	394.527	394.696	394.865	395.034
606.9	395.203	395.373	395.542	395.711	395.880	396.050	396.219	396.389	396.558	396.728
607.0	396.897	397.067	397.236	397.406	397.576	397.746	397.916	398.086	398.256	398.426
607.1	398.596	398.766	398.936	399.106	399.277	399.447	399.618	399.788	399.959	400.129
607.2	400.300	400.471	400.641	400.812	400.983	401.154	401.325	401.496	401.667	401.838
607.3	402.009	402.181	402.352	402.523	402.695	402.866	403.038	403.209	403.381	403.553
607.4	403.724	403.896	404.068	404.240	404.412	404.584	404.756	404.928	405.100	405.272
607.5	405.445	405.617	405.789	405.962	406.134	406.307	406.480	406.652	406.825	406.998
607.6	407.170	407.343	407.516	407.689	407.862	408.035	408.209	408.382	408.555	408.728
607.7	408.902	409.075	409.249	409.422	409.596	409.769	409.943	410.117	410.290	410.464
607.8	410.638	410.812	410.986	411.160	411.334	411.509	411.683	411.857	412.031	412.206
607.9	412.380	412.555	412.729	412.904	413.079	413.253	413.428	413.603	413.778	413.953

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
608.0	414.128	414.303	414.478	414.653	414.828	415.003	415.178	415.353	415.529	415.704
608.1	415.879	416.055	416.230	416.405	416.581	416.756	416.932	417.107	417.283	417.458
608.2	417.634	417.809	417.985	418.161	418.336	418.512	418.688	418.864	419.040	419.215
608.3	419.391	419.567	419.743	419.919	420.095	420.271	420.447	420.623	420.799	420.976
608.4	421.152	421.328	421.504	421.680	421.857	422.033	422.209	422.386	422.562	422.739
608.5	422.915	423.092	423.268	423.445	423.621	423.798	423.975	424.151	424.328	424.505
608.6	424.682	424.858	425.035	425.212	425.389	425.566	425.743	425.920	426.097	426.274
608.7	426.451	426.628	426.805	426.982	427.160	427.337	427.514	427.691	427.869	428.046
608.8	428.223	428.401	428.578	428.756	428.933	429.111	429.288	429.466	429.643	429.821
608.9	429.999	430.176	430.354	430.532	430.710	430.888	431.065	431.243	431.421	431.599
609.0	431.777	431.955	432.133	432.311	432.489	432.667	432.846	433.024	433.202	433.380
609.1	433.558	433.737	433.915	434.093	434.272	434.450	434.629	434.807	434.986	435.164
609.2	435.343	435.521	435.700	435.878	436.057	436.236	436.415	436.593	436.772	436.951
609.3	437.130	437.309	437.488	437.667	437.846	438.025	438.204	438.383	438.562	438.741
609.4	438.920	439.099	439.278	439.458	439.637	439.816	439.995	440.175	440.354	440.534
609.5	440.713	440.893	441.072	441.252	441.431	441.611	441.790	441.970	442.150	442.329
609.6	442.509	442.689	442.869	443.049	443.228	443.408	443.588	443.768	443.948	444.128
609.7	444.308	444.488	444.668	444.849	445.029	445.209	445.389	445.569	445.750	445.930
609.8	446.110	446.291	446.471	446.651	446.832	447.012	447.193	447.373	447.554	447.735
609.9	447.915	448.096	448.277	448.457	448.638	448.819	449.000	449.180	449.361	449.542
610.0	449.723	449.904	450.085	450.266	450.447	450.628	450.810	450.991	451.172	451.354
610.1	451.535	451.716	451.898	452.079	452.261	452.443	452.624	452.806	452.988	453.170
610.2	453.351	453.533	453.715	453.897	454.079	454.262	454.444	454.626	454.808	454.991
610.3	455.173	455.355	455.538	455.720	455.903	456.085	456.268	456.451	456.633	456.816
610.4	456.999	457.182	457.365	457.548	457.731	457.914	458.097	458.280	458.464	458.647
610.5	458.830	459.013	459.197	459.380	459.564	459.747	459.931	460.115	460.298	460.482
610.6	460.666	460.850	461.034	461.218	461.402	461.586	461.770	461.954	462.138	462.322
610.7	462.507	462.691	462.875	463.060	463.244	463.429	463.613	463.798	463.982	464.167
610.8	464.352	464.537	464.722	464.906	465.091	465.276	465.461	465.647	465.832	466.017
610.9	466.202	466.387	466.573	466.758	466.944	467.129	467.315	467.500	467.686	467.871

TABLE 7-3
ELEVATION - AREA - CAPACITY

ARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
611.0	468.057	468.243	468.429	468.614	468.800	468.986	469.172	469.357	469.543	469.729
611.1	469.915	470.100	470.286	470.472	470.658	470.843	471.029	471.215	471.401	471.586
611.2	471.772	471.958	472.144	472.330	472.515	472.701	472.887	473.073	473.258	473.444
611.3	473.630	473.816	474.002	474.187	474.373	474.559	474.745	474.931	475.116	475.302
611.4	475.488	475.674	475.860	476.045	476.231	476.417	476.603	476.789	476.974	477.160
611.5	477.346	477.532	477.718	477.903	478.089	478.275	478.461	478.647	478.833	479.018
611.6	479.204	479.390	479.576	479.762	479.948	480.133	480.319	480.505	480.691	480.877
611.7	481.063	481.248	481.434	481.620	481.806	481.992	482.178	482.364	482.549	482.735
611.8	482.921	483.107	483.293	483.479	483.665	483.850	484.036	484.222	484.408	484.594
611.9	484.780	484.966	485.152	485.337	485.523	485.709	485.895	486.081	486.267	486.453
612.0	486.639	486.825	487.010	487.197	487.383	487.569	487.755	487.941	488.127	488.314
612.1	488.500	488.687	488.873	489.060	489.246	489.433	489.620	489.807	489.993	490.180
612.2	490.367	490.554	490.741	490.928	491.116	491.303	491.490	491.677	491.865	492.052
612.3	492.240	492.427	492.615	492.802	492.990	493.178	493.366	493.554	493.741	493.929
612.4	494.117	494.306	494.494	494.682	494.870	495.058	495.247	495.435	495.624	495.812
612.5	496.001	496.189	496.378	496.567	496.756	496.944	497.133	497.322	497.511	497.700
612.6	497.889	498.079	498.268	498.457	498.646	498.836	499.025	499.215	499.404	499.594
612.7	499.783	499.973	500.163	500.353	500.543	500.733	500.922	501.113	501.303	501.493
612.8	501.683	501.873	502.063	502.254	502.444	502.635	502.825	503.016	503.206	503.397
612.9	503.588	503.779	503.969	504.160	504.351	504.542	504.733	504.924	505.116	505.307
613.0	505.498	505.689	505.881	506.072	506.264	506.455	506.647	506.839	507.030	507.222
613.1	507.414	507.606	507.798	507.990	508.182	508.374	508.566	508.758	508.950	509.143
613.2	509.335	509.527	509.720	509.912	510.105	510.298	510.490	510.683	510.876	511.069
613.3	511.261	511.454	511.647	511.840	512.034	512.227	512.420	512.613	512.807	513.000
613.4	513.193	513.387	513.580	513.774	513.968	514.161	514.355	514.549	514.743	514.937
613.5	515.131	515.325	515.519	515.713	515.907	516.101	516.296	516.490	516.685	516.879
613.6	517.073	517.268	517.463	517.657	517.852	518.047	518.242	518.437	518.632	518.827
613.7	519.022	519.217	519.412	519.607	519.802	519.998	520.193	520.389	520.584	520.780
613.8	520.975	521.171	521.367	521.562	521.758	521.954	522.150	522.346	522.542	522.738
613.9	522.934	523.130	523.327	523.523	523.719	523.916	524.112	524.309	524.505	524.702

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
614.0	524.899	525.095	525.292	525.489	525.686	525.883	526.079	526.276	526.473	526.670
614.1	526.867	527.064	527.261	527.458	527.655	527.852	528.050	528.247	528.444	528.641
614.2	528.839	529.036	529.233	529.430	529.628	529.825	530.023	530.220	530.418	530.615
614.3	530.813	531.010	531.208	531.406	531.603	531.801	531.999	532.196	532.394	532.592
614.4	532.790	532.988	533.186	533.383	533.581	533.779	533.977	534.175	534.374	534.572
614.5	534.770	534.968	535.166	535.364	535.562	535.761	535.959	536.157	536.356	536.554
614.6	536.752	536.951	537.149	537.348	537.546	537.745	537.944	538.142	538.341	538.539
614.7	538.738	538.937	539.136	539.334	539.533	539.732	539.931	540.130	540.329	540.528
614.8	540.727	540.926	541.125	541.324	541.523	541.722	541.921	542.120	542.319	542.519
614.9	542.718	542.917	543.117	543.316	543.515	543.715	543.914	544.114	544.313	544.513
615.0	544.712	544.912	545.111	545.311	545.511	545.710	545.910	546.110	546.309	546.509
615.1	546.709	546.909	547.109	547.309	547.509	547.709	547.909	548.109	548.309	548.509
615.2	548.709	548.909	549.109	549.309	549.510	549.710	549.910	550.111	550.311	550.511
615.3	550.712	550.912	551.113	551.313	551.514	551.714	551.915	552.115	552.316	552.517
615.4	552.717	552.918	553.119	553.319	553.520	553.721	553.922	554.123	554.324	554.525
615.5	554.726	554.927	555.128	555.329	555.530	555.731	555.932	556.133	556.334	556.536
615.6	556.737	556.938	557.139	557.341	557.542	557.743	557.945	558.146	558.348	558.549
615.7	558.751	558.952	559.154	559.356	559.557	559.759	559.961	560.162	560.364	560.566
615.8	560.768	560.970	561.172	561.373	561.575	561.777	561.979	562.181	562.383	562.585
615.9	562.788	562.990	563.192	563.394	563.596	563.798	564.001	564.203	564.405	564.608
616.0	564.810	565.013	565.215	565.417	565.620	565.822	566.025	566.228	566.430	566.633
616.1	566.836	567.038	567.241	567.444	567.647	567.849	568.052	568.255	568.458	568.661
616.2	568.864	569.067	569.270	569.473	569.676	569.879	570.083	570.286	570.489	570.692
616.3	570.896	571.099	571.302	571.506	571.709	571.912	572.116	572.319	572.523	572.727
616.4	572.930	573.134	573.337	573.541	573.745	573.948	574.152	574.356	574.560	574.764
616.5	574.968	575.172	575.375	575.579	575.783	575.987	576.192	576.396	576.600	576.804
616.6	577.008	577.212	577.417	577.621	577.825	578.029	578.234	578.438	578.643	578.847
616.7	579.052	579.256	579.461	579.665	579.870	580.074	580.279	580.484	580.689	580.893
616.8	581.098	581.303	581.508	581.713	581.918	582.122	582.327	582.532	582.737	582.943
616.9	583.148	583.353	583.558	583.763	583.968	584.173	584.379	584.584	584.789	584.995

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TABLE 7-3
ELEVATION - AREA - CAPACITY

ARDIS LAKE, OK 23 JULY 1986 STATION FILE NO. 073357.75

ATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
617.0	585.200	585.406	585.611	585.816	586.022	586.227	586.433	586.639	586.844	587.050
617.1	587.256	587.461	587.667	587.873	588.079	588.284	588.490	588.696	588.902	589.108
617.2	589.314	589.520	589.726	589.932	590.138	590.344	590.551	590.757	590.963	591.169
617.3	591.376	591.582	591.788	591.995	592.201	592.407	592.614	592.820	593.027	593.233
617.4	593.440	593.647	593.853	594.060	594.267	594.473	594.680	594.887	595.094	595.301
617.5	595.507	595.714	595.921	596.128	596.335	596.542	596.749	596.956	597.164	597.371
617.6	597.578	597.785	597.992	598.200	598.407	598.614	598.822	599.029	599.236	599.444
617.7	599.651	599.859	600.066	600.274	600.482	600.689	600.897	601.105	601.312	601.520
617.8	601.728	601.936	602.143	602.351	602.559	602.767	602.975	603.183	603.391	603.599
617.9	603.807	604.015	604.223	604.432	604.640	604.848	605.056	605.265	605.473	605.681
618.0	605.890	606.098	606.306	606.515	606.723	606.932	607.140	607.349	607.558	607.766
618.1	607.975	608.184	608.392	608.601	608.810	609.019	609.227	609.436	609.645	609.854
618.2	610.063	610.272	610.481	610.690	610.899	611.108	611.317	611.526	611.735	611.944
618.3	612.154	612.363	612.572	612.781	612.991	613.200	613.409	613.619	613.828	614.038
618.4	614.247	614.457	614.666	614.876	615.085	615.295	615.505	615.714	615.924	616.134
618.5	616.343	616.553	616.763	616.973	617.183	617.393	617.603	617.813	618.022	618.232
618.6	618.442	618.653	618.863	619.073	619.283	619.493	619.703	619.913	620.124	620.334
618.7	620.544	620.755	620.965	621.175	621.386	621.596	621.807	622.017	622.228	622.438
618.8	622.649	622.859	623.070	623.281	623.491	623.702	623.913	624.124	624.334	624.545
618.9	624.756	624.967	625.178	625.389	625.600	625.811	626.022	626.233	626.444	626.655
619.0	626.866	627.077	627.288	627.500	627.711	627.922	628.133	628.345	628.556	628.767
619.1	628.979	629.190	629.402	629.613	629.825	630.036	630.248	630.459	630.671	630.883
619.2	631.094	631.306	631.518	631.730	631.941	632.153	632.365	632.577	632.789	633.001
619.3	633.213	633.425	633.637	633.849	634.061	634.273	634.485	634.697	634.909	635.121
619.4	635.334	635.546	635.758	635.970	636.183	636.395	636.608	636.820	637.032	637.245
619.5	637.457	637.670	637.882	638.095	638.308	638.520	638.733	638.946	639.158	639.371
619.6	639.584	639.797	640.009	640.222	640.435	640.648	640.861	641.074	641.287	641.500
619.7	641.713	641.926	642.139	642.352	642.565	642.779	642.992	643.205	643.418	643.632
619.8	643.845	644.058	644.272	644.485	644.699	644.912	645.125	645.339	645.553	645.766
619.9	645.980	646.193	646.407	646.621	646.834	647.048	647.262	647.476	647.689	647.903

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TABLE 7-3
ELEVATION - AREA - CAPACITY

ARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

ATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET] .00	.01	.02	.03	.04	.05	.06	.07	.08	.09
620.0	648.117	648.331	648.545	648.759	648.973	649.187	649.401	649.615	649.829	650.043
620.1	650.257	650.471	650.686	650.900	651.114	651.328	651.543	651.757	651.971	652.186
620.2	652.400	652.615	652.829	653.044	653.258	653.473	653.687	653.902	654.117	654.331
620.3	654.546	654.761	654.976	655.190	655.405	655.620	655.835	656.050	656.265	656.480
620.4	656.695	656.910	657.125	657.340	657.555	657.770	657.985	658.200	658.415	658.631
620.5	658.846	659.061	659.277	659.492	659.707	659.923	660.138	660.354	660.569	660.785
620.6	661.000	661.216	661.431	661.647	661.863	662.078	662.294	662.510	662.725	662.941
620.7	663.157	663.373	663.589	663.805	664.021	664.237	664.453	664.669	664.885	665.101
620.8	665.317	665.533	665.749	665.965	666.181	666.398	666.614	666.830	667.047	667.263
620.9	667.479	667.696	667.912	668.129	668.345	668.562	668.778	668.995	669.211	669.428
621.0	669.645	669.861	670.078	670.295	670.512	670.728	670.945	671.162	671.379	671.596
621.1	671.813	672.030	672.247	672.464	672.681	672.898	673.115	673.332	673.549	673.766
621.2	673.984	674.201	674.418	674.635	674.853	675.070	675.287	675.505	675.722	675.940
621.3	676.157	676.375	676.592	676.810	677.027	677.245	677.463	677.680	677.898	678.116
621.4	678.334	678.551	678.769	678.987	679.205	679.423	679.641	679.859	680.077	680.295
621.5	680.513	680.731	680.949	681.167	681.385	681.604	681.822	682.040	682.258	682.477
621.6	682.695	682.913	683.132	683.350	683.568	683.787	684.005	684.224	684.442	684.661
621.7	684.880	685.098	685.317	685.536	685.754	685.973	686.192	686.411	686.629	686.848
621.8	687.067	687.286	687.505	687.724	687.943	688.162	688.381	688.600	688.819	689.038
621.9	689.257	689.477	689.696	689.915	690.134	690.354	690.573	690.792	691.012	691.231
622.0	691.451	691.670	691.890	692.109	692.329	692.548	692.768	692.987	693.207	693.427
622.1	693.646	693.866	694.086	694.306	694.525	694.745	694.965	695.185	695.405	695.625
622.2	695.844	696.064	696.284	696.504	696.724	696.944	697.165	697.385	697.605	697.825
622.3	698.045	698.265	698.485	698.706	698.926	699.146	699.367	699.587	699.807	700.028
622.4	700.248	700.468	700.689	700.909	701.130	701.350	701.571	701.792	702.012	702.233
622.5	702.453	702.674	702.895	703.116	703.336	703.557	703.778	703.999	704.220	704.440
622.6	704.661	704.882	705.103	705.324	705.545	705.766	705.987	706.208	706.429	706.650
622.7	706.872	707.093	707.314	707.535	707.756	707.978	708.199	708.420	708.642	708.863
622.8	709.084	709.306	709.527	709.749	709.970	710.192	710.413	710.635	710.856	711.078
622.9	711.300	711.521	711.743	711.965	712.186	712.408	712.630	712.852	713.073	713.295

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
623.0	713.517	713.739	713.961	714.183	714.405	714.627	714.849	715.071	715.293	715.515
623.1	715.737	715.959	716.181	716.404	716.626	716.848	717.070	717.293	717.515	717.737
623.2	717.960	718.182	718.404	718.627	718.849	719.072	719.294	719.517	719.739	719.962
623.3	720.184	720.407	720.630	720.852	721.075	721.298	721.521	721.743	721.966	722.189
623.4	722.412	722.635	722.857	723.080	723.303	723.526	723.749	723.972	724.195	724.418
623.5	724.641	724.865	725.088	725.311	725.534	725.757	725.980	726.204	726.427	726.650
623.6	726.874	727.097	727.320	727.544	727.767	727.991	728.214	728.438	728.661	728.885
623.7	729.108	729.332	729.555	729.779	730.003	730.226	730.450	730.674	730.898	731.121
623.8	731.345	731.569	731.793	732.017	732.241	732.465	732.689	732.913	733.137	733.361
623.9	733.585	733.809	734.033	734.257	734.481	734.705	734.930	735.154	735.378	735.602
624.0	735.827	736.051	736.275	736.500	736.724	736.948	737.173	737.397	737.622	737.846
624.1	738.071	738.295	738.520	738.745	738.969	739.194	739.419	739.643	739.868	740.093
624.2	740.318	740.543	740.767	740.992	741.217	741.442	741.667	741.892	742.117	742.342
624.3	742.567	742.792	743.017	743.242	743.467	743.692	743.918	744.143	744.368	744.593
624.4	744.819	745.044	745.269	745.495	745.720	745.945	746.171	746.396	746.622	746.847
624.5	747.073	747.298	747.524	747.749	747.975	748.201	748.426	748.652	748.878	749.104
624.6	749.329	749.555	749.781	750.007	750.233	750.459	750.684	750.910	751.136	751.362
624.7	751.588	751.814	752.040	752.267	752.493	752.719	752.945	753.171	753.397	753.624
624.8	753.850	754.076	754.302	754.529	754.755	754.981	755.208	755.434	755.661	755.887
624.9	756.114	756.340	756.567	756.793	757.020	757.247	757.473	757.700	757.927	758.153
625.0	758.380	758.607	758.834	759.060	759.287	759.514	759.741	759.968	760.195	760.422
625.1	760.649	760.876	761.103	761.330	761.557	761.784	762.011	762.239	762.466	762.693
625.2	762.920	763.147	763.375	763.602	763.829	764.057	764.284	764.512	764.739	764.966
625.3	765.194	765.421	765.649	765.877	766.104	766.332	766.559	766.787	767.015	767.242
625.4	767.470	767.698	767.926	768.154	768.381	768.609	768.837	769.065	769.293	769.521
625.5	769.749	769.977	770.205	770.433	770.661	770.889	771.117	771.345	771.574	771.802
625.6	772.030	772.258	772.486	772.715	772.943	773.171	773.400	773.628	773.857	774.085
625.7	774.314	774.542	774.771	774.999	775.228	775.456	775.685	775.914	776.142	776.371
625.8	776.600	776.828	777.057	777.286	777.515	777.744	777.972	778.201	778.430	778.659
625.9	778.888	779.117	779.346	779.575	779.804	780.033	780.262	780.492	780.721	780.950

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
626.0	781.179	781.408	781.638	781.867	782.096	782.326	782.555	782.784	783.014	783.243
626.1	783.472	783.702	783.931	784.161	784.391	784.620	784.850	785.079	785.309	785.539
626.2	785.768	785.998	786.228	786.457	786.687	786.917	787.147	787.377	787.607	787.836
626.3	788.066	788.296	788.526	788.756	788.986	789.216	789.446	789.676	789.907	790.137
626.4	790.367	790.597	790.827	791.057	791.288	791.518	791.748	791.979	792.209	792.439
626.5	792.670	792.900	793.131	793.361	793.592	793.822	794.053	794.283	794.514	794.744
626.6	794.975	795.206	795.436	795.667	795.898	796.128	796.359	796.590	796.821	797.052
626.7	797.283	797.513	797.744	797.975	798.206	798.437	798.668	798.899	799.130	799.361
626.8	799.593	799.824	800.055	800.286	800.517	800.748	800.980	801.211	801.442	801.674
626.9	801.905	802.136	802.368	802.599	802.830	803.062	803.293	803.525	803.756	803.988
627.0	804.220	804.451	804.683	804.914	805.146	805.378	805.610	805.841	806.073	806.305
627.1	806.537	806.769	807.000	807.232	807.464	807.696	807.928	808.160	808.392	808.624
627.2	808.856	809.088	809.320	809.552	809.785	810.017	810.249	810.481	810.713	810.946
627.3	811.178	811.410	811.643	811.875	812.107	812.340	812.572	812.805	813.037	813.270
627.4	813.502	813.735	813.967	814.200	814.432	814.665	814.898	815.131	815.363	815.596
627.5	815.829	816.062	816.294	816.527	816.760	816.993	817.226	817.459	817.692	817.925
627.6	818.158	818.391	818.624	818.857	819.090	819.323	819.556	819.789	820.023	820.256
627.7	820.489	820.722	820.956	821.189	821.422	821.656	821.889	822.122	822.356	822.589
627.8	822.823	823.056	823.290	823.523	823.757	823.990	824.224	824.458	824.691	824.925
627.9	825.159	825.392	825.626	825.860	826.094	826.328	826.561	826.795	827.029	827.263
628.0	827.497	827.731	827.965	828.199	828.433	828.667	828.901	829.135	829.370	829.604
628.1	829.838	830.072	830.306	830.541	830.775	831.009	831.244	831.478	831.712	831.947
628.2	832.181	832.416	832.650	832.885	833.119	833.354	833.589	833.823	834.058	834.292
628.3	834.527	834.762	834.997	835.231	835.466	835.701	835.936	836.171	836.406	836.641
628.4	836.875	837.110	837.345	837.580	837.816	838.051	838.286	838.521	838.756	838.991
628.5	839.226	839.462	839.697	839.932	840.167	840.403	840.638	840.873	841.109	841.344
628.6	841.580	841.815	842.051	842.286	842.522	842.757	842.993	843.229	843.464	843.700
628.7	843.936	844.171	844.407	844.643	844.879	845.114	845.350	845.586	845.822	846.058
628.8	846.294	846.530	846.766	847.002	847.238	847.474	847.710	847.946	848.182	848.419
628.9	848.655	848.891	849.127	849.363	849.600	849.836	850.072	850.309	850.545	850.782

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET] .00	.01	.02	.03	.04	.05	.06	.07	.08	.09
629.0	851.018	851.255	851.491	851.728	851.964	852.201	852.437	852.674	852.911	853.147
629.1	853.384	853.621	853.857	854.094	854.331	854.568	854.805	855.042	855.278	855.515
629.2	855.752	855.989	856.226	856.463	856.700	856.937	857.174	857.412	857.649	857.886
629.3	858.123	858.360	858.598	858.835	859.072	859.309	859.547	859.784	860.022	860.259
629.4	860.496	860.734	860.971	861.209	861.446	861.684	861.922	862.159	862.397	862.635
629.5	862.872	863.110	863.348	863.585	863.823	864.061	864.299	864.537	864.775	865.013
629.6	865.251	865.488	865.726	865.964	866.203	866.441	866.679	866.917	867.155	867.393
629.7	867.631	867.870	868.108	868.346	868.584	868.823	869.061	869.299	869.538	869.776
629.8	870.015	870.253	870.492	870.730	870.969	871.207	871.446	871.684	871.923	872.162
629.9	872.400	872.639	872.878	873.117	873.355	873.594	873.833	874.072	874.311	874.550
630.0	874.789	875.028	875.267	875.506	875.745	875.984	876.223	876.462	876.701	876.940
630.1	877.179	877.418	877.658	877.897	878.136	878.375	878.615	878.854	879.093	879.333
630.2	879.572	879.811	880.051	880.290	880.530	880.769	881.009	881.248	881.488	881.728
630.3	881.967	882.207	882.446	882.686	882.926	883.166	883.405	883.645	883.885	884.125
630.4	884.365	884.604	884.844	885.084	885.324	885.564	885.804	886.044	886.284	886.524
630.5	886.764	887.004	887.244	887.484	887.725	887.965	888.205	888.445	888.685	888.926
630.6	889.166	889.406	889.647	889.887	890.127	890.368	890.608	890.849	891.089	891.329
630.7	891.570	891.811	892.051	892.292	892.532	892.773	893.013	893.254	893.495	893.736
630.8	893.976	894.217	894.458	894.699	894.939	895.180	895.421	895.662	895.903	896.144
630.9	896.385	896.626	896.867	897.108	897.349	897.590	897.831	898.072	898.313	898.554
631.0	898.796	899.037	899.278	899.519	899.761	900.002	900.243	900.484	900.726	900.967
631.1	901.209	901.450	901.691	901.933	902.174	902.416	902.658	902.899	903.141	903.382
631.2	903.624	903.866	904.107	904.349	904.591	904.832	905.074	905.316	905.558	905.800
631.3	906.041	906.283	906.525	906.767	907.009	907.251	907.493	907.735	907.977	908.219
631.4	908.461	908.703	908.945	909.187	909.430	909.672	909.914	910.156	910.399	910.641
631.5	910.883	911.125	911.368	911.610	911.853	912.095	912.337	912.580	912.822	913.065
631.6	913.307	913.550	913.792	914.035	914.278	914.520	914.763	915.006	915.248	915.491
631.7	915.734	915.977	916.219	916.462	916.705	916.948	917.191	917.434	917.677	917.920
631.8	918.162	918.405	918.648	918.892	919.135	919.378	919.621	919.864	920.107	920.350
631.9	920.593	920.837	921.080	921.323	921.566	921.810	922.053	922.296	922.540	922.783

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
632.0	923.027	923.270	923.514	923.757	924.001	924.244	924.488	924.731	924.975	925.219
632.1	925.462	925.706	925.950	926.194	926.437	926.681	926.925	927.169	927.413	927.657
632.2	927.901	928.145	928.389	928.633	928.877	929.121	929.365	929.609	929.854	930.098
632.3	930.342	930.586	930.831	931.075	931.319	931.564	931.808	932.053	932.297	932.542
632.4	932.786	933.031	933.275	933.520	933.765	934.009	934.254	934.499	934.744	934.988
632.5	935.233	935.478	935.723	935.968	936.213	936.458	936.703	936.948	937.193	937.438
632.6	937.683	937.928	938.173	938.418	938.664	938.909	939.154	939.399	939.645	939.890
632.7	940.136	940.381	940.626	940.872	941.117	941.363	941.608	941.854	942.100	942.345
632.8	942.591	942.837	943.082	943.328	943.574	943.820	944.065	944.311	944.557	944.803
632.9	945.049	945.295	945.541	945.787	946.033	946.279	946.525	946.772	947.018	947.264
633.0	947.510	947.756	948.003	948.249	948.495	948.742	948.988	949.234	949.481	949.727
633.1	949.974	950.220	950.467	950.714	950.960	951.207	951.454	951.700	951.947	952.194
633.2	952.441	952.687	952.934	953.181	953.428	953.675	953.922	954.169	954.416	954.663
633.3	954.910	955.157	955.404	955.651	955.899	956.146	956.393	956.640	956.888	957.135
633.4	957.382	957.630	957.877	958.124	958.372	958.619	958.867	959.115	959.362	959.610
633.5	959.857	960.105	960.353	960.600	960.848	961.096	961.344	961.592	961.839	962.087
633.6	962.335	962.583	962.831	963.079	963.327	963.575	963.823	964.071	964.320	964.568
633.7	964.816	965.064	965.312	965.561	965.809	966.057	966.306	966.554	966.803	967.051
633.8	967.300	967.548	967.797	968.045	968.294	968.542	968.791	969.040	969.288	969.537
633.9	969.786	970.035	970.284	970.532	970.781	971.030	971.279	971.528	971.777	972.026
634.0	972.275	972.524	972.773	973.022	973.272	973.521	973.770	974.019	974.268	974.518
634.1	974.767	975.016	975.265	975.515	975.764	976.014	976.263	976.512	976.762	977.011
634.2	977.261	977.510	977.760	978.010	978.259	978.509	978.758	979.008	979.258	979.508
634.3	979.757	980.007	980.257	980.507	980.757	981.006	981.256	981.506	981.756	982.006
634.4	982.256	982.506	982.756	983.006	983.256	983.506	983.756	984.007	984.257	984.507
634.5	984.757	985.007	985.258	985.508	985.758	986.008	986.259	986.509	986.760	987.010
634.6	987.260	987.511	987.761	988.012	988.262	988.513	988.764	989.014	989.265	989.515
634.7	989.766	990.017	990.268	990.518	990.769	991.020	991.271	991.521	991.772	992.023
634.8	992.274	992.525	992.776	993.027	993.278	993.529	993.780	994.031	994.282	994.533
634.9	994.784	995.036	995.287	995.538	995.789	996.040	996.292	996.543	996.794	997.046

TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 (AREA IN ACRES, CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV [FT. MSL]	CAPACITY [ACRE-FEET]									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
635.0	997.297	997.548	997.800	998.051	998.303	998.554	998.806	999.057	999.309	999.560
635.1	999.812	1000.064	1000.315	1000.567	1000.819	1001.070	1001.322	1001.574	1001.826	1002.078
635.2	1002.329	1002.581	1002.833	1003.085	1003.337	1003.589	1003.841	1004.093	1004.345	1004.597
635.3	1004.849	1005.101	1005.353	1005.605	1005.857	1006.110	1006.362	1006.614	1006.866	1007.119
635.4	1007.371	1007.623	1007.876	1008.128	1008.380	1008.633	1008.885	1009.138	1009.390	1009.643
635.5	1009.895	1010.148	1010.400	1010.653	1010.906	1011.158	1011.411	1011.664	1011.916	1012.169
635.6	1012.422	1012.675	1012.927	1013.180	1013.433	1013.686	1013.939	1014.192	1014.445	1014.698
635.7	1014.951	1015.204	1015.457	1015.710	1015.963	1016.216	1016.469	1016.722	1016.976	1017.229
635.8	1017.482	1017.735	1017.989	1018.242	1018.495	1018.749	1019.002	1019.255	1019.509	1019.762
635.9	1020.016	1020.269	1020.523	1020.776	1021.030	1021.283	1021.537	1021.791	1022.044	1022.298
636.0	1022.552	1022.805	1023.059	1023.313	1023.567	1023.820	1024.074	1024.328	1024.582	1024.836
636.1	1025.090	1025.344	1025.598	1025.852	1026.106	1026.360	1026.615	1026.869	1027.123	1027.377
636.2	1027.631	1027.886	1028.140	1028.394	1028.649	1028.903	1029.158	1029.412	1029.667	1029.921
636.3	1030.176	1030.430	1030.685	1030.939	1031.194	1031.449	1031.703	1031.958	1032.213	1032.468
636.4	1032.722	1032.977	1033.232	1033.487	1033.742	1033.997	1034.252	1034.507	1034.762	1035.017
636.5	1035.272	1035.527	1035.783	1036.038	1036.293	1036.548	1036.803	1037.059	1037.314	1037.569
636.6	1037.825	1038.080	1038.336	1038.591	1038.847	1039.102	1039.358	1039.613	1039.869	1040.124
636.7	1040.380	1040.636	1040.892	1041.147	1041.403	1041.659	1041.915	1042.171	1042.426	1042.682
636.8	1042.938	1043.194	1043.450	1043.706	1043.962	1044.218	1044.475	1044.731	1044.987	1045.243
636.9	1045.499	1045.756	1046.012	1046.268	1046.524	1046.781	1047.037	1047.294	1047.550	1047.807
637.0	1048.063	1048.320	1048.576	1048.833	1049.089	1049.346	1049.603	1049.859	1050.116	1050.373
637.1	1050.630	1050.887	1051.143	1051.400	1051.657	1051.914	1052.171	1052.428	1052.685	1052.942
637.2	1053.199	1053.456	1053.713	1053.970	1054.228	1054.485	1054.742	1054.999	1055.257	1055.514
637.3	1055.771	1056.029	1056.286	1056.544	1056.801	1057.058	1057.316	1057.574	1057.831	1058.089
637.4	1058.346	1058.604	1058.862	1059.119	1059.377	1059.635	1059.893	1060.150	1060.408	1060.666
637.5	1060.924	1061.182	1061.440	1061.698	1061.956	1062.214	1062.472	1062.730	1062.988	1063.247
637.6	1063.505	1063.763	1064.021	1064.279	1064.538	1064.796	1065.054	1065.313	1065.571	1065.830
637.7	1066.088	1066.347	1066.605	1066.864	1067.122	1067.381	1067.639	1067.898	1068.157	1068.416
637.8	1068.674	1068.933	1069.192	1069.451	1069.710	1069.968	1070.227	1070.486	1070.745	1071.004
637.9	1071.263	1071.522	1071.781	1072.041	1072.300	1072.559	1072.818	1073.077	1073.337	1073.596

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TABLE 7-3
ELEVATION - AREA - CAPACITY

SARDIS LAKE, OK — 23 JULY 1986 — STATION FILE NO. 073357.75

DATA FROM 2FT TOPO, 1982 — (CAPACITY IN ACRE-FEET) — TABLE NO. 2

POOL ELEV (FT. MSL)	CAPACITY (ACRE-FEET)									
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
638.0	1073.855	1074.114	1074.374	1074.633	1074.893	1075.152	1075.411	1075.671	1075.930	1076.190
638.1	1076.449	1076.709	1076.968	1077.228	1077.487	1077.747	1078.006	1078.266	1078.526	1078.785
638.2	1079.045	1079.305	1079.564	1079.824	1080.084	1080.343	1080.603	1080.863	1081.123	1081.382
638.3	1081.642	1081.902	1082.162	1082.422	1082.682	1082.942	1083.201	1083.461	1083.721	1083.981
638.4	1084.241	1084.501	1084.761	1085.021	1085.281	1085.541	1085.801	1086.062	1086.322	1086.582
638.5	1086.842	1087.102	1087.362	1087.623	1087.883	1088.143	1088.403	1088.663	1088.924	1089.134
638.6	1089.444	1089.705	1089.965	1090.225	1090.486	1090.746	1091.007	1091.267	1091.527	1091.788
638.7	1092.048	1092.309	1092.569	1092.830	1093.090	1093.351	1093.612	1093.872	1094.133	1094.393
638.8	1094.654	1094.915	1095.175	1095.436	1095.697	1095.958	1096.218	1096.479	1096.740	1097.001
638.9	1097.262	1097.522	1097.783	1098.044	1098.305	1098.566	1098.827	1099.088	1099.349	1099.610
639.0	1099.871	1100.132	1100.393	1100.654	1100.915	1101.176	1101.437	1101.698	1101.959	1102.220
639.1	1102.481	1102.743	1103.004	1103.265	1103.526	1103.787	1104.049	1104.310	1104.571	1104.832
639.2	1105.094	1105.355	1105.616	1105.878	1106.139	1106.401	1106.662	1106.923	1107.185	1107.446
639.3	1107.708	1107.969	1108.231	1108.492	1108.754	1109.015	1109.277	1109.539	1109.800	1110.062
639.4	1110.324	1110.585	1110.847	1111.109	1111.370	1111.632	1111.894	1112.156	1112.417	1112.679
639.5	1112.941	1113.203	1113.465	1113.727	1113.988	1114.250	1114.512	1114.774	1115.036	1115.298
639.6	1115.560	1115.822	1116.084	1116.346	1116.608	1116.870	1117.132	1117.394	1117.657	1117.919
639.7	1118.181	1118.443	1118.705	1118.967	1119.230	1119.492	1119.754	1120.016	1120.279	1120.541
639.8	1120.803	1121.066	1121.328	1121.590	1121.853	1122.115	1122.377	1122.640	1122.902	1123.165
639.9	1123.427	1123.690	1123.952	1124.215	1124.477	1124.740	1125.003	1125.265	1125.528	1125.790

EXHIBIT A

SUPPLEMENTARY PERTINENT DATA

SARDIS LAKE

EXHIBIT A

SUPPLEMENTARY PERTINENT DATA

SARDIS LAKE

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EXHIBIT A
SUPPLEMENTARY PERTINENT DATA SARDIS LAKE

1 - GENERAL INFORMATION

Other names for project	None
Location	Kiamichi River Basin, Jackfork Creek, at river mile 2.8, State of Oklahoma
Type of Project	Dam and Lake
Objectives of Regulation	Multipurpose – Flood control, water supply, recreation, and fish and wildlife
Project Owner	US Government
Operating Agency	US Army Corps of Engineers. The normal working hours of operation for weekdays are 7:45 a.m. to 4:30 p.m. Working hours for weekends, holidays and nights vary. Working hours under flood emergency conditions are 24 hours.
Regulating Agency	US Army Corps of Engineers.
Code of Federal Regulations, Title 33 (applies to Section 7 Project)	Does not apply
Federal Power Commission License	No power recommended for this project

Water Supply contracts

Contract Number	Agency	Storage	Yield	Date
DACW-56-74-C-0134	Oklahoma Water Resources Board	Initial-141,700 AF Future-155,500 AF	66.8 m.g.d. 73.2mgd	16 Feb 1974 Life of project

Other inter-agency agreement	None
Water Rights	33,408 acre-feet per year
Project cost	$54,880,000 (TBA)
Closure date	27 December 1982
Special project features	None
Other	None

2 - LAKE INFORMATION

ELEVATIONS, AREAS, AND STORAGES

Feature	Elevation (feet, NGVD)	Lake area (acres)	Storage Accumulative (acre-feet)	Runoff(1) (inches)
Top of dam	631.0	27,500	974,000	66.41
Maximum pool	624.0	24,690	791,000	53.94
Top of flood control pool	607.0	17,740	429,600	29.29
Top of conservation pool	599.0	14,360	301,400	20.55
Spillway crest	611.0	19,480	504,100	34.37
Top of inactive pool	542.0	100	260	0.02
Flood control storage	599.0 - 607.0	-	128,200	8.74
Conservation storage	542.0 - 599.0	-	301,140(2)	20.53
24 hour surveillance begins	605.0	16,900	395,000	26.93

(1) From 275 square miles of drainage area
(2) Storage yield of 140 m.g.d. for water supply

Real estate taking for land fee title	Fee simple title has been acquired to land required for construction of the dam and for operation and maintenance purposes in the areas designated as the dam site and public use areas. Reservoir land (surface) was purchased in fee to a blocked perimeter that encompasses the acquisition guideline (elevation 611.0) with a minimum distance of 300 feet measured horizontally from the top of the conservation pool, elevation 599.0. There are 21,400 acres in fee simple title.
Real estate taking for Easement	Flowage easements to occasionally and intermittently flood and submerge were purchased where the acquisition guideline in the main body of the lake, and in the upper limits of the main stem and tributaries, extends beyond the fee purchase limits. There are 1,150 acres in easement.
Range of clearing	The upper limit of clearing is elevation 599.0. The lower limit of clearing is elevation 568.6 except in areas near the dam which were flush cleared.
Pool elevation corresponding to discharge capability of maximum non-damaging flow rate downstream	Non-damaging channel capacity immediately below Sardis Lake is estimated at 4,000 c.f.s. This flow rate can be discharged when the lake level is at about elevation 597.5 and above.
Reservoir length at top of conservation pool	11.2 miles
Shoreline length at top of conservation pool	117 miles
Safety aspects, possibly requiring warning	All recreation areas access roads are constructed above elevation 607.0. Some campsite facilities could be inundated above elevation 605.0. The Lake Manager will make every effort to inform campsite users when roads and campsites are closed.

Emergency drawdown	The lowest invert usable for drawdown is elevation 534.0. This is for both the conduit and low flow sluice. Storage at elevation 534.0 is 12 acre-feet. Making full channel capacity release with no inflow would require 16 days to evacuate the flood control storage. With no inflow, the conservation storage plus inactive can be evacuated to elevation 534.0 in 191 days.

3 – HYDROLOGY

Drainage area	275 square miles
Spillway Design Flood	
Maximum water surface elev.	624.0 feet NGVD
Peak inflow (into full pool)	336,000 c.f.s.
Total storm runoff	29.78 inches
Volume (into full pool)	436,700 acre-feet
Maximum outflow	29,500 c.f.s.
Duration of flood	4 days
Seasonal distinction	All Seasons
Standard Project Flood	
Maximum water surface elev.	616.3 feet NGVD
Peak inflow (into full pool)	165,500 c.f.s.
Total storm runoff	14.89 inches
Volume (into full pool)	218,350 acre-feet
Maximum outflow	11,100 c.f.s.
Duration of flood	4 days
Seasonal distinction	All seasons
Climate	Moderate winters and long summers With relatively high temperatures
One inch of runoff	14,667 acre-feet
Storm types	Thunderstorms
Flood Seasons	January through June, although records show floods can occur at any time during the year.

Low flow season	July - November, but low flow can occur during any time of the year.
Minimum daily flow (D.S.F.) and date of occurrence	0 flow (D.S.F.) on several different occasions.
Minimum monthly flow (A.F.) and date	0 flow (A.F.) on several different occasions.
Minimum annual flow (A.F.) and year	65,000 A.F. 1963 from records (1926-2009)
Average annual flow (A.F.)	263,700 A.F. (1926-2009)
Maximum annual flow (A.F.) and year	663,100 A.F. 1990 from records (1926-2009)
Maximum monthly flow (A.F.) and date	207,000 A.F. May 1990
Maximum daily flow (D.S.F.) and date	42,200 (D.S.F.) 3 May 1990
Maximum instantaneous flow (c.f.s.) and date	93,100 (c.f.s.) 3 May 1990
Maximum flood volume and date	271,200 acre-feet May 1990
Name and location of key stream flow stations	Clayton, Oklahoma, Kiamichi River (river mile 101.6); Antlers, Oklahoma, Kiamichi River (river mile 59.6)
Type of hydrometeorological data recorded at dam site	Precipitation (recording and non-recording) Pool elevation (recording) Tailwater (recording) Wind at 8 a.m. Temperature (maximum and minimum)

Number of precipitation stations used in hydrologic forecasting inflow	Seven stations with observers as follows: Sardis Dam - standard rainfall and recording gage. Flagpole Twr - standard rainfall gage. Daisy 2E - standard rainfall gage. Clayton 14WNW - standard rainfall gage. Hartshorne 1NNE - standard rainfall gage. Buffalo Twr - standard rainfall gage. Tuskahoma - standard rainfall gage and recording gage.
Number of snow courses	None
Number of sediment ranges	Thirteen

4 – EMBANKMENT

Location	Jackfork Creek at stream mile 2.8
Purpose	Flood Control, Water Supply, Recreation, and Fish & Wildlife
Type	Non-overflow embankment
Type of fill	Rolled earth fill with impervious core
Slope Protection	Riprap on upstream face; grassed on downstream face.
Height	101 feet
Length	14,138 feet
Top Elevation	631.0 feet, NGVD
Design Flood	Maximum probable flood
Freeboard	7.0 feet above maximum pool
Used for Roadway	Yes
Elevation of stream bed	Approximately 530 feet, NGVD

5 – SPILLWAY

Location	Right abutment
Type	Uncontrolled broad-crested weir
Crest Elevation	611.0 feet, NGVD
Net overflow length	215 feet
Maximum discharge capacity	30,200 c.f.s.
Type of energy dissipater	None
Frequency of pool attaining crest elevation	In excess of 100 years (Standard Project Flood pool)

6 - OUTLET FACILITIES

CONDUIT

Location	In valley
Purpose	Flood control
Type outlet	Concrete oblong conduit
Size	9.0 ft wide by 12.25 ft high
Type of service gate	Hydraulically operated wheel gates
Number and size of gates	Two 4.25 ft wide by 12.25 ft high
Entrance invert elevation	534.0 feet, NGVD
Discharge at pertinent elevation	Top of flood control pool (607.0) 4,320 c.f.s Top of conservation pool (599.0) 4,050 c.f.s. Bottom of conservation pool (542.0) 400 c.f.s.

Minimum pool elevation when inoperative	534.0 feet, NGVD
Minimum time required to open / close service gates	12 minutes. The service gates will raise or lower independently at the rate of 1 foot per minute
Type of emergency closure and time required	Hydraulically operated wheel gate that requires 12 minutes to close.
Type of energy dissipater	Concrete baffles staggered in two rows

SLUICE

Location	Conduit splitter pier
Purpose	Water supply and water rights releases
Type of outlet	Rectangular sluice
Number and size of outlets	One 2.5 ft x 5.25 ft
Type of service gate	Slide gate in the splitter pier
Number and size of gates	One 2.5 ft x 5.25 ft
Entrance invert elevation	534.0 feet, NGVD
Multilevel intake elevations	534.0 , 567.0, and 583.0 feet, NGVD
Discharge at pertinent elevations	Top of flood control pool (607.0) 660 c.f.s Top of conservation pool (599.0) 615 c.f.s. Bottom of conservation pool (542.0) 125 c.f.s.
Minimum pool elevation when inoperative	534.0 feet, NGVD
Minimum time required to open / close service gates	Approximately 7 minutes
Type of energy dissipater	Concrete baffles staggered in two rows

7 - CONTROL POINTS/RIVER REACHES

a. JACKFORK CREEK

Location	From dam site to mouth, 2.8 miles
Channel Description	Well defined bed with stable banks
Uncontrolled drainage area	0 to 5 square miles
Treatment of uncontrolled runoff	Contributes to flood flows
Target flow rate	4,000 c.f.s. maximum
Time of water travel	1-4 hours to mouth

b. CLAYTON GAGE

Location	Kiamichi river mile 101.6 on US Highway 271 bridge near Clayton, Oklahoma, 1.9 miles below the confluence of Jackfork Creek with the Kiamichi River
Purpose of gage	To record stream flow
Channel description	Well defined bed with stable slopes
Uncontrolled drainage area	433 square miles
Treatment of uncontrolled runoff	Contributes to flood control target flow
Flood Stage	16 feet, (17,000 c.f.s.)
Monitoring provisions	Data collection platform transmitted by satellite, digital punched tape recorder, strip chart recorder, also has a manually operated wire weight.

c. ANTLERS

Location	Kiamichi river mile 59.6 on US Highway 271 bridge near Antlers, Oklahoma, 43.9 miles below the confluence of Jackfork Creek with the Kiamichi River
Purpose of gage	To record river flows
Channel description	Well defined bed with stable slopes
Uncontrolled drainage area	863 square miles
Treatment of uncontrolled runoff	Contributes to flood control target flow
Flood stage	23.5 feet, (21,200 c.f.s.)
Monitoring provisions	Data collection platform transmitted by satellite, also has a manually operated wire weight.

EXHIBIT B

STANDING INSTRUCTIONS TO LAKE MANAGER

SARDIS LAKE

EXHIBIT B

STANDING INSTRUCTIONS TO LAKE MANAGER

SARDIS LAKE

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TABLE INDEX

EXHIBIT B
STANDING INSTRUCTIONS TO LAKE MANAGER
SARDIS LAKE

I - GENERAL

1. Operation. The lake will be regulated in accordance with the normal regulations for flood control as directed in Section VII of this Manual or Paragraph II-1.a. of this Exhibit. Instructions for the storage and discharge of floodwater will be issued by the Water Management Section. In the event communications with the Tulsa District Office are disrupted, the lake will be regulated in accordance with the schedule of emergency regulations for flood control (see Section VII of this Manual or paragraph II-1.b. of this Exhibit). In addition, the Lake Manager will immediately make every effort to re-establish communications with the Tulsa District Office.

2. Data Reporting Instructions. Daily lake data from Sardis Lake will be submitted to the Water Management Section, Hydrology-Hydraulics Branch, Tulsa District Office (telephone 918-669-7097 or VHF-FM radio, call signal WUI-3). The Water Management Section office is manned from 7:00 a.m. to 4:30 p.m. daily and various hours on weekends and holidays. Data for nonworking days shall be read from the recorder chart and submitted the following workday. Data will be submitted in accordance with the form shown on Plate 5-3. Should unusual conditions arise during nonworking hours, one of the persons listed on page i should be contacted. The following data should be included in the daily report:

a. As of 8 a.m. Pool elevations at 8 a.m., and 12 noon, 4 p.m., and 12 midnight of the previous day; number of gates open; amount of gate opening; outflow stage at 8 a.m.; precipitation and pan evaporation in inches for the preceding 24 hours (7 a.m. to 7 a.m.); and wind velocity and direction (at 8 a.m.).

b. Each Gate Operation. Date and time of gate operation, number of gates open and amount of gate opening before and after gate operation, lake elevation. Confirmation of gate changes shall be made immediately after completion of the change. Complaints about pool elevations or releases, operating machinery failure, and out-of-service times for maintenance shall be reported to the Water Management Section as they occur.

c. During Flood Periods. In addition to subparagraphs a and b above, additional reports may be required by the Water Management Section.

d. Rainfall Reports. Rainfall reports shall be made as follows:

(1) At 8 a.m. all precipitation that has occurred during the preceding 24 hours, 7 a.m. to 7 a.m. (covered by routine report on working days).

(2) At 1 p.m. when 0.50 inch or more of precipitation has occurred since 7 a.m., or if it has continued to rain since reporting at 8 a.m.

(3) At 7 p.m. when 0.50 inch or more of precipitation has occurred since the 8 a.m. report and no 1 p.m. report was made, or if it has continued to rain since reporting at 1 p.m.

(4) Report at once the occurrence of 2.00 inches or more of precipitation that occurs during a period of 6 hours or less. During non-working hours, the report should be made to one of the persons listed on page i.

(5) After office hours, rainfall reports should be made as indicated in sub-section (4) above; however, if no contact with the Water Management Section personnel can be made, rainfall reports should be made to the National Weather Service, Tulsa, Oklahoma at telephone 1-800-722-2778.

3. Reporting Unusual Events. Events or conditions not normally encountered in the routine operation of the dam and lake which might endanger the dam or necessitate temporary or permanent revision of the operating procedures such as settlement, movement, or cracking of the earth embankment or abutments; unusual change in seepage rates, or development of new seepage areas; mechanical malfunction or failure; structural settlement, movement, cracking, or vibration; landslides, rockslides, or indications of an impending movement; or an occurrence indicating any degree of jeopardy to the safety of the dam, or to the safety of the public shall be reported promptly to the Water Management Section, Hydrology-Hydraulics Branch.

4. Warnings. It is the responsibility of the Lake Manager and project personnel authorized to make gate changes to maintain a list in current status of residents and/or property which might be endangered or inconvenienced by large and/or prolonged releases. If damaging releases are expected to occur, notification will be made by telephone, or oral warning by Corps employees. Notification will be made in accordance with the Tulsa District supplements to ER 500-1-1. This would include media such as radio, television, telephone, citizens band radio, use of law enforcement and civil defense agencies and their communication system, National Guard and reserve units, supplemented by oral warning by Corps employees. Studies have been made to determine the possible downstream flood conditions that could exist in the event of a maximum spillway release or failure of the dam at maximum pool. Approximate water surface profiles and flooded area maps giving the results of these studies are kept in the Sardis Lake

Operation and Maintenance Manual, Volume II, Contingency Plan for Emergencies. In every case, when a gate change is made a horn is blown to give warning to people immediately downstream of Sardis Dam.

5. Frequency of Gate Changes. During flood periods, gate changes may be directed by the Water Management Section at any time. When the floodwaters have significantly risen into the flood control pool, gate changes can be expected two or three times daily. When the pool level is at or above the top of the flood control pool, gate changes may occur every hour. Only under the most unusual circumstances will changes be ordered more frequently than once every hour. Frequency of gate changes during low flow operation will generally be less than once a day.

II - REGULATION PROCEDURES

1. Regulating River Stages and Discharges. The regulation schedules provide that the channel capacity of 4,000 c.f.s is not to be exceeded insofar as practicable. Floodwaters will be released as rapidly as practicable with consideration given to minimizing flooding of low-water crossing and low-lying farmland. Factors considered in the determination of releases are: maximum inflow into the lake during a rise, general climatic conditions, season of the year with respect to the probability of floods, status of crops in low-lying farmlands, and maximum non-damaging stages or discharges

a. Normal flood control regulations. Sardis Lake is regulated to provide flood reduction on Jackfork Creek from Sardis Dam to the confluence of Jackfork Creek with the Kiamichi River, and on the Kiamichi River to Hugo Lake, and is coordinated with the flood control regulation of the Red River reservoir system. The following regulations will govern releases from Sardis Lake (see Table B-1).

b. Emergency flood control regulations. When communication with the Tulsa District Office is disrupted, the Lake Manager will, on his own initiative, direct regulation of the lake in accordance with the following schedule (see Table B-2) until communication is restored. In addition, the Lake Manager will immediately make every effort to re-establish communication with the Tulsa District Office. The conduit gates shall be operated at a uniform opening.

2. During Emergency Events. The Lake Manager may temporarily deviate from the current release rates in the event an immediate short-term departure is deemed necessary for emergency reasons to protect the safety of dam, or to avoid serious hazards to life. Such actions shall be immediately reported by the fastest means of communication available. Actions shall be confirmed in writing the same day to the Water Management Section and shall include justification for the action. Continuation of the deviation will require the express approval of the Water Management Section and the SWD Office.

TABLE B-1

NORMAL FLOOD CONTROL
REGULATION SCHEDULE
SARDIS LAKE, JACKFORK CREEK, OKLAHOMA

Lake Stage	Pool Conditions	Regulation
Below 599.0	Rising	Releases are made to maintain 599.0 but will not be less than the downstream requirements defined in paragraph 7-10.
599.0 - 607.0	Rising	Make releases according to the following schedule as a guide, except that the release, when combined with unregulated flows downstream shall not exceed 4,000 c.f.s. at the dam on the Jackfork Creek; a 15.0 foot regulating stage (15,700 c.f.s.) at the Clayton, OK gage and a 22.0 foot regulating stage (19,700 c.f.s.) at the Antlers, OK gage, both on the Kiamichi River. If the uncontrolled flows exceed any of those listed above, no release will be made that would contribute to flooding. NOTE: When the predicted volume of runoff from the area above the dam exceeds the available flood control storage, the release schedule may be modified to obtain maximum benefits under conditions existing in the lake area and in the downstream reaches of the river. The operation will be coordinated with the Southwestern Division Reservoir Control Center.

Release Schedule

Pool Stages	Normal Maximum Release Rates (c.f.s.)
599.0 - 599.3	1,000
599.3 - 599.6	2,000
599.6 - 600.0	3,000
600.0 - 600.3	3,500
600.3 - 607.0	4,000

TABLE B-1 (Continued)

Lake Stage	Pool Conditions	Regulation
607.0 - 611.0	Rising	If the forecasted pool level will crest at or below elevation 609.0, a maximum release of 4,000 c.f.s. will be made. If the forecasted pool level will crest above elevation 609.0, the flood control conduit gates will be opened in increments of 1,000 c.f.s. every two hours until both gates are fully opened or until the pool begins falling.
Above 611.0	Rising or Falling	Continue maximum release possible.
607.0 - 611.0	Falling	Continue release being made until pool level recedes to elevation 607.0.
599.0 - 607.0	Falling	Make releases according to the following schedule as a guide, except that the release, when combined with unregulated flows downstream, shall not exceed those stages listed under the above rising pool conditions.

Release Schedule

Pool Stages	Normal Maximum Release Rates (c.f.s)
600.5 – 607.0	4,000
600.0 – 600.5	3,000 + Inflow
599.6 – 600.0	2,000 + Inflow
599.3 – 599.6	1,000 + Inflow
599.0 – 599.3	Transition to a release rate that will stabilize the pool at elevation 599.0

Forecasted inflow over a 2 to 5 day period.

NOTE: Do not exceed 4,000 c.f.s. Conduit flows should be closely monitored during uncontrolled spillway discharges, as high tail water can cause problems. If problems are observed, conduits may need to be closed quickly

TABLE B-2

EMERGENCY FLOOD CONTROL
REGULATION SCHEDULE
SARDIS LAKE, JACKFORK CREEK, OKLAHOMA

Lake Stage	Pool Conditions	Regulation
Below 599.0	Rising	Continue the release being made.
599.0 - 607.0	Rising	Continue present release for 12 hours before making any change in the release rate. If communication has not been reestablished, releases should then be reduced 1,000 c.f.s every 3 hours until there is no discharge being made.
Above 607.0	Rising	Releases should be made according to the following schedule.

Release Schedule

Pool Elevation	Release (c.f.s)
607.0	1,000
607.5	2,000
608.0	3,000
608.5	4,000
609.0	Flood conduit full open

TABLE B-2 (continued)

EMERGENCY FLOOD CONTROL
REGULATION SCHEDULE
SARDIS LAKE, JACKFORK CREEK, OKLAHOMA

Lake Stage	Pool Conditions	Regulation
Above 607.0	Falling	Continue current release until the pool level recedes to elevation 607.0.
607.0-599.5	Falling	Maintain release in effect at the time communication was lost or maintain release which was initiated under rising pool conditions. If the release is greater than 4,000 c.f.s, the release rate shall be reduced to 4,000 c.f.s.
599.5-599.0	Falling	Begin a gradual reduction of the release rate (not to exceed 500 c.f.s per 2 hours) to stabilize the pool at conservation level (599.0).
Below 599.0	—	Releases will be made in accordance with the requirements of paragraph B-10.

