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

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**SY2018 Monthly Report**

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*Lake Thunderbird TMDL Monitoring Plan Implementation:*

*November 2018 Monitoring Report*

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Oklahoma Water Resources Board  
Water Quality Programs Division  
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**TABLE OF CONTENTS**

**Table of Contents..... 3**  
**List of Tables..... 3**  
**List of Figures ..... 3**  
**Summary of November 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 WITH A LEVEL 1 RPD ..... 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 TG-1 ..... 8  
FIGURE 4 DISCHARGE SUMMARY TE-1..... 9  
FIGURE 5 DISCHARGE SUMMARY LT-1 ..... 10  
FIGURE 6 DISCHARGE SUMMARY LRC-1..... 11  
FIGURE 7 DISCHARGE SUMMARY JB-1 ..... 12  
FIGURE 8 MONTHLY HYDROGRAPH TE-1 ..... 13  
FIGURE 9 MONTHLY HYDROGRAPH TG-1 ..... 13  
FIGURE 10 MONTHLY HYDROGRAPH UDB-1 ..... 14  
FIGURE 11 MONTHLY HYDROGRAPH JB-1 ..... 14  
FIGURE 12 MONTHLY HYDROGRAPH URC-2 ..... 15  
FIGURE 13 MONTHLY HYDROGRAPH WC-1..... 15  
FIGURE 14 MONTHLY HYDROGRAPH LDB-1 ..... 16  
FIGURE 15 MONTHLY HYDROGRAPH LRC-1 ..... 16  
FIGURE 16 NOVEMBER MESONET DATA ..... 17

## SUMMARY OF NOVEMBER WATER QUALITY SAMPLING

Sampling for November 2018 occurred on the nineteenth and was considered a base flow collection. Water samples were collected at nine locations, with the exception of CC-1 due to inaccessibility from road construction, and discharge was measured at six locations. Mesonet data shows no precipitation occurring on the nineteenth and no precipitation in the 72 hours prior to sampling, or in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of November was 0.60 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

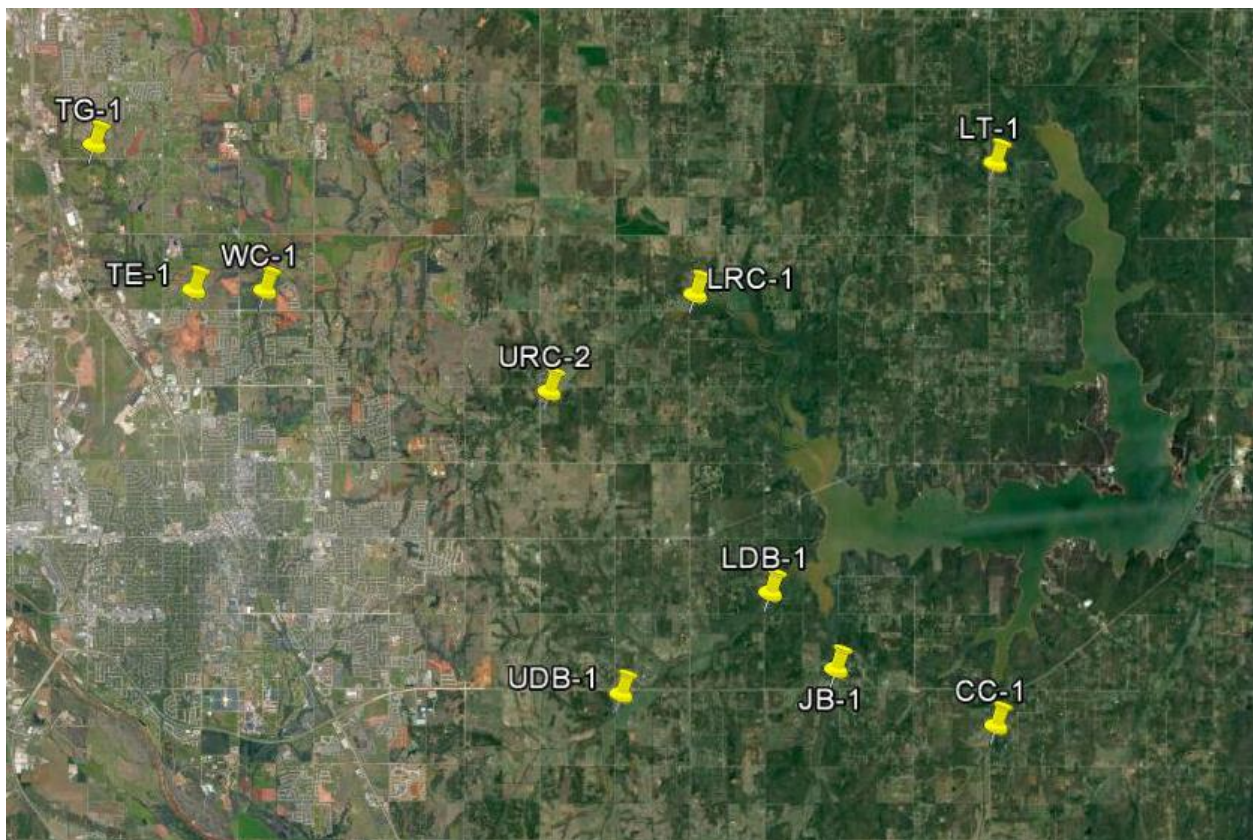


Figure 1 Monitoring Station Map

## Field Data Form

### Field Measurement Record

Reviewed By:           JM          

Station	Date	Time	Field Crew	Temp C°	DO mg/L	SpC µS	pH	Turb (NTU)	Notes
cc-1	11/19/2018	9:40	SD	N/A	N/A	N/A	N/A	N/A	Not able to access due to ongoing construction
lt-1	11/19/2018	11:30	SD	6.6	5.4	675.0	7.3	5.0	
jb-1	11/19/2018	10:05	SD	5.0	8.8	932.0	7.5	3.0	Higher stage than normal base flow conditions, possible beaver dam causing channel to stay higher
udb-1	11/19/2018	9:15	SD	4.8	10.7	945.0	7.7	2.0	Large tree debris under bridge has been removed, cleared smaller tree/leaf debris from orifice area
ldb-1	11/19/2018	10:35	SD	6.3	10.5	1016.0	7.8	3.0	
tg-1	11/19/2018	14:35	SD	6.7	14.0	1153.0	7.8	2.0	
te-1	11/19/2018	16:00	SD	10.7	11.5	1173.0	7.9	8.0	
wc-1	11/19/2018	15:30	SD	7.3	7.3	1098.0	7.5	6.0	Beaver dam obstructing flow , affecting channel
lrc-1	11/19/2018	12:50	SD	5.5	10.7	822.0	7.7	7.0	Orifice for autosampler pulled out and buried, moved it back behind bridge pier
urc-2	11/19/2018	13:40	SD	5.8	8.4	910.0	7.6	9.0	RP1 not over w ater, used RP2

Table 1 Field Data Form

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
TG-1	0.26	0.12	0.037	<5.0
CC-1	N/A	N/A	N/A	N/A
JB-1	0.18	<0.05	0.025	<5.0
UDB-1	0.15	<0.05	0.024	<5.0
LDB-1	0.17	0.19	0.025	5.00
LRC-1	0.21	<0.05	0.044	<5.0
URC-2	0.33	<0.05	0.054	16.0
WC-1	0.29	<0.05	0.092	9.00
TE-1	0.37	<0.05	0.028	6.00
LT-1	0.27	<0.05	0.024	<5.0

Table 2 Laboratory Analysis Summary

Site Name	TKN	Nitrate/Nitrite	TP	TSS
Field Blank	<0.10 mg/L	<0.05 mg/L	<0.010 mg/L	<5.0 mg/L
Duplicate	0.15 mg/L	<0.05 mg/L	0.024 mg/L	<5.0 mg/L
Duplicate RPD	0%	0%	0%	0%

Table 3 QA/QC Data With a Level 1 RPD

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.

