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***Lake Thunderbird TMDL Monitoring Plan Implementation:  
Sample Year (SY) 2018- January Report***

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**SY2018 Monthly Report**

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*Lake Thunderbird TMDL Monitoring Plan Implementation:*

*January 2019 Monitoring Report*

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Oklahoma Water Resources Board  
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## TABLE OF CONTENTS

<b>Table of Contents</b> .....	<b>3</b>
<b>List of Tables</b> .....	<b>3</b>
<b>List of Figures</b> .....	<b>3</b>
<b>Summary of January Water Quality Sampling</b> .....	<b>4</b>
<b>Results</b> .....	<b>4</b>

## 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 URC-2.....	7
FIGURE 3 DISCHARGE SUMMARY WC-1.....	8
FIGURE 4 DISCHARGE SUMMARY TG-1 .....	9
FIGURE 5 DISCHARGE SUMMARY TE-1.....	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 MONTHLY HYDROGRAPH TE-1 .....	16
FIGURE 12 MONTHLY HYDROGRAPH TG-1 .....	16
FIGURE 13 MONTHLY HYDROGRAPH UDB-1 .....	17
FIGURE 14 MONTHLY HYDROGRAPH JB-1 .....	17
FIGURE 15 MONTHLY HYDROGRAPH URC-2 .....	18
FIGURE 16 MONTHLY HYDROGRAPH WC-1.....	18
FIGURE 17 MONTHLY HYDROGRAPH LDB-1 .....	19
FIGURE 18 MONTHLY HYDROGRAPH LRC-1.....	19
FIGURE 19 DECEMBER MESONET DATA .....	20
FIGURE 20 JANUARY MESONET DATA.....	21

## SUMMARY OF JANUARY WATER QUALITY SAMPLING

Sampling for January 2019 occurred on the fourteenth and was considered a base flow collection. Water samples were collected at all ten locations, and discharge was measured at nine locations. Mesonet data shows no precipitation occurring on the fourteenth, 0.63 inches of precipitation in the 72 hours prior to sampling, and 0.01 inches of precipitation in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of January was 2.03 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

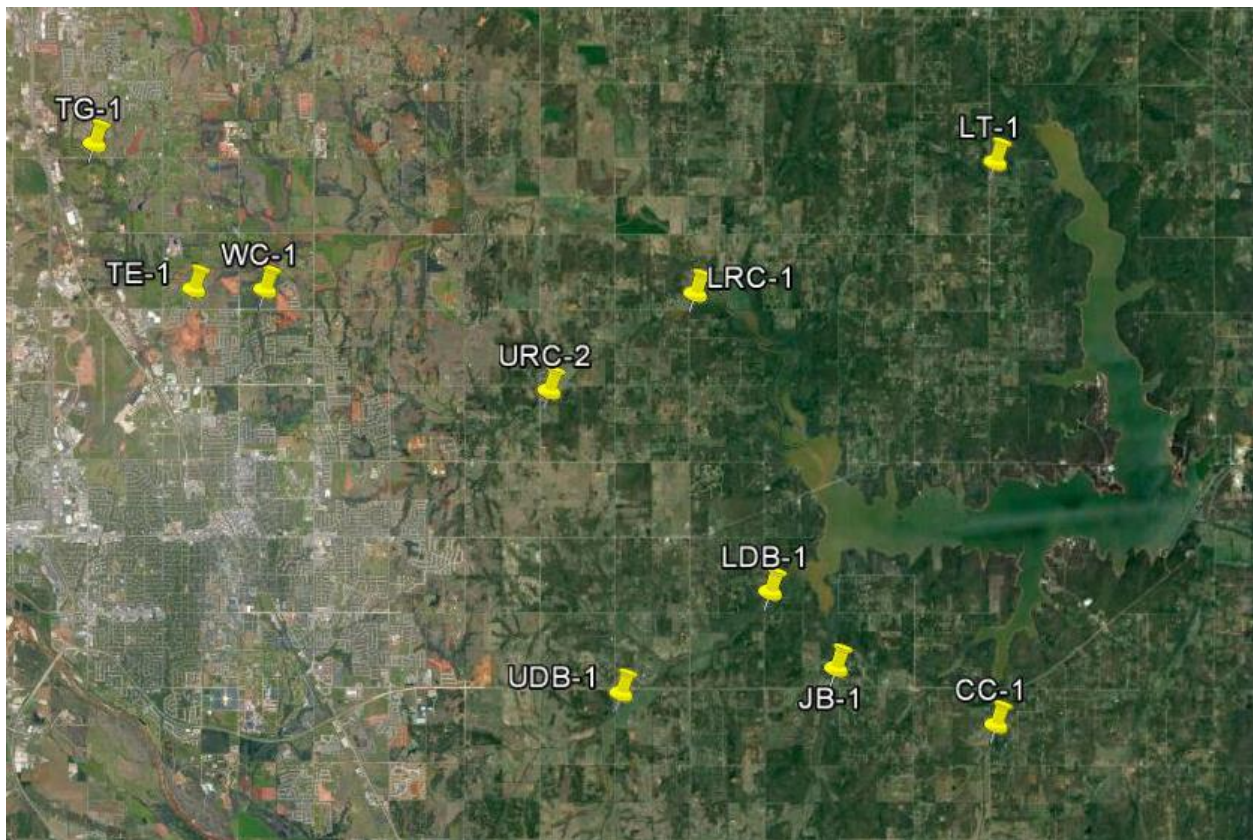


Figure 1 Monitoring Station Map

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	01-14-2019	12:15	SD	8.69	10.36	7.81	460	7.0	bridge complete, road open, but still ongoing construction. Looks to be base flow conditions. Lots of sediment on channel edges
JB-1	Jim Blue Creek	01-14-2019	13:30	SD	6.47	10.90	7.64	470	6.0	appears to be base flow conditions, but higher stage
LDB-1	Lower Dave Blue Creek	01-14-2019	14:40	SD	6.09	10.91	7.76	478	13.0	discharge estimated visually
LRC-1	Lower Rock Creek	01-15-2019	10:00	SD	4.74	11.18	7.84	469	17.7	higher stage, but still low flow
LT-1	Lake Laterals	01-14-2019	15:40	SD	6.16	10.17	7.53	285	7.3	ds pool more full than normal, but still minimal flow
TE-1	Little River Tributary	01-15-2019	13:20	SD	8.13	12.31	7.64	438	38.3	
TG-1	Little River Tributary	01-15-2019	14:10	SD	7.40	11.14	7.57	617	31.0	
UDB-1	Upper Dave Blue Creek	01-14-2019	11:00	SD	6.60	11.22	7.75	846	10.0	
URC-2	Upper Rock Creek	01-15-2019	11:05	SD	4.97	11.42	7.75	496	11.0	used RP2 for flow. Orifice buried, changed DCP to RP1
WC-1	Woodcrest Creek	01-15-2019	12:30	SD	6.41	10.83	7.59	678	8.0	beaver dam on us side of bridge

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	0.21	0.22	0.031	7.0
JB-1	Jim Blue Creek	0.15	0.28	0.027	<5.0
LDB-1	Lower Dave Blue Creek	0.22	0.41	0.043	6.0
LRC-1	Lower Rock Creek	0.16	0.38	0.043	9.0
LT-1	Lake Laterals	<0.05	0.35	0.025	<5.0
TE-1	Little River Tributary	0.29	0.60	0.084	12.0
TG-1	Little River Tributary	0.70	0.57	0.124	12.0
UDB-1	Upper Dave Blue Creek	0.16	0.35	0.038	5.0
URC-2	Upper Rock Creek	0.13	0.39	0.038	8.0
WC-1	Woodcrest Creek	0.37	0.41	0.059	6.0

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	0.16	0.39	0.039	5.0
Duplicate RPD	0%	10.81%	2.60%	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	1.68	0
JB-1	Jim Blue Creek	2.21	17.21
LDB-1	Lower Dave Blue Creek	50	19.22
LRC-1	Lower Rock Creek	6.77	19.54
LT-1	Lake Laterals	0.19	4.62
TE-1	Little River Tributary	0.58	11.71
TG-1	Little River Tributary	4.26	9.31
UDB-1	Upper Dave Blue Creek	9.64	17.99
URC-2	Upper Rock Creek	4.79	12.07
WC-1	Woodcrest Creek	0.50	8.47

Table 4 Station Discharge Summary



# Discharge Measurement Summary

Date Generated: Wed Jan 16 2019

File Information		Site Details	
File Name	URC0115.WAD	Site Name	URC011519
Start Date and Time	2019/01/15 09:50:58	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 <sup>2</sup>	Depth	0.3%	1.1%
Software Ver	2.30	Discharge	cfs	Velocity	0.7%	1.8%
Mounting Correction	0.0%			Width	0.1%	0.1%
				Method	1.9%	-
				# Stations	2.4%	-
				<b>Overall</b>	<b>3.3%</b>	<b>2.3%</b>

Summary			
Averaging Int.	40	# Stations	21
Start Edge	LEW	Total Width	15.000
Mean SNR	27.9 dB	Total Area	9.700
Mean Temp	40.57 °F	Mean Depth	0.647
Disch. Equation	Mid-Section	Mean Velocity	0.4941
		<b>Total Discharge</b>	<b>4.7921</b>

Supplemental Data					
#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jan 15 10:16:14 CST 2019	15.000	12.070		