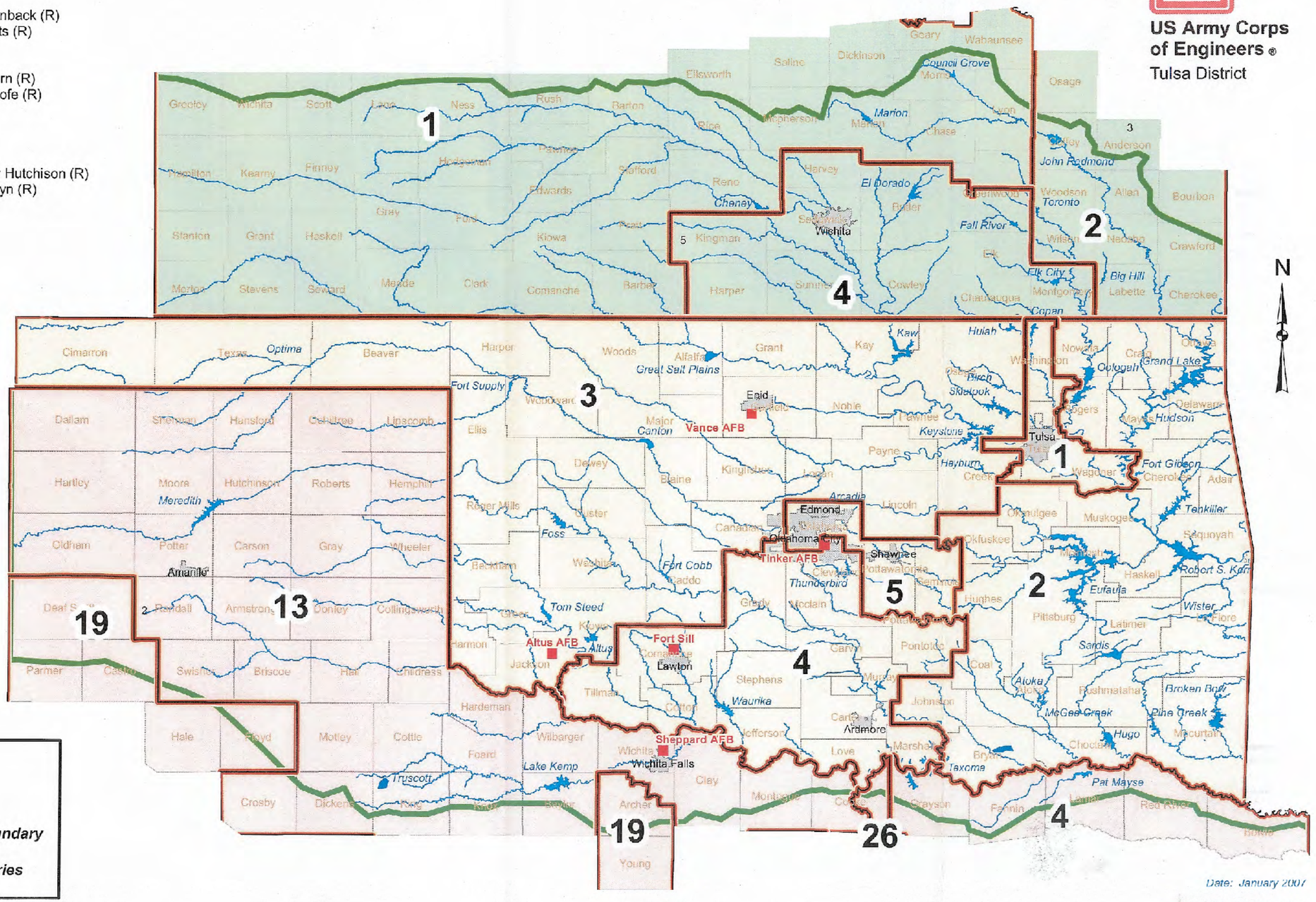
NOTE: Do not exceed 4,000 c.f.s. Conduit flows should be closely monitored during uncontrolled spillway discharges, as high tail water can cause problems. If problems are observed, conduits may need to be closed quickly

PLATES AND DRAWINGS

SARDIS LAKE

U.S. REPRESENTATIVE	U.S. SENATOR
KANSAS	
1 Jerry Moran (R)	Sam Brownback (R)
2 Nancy Boyda (D)	Pat Roberts (R)
4 Todd Tiahrt (R)	
OKLAHOMA	
1 John Sullivan (R)	Tom Coburn (R)
2 Dan Boren (D)	James Inhofe (R)
3 Frank Lucas (R)	
4 Tom Cole (R)	
5 Mary Fallin (R)	
TEXAS	
4 Ralph M. Hall (R)	Kay Bailey Hutchison (R)
13 Mac Thornberry (R)	John Cornyn (R)
19 Randy Neugebauer (R)	
26 Michael C. Burgess (R)	

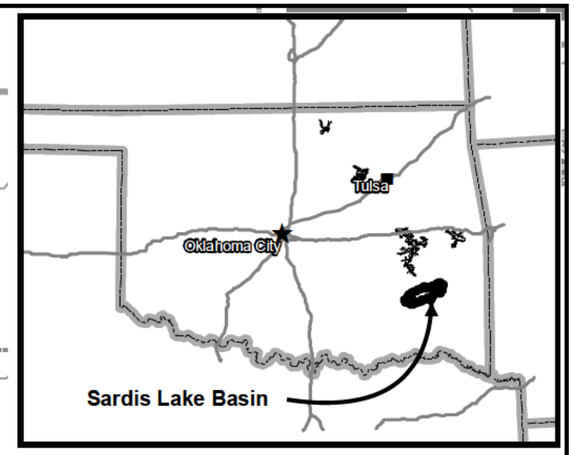
US Army Corps of Engineers®
Tulsa District



Date: January 2007

PLATE 1-1

Krebs
McAlester
Krebs
Alderson
270
Savanna
Haileyville
Hartshorne
Wilburton
270
Red Oak
N
Talihina
Albion
271
Clayton
271
SARDIS LAKE
Watershed Boundary
0 2 4 8 12 16
Miles



VICINITY MAP

RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

PROJECT LOCATION
AND VICINITY MAP

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

(b) (7)(F)

SARDIS LAKE

GENERAL PLAN
EMBANKMENT AND
SPILLWAY DETAILS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

(b) (7)(F)

RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

OUTLET WORKS
INTAKE STRUCTURE
ELEVATIONS AND SECTION

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

Latimer County

Pittsburg County

Pushmataha County

Anderson Creek

No. Fork Jackfork Creek

Jackfork Creek

Top Flood Pool El 607.0

Top Conservation Pool El 599.0

1-A
2-A
3-A
4-A
5-A
6-A
7-A
8-A
9-A
10-A
11-A
12-A
13-A

PROJECT AREA

0 1 2 Miles

N

Legend

6-A Sediment Range Line

Section Line

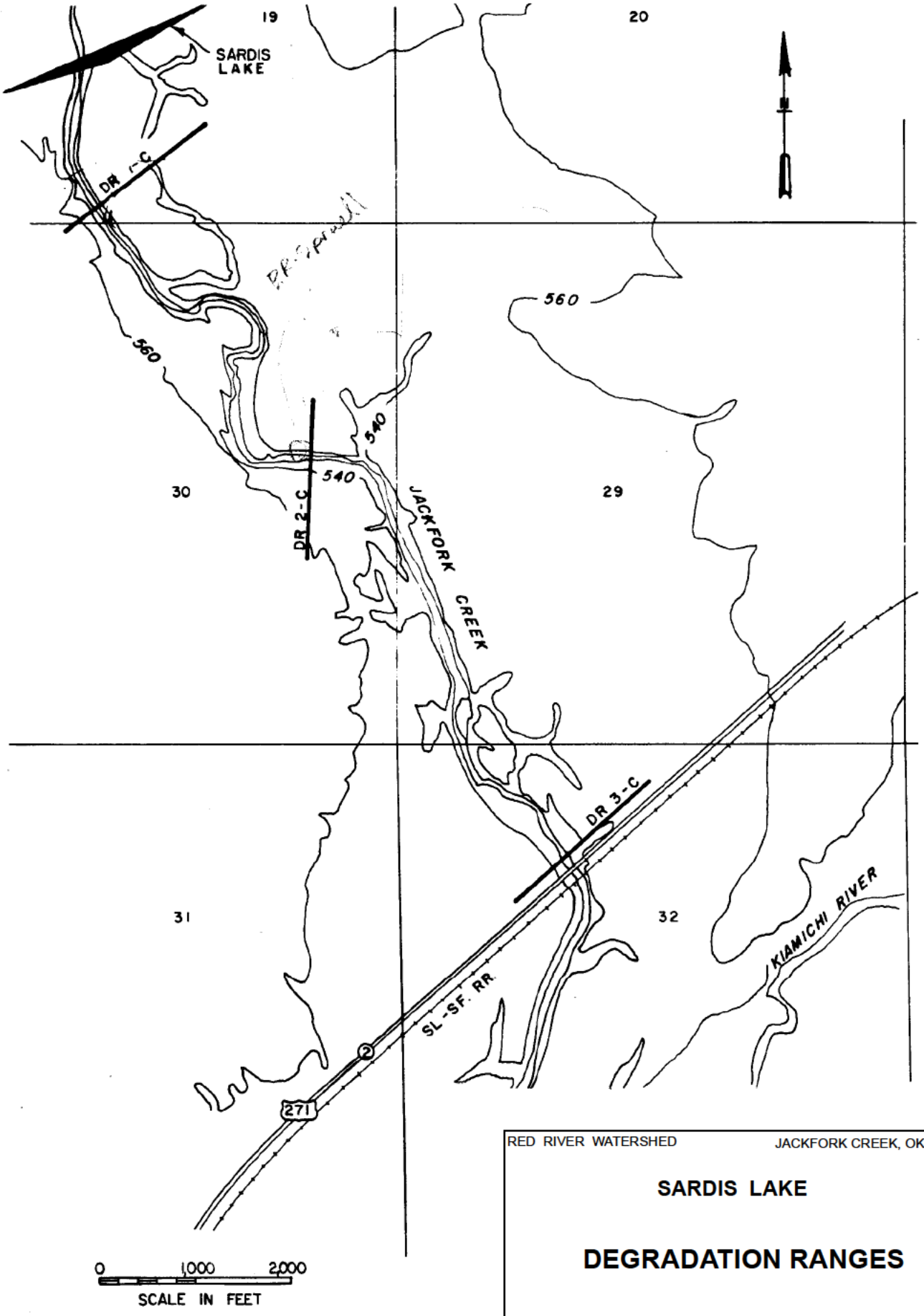
County Line

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

SEDIMENTATION RANGES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



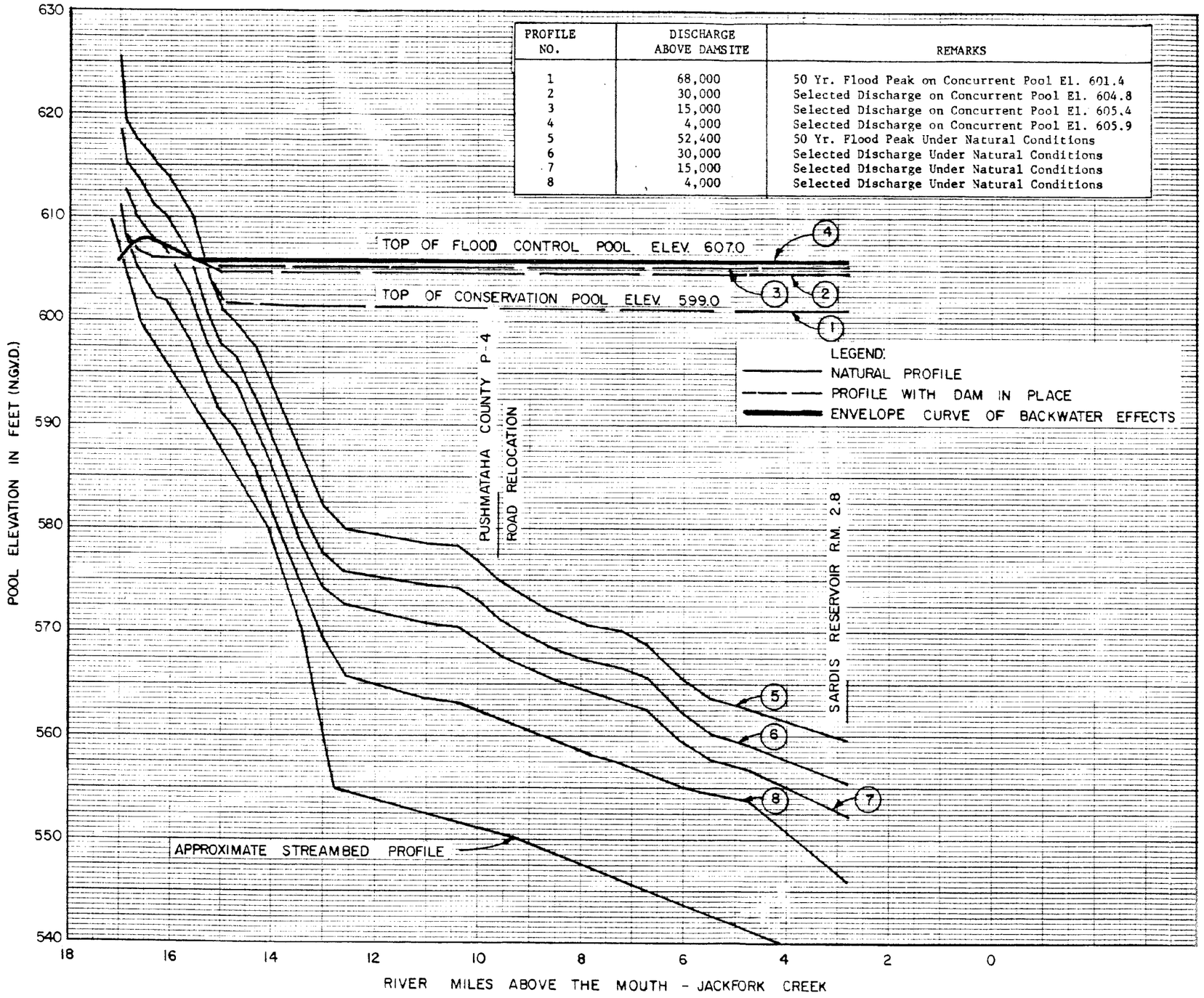
RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

DEGRADATION RANGES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

PROFILE NO.	DISCHARGE ABOVE DAMSITE	REMARKS
1	68,000	50 Yr. Flood Peak on Concurrent Pool El. 601.4
2	30,000	Selected Discharge on Concurrent Pool El. 604.8
3	15,000	Selected Discharge on Concurrent Pool El. 605.4
4	4,000	Selected Discharge on Concurrent Pool El. 605.9
5	52,400	50 Yr. Flood Peak Under Natural Conditions
6	30,000	Selected Discharge Under Natural Conditions
7	15,000	Selected Discharge Under Natural Conditions
8	4,000	Selected Discharge Under Natural Conditions



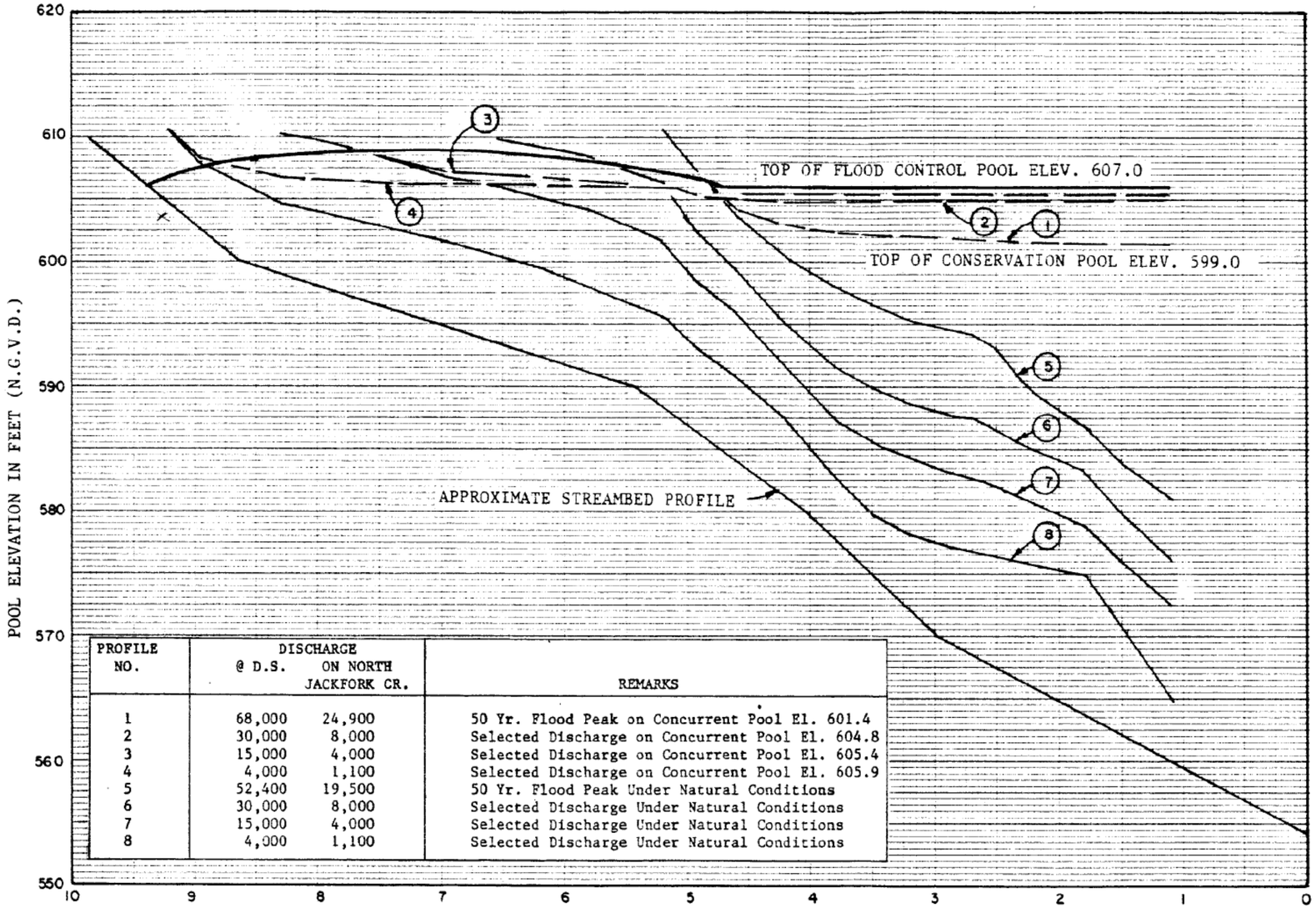
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

JACKFORK CREEK, OKLA

ENVELOPE CURVE OF BACKWATER EFFECTS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



PROFILE NO.	DISCHARGE @ D.S.	DISCHARGE ON NORTH JACKFORK CR.	REMARKS
1	68,000	24,900	50 Yr. Flood Peak on Concurrent Pool El. 601.4
2	30,000	8,000	Selected Discharge on Concurrent Pool El. 604.8
3	15,000	4,000	Selected Discharge on Concurrent Pool El. 605.4
4	4,000	1,100	Selected Discharge on Concurrent Pool El. 605.9
5	52,400	19,500	50 Yr. Flood Peak Under Natural Conditions
6	30,000	8,000	Selected Discharge Under Natural Conditions
7	15,000	4,000	Selected Discharge Under Natural Conditions
8	4,000	1,100	Selected Discharge Under Natural Conditions

LEGEND
- NATURAL PROFILE
- PROFILE WITH DAM IN PLACE
- ENVELOPE CURVE OF BACKWATER EFFECTS

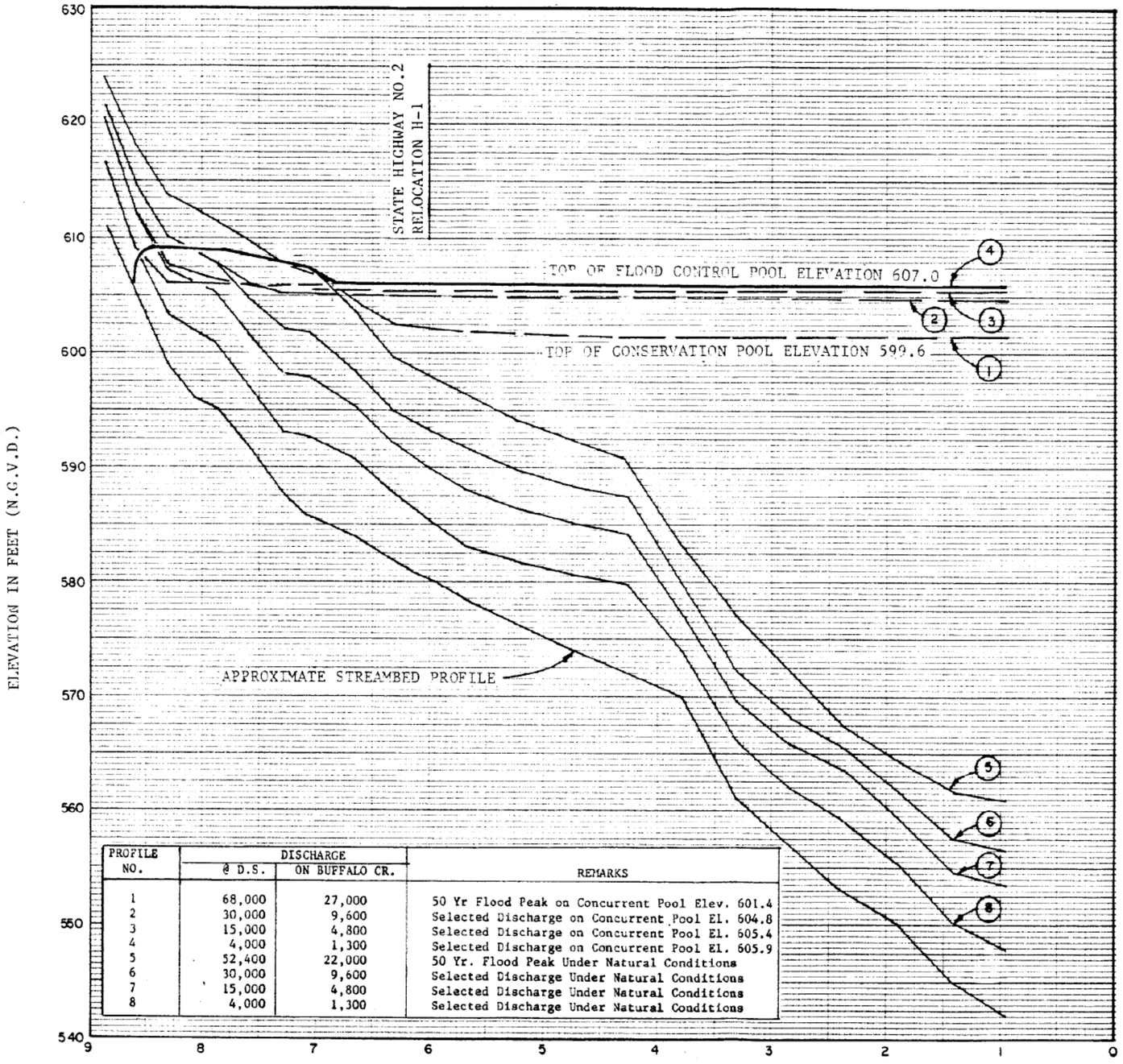
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

NORTH JACKFORK CREEK, OKLA

ENVELOPE CURVE OF BACKWATER EFFECTS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



PROFILE NO.	DISCHARGE @ D.S.	DISCHARGE ON BUFFALO CR.	REMARKS
1	68,000	27,000	50 Yr Flood Peak on Concurrent Pool Elev. 601.4
2	30,000	9,600	Selected Discharge on Concurrent Pool El. 604.8
3	15,000	4,800	Selected Discharge on Concurrent Pool El. 605.4
4	4,000	1,300	Selected Discharge on Concurrent Pool El. 605.9
5	52,400	22,000	50 Yr. Flood Peak Under Natural Conditions
6	30,000	9,600	Selected Discharge Under Natural Conditions
7	15,000	4,800	Selected Discharge Under Natural Conditions
8	4,000	1,300	Selected Discharge Under Natural Conditions

LEGEND:
NATURAL PROFILE
PROFILE WITH DAM IN PLACE
ENVELOPE CURVE OF BACKWATER EFFECTS

RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

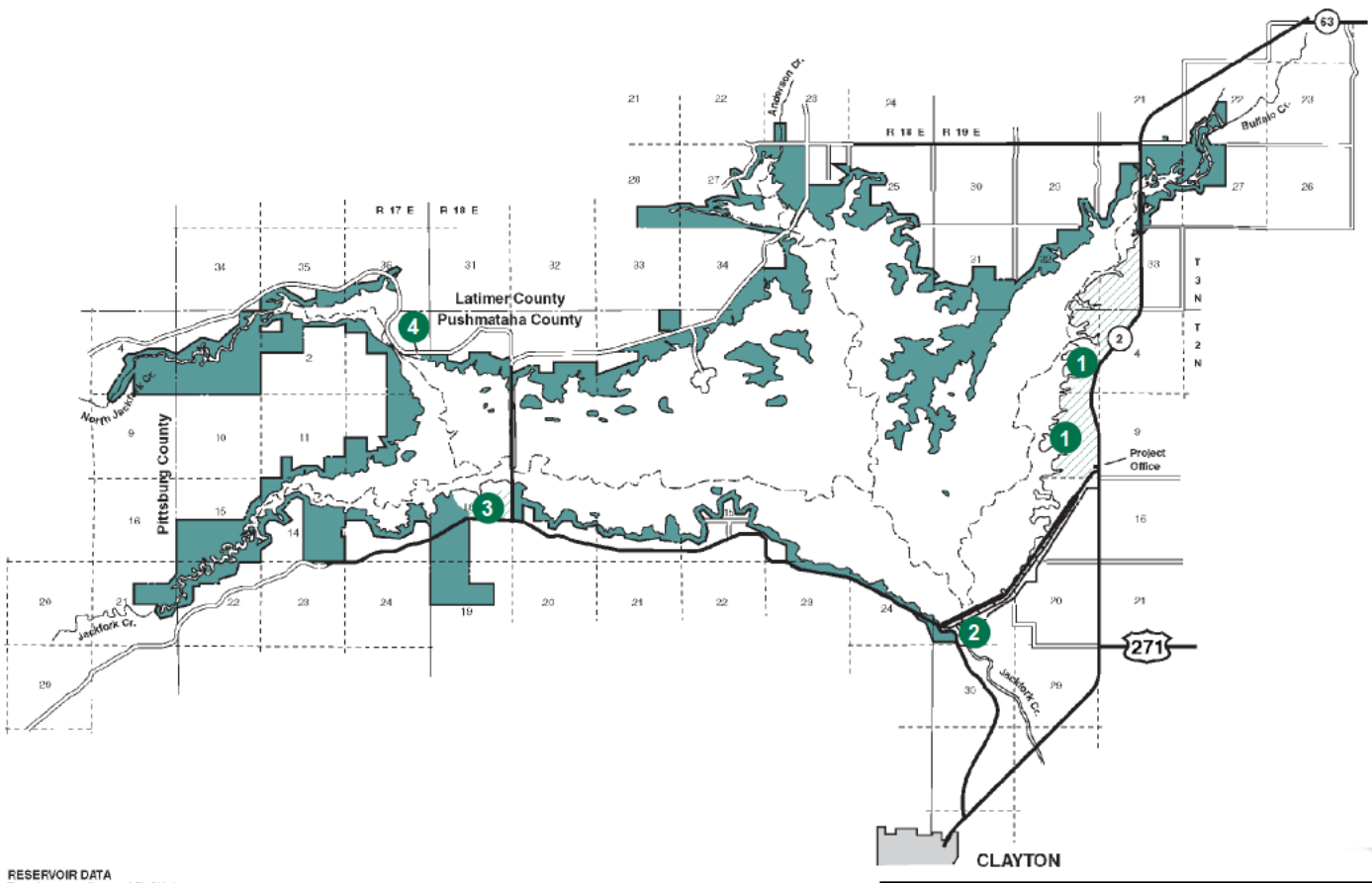
BUFFALO CREEK, OKLA

ENVELOPE CURVE OF BACKWATER EFFECTS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

SARDIS LAKE

PUBLIC HUNTING AREA



PUBLIC USE AREAS

1. Potato Hills Park
2. Mathies Park
3. Sardis Cove
4. The Narrows

LEGEND

- Paved Road
- Improved Road
- Project Boundary
- Corps Areas Open For Hunting
- See Restrictions

6000 3000 0 6000

Scale of Feet

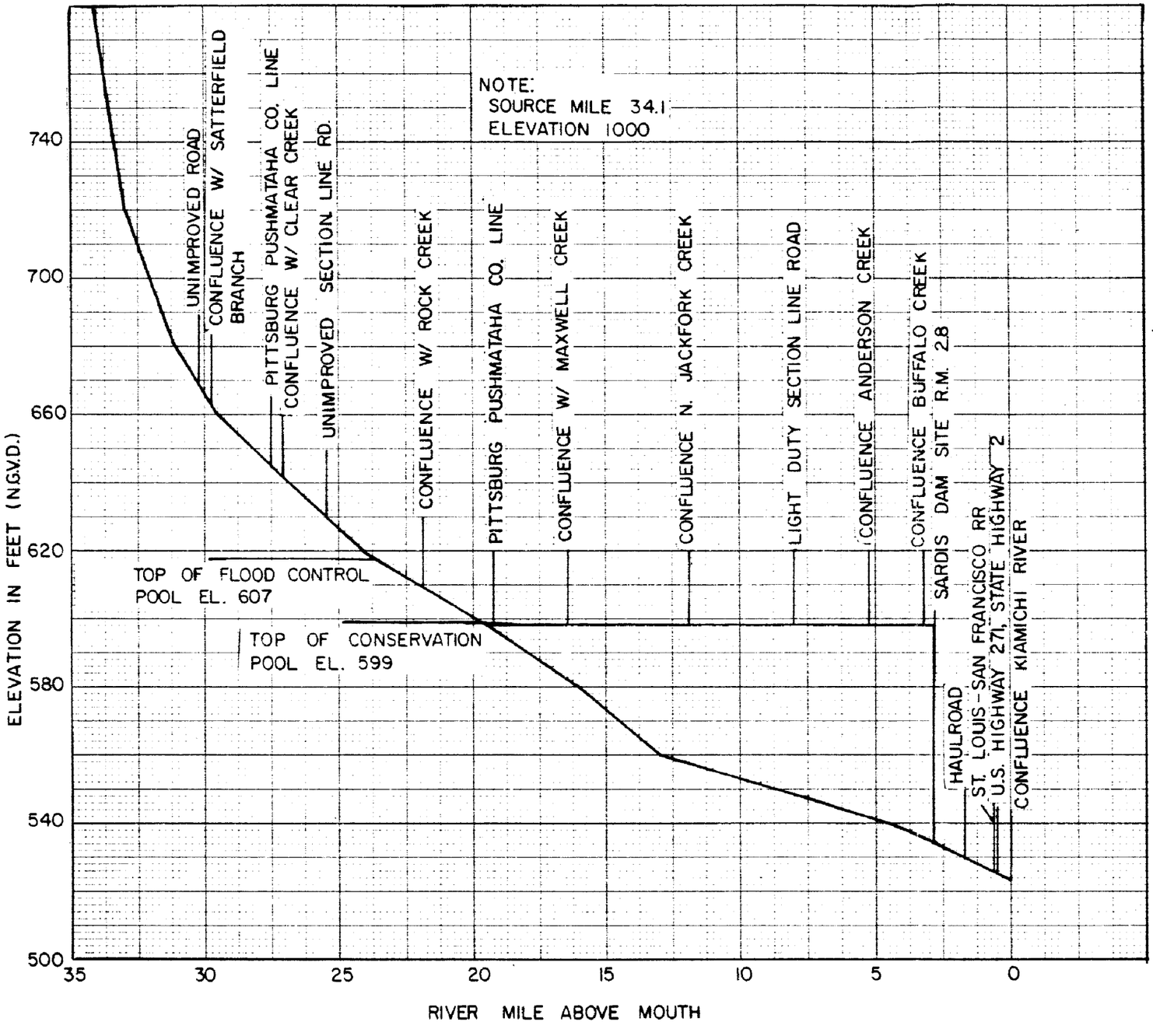
RESERVOIR DATA
Top of conservation pool El. 599.0
117 shoreline miles at El. 599.0
Total project land & water acreage 25000