SITE	TG-1	CC-1	JB-1	UDB-1	LDB-1	LRC-1	URC-2	WC-1	TE-1	LT-1
STAGE (ft)	9.21	N/A	17.45	17.87	16.77	17.52	11.79	8.58	11.57	4.50
DISCHARGE (ft <sup>3</sup> /s)	1.44	N/A	0.26	6.54	13.32	1.60	2.86	0.01	0.32	0.12

Table 4 Station Discharge Summary

# Discharge Measurement Summary

Date Generated: Tue Nov 20 2018

## File Information

File Name URC1119.WAD  
Start Date and Time 2018/11/19 12:31:53

## Site Details

Site Name URC  
Operator(s) JTW

## 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%	1.4%
Velocity	0.6%	2.8%
Width	0.1%	0.1%
Method	2.0%	-
# Stations	2.6%	-
<b>Overall</b>	<b>3.5%</b>	<b>3.3%</b>

## Summary

Averaging Int.	40	# Stations	19
Start Edge	LEW	Total Width	11.000
Mean SNR	38.1 dB	Total Area	5.150
Mean Temp	42.05 °F	Mean Depth	0.468
Disch. Equation	Mid-Section	Mean Velocity	0.5552
		<b>Total Discharge</b>	<b>2.8595</b>

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:31	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:31	2.00	0.6	0.500	0.6	0.200	0.3825	1.00	0.3825	0.625	0.2391	8.4
2	12:34	2.50	0.6	0.600	0.6	0.240	0.2228	1.00	0.2228	0.300	0.0668	2.3
3	12:35	3.00	0.6	0.600	0.6	0.240	0.3665	1.00	0.3665	0.300	0.1100	3.8
4	12:36	3.50	0.6	0.700	0.6	0.280	0.4278	1.00	0.4278	0.350	0.1498	5.2
5	12:37	4.00	0.6	0.700	0.6	0.280	0.6732	1.00	0.6732	0.350	0.2357	8.2
6	12:38	4.50	0.6	0.700	0.6	0.280	0.7595	1.00	0.7595	0.350	0.2659	9.3
7	12:39	5.00	0.6	0.700	0.6	0.280	0.7480	1.00	0.7480	0.350	0.2619	9.2
8	12:40	5.50	0.6	0.700	0.6	0.280	0.7507	1.00	0.7507	0.350	0.2628	9.2
9	12:40	6.00	0.6	0.600	0.6	0.240	0.7759	1.00	0.7759	0.300	0.2328	8.1
10	12:42	6.50	0.6	0.600	0.6	0.240	0.7425	1.00	0.7425	0.300	0.2228	7.8
11	12:43	7.00	0.6	0.500	0.6	0.200	0.6657	1.00	0.6657	0.250	0.1664	5.8
12	12:44	7.50	0.6	0.500	0.6	0.200	0.6847	1.00	0.6847	0.250	0.1712	6.0
13	12:45	8.00	0.6	0.500	0.6	0.200	0.4777	1.00	0.4777	0.250	0.1194	4.2
14	12:46	8.50	0.6	0.500	0.6	0.200	0.5279	1.00	0.5279	0.250	0.1320	4.6
15	12:47	9.00	0.6	0.400	0.6	0.160	0.5030	1.00	0.5030	0.200	0.1006	3.5
16	12:48	9.50	0.6	0.300	0.6	0.120	0.3458	1.00	0.3458	0.150	0.0518	1.8
17	12:49	10.00	0.6	0.300	0.6	0.120	0.3143	1.00	0.3143	0.225	0.0707	2.5
18	12:49	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 2 Discharge Summary URC-2

# Discharge Measurement Summary

Date Generated: Tue Nov 20 2018

## File Information

File Name TG1119.WAD  
 Start Date and Time 2018/11/19 13:39:04

## Site Details

Site Name TG  
 Operator(s) JTW

## 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%	1.9%
Velocity	0.7%	5.4%
Width	0.1%	0.1%
Method	2.0%	-
# Stations	2.4%	-
<b>Overall</b>	<b>3.3%</b>	<b>5.8%</b>

## Summary

Averaging Int. 40 # Stations 21  
 Start Edge LEW Total Width 20.000  
 Mean SNR 12.9 dB Total Area 16.700  
 Mean Temp 43.76 °F Mean Depth 0.835  
 Disch. Equation Mid-Section Mean Velocity 0.0861  
**Total Discharge 1.4375**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Nov 19 14:03:27 CST 2018	20.000	9.210		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:39	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>13:39</i>	<i>1.00</i>	<i>0.6</i>	<i>0.400</i>	<i>0.6</i>	<i>0.160</i>	<i>0.0564</i>	<i>1.00</i>	<i>0.0564</i>	<i>0.400</i>	<i>0.0226</i>	<i>1.6</i>
2	13:40	2.00	0.6	0.500	0.6	0.200	0.0794	1.00	0.0794	0.500	0.0397	2.8
3	13:41	3.00	0.6	0.700	0.6	0.280	0.1296	1.00	0.1296	0.700	0.0907	6.3
4	13:42	4.00	0.6	1.100	0.6	0.440	0.1119	1.00	0.1119	1.100	0.1231	8.6
5	13:43	5.00	0.6	1.100	0.6	0.440	0.1237	1.00	0.1237	1.100	0.1361	9.5
6	13:44	6.00	0.6	1.100	0.6	0.440	0.1237	1.00	0.1237	1.100	0.1361	9.5
7	13:45	7.00	0.6	1.000	0.6	0.400	0.1204	1.00	0.1204	1.000	0.1204	8.4
8	13:46	8.00	0.6	0.900	0.6	0.360	0.0974	1.00	0.0974	0.900	0.0877	6.1
9	13:47	9.00	0.6	0.900	0.6	0.360	0.0728	1.00	0.0728	0.900	0.0655	4.6
10	13:48	10.00	0.6	0.900	0.6	0.360	0.0988	1.00	0.0988	0.900	0.0889	6.2
11	13:50	11.00	0.6	1.000	0.6	0.400	0.1096	1.00	0.1096	1.000	0.1096	7.6
12	13:51	12.00	0.6	0.900	0.6	0.360	0.0981	1.00	0.0981	0.900	0.0883	6.1
13	13:52	13.00	0.6	0.900	0.6	0.360	0.0981	1.00	0.0981	0.900	0.0883	6.1
14	13:53	14.00	0.6	0.900	0.6	0.360	0.0850	1.00	0.0850	0.900	0.0765	5.3
<i>15</i>	<i>13:54</i>	<i>15.00</i>	<i>0.6</i>	<i>1.000</i>	<i>0.6</i>	<i>0.400</i>	<i>0.0052</i>	<i>1.00</i>	<i>0.0052</i>	<i>1.000</i>	<i>0.0052</i>	<i>0.4</i>
16	13:55	16.00	0.6	0.900	0.6	0.360	0.0364	1.00	0.0364	0.900	0.0328	2.3
<i>17</i>	<i>13:56</i>	<i>17.00</i>	<i>0.6</i>	<i>1.000</i>	<i>0.6</i>	<i>0.400</i>	<i>0.0915</i>	<i>1.00</i>	<i>0.0915</i>	<i>1.000</i>	<i>0.0915</i>	<i>6.4</i>
<i>18</i>	<i>13:57</i>	<i>18.00</i>	<i>0.6</i>	<i>0.800</i>	<i>0.6</i>	<i>0.320</i>	<i>0.0361</i>	<i>1.00</i>	<i>0.0361</i>	<i>0.800</i>	<i>0.0289</i>	<i>2.0</i>
<i>19</i>	<i>13:58</i>	<i>19.00</i>	<i>0.6</i>	<i>0.700</i>	<i>0.6</i>	<i>0.280</i>	<i>0.0082</i>	<i>1.00</i>	<i>0.0082</i>	<i>0.700</i>	<i>0.0057</i>	<i>0.4</i>
20	13:58	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 3 Discharge Summary TG-1