Measurement Results												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	09:50	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	09:50	1.00	0.6	0.600	0.6	0.240	0.3389	1.00	0.3389	0.600	0.2034	4.2
2	09:52	2.00	0.6	0.800	0.6	0.320	0.3386	1.00	0.3386	0.800	0.2708	5.7
3	09:54	3.00	0.6	0.900	0.6	0.360	0.3763	1.00	0.3763	0.900	0.3387	7.1
4	09:56	4.00	0.6	1.000	0.6	0.400	0.4049	1.00	0.4049	1.000	0.4049	8.4
5	09:58	5.00	0.6	1.000	0.6	0.400	0.6020	1.00	0.6020	0.750	0.4515	9.4
6	10:15	5.50	0.6	0.900	0.6	0.360	0.6348	1.00	0.6348	0.450	0.2857	6.0
7	09:59	6.00	0.6	0.900	0.6	0.360	0.7470	1.00	0.7470	0.450	0.3361	7.0
8	10:16	6.50	0.6	0.900	0.6	0.360	0.6906	1.00	0.6906	0.450	0.3108	6.5
9	10:00	7.00	0.6	0.900	0.6	0.360	0.7116	1.00	0.7116	0.450	0.3202	6.7
10	10:17	7.50	0.6	0.800	0.6	0.320	0.7119	1.00	0.7119	0.400	0.2847	5.9
11	10:02	8.00	0.6	0.800	0.6	0.320	0.7756	1.00	0.7756	0.400	0.3102	6.5
12	10:19	8.50	0.6	0.700	0.6	0.280	0.7356	1.00	0.7356	0.350	0.2575	5.4
13	10:03	9.00	0.6	0.700	0.6	0.280	0.7070	1.00	0.7070	0.350	0.2475	5.2
14	10:20	9.50	0.6	0.600	0.6	0.240	0.6358	1.00	0.6358	0.300	0.1908	4.0
15	10:04	10.00	0.6	0.600	0.6	0.240	0.6322	1.00	0.6322	0.450	0.2845	5.9
16	10:05	11.00	0.6	0.500	0.6	0.200	0.4186	1.00	0.4186	0.500	0.2093	4.4
17	10:08	12.00	0.6	0.400	0.6	0.160	0.1991	1.00	0.1991	0.400	0.0796	1.7
18	10:09	13.00	0.6	0.400	0.6	0.160	0.0495	1.00	0.0495	0.400	0.0198	0.4
19	10:11	14.00	0.6	0.300	0.6	0.120	-0.0463	1.00	-0.0463	0.300	-0.0139	-0.3
20	10:11	15.00	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 URC-2

# Discharge Measurement Summary

Date Generated: Wed Jan 16 2019

## File Information

File Name WC011519.WAD  
Start Date and Time 2019/01/15 11:20:02

## Site Details

Site Name WC011519  
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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	2.7%
Velocity	5.9%	52.8%
Width	0.4%	0.4%
Method	5.9%	-
# Stations	3.1%	-
<b>Overall</b>	<b>9.0%</b>	<b>52.9%</b>

## Summary

Averaging Int.	40	# Stations	16
Start Edge	LEW	Total Width	7.500
Mean SNR	37.7 dB	Total Area	7.000
Mean Temp	43.17 °F	Mean Depth	0.933
Disch. Equation	Mid-Section	Mean Velocity	0.0713
		<b>Total Discharge</b>	<b>0.4989</b>

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jan 15 11:21:22 CST 2019	1.000	8.470		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:20	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>11:20</i>	<i>0.50</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>0.0000</i>	<i>1.00</i>	<i>0.0000</i>	<i>0.400</i>	<i>0.0000</i>	<i>0.0</i>
2	11:23	1.00	0.6	1.000	0.6	0.400	0.0256	1.00	0.0256	0.500	0.0128	2.6
3	11:24	1.50	0.6	1.000	0.6	0.400	0.0968	1.00	0.0968	0.500	0.0484	9.7
4	11:25	2.00	0.6	1.000	0.6	0.400	0.3376	1.00	0.3376	0.500	0.1688	33.8
5	11:26	2.50	0.6	1.100	0.6	0.440	0.1772	1.00	0.1772	0.550	0.0974	19.5
6	11:29	3.00	0.6	1.100	0.6	0.440	0.1181	1.00	0.1181	0.550	0.0650	13.0
7	11:31	3.50	0.6	1.200	0.6	0.480	0.5230	1.00	0.5230	0.600	0.3138	62.9
8	11:32	4.00	0.6	1.200	0.6	0.480	0.0295	1.00	0.0295	0.600	0.0177	3.6
9	11:35	4.50	0.6	1.200	0.6	0.480	-0.0115	1.00	-0.0115	0.600	-0.0069	-1.4
10	11:36	5.00	0.6	1.100	0.6	0.440	-0.0682	1.00	-0.0682	0.550	-0.0375	-7.5
11	11:38	5.50	0.6	1.000	0.6	0.400	-0.0919	1.00	-0.0919	0.500	-0.0459	-9.2
12	11:40	6.00	0.6	0.900	0.6	0.360	-0.1509	1.00	-0.1509	0.450	-0.0679	-13.6
13	11:41	6.50	0.6	0.800	0.6	0.320	-0.1539	1.00	-0.1539	0.400	-0.0615	-12.3
14	11:43	7.00	0.6	0.600	0.6	0.240	-0.0174	1.00	-0.0174	0.300	-0.0052	-1.0
15	11:43	7.50	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 3 Discharge Summary WC-1



# Discharge Measurement Summary

Date Generated: Wed Jan 16 2019

## File Information

File Name TG011519.WAD  
Start Date and Time 2019/01/15 12:54:36

## Site Details

Site Name TG011519  
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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	1.1%
Velocity	0.6%	2.5%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.3%	-
<b>Overall</b>	<b>3.1%</b>	<b>2.9%</b>

## Summary

Averaging Int. 40 # Stations 22  
Start Edge LEW Total Width 21.000  
Mean SNR 22.2 dB Total Area 16.099  
Mean Temp 44.87 °F Mean Depth 0.767  
Disch. Equation Mid-Section Mean Velocity 0.2648  
**Total Discharge 4.2623**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jan 15 13:19:43 CST 2019	21.000	9.310		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:54	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:54	1.00	0.6	0.600	0.6	0.240	0.2257	1.00	0.2257	0.600	0.1354	3.2
2	12:55	2.00	0.6	0.600	0.6	0.240	0.3097	1.00	0.3097	0.600	0.1858	4.4
3	12:56	3.00	0.6	0.800	0.6	0.320	0.3396	1.00	0.3396	0.800	0.2716	6.4
4	12:57	4.00	0.6	0.800	0.6	0.320	0.3448	1.00	0.3448	0.800	0.2758	6.5
5	12:58	5.00	0.6	0.800	0.6	0.320	0.3481	1.00	0.3481	0.800	0.2784	6.5
6	12:59	6.00	0.6	0.800	0.6	0.320	0.3461	1.00	0.3461	0.800	0.2769	6.5
7	13:01	7.00	0.6	0.800	0.6	0.320	0.3199	1.00	0.3199	0.800	0.2559	6.0
8	13:02	8.00	0.6	0.800	0.6	0.320	0.2720	1.00	0.2720	0.800	0.2175	5.1
9	13:03	9.00	0.6	0.800	0.6	0.320	0.2838	1.00	0.2838	0.800	0.2270	5.3
10	13:04	10.00	0.6	0.900	0.6	0.360	0.3209	1.00	0.3209	0.900	0.2888	6.8
11	13:05	11.00	0.6	1.000	0.6	0.400	0.2756	1.00	0.2756	1.000	0.2756	6.5
12	13:06	12.00	0.6	1.000	0.6	0.400	0.3235	1.00	0.3235	1.000	0.3235	7.6
13	13:07	13.00	0.6	0.900	0.6	0.360	0.2966	1.00	0.2966	0.900	0.2669	6.3
14	13:08	14.00	0.6	0.900	0.6	0.360	0.2362	1.00	0.2362	0.900	0.2126	5.0
15	13:09	15.00	0.6	0.900	0.6	0.360	0.1362	1.00	0.1362	0.900	0.1225	2.9
16	13:10	16.00	0.6	0.800	0.6	0.320	0.1381	1.00	0.1381	0.800	0.1105	2.6
17	13:11	17.00	0.6	0.800	0.6	0.320	0.1785	1.00	0.1785	0.800	0.1428	3.3
18	13:12	18.00	0.6	0.800	0.6	0.320	0.2874	1.00	0.2874	0.800	0.2299	5.4
19	13:13	19.00	0.6	0.700	0.6	0.280	0.1804	1.00	0.1804	0.700	0.1263	3.0
20	13:14	20.00	0.6	0.600	0.6	0.240	0.0643	1.00	0.0643	0.600	0.0386	0.9
21	13:14	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 4 Discharge Summary TG-1

# Discharge Measurement Summary

Date Generated: Wed Jan 16 2019

## File Information

File Name TE011519.WAD  
Start Date and Time 2019/01/15 12:04:53

## Site Details

Site Name TE011519  
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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	2.5%
Velocity	1.3%	6.6%
Width	0.2%	0.2%
Method	2.3%	-
# Stations	2.4%	-
<b>Overall</b>	<b>3.7%</b>	<b>7.2%</b>

## Summary

Averaging Int.	40	# Stations	21
Start Edge	LEW	Total Width	10.500
Mean SNR	34.6 dB	Total Area	10.025
Mean Temp	46.29 °F	Mean Depth	0.955
Disch. Equation	Mid-Section	Mean Velocity	0.0580
		<b>Total Discharge</b>	<b>0.5818</b>