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

PUBLIC USE SITES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

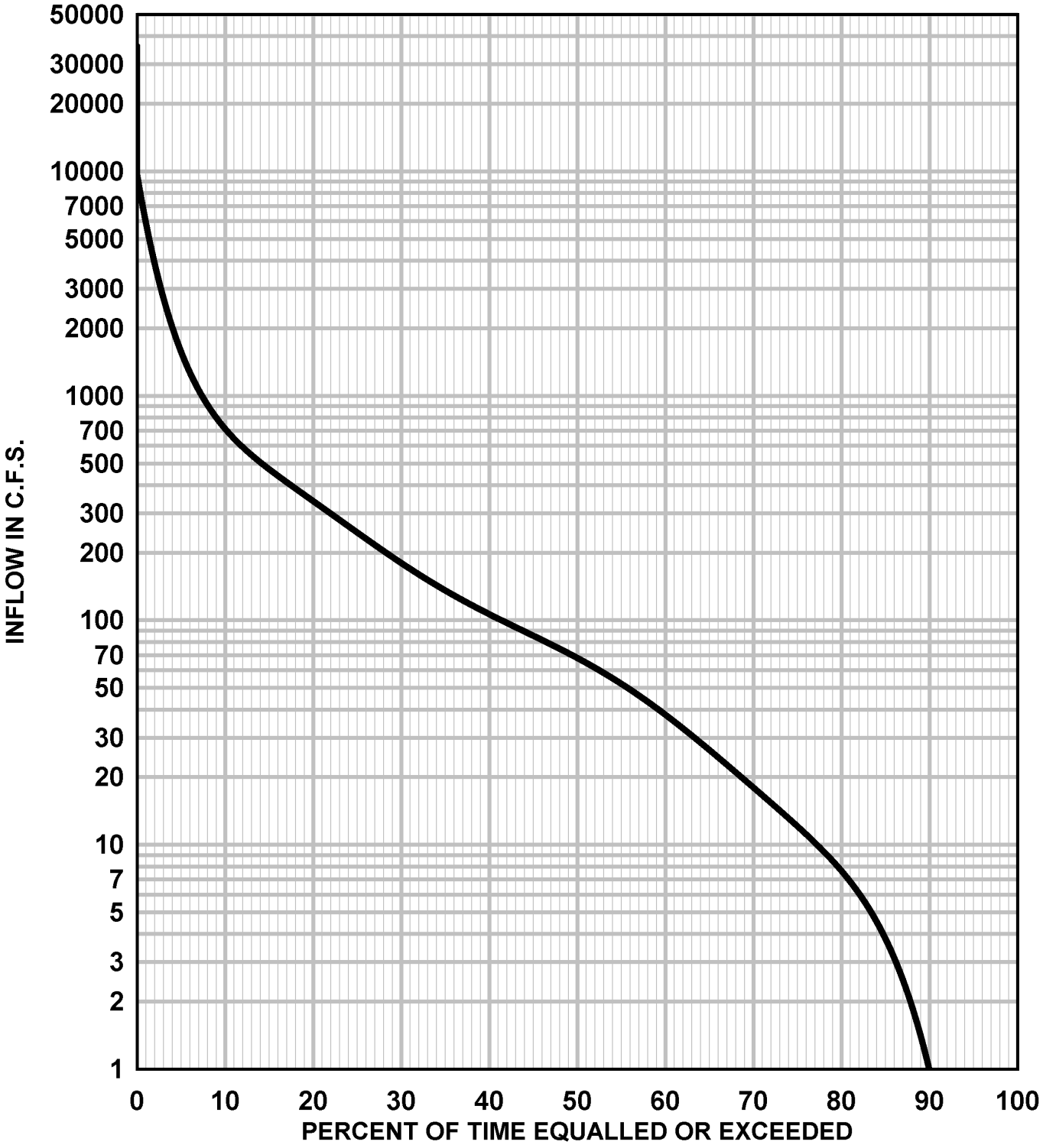


RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

JACKFORK CREEK PROFILE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

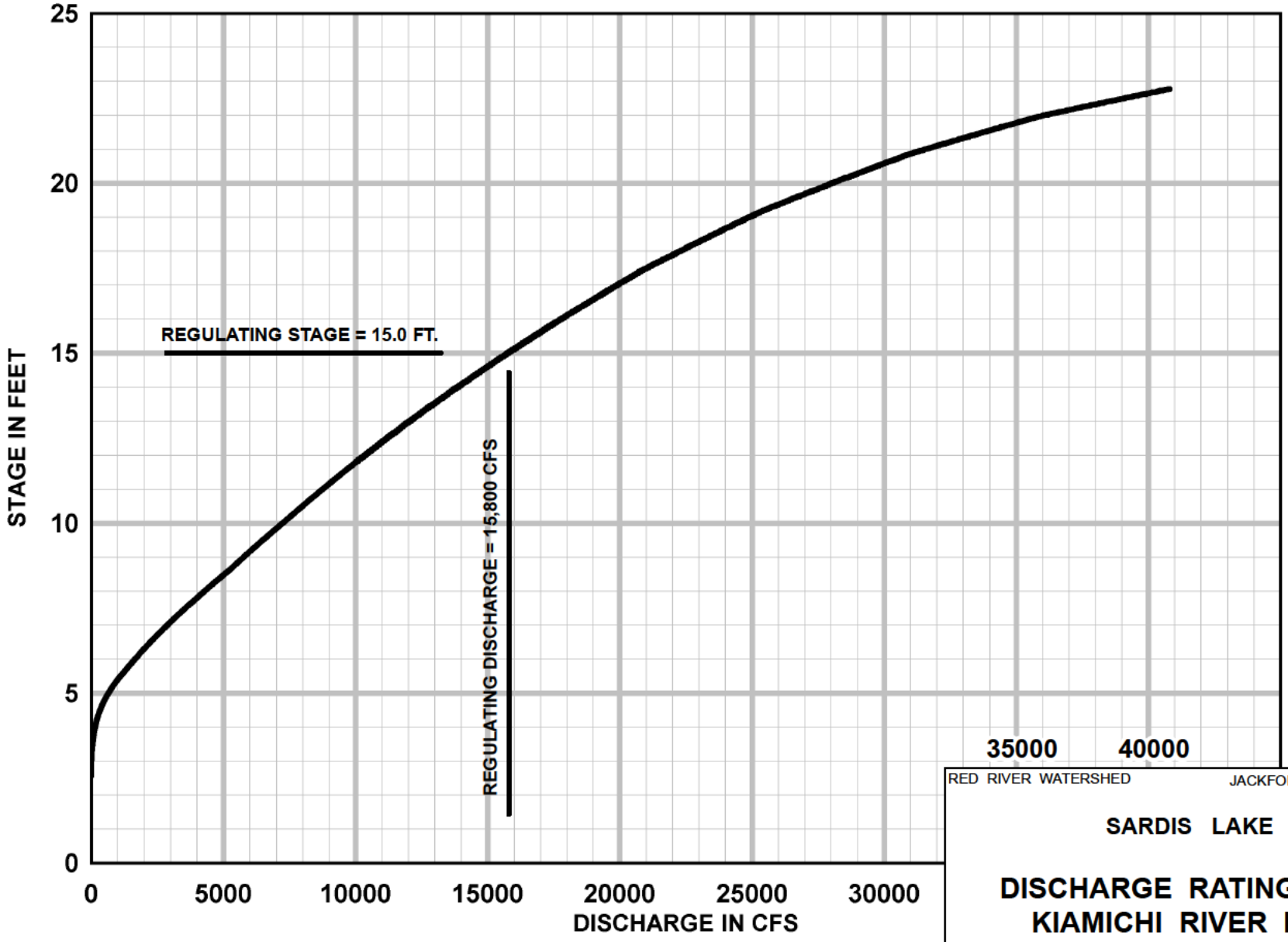


RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

FLOW DURATION CURVE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



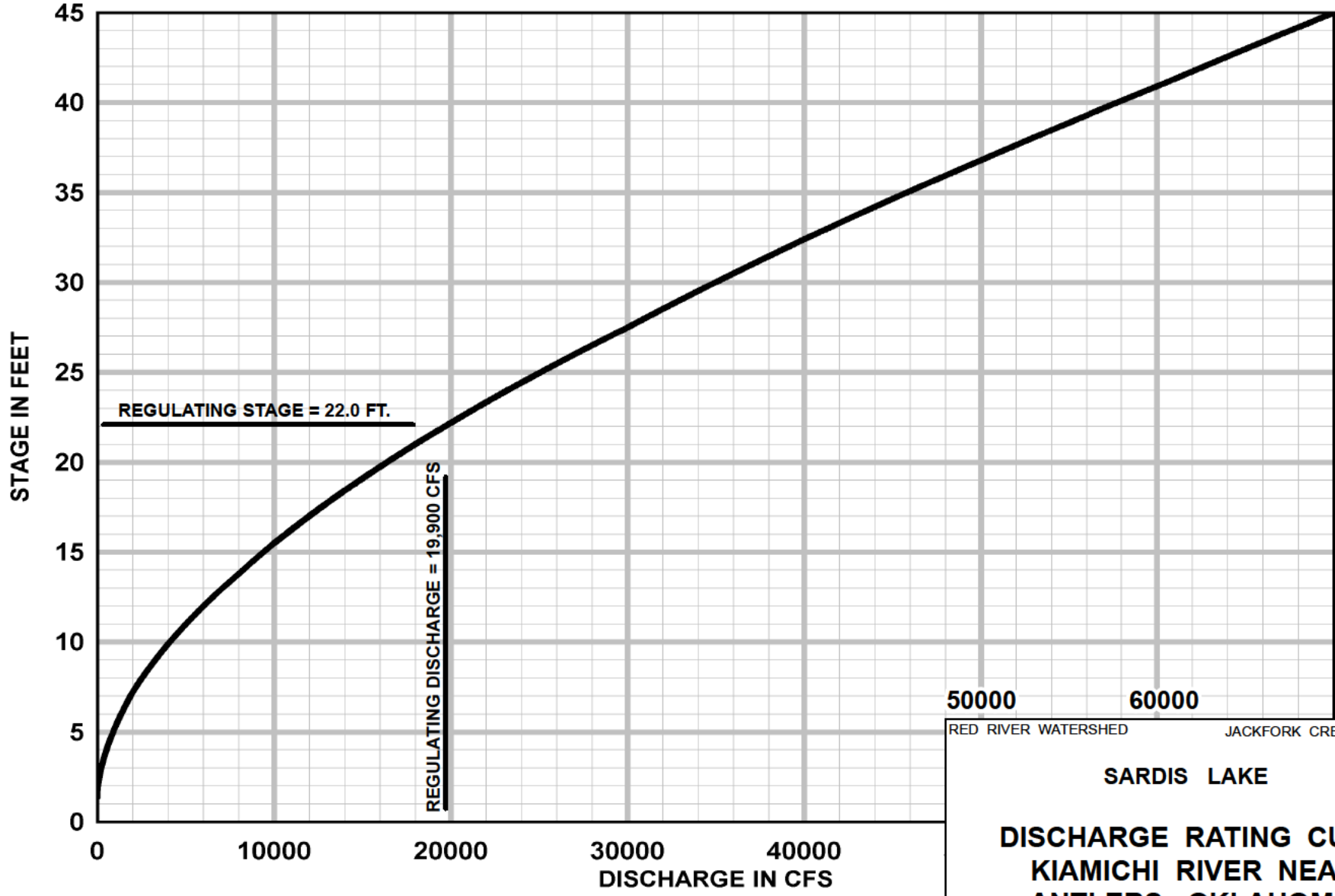
RED RIVER WATERSHED

JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

DISCHARGE RATING CURVE KIAMICHI RIVER NEAR CLAYTON, OKLAHOMA

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



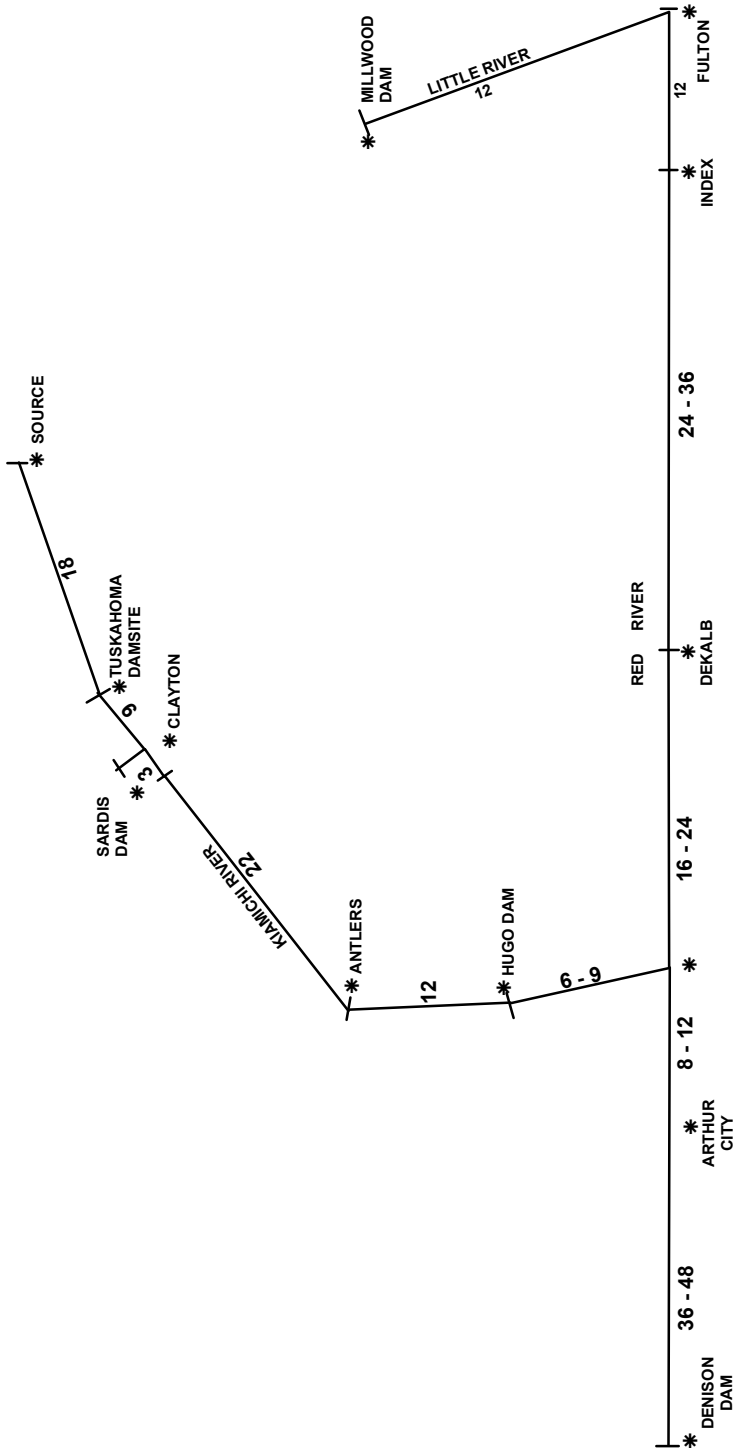
RED RIVER WATERSHED

JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

DISCHARGE RATING CURVE KIAMICHI RIVER NEAR ANTLERS, OKLAHOMA

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

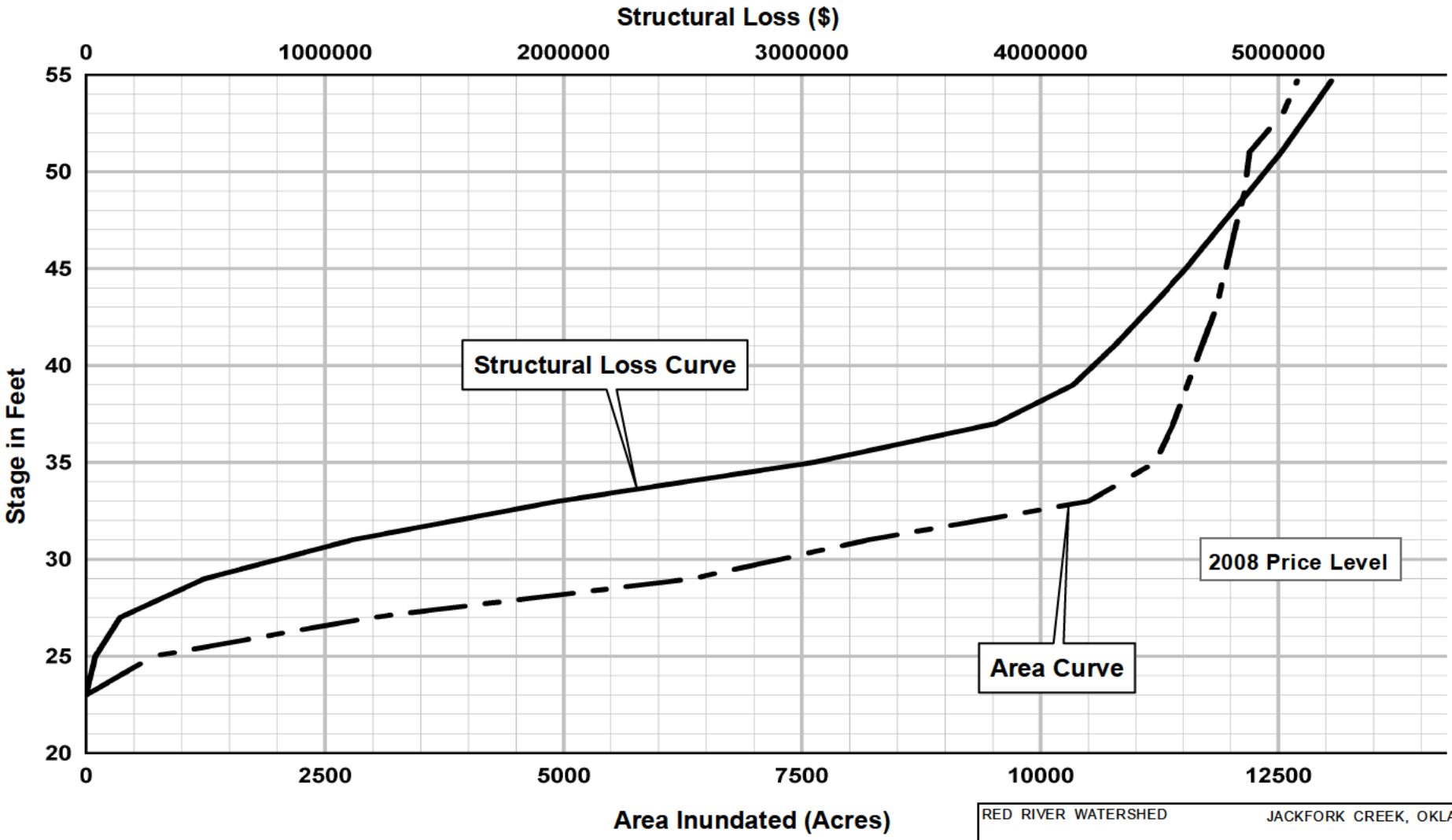


RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

TIME OF CREST TRAVEL

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



ANTLERS GAGE

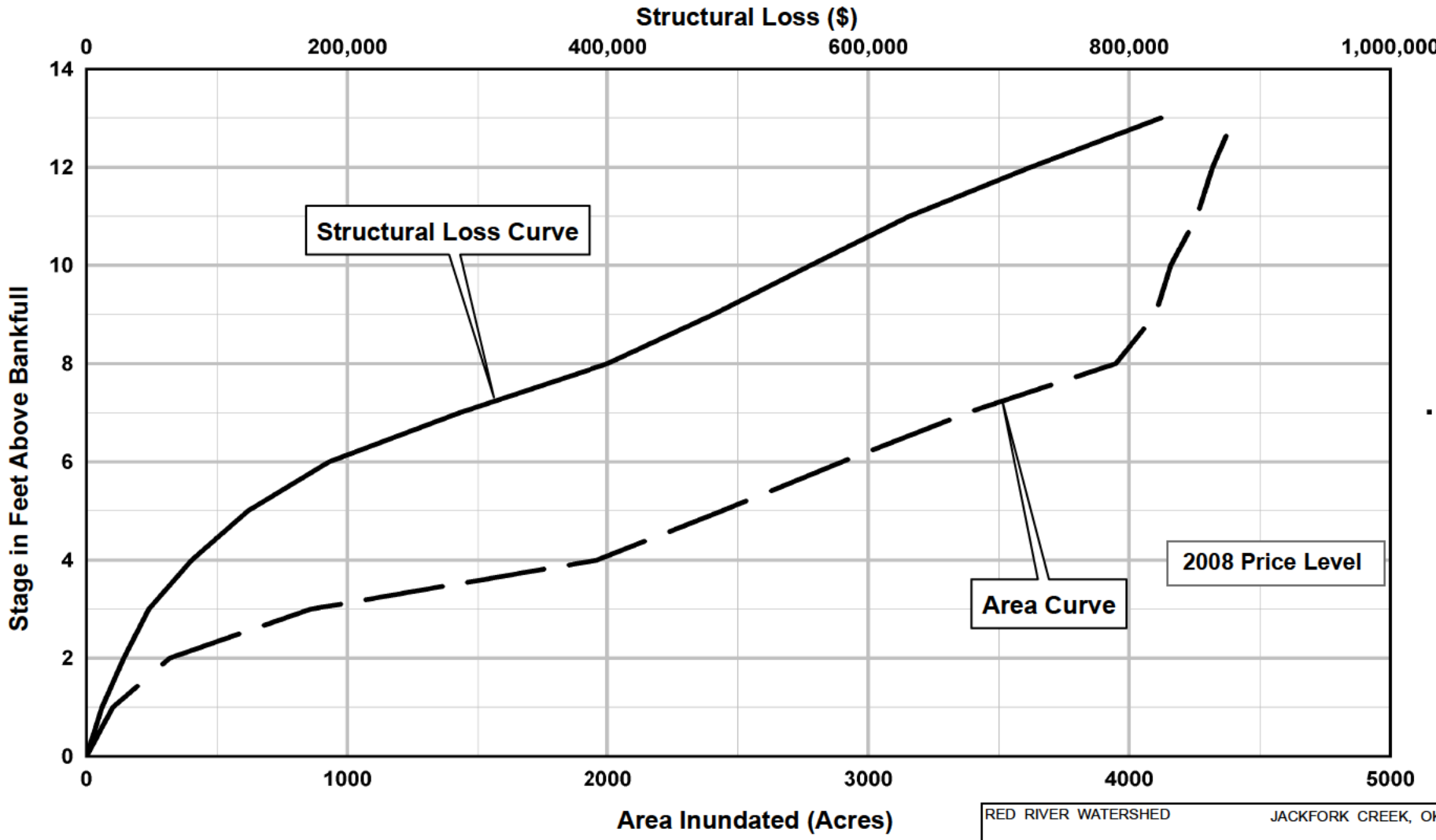
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

STRUCTURAL LOSS AND AREA CURVES

JACKFORK CREEK TO UPPER LIMITS OF HUGO LAKE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



CLAYTON GAGE

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

STRUCTURAL LOSS AND AREA CURVES

SARDIS DAMSITE TO THE MOUTH OF JACKFORK CREEK

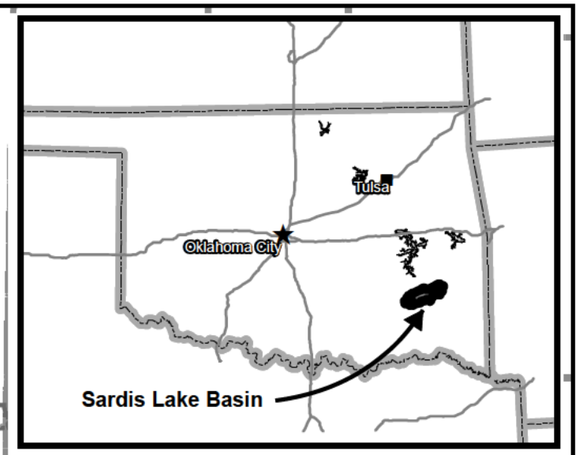
DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

Hughes County
Latimer County
Pittsburg County
Le Flore County
Coal County
Atoka County
Pushmataha County
Choctaw County
McCurtain County
Bryan County

STUART
McALESTER
WILBURTON
RED OAK
WISTER
FANSHAWE
BENGAL
HARTSHORNE
ASHLAND
BUFFALO TWR
TALAHINA
Sardis Lake
CYNO2
SARDIS
TUSKAHOMA
CLAYTON MESO
CLAYTON
CLAYTON
BIG CEDAR
BIG CEDAR
CENTRAHOMA MESO
DAISY 2NE
HONOBIA
LEHIGH
ATMB
LANE
McGEE CREEK
FARRIS
CANEY
ANSO2
ANTLERS
ANTLERS
CDSO2
CLDY
Hugo Lake
HUGO
HUGO
VALLIANT
ARTHUR CITY

OKLAHOMA
ARKANSAS

N



VICINITY MAP

0 4 8 16
Miles

LEGEND

- Reservoir in Operation
- Watershed Divide
- 80 River and River Mile
- STREAM GAGE
- NON RECORDING PRECIPITATION GAGE
- RECORDING PRECIPITATION GAGE

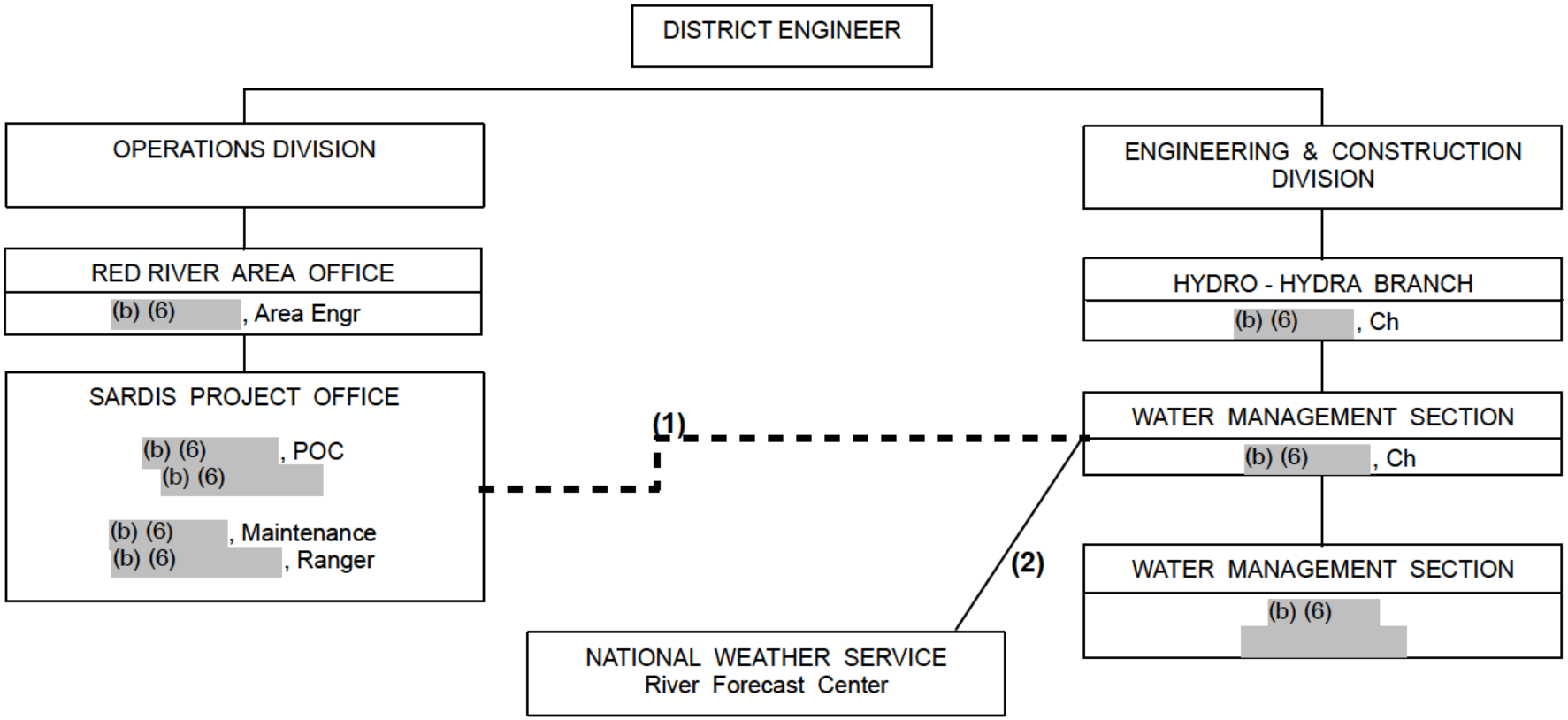
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

STREAM GAGING AND RAINFALL STATIONS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT



1. DIRECT COMMUNICATIONS ARE MAINTAINED BETWEEN SARDIS PROJECT OFFICE AND THE WATER MANAGEMENT SECTION FOR TRANSMISSION OF RESERVOIR DATA, REGULATIONS AND INSTRUCTIONS.

