

U. S. Geological Survey
Water Resources Division
P. O. Box 138
Rolla, Missouri

Spring River Basin
Low-Water Study
Oct. 6, 7, 1953

By Harry C. Bolon

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Because of the severe drought conditions and the turmoil brought about by it, observations of discharge were made at 46 points within that part of the Spring River basin that lies within the State of Missouri. Three of these measurements were made at regular gaging stations.

Two parties were formed and did all the measuring during the two-day period Oct. 6 and 7. The study was affected somewhat by rain that fell rather scattered over the basin Oct. 3 and 4. This break in the drought caused the flowing streams to increase some in flow but did not cause many dry streams to flow. In spite of this precipitation it was decided to go ahead with the study as it would serve well to determine the general source of the flow in the basin, would determine which streams are intermittent, and would go a long way in evaluating the prime low-water resources within the area.

The Spring River basin, particularly around the Carthage-Joplin area is faced with supply and health problems probably more than any other area within the State, as Spring River, Center Creek, and Shoal Creek are all used heavily for various purposes.

Only three regular gaging stations are maintained in the Missouri portion of the Spring River basin, and the only non-regulated one that existed during the drought period of 1934-36 is the station on Spring River near Waco, Mo. This station was established in April 1924 and the minimum flow on record was 11 cfs July 24, 1934. The flow on Oct. 7, 1953, was measured as 26.6 cfs. Before the rain on Oct. 3 the flow was as low as about 13 cfs at Waco, which indicates that in the Spring River basin the 1953 drought was nearly as severe as the droughts of 1934 and 1936 although in all instances regulation affects the low-water flow and therefore makes such a comparison rather questionable. Mills, pumpage, and other slight regulations make it rather difficult to compare droughts by stream flow in this area.

The flow at various points along the main stems of Spring River, Center Creek, and Shoal Creek are as follows:

SPRING RIVER

<u>Date</u>	<u>Location</u>	<u>cfs</u>	<u>Percent of down- stream station</u>	<u>Temp. F</u>
Oct. 6	Above Verona	Dry	0	
do	Below Spring River Spring near Verona	5.28	19.8	64
do	Above Douger Branch 1 mile north of Verona	4.10	15.4	61
do	At Hwy 166 near Mt. Vernon	5.87	22.1	60
Oct. 7	Hwy 97 near Stotts City	30.0	113	60
do	At Larussell	33.9	127	65
do	Hwy 66 at Carthage	71.3	268	62
do	Hwy 43 near Neek City	*48.3	182	58
do	Gaging station near Waco	*26.6	100	64

* Probably shows affect of upstream rains and/or storage in mill ponds.

CENTER CREEK

<u>Date</u>	<u>Location</u>	<u>cfs</u>	<u>Percent of down- stream station</u>	<u>Temp. F</u>
Oct. 7	Hwy 97 near Stotts City	Dry	0	
do	Above Clarkston Spring	Dry	0	
do	$\frac{1}{2}$ mile above Dry Valley	6.95	31.4	55
do	Hwy 166 at Sarcoxie	10.1	45.7	56
do	Hwy 37 at Reeds, Mo.	9.76	44.1	58
do	Hwy 71 about $\frac{1}{4}$ mile below Jones Creek and near Carthage	14.3	64.7	57
do	Hwy 57 at Carl Junction	22.1	100	60

SHOAL CREEK

Oct. 6	Hwy B $2\frac{1}{2}$ miles east of Fairview	12.4	17.5	60
do	Hwy 60 near Newtonia	28.4	40.0	62
do	Hwy W at Ritchey	33.4	47.0	61
do	Hwy E near Grandy	44.1	62.1	62
do	At Neosho	42.4	59.7	64
do	At Tipton Ford	66.5	93.7	64
do	At gaging station near Joplin	71.0	100	

Below is a list of discharge measurements and observations of no flow made within the basin of Spring River, Center Creek, and Shoal Creek Oct. 6 and 7, 1953, listed in downstream order.

