
***Lake Thunderbird TMDL Monitoring Plan Implementation:
Sample Year (SY) 2019- May Report***



SY2019 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

May 2019 Monitoring Report

Oklahoma Water Resources Board
Water Quality Programs Division
Monitoring and Assessment Section
3800 N. Classen, Oklahoma City, Oklahoma 73118
405-530-8800

Contact

Sarah Dexter, Project Leader, sarah.dexter@owrb.ok.gov

Jason Murphy, Project Supervisor, jason.murphy@owrb.ok.gov

Lance Phillips, Streams Program Manager, lance.phillips@owrb.ok.gov

Bill Cauthron, Monitoring Coordinator, bill.cauthron@owrb.ok.gov

TABLE OF CONTENTS

Table of Contents..... 3
List of Tables..... 3
List of Figures 3
Summary of May Water Quality Sampling..... 4
Results..... 4

LIST OF TABLES

TABLE 1 FIELD DATA FORM 5
TABLE 2 LABORATORY ANALYSIS SUMMARY 6
TABLE 3 QA/QC DATA 6
TABLE 4 STATION DISCHARGE SUMMARY 6

LIST OF FIGURES

FIGURE 1 MONITORING STATION MAP 4
FIGURE 2 DISCHARGE SUMMARY TG-1 7
FIGURE 3 DISCHARGE SUMMARY TE-1..... 8
FIGURE 4 DISCHARGE SUMMARY WC-1..... 9
FIGURE 5 DISCHARGE SUMMARY URC-2..... 10
FIGURE 6 DISCHARGE SUMMARY UDB-1 11
FIGURE 7 DISCHARGE SUMMARY LT-1..... 12
FIGURE 8 DISCHARGE SUMMARY LRC-1..... 13
FIGURE 9 DISCHARGE SUMMARY JB-1 14
FIGURE 10 DISCHARGE SUMMARY CC-1 15
FIGURE 11 DISCHARGE SUMMARY LDB-1 16
FIGURE 12 MONTHLY HYDROGRAPH TG-1 17
FIGURE 13 MONTHLY HYDROGRAPH TE-1 17
FIGURE 14 MONTHLY HYDROGRAPH WC-1..... 18
FIGURE 15 MONTHLY HYDROGRAPH URC-2 18
FIGURE 16 MONTHLY HYDROGRAPH LRC-1 19
FIGURE 17 MONTHLY HYDROGRAPH LDB-1 19
FIGURE 18 MONTHLY HYDROGRAPH JB-1 20
FIGURE 19 MONTHLY HYDROGRAPH UDB-1 20
FIGURE 20 MAY MESONET DATA..... 21

SUMMARY OF MAY WATER QUALITY SAMPLING

Sampling for May 2019 occurred on the thirteenth and was considered a base flow collection. Water samples and discharge measurements were collected at all ten locations. Mesonet data shows no precipitation occurring on the thirteenth, 0.55 inches of precipitation in the 72 hours prior to sampling, and no precipitation in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of May was 11.22 inches. All water level gauges were operational for the month, with the exception of CC-1 as a result of road construction activity, and LT-1 due to equipment malfunction.

RESULTS

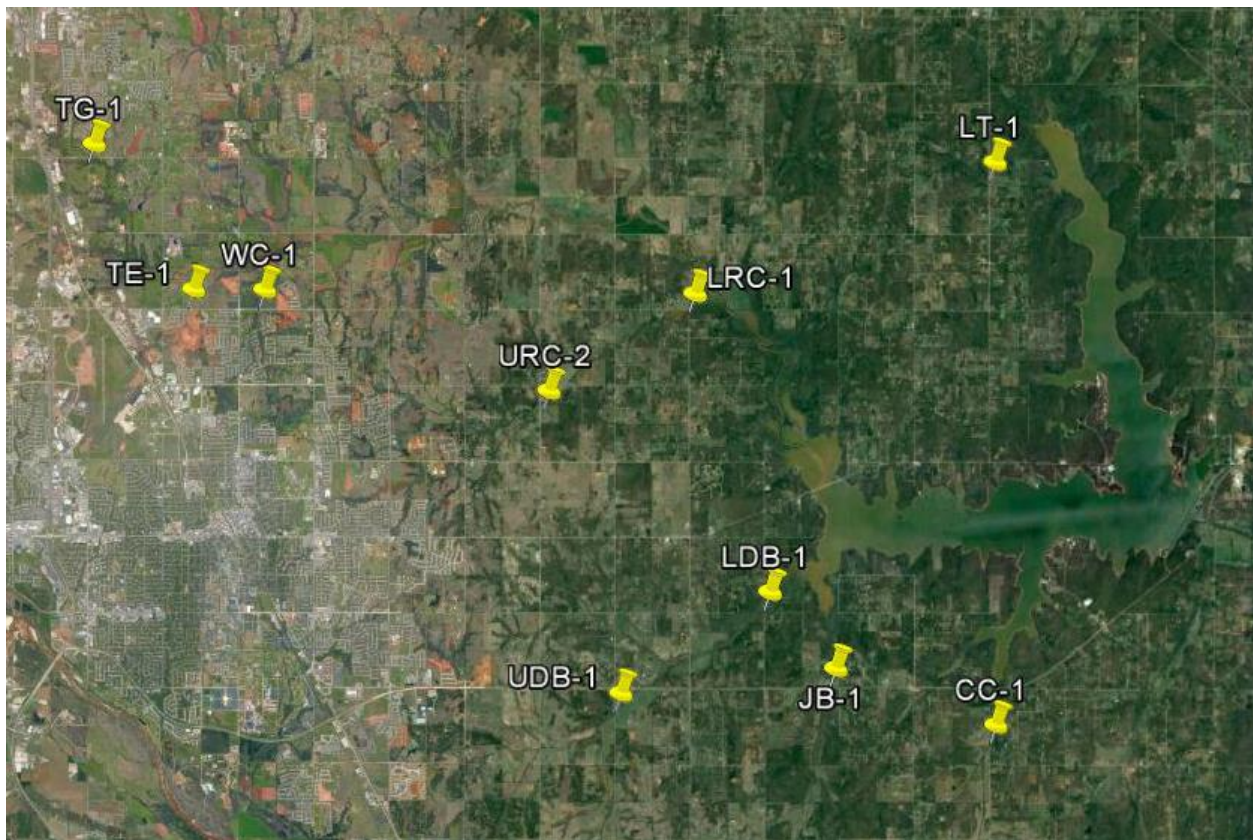


Figure 1 Monitoring Station Map

Monitoring Location ID	Monitoring Location Name	Date	Time	Field Crew	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/l)	pH	Specific Conductance (mS/cm)	Turbidity (NTU)	Notes
CC-1	Clear Creek	05-13-2019	11:00	SD	16.79	9.63	7.66	674	12	
JB-1	Jim Blue Creek	05-13-2019	12:15	SD	16.08	8.87	7.58	637	14	visible flow, back to original base conditions
LDB-1	Lower Dave Blue Creek	05-13-2019	12:40	SD	16.44	8.37	7.77	776	11	higher stage, stable conditions
LRC-1	Lower Rock Creek	05-13-2019	15:55	SD	19.76	9.09	7.68	675	22	
LT-1	Lake Laterals	05-13-2019	14:30	SD	19.25	7.22	7.39	343	18	
TE-1	Little River Tributary	05-14-2019	11:55	SD	21.86	9.74	7.60	669	58	
TG-1	Little River Tributary	05-14-2019	13:10	SD	21.13	7.99	7.43	987	18	
UDB-1	Upper Dave Blue Creek	05-13-2019	10:00	SD	14.80	9.56	7.44	876	12	flow borderline base/above conditions
URC-2	Upper Rock Creek	05-13-2019	16:45	SD	18.57	8.78	7.52	613	21	
WC-1	Woodcrest Creek	05-14-2019	10:50	SD	17.87	7.39	7.53	1054	11	

Table 1 Field Data Form

Monitoring Location ID	Monitoring Location Name	Nitrate and Nitrite (mg/l)	Kjeldahl Nitrogen (mg/l)	Phosphorus (mg/l)	Total Suspended Solids (mg/l)
CC-1	Clear Creek	0.24	0.28	0.042	<5.0
JB-1	Jim Blue Creek	0.08	0.48	0.051	12.0
LDB-1	Lower Dave Blue Creek	0.21	0.50	0.052	<5.0
LRC-1	Lower Rock Creek	0.16	0.53	0.062	16.0
LT-1	Lake Laterals	0.06	0.77	0.061	6.0
TE-1	Little River Tributary	0.13	0.90	0.087	42.0
TG-1	Little River Tributary	0.56	0.46	0.104	10.0
UDB-1	Upper Dave Blue Creek	0.15	0.35	0.045	10.0
URC-2	Upper Rock Creek	0.17	0.56	0.078	18.0
WC-1	Woodcrest Creek	0.44	0.54	0.089	10.0

Table 2 Laboratory Analysis Summary

Monitoring Location Name	Nitrate and Nitrite (mg/l)	Kjeldahl Nitrogen (mg/l)	Phosphorus (mg/l)	Total Suspended Solids (mg/l)
Field Blank	<0.05	<0.10	<0.010	<5.0
Duplicate	0.23	0.32	0.041	<5.0
Duplicate RPD	4.26%	13.33%	2.41%	0%

Table 3 QA/QC Data

Quality assurance/quality control (QA/QC) of the data includes a field blank and duplicate sample from each collection event, and is qualified by the OWRB. Relative Percent Difference (RPD) of the duplicate sample can be categorized into four levels, where Level 1 likely has no QA issues and Level 4 has major QA issues, and should be used with caution.