# Discharge Measurement Summary

Date Generated: Tue Nov 20 2018

## File Information

File Name TE1119.WAD  
 Start Date and Time 2018/11/19 14:53:37

## Site Details

Site Name TE  
 Operator(s) JTW

## 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%	4.9%
Velocity	1.6%	15.6%
Width	0.2%	0.2%
Method	2.8%	-
# Stations	4.2%	-
<b>Overall</b>	<b>5.5%</b>	<b>16.4%</b>

## Summary

Averaging Int.	40	# Stations	12
Start Edge	LEW	Total Width	11.000
Mean SNR	39.8 dB	Total Area	7.100
Mean Temp	50.37 °F	Mean Depth	0.645
Disch. Equation	Mid-Section	Mean Velocity	0.0449
		<b>Total Discharge</b>	<b>0.3191</b>

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Nov 19 14:57:48 CST 2018	5.000	11.570		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:53	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:53	1.00	0.6	0.400	0.6	0.160	-0.0338	1.00	-0.0338	0.400	-0.0135	-4.2
2	14:54	2.00	0.6	0.600	0.6	0.240	0.0456	1.00	0.0456	0.600	0.0274	8.6
3	14:55	3.00	0.6	0.900	0.6	0.360	0.0531	1.00	0.0531	0.900	0.0478	15.0
4	14:56	4.00	0.6	1.100	0.6	0.440	0.0404	1.00	0.0404	1.100	0.0444	13.9
5	14:58	5.00	0.6	1.000	0.6	0.400	0.0528	1.00	0.0528	1.000	0.0528	16.6
6	14:59	6.00	0.6	0.700	0.6	0.280	0.0614	1.00	0.0614	0.700	0.0430	13.5
7	15:00	7.00	0.6	0.700	0.6	0.280	0.0528	1.00	0.0528	0.700	0.0370	11.6
8	15:01	8.00	0.6	0.800	0.6	0.320	0.0512	1.00	0.0512	0.800	0.0409	12.8
9	15:03	9.00	0.6	0.500	0.6	0.200	0.0820	1.00	0.0820	0.500	0.0410	12.9
10	15:04	10.00	0.6	0.400	0.6	0.160	-0.0043	1.00	-0.0043	0.400	-0.0017	-0.5
11	15:04	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 4 Discharge Summary TE-1

# Discharge Measurement Summary

Date Generated: Tue Nov 20 2018

## File Information

File Name LT1119.WAD  
 Start Date and Time 2018/11/19 10:49:17

## 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	0.5%	3.3%
Velocity	12.7%	105.6%
Width	0.5%	0.5%
Method	7.0%	-
# Stations	2.4%	-
<b>Overall</b>	<b>14.8%</b>	<b>105.6%</b>

## Summary

Averaging Int. 40 # Stations 21  
 Start Edge LEW Total Width 20.500  
 Mean SNR 40.8 dB Total Area 35.200  
 Mean Temp 43.24 °F Mean Depth 1.717  
 Disch. Equation Mid-Section Mean Velocity 0.0034  
**Total Discharge 0.1204**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Nov 19 10:48:16 CST 2018	0.000	4.500		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:49	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	10:49	1.00	0.6	0.400	0.6	0.160	0.0020	1.00	0.0020	0.600	0.0012	1.0
2	10:50	3.00	0.6	1.200	0.6	0.480	0.0062	1.00	0.0062	1.800	0.0112	9.3
3	10:52	4.00	0.6	1.400	0.6	0.560	0.0164	1.00	0.0164	1.400	0.0230	19.1
4	10:53	5.00	0.6	1.700	0.6	0.680	0.0161	1.00	0.0161	1.700	0.0273	22.7
5	10:54	6.00	0.6	1.700	0.6	0.680	-0.0302	1.00	-0.0302	1.700	-0.0513	-42.6
6	10:55	7.00	0.6	1.900	0.6	0.760	0.0210	1.00	0.0210	1.900	0.0399	33.1
7	10:57	8.00	0.6	2.100	0.6	0.840	-0.0085	1.00	-0.0085	2.100	-0.0179	-14.9
8	10:58	9.00	0.6	2.300	0.6	0.920	-0.0105	1.00	-0.0105	2.300	-0.0241	-20.1
9	10:59	10.00	0.6	2.350	0.6	0.940	-0.0026	1.00	-0.0026	2.350	-0.0062	-5.1
10	11:00	11.00	0.6	2.300	0.6	0.920	0.0131	1.00	0.0131	2.300	0.0302	25.1
11	11:01	12.00	0.6	2.300	0.6	0.920	0.0007	1.00	0.0007	2.300	0.0015	1.3
12	11:02	13.00	0.6	2.300	0.6	0.920	0.0082	1.00	0.0082	2.300	0.0189	15.7
13	11:03	14.00	0.6	2.300	0.6	0.920	0.0167	1.00	0.0167	2.300	0.0385	32.0
14	11:04	15.00	0.6	2.200	0.6	0.880	0.0095	1.00	0.0095	2.200	0.0209	17.4
15	11:05	16.00	0.6	2.150	0.6	0.860	0.0135	1.00	0.0135	2.150	0.0289	24.0
16	11:06	17.00	0.6	2.050	0.6	0.820	0.0115	1.00	0.0115	2.050	0.0235	19.6
17	11:07	18.00	0.6	1.750	0.6	0.700	-0.0184	1.00	-0.0184	1.750	-0.0322	-26.7
18	11:09	19.00	0.6	1.400	0.6	0.560	-0.0154	1.00	-0.0154	1.400	-0.0216	-17.9
19	11:10	20.00	0.6	0.700	0.6	0.280	0.0144	1.00	0.0144	0.525	0.0076	6.3
20	11:10	20.50	None	0.300	0.0	0.0	0.0000	1.00	0.0144	0.075	0.0011	0.9

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

Figure 5 Discharge Summary LT-1

# Discharge Measurement Summary

Date Generated: Tue Nov 20 2018

## File Information

File Name LRC1119.WAD  
Start Date and Time 2018/11/19 11:44:49

## Site Details

Site Name LRC  
Operator(s) JTW

## 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%	0.9%
Velocity	0.6%	2.4%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.2%	-
<b>Overall</b>	<b>3.1%</b>	<b>2.8%</b>

## Summary

Averaging Int. 40 # Stations 23  
Start Edge LEW Total Width 15.000  
Mean SNR 23.6 dB Total Area 13.650  
Mean Temp 41.66 °F Mean Depth 0.910  
Disch. Equation Mid-Section Mean Velocity 0.1170  
**Total Discharge 1.5967**

