
***Lake Thunderbird TMDL Monitoring Plan Implementation:
Sample Year (SY) 2017- October Report***



SY2017 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

October 2017 Monitoring Report

Oklahoma Water Resources Board
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SUMMARY OF OCTOBER WATER QUALITY SAMPLING

Sampling for October 2017 occurred on the twenty-sixth of September and was considered a high flow collection. Water samples were collected at all ten locations, as well as six of the storm outfalls, with the exception of LRC-1, URC-2, and LT-1, due to low or dry stream conditions. Discharge was not measured this month as water collections were prioritized during the runoff event. Mesonet data for Norman shows 0.05 inches of precipitation occurring in the 72 hours prior to sampling, 1.08 inches of precipitation occurring on the twenty-sixth, and 1.33 inches of precipitation in the 72 hours after the sampling event. Water samples were collected from LRC-1 and URC-2 on the eleventh of October in order to complete the full monthly collection, and were considered base flow samples. Mesonet data shows no precipitation on the eleventh or in the 72 hours prior to sampling, and 0.17 inches of precipitation in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of October was 4.47 inches. All water level gages were operational for the month.

RESULTS

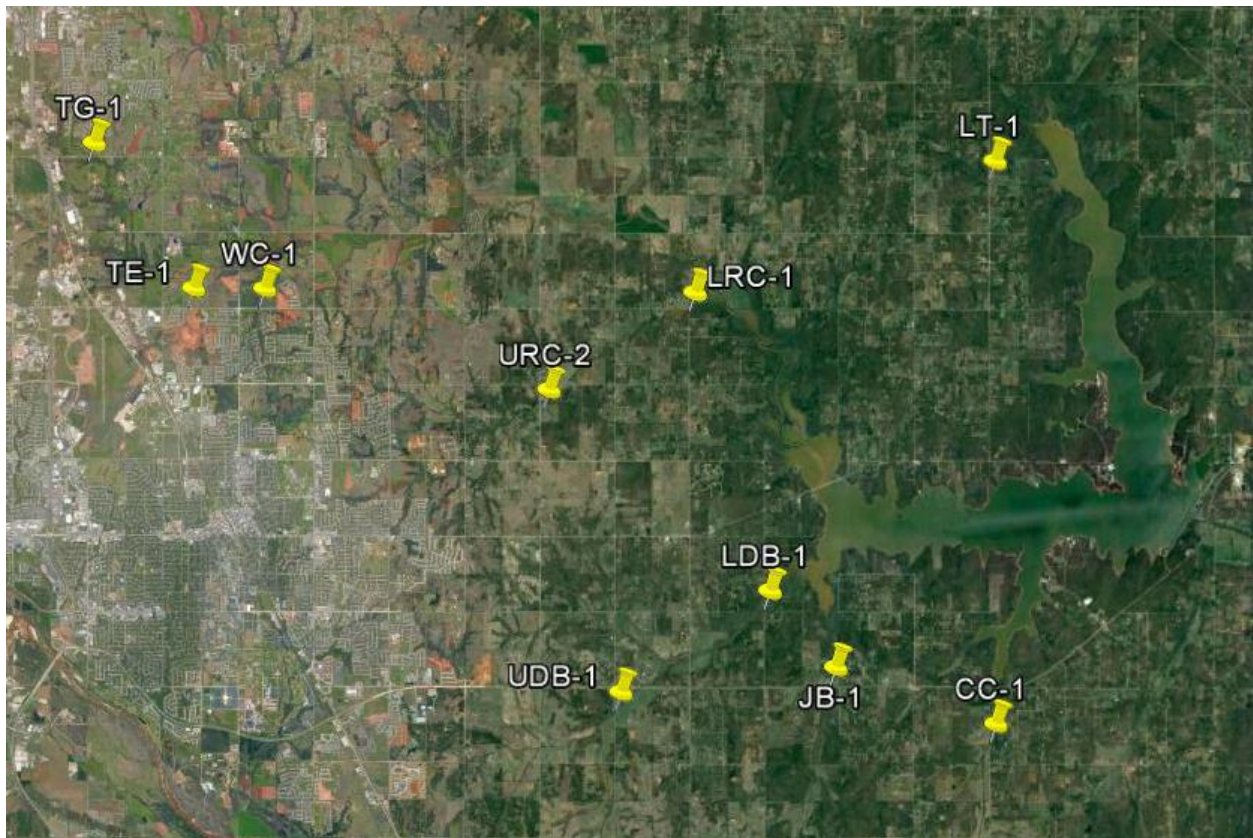


Figure 1 Monitoring Station Map

Field Data Form

Field Measurement Record

Reviewed By: SD

Station	Date	Time	Field Crew	Temp C°	DO mg/L	SpC µS	pH	Turb (NTU)	Notes
cc-1	9/26/2017	16:00	JM	21.7	6.7	663.0	7.5	55.0	STAGE WAS STEADILY RISING DURING VISIT, STAGE PEAKED AT 16:30 AT 1.3
lt-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NOT SAMPLED, DRY CONDITIONS
jb-1	9/27/2017	9:45	JW	19.5	5.3	391.0	7.4	25.0	PEAK AT 10:00 AT 15.81
udb-1	9/27/2017	10:50	LO	19.9	8.0	345.0	7.4	145.0	PEAK AT 12:00 AT 18.72
ldb-1	9/27/2017	10:20	LO	20.3	6.8	421.0	7.4	109.0	PEAK AT 12:15 AT 16.47
tg-1	9/26/2017	18:00	LO	*	*	368.0	7.0	237.0	FROM AUTOSAMPLER, 18:00 IS START OF COLLECTION. PEAK STAGE 16.86
te-1	9/27/2017	11:50	LO	19.0	8.0	323.0	7.4	152.0	PEAK AT 10:45 AT 13.53
wc-1	9/27/2017	11:30	LO	19.3	8.4	323.0	7.3	132.0	PEAK AT 10:15 AT 9.93
lrc-1	10/11/2017	10:20	SD	14