Harry C. Bolon
District Engineer
November 12, 1953

Spring River Basin

Date 1953	Stream	Tributary to	Location	Stage	Flow cfs
ct. 6	Spring River	Neosho River	On east line of NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28, T. 26 N., R. 26 W., at ford 1 mile above Browning Hollow and 2 miles southeast of Verona, Mo.	-	Dry
6	Spring River Spring	Spring River	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28, T. 26 N., R. 26 W., 500 ft from Spring River and 1-3/4 miles southeast of Verona, Mo.	-	5.28
6	Spring River	Neosho River	On west line SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 21, T. 26 N., R. 26 W., at county road $\frac{1}{4}$ mile above Hwy 60, $\frac{1}{2}$ mile above Browning Hollow, and 1 $\frac{1}{2}$ miles southeast of Verona, Mo.	*10.60	5.28
6	do	do	SE $\frac{1}{4}$ sec. 8, T. 26 N., R. 26 W., at county road 500 ft above Douger Branch, and 1 mile north of Verona, Mo.	-	4.10
6	Douger Branch	Spring River	SE $\frac{1}{4}$ sec. 8, T. 26 N., R. 26 W., at Hwy P, $\frac{1}{4}$ mile above mouth and 1 mile north of Verona, Mo.	-	Dry
6	Spring River	Neosho River	SW $\frac{1}{4}$ sec. 2, T. 27 N., R. 27 W., at Hwy 166, about $\frac{1}{2}$ mile above Honey Creek and 3 miles southwest of Mount Vernon, Mo.	*19.07	5.87
6	Honey Creek	Spring River	On east line of NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 35, T. 27 N., R. 25 W., at county highway bridge at north edge of Marionville, Mo.	-	.38
6	Polk Spring	Honey Creek	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 22, T. 27 N., R. 25 W., 500 ft from Honey Creek and 2 $\frac{1}{2}$ miles northwest of Marionville, Mo.	-	1.87
6	Honey Creek	Spring River	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 13, T. 27 N., R. 26 W., at new bridge in Orange 1 $\frac{1}{4}$ miles above Elm Branch and 5 miles north of Aurora, Mo.	*17.67	3.56

Oct. 6	Honey Creek	Spring River	SW $\frac{1}{4}$ sec. 2, T. 27 N., R. 27 W., at Highway 166, about $\frac{1}{2}$ mile above mouth and 3 miles southwest of Mount Vernon, Mo.	-	Dry
6	Truitt Creek	Spring River	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 28 N., R. 27 W., at county road $1\frac{1}{2}$ miles above Williams Creek and $2\frac{1}{2}$ miles northwest of Mt. Vernon, Mo.	e .06	
6	Williams Creek	Truitt Creek	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 30, T. 28 N., R. 26 W., at bridge by State Sanitarium, $\frac{1}{4}$ mile above Frisco R.R., at north edge of Mt. Vernon, Mo.	.46	
7	Stahl Creek	Spring River	At USGS gaging station near Miller, Mo.	-	0
7	Spring River	Neosho River	SW $\frac{1}{4}$ sec. 13, T. 28 N., R. 28 W., at State Highway 97, about 2 miles north of Stotts City, Mo.	*21.54	30.0
7	do	do	SE $\frac{1}{4}$ sec. 11, T. 28 N., R. 28 W., at bridge $\frac{1}{2}$ mile northeast of Larussell, Mo.	3.85	33.9
7	White Oak Creek	Spring River	SW corner sec. 6, T. 28 N., R. 29 W., at State Highway 37 about $1\frac{1}{2}$ miles above mouth and $2\frac{1}{2}$ miles southwest of Avilla, Mo.		Dry
7	Spring River	Neosho River	SE $\frac{1}{4}$ sec. 33, T. 29 N., R. 31 W., at U.S. Highway 71 at north edge of Carthage, Mo.	3.66	71.3
7	do	do	On line between sec. 1 and 2, T. 29 N., R. 33 W., at Highway 43, about 3 miles above North Fork and 3 miles northwest of Neck City, Mo.	*25.42	48.3
7	North Fork Spring River	Spring River	SW corner sec. 13, T. 31 N., R 31 W., at U. S. Highway 71 about $4\frac{1}{2}$ miles south of Lamar, Mo.	*30.69	e .8
7	Coon Creek	North Fork Spring River	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 13, T. 30 N., R. 31 W., at U.S. Highway 71 about 1 mile north of Jasper, Mo.		0
7	Dry Creek	do	On line between sec. 3 and 4, T. 29 N., R. 31 W., at U.S. Highway 71 about $\frac{1}{2}$ mile north of Carytown, Mo.		0

7	North Fork Spring River	Spring River	On line between sec. 1 and 2, T. 29 N., R. 33 W., at State Highway 43 about $\frac{1}{4}$ mile below Little Spring River and 3 miles northwest of Neck City, Mo.		9
7	Spring River	Neosho River	At regular gaging station near Waco, Mo.	1.20	26.6
Center Creek Basin					
7	Center Creek	Spring River	SW corner sec. 22, T. 27 N., R. 28 W., at State Highway 97 about $5\frac{1}{2}$ miles southwest of Stotts City, Mo.		Dry
7	do	do	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 17, T. 27 N., R. 28 W., Just upstream from mouth of Clarkson Spring Branch and 7 miles northwest of Pierce City, Mo.		Dry
7	Clarkson Spring	Center Creek	SE $\frac{1}{4}$ sec. 17, T. 27 N., R. 28 W., 7 miles northwest of Pierce City, Mo.		5.08
7	Center Creek	Spring River	On west line of NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 27 N., R. 29 W., at old ford $\frac{1}{2}$ mile above Dry Valley Branch and 3 miles north of Wentworth, Mo.		6.95
7	Eli Lynn Spring	Center Creek	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 27 N., R. 29 W., 600 feet from Center Creek and 2 $\frac{3}{4}$ miles north of Wentworth, Mo.		.86
7	Dry Valley	Center Creek	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 27 N., R. 29 W., at mouth and 3 miles north of Wentworth, Mo.		Dry
7	Center Creek	Spring River	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 9, T. 27 N., R. 29 W., at U.S. Highway 166 at east edge of Sarcxie, Mo.		10.1
7	do	do	On west line of SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1, T. 27 N., R. 30 W., on State Highway 37, about 2 $\frac{1}{2}$ miles south of Reeds, Mo.	*16.22	9.76
7	Jones Creek	Center Creek	On south line of SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 35, T. 28 N., R. 31 W., at county road $\frac{1}{2}$ mile below Jenkins Creek and 3 miles northwest of Parshley, Mo.		3.68

7	Center Creek	Spring River	On west line of NW $\frac{1}{4}$ sec. 34, T. 28 N., R. 31 W., at U.S. Highway 71 about $\frac{1}{4}$ mile below Jones Creek and 5 miles south of Carthage, Mo.	*21.47	14.3
7	Grove Creek	Center Creek	In extreme SW corner of SE $\frac{1}{4}$ sec. 25, T. 28 N., R. 32 W., at county road $\frac{3}{4}$ mile upstream from mouth and 2 miles north of Scotland, Mo.		4.00
7	Center Creek	Spring River	NE $\frac{1}{4}$ sec. 9, T. 28 N., R. 33 W., at State Highway 57, at Carl Junction, Mo.	*17.75	22.1

Shoal Creek Basin

6	Shoal Creek	Spring River	On north line NW $\frac{1}{4}$ sec. 10, T. 24 N., R. 29 W., on County Highway B about 1 mile south of Pioneer and $2\frac{1}{2}$ miles east of Fairview, Mo.	*19.38	12.4
6	do	do	NW $\frac{1}{4}$ sec. 5, T. 25 N., R. 29 W., at U.S. Highway 60 about $1\frac{1}{2}$ miles above Clear Creek and $3\frac{1}{2}$ miles northeast of Newtonia, Mo.	*17.14	28.4
6	Kelly Creek	Clear Creek	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 31, T. 26 N., R. 27 W., at mouth just above old highway bridge 500 feet above U.S. Highway 60 at southwest edge of Monett, Mo.		Dry
6	Clear Creek	Shoal Creek	SW $\frac{1}{4}$ sec. 31, T. 26 N., R. 27 W., at U.S. Highway 60, about 500 feet below Kelly Creek at southwest edge of Monett, Mo.		Dry
6	do	do	NW $\frac{1}{4}$ sec. 28., T. 26 N., R. 28 W., at new highway bridge at south edge of Pierce City, Mo.	*13.39	.36
6	do	do	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 30, T. 26 N., R. 29 W., about 300 feet above mouth and $2\frac{1}{2}$ miles east of Ritchey, Mo.		7.24
6	Shoal Creek	Spring River	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26, T. 26 N., R. 30 W., at new bridge on County Highway W., 500 feet below old steel bridge, 1,000 feet below mill and dam, and $\frac{1}{4}$ mile southwest of Ritchey, Mo.	*23.60	^a 33.4

6	Shoal Creek	Spring River	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 25, T. 26 N., R. 31 W., *19.77 at County Highway E, $\frac{3}{4}$ mile above Frisco R.R., and 2 miles north of Granby, Mo.	44.1
6	do	do	SW $\frac{1}{4}$ sec. 7, T. 25 N., R. 31 W., at *16.03 county highway $\frac{1}{2}$ mile northeast of Neosho, Mo.	42.4
6	do	do	On west line of NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15, T. 26 N., R. 32 W., $\frac{1}{2}$ mile below Cedar Creek and at Tipton Ford, Mo.	66.5
6	do	do	At USGS gaging station above Joplin, Mo.	3.58 71.0

* - Distance down to water surface from reference point.

e - Estimated.

a - Probably slightly affected by water being stored in
mill pond during measurement.

O - No flow with pools of water in channel.

Dry - Dry channel. No water in sight.