2. PRECIPITATION AND STREAM GAGE DATA ARE SHARED BY THE NATIONAL WEATHER SERVICE, RIVER FORECAST CENTER.

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

ORGANIZATION FOR FLOOD CONTROL REGULATION

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

SAMPLE MORNING REPORT FOR SARDIS LAKE

RESERVOIR DATA — April 18, 1983

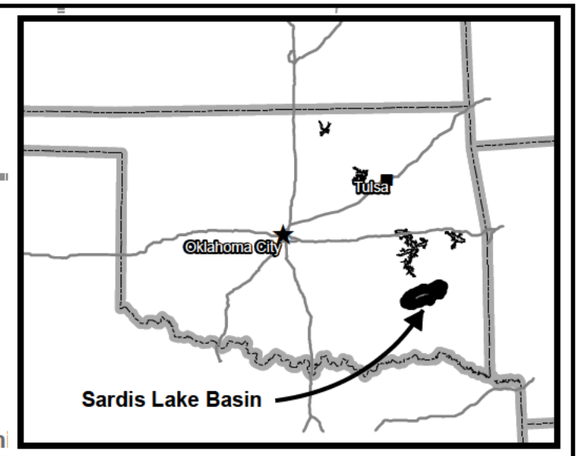
LINE NO.	ITEM	TIME			Sardis					
	POOL ELEVATION	12 NOON			601.09					
2	POOL ELEVATION	4 PM			601.15					
3	POOL ELEVATION	12 MID.			601.19					
4	POOL ELEVATION	8 AM			601.23					
5	TAILWATER	8 AM			532.2					
	POWER DISCHARGE 24 HR AVERAGE TO	12 MID.			-					
7	POWER GENERATION				-					
8	POWER DISCHARGE INSTANTANEOUS AT	8 AM			-					
9	TOTAL DISCHARGE INSTANTANEOUS	8 AM			-					
10	GATES TYPE NO. & OPENING	8 AM			2CG .75'					
11	GATE CHANGES DATE TIME				4/17 2000					
12	POOL ELEVATION				601.07					
13	FROM TYPE OF GATES NO. & OPENING				2CG 3.5'					
14	TO TYPE OF GATES NO. & OPENING				2CG 2'					
15	GATE CHANGES DATE TIME				4/17 1400					
	POOL ELEVATION				601.11					
17	FROM - TYPE OF GATES NO. & OPENING				2CG 2'					
18	TO - TYPE OF GATES NO. & OPENING				2CG .75'					
19	LAKE CONDITIONS AT	8 AM			Murky					
20	WEATHER CONDITIONS AT	8 AM			Cloudy					
21	TOTAL PRECEDING 6 HOUR RAINFALL ENDING AT	1 PM			.84					
		7 PM			1.12					
		1 AM			0					
		7 AM			0					
22	TOTAL PRECEDING 24 HR. RAINFALL ENDING AT	7 AM			1.96					
23	COMMENTS ON RAINFALL DISTRIBUTION				12N-1p and 3p-5p					
24	EVAPORATION - 24 HRS. TO	8 AM			.18					
25	WIND DIRECTION AT	8 AM			NE					
26	WIND VELOCITY AT	8 AM			B-2					
27	RIVER STAGES : COYVILLE									
	WISTER									
29	WATER SUPPLY									
30	LOW-FLOW WEIR									

SWT FORM 815
REVISED APR 1969

REPLACES EDITION OF NOV 1961 WHICH MAY BE USED

PROPONENT SWTED-HR

McAlester
Alderson
Haileyville
Hartshorne
Pittsburg County
Latimer County
Le Flore County
Atoka County
Pushmataha County
Talih
Albion
Clayton
Kiamichi River
Buffalo Creek
Little Buffalo Creek
Anderson Creek
Bolen Creek
Hogeye Creek
Cedar Creek
Maxwell Creek
Mud Creek
Jackfork Creek
Clear Creek
BUFFLO
SARDL
LAKESA
NJFORK
JFORK
Sardis Lake
271
1
2
N
0 5 10 Miles



VICINITY MAP

LEGEND

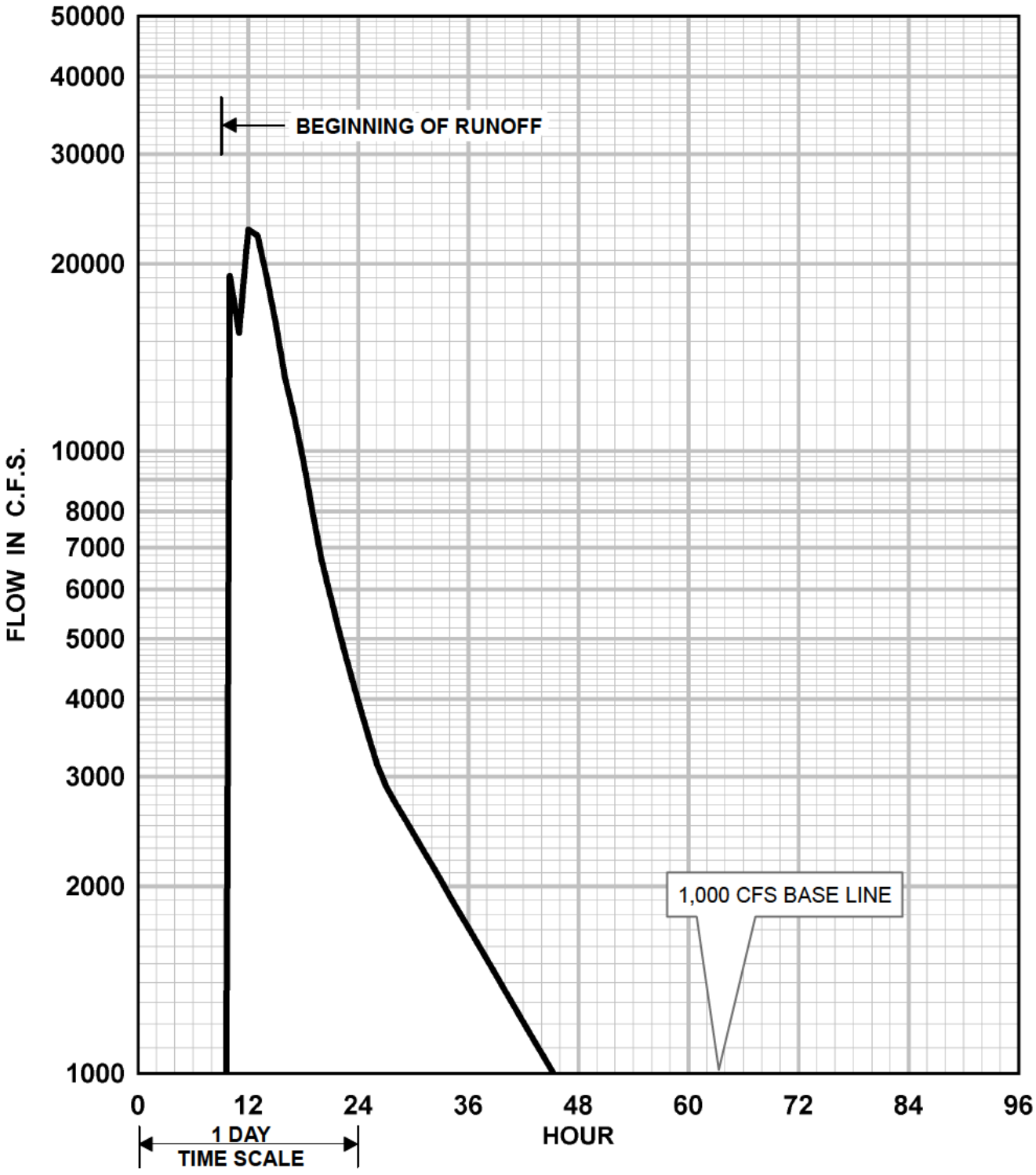
- Reservoir in Operation
- Sub Basin Divide
- ▲ Stream Gage

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

FORECASTING REACHES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



RAINFALL STATIONS AREA -
SARDIS DAM TABLE 5-1

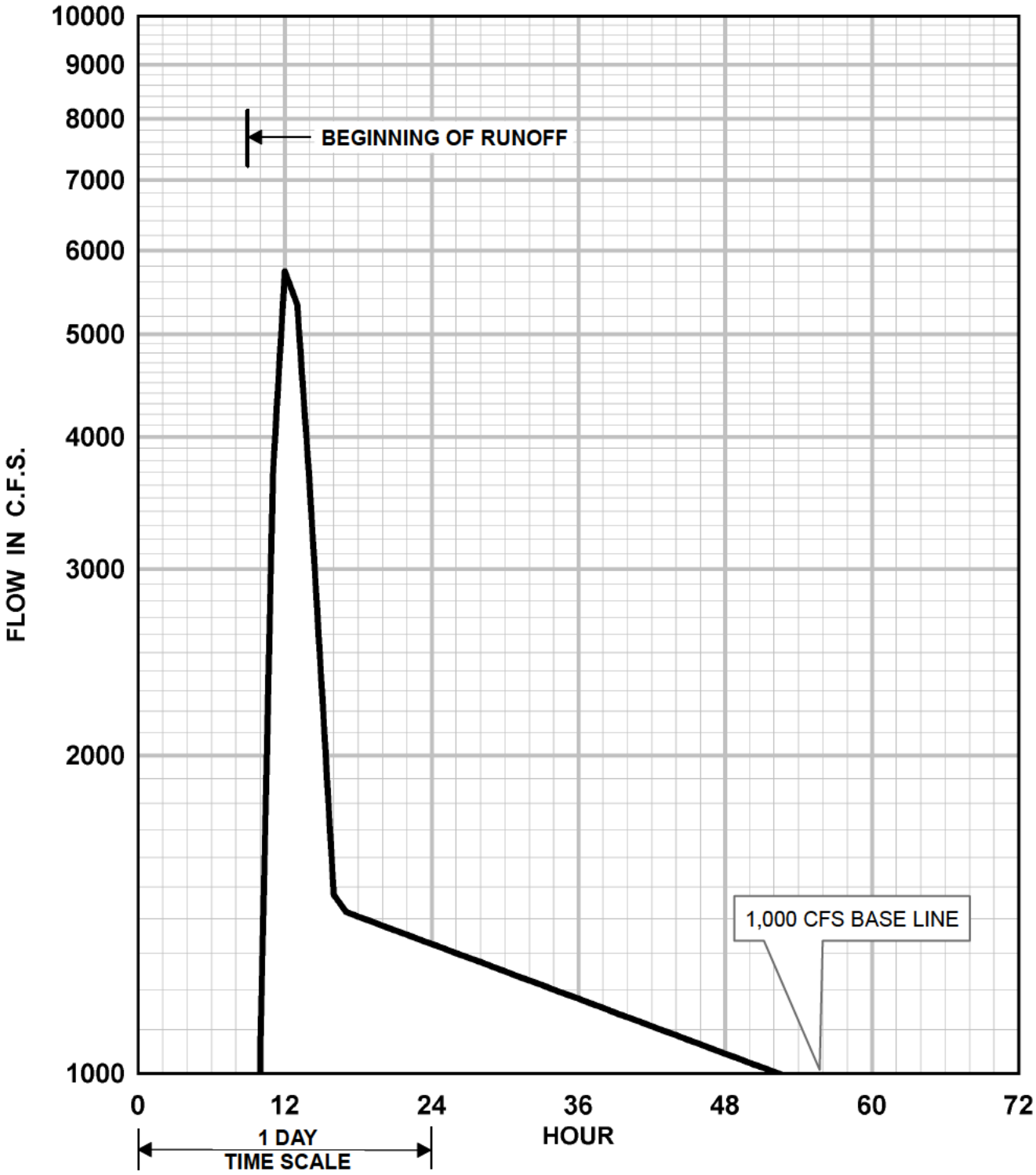
DRAINAGE ARE = 267.6 SQ. MI.
1" RUNOFF = 14,272 AC.FT.
PEAK FLOW = 22,701 C.F.S.

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

UNIT HYDROGRAPH FOR AREA ABOVE SARDIS DAMSITE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



RAINFALL STATIONS AREA -
BIG CEDAR TABLE 5-1

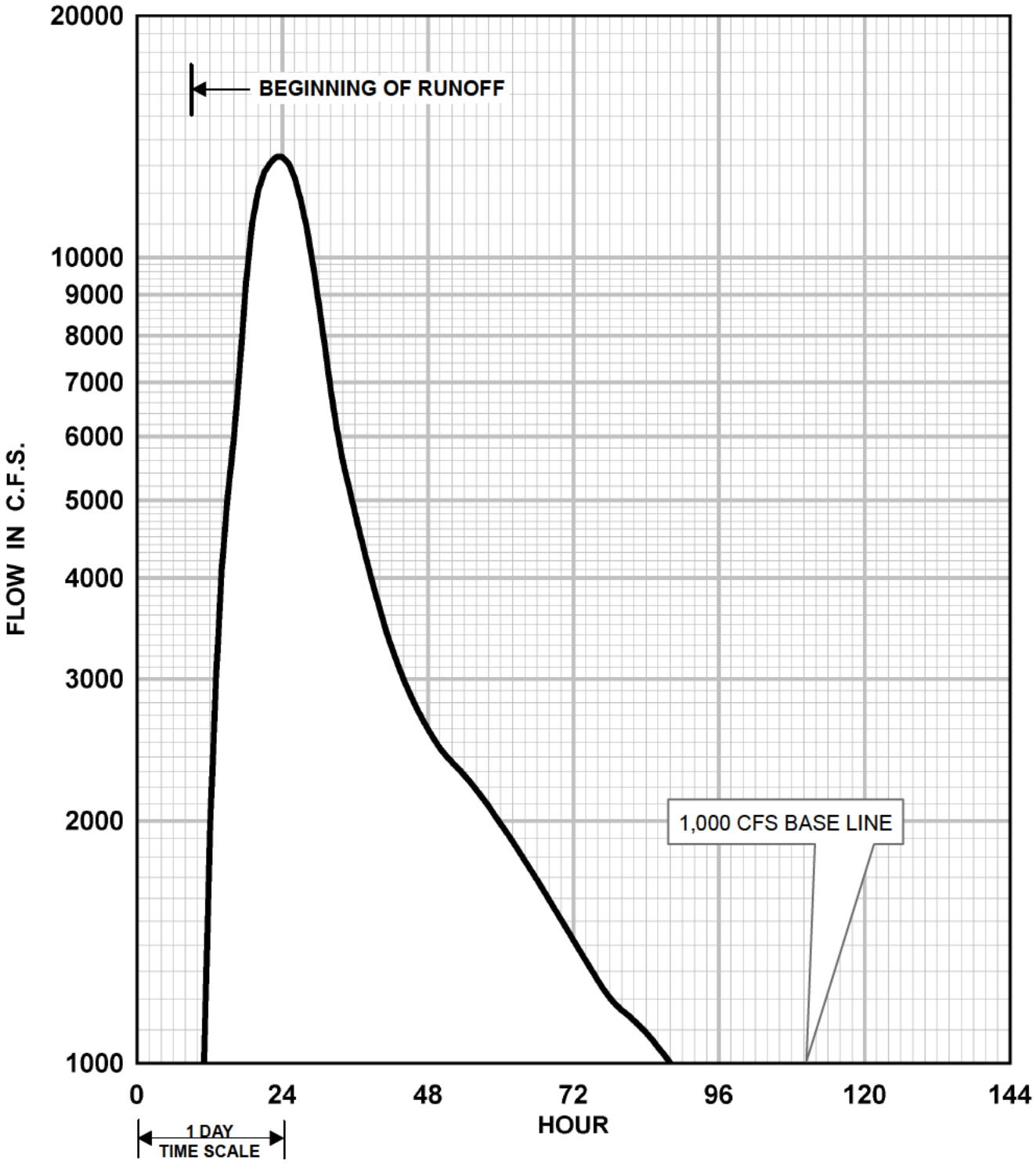
DRAINAGE ARE = 40.1 SQ. MI.
1" RUNOFF = 2,139 AC.FT.
PEAK FLOW = 5,738 C.F.S.

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

UNIT HYDROGRAPH FOR AREA ABOVE BIG CEDAR STREAM GAGE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



RAINFALL STATIONS AREA - CLAYTON TABLE 5-1

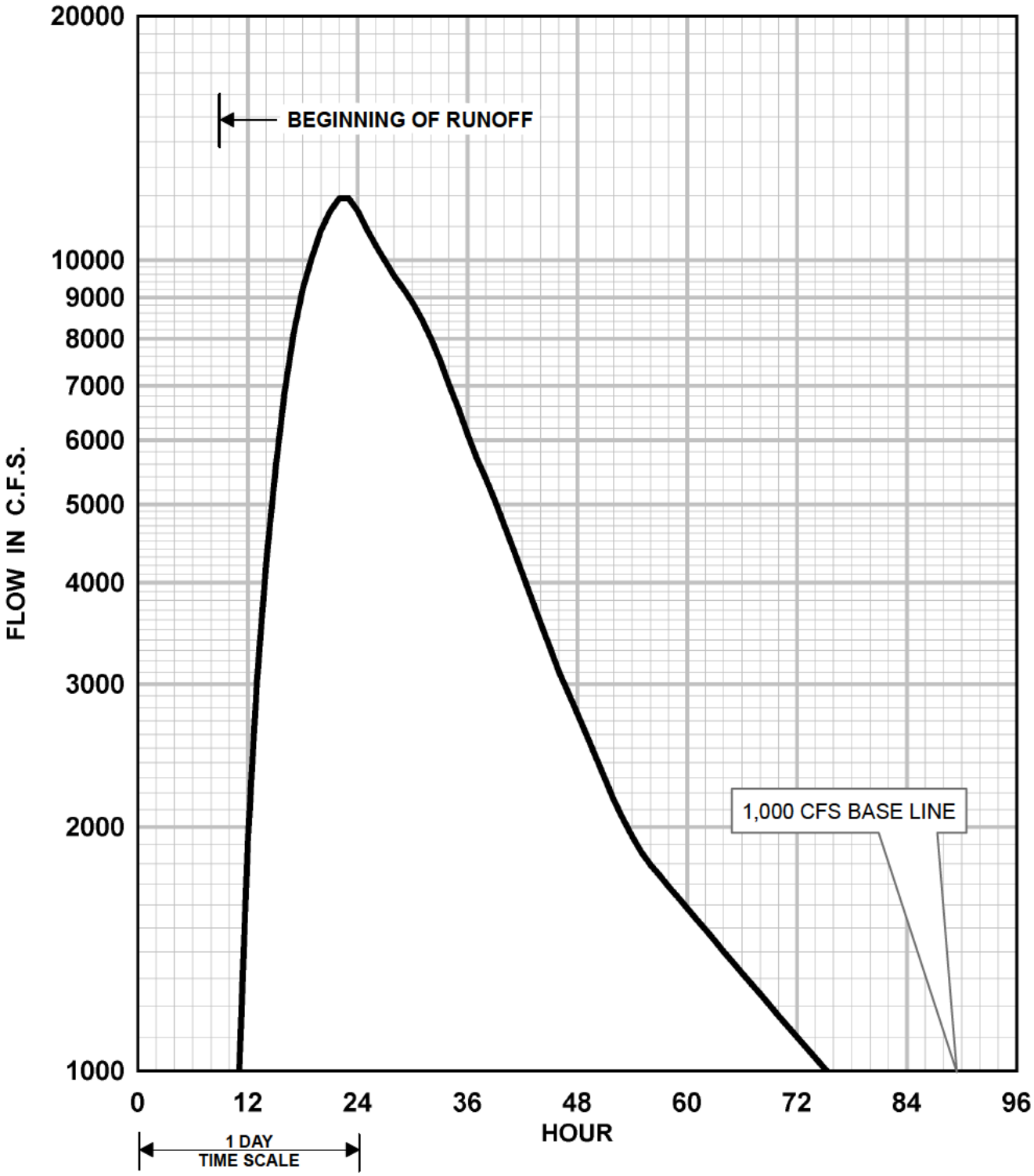
DRAINAGE AREA = 392.9 SQ. MI.
1" RUNOFF = 20,955 AC.FT.
PEAK FLOW = 13,326 C.F.S.

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

UNIT HYDROGRAPH FOR AREA ABOVE CLAYTON AND BELOW SARDIS DAMSITE AND BIG CEDAR

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



RAINFALL STATIONS AREA - ANTLERS TABLE 5-1

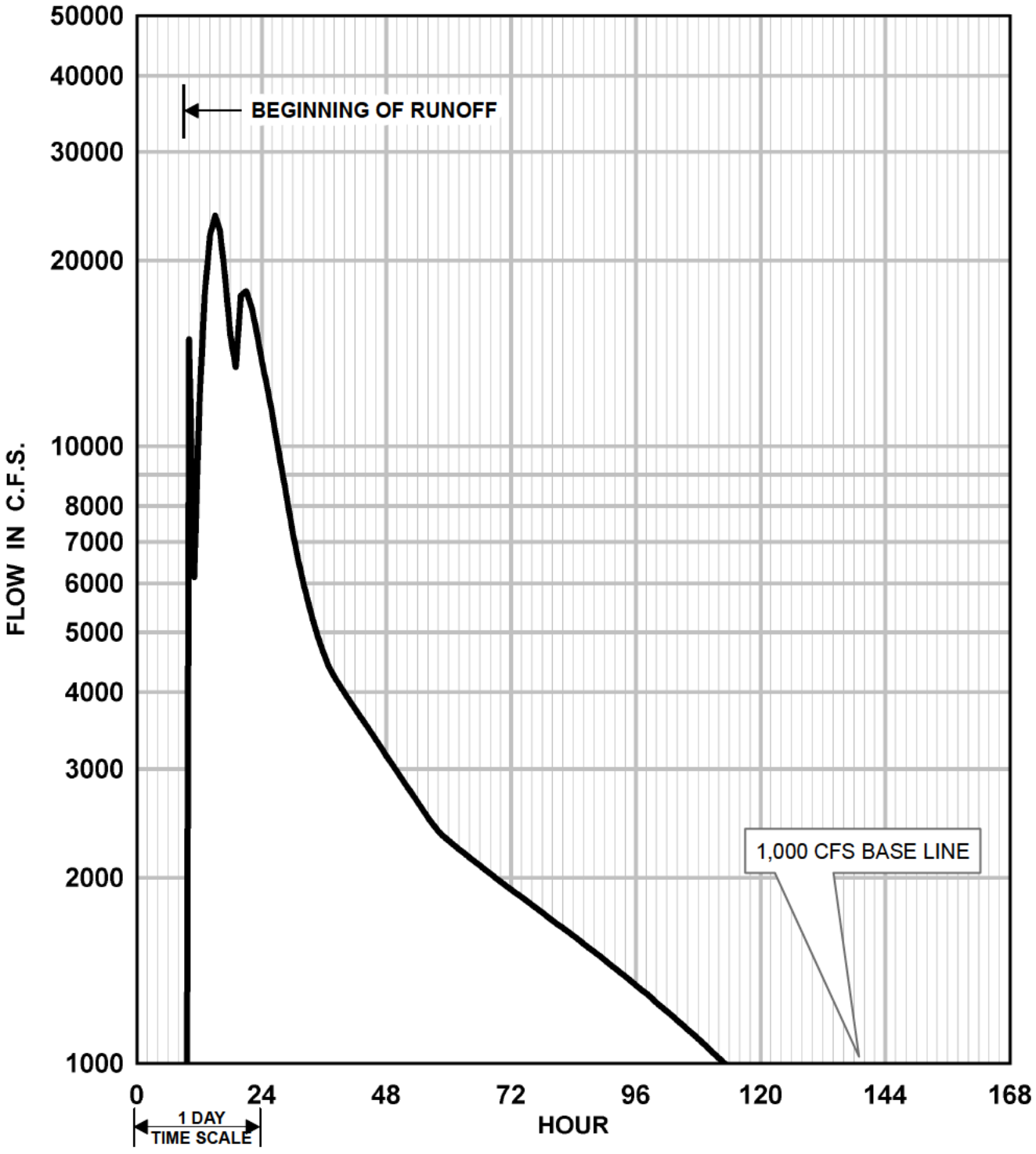
DRAINAGE ARE = 430 SQ. MI.
1" RUNOFF = 22,933 AC.FT.
PEAK FLOW = 11,918 C.F.S.

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

UNIT HYDROGRAPH FOR AREA ABOVE ANTLERS AND BELOW CLAYTON

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



RAINFALL STATIONS AREA -
HUGO DAM TABLE 5-1

DRAINAGE ARE = 571 SQ. MI.
1" RUNOFF = 30,453 AC.FT.
PEAK FLOW = 23,675 C.F.S.

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

UNIT HYDROGRAPH FOR AREA ABOVE HUGO DAMSITE AND BELOW ANTLERS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

SWD Form 156
25 Nov 52

SAMPLE

Page _____ of _____

SARDIS RESERVOIR

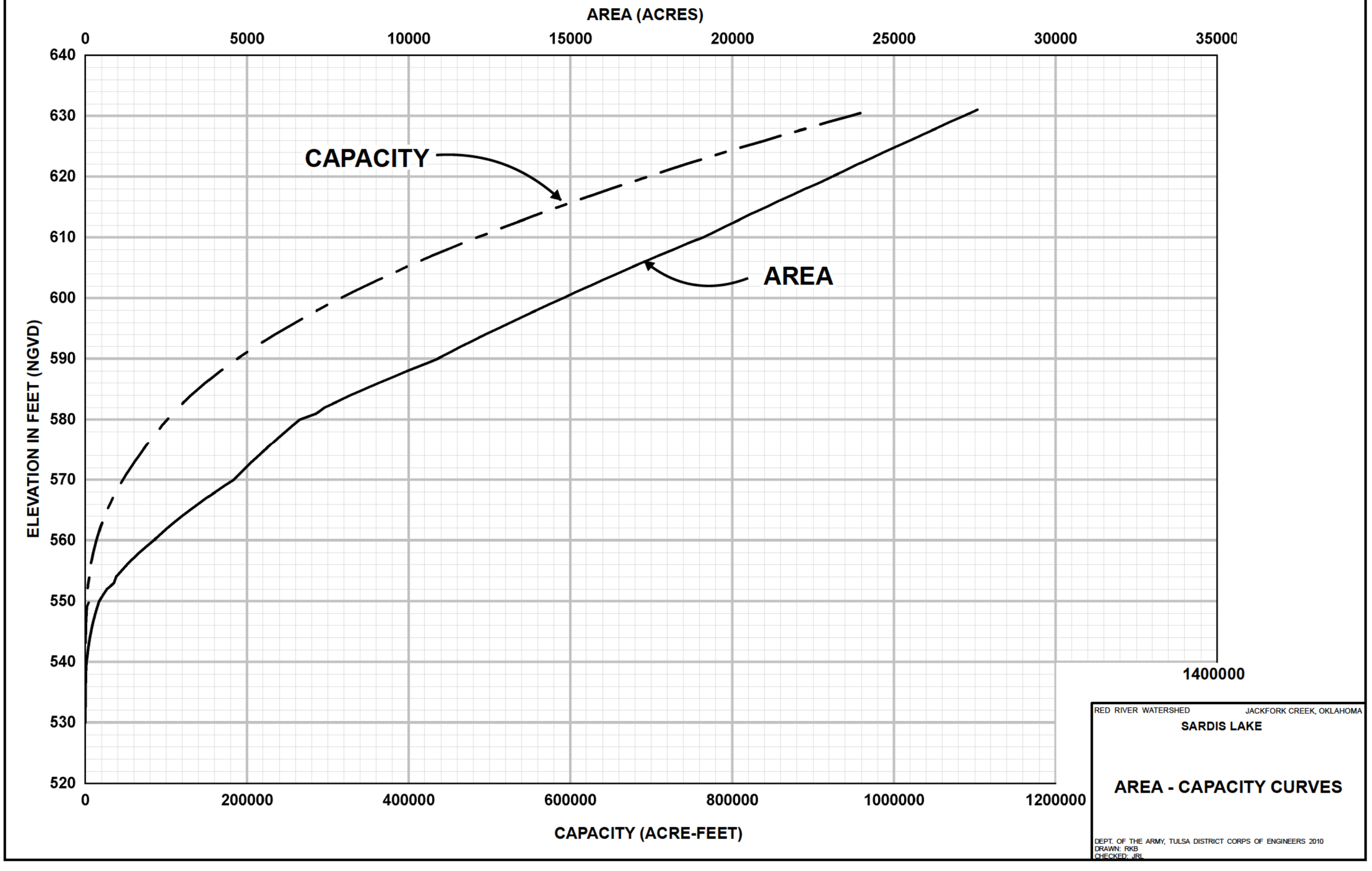
DISCHARGE AND INFLOW COMPUTATION

Com. by Date Checked by Date Book No.