Monitoring Location ID	Monitoring Location Name	Discharge (cfs)	Stream Stage (ft)
CC-1	Clear Creek	3.17	N/A
JB-1	Jim Blue Creek	3.52	16.49
LDB-1	Lower Dave Blue Creek	22.97	19.49
LRC-1	Lower Rock Creek	11.03	19.90
LT-1	Lake Laterals	0.65	4.58
TE-1	Little River Tributary	0.30	11.69
TG-1	Little River Tributary	3.58	9.34
UDB-1	Upper Dave Blue Creek	13.44	18.08
URC-2	Upper Rock Creek	8.01	13.24
WC-1	Woodcrest Creek	0.87	8.39

Table 4 Station Discharge Summary

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name TG051419.WAD
Start Date and Time 2019/05/14 10:18:13

Site Details

Site Name TG051419
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.5%
Velocity	0.6%	3.5%
Width	0.1%	0.1%
Method	1.9%	-
# Stations	2.3%	-
Overall	3.2%	3.9%

Summary

Averaging Int. 40 # Stations 22
Start Edge LEW Total Width 21.000
Mean SNR 27.6 dB Total Area 18.900
Mean Temp 68.17 °F Mean Depth 0.900
Disch. Equation Mid-Section Mean Velocity 0.1896
Total Discharge 3.5832

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue May 14 10:43:39 CDT 2019	21.000	9.340		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:18	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	10:18	1.00	0.6	0.600	0.6	0.240	0.1247	1.00	0.1247	0.600	0.0748	2.1
2	10:19	2.00	0.6	0.600	0.6	0.240	0.1467	1.00	0.1467	0.600	0.0880	2.5
3	10:20	3.00	0.6	0.800	0.6	0.320	0.1348	1.00	0.1348	0.800	0.1079	3.0
4	10:21	4.00	0.6	1.200	0.6	0.480	0.2024	1.00	0.2024	1.200	0.2429	6.8
5	10:22	5.00	0.6	1.100	0.6	0.440	0.2060	1.00	0.2060	1.100	0.2267	6.3
6	10:23	6.00	0.6	1.000	0.6	0.400	0.3025	1.00	0.3025	1.000	0.3025	8.4
7	10:24	7.00	0.6	1.000	0.6	0.400	0.2835	1.00	0.2835	1.000	0.2835	7.9
8	10:25	8.00	0.6	1.000	0.6	0.400	0.2785	1.00	0.2785	1.000	0.2785	7.8
9	10:25	9.00	0.6	1.100	0.6	0.440	0.2651	1.00	0.2651	1.100	0.2916	8.1
10	10:26	10.00	0.6	1.100	0.6	0.440	0.2612	1.00	0.2612	1.100	0.2873	8.0
11	10:27	11.00	0.6	1.100	0.6	0.440	0.1834	1.00	0.1834	1.100	0.2018	5.6
12	10:28	12.00	0.6	1.100	0.6	0.440	0.2339	1.00	0.2339	1.100	0.2573	7.2
13	10:29	13.00	0.6	1.000	0.6	0.400	0.2083	1.00	0.2083	1.000	0.2083	5.8
14	10:30	14.00	0.6	1.000	0.6	0.400	0.1929	1.00	0.1929	1.000	0.1929	5.4
15	10:31	15.00	0.6	1.000	0.6	0.400	0.1247	1.00	0.1247	1.000	0.1247	3.5
16	10:32	16.00	0.6	0.900	0.6	0.360	0.0906	1.00	0.0906	0.900	0.0815	2.3
17	10:33	17.00	0.6	0.900	0.6	0.360	0.0971	1.00	0.0971	0.900	0.0874	2.4
18	10:34	18.00	0.6	0.900	0.6	0.360	0.1673	1.00	0.1673	0.900	0.1506	4.2
19	10:34	19.00	0.6	0.800	0.6	0.320	0.1168	1.00	0.1168	0.800	0.0934	2.6
20	10:36	20.00	0.6	0.700	0.6	0.280	0.0023	1.00	0.0023	0.700	0.0016	0.0
21	10:36	21.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 2 Discharge Summary TG-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name TE051419.WAD
Start Date and Time 2019/05/14 09:27:42

Site Details

Site Name TE051419
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	2.4%
Velocity	1.6%	8.3%
Width	0.1%	0.1%
Method	2.2%	-
# Stations	2.3%	-
Overall	3.7%	8.7%

Summary

Averaging Int. 40 # Stations 22
Start Edge LEW Total Width 14.000
Mean SNR 37.7 dB Total Area 10.974
Mean Temp 70.54 °F Mean Depth 0.784
Disch. Equation Mid-Section Mean Velocity 0.0273
Total Discharge 0.3001

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue May 14 09:27:01 CDT 2019	1.000	11.690		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	09:27	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
<i>1</i>	<i>09:29</i>	<i>3.50</i>	<i>0.6</i>	<i>0.300</i>	<i>0.6</i>	<i>0.120</i>	<i>-0.0292</i>	<i>1.00</i>	<i>-0.0292</i>	<i>0.600</i>	<i>-0.0175</i>	<i>-5.8</i>
2	09:33	4.00	0.6	0.900	0.6	0.360	0.0292	1.00	0.0292	0.450	0.0131	4.4
3	09:34	4.50	0.6	1.300	0.6	0.520	0.0371	1.00	0.0371	0.650	0.0241	8.0
4	09:35	5.00	0.6	1.300	0.6	0.520	0.0620	1.00	0.0620	0.650	0.0403	13.4
5	09:36	5.50	0.6	1.300	0.6	0.520	0.0433	1.00	0.0433	0.650	0.0281	9.4
6	09:37	6.00	0.6	1.300	0.6	0.520	0.0469	1.00	0.0469	0.650	0.0305	10.2
7	09:38	6.50	0.6	1.300	0.6	0.520	0.0387	1.00	0.0387	0.650	0.0252	8.4
8	09:39	7.00	0.6	1.500	0.6	0.600	0.0138	1.00	0.0138	0.750	0.0103	3.4
9	09:40	7.50	0.6	1.500	0.6	0.600	0.0161	1.00	0.0161	0.750	0.0121	4.0
10	09:42	8.00	0.6	1.500	0.6	0.600	0.0098	1.00	0.0098	0.750	0.0074	2.5
11	09:43	8.50	0.6	1.500	0.6	0.600	0.0253	1.00	0.0253	0.750	0.0189	6.3
<i>12</i>	<i>09:44</i>	<i>9.00</i>	<i>0.6</i>	<i>1.200</i>	<i>0.6</i>	<i>0.480</i>	<i>0.0207</i>	<i>1.00</i>	<i>0.0207</i>	<i>0.600</i>	<i>0.0124</i>	<i>4.1</i>
13	09:45	9.50	0.6	0.900	0.6	0.360	0.0194	1.00	0.0194	0.450	0.0087	2.9
14	09:46	10.00	0.6	0.900	0.6	0.360	0.0079	1.00	0.0079	0.450	0.0035	1.2
15	09:47	10.50	0.6	0.900	0.6	0.360	0.0135	1.00	0.0135	0.450	0.0061	2.0
16	09:48	11.00	0.6	0.800	0.6	0.320	0.0098	1.00	0.0098	0.400	0.0039	1.3
17	09:49	11.50	0.6	0.700	0.6	0.280	0.0262	1.00	0.0262	0.350	0.0092	3.1
18	09:50	12.00	0.6	0.600	0.6	0.240	0.0650	1.00	0.0650	0.300	0.0195	6.5
19	09:51	12.50	0.6	0.600	0.6	0.240	0.0633	1.00	0.0633	0.300	0.0190	6.3
20	09:52	13.00	0.6	0.500	0.6	0.200	0.0673	1.00	0.0673	0.375	0.0252	8.4
21	09:52	14.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 3 Discharge Summary TE-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name WC051419.WAD
Start Date and Time 2019/05/14 08:28:53

Site Details

Site Name WC051419
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.8%	1.8%
Velocity	3.2%	6.4%
Width	0.3%	0.3%
Method	4.0%	-
# Stations	3.3%	-
Overall	6.3%	6.8%

Summary

Averaging Int. 40 # Stations 15
Start Edge LEW Total Width 7.000
Mean SNR 36.9 dB Total Area 5.050
Mean Temp 63.35 °F Mean Depth 0.721
Disch. Equation Mid-Section Mean Velocity 0.1723
Total Discharge 0.8701

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue May 14 08:38:41 CDT 2019	4.000	8.390		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	08:28	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	08:28	0.50	0.6	0.700	0.6	0.280	-0.0522	1.00	-0.0522	0.350	-0.0183	-2.1
2	08:30	1.00	0.6	0.800	0.6	0.320	-0.1306	1.00	-0.1306	0.400	-0.0522	-6.0
3	08:31	1.50	0.6	0.800	0.6	0.320	-0.1407	1.00	-0.1407	0.400	-0.0563	-6.5
4	08:32	2.00	0.6	0.800	0.6	0.320	-0.1010	1.00	-0.1010	0.400	-0.0404	-4.6
5	08:33	2.50	0.6	0.800	0.6	0.320	-0.0610	1.00	-0.0610	0.400	-0.0244	-2.8
6	08:34	3.00	0.6	0.800	0.6	0.320	-0.0052	1.00	-0.0052	0.400	-0.0021	-0.2
7	08:35	3.50	0.6	0.700	0.6	0.280	0.0138	1.00	0.0138	0.350	0.0048	0.6
8	08:38	4.00	0.6	0.700	0.6	0.280	0.1824	1.00	0.1824	0.350	0.0639	7.3
9	08:39	4.50	0.6	0.800	0.6	0.320	0.3120	1.00	0.3120	0.400	0.1248	14.3
10	08:40	5.00	0.6	0.800	0.6	0.320	0.5374	1.00	0.5374	0.400	0.2149	24.7
11	08:41	5.50	0.6	0.800	0.6	0.320	0.5256	1.00	0.5256	0.400	0.2102	24.2
12	08:46	6.00	0.6	0.800	0.6	0.320	0.5666	1.00	0.5666	0.400	0.2266	26.0
13	08:47	6.50	0.6	0.800	0.6	0.320	0.5466	1.00	0.5466	0.400	0.2186	25.1
14	08:47	7.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 4 Discharge Summary WC-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name URC0513.WAD
Start Date and Time 2019/05/13 14:17:00

Site Details

Site Name URC051319
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.0%
Velocity	0.5%	1.7%
Width	0.1%	0.1%
Method	1.6%	-
# Stations	1.8%	-
Overall	2.6%	2.2%

Summary

Averaging Int.	40	# Stations	29
Start Edge	LEW	Total Width	16.000
Mean SNR	35.4 dB	Total Area	12.075
Mean Temp	64.65 °F	Mean Depth	0.755
Disch. Equation	Mid-Section	Mean Velocity	0.6636
		Total Discharge	8.0129