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jan 15 12:10:36 CST 2019	2.000	11.710		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:04	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:06	1.00	0.6	0.300	0.6	0.120	0.0541	1.00	0.0541	0.225	0.0122	2.1
2	12:09	1.50	0.6	0.500	0.6	0.200	0.0591	1.00	0.0591	0.250	0.0148	2.5
3	12:10	2.00	0.6	1.200	0.6	0.480	0.1047	1.00	0.1047	0.600	0.0628	10.8
4	12:11	2.50	0.6	1.200	0.6	0.480	0.1060	1.00	0.1060	0.600	0.0636	10.9
5	12:12	3.00	0.6	1.300	0.6	0.520	0.1270	1.00	0.1270	0.650	0.0825	14.2
6	12:14	3.50	0.6	1.400	0.6	0.560	0.0686	1.00	0.0686	0.700	0.0480	8.2
7	12:16	4.00	0.6	1.600	0.6	0.640	0.0968	1.00	0.0968	0.800	0.0774	13.3
8	12:17	4.50	0.6	1.500	0.6	0.600	0.0843	1.00	0.0843	0.750	0.0632	10.9
9	12:18	5.00	0.6	1.400	0.6	0.560	0.0463	1.00	0.0463	0.700	0.0324	5.6
10	12:19	5.50	0.6	1.400	0.6	0.560	0.0561	1.00	0.0561	0.700	0.0393	6.7
11	12:20	6.00	0.6	1.400	0.6	0.560	0.0443	1.00	0.0443	0.700	0.0310	5.3
12	12:22	6.50	0.6	1.300	0.6	0.520	0.0200	1.00	0.0200	0.650	0.0130	2.2
13	12:23	7.00	0.6	1.200	0.6	0.480	0.0033	1.00	0.0033	0.600	0.0020	0.3
14	12:24	7.50	0.6	0.900	0.6	0.360	-0.0043	1.00	-0.0043	0.450	-0.0019	-0.3
15	12:25	8.00	0.6	0.800	0.6	0.320	0.0243	1.00	0.0243	0.400	0.0097	1.7
16	12:27	8.50	0.6	0.800	0.6	0.320	0.0230	1.00	0.0230	0.400	0.0092	1.6
17	12:28	9.00	0.6	0.600	0.6	0.240	0.0295	1.00	0.0295	0.300	0.0089	1.5
18	12:29	9.50	0.6	0.600	0.6	0.240	0.0269	1.00	0.0269	0.300	0.0081	1.4
19	12:30	10.00	0.6	0.500	0.6	0.200	0.0230	1.00	0.0230	0.250	0.0057	1.0
20	12:30	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 5 Discharge Summary TE-1



# Discharge Measurement Summary

Date Generated: Wed Jan 16 2019

## File Information

File Name UDB0114.WAD  
Start Date and Time 2019/01/14 10:30:20

## Site Details

Site Name UDB  
Operator(s) SCD

## 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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	3.9%
Velocity	0.8%	6.6%
Width	0.2%	0.2%
Method	2.3%	-
# Stations	3.1%	-
<b>Overall</b>	<b>4.1%</b>	<b>7.8%</b>

## Summary

Averaging Int.	40	# Stations	16
Start Edge	LEW	Total Width	16.000
Mean SNR	22.5 dB	Total Area	11.450
Mean Temp	43.87 °F	Mean Depth	0.716
Disch. Equation	Mid-Section	Mean Velocity	0.8422
		<b>Total Discharge</b>	<b>9.6430</b>

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Jan 14 10:30:08 CST 2019	1.000	17.990		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:30	0.00	None	0.800	0.0	0.0	0.0000	1.00	0.0036	0.400	0.0014	0.0
1	10:30	1.00	0.6	0.800	0.6	0.320	0.0036	1.00	0.0036	0.800	0.0029	0.0
2	<i>10:31</i>	<i>2.00</i>	<i>0.6</i>	<i>0.700</i>	<i>0.6</i>	<i>0.280</i>	<i>0.2221</i>	<i>1.00</i>	<i>0.2221</i>	<i>0.700</i>	<i>0.1555</i>	<i>1.6</i>
3	10:32	3.00	0.6	0.600	0.6	0.240	1.2215	1.00	1.2215	0.600	0.7330	7.6
4	10:33	4.00	0.6	0.600	0.6	0.240	0.9163	1.00	0.9163	0.600	0.5499	5.7
5	<i>10:34</i>	<i>5.00</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>1.2192</i>	<i>1.00</i>	<i>1.2192</i>	<i>0.800</i>	<i>0.9752</i>	<i>10.1</i>
6	<i>10:35</i>	<i>6.00</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>1.2854</i>	<i>1.00</i>	<i>1.2854</i>	<i>0.800</i>	<i>1.0282</i>	<i>10.7</i>
7	10:36	7.00	0.6	1.200	0.6	0.480	1.1473	1.00	1.1473	1.200	1.3769	14.3
8	10:37	8.00	0.6	1.000	0.6	0.400	1.2700	1.00	1.2700	1.000	1.2700	13.2
9	10:38	9.00	0.6	0.900	0.6	0.360	1.0148	1.00	1.0148	0.900	0.9132	9.5
10	10:39	10.00	0.6	0.700	0.6	0.280	1.0397	1.00	1.0397	0.700	0.7279	7.5
11	<i>10:40</i>	<i>11.00</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>0.9026</i>	<i>1.00</i>	<i>0.9026</i>	<i>0.800</i>	<i>0.7219</i>	<i>7.5</i>
12	10:41	12.00	0.6	0.700	0.6	0.280	0.5561	1.00	0.5561	0.700	0.3893	4.0
13	10:42	13.00	0.6	0.700	0.6	0.280	0.5007	1.00	0.5007	0.700	0.3505	3.6
14	<i>10:43</i>	<i>14.00</i>	<i>0.6</i>	<i>0.500</i>	<i>0.6</i>	<i>0.200</i>	<i>0.5961</i>	<i>1.00</i>	<i>0.5961</i>	<i>0.750</i>	<i>0.4471</i>	<i>4.6</i>
15	10:43	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: Wed Jan 16 2019

## File Information

File Name LT0114.WAD  
 Start Date and Time 2019/01/14 14:58:39

## Site Details

Site Name LT  
 Operator(s) SCD

## 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<sup>2</sup>  
 Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	1.2%	5.2%
Velocity	3.2%	48.8%
Width	0.4%	0.4%
Method	5.8%	-
# Stations	2.5%	-
<b>Overall</b>	<b>7.3%</b>	<b>49.1%</b>

## Summary

Averaging Int. 40 # Stations 20  
 Start Edge LEW Total Width 20.000  
 Mean SNR 38.6 dB Total Area 5.750  
 Mean Temp 43.23 °F Mean Depth 0.287  
 Disch. Equation Mid-Section Mean Velocity 0.0329  
**Total Discharge 0.1893**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Jan 14 14:58:10 CST 2019	1.000	4.620		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:58	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:58	1.00	0.6	0.200	0.6	0.080	-0.0007	1.00	-0.0007	0.200	-0.0001	-0.1
2	14:59	2.00	0.6	0.200	0.6	0.080	0.0384	1.00	0.0384	0.200	0.0077	4.1
3	15:01	3.00	0.6	0.300	0.6	0.120	0.0125	1.00	0.0125	0.300	0.0037	2.0
4	15:03	4.00	0.6	0.350	0.6	0.140	0.0000	1.00	0.0000	0.350	0.0000	0.0
5	15:04	5.00	0.6	0.400	0.6	0.160	-0.0003	1.00	-0.0003	0.400	-0.0001	-0.1
6	15:05	6.00	0.6	0.500	0.6	0.200	0.2923	1.00	0.2923	0.500	0.1462	77.2
7	15:06	7.00	0.6	0.400	0.6	0.160	0.0033	1.00	0.0033	0.400	0.0013	0.7
8	15:07	8.00	0.6	0.400	0.6	0.160	0.0404	1.00	0.0404	0.400	0.0161	8.5
9	15:08	9.00	0.6	0.400	0.6	0.160	0.0000	1.00	0.0000	0.400	0.0000	0.0
10	15:09	10.00	0.6	0.400	0.6	0.160	0.0007	1.00	0.0007	0.400	0.0003	0.1
11	15:10	11.00	0.6	0.300	0.6	0.120	0.0144	1.00	0.0144	0.300	0.0043	2.3
12	15:11	12.00	0.6	0.300	0.6	0.120	0.0177	1.00	0.0177	0.300	0.0053	2.8
13	15:12	13.00	0.6	0.300	0.6	0.120	0.0000	1.00	0.0000	0.300	0.0000	0.0
14	15:13	14.00	0.6	0.300	0.6	0.120	0.0069	1.00	0.0069	0.300	0.0021	1.1
15	15:14	15.00	0.6	0.300	0.6	0.120	-0.0010	1.00	-0.0010	0.300	-0.0003	-0.2
16	15:16	16.00	0.6	0.200	0.6	0.080	0.0180	1.00	0.0180	0.200	0.0036	1.9
17	15:18	17.00	0.6	0.200	0.6	0.080	-0.0036	1.00	-0.0036	0.200	-0.0007	-0.4
18	15:19	18.00	0.6	0.200	0.6	0.080	0.0000	1.00	0.0000	0.300	0.0000	0.0
19	15:19	20.00	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: Wed Jan 16 2019

## File Information

File Name LRC0115.WAD  
Start Date and Time 2019/01/15 08:47:05

## Site Details

Site Name LRC011519  
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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	1.1%
Velocity	0.4%	2.8%
Width	0.1%	0.1%
Method	1.7%	-
# Stations	1.8%	-
<b>Overall</b>	<b>2.7%</b>	<b>3.2%</b>