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Nov 19 11:43:24 CST 2018	0.000	17.520		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:44	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:44	1.00	0.6	0.500	0.6	0.200	-0.0161	1.00	-0.0161	0.500	-0.0080	-0.5
2	11:47	2.00	0.6	0.900	0.6	0.360	0.0249	1.00	0.0249	0.900	0.0224	1.4
3	11:48	3.00	0.6	1.000	0.6	0.400	0.0453	1.00	0.0453	1.000	0.0453	2.8
4	11:49	4.00	0.6	1.100	0.6	0.440	0.1207	1.00	0.1207	1.100	0.1328	8.3
5	11:50	5.00	0.6	1.200	0.6	0.480	0.1585	1.00	0.1585	0.900	0.1426	8.9
6	11:52	5.50	0.6	1.200	0.6	0.480	0.1693	1.00	0.1693	0.600	0.1016	6.4
7	11:53	6.00	0.6	1.200	0.6	0.480	0.1752	1.00	0.1752	0.600	0.1051	6.6
8	11:54	6.50	0.6	1.200	0.6	0.480	0.1795	1.00	0.1795	0.600	0.1077	6.7
9	11:55	7.00	0.6	1.200	0.6	0.480	0.1493	1.00	0.1493	0.600	0.0896	5.6
10	11:56	7.50	0.6	1.300	0.6	0.520	0.1378	1.00	0.1378	0.650	0.0896	5.6
11	11:57	8.00	0.6	1.300	0.6	0.520	0.1575	1.00	0.1575	0.650	0.1024	6.4
12	11:58	8.50	0.6	1.200	0.6	0.480	0.1348	1.00	0.1348	0.600	0.0809	5.1
13	11:59	9.00	0.6	1.000	0.6	0.400	0.1424	1.00	0.1424	0.500	0.0712	4.5
14	12:00	9.50	0.6	1.000	0.6	0.400	0.1385	1.00	0.1385	0.500	0.0692	4.3
15	12:01	10.00	0.6	1.000	0.6	0.400	0.1040	1.00	0.1040	0.500	0.0520	3.3
16	12:02	10.50	0.6	1.000	0.6	0.400	0.1296	1.00	0.1296	0.500	0.0648	4.1
17	12:03	11.00	0.6	1.000	0.6	0.400	0.1348	1.00	0.1348	0.500	0.0674	4.2
18	12:04	11.50	0.6	1.000	0.6	0.400	0.1211	1.00	0.1211	0.500	0.0605	3.8
19	12:05	12.00	0.6	1.000	0.6	0.400	0.1102	1.00	0.1102	0.750	0.0827	5.2
20	12:07	13.00	0.6	0.800	0.6	0.320	0.1142	1.00	0.1142	0.600	0.0685	4.3
21	12:08	13.50	0.6	0.600	0.6	0.240	0.0807	1.00	0.0807	0.600	0.0484	3.0
22	12:08	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 6 Discharge Summary LRC-1

# Discharge Measurement Summary

Date Generated: Tue Nov 20 2018

## File Information

File Name JB1119.WAD  
 Start Date and Time 2018/11/19 08:59:22

## Site Details

Site Name JB  
 Operator(s) JTW

## 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%	3.5%
Velocity	5.8%	26.6%
Width	0.2%	0.2%
Method	3.3%	-
# Stations	3.6%	-
<b>Overall</b>	<b>7.6%</b>	<b>26.9%</b>

## Summary

Averaging Int.	40	# Stations	14
Start Edge	LEW	Total Width	14.000
Mean SNR	44.8 dB	Total Area	21.050
Mean Temp	40.25 °F	Mean Depth	1.504
Disch. Equation	Mid-Section	Mean Velocity	0.0124
		<b>Total Discharge</b>	<b>0.2603</b>

## Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Mon Nov 19 08:58:20 CST 2018	0.000	17.450		

## Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	08:59	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	08:59	1.00	0.6	1.400	0.6	0.560	-0.0010	1.00	-0.0010	1.400	-0.0014	-0.5
2	09:00	2.00	0.6	1.800	0.6	0.720	-0.0105	1.00	-0.0105	1.800	-0.0189	-7.3
3	09:01	3.00	0.6	1.900	0.6	0.760	0.0003	1.00	0.0003	1.900	0.0006	0.2
4	09:03	4.00	0.6	1.600	0.6	0.640	0.0056	1.00	0.0056	1.600	0.0089	3.4
5	09:04	5.00	0.6	1.800	0.6	0.720	0.0259	1.00	0.0259	1.800	0.0467	17.9
6	09:05	6.00	0.6	1.700	0.6	0.680	0.0272	1.00	0.0272	1.700	0.0463	17.8
7	09:07	7.00	0.6	1.900	0.6	0.760	-0.0003	1.00	-0.0003	1.900	-0.0006	-0.2
8	09:08	8.00	0.6	2.100	0.6	0.840	0.0171	1.00	0.0171	2.100	0.0358	13.8
9	09:09	9.00	0.6	1.800	0.6	0.720	0.0079	1.00	0.0079	1.800	0.0142	5.4
10	09:10	10.00	0.6	1.700	0.6	0.680	0.0374	1.00	0.0374	1.700	0.0636	24.4
11	09:12	11.00	0.6	1.400	0.6	0.560	0.0351	1.00	0.0351	1.400	0.0491	18.9
12	09:13	12.00	0.6	1.300	0.6	0.520	0.0082	1.00	0.0082	1.950	0.0160	6.1
13	09:13	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 7 Discharge Summary JB-1