Date	Time	Pool Elevation	Storage (1000's A.F.)	Δ Storage (1000's A.F.)	Δ Storage (1000's c.f.s.)	Gates Operating No. & Type	Gates Operating Opening	Discharge in c.f.s. Instantaneous Flood Control	Power	Total	Average Flood Control	Power	Evap.	Total	Inflow
Apr			(1)	(2)	(3)			(4)			(5)		(6)		(7)
	12M	604.81	391.8			2CG	4'	1660	0	1660					
2	8A	604.97	394.5	8/2.7	8/4.05			1660	0	1660	8/1660	0			8/5710
	11A	605.13	397.2	3/2.7	3/10.8	2CG	4'	1660	0	1660	3/1660	0			3/12460
	11A	605.13	397.2			2CG	4.5'	1870	0	1870					
	12N	605.19	398.2	4/+1.4	4/+4.2			1870	0	1870	4/1713	0			4/5913
	4P	605.23	398.9	4/+.7	4/2.1			1875	0	1875	4/1873	0			4/3973
				8/+.8	8/+1.2						8/1878	0			8/3078
	12M	605.28	399.7	24/+7.9	24/+3.9	2CG	4.5	1880	0	1880	24/1776	0	65	1841	24/5791
													13		
3		605.30	400.1	8/+.4	8/+.6			1880		1880	8/1880				8/2480

(1) Reservoir Capacity Table
(2) Subtract storage beginning of period from storage at end of period
(3) Change in storage (a.f.) x 12 = change in storage in c.f.s.
÷ No. of hours in period
(4) Conduit rating curve
(5) Average discharge during period
(6) Pan evaporation applied to evaporation curves
(7) Inflow = change in storage (cfs) + average discharge + evaporation

Note: During flood periods evaporation is usually neglected in preliminary inflow calculations

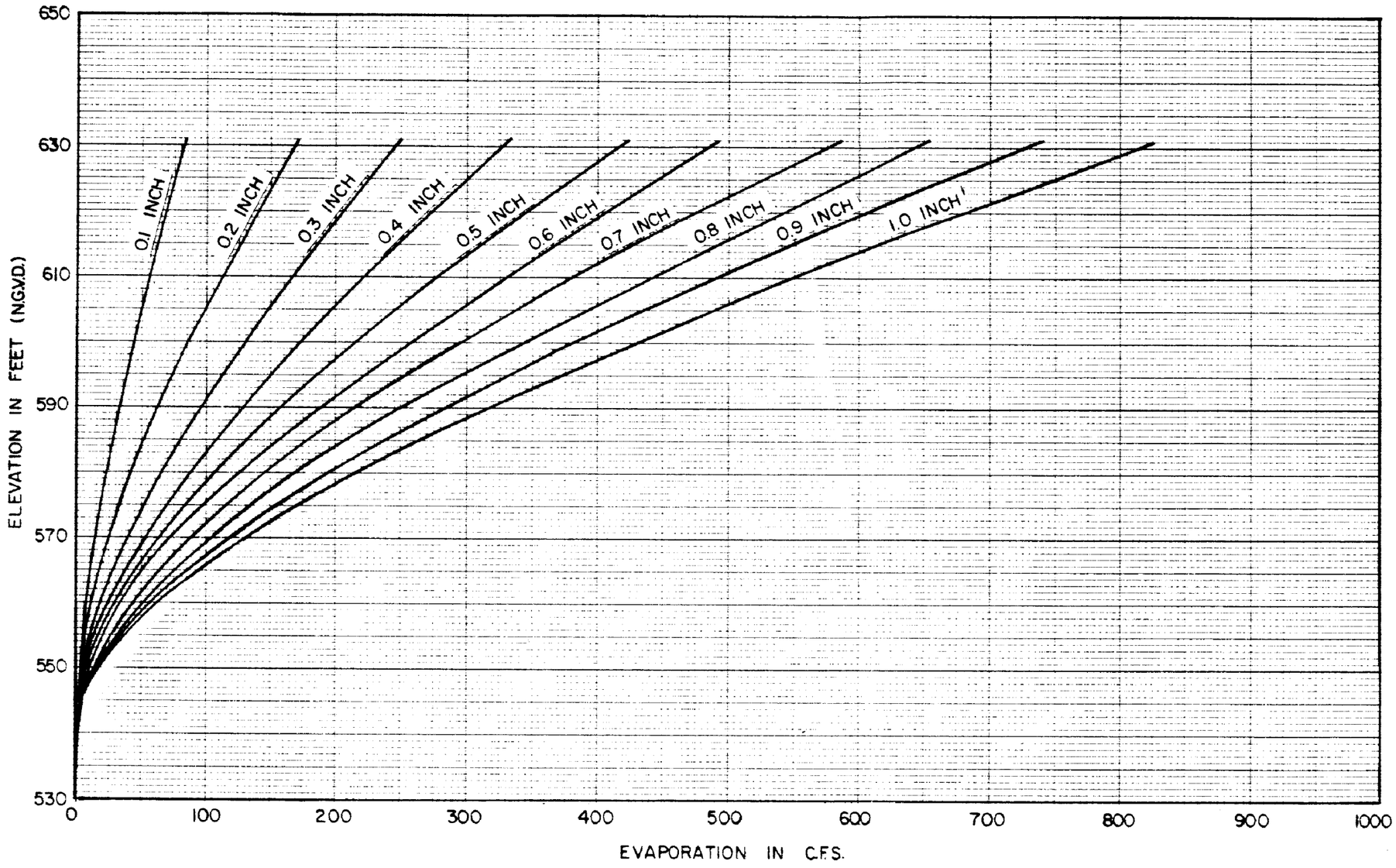


RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

AREA - CAPACITY CURVES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



NOTE:

CURVE COMPUTED FOR 70% OF TANK EVAPORATION

NOTATION AT LEFT OF EACH CURVE DENOTES ACTUAL TANK EVAPORATION

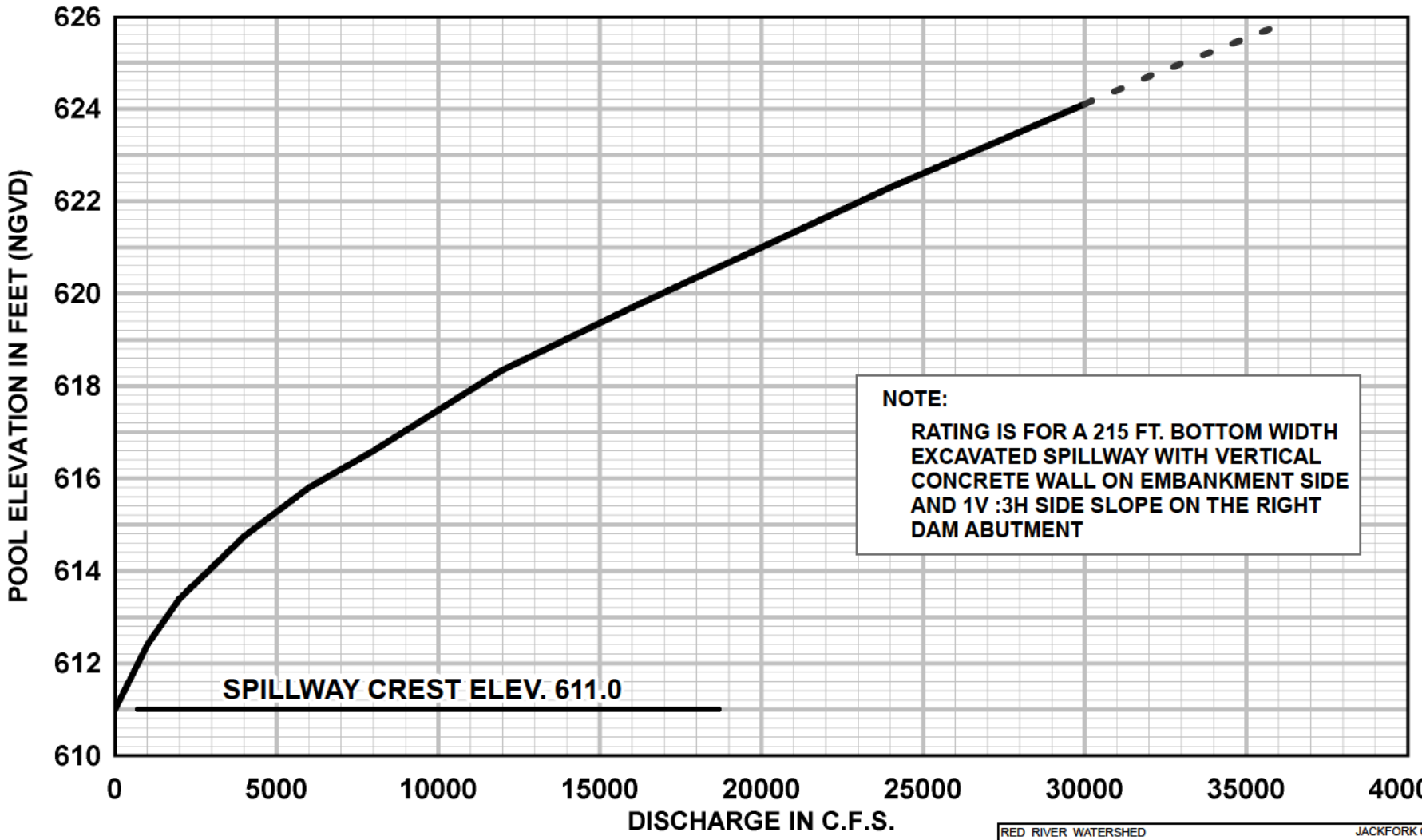
FOR INTERMEDIATE RATES, INTERPOLATE BETWEEN APPROPRIATE LIMITS

RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

EVAPORATION CURVES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

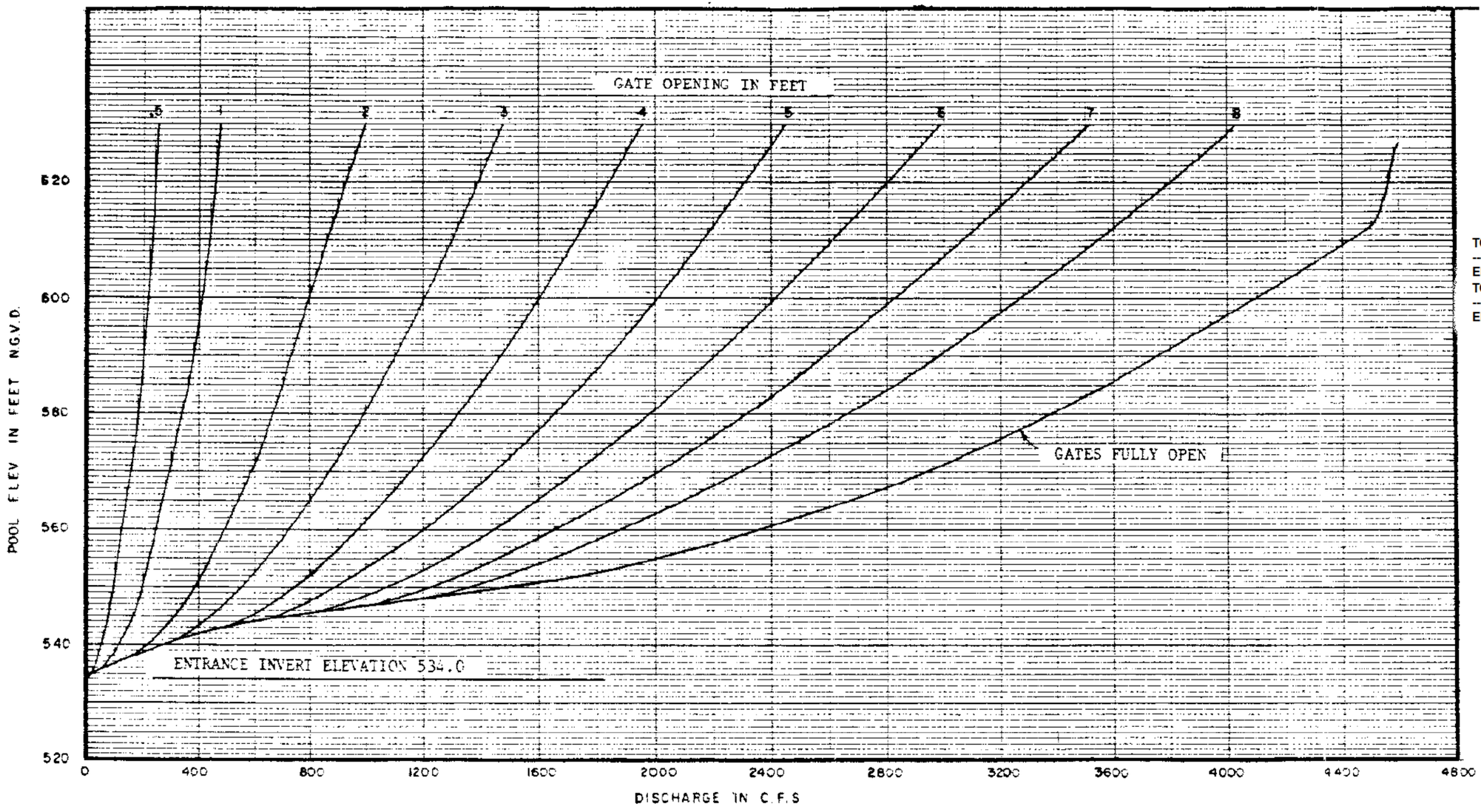


RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

SPILLWAY RATING CURVE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



TOP OF FLOOD CONTROL POOL

EL. 607.0

TOP OF CONSERVATION POOL

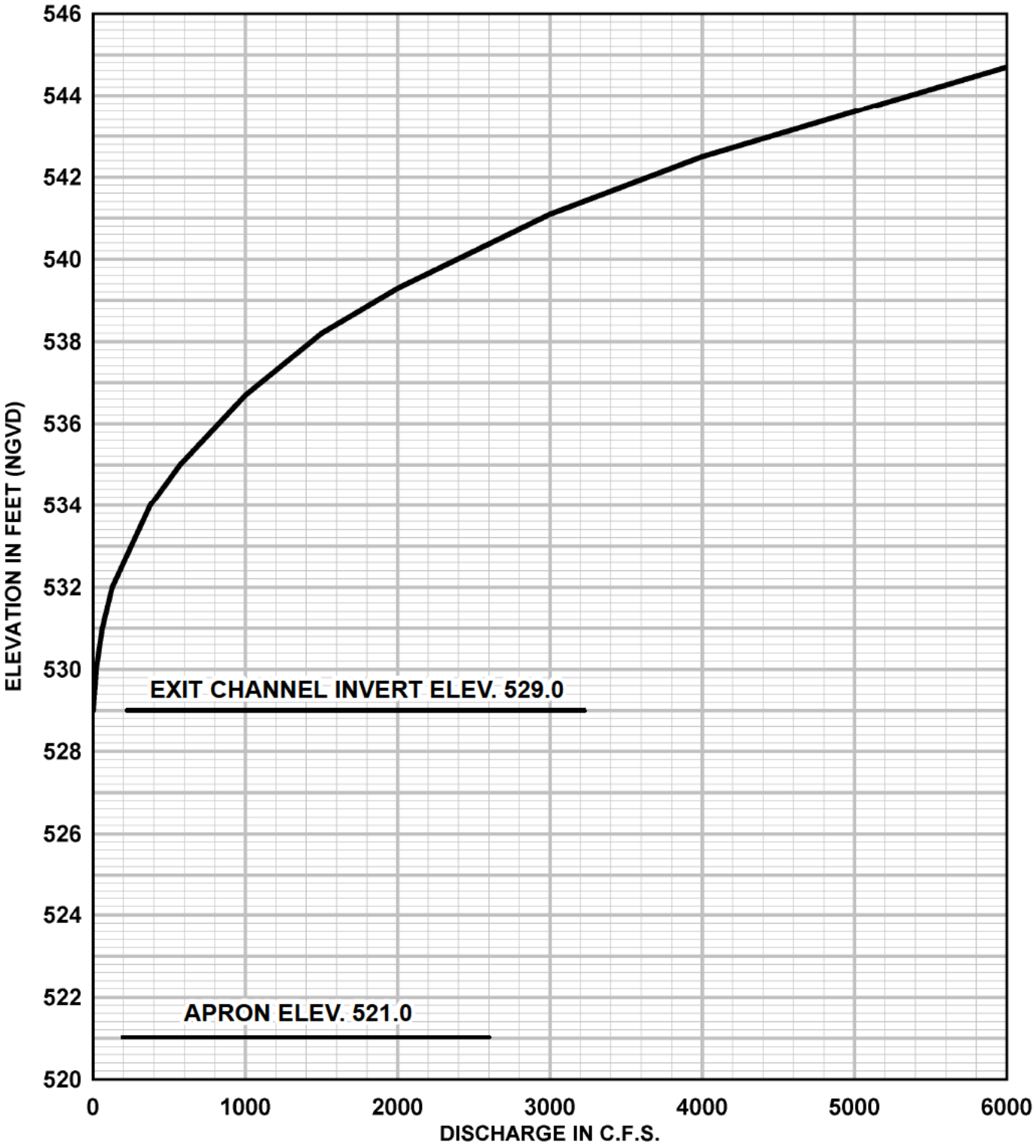
EL. 599.0

RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

CONDUIT RATING CURVE
PARTIAL AND FULL GATE OPENINGS
2 - 4.25' X 12.25' GATES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

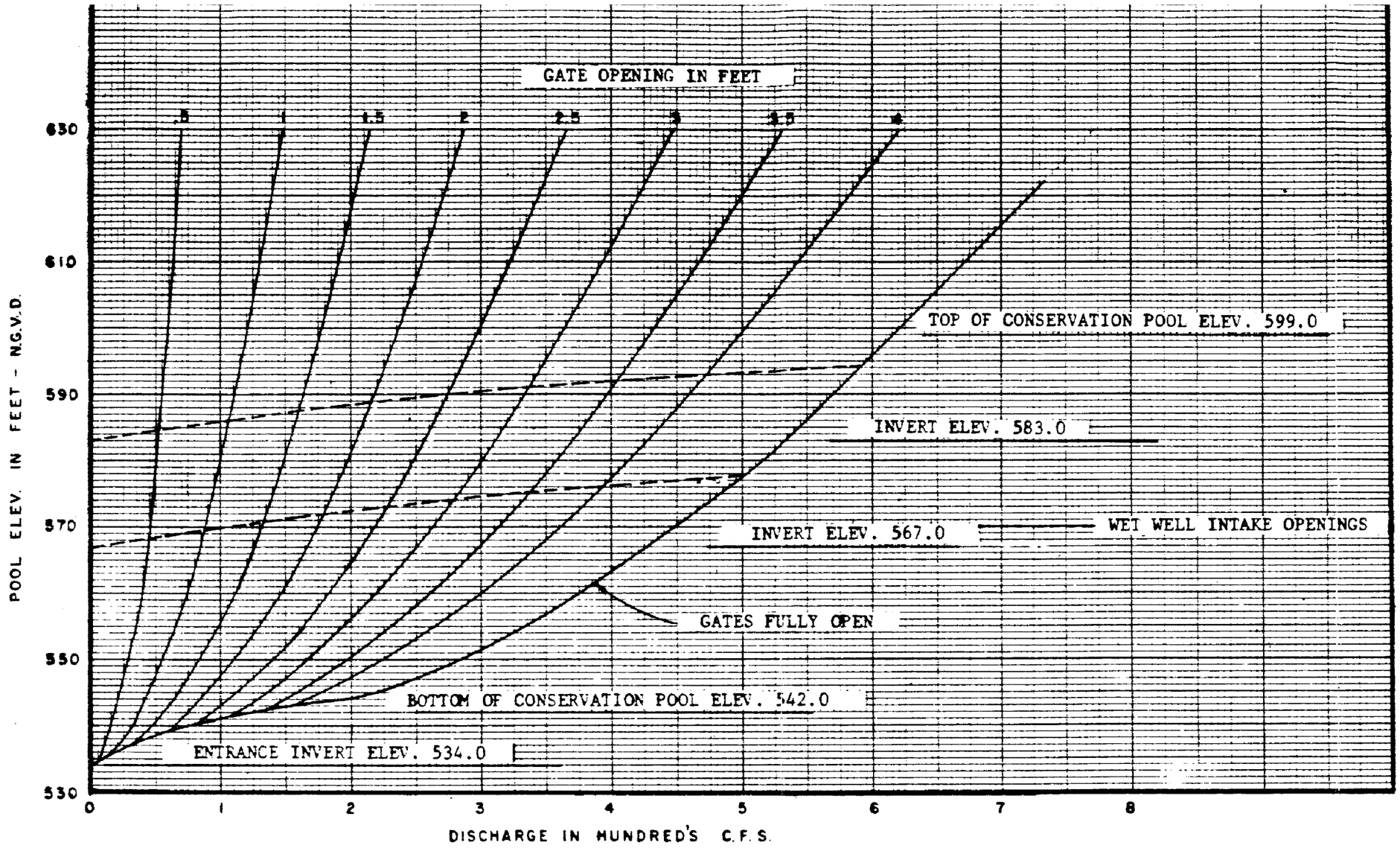


RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

TAILWATER RATING CURVE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

LOW FLOW SLUICE RATING CURVE
PARTIAL AND FULL GATE OPENINGS
1 - 2.5' X 5.25' GATE

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL

WATER SUPPLY STORAGE ACCOUNTING

SARDIS LAKE

(ALL VALUES ARE IN ACRE-FEET)

TOTAL CONSERVATION STORAGE	297200
UN-CONTRACTED STORAGE	0
CONTRACT STORAGE* USER #1	89160
CONTRACT STORAGE* USER #2	178320
CONTRACT STORAGE* USER #3	29720

PERIOD MO/YR	USER	BEGINNING STORAGE	INFLOW SHARE	TOTAL LOSSES	WITH-DRAWN	ENDING STORAGE
6/90	LAKE	297200	500	7198	2122	288380
	1	89160	150	2156	930	86224
	2	178320	300	4321	1114	173185
	3	29720	50	721	78	28971
7/90	LAKE	288380	1540	8219	3761	277940
	1	86224	462	2458	1100	83128
	2	173185	924	4937	2146	167026
	3	28970	154	824	515	27786
8/90	LAKE	277940	430	7760	2150	268460
	1	83128	129	2315	1100	79843
	2	167025	258	4677	300	162307
	3	27785	43	768	750	26311
9/90	LAKE	268460	60	5920	2480	260120
	1	79842	18	1760	810	77291
	2	162306	36	3587	790	157966
	3	26310	6	573	880	24863
10/90	LAKE	260120	100	4446	624	255150
	1	77290	30	1319	400	75602
	2	157965	60	2702	150	155174
	3	24863	10	425	74	24375
11/90	LAKE	255150	45210	2860	300	297200
	1	75601	13563	848	100	89160
	2	155173	24984	1738	100	178320
	3	24374	5056	274	100	29720

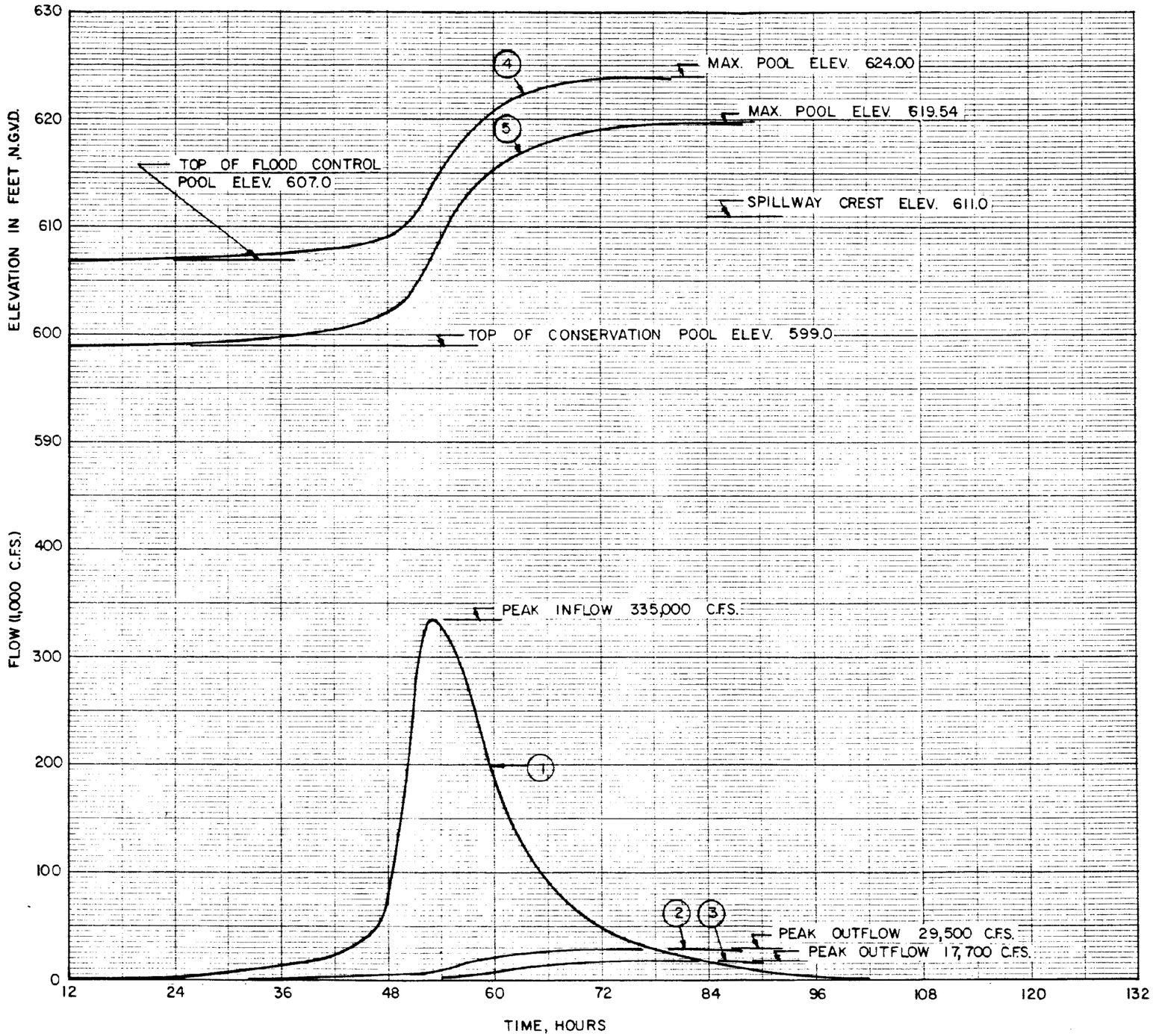
*** USERS are for example only**

RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

WATER SUPPLY STORAGE ACCOUNTING

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



NOTES: EMERGENCY OPERATIONS

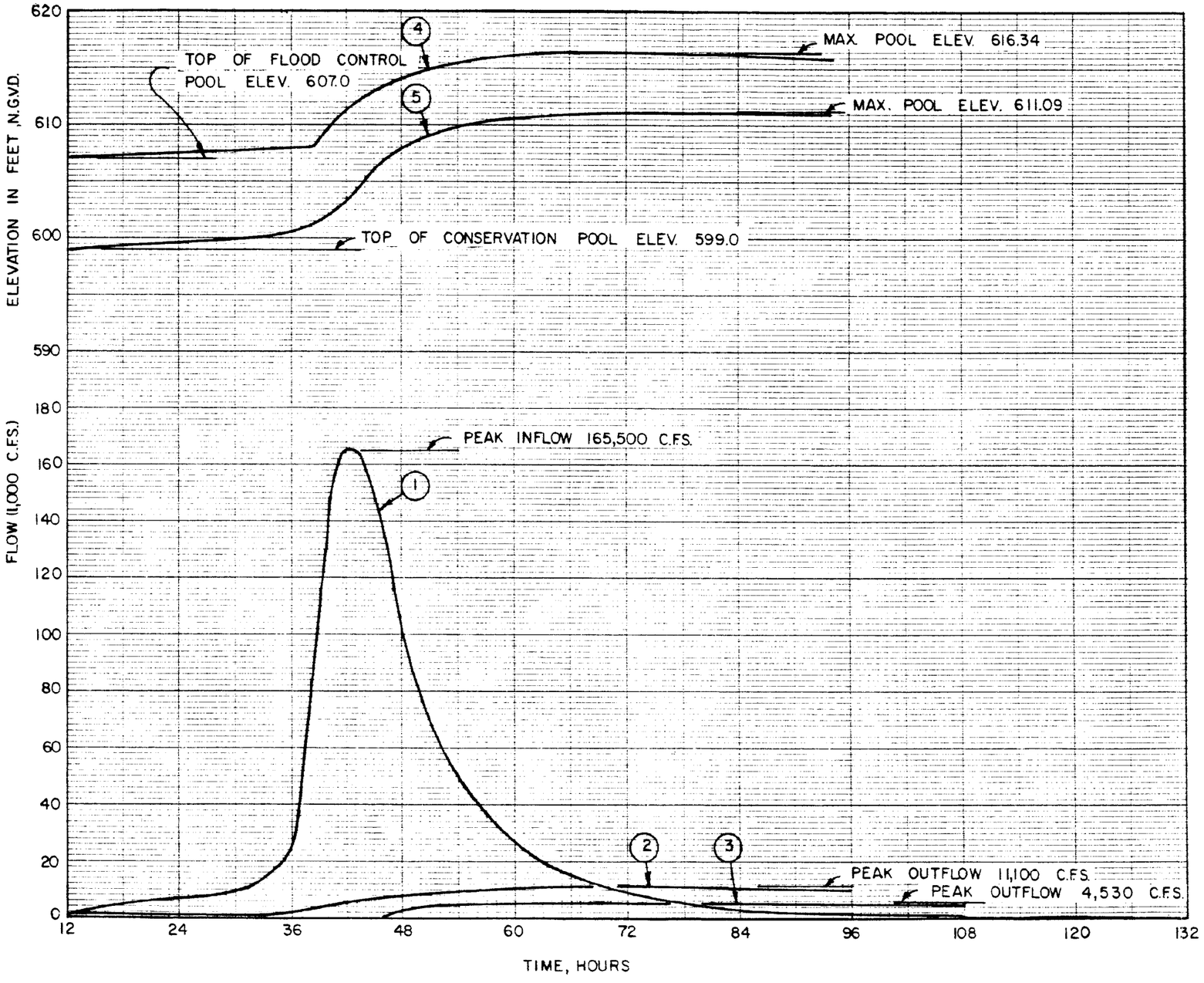
1. INFLOW HYDROGRAPH
2. OUTFLOW-FLOOD ON FULL POOL
3. OUTFLOW-FLOOD ON EMPTY POOL
4. POOL STAGE-FLOOD ON FULL POOL
5. POOL STAGE-FLOOD ON EMPTY POOL

RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

OPERATIONAL HYDROGRAPHS SPILLWAY DESIGN FLOOD

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



NOTES: EMERGENCY OPERATIONS

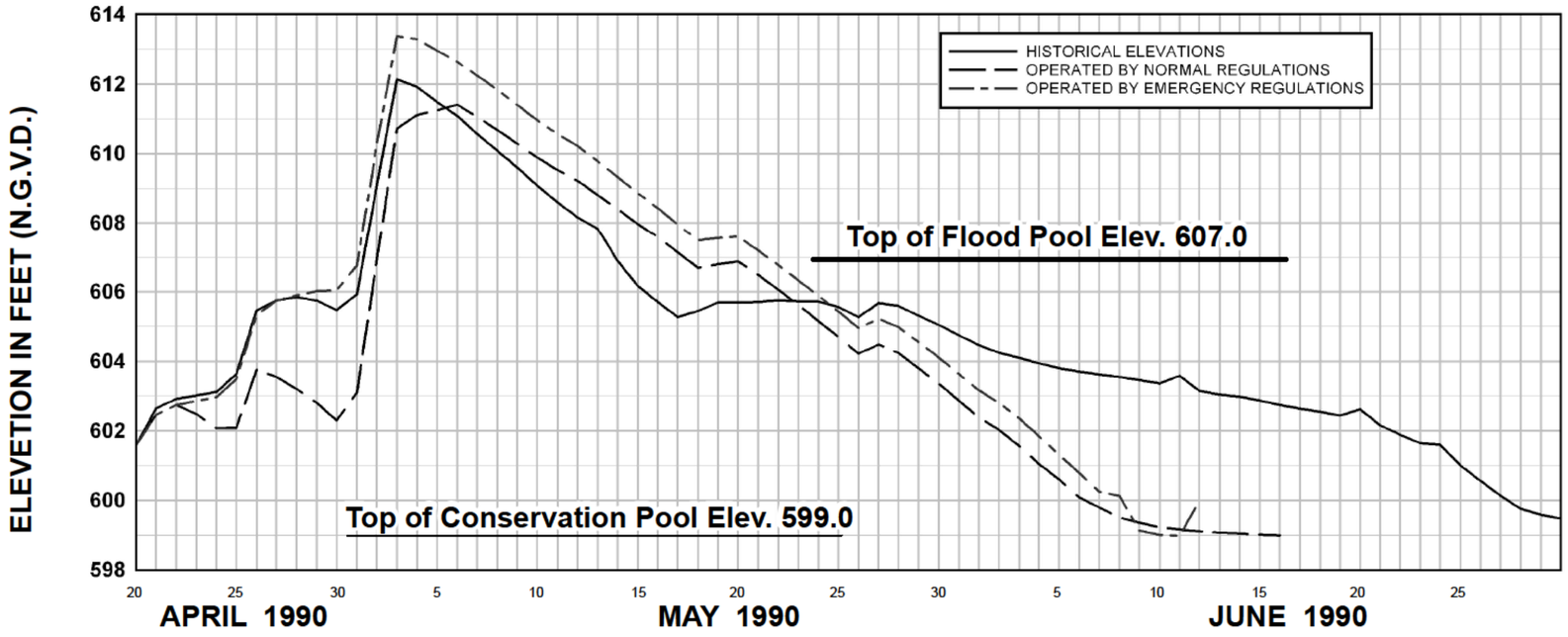
1. INFLOW HYDROGRAPH
2. OUTFLOW-FLOOD ON FULL POOL
3. OUTFLOW-FLOOD ON EMPTY POOL
4. POOL STAGE-FLOOD ON FULL POOL
5. POOL STAGE-FLOOD ON EMPTY POOL