## Summary

Averaging Int.	40	# Stations	28
Start Edge	LEW	Total Width	27.000
Mean SNR	30.8 dB	Total Area	52.801
Mean Temp	40.14 °F	Mean Depth	1.956
Disch. Equation	Mid-Section	Mean Velocity	0.1282
		<b>Total Discharge</b>	<b>6.7665</b>

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Tue Jan 15 08:44:29 CST 2019	0.000	19.540		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	08:47	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>08:50</i>	<i>1.00</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>0.0039</i>	<i>1.00</i>	<i>0.0039</i>	<i>0.600</i>	<i>0.0024</i>	<i>0.0</i>
<i>2</i>	<i>08:51</i>	<i>2.00</i>	<i>0.6</i>	<i>1.400</i>	<i>0.6</i>	<i>0.560</i>	<i>0.0026</i>	<i>1.00</i>	<i>0.0026</i>	<i>1.400</i>	<i>0.0037</i>	<i>0.1</i>
<i>3</i>	<i>08:53</i>	<i>3.00</i>	<i>0.6</i>	<i>1.700</i>	<i>0.6</i>	<i>0.680</i>	<i>-0.0358</i>	<i>1.00</i>	<i>-0.0358</i>	<i>1.700</i>	<i>-0.0608</i>	<i>-0.9</i>
<i>4</i>	<i>08:55</i>	<i>4.00</i>	<i>0.6</i>	<i>1.700</i>	<i>0.6</i>	<i>0.680</i>	<i>0.0623</i>	<i>1.00</i>	<i>0.0623</i>	<i>1.700</i>	<i>0.1060</i>	<i>1.6</i>
<i>5</i>	<i>08:57</i>	<i>5.00</i>	<i>0.6</i>	<i>1.700</i>	<i>0.6</i>	<i>0.680</i>	<i>0.0912</i>	<i>1.00</i>	<i>0.0912</i>	<i>1.700</i>	<i>0.1551</i>	<i>2.3</i>
6	08:59	6.00	0.6	2.200	0.6	0.880	0.1430	1.00	0.1430	2.200	0.3147	4.7
7	09:00	7.00	0.6	2.200	0.6	0.880	0.1703	1.00	0.1703	2.200	0.3746	5.5
8	09:02	8.00	0.6	2.600	0.6	1.040	0.1302	1.00	0.1302	2.600	0.3387	5.0
9	09:03	9.00	0.6	2.700	0.6	1.080	0.1175	1.00	0.1175	2.700	0.3171	4.7
10	09:04	10.00	0.6	3.000	0.6	1.200	0.1493	1.00	0.1493	3.000	0.4478	6.6
11	09:05	11.00	0.6	2.900	0.6	1.160	0.1503	1.00	0.1503	2.900	0.4358	6.4
12	09:07	12.00	0.6	2.900	0.6	1.160	0.1503	1.00	0.1503	2.900	0.4358	6.4
13	09:07	13.00	0.6	2.900	0.6	1.160	0.1634	1.00	0.1634	2.900	0.4738	7.0
14	09:09	14.00	0.6	2.900	0.6	1.160	0.1329	1.00	0.1329	2.900	0.3853	5.7
15	09:10	15.00	0.6	2.800	0.6	1.120	0.1535	1.00	0.1535	2.800	0.4299	6.4
16	09:11	16.00	0.6	2.700	0.6	1.080	0.1611	1.00	0.1611	2.700	0.4350	6.4
17	09:12	17.00	0.6	2.500	0.6	1.000	0.1588	1.00	0.1588	2.500	0.3970	5.9
18	09:13	18.00	0.6	2.400	0.6	0.960	0.1365	1.00	0.1365	2.400	0.3276	4.8
19	09:15	19.00	0.6	2.200	0.6	0.880	0.1306	1.00	0.1306	2.200	0.2873	4.2
20	09:16	20.00	0.6	2.000	0.6	0.800	0.1539	1.00	0.1539	2.000	0.3077	4.5
21	09:17	21.00	0.6	1.700	0.6	0.680	0.1532	1.00	0.1532	1.700	0.2605	3.8
22	09:18	22.00	0.6	1.500	0.6	0.600	0.1234	1.00	0.1234	1.500	0.1850	2.7
23	09:19	23.00	0.6	1.200	0.6	0.480	0.1198	1.00	0.1198	1.200	0.1437	2.1
24	09:20	24.00	0.6	1.100	0.6	0.440	0.1220	1.00	0.1220	1.100	0.1343	2.0
25	09:22	25.00	0.6	1.000	0.6	0.400	0.1066	1.00	0.1066	1.000	0.1066	1.6
26	09:26	26.00	0.6	0.300	0.6	0.120	0.0735	1.00	0.0735	0.300	0.0220	0.3
27	09:26	27.00	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: Wed Jan 16 2019

## File Information

File Name JB0114.WAD  
Start Date and Time 2019/01/14 12:50:02

## Site Details

Site Name JB  
Operator(s) SCD

## 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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.2%
Velocity	1.0%	12.4%
Width	0.2%	0.2%
Method	2.3%	-
# Stations	2.5%	-
<b>Overall</b>	<b>3.7%</b>	<b>12.5%</b>

## Summary

Averaging Int. 40 # Stations 20  
Start Edge LEW Total Width 19.000  
Mean SNR 30.8 dB Total Area 24.250  
Mean Temp 43.85 °F Mean Depth 1.276  
Disch. Equation Mid-Section Mean Velocity 0.0911  
**Total Discharge 2.2096**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Jan 14 12:49:37 CST 2019	1.000	17.210		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:50	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:50	1.00	0.6	0.800	0.6	0.320	0.0085	1.00	0.0085	0.800	0.0068	0.3
2	12:51	2.00	0.6	1.050	0.6	0.420	-0.0039	1.00	-0.0039	1.050	-0.0041	-0.2
3	12:52	3.00	0.6	1.300	0.6	0.520	-0.0098	1.00	-0.0098	1.300	-0.0128	-0.6
4	12:53	4.00	0.6	1.650	0.6	0.660	-0.0003	1.00	-0.0003	1.650	-0.0005	0.0
5	12:54	5.00	0.6	1.800	0.6	0.720	0.0236	1.00	0.0236	1.800	0.0425	1.9
6	12:56	6.00	0.6	1.800	0.6	0.720	0.1339	1.00	0.1339	1.800	0.2409	10.9
7	12:57	7.00	0.6	1.800	0.6	0.720	0.1604	1.00	0.1604	1.800	0.2888	13.1
8	12:58	8.00	0.6	1.800	0.6	0.720	0.0915	1.00	0.0915	1.800	0.1648	7.5
9	12:59	9.00	0.6	1.600	0.6	0.640	0.1982	1.00	0.1982	1.600	0.3171	14.4
10	13:01	10.00	0.6	1.500	0.6	0.600	0.0646	1.00	0.0646	1.500	0.0969	4.4
11	13:02	11.00	0.6	1.450	0.6	0.580	0.1371	1.00	0.1371	1.450	0.1989	9.0
12	13:03	12.00	0.6	1.350	0.6	0.540	0.1414	1.00	0.1414	1.350	0.1909	8.6
13	13:04	13.00	0.6	1.200	0.6	0.480	0.1578	1.00	0.1578	1.200	0.1894	8.6
14	13:05	14.00	0.6	1.150	0.6	0.460	0.1745	1.00	0.1745	1.150	0.2007	9.1
15	13:06	15.00	0.6	1.100	0.6	0.440	0.1706	1.00	0.1706	1.100	0.1877	8.5
16	13:07	16.00	0.6	1.100	0.6	0.440	0.0338	1.00	0.0338	1.100	0.0372	1.7
17	13:08	17.00	0.6	1.100	0.6	0.440	0.0545	1.00	0.0545	1.100	0.0599	2.7
18	13:10	18.00	0.6	0.700	0.6	0.280	0.0066	1.00	0.0066	0.700	0.0046	0.2
19	13:10	19.00	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 9 Discharge Summary JB-1

# Discharge Measurement Summary

Date Generated: Wed Jan 16 2019

## File Information

File Name CC0114.WAD  
Start Date and Time 2019/01/14 11:37:49

## Site Details

Site Name CC  
Operator(s) SCD

## 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<sup>2</sup>  
Discharge cfs

## Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	1.2%
Velocity	0.5%	2.5%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.4%	-
<b>Overall</b>	<b>3.2%</b>	<b>3.0%</b>

## Summary

Averaging Int. 40 # Stations 21  
Start Edge LEW Total Width 11.000  
Mean SNR 33.4 dB Total Area 2.824  
Mean Temp 47.89 °F Mean Depth 0.257  
Disch. Equation Mid-Section Mean Velocity 0.5961  
**Total Discharge 1.6838**