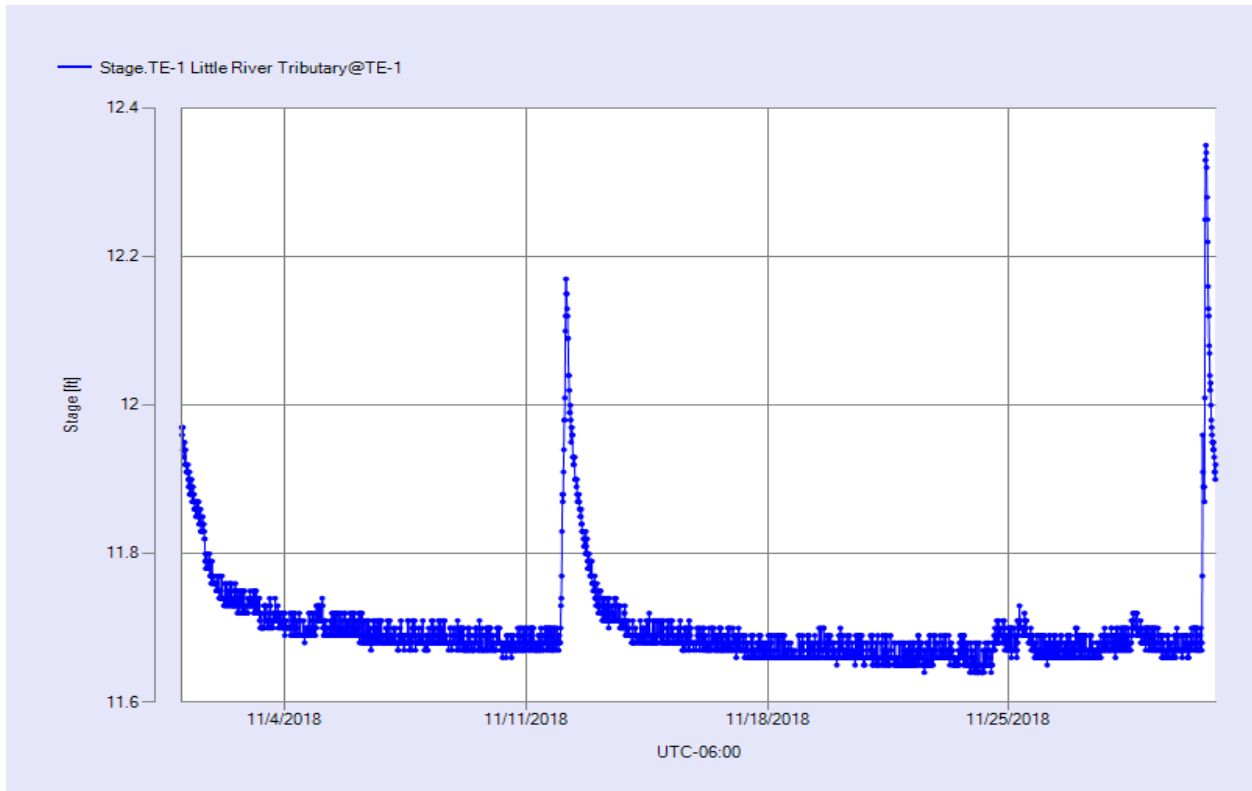


Figure 8 Monthly Hydrograph TE-1

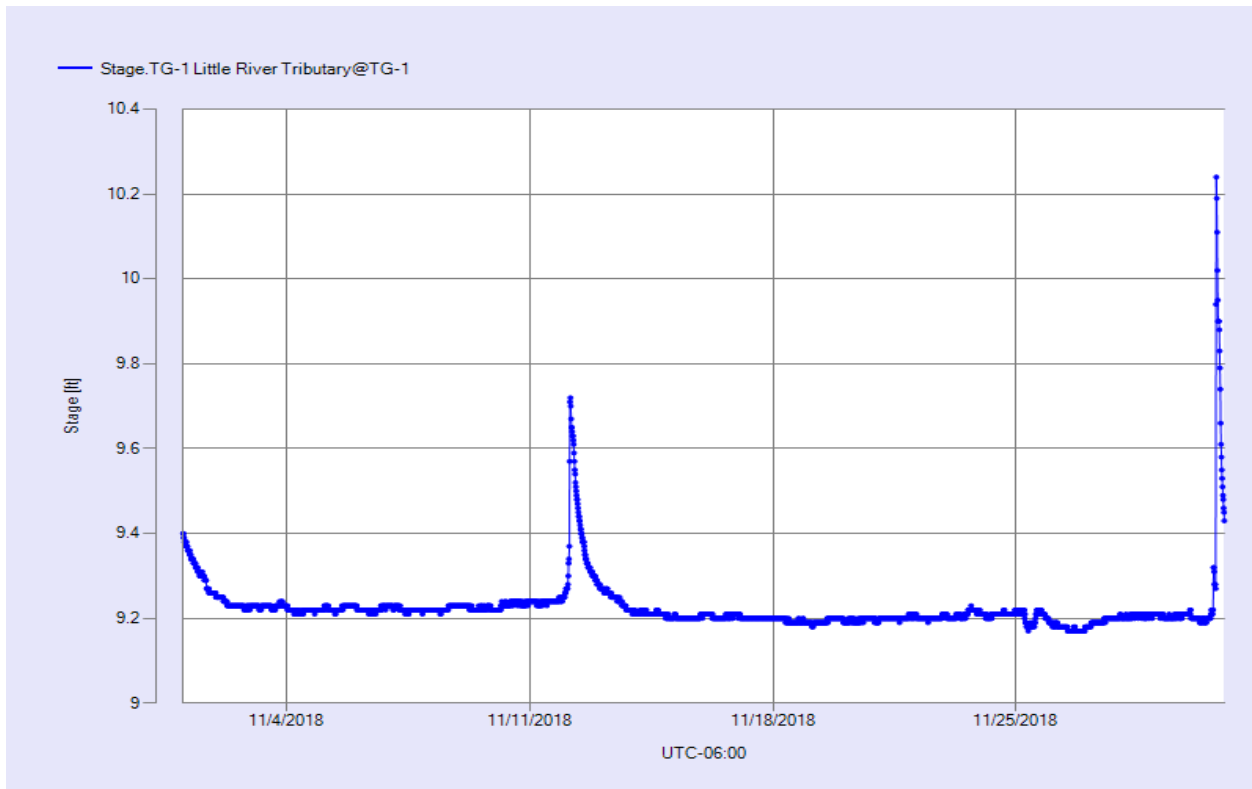


Figure 9 Monthly Hydrograph TG-1

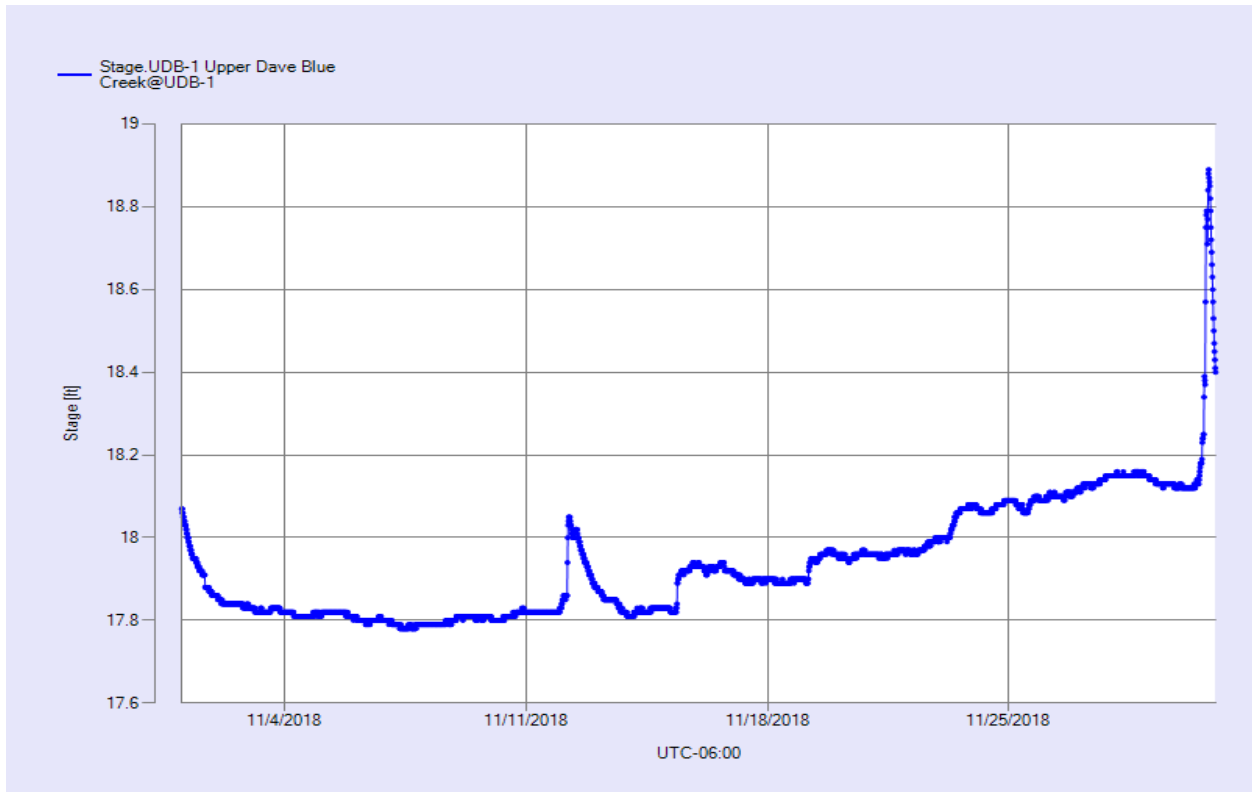


Figure 10 Monthly Hydrograph UDB-1

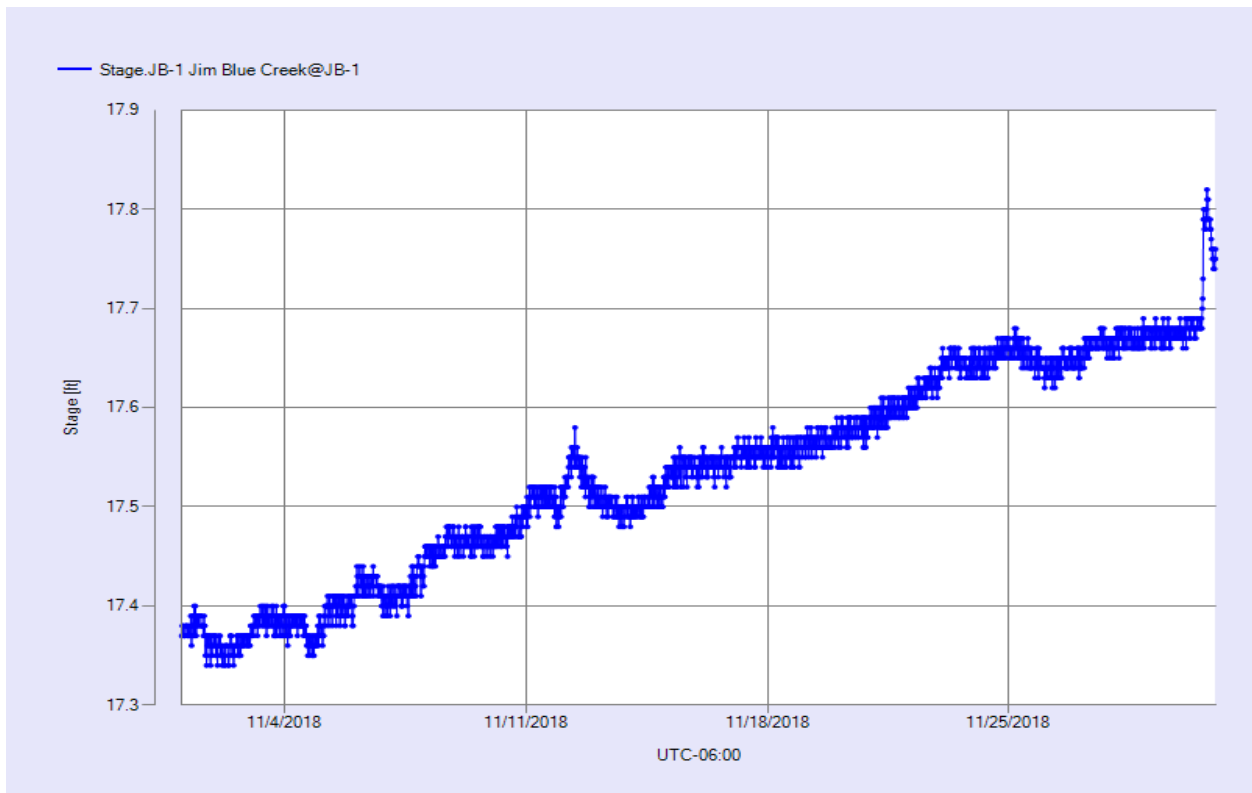


Figure 11 Monthly Hydrograph JB-1

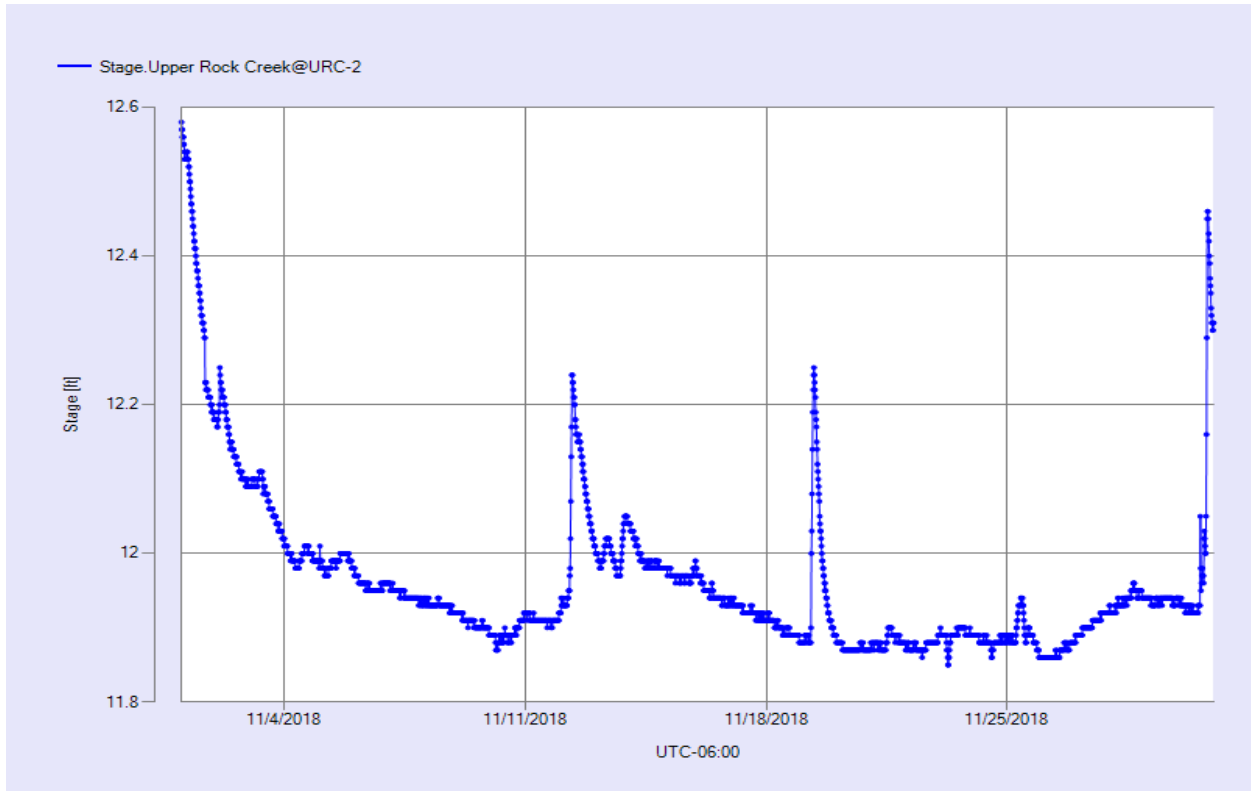


Figure 12 Monthly Hydrograph URC-2

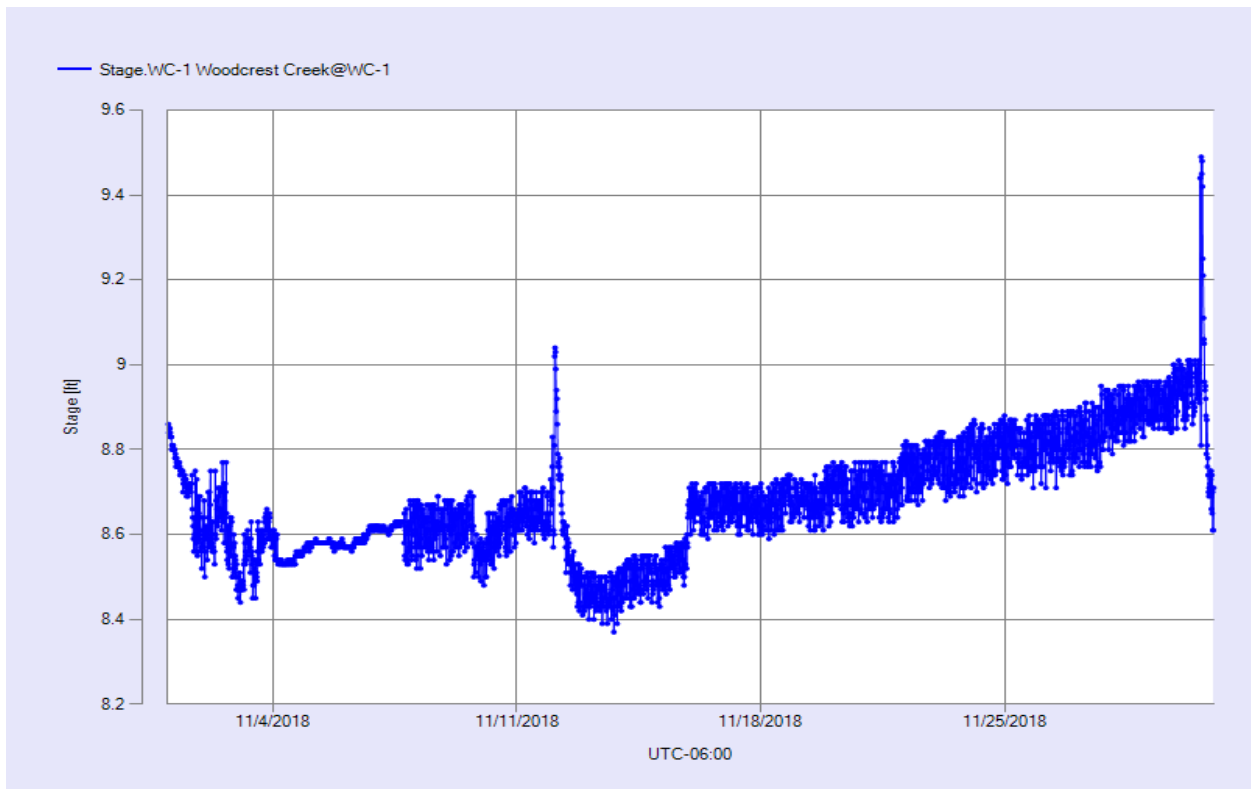


Figure 13 Monthly Hydrograph WC-1

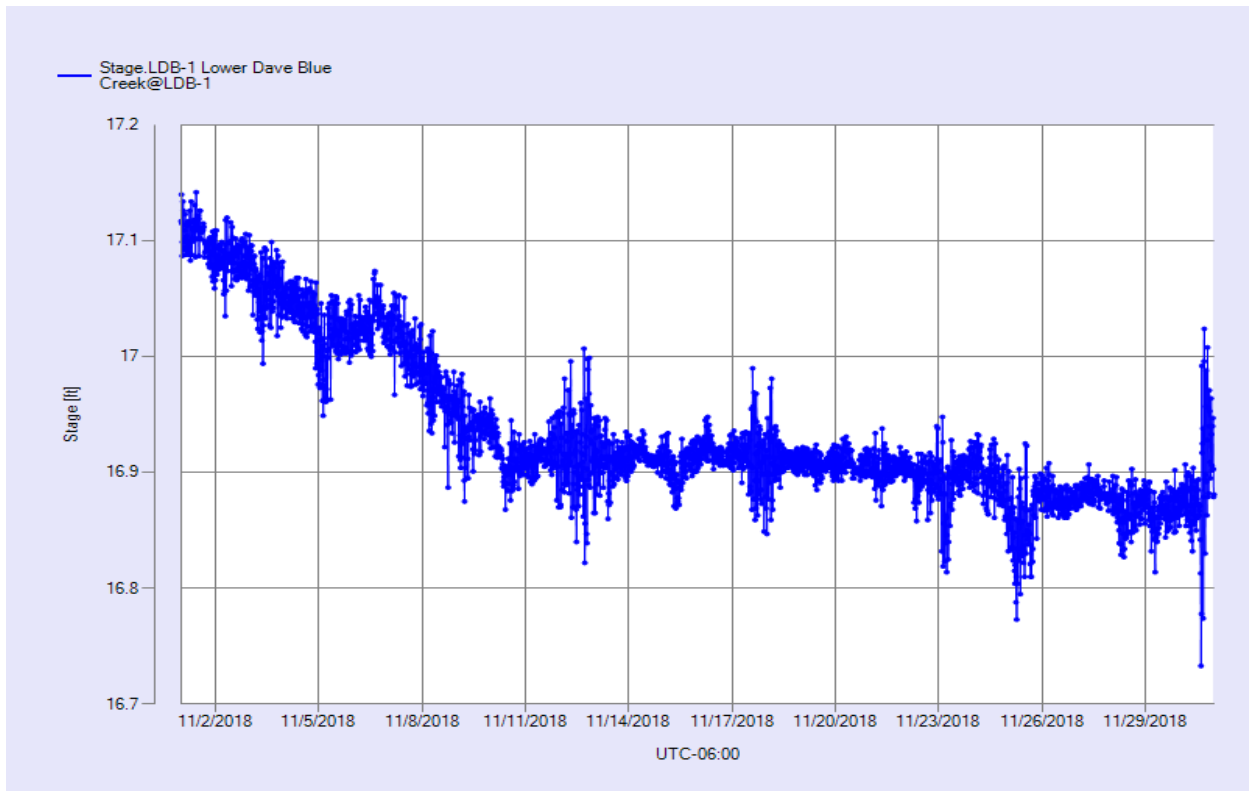


Figure 14 Monthly Hydrograph LDB-1

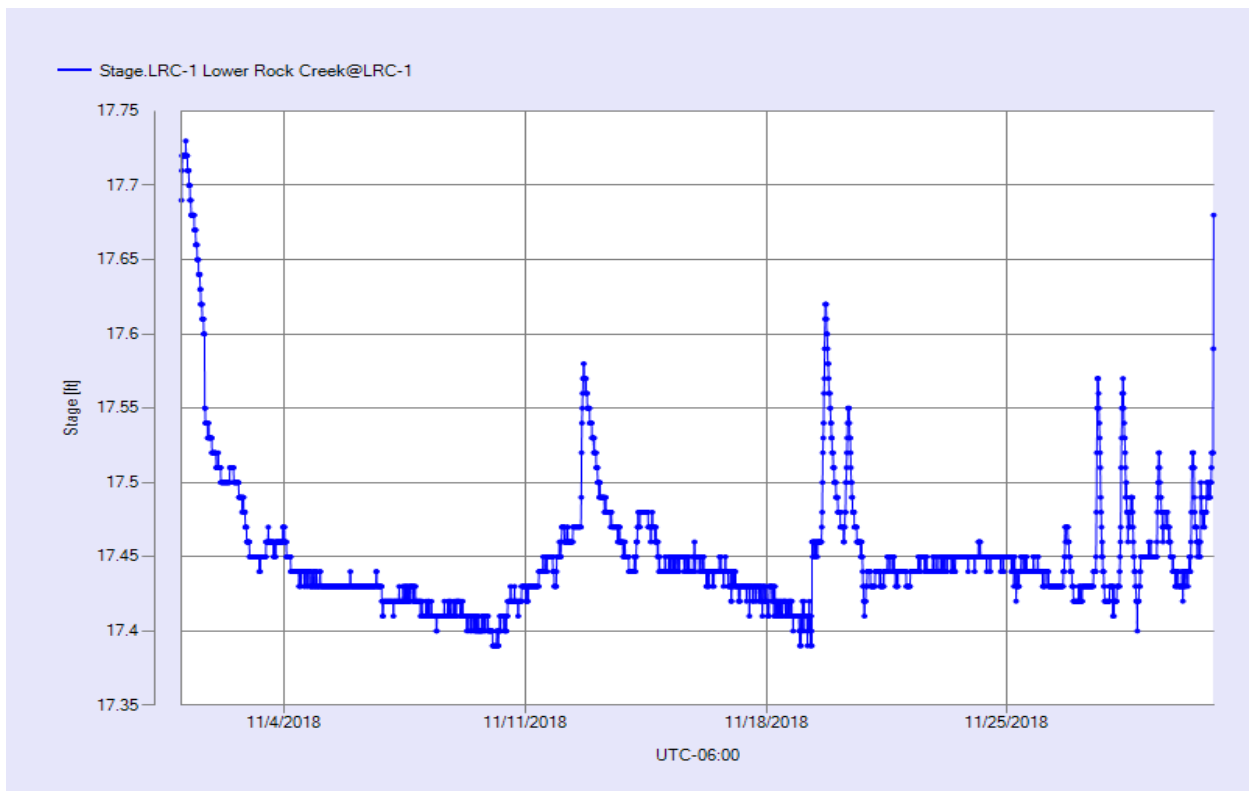


Figure 15 Monthly Hydrograph LRC-1



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

November 2018  
 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	61*	46*	50.3*	39.5*	12*	0*	84*	40*	68*	0.00*	28.69*	29.94*	NNW*	7.0*	20.0*	NA	58.2*	54.3*	58*	52*
2	62	45	52.2	38.0	11	0	83	35	61	0.00	28.71	29.95	W	7.4	20.8	12.76	57.3	53.1	57	50