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon May 13 14:22:51 CDT 2019	3.500	13.240		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:16	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
<i>1</i>	<i>14:16</i>	<i>1.00</i>	<i>0.6</i>	<i>0.300</i>	<i>0.6</i>	<i>0.120</i>	<i>0.1293</i>	<i>1.00</i>	<i>0.1293</i>	<i>0.300</i>	<i>0.0388</i>	<i>0.5</i>
2	14:19	2.00	0.6	0.900	0.6	0.360	0.5531	1.00	0.5531	0.675	0.3733	4.7
3	14:21	2.50	0.6	1.000	0.6	0.400	0.4085	1.00	0.4085	0.500	0.2042	2.5
4	14:21	3.00	0.6	1.000	0.6	0.400	0.4078	1.00	0.4078	0.500	0.2039	2.5
5	14:23	3.50	0.6	1.000	0.6	0.400	0.3675	1.00	0.3675	0.500	0.1837	2.3
6	14:24	4.00	0.6	1.000	0.6	0.400	0.5066	1.00	0.5066	0.500	0.2533	3.2
7	14:25	4.50	0.6	1.200	0.6	0.480	0.4806	1.00	0.4806	0.600	0.2884	3.6
8	14:26	5.00	0.6	1.200	0.6	0.480	0.6627	1.00	0.6627	0.600	0.3977	5.0
9	14:27	5.50	0.6	1.200	0.6	0.480	0.7244	1.00	0.7244	0.600	0.4347	5.4
10	14:27	6.00	0.6	1.200	0.6	0.480	0.7917	1.00	0.7917	0.600	0.4751	5.9
11	14:28	6.50	0.6	1.200	0.6	0.480	0.7359	1.00	0.7359	0.600	0.4416	5.5
12	14:29	7.00	0.6	1.100	0.6	0.440	0.7772	1.00	0.7772	0.550	0.4275	5.3
13	14:30	7.50	0.6	1.100	0.6	0.440	0.8914	1.00	0.8914	0.550	0.4903	6.1
14	14:31	8.00	0.6	1.100	0.6	0.440	0.9311	1.00	0.9311	0.550	0.5121	6.4
15	14:32	8.50	0.6	1.000	0.6	0.400	0.8852	1.00	0.8852	0.500	0.4426	5.5
16	14:33	9.00	0.6	0.900	0.6	0.360	0.8612	1.00	0.8612	0.450	0.3875	4.8
17	14:34	9.50	0.6	0.900	0.6	0.360	0.7733	1.00	0.7733	0.450	0.3480	4.3
18	14:35	10.00	0.6	0.900	0.6	0.360	0.7756	1.00	0.7756	0.450	0.3490	4.4
19	14:36	10.50	0.6	0.800	0.6	0.320	0.8035	1.00	0.8035	0.400	0.3213	4.0
20	14:37	11.00	0.6	0.700	0.6	0.280	0.7526	1.00	0.7526	0.350	0.2635	3.3
21	14:38	11.50	0.6	0.700	0.6	0.280	0.7917	1.00	0.7917	0.350	0.2771	3.5
22	14:39	12.00	0.6	0.600	0.6	0.240	0.7894	1.00	0.7894	0.300	0.2368	3.0
23	14:40	12.50	0.6	0.400	0.6	0.160	0.7467	1.00	0.7467	0.200	0.1493	1.9
24	14:41	13.00	0.6	0.400	0.6	0.160	0.7208	1.00	0.7208	0.200	0.1441	1.8
25	14:42	13.50	0.6	0.400	0.6	0.160	0.6732	1.00	0.6732	0.200	0.1346	1.7
26	14:44	14.00	0.6	0.400	0.6	0.160	0.5791	1.00	0.5791	0.300	0.1737	2.2
<i>27</i>	<i>14:46</i>	<i>15.00</i>	<i>0.6</i>	<i>0.300</i>	<i>0.6</i>	<i>0.120</i>	<i>0.2024</i>	<i>1.00</i>	<i>0.2024</i>	<i>0.300</i>	<i>0.0607</i>	<i>0.8</i>
28	14:46	16.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 5 Discharge Summary URC-2

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name UDB0513.WAD
Start Date and Time 2019/05/13 07:33:04

Site Details

Site Name UDB051319
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft^2
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	2.9%
Velocity	0.6%	3.5%
Width	0.1%	0.1%
Method	1.5%	-
# Stations	1.6%	-
Overall	2.5%	4.7%

Summary

Averaging Int. 40 # Stations 32
Start Edge LEW Total Width 16.000
Mean SNR 31.3 dB Total Area 13.099
Mean Temp 57.92 °F Mean Depth 0.819
Disch. Equation Mid-Section Mean Velocity 1.0260
Total Discharge 13.4395

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon May 13 07:43:13 CDT 2019	4.000	18.080		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	07:33	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
<i>1</i>	<i>07:33</i>	<i>0.50</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>0.3720</i>	<i>1.00</i>	<i>0.3720</i>	<i>0.400</i>	<i>0.1488</i>	<i>1.1</i>
2	07:34	1.00	0.6	0.800	0.6	0.320	0.1106	1.00	0.1106	0.400	0.0442	0.3
3	07:37	1.50	0.6	0.800	0.6	0.320	1.3120	1.00	1.3120	0.400	0.5247	3.9
4	07:38	2.00	0.6	0.900	0.6	0.360	1.4101	1.00	1.4101	0.450	0.6345	4.7
5	07:39	2.50	0.6	0.800	0.6	0.320	1.1142	1.00	1.1142	0.400	0.4456	3.3
6	07:40	3.00	0.6	0.800	0.6	0.320	1.4373	1.00	1.4373	0.400	0.5748	4.3
7	07:41	3.50	0.6	0.700	0.6	0.280	0.9491	1.00	0.9491	0.350	0.3323	2.5
8	07:44	4.00	0.6	0.700	0.6	0.280	0.8891	1.00	0.8891	0.350	0.3112	2.3
<i>9</i>	<i>07:47</i>	<i>4.50</i>	<i>0.6</i>	<i>1.200</i>	<i>0.6</i>	<i>0.480</i>	<i>1.1631</i>	<i>1.00</i>	<i>1.1631</i>	<i>0.600</i>	<i>0.6979</i>	<i>5.2</i>
<i>10</i>	<i>07:48</i>	<i>5.00</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>1.5814</i>	<i>1.00</i>	<i>1.5814</i>	<i>0.400</i>	<i>0.6324</i>	<i>4.7</i>
<i>11</i>	<i>07:49</i>	<i>5.50</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>1.5659</i>	<i>1.00</i>	<i>1.5659</i>	<i>0.400</i>	<i>0.6263</i>	<i>4.7</i>
12	07:50	6.00	0.6	1.000	0.6	0.400	1.3340	1.00	1.3340	0.500	0.6670	5.0
13	07:52	6.50	0.6	1.300	0.6	0.520	1.2822	1.00	1.2822	0.650	0.8333	6.2
14	07:53	7.00	0.6	1.000	0.6	0.400	1.3848	1.00	1.3848	0.500	0.6924	5.2
15	07:54	7.50	0.6	1.000	0.6	0.400	1.5217	1.00	1.5217	0.500	0.7608	5.7
16	07:55	8.00	0.6	1.000	0.6	0.400	1.5098	1.00	1.5098	0.500	0.7549	5.6
17	07:56	8.50	0.6	1.000	0.6	0.400	1.3117	1.00	1.3117	0.500	0.6558	4.9
18	07:57	9.00	0.6	0.900	0.6	0.360	1.2831	1.00	1.2831	0.450	0.5774	4.3
19	07:58	9.50	0.6	0.700	0.6	0.280	1.2559	1.00	1.2559	0.350	0.4396	3.3
20	07:59	10.00	0.6	0.900	0.6	0.360	0.9383	1.00	0.9383	0.450	0.4222	3.1
21	08:00	10.50	0.6	1.000	0.6	0.400	0.7923	1.00	0.7923	0.500	0.3962	2.9
22	08:02	11.00	0.6	0.700	0.6	0.280	0.8009	1.00	0.8009	0.350	0.2804	2.1
23	08:03	11.50	0.6	0.900	0.6	0.360	0.6391	1.00	0.6391	0.450	0.2876	2.1
24	08:04	12.00	0.6	0.900	0.6	0.360	0.8248	1.00	0.8248	0.450	0.3711	2.8
25	08:05	12.50	0.6	1.000	0.6	0.400	0.5945	1.00	0.5945	0.500	0.2972	2.2
26	08:06	13.00	0.6	1.000	0.6	0.400	0.5653	1.00	0.5653	0.500	0.2826	2.1
<i>27</i>	<i>08:07</i>	<i>13.50</i>	<i>0.6</i>	<i>0.900</i>	<i>0.6</i>	<i>0.360</i>	<i>0.5823</i>	<i>1.00</i>	<i>0.5823</i>	<i>0.450</i>	<i>0.2620</i>	<i>1.9</i>
28	08:08	14.00	0.6	0.900	0.6	0.360	0.6837	1.00	0.6837	0.450	0.3077	2.3
29	08:09	14.50	0.6	0.400	0.6	0.160	0.7694	1.00	0.7694	0.200	0.1538	1.1
30	08:10	15.00	0.6	0.400	0.6	0.160	0.0817	1.00	0.0817	0.300	0.0245	0.2
31	08:10	16.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 6 Discharge Summary UDB-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name LT051319.WAD
Start Date and Time 2019/05/13 12:17:59

Site Details

Site Name LT051319
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)
Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	1.1%
Velocity	0.9%	10.0%
Width	0.1%	0.1%
Method	1.9%	-
# Stations	2.2%	-
Overall	3.3%	10.1%

Summary

Averaging Int.	40	# Stations	23
Start Edge	LEW	Total Width	21.000
Mean SNR	33.2 dB	Total Area	6.524
Mean Temp	66.52 °F	Mean Depth	0.311
Disch. Equation	Mid-Section	Mean Velocity	0.0988
		Total Discharge	0.6447

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon May 13 12:15:23 CDT 2019	0.000	4.580		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:17	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:19	2.00	0.6	0.300	0.6	0.120	0.0000	1.00	0.0000	0.600	0.0000	0.0
2	12:20	4.00	0.6	0.300	0.6	0.120	0.0220	1.00	0.0220	0.375	0.0082	1.3
3	12:24	4.50	0.6	0.300	0.6	0.120	0.0446	1.00	0.0446	0.150	0.0067	1.0
4	12:29	5.00	0.6	0.400	0.6	0.160	0.0282	1.00	0.0282	0.200	0.0056	0.9
5	12:32	5.50	0.6	0.500	0.6	0.200	0.1253	1.00	0.1253	0.250	0.0313	4.9
6	12:33	6.00	0.6	0.500	0.6	0.200	0.2277	1.00	0.2277	0.250	0.0569	8.8
7	12:35	6.50	0.6	0.500	0.6	0.200	0.3028	1.00	0.3028	0.250	0.0757	11.7
8	12:36	7.00	0.6	0.500	0.6	0.200	0.1224	1.00	0.1224	0.250	0.0306	4.7
9	12:37	7.50	0.6	0.500	0.6	0.200	0.1788	1.00	0.1788	0.250	0.0447	6.9
10	12:38	8.00	0.6	0.500	0.6	0.200	0.1450	1.00	0.1450	0.250	0.0363	5.6
11	12:39	8.50	0.6	0.500	0.6	0.200	0.2070	1.00	0.2070	0.250	0.0518	8.0
12	12:40	9.00	0.6	0.500	0.6	0.200	0.2241	1.00	0.2241	0.250	0.0560	8.7
13	12:41	9.50	0.6	0.500	0.6	0.200	0.1946	1.00	0.1946	0.250	0.0486	7.5
14	12:42	10.00	0.6	0.500	0.6	0.200	0.1650	1.00	0.1650	0.250	0.0413	6.4
15	12:44	10.50	0.6	0.400	0.6	0.160	0.1421	1.00	0.1421	0.200	0.0284	4.4
16	12:45	11.00	0.6	0.400	0.6	0.160	0.0577	1.00	0.0577	0.200	0.0115	1.8
17	12:47	11.50	0.6	0.400	0.6	0.160	0.0778	1.00	0.0778	0.200	0.0155	2.4
18	12:48	12.00	0.6	0.400	0.6	0.160	0.0833	1.00	0.0833	0.200	0.0167	2.6
19	12:50	12.50	0.6	0.400	0.6	0.160	0.0699	1.00	0.0699	0.200	0.0140	2.2
20	12:51	13.00	0.6	0.400	0.6	0.160	0.0722	1.00	0.0722	0.500	0.0361	5.6
21	12:53	15.00	0.6	0.300	0.6	0.120	0.0240	1.00	0.0240	1.199	0.0287	4.5
22	12:53	21.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 7 Discharge Summary LT-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name LRC0513.WAD
Start Date and Time 2019/05/13 13:23:47

Site Details

Site Name LRC051319
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)
Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	0.5%
Velocity	0.3%	1.7%
Width	0.1%	0.1%
Method	1.6%	-
# Stations	1.9%	-
Overall	2.7%	2.0%

Summary

Averaging Int. 40 # Stations 27
Start Edge LEW Total Width 26.000
Mean SNR 32.2 dB Total Area 44.801
Mean Temp 66.72 °F Mean Depth 1.723
Disch. Equation Mid-Section Mean Velocity 0.2462
Total Discharge 11.0278

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon May 13 13:22:36 CDT 2019	0.000	19.900		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:23	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
<i>1</i>	<i>13:23</i>	<i>1.00</i>	<i>0.6</i>	<i>1.100</i>	<i>0.6</i>	<i>0.440</i>	<i>0.0732</i>	<i>1.00</i>	<i>0.0732</i>	<i>1.100</i>	<i>0.0805</i>	<i>0.7</i>
2	13:25	2.00	0.6	1.600	0.6	0.640	0.2454	1.00	0.2454	1.600	0.3927	3.6
3	13:26	3.00	0.6	1.800	0.6	0.720	0.2543	1.00	0.2543	1.800	0.4576	4.1
4	13:28	4.00	0.6	2.000	0.6	0.800	0.2749	1.00	0.2749	2.000	0.5499	5.0
5	13:29	5.00	0.6	2.000	0.6	0.800	0.2379	1.00	0.2379	2.000	0.4757	4.3
6	13:30	6.00	0.6	2.100	0.6	0.840	0.2405	1.00	0.2405	2.100	0.5050	4.6
7	13:31	7.00	0.6	2.200	0.6	0.880	0.2438	1.00	0.2438	2.200	0.5363	4.9
8	13:32	8.00	0.6	2.200	0.6	0.880	0.2405	1.00	0.2405	2.200	0.5291	4.8
9	13:34	9.00	0.6	2.200	0.6	0.880	0.2500	1.00	0.2500	2.200	0.5500	5.0
10	13:35	10.00	0.6	2.200	0.6	0.880	0.2418	1.00	0.2418	2.200	0.5320	4.8
11	13:35	11.00	0.6	2.200	0.6	0.880	0.2549	1.00	0.2549	2.200	0.5609	5.1
12	13:37	12.00	0.6	2.300	0.6	0.920	0.2621	1.00	0.2621	2.300	0.6029	5.5
13	13:38	13.00	0.6	2.200	0.6	0.880	0.2536	1.00	0.2536	2.200	0.5580	5.1
14	13:39	14.00	0.6	2.200	0.6	0.880	0.2379	1.00	0.2379	2.200	0.5233	4.7
15	13:40	15.00	0.6	2.100	0.6	0.840	0.2451	1.00	0.2451	2.100	0.5147	4.7
16	13:41	16.00	0.6	2.100	0.6	0.840	0.2717	1.00	0.2717	2.100	0.5705	5.2
17	13:42	17.00	0.6	2.000	0.6	0.800	0.2474	1.00	0.2474	2.000	0.4948	4.5
18	13:45	18.00	0.6	1.900	0.6	0.760	0.2487	1.00	0.2487	1.900	0.4725	4.3
19	13:46	19.00	0.6	1.700	0.6	0.680	0.2575	1.00	0.2575	1.700	0.4379	4.0
20	13:48	20.00	0.6	1.600	0.6	0.640	0.2585	1.00	0.2585	1.600	0.4137	3.8
21	13:49	21.00	0.6	1.500	0.6	0.600	0.2411	1.00	0.2411	1.500	0.3617	3.3
22	13:50	22.00	0.6	1.300	0.6	0.520	0.2579	1.00	0.2579	1.300	0.3352	3.0
23	13:51	23.00	0.6	1.000	0.6	0.400	0.2674	1.00	0.2674	1.000	0.2674	2.4
24	13:52	24.00	0.6	0.700	0.6	0.280	0.2848	1.00	0.2848	0.700	0.1994	1.8
25	13:53	25.00	0.6	0.600	0.6	0.240	0.1772	1.00	0.1772	0.600	0.1063	1.0
26	13:53	26.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 8 Discharge Summary LRC-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information

File Name JB051319.WAD
Start Date and Time 2019/05/13 09:39:05

Site Details

Site Name JB051319
Operator(s) ZMM

System Information

Sensor Type FlowTracker
Serial # P4713
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	2.5%
Velocity	0.8%	14.8%
Width	0.1%	0.1%
Method	2.2%	-
# Stations	2.4%	-
Overall	3.5%	15.0%

Summary

Averaging Int.	40	# Stations	21
Start Edge	LEW	Total Width	10.500
Mean SNR	32.4 dB	Total Area	4.975
Mean Temp	59.84 °F	Mean Depth	0.474
Disch. Equation	Mid-Section	Mean Velocity	0.7072
		Total Discharge	3.5184

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon May 13 09:37:48 CDT 2019	0.000	16.490		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	09:39	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	09:39	0.50	0.6	0.700	0.6	0.280	0.7461	1.00	0.7461	0.350	0.2612	7.4
2	09:41	1.00	0.6	0.600	0.6	0.240	-0.0056	1.00	-0.0056	0.300	-0.0017	0.0
3	09:43	1.50	0.6	0.600	0.6	0.240	0.4547	1.00	0.4547	0.300	0.1364	3.9
4	09:44	2.00	0.6	0.600	0.6	0.240	0.4787	1.00	0.4787	0.300	0.1436	4.1
5	09:45	2.50	0.6	0.600	0.6	0.240	0.4823	1.00	0.4823	0.300	0.1447	4.1
6	09:46	3.00	0.6	0.600	0.6	0.240	0.5568	1.00	0.5568	0.300	0.1670	4.7
7	09:47	3.50	0.6	0.600	0.6	0.240	0.5715	1.00	0.5715	0.300	0.1715	4.9
8	09:48	4.00	0.6	0.500	0.6	0.200	0.9731	1.00	0.9731	0.250	0.2433	6.9
9	09:49	4.50	0.6	0.400	0.6	0.160	0.9682	1.00	0.9682	0.200	0.1936	5.5
10	09:50	5.00	0.6	0.400	0.6	0.160	1.0709	1.00	1.0709	0.200	0.2141	6.1
11	09:51	5.50	0.6	0.500	0.6	0.200	1.4718	1.00	1.4718	0.250	0.3679	10.5
12	09:52	6.00	0.6	0.500	0.6	0.200	1.6191	1.00	1.6191	0.250	0.4048	11.5
13	09:54	6.50	0.6	0.700	0.6	0.280	-0.0184	1.00	-0.0184	0.350	-0.0064	-0.2
14	09:56	7.00	0.6	0.600	0.6	0.240	1.5197	1.00	1.5197	0.300	0.4560	13.0
15	09:57	7.50	0.6	0.500	0.6	0.200	1.4583	1.00	1.4583	0.250	0.3646	10.4
16	09:58	8.00	0.6	0.400	0.6	0.160	1.2149	1.00	1.2149	0.200	0.2429	6.9
17	10:00	8.50	0.6	0.400	0.6	0.160	0.0315	1.00	0.0315	0.200	0.0063	0.2
18	10:02	9.00	0.6	0.300	0.6	0.120	0.0272	1.00	0.0272	0.150	0.0041	0.1
19	10:02	9.50	0.6	0.300	0.6	0.120	0.0197	1.00	0.0197	0.225	0.0044	0.1
20	10:02	10.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 9 Discharge Summary JB-1

Discharge Measurement Summary

Date Generated: Tue May 14 2019

File Information		Site Details	
File Name	CC051319.WAD	Site Name	CC051319
Start Date and Time	2019/05/13 08:40:34	Operator(s)	ZMM