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:37	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:37	1.00	0.6	0.300	0.6	0.120	0.0000	1.00	0.0000	0.225	0.0000	0.0
2	11:38	1.50	0.6	0.300	0.6	0.120	0.6417	1.00	0.6417	0.150	0.0962	5.7
3	11:39	2.00	0.6	0.300	0.6	0.120	0.6736	1.00	0.6736	0.150	0.1010	6.0
4	11:40	2.50	0.6	0.300	0.6	0.120	0.6844	1.00	0.6844	0.150	0.1026	6.1
5	11:41	3.00	0.6	0.300	0.6	0.120	0.6923	1.00	0.6923	0.150	0.1038	6.2
6	11:42	3.50	0.6	0.300	0.6	0.120	0.7451	1.00	0.7451	0.150	0.1117	6.6
7	11:43	4.00	0.6	0.350	0.6	0.140	0.7733	1.00	0.7733	0.175	0.1354	8.0
8	11:45	4.50	0.6	0.350	0.6	0.140	0.7231	1.00	0.7231	0.175	0.1266	7.5
9	11:46	5.00	0.6	0.300	0.6	0.120	0.6470	1.00	0.6470	0.150	0.0970	5.8
10	11:47	5.50	0.6	0.300	0.6	0.120	0.7005	1.00	0.7005	0.150	0.1050	6.2
11	11:47	6.00	0.6	0.300	0.6	0.120	0.6952	1.00	0.6952	0.150	0.1042	6.2
12	11:49	6.50	0.6	0.300	0.6	0.120	0.6926	1.00	0.6926	0.150	0.1038	6.2
13	11:50	7.00	0.6	0.300	0.6	0.120	0.5856	1.00	0.5856	0.150	0.0878	5.2
14	11:51	7.50	0.6	0.250	0.6	0.100	0.6325	1.00	0.6325	0.125	0.0791	4.7
15	11:52	8.00	0.6	0.250	0.6	0.100	0.6490	1.00	0.6490	0.125	0.0811	4.8
16	11:53	8.50	0.6	0.250	0.6	0.100	0.5535	1.00	0.5535	0.125	0.0692	4.1
17	11:54	9.00	0.6	0.250	0.6	0.100	0.5095	1.00	0.5095	0.125	0.0637	3.8
18	11:55	9.50	0.6	0.200	0.6	0.080	0.4140	1.00	0.4140	0.100	0.0414	2.5
19	11:56	10.00	0.6	0.200	0.6	0.080	0.4938	1.00	0.4938	0.150	0.0741	4.4
20	11:56	11.00	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 10 Discharge Summary CC-1