3	68	46	56.0	43.0	8	0	75	48	62	0.00	28.57	29.81	SSE	10.2	26.0	7.67	56.6	52.7	56	49
4	59	42	49.7	37.9	14	0	88	39	66	0.00	28.76	30.00	NW	6.9	20.2	15.43	56.5	52.8	57	49
5	70	46	57.2	44.3	7	0	88	37	64	0.00	28.51	29.75	SSE	9.6	28.3	14.33	57.1	54.4	59	51
6	73	40	56.5	41.0	9	0	97	31	61	0.00	28.69	29.94	NE	6.5	23.3	14.70	57.1	54.2	59	50
7	59	47	53.0	38.1	12	0	69	44	57	0.00	28.85	30.10	NE	11.8	23.8	7.14	57.2	54.1	56	52
8	50	39	44.8	38.0	21	0	97	57	78	0.00	28.91	30.17	NNE	10.1	25.7	2.35	55.5	51.9	54	50
9	51	28	40.1	29.8	25	0	93	42	69	0.00	29.14	30.40	N	11.9	25.5	12.99	53.6	49.5	54	47
10	52	22	36.1	20.2	28	0	82	31	55	0.00	29.05	30.31	SSE	8.2	21.1	14.78	50.7	45.6	50	41
11	49	40	44.6	31.9	20	0	70	53	61	0.00	28.88	30.13	SSE	8.8	21.5	4.50	50.7	47.8	50	46
12	44	26	32.0	27.4	30	0	98	65	83	0.28	29.08	30.34	N	17.2	35.1	1.87	48.7	44.1	49	40
13	35	19	25.8	17.0	38	0	92	45	70	0.01	29.28	30.55	N	9.8	22.8	14.89	44.9	39.1	41	38
14	45	18	30.3	19.4	33	0	96	35	68	0.00	29.15	30.42	NNE	2.0	12.3	14.28	43.9	38.8	42	36