System Information		Units (English Units)		Discharge Uncertainty		
Sensor Type	FlowTracker	Distance	ft	Category	ISO	Stats
Serial #	P4713	Velocity	ft/s	Accuracy	1.0%	1.0%
CPU Firmware Version	3.9	Area	ft^2	Depth	0.3%	1.6%
Software Ver	2.30	Discharge	cfs	Velocity	0.6%	5.1%
Mounting Correction	0.0%			Width	0.1%	0.1%
				Method	1.6%	-
				# Stations	1.9%	-
				Overall	2.7%	5.5%

Summary			
Averaging Int.	40	# Stations	27
Start Edge	LEW	Total Width	14.500
Mean SNR	43.7 dB	Total Area	4.573
Mean Temp	62.20 °F	Mean Depth	0.315
Disch. Equation	Mid-Section	Mean Velocity	0.6922
		Total Discharge	3.1657

Supplemental Data					
#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon May 13 09:19:35 CDT 2019	14.500	12.300		

Measurement Results												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	08:40	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	08:44	1.00	0.6	0.300	0.6	0.120	0.1066	1.00	0.1066	0.225	0.0240	0.8
2	08:45	1.50	0.6	0.300	0.6	0.120	0.7835	1.00	0.7835	0.150	0.1175	3.7
3	08:46	2.00	0.6	0.300	0.6	0.120	0.8297	1.00	0.8297	0.150	0.1244	3.9
4	08:47	2.50	0.6	0.300	0.6	0.120	0.9229	1.00	0.9229	0.150	0.1384	4.4
5	08:48	3.00	0.6	0.300	0.6	0.120	1.1332	1.00	1.1332	0.150	0.1699	5.4
6	08:49	3.50	0.6	0.300	0.6	0.120	1.1083	1.00	1.1083	0.150	0.1662	5.2
7	<i>08:51</i>	<i>4.00</i>	<i>0.6</i>	<i>0.400</i>	<i>0.6</i>	<i>0.160</i>	<i>0.9820</i>	<i>1.00</i>	<i>0.9820</i>	<i>0.200</i>	<i>0.1964</i>	<i>6.2</i>
8	08:55	4.50	0.6	0.300	0.6	0.120	1.1342	1.00	1.1342	0.150	0.1701	5.4
9	<i>08:56</i>	<i>5.00</i>	<i>0.6</i>	<i>0.300</i>	<i>0.6</i>	<i>0.120</i>	<i>1.2441</i>	<i>1.00</i>	<i>1.2441</i>	<i>0.150</i>	<i>0.1865</i>	<i>5.9</i>
10	08:57	5.50	0.6	0.300	0.6	0.120	0.8005	1.00	0.8005	0.150	0.1200	3.8
11	08:58	6.00	0.6	0.300	0.6	0.120	0.8343	1.00	0.8343	0.225	0.1876	5.9
12	09:02	7.00	0.6	0.300	0.6	0.120	0.5866	1.00	0.5866	0.225	0.1319	4.2
13	09:03	7.50	0.6	0.300	0.6	0.120	0.5663	1.00	0.5663	0.150	0.0849	2.7
14	09:05	8.00	0.6	0.300	0.6	0.120	0.7011	1.00	0.7011	0.150	0.1051	3.3
15	09:06	8.50	0.6	0.300	0.6	0.120	0.9065	1.00	0.9065	0.150	0.1359	4.3
16	09:07	9.00	0.6	0.300	0.6	0.120	0.7083	1.00	0.7083	0.150	0.1062	3.4
17	09:08	9.50	0.6	0.300	0.6	0.120	0.5236	1.00	0.5236	0.150	0.0785	2.5
18	09:10	10.00	0.6	0.300	0.6	0.120	0.5358	1.00	0.5358	0.150	0.0803	2.5
19	09:12	10.50	0.6	0.400	0.6	0.160	0.7516	1.00	0.7516	0.200	0.1503	4.7
20	09:13	11.00	0.6	0.400	0.6	0.160	0.6913	1.00	0.6913	0.200	0.1382	4.4
21	<i>09:14</i>	<i>11.50</i>	<i>0.6</i>	<i>0.400</i>	<i>0.6</i>	<i>0.160</i>	<i>0.0436</i>	<i>1.00</i>	<i>0.0436</i>	<i>0.200</i>	<i>0.0087</i>	<i>0.3</i>
22	09:15	12.00	0.6	0.400	0.6	0.160	0.7064	1.00	0.7064	0.200	0.1412	4.5
23	09:16	12.50	0.6	0.400	0.6	0.160	0.6975	1.00	0.6975	0.200	0.1395	4.4
24	09:17	13.00	0.6	0.400	0.6	0.160	0.4934	1.00	0.4934	0.300	0.1480	4.7
25	09:18	14.00	0.6	0.400	0.6	0.160	0.3865	1.00	0.3865	0.300	0.1159	3.7
26	09:18	14.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Figure 10 Discharge Summary CC-1

Discharge Measurement Summary

Date Measured: Monday, May 13, 2019

Site Information		Measurement Information	
Site Name	LDB-1	Party	scd zmm
Station Number		Boat/Motor	
Location		Meas. Number	

System Information		System Setup		Units	
System Type	RS-M9	Transducer Depth (ft)	0.12	Distance	ft
Serial Number	6534	Screening Distance (ft)	0.00	Velocity	ft/s
Firmware Version	4.10	Salinity (ppt)	0.0	Area	ft ²
Software Version	4.1	Magnetic Declination (deg)	0.0	Discharge	cfs
				Temperature	degF

Discharge Calculation Settings				Discharge Results			
Track Reference	Bottom-Track	Left Method	Sloped Bank	Width (ft)	55.537		
Depth Reference	Vertical Beam	Right Method	Sloped Bank	Area (ft ²)	232.504		
Coordinate System	ENU	Top Fit Type	Power Fit	Mean Speed (ft/s)	0.099		
		Bottom Fit Type	Power Fit	Total Q (cfs)	22.970		
		Start Gauge Height (ft)	19.49	Maximum Measured Depth	7.343		
		End Gauge Height (ft)	19.49	Maximum Measured Speed	3.337		

Measurement Results																		
Tr		Time		Distance				Mean Vel		Discharge						%		
#	L	Time	Duration	Temp	Track	DWG	Width	Area	Boat	Water	Left	Right	Top	Middle	Bottom	Total	MSTotal	Measure
1	R	1:22:50 PM	0:04:44	70.9	90.05	50.55	54.553	239.863	0.317	0.094	0.49	0.02	2.10	16.38	3.44	22.431	--	73.0
2	L	1:27:41 PM	0:03:15	70.3	58.76	49.46	53.458	219.250	0.301	0.101	-2.03	-0.04	2.75	17.15	4.29	22.127	--	65.3
3	R	1:31:03 PM	0:02:49	70.4	61.54	52.46	56.459	237.972	0.364	0.102	-0.13	0.17	2.24	17.94	4.07	24.292	--	73.1
5	R	1:36:24 PM	0:02:57	70.2	64.98	54.22	58.218	236.208	0.367	0.102	0.00	0.03	2.45	17.84	3.76	24.078	--	74.1
6	L	1:39:28 PM	0:02:17	69.5	59.90	51.00	54.997	229.227	0.437	0.096	0.00	0.00	2.21	16.26	3.45	21.921	--	74.2
			Mean	70.2	67.05	51.54	55.537	232.504	0.357	0.099	-0.33	0.04	2.35	17.11	3.80	22.970	0.000	71.9
			Std Dev	0.5	11.69	1.65	1.651	7.539	0.048	0.004	0.87	0.07	0.23	0.71	0.34	1.008	0.000	3.3
			COV	0.0	0.174	0.032	0.030	0.032	0.133	0.036	2.614	1.900	0.098	0.041	0.088	0.044	0.000	0.046

Exposure Time: 0:16:02

Tr1=20190513132250r.rivr; Tr2=20190513132745r.rivr; Tr3=20190513133108r.rivr; Tr5=20190513133633r.rivr; Tr6=20190513133940r.rivr;

Comments
Tr1=20190513132250r.rivr - ; Tr2=20190513132745r.rivr - ; Tr3=20190513133108r.rivr - ; Tr5=20190513133633r.rivr - ; Tr6=20190513133940r.rivr - ;

Compass Calibration
Passed Calibration
Error from calibration: 0.13 deg
Mean Magnitude: 9434.21
Pitch: -30/40
Roll: -37/32

System Test
System Test: PASS

Parameters and settings marked with a * are not constant for all files.