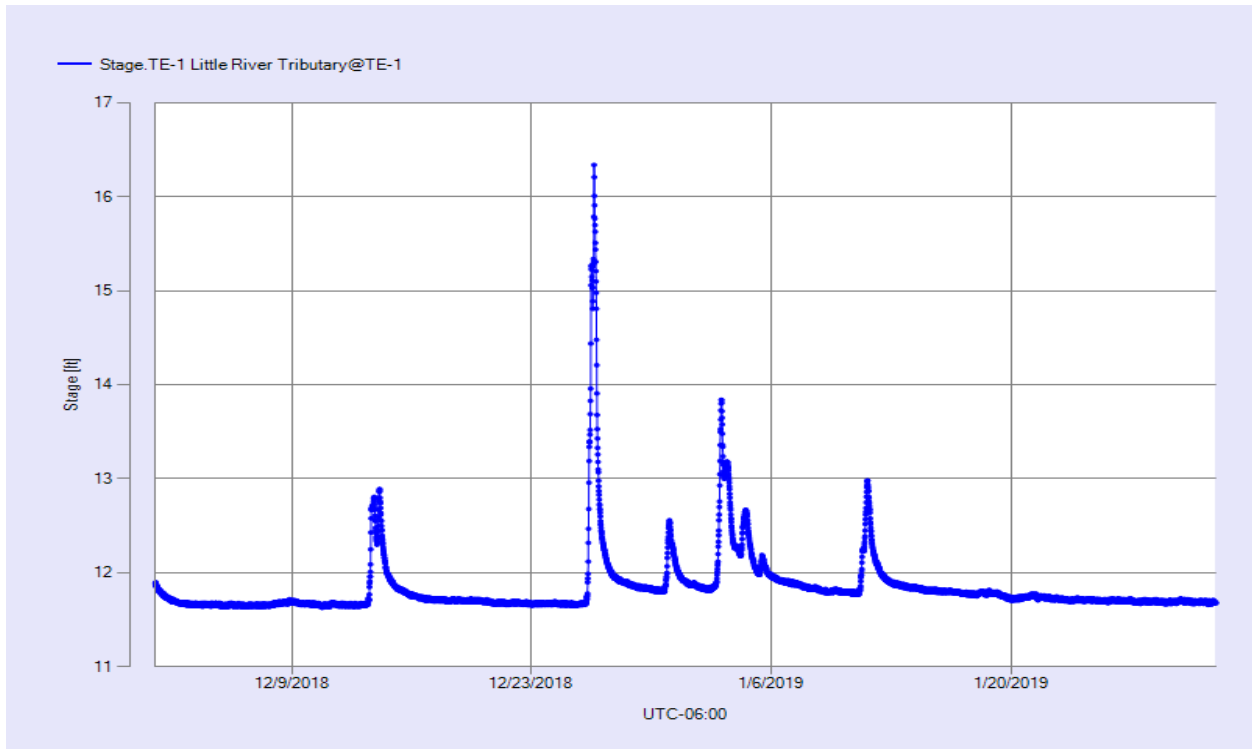


Figure 11 Monthly Hydrograph TE-1

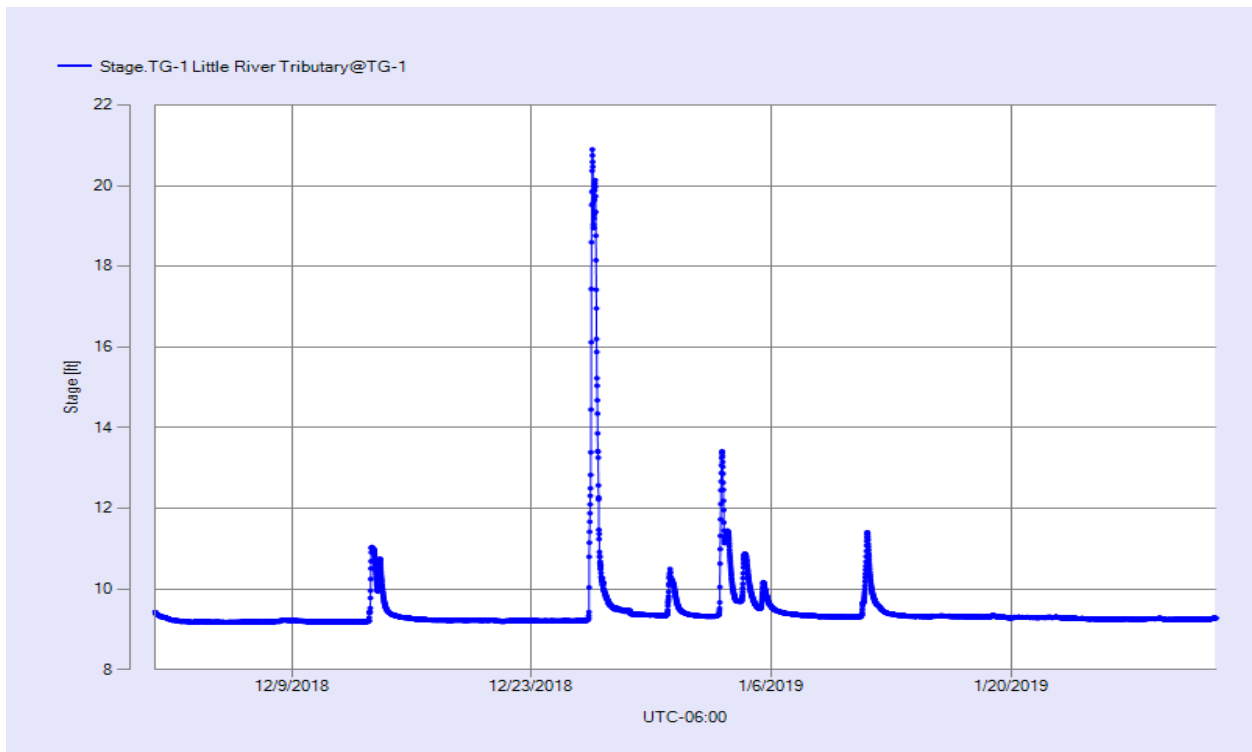


Figure 12 Monthly Hydrograph TG-1

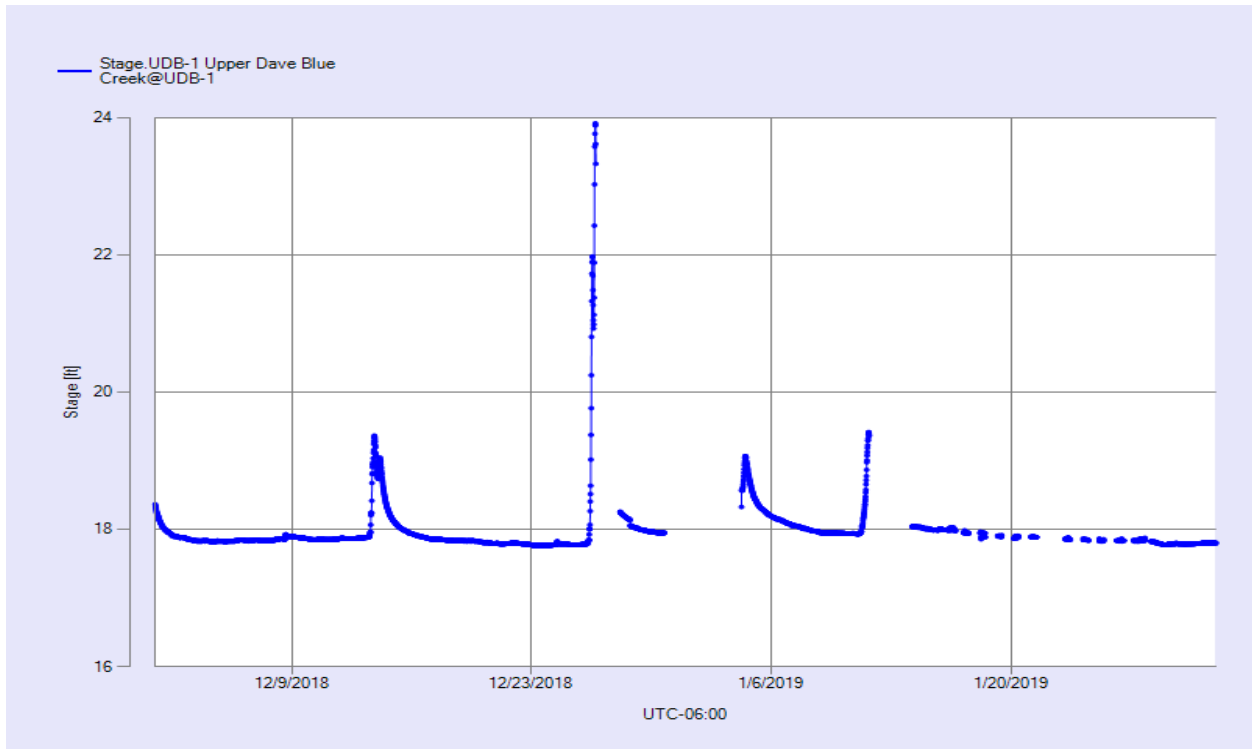


Figure 13 Monthly Hydrograph UDB-1

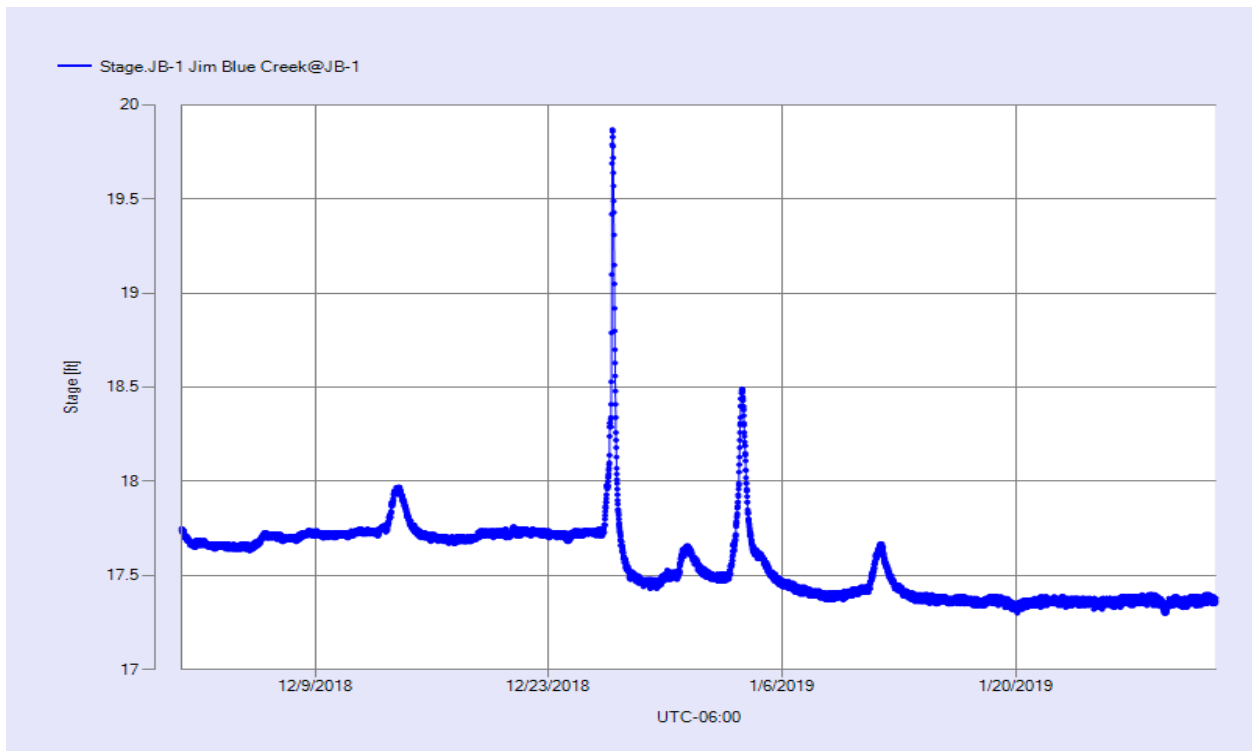


Figure 14 Monthly Hydrograph JB-1

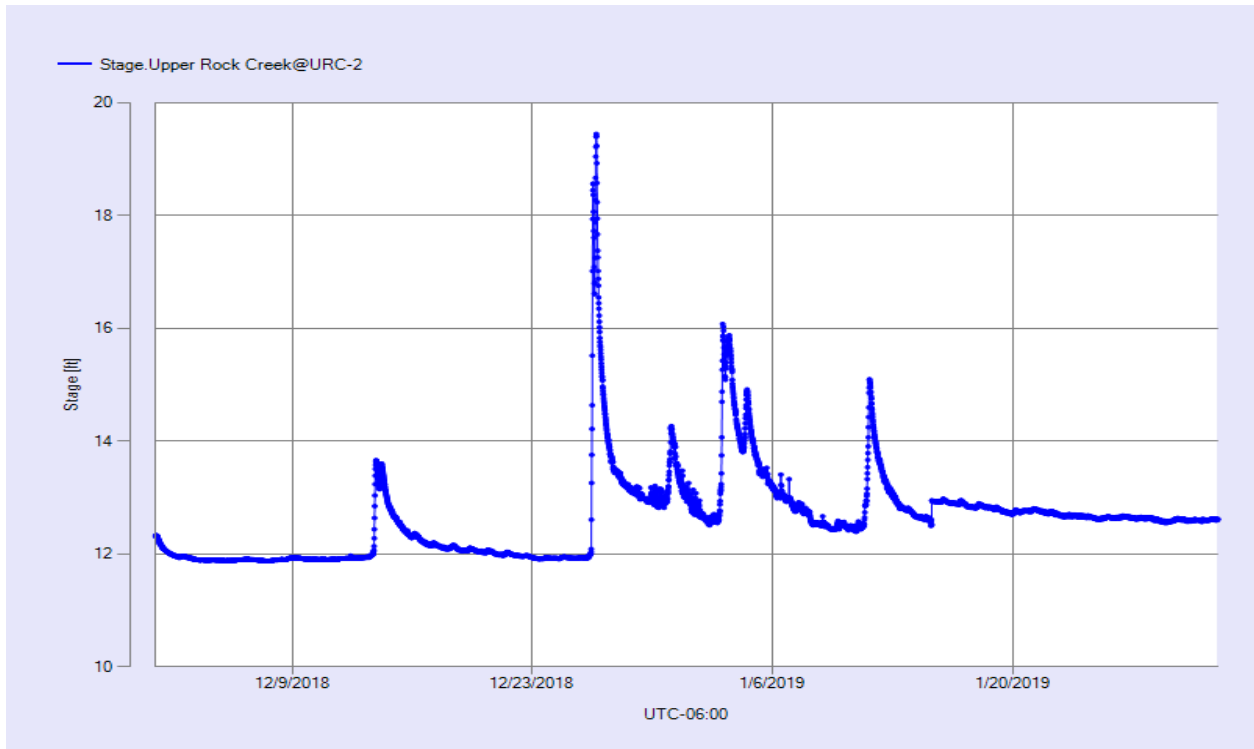


Figure 15 Monthly Hydrograph URC-2

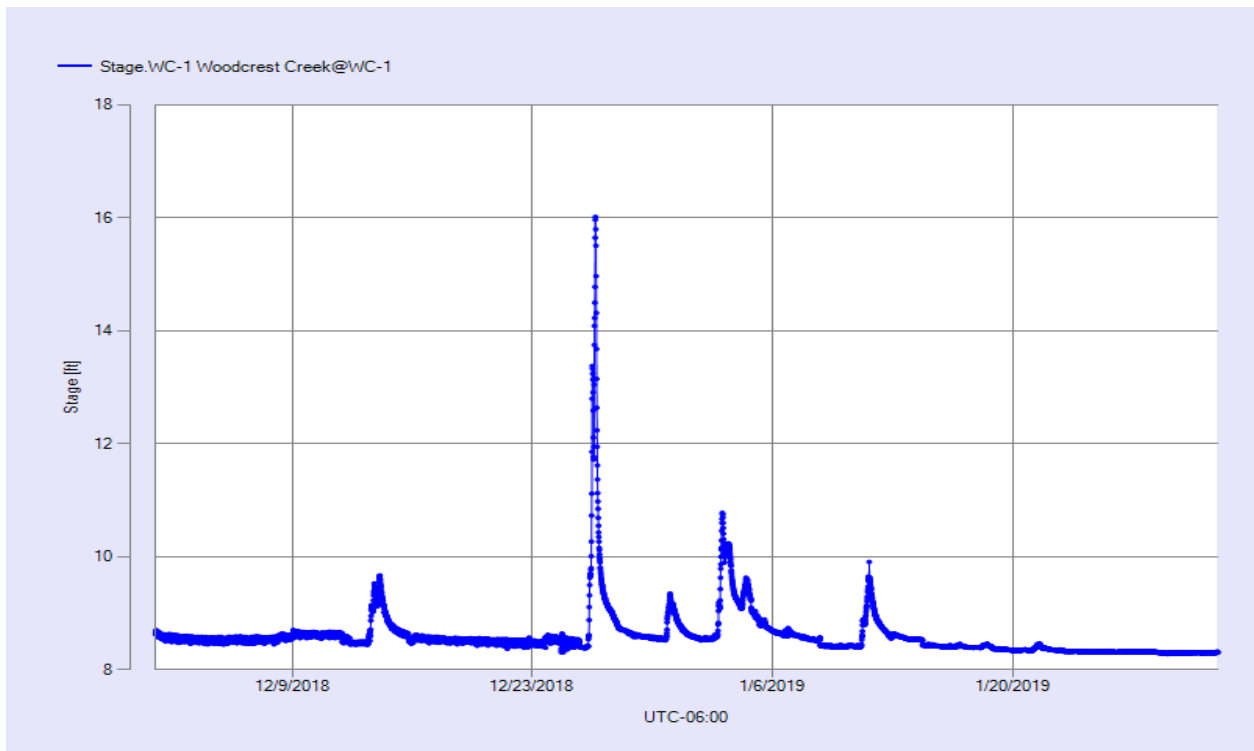


Figure 16 Monthly Hydrograph WC-1



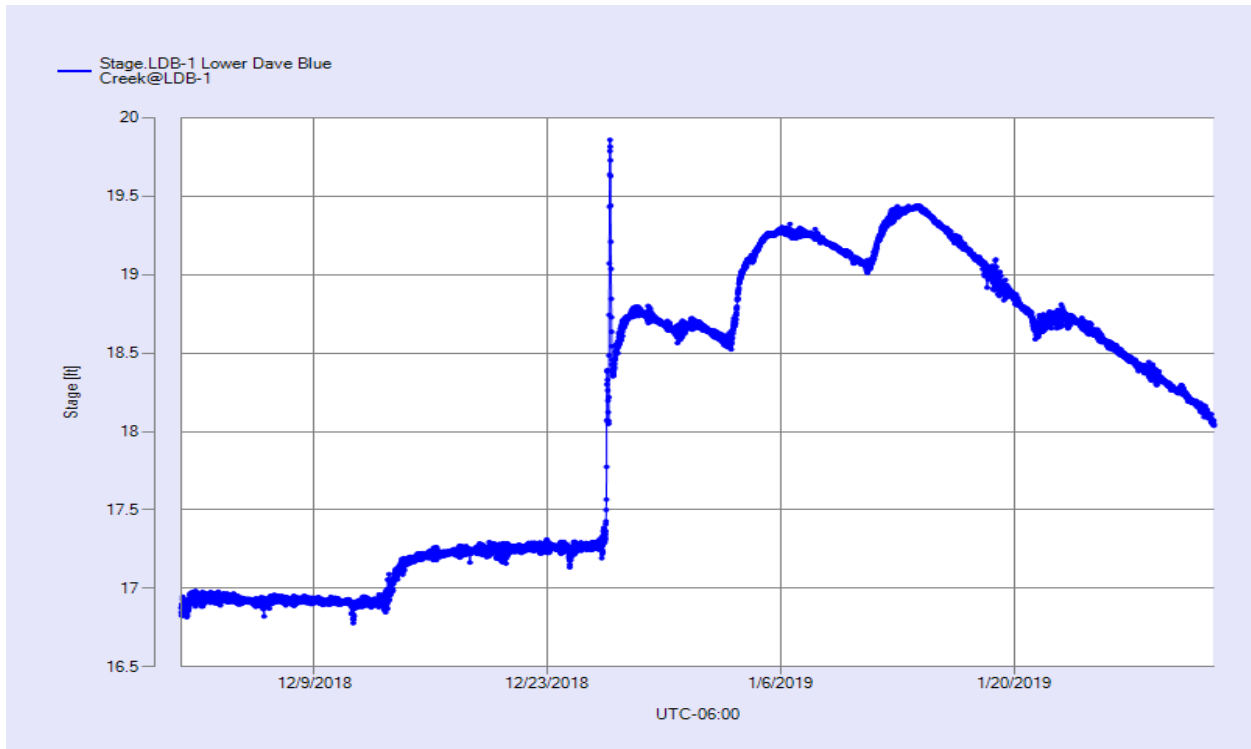


Figure 17 Monthly Hydrograph LDB-1

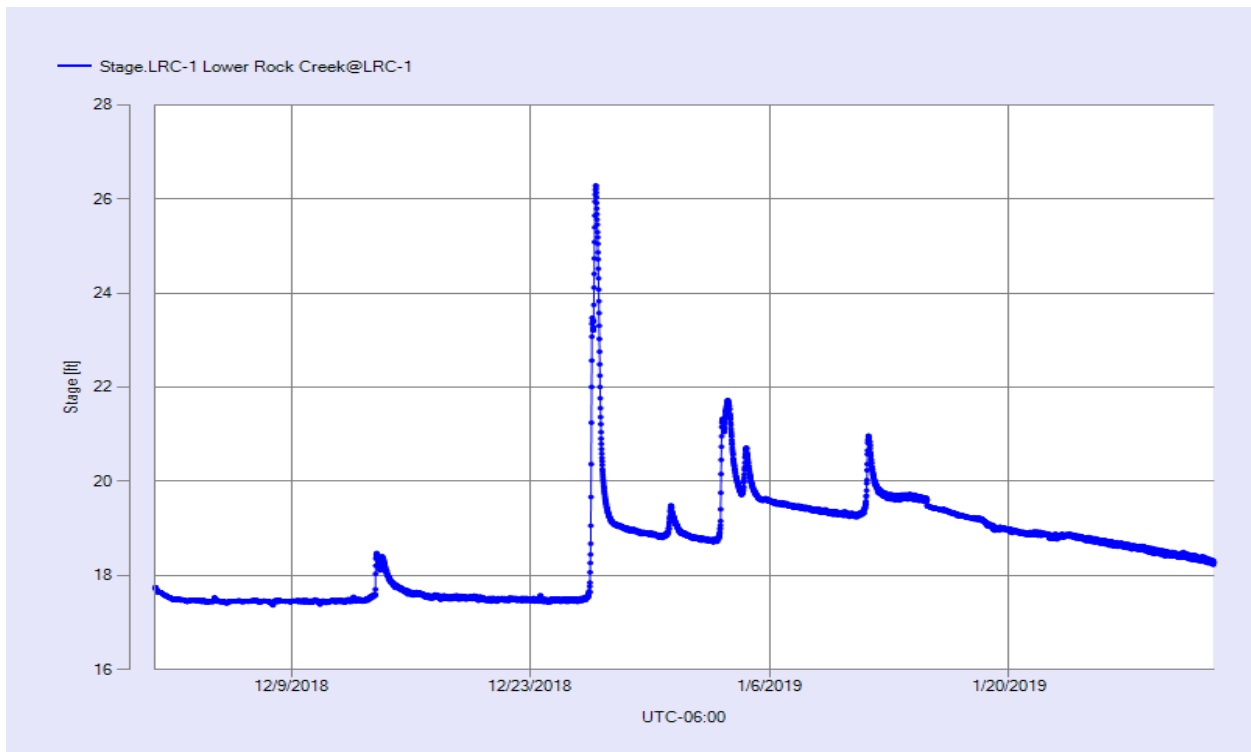


Figure 18 Monthly Hydrograph LRC-1

MESONET CLIMATOLOGICAL DATA SUMMARY				December 2018				Time Zone: Midnight-Midnight CST													
(NRMN) Norman				Nearest City: 2.1 NW Norman				County: Cleveland													
Latitude: 35-14-09				Longitude: 97-27-53				Elevation: 1171 feet													
DAY	TEMPERATURE ( °F )				DEG DAYS		HUMIDITY (%)			RAIN (in)		PRESSURE (in)		WIND SPEED (mph)			SOLAR (MJ/m <sup>2</sup> )	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG	MAX	SOD		BARE	MAX	MIN	
1	65	42	53.6	35.5	11	0	80	23	53	0.00	28.22	29.45	WSW	15.9	36.3	12.47	50.8	50.3	53	48	
2	53	31	42.8	30.6	23	0	94	39	64	0.00	28.61	29.85	NW	9.0	26.5	12.53	48.6	46.8	50	43	
3	39	28	33.1	25.6	32	0	88	60	74	0.00	28.98	30.24	N	10.4	21.9	9.40	46.8	44.3	47	42	
4	35	26	29.4	22.3	35	0	91	63	75	0.00	29.11	30.37	NNE	6.0	15.2	5.49	44.9	41.5	43	40	
5	52	23	37.6	25.6	28	0	93	31	65	0.00	29.03	30.29	SSE	7.1	21.1	12.39	43.3	40.6	45	37	
6	50	37	45.0	33.0	22	0	77	56	63	0.00	28.97	30.22	S	10.5	22.2	2.70	45.3	44.5	46	43	
7	37	32	34.0	28.5	30	0	89	72	80	0.00	29.11	30.37	NNE	10.1	16.8	2.70	44.8	43.0	45	42	
8	35	31	32.3	29.5	32	0	93	83	90	0.10	29.05	30.30	N	9.9	18.6	1.80	43.3	40.3	42	40	
9	45	25	35.4	23.6	30	0	85	37	64	0.02	29.08	30.34	N	6.5	16.2	12.05	43.0	40.4	44	38	
10	52	23	34.3	23.6	28	0	94	32	69	0.00	29.06	30.32	NW	2.3	8.2	11.98	42.0	39.7	44	36	
11	61	26	45.0	31.2	22	0	88	35	61	0.00	28.88	30.13	S	9.8	33.5	9.29	42.2	40.8	45	37	
12	60	35	49.1	41.9	18	0	97	58	77	0.00	28.62	29.86	S	6.6	20.0	11.26	45.2	45.7	50	42	
13	55	39	44.7	42.8	18	0	99	89	93	0.71	28.57	29.81	N	15.7	38.4	0.67	46.7	46.6	48	43	
14	50	35	40.9	31.3	22	0	93	38	72	0.25	28.84	30.09	NNW	17.0	34.1	4.62	44.4	43.3	45	42	
15	58	28	40.5	19.1	22	0	73	16	46	0.00	28.93	30.19	NNW	5.1	13.7	12.51	42.8	43.4	47	41	
16	56	28	42.4	27.8	23	0	85	35	58	0.00	28.96	30.21	NNW	3.8	15.9	10.22	43.2	44.0	48	41	
17	57	29	41.1	28.0	22	0	88	27	63	0.00	28.98	30.23	NNW	3.6	11.8	7.83	42.8	42.8	46	40	
18	59	36	47.3	39.2	17	0	92	46	75	0.00	28.78	30.03	SSE	6.1	18.2	7.24	44.5	44.3	48	42	