15	67	27	45.8	27.2	18	0	79	25	51	0.00	28.87	30.12	S	6.6	24.0	14.31	45.4	41.8	47	38
16	68	33	51.2	35.2	14	0	93	31	59	0.00	28.80	30.05	S	5.0	17.5	14.01	48.0	46.1	52	41
17	66	36	49.2	34.9	14	0	89	30	61	0.00	28.82	30.07	S	10.0	27.8	12.35	49.7	48.7	53	45
18	36	28	31.1	27.8	33	0	96	78	87	0.00	29.01	30.27	NNW	11.0	25.9	2.16	47.6	44.8	49	43
19	53	23	37.0	28.5	27	0	97	45	74	0.00	28.96	30.21	WNW	4.2	15.6	13.61	45.9	43.2	48	39
20	56	27	41.5	29.2	23	0	96	34	65	0.00	29.08	30.34	S	2.7	9.4	13.61	46.5	44.7	50	40
21	58	30	44.3	30.2	21	0	90	36	61	0.00	29.04	30.30	S	5.3	18.7	10.16	46.6	45.0	49	41
22	63	37	49.7	34.7	15	0	84	35	59	0.00	28.90	30.16	SSE	8.6	23.8	12.11	47.6	46.9	51	43
23	69	42	56.7	38.6	9	0	77	24	54	0.00	28.51	29.75	S	11.2	29.8	11.76	50.5	51.5	55	49
24	71	33	53.6	32.0	13	0	88	21	49	0.00	28.41	29.65	S	6.8	30.4	12.69	49.7	50.1	54	45
25	60	30	42.0	28.8	20	0	73	45	60	0.00	28.64	29.89	NW	21.2	51.1	6.45	49.0	49.3	52	45
26	49	23	33.8	24.3	29	0	92	43	70	0.00	29.01	30.26	NW	6.3	21.5	12.99	45.7	44.2	48	41