Report generated using SonTek RiverSurveyor Live v4.1

Figure 11 Discharge Summary LDB-1

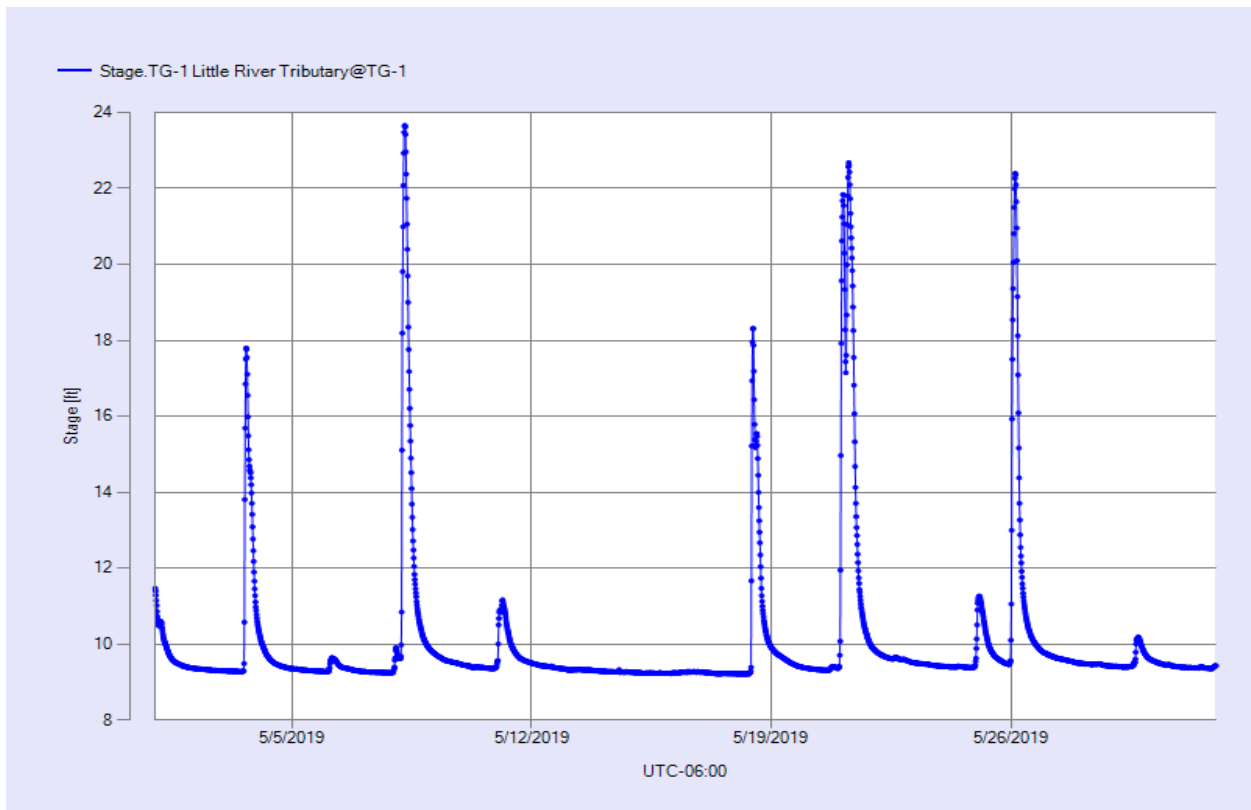


Figure 12 Monthly Hydrograph TG-1

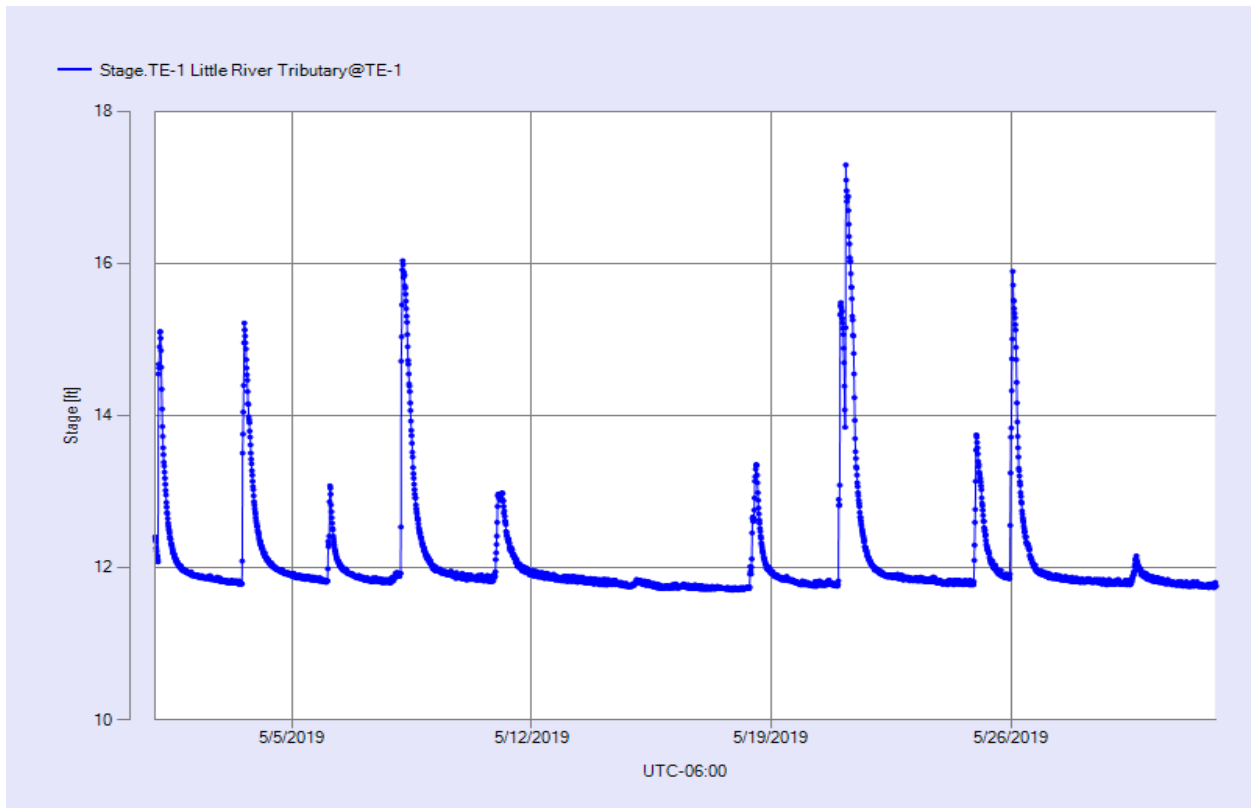


Figure 13 Monthly Hydrograph TE-1

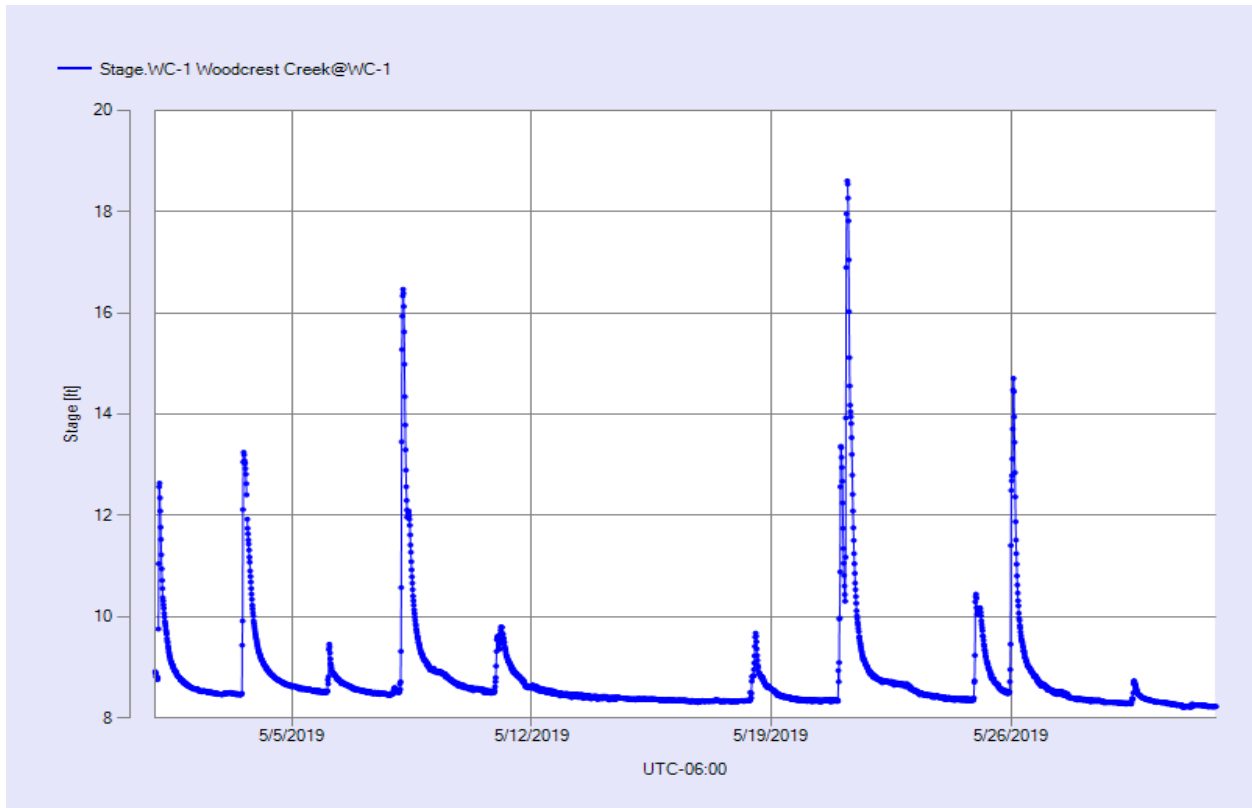


Figure 14 Monthly Hydrograph WC-1

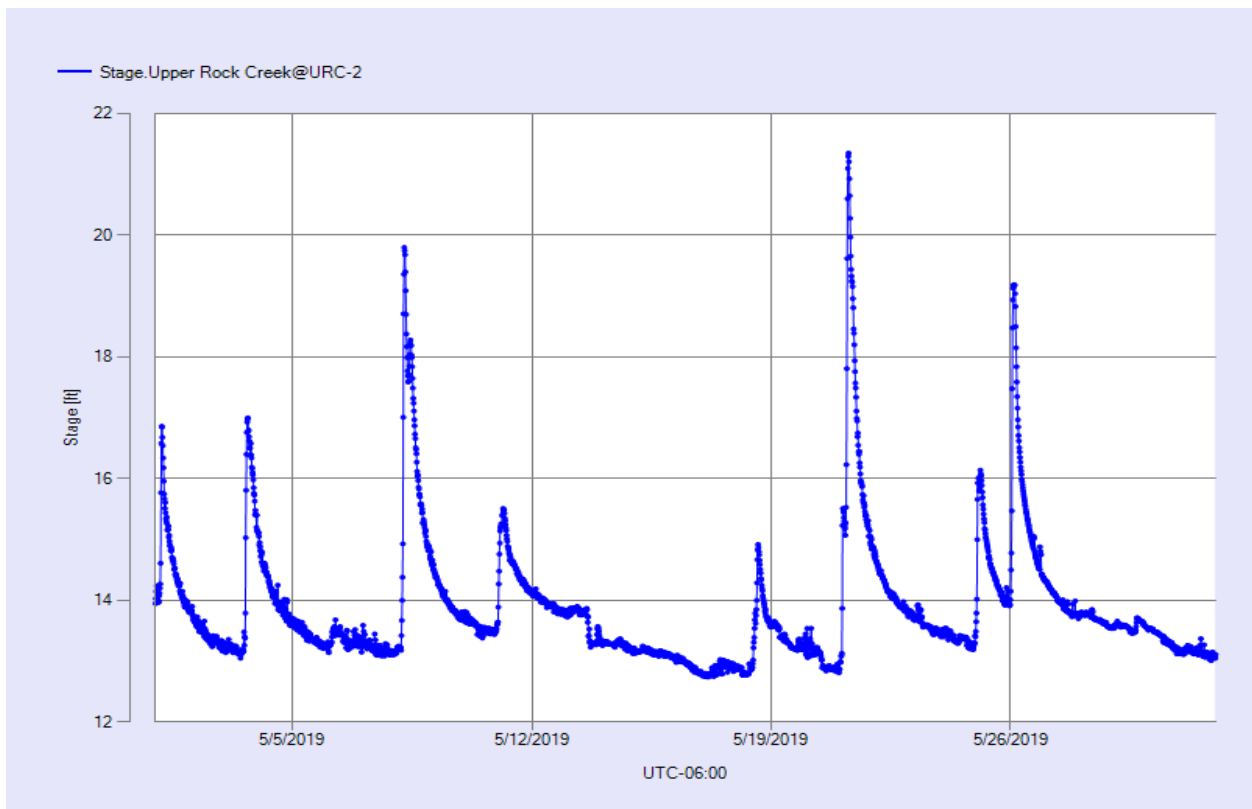


Figure 15 Monthly Hydrograph URC-2

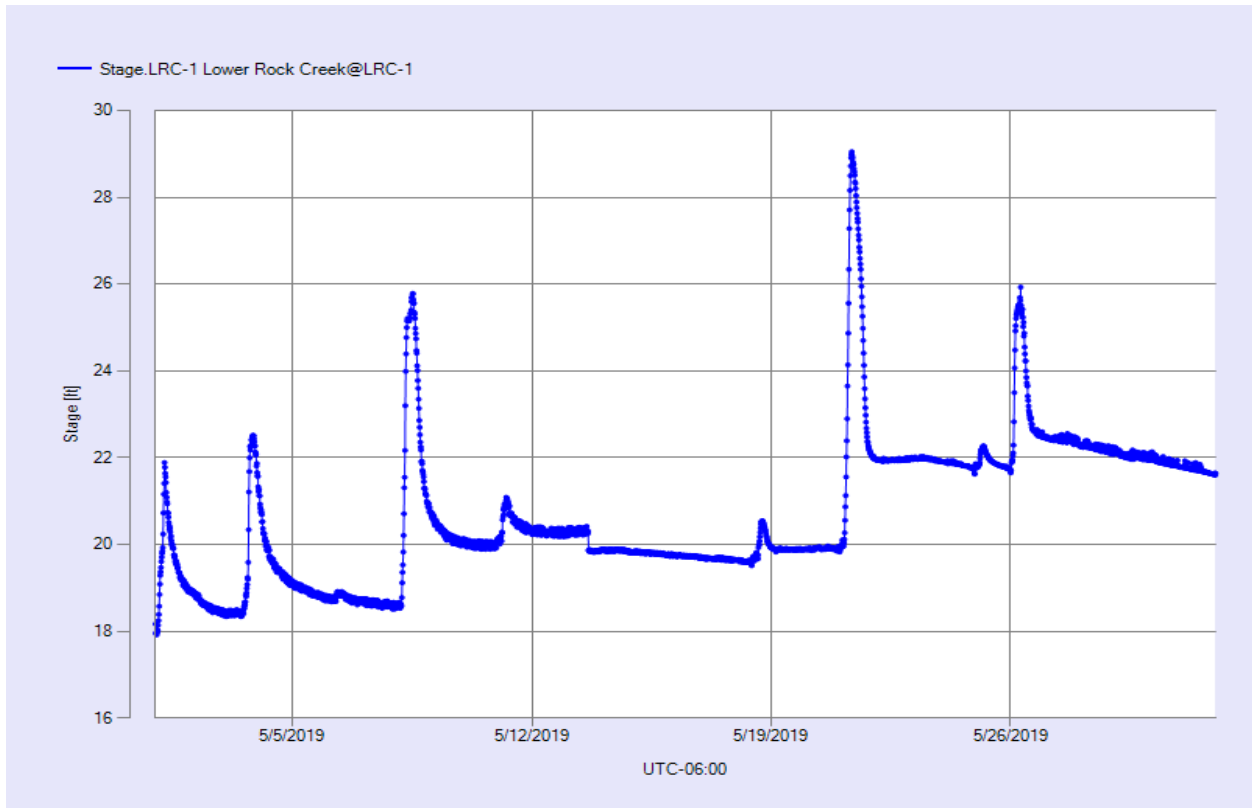


Figure 16 Monthly Hydrograph LRC-1

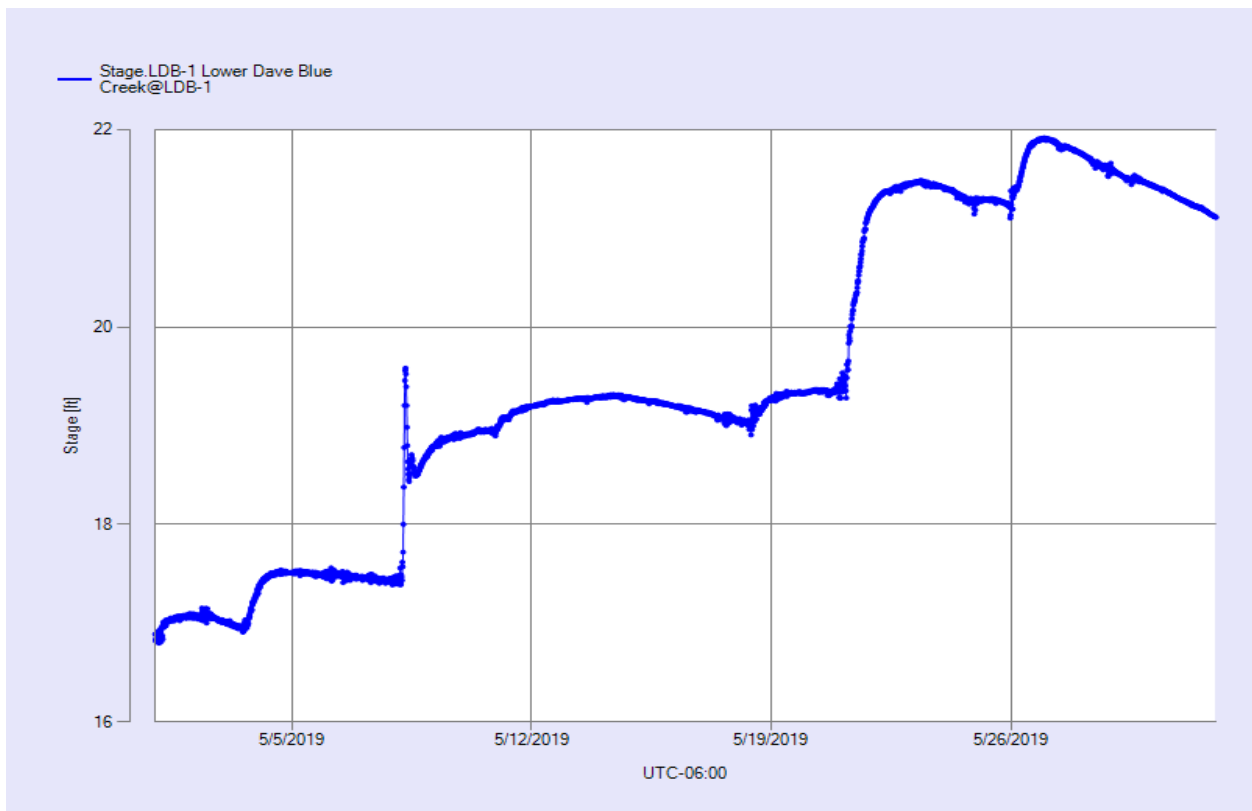


Figure 17 Monthly Hydrograph LDB-1

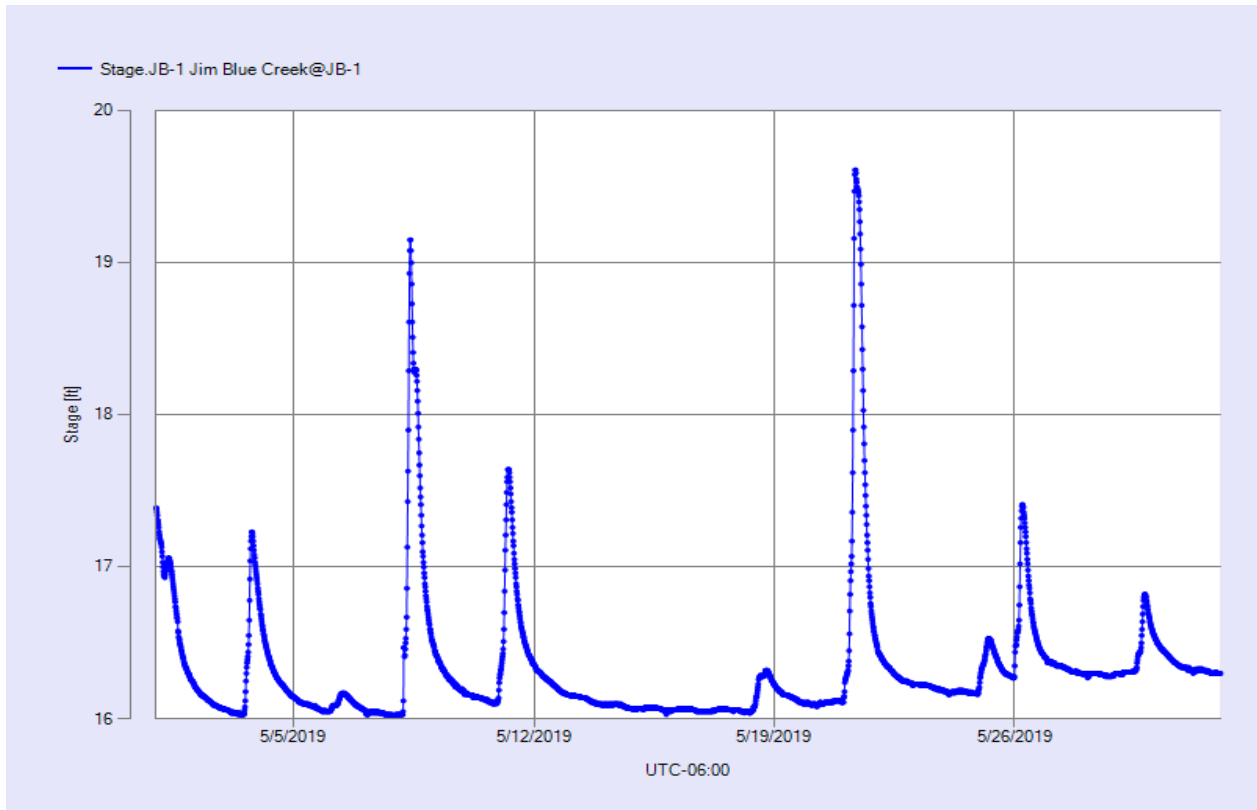


Figure 18 Monthly Hydrograph JB-1

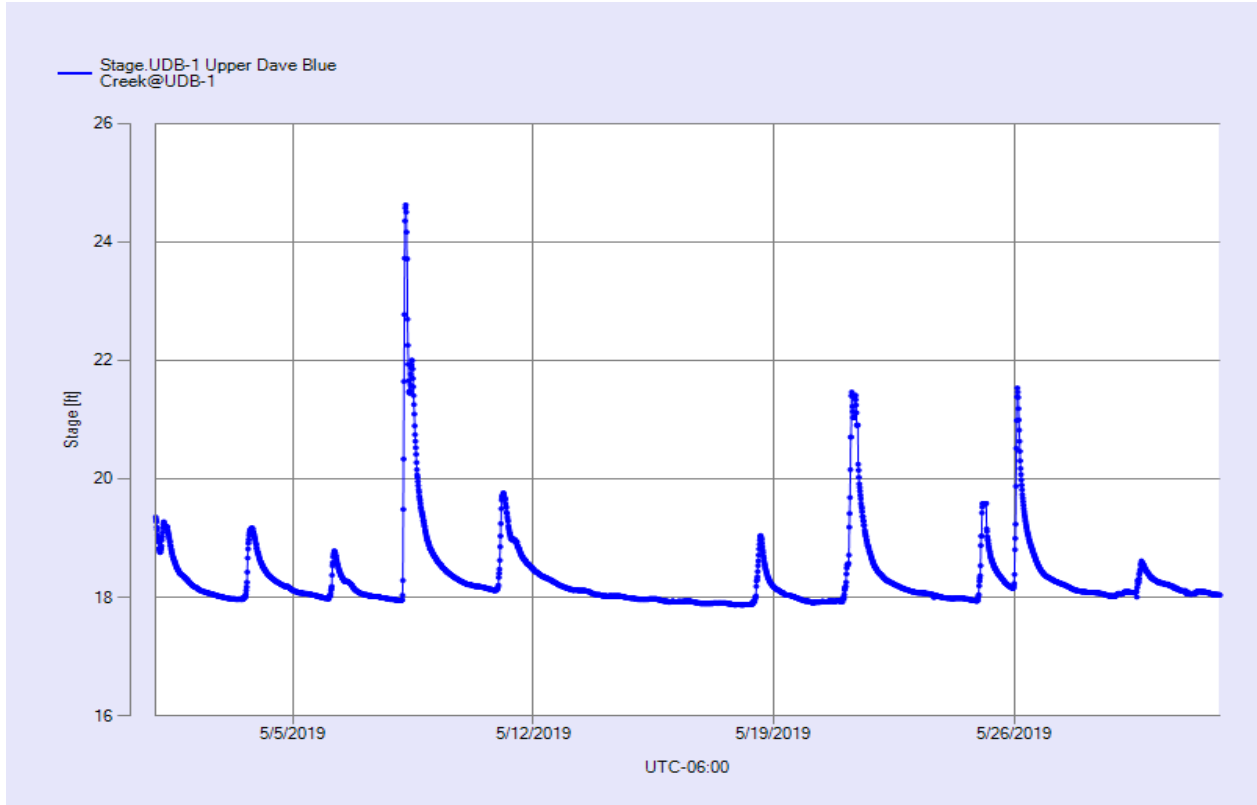


Figure 19 Monthly Hydrograph UDB-1

MESONET CLIMATOLOGICAL DATA SUMMARY
(NRMN) Norman
Latitude: 35-14-09

May 2019
Nearest City: 2.1 NW Norman
Longitude: 97-27-53

Time Zone: Midnight-Midnight CST
County: Cleveland
Elevation: 1171 feet

DAY	TEMPERATURE (°F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND SPEED (mph)			SOLAR (MJ/m ²)	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG	MAX		SOD	BARE	MAX	MIN	
1	73	57	64.0	60.0	0	0	100	65	87	0.90	28.64	29.88	SE	7.7	37.7	7.98	64.7	64.1	67	62	
2	67*	56*	62.0*	57.0*	3*	0*	98*	71*	84*	0.00*	28.76*	30.01*	NNE*	7.7*	20.0*	NA	64.6*	64.9*	68*	62*	
3	67*	56*	58.6*	57.0*	4*	0*	98*	80*	95*	1.22*	28.72*	29.97*	ENE*	6.1*	19.1*	NA	63.5*	63.5*	65*	62*	
4	71	55	61.2	55.4	2	0	100	55	83	0.00	28.71	29.95	N	5.7	14.1	18.46	63.7	64.0	70	61	
5	78	54	67.0	59.7	0	1	98	62	79	0.40	28.63	29.88	SSE	6.9	23.8	26.83	66.4	67.2	74	61	
6	83	61	71.3	62.6	0	7	95	54	75	0.09	28.66	29.90	S	8.9	28.4	23.16	69.4	69.9	75	66	
7	81	61	71.8	64.6	0	6	96	61	79	0.09	28.67	29.91	SSE	9.8	32.3	21.66	70.1	70.6	75	66	
8	71	58	63.9	59.7	1	0	99	71	87	2.02	28.49	29.73	SSE	9.2	34.5	14.63	68.7	68.9	72	66	
9	61	47	53.0	45.8	11	0	93	65	77	0.01	28.75	30.00	N	13.9	29.0	14.02	64.8	65.0	68	61	
10	63	42	52.3	43.8	13	0	96	53	74	0.43	28.86	30.11	NNE	8.7	23.7	19.99	60.9	60.4	65	56	
11	60	50	53.8	50.5	10	0	98	71	89	0.12	28.70	29.94	N	5.4	16.7	7.68	60.9	60.4	62	59	
12	74	45	61.1	47.0	5	0	100	31	65	0.00	28.65	29.89	NNW	6.0	21.2	27.10	62.2	62.6	69	56	
13	81	50	68.1	54.7	0	1	92	42	65	0.00	28.67	29.91	SSW	7.4	23.2	28.69	65.4	66.4	73	60	
14	82	60	72.4	56.5	0	6	80	40	59	0.00	28.71	29.96	SSW	8.5	24.1	26.91	68.6	68.1	73	63	
15	85	62	74.5	61.2	0	8	87	45	65	0.00	28.72	29.96	SSW	9.0	23.0	28.97	70.5	69.0	75	63	
16	85	64	75.1	63.3	0	10	88	47	68	0.00	28.68	29.92	S	9.2	24.5	27.78	72.2	70.8	76	65	
17	82	68	74.8	65.1	0	10	87	58	72	0.00	28.53	29.76	S	12.2	31.4	20.88	72.4	72.6	78	67	
18	75	62	68.1	64.4	0	3	97	79	88	0.82	28.41	29.64	SSE	10.3	36.6	7.39	70.5	70.6	74	68	
19	77	52	65.9	54.6	1	0	99	47	69	0.00	28.65	29.89	E	6.6	22.2	30.19	69.8	70.2	77	64	
20	80	60	68.5	63.9	0	5	98	74	86	1.09	28.50	29.74	SSE	10.9	28.1	5.98	69.2	68.2	71	66	
21	75	62	67.9	53.6	0	4	99	30	66	1.90	28.30	29.53	S	14.0	51.8	23.71	68.7	68.7	72	66	
22	85	56	73.0	63.3	0	5	83	55	72	0.00	28.49	29.73	S	7.8	23.3	15.44	68.4	67.9	73	63	
23	84	73	77.6	69.9	0	13	94	61	78	0.00	28.69	29.93	SSE	10.9	32.1	16.92	71.9	72.7	76	70	
24	84	64	76.4	69.4	0	9	98	65	80	0.74	28.71	29.95	SSE	10.6	36.2	15.80	73.1	73.7	77	71	
25	84	64	73.7	67.1	0	9	98	65	81	1.05	28.74	29.99	S	9.3	41.6	22.21	73.4	73.4	78	69	
26	82	64	73.5	66.5	0	8	98	61	80	0.08	28.75	30.00	SSE	9.7	25.4	22.01	73.9	74.3	78	70	
27	81	71	76.2	68.0	0	11	87	67	76	0.00	28.58	29.82	S	10.6	30.6	19.72	74.8	75.0	78	72	
28	83	66	74.2	67.5	0	10	89	68	80	0.02	28.45	29.68	S	11.2	31.6	16.56	74.5	74.6	78	71	
29	75	58	66.6	63.8	0	2	99	79	91	0.24	28.55	29.79	S	7.1	21.6	6.03	71.9	71.0	73	69	
30	80	55	67.9	55.3	0	2	100	33	69	0.00	28.73	29.98	WNW	4.6	19.8	30.32	71.1	71.2	78	65	
31	84	57	72.6	59.1	0	6	96	39	65	0.00	28.75	30.00	SW	4.5	14.1	26.23	72.6	72.4	78	67	
	77*	58*	68.0*	59.7*	←- Monthly Averages →-							28.64*	29.88*	S *	8.7*	51.8*	19.77*	68.8*	68.8*	73*	65*
Temperature - Highest: 85*					Degree Days - Total HDD: 50*					Number of Days With:											
Lowest: 42*					Total CDD: 136*					Tmax ≥ 90: 0* Rainfall ≥ 0.01 inch: 17*											
Rainfall: Monthly Total: 11.22* in.					Humidity - Highest: 100*					Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 12*											
Greatest 24 Hr: 2.02* in.					Lowest: 30*					Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 9*											
										Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 11*											

Figure 20 May Mesonet Data