19	53	43	48.0	44.9	17	0	100	58	89	0.01	28.59	29.83	SSE	8.1	22.0	3.09	46.1	45.9	48	44	
20	56	37	47.6	26.9	18	0	64	26	46	0.00	28.73	29.98	NNW	17.8	43.1	11.99	45.9	44.4	47	42	
21	56	26	42.8	25.2	24	0	85	27	52	0.00	28.67	29.92	NW	6.5	19.7	11.93	44.4	41.9	46	38	
22	58	33	45.2	30.1	20	0	82	37	57	0.00	28.64	29.88	N	8.0	24.8	11.74	44.8	42.6	47	39	
23	49	33	41.2	31.1	24	0	90	45	68	0.00	29.06	30.32	N	6.1	22.8	11.22	45.0	43.1	47	40	
24	56	33	43.5	32.2	21	0	81	42	66	0.00	28.87	30.12	SSE	8.2	27.8	9.45	44.2	41.9	45	39	
25	59	29	45.8	42.2	21	0	99	64	88	0.00	28.82	30.08	ESE	4.8	18.8	8.28	44.8	43.4	48	39	
26	60	52	56.3	54.7	9	0	100	90	95	2.64	28.58	29.82	SE	13.6	45.3	0.26	49.6	50.5	52	48	
27	53	30	42.9	36.6	23	0	97	63	79	0.00	28.46	29.70	NW	12.9	31.6	6.34	48.8	49.5	52	46	
28	36	25	30.3	20.7	35	0	84	57	68	0.00	28.92	30.18	NNW	11.7	25.8	9.22	42.5	43.9	46	42	
29	34	24	28.3	20.4	36	0	84	57	72	0.00	29.06	30.32	NNE	6.5	18.9	7.32	40.2	40.7	42	39	
30	37	25	33.2	25.8	34	0	93	67	74	0.06	28.77	30.01	S	4.9	13.3	2.34	39.7	39.2	40	38	
31	52	29	39.7	35.3	24	0	98	62	85	0.32	28.58	29.82	SSW	10.4	31.1	8.32	41.9	41.8	46	39	
	51	31	41.1	31.1	<- Monthly Averages ->						28.82	30.07	NNW	8.9	45.3	8.02	44.6	43.6	46	41	
Temperature - Highest: 65 Lowest: 23							Degree Days - Total HDD: 740 Total CDD: 0					Number of Days With: Tmax ≥ 90: 0                   Rainfall ≥ 0.01 inch: 8 Tmax ≤ 32: 0                  Rainfall ≥ 0.10 inch: 5 Tmin ≤ 32: 19               Avg Wind Speed ≥ 10 mph: 11 Tmin ≤ 0: 0                   Max Wind Speed ≥ 30 mph: 8									
Rainfall: Monthly Total: 4.11 in. Greatest 24 Hr: 2.64 in.							Humidity - Highest: 100 Lowest: 16														

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\* Denotes incomplete record

Figure 19 December Mesonet Data



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

January 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 <sup>2</sup> )	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG	MAX		SOD	BARE	MAX	MIN
1	29	23	24.7	18.6	39	0	82	73	77	0.00	29.07	30.33	N	12.0	26.2	3.20	39.8	40.5	44	39
2	30	24	27.2	20.8	38	0	95	67	77	0.00	28.97	30.23	N	5.5	12.6	1.59	37.7	37.4	39	37
3	33	30	31.5	30.8	34	0	99	92	97	0.73	28.76	30.01	NNW*	NA	11.1*	1.66	37.2	36.6	37	36
4	44	28	35.5	30.6	29	0	99	55	83	0.48	28.71	29.96	SW *	NA	9.4*	NA	37.6	37.4	40	36
5	65	28	46.2	34.6	19	0	99	34	69	0.16	28.80	30.05	SSE	4.5	15.4	12.62	39.2	41.0	46	38
6	66	43	54.8	44.3	11	0	89	53	68	0.00	28.66	29.91	S	11.1	29.4	7.52	43.3	45.1	48	42
7	67	40	58.8	42.9	11	0	88	35	58	0.00	28.66	29.91	SSW	8.9	28.7	12.74	48.4	50.4	54	48