27	53	24	38.4	26.9	26	0	94	39	66	0.00	28.84	30.09	ENE	4.0	13.5	12.95	45.4	44.0	49	40
28	64	31	45.9	31.9	17	0	84	29	61	0.00	28.55	29.79	SSE	6.9	22.2	11.81	46.4	45.8	50	42
29	73	34	52.3	36.4	12	0	94	19	62	0.00	28.49	29.73	WSW	7.3	26.2	12.66	47.7	48.1	53	45
30	67	35	54.8	49.7	14	0	99	70	84	0.31	28.40	29.63	SE	7.8	37.6	4.16	49.1	49.6	53	46
	58*	33*	45.2*	32.7*	-< Monthly Averages ->						28.82*	30.07*	S *	8.4*	51.1*	10.88*	50.3*	47.9*	52*	44*
Temperature - Highest: 73*					Degree Days - Total HDD: 575*					Number of Days With:										
Lowest: 18*					Total CDD: 0*					Tmax ≥ 90: 0*			Rainfall ≥ 0.01 inch: 3*							
										Tmax ≤ 32: 0*			Rainfall ≥ 0.10 inch: 2*							
Rainfall: Monthly Total: 0.60* in.					Humidity - Highest: 99*					Tmin ≤ 32: 14*			Avg Wind Speed ≥ 10 mph: 9*							
Greatest 24 Hr: 0.31* in.					Lowest: 19*					Tmin ≤ 0: 0*			Max Wind Speed ≥ 30 mph: 4*							

Figure 16 November Mesonet Data