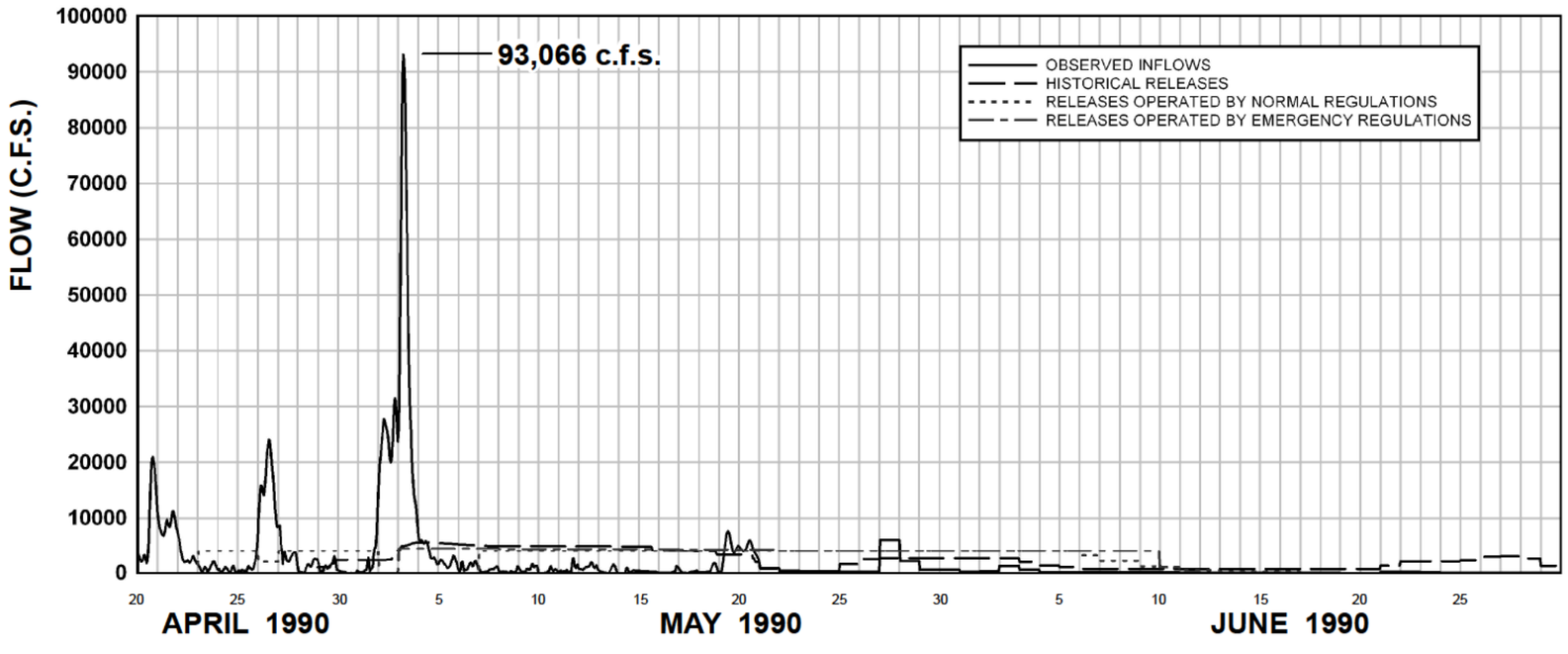
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

OPERATIONAL HYDROGRAPHS STANDARD PROJECT FLOOD

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL





TES:

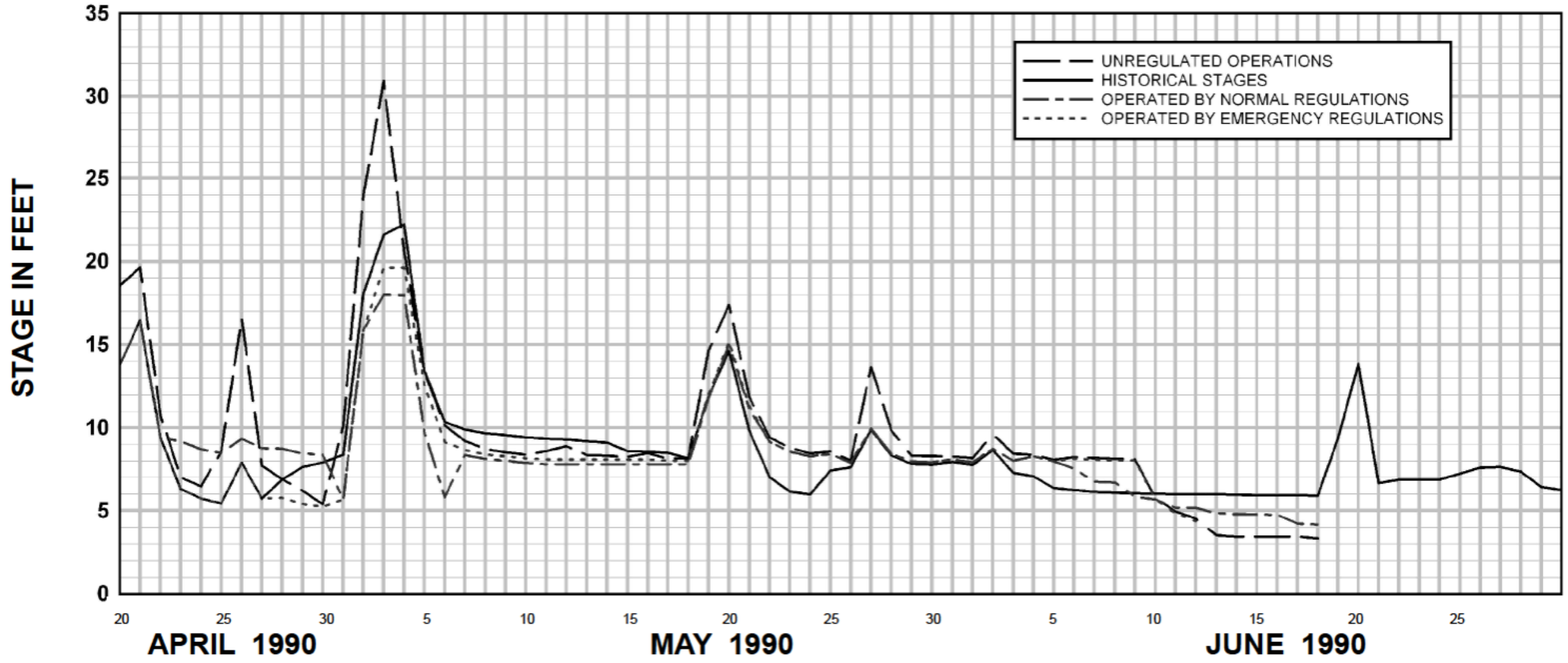
1. REGULATING CAPACITY BELOW THE DAM IS 4,000 C.F.S.
2. WITH NORMAL REGULATIONS THE FLOOD CONTROL POOL WOULD HAVE EMPTIED ON 16 JUNE 1990
3. WITH NORMAL REGULATION AFTER THE END OF EMERGENCY REGULATION THE FLOOD CONTROL POOL WOULD HAVE EMPTIED ON 12 JUNE 1990
4. FLOOD VOLUME 20 APR 1990 THROUGH 20 MAY 1990 WAS 68,300 ACRE-FEET
5. FLOOD CONTROL CONTAINS 122,560 ACRE-FEET

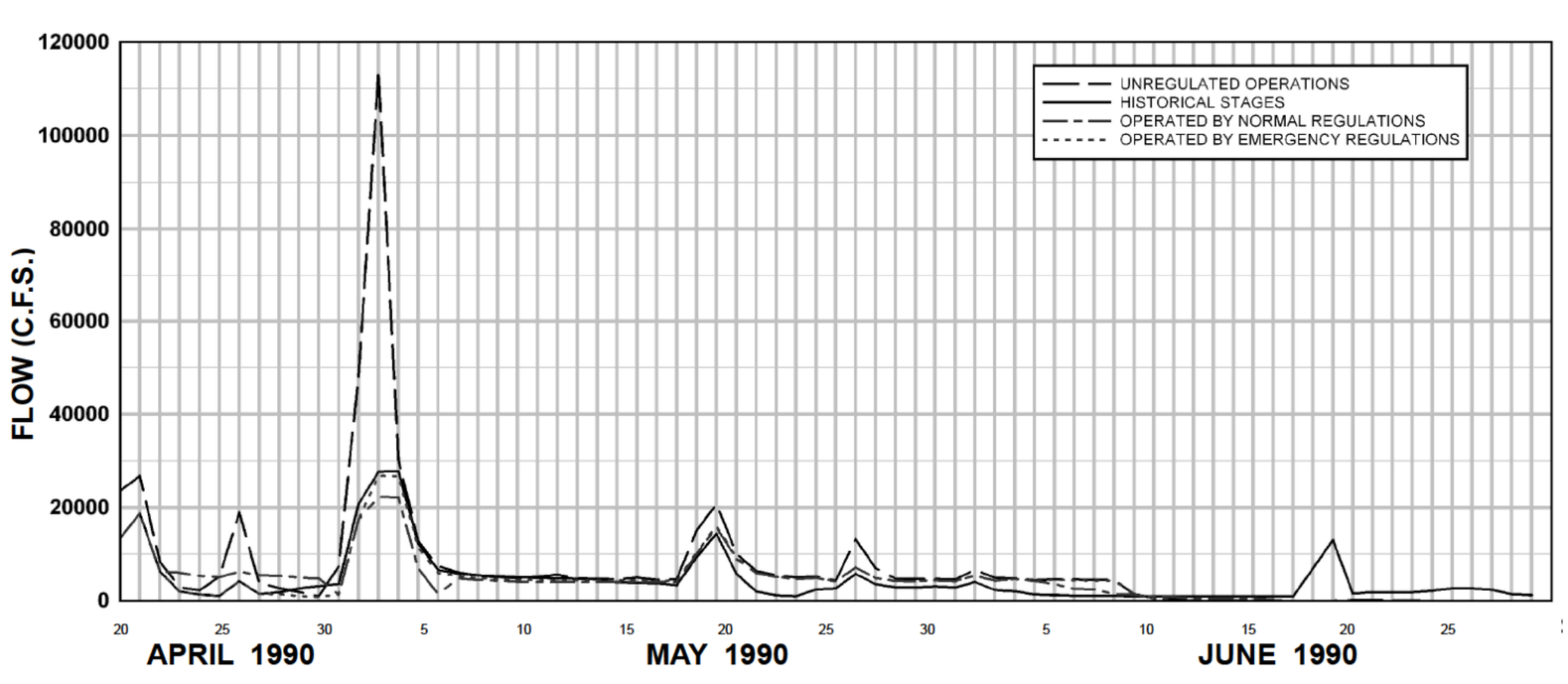
RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

OPERATIONAL HYDROGRAPHS FLOOD OF MAY 1990

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL





NOTES:

1. **NORMAL AND EMERGENCY REGULATED STAGES ARE THE SAME UNTIL APRIL 23, 1990.**
2. **NORMAL AND EMERGENCY REGULATED FLOWS ARE THE SAME UNTIL APRIL 28, 1990.**
3. **STAGES APPLY TO U.S. CORPS OF ENGINEERS GAGE AT U.S. 271 BRIDGE SE OF CLAYTON, OKLAHOMA.**

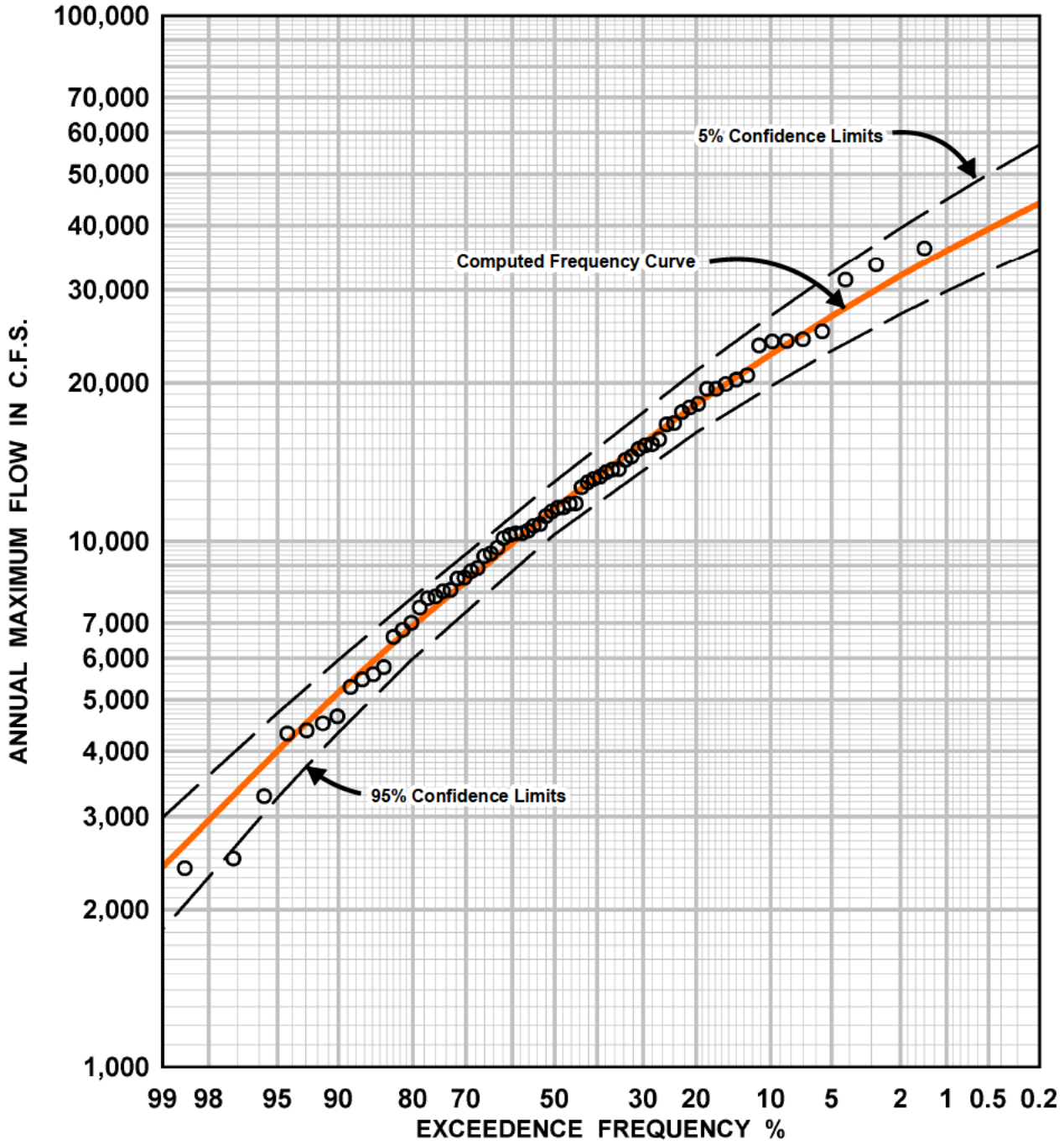
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

STAGE AND DISCHARGE HYDROGRAPHS

FLOOD OF MAY 1990
CLAYTON, OK

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



CUMULATIVE FREQUENCY CURVE OF ANNUAL PEAK FLOWS

NOTES:

1. BASED ON METHODS OUTLINED IN "STATISTICAL METHODS IN HYDROLOGY," LEO R. BEARD JAN. 1962
2. BASIC DATA ARE COMPUTED ANNUAL PEAK DISCHARGE AT THE DAM SITE FROM JAN. 1940 THROUGH DEC. 2007

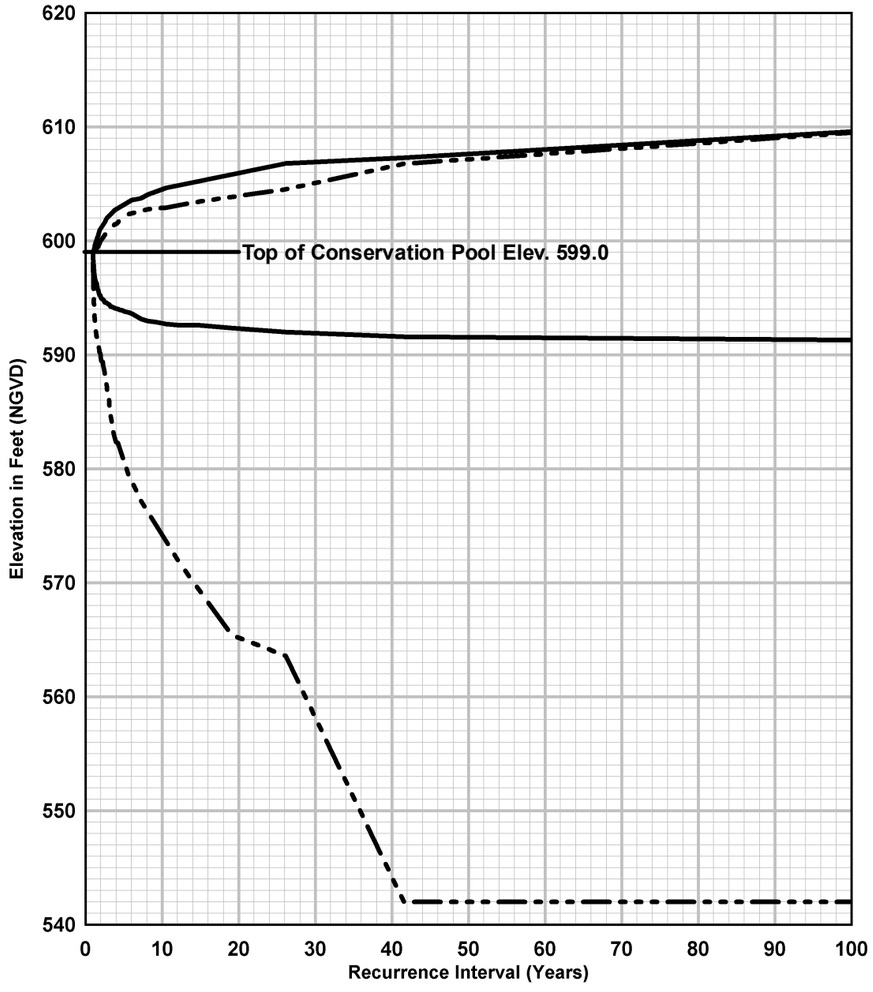
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

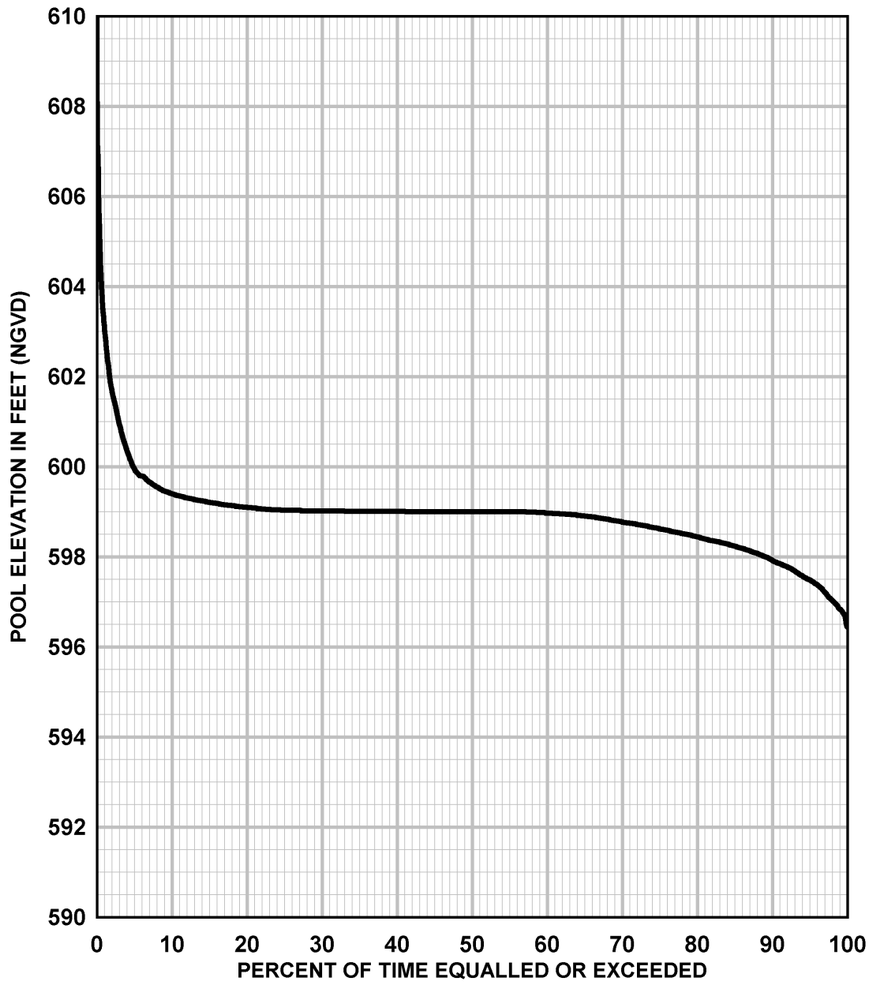
SARDIS LAKE

INFLOW PROBABILITY CURVE

NATURAL RIVER CONDITIONS

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL





USING 67.0 MGD WATER SUPPLY

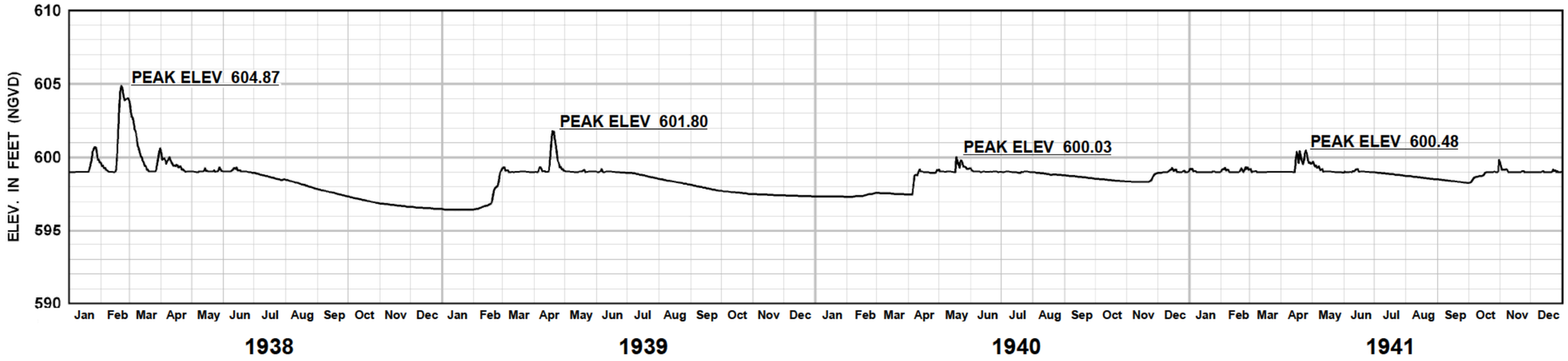
USING 140.0 MGD WATER SUPPLY BASED ON RED RIVER SUPER FROM 1938 TO 2007

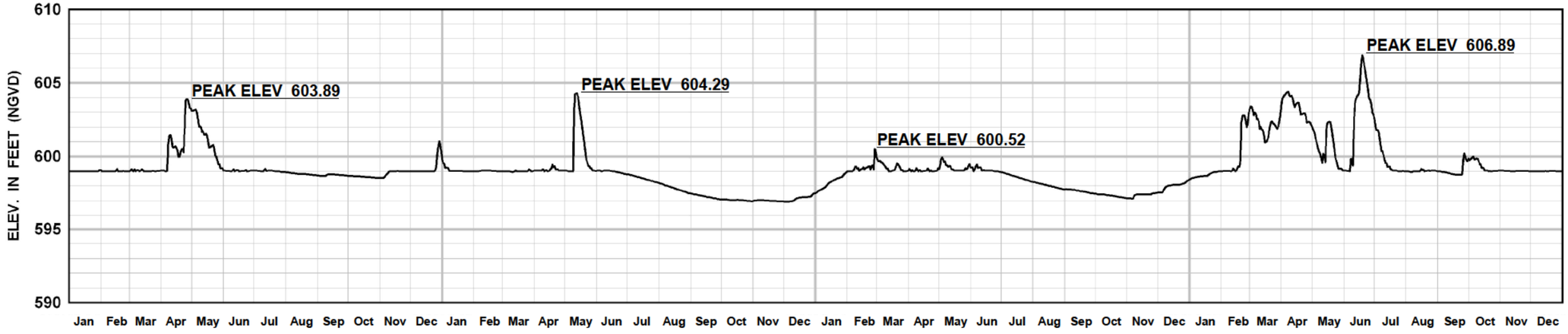
RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

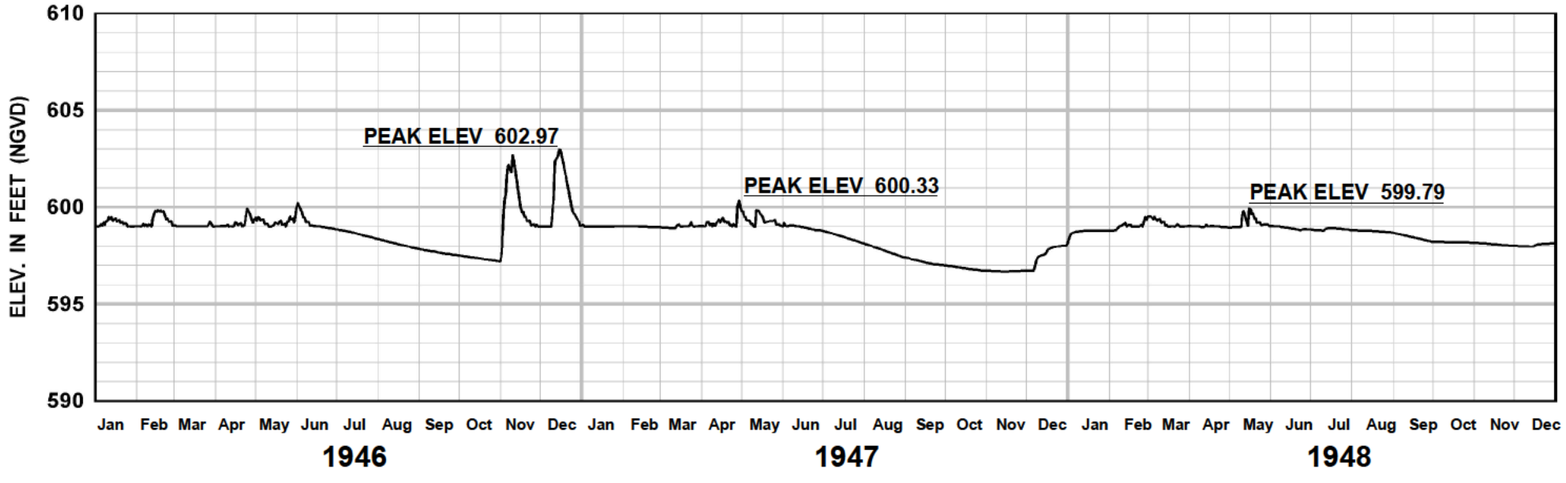
SARDIS LAKE

POOL ELEVATION PROBABILITY AND DURATION CURVES

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL







NOTE: Pool elevations for years 1938 through 1982 are based on a simulation using the RiverWare computer program. Elevations for years 1983 through 2010 are actual historical values.