8	56	35	45.7	29.4	19	0	93	32	56	0.00	29.05	30.31	N	10.0	24.1	10.46	46.0	46.7	50	44
9	53*	29*	40.2*	22.0*	24*	0*	82*	22*	52*	0.00*	29.24*	30.50*	N *	3.8*	10.2*	NA	43.6*	42.7*	47*	39*
10	50	35	43.0	24.4	23	0	59	34	48	0.00	28.98	30.24	SSE	8.6	25.6	4.15	42.7	40.8	43	39
11	45	40	42.8	37.3	22	0	98	53	83	0.60	28.71	29.96	SSE	11.9	24.1	0.83	43.3	41.9	43	41
12	46	33	38.1	35.0	26	0	100	78	89	0.03	28.79	30.04	NNW	16.0	31.4	1.86	43.2	42.6	43	41
13	34	30	32.1	27.8	33	0	87	79	84	0.00	29.15	30.41	N	9.8	22.5	1.90	40.3	40.1	41	39
14	47	33	37.1	30.3	25	0	88	56	77	0.00	29.13	30.39	SSE	3.7	11.8	10.76	41.2	41.5	46	39
15	51	31	40.7	35.6	24	0	95	68	83	0.01	28.97	30.23	S	7.2	15.9	10.27	41.9	42.7	46	39
16	49	40	44.2	42.9	21	0	100	84	95	0.00	28.81	30.06	SSE	7.5	19.3	2.27	43.5	44.1	45	43
17	50*	36*	42.8*	39.1*	22*	0*	100*	62*	88*	0.00*	28.84*	30.09*	NNW*	6.9*	23.0*	8.81*	44.6*	45.2*	49*	44*
18	64	35	47.6	42.6	16	0	99	56	84	0.01	28.54	29.78	SSE	13.0	45.9	8.01	44.3	44.3	48	41
19	38	22	27.5	19.6	35	0	84	60	72	0.00	28.92	30.17	NNW	21.5	45.1	6.89	42.2	40.0	47	37
20	44	18	30.3	19.2	34	0	90	39	66	0.00	29.00	30.26	SSE	6.0	17.1	11.85	38.7	35.6	37	35
21	56	34	43.5	30.5	20	0	81	40	61	0.00	28.67	29.91	SSE	15.5	36.2	12.06	40.0	37.8	42	35
22	55	26	42.4	36.9	25	0	94	64	81	0.01	28.62	29.86	SSE	16.8	37.2	1.70	43.2	42.6	46	39
23	43	21	30.6	17.5	33	0	82	37	60	0.00	28.84	30.09	NW	10.4	30.2	14.26	39.7	36.7	39	35
24	48	26	34.9	23.9	28	0	81	41	65	0.00	28.92	30.17	N	7.9	26.2	8.93	39.5	37.0	40	35
25	40	18	27.8	14.7	36	0	77	33	59	0.00	29.05	30.31	SSW	3.6	12.0	9.39	38.5	35.4	37	34
26	55	22	39.3	23.9	26	0	91	25	59	0.00	28.92	30.18	SW	5.5	16.9	12.87	38.5	36.5	40	34
27	60	29	44.5	27.4	21	0	83	28	54	0.00	28.79	30.04	WNV	7.5	18.4	14.55	40.2	39.0	44	35
28	47	25	40.5	24.4	29	0	70	38	53	0.00	28.77	30.02	N	14.1	42.0	7.93	41.2	39.8	42	38
29	44	19	32.1	15.4	34	0	85	25	54	0.00	28.99	30.25	WNV	5.0	16.9	11.19	38.7	36.9	39	35
30	43	19	30.6	16.2	34	0	81	36	56	0.00	28.94	30.20	E	7.6	20.9	14.93	38.2	36.6	40	34
31	53	24	40.0	33.3	27	0	87	65	77	0.00	28.80	30.05	SSE	6.8	20.9	4.61	38.6	37.3	41	35
	48*	29*	38.6*	28.8*	<- Monthly Averages ->						28.87*	30.13*	SSE*	9.3*	45.9*	7.92*	41.1*	40.4*	43*	38*
Temperature - Highest: 67*					Degree Days - Total HDD: 817*					Number of Days With:										
Lowest: 18*					Total CDD: 0*					Tmax ≥ 90: 0* Rainfall ≥ 0.01 inch: 8*										
Rainfall: Monthly Total: 2.03* in.					Humidity - Highest: 100*					Tmax ≤ 32: 2* Rainfall ≥ 0.10 inch: 4*										
Greatest 24 Hr: 0.73* in.					Lowest: 22*					Tmin ≤ 32: 20* Avg Wind Speed ≥ 10 mph: 11*										
										Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 7*										