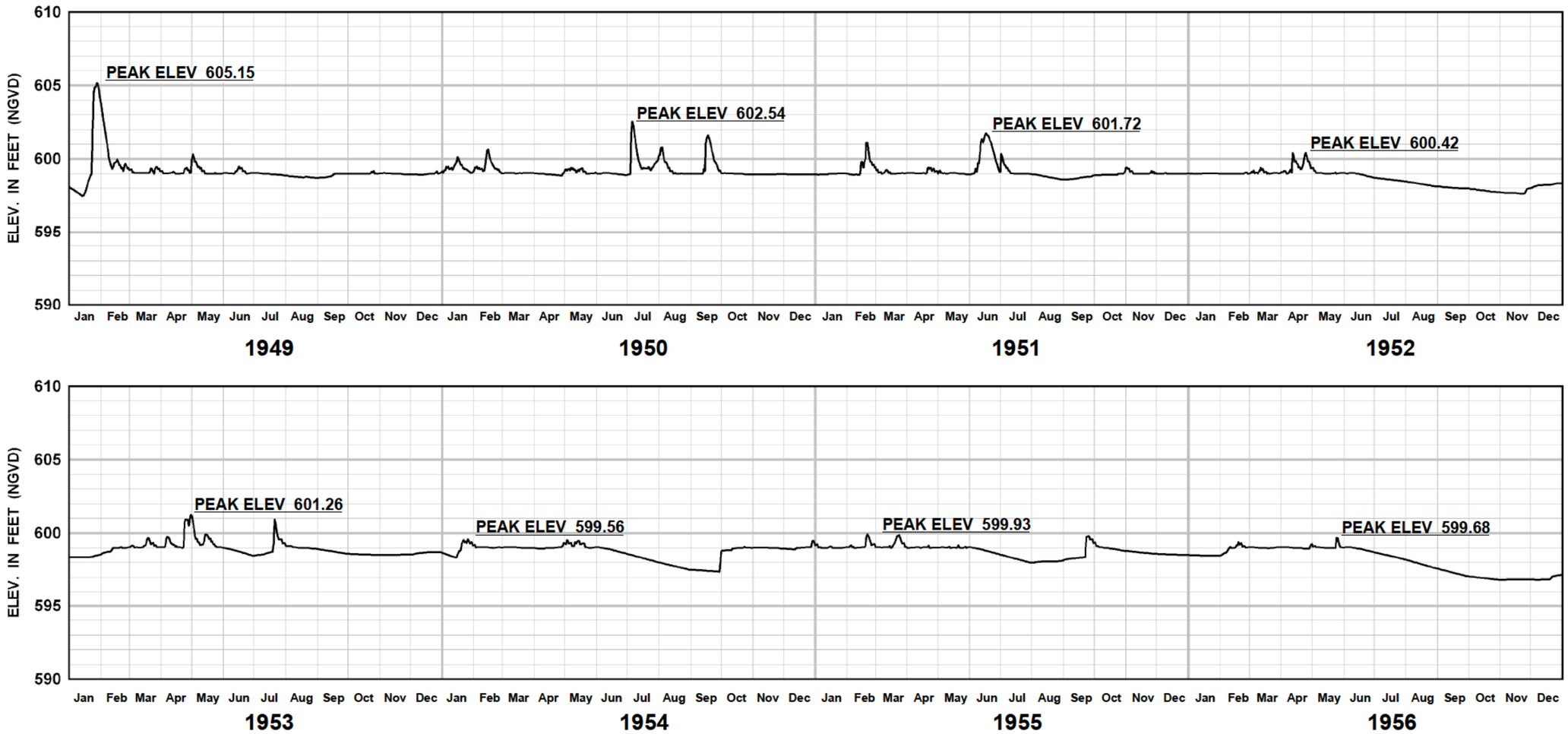
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

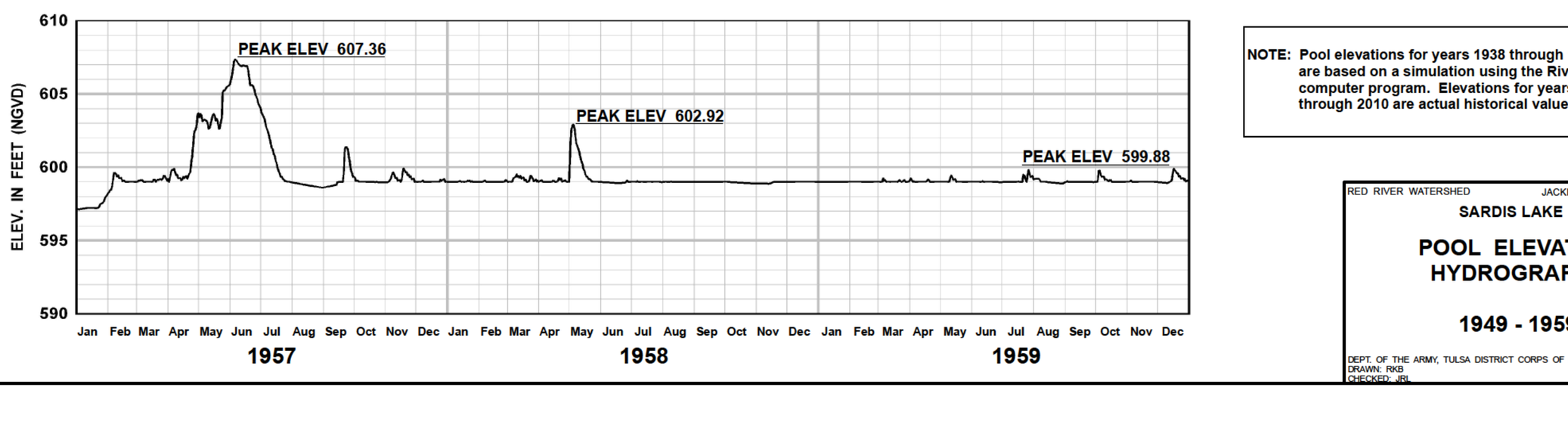
SARDIS LAKE

POOL ELEVATION HYDROGRAPHS

1938 - 1948

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL





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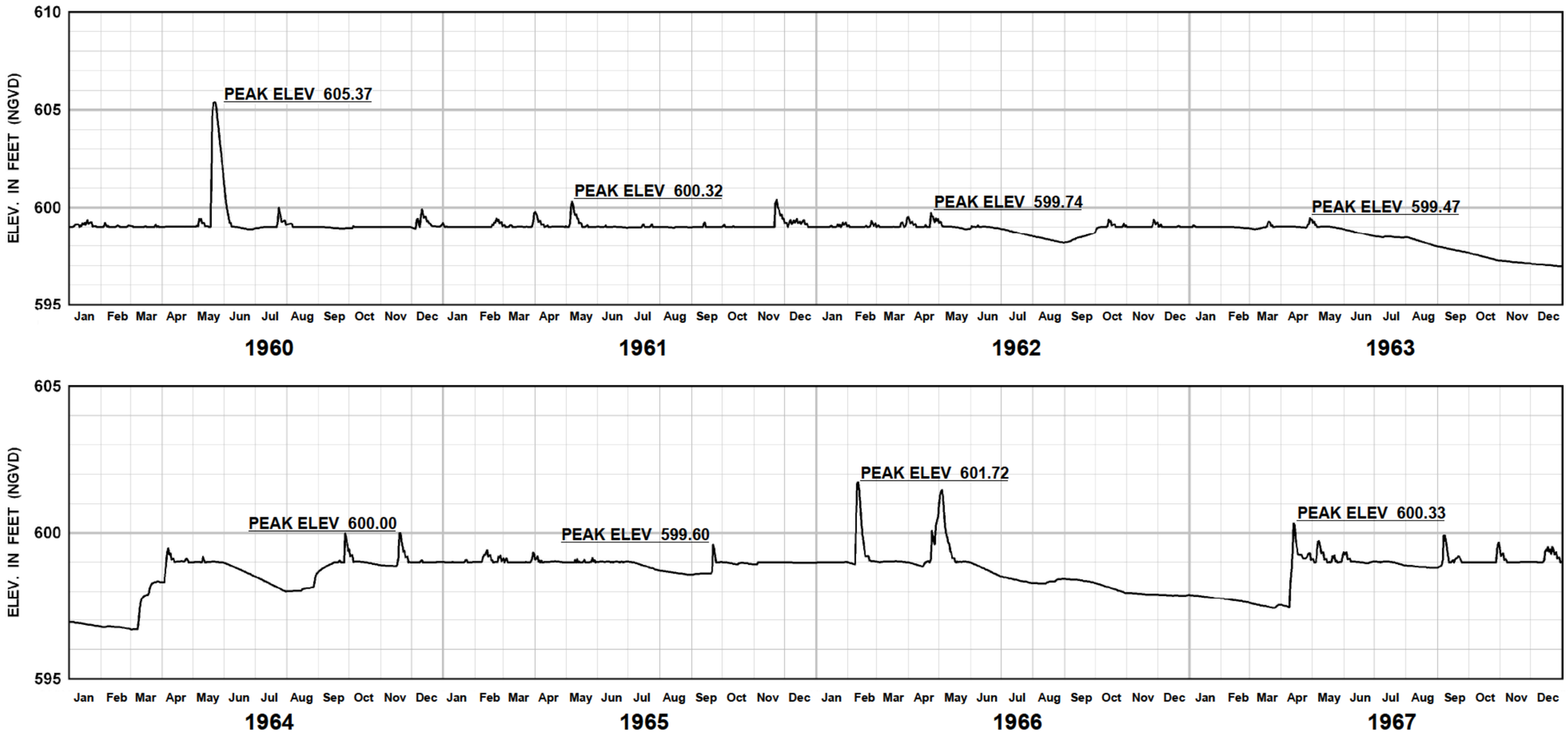
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

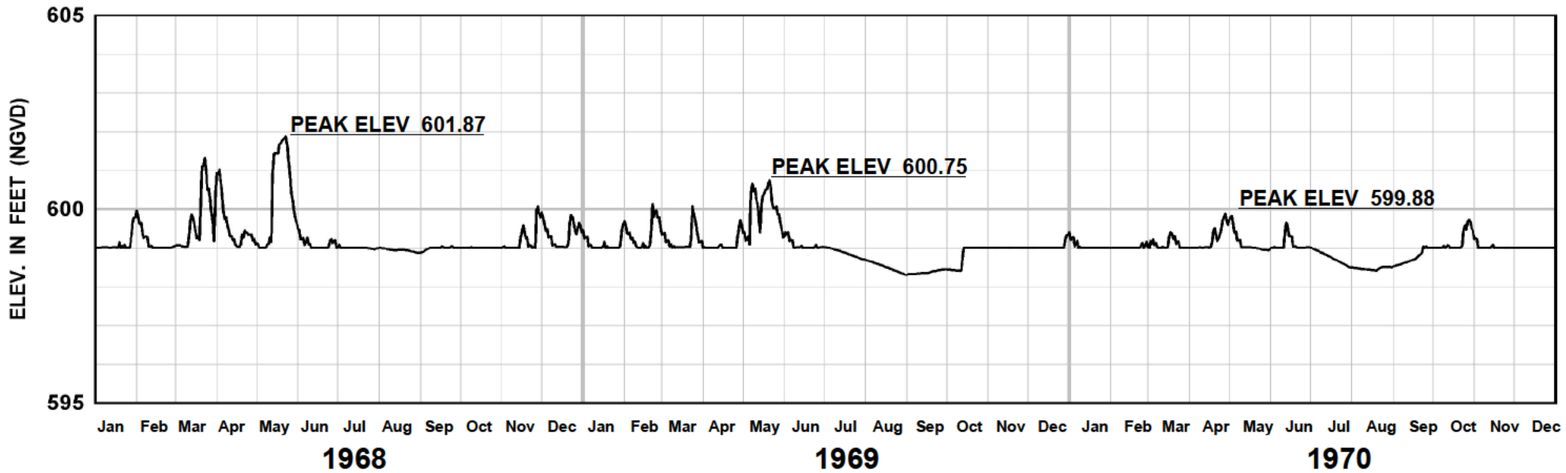
SARDIS LAKE

POOL ELEVATION HYDROGRAPHS

1949 - 1959

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL





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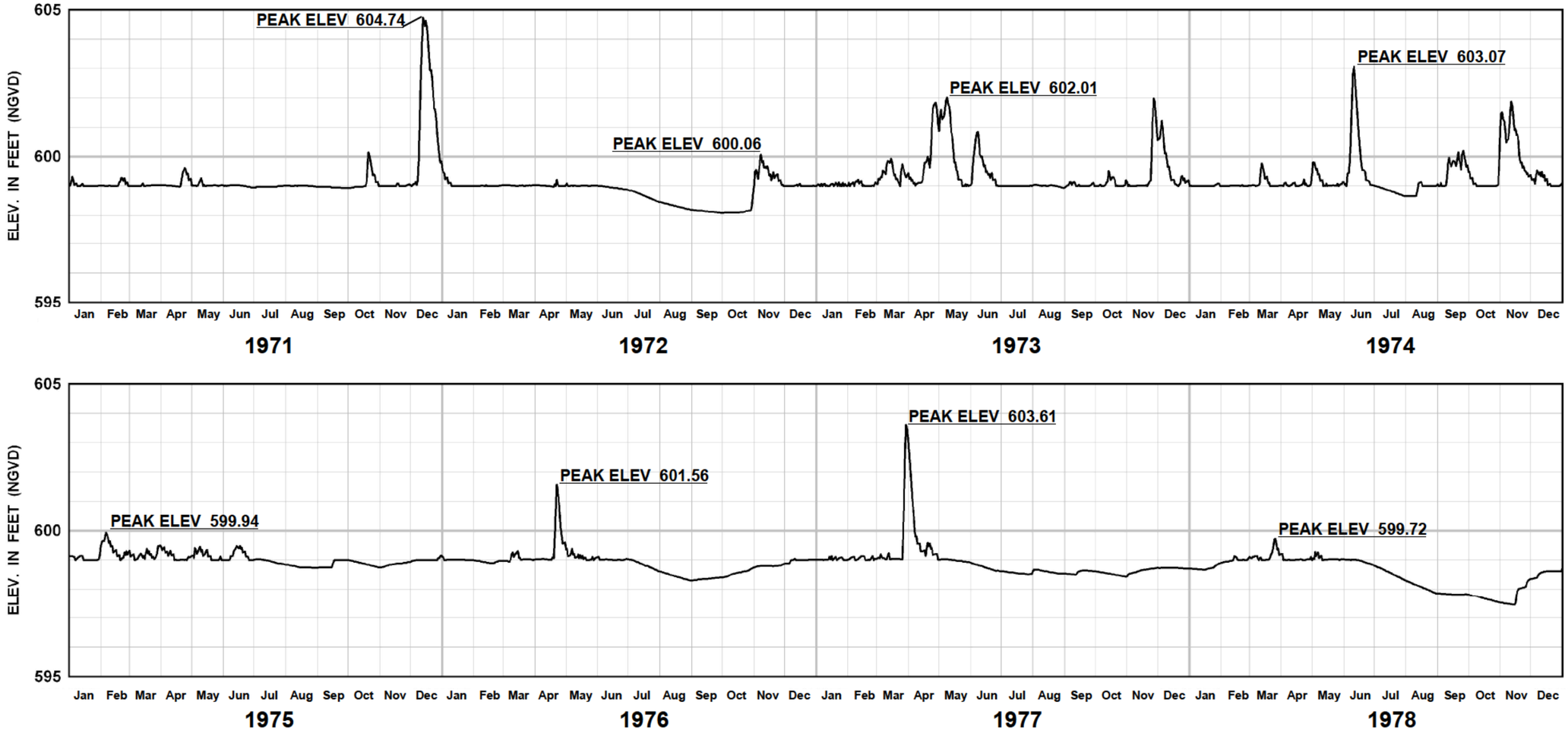
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

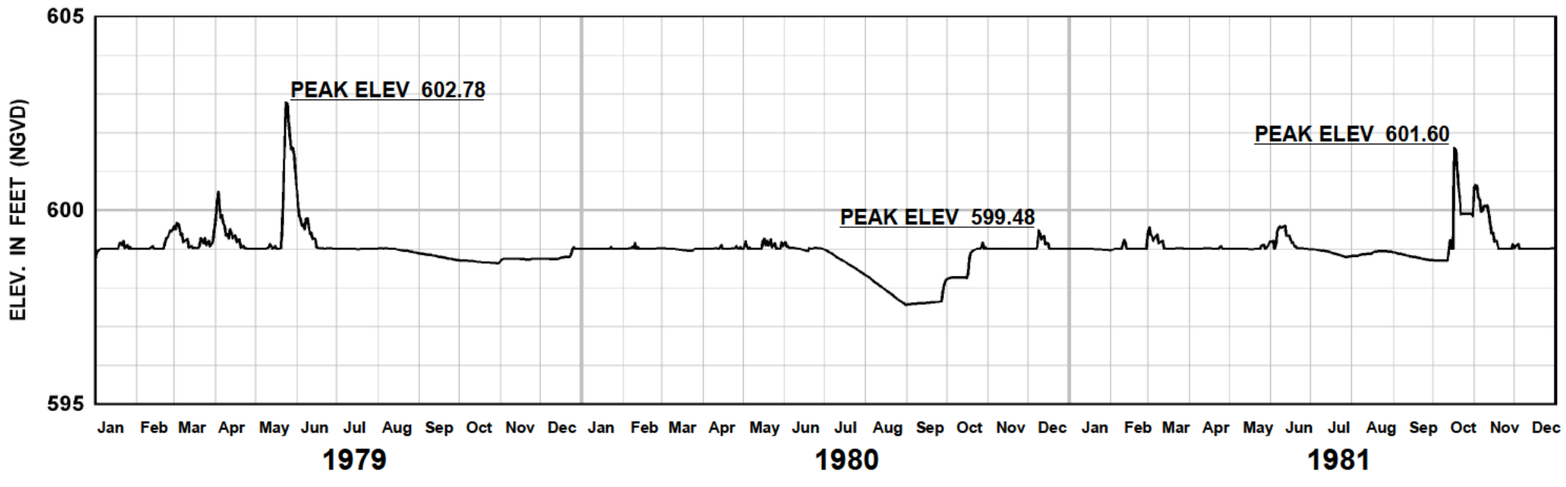
SARDIS LAKE

POOL ELEVATION HYDROGRAPHS

1960 - 1970

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL





NOTE: Pool elevations for years 1938 through 1982 are based on a simulation using the RiverWare computer program. Elevations for years 1983 through 2010 are actual historical values.

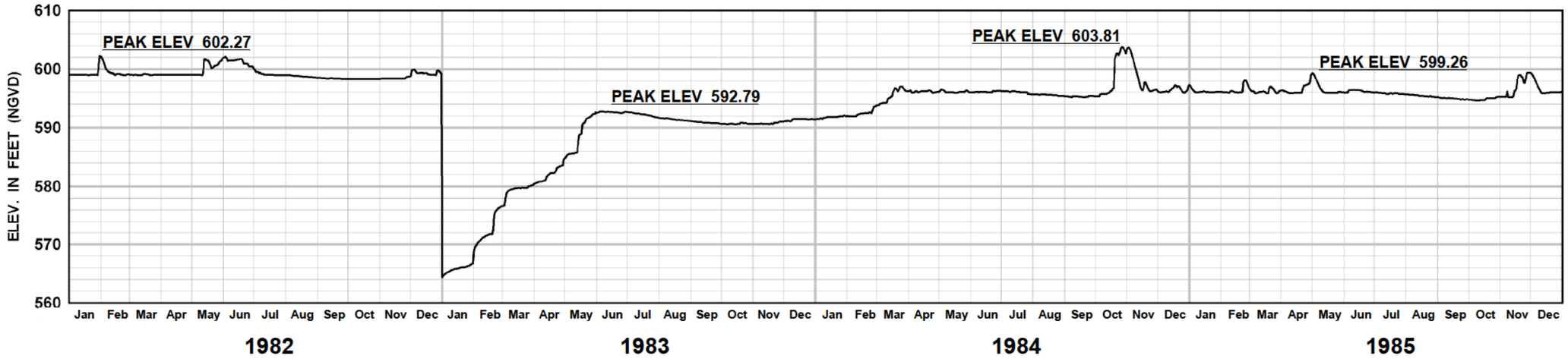
RED RIVER WATERSHED JACKFORK CREEK, OKLAHOMA

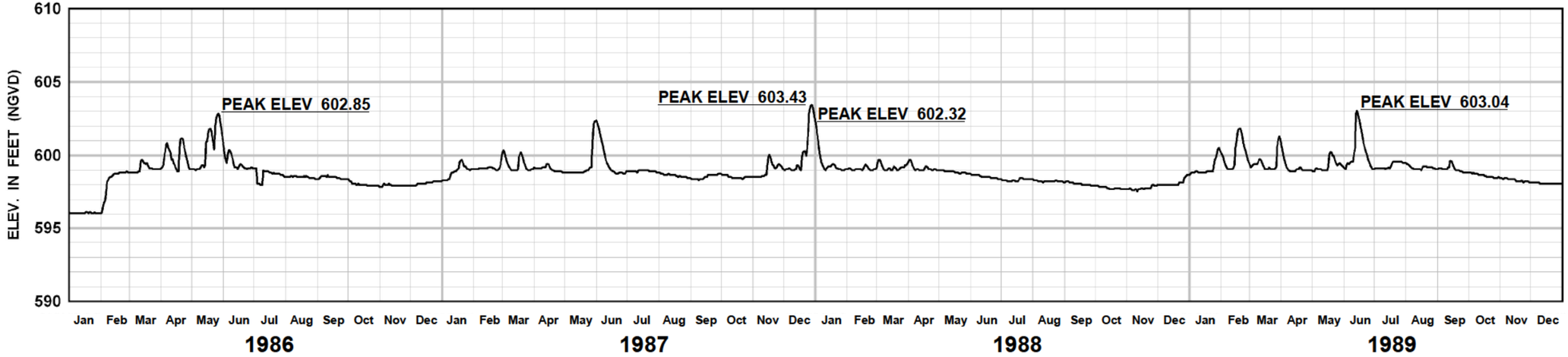
SARDIS LAKE

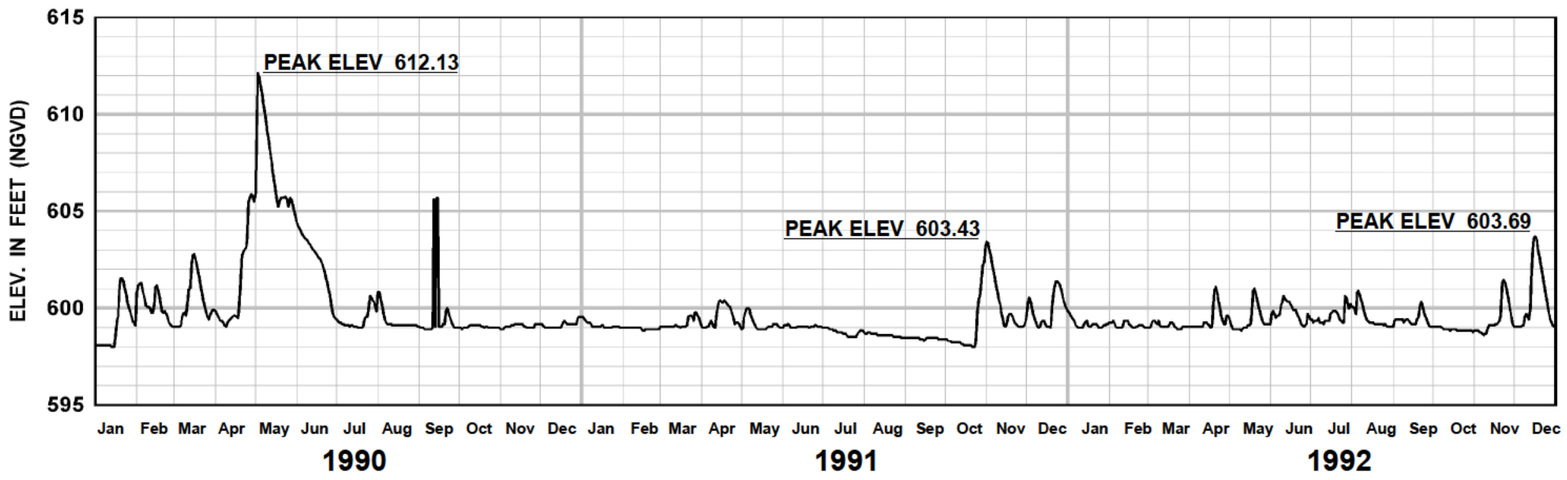
POOL ELEVATION HYDROGRAPHS

1971 - 1981

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL







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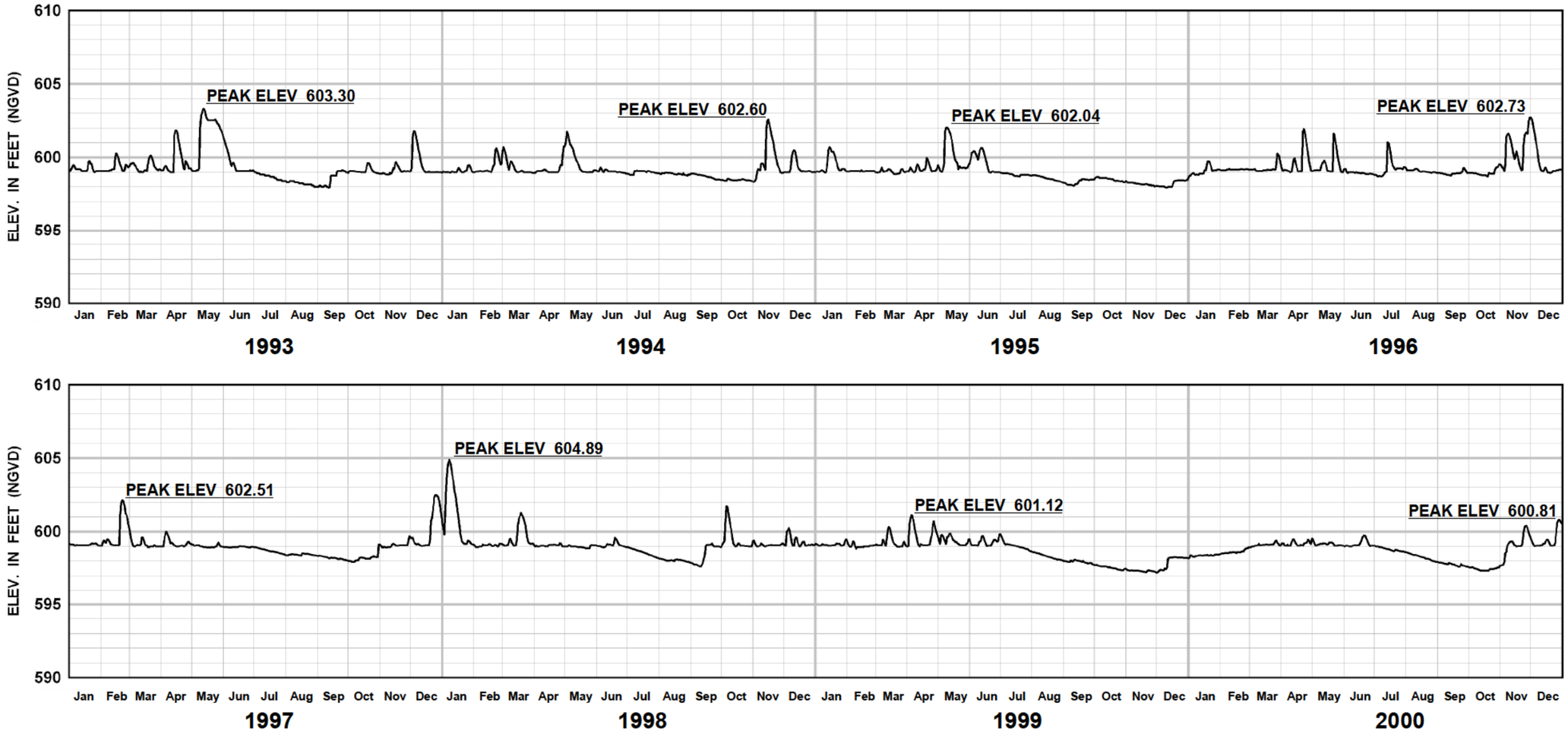
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

POOL ELEVATION HYDROGRAPHS

1982 - 1992

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



NOTE: Pool elevations for years 1938 through 1982 are based on a simulation using the RiverWare computer program. Elevations for years 1983 through 2010 are actual historical values.

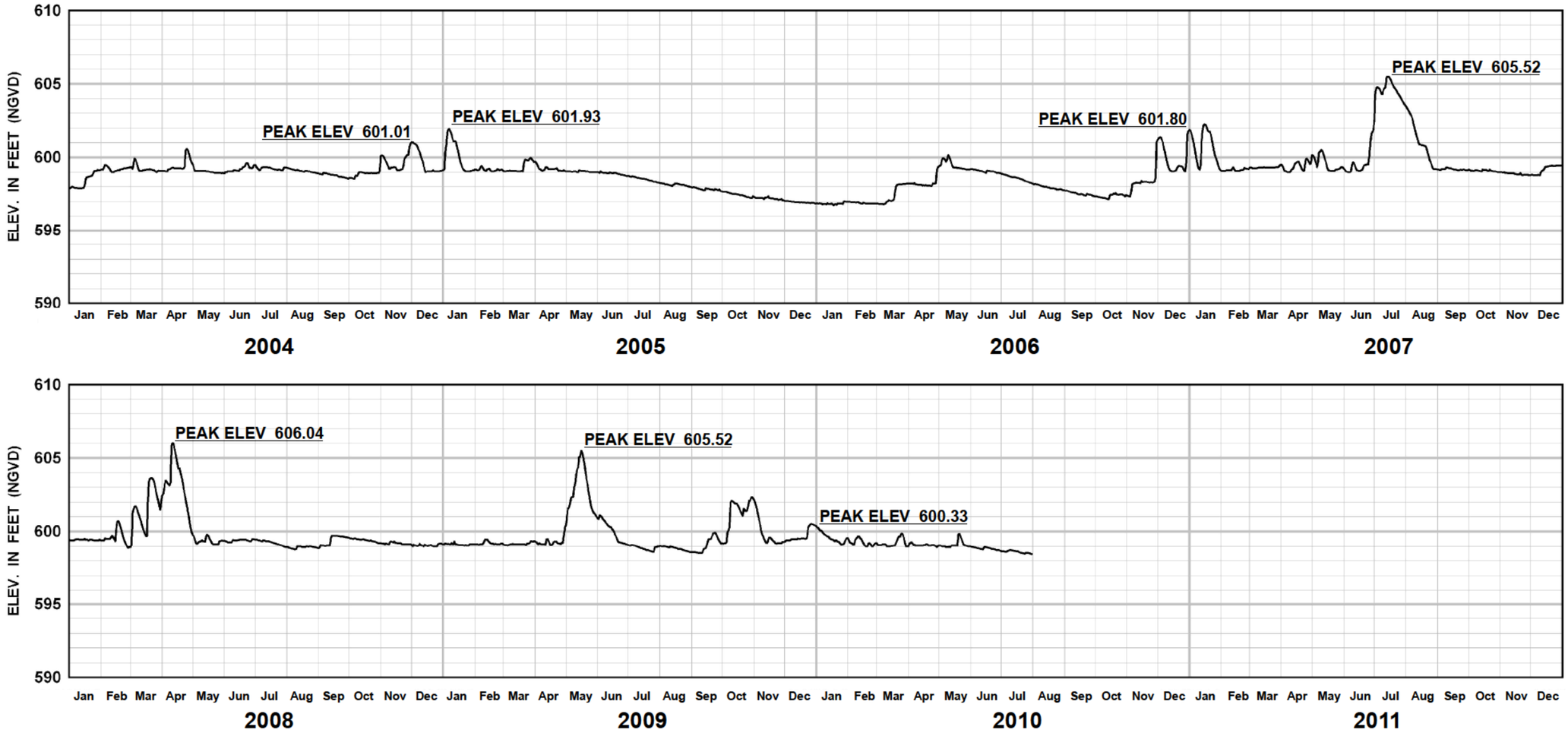
RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

POOL ELEVATION HYDROGRAPHS

1993 - 2003

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL



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RED RIVER WATERSHED — JACKFORK CREEK, OKLAHOMA

SARDIS LAKE

POOL ELEVATION HYDROGRAPHS

2003 - 2010

DEPT. OF THE ARMY, TULSA DISTRICT CORPS OF ENGINEERS 2010
DRAWN: RKB
CHECKED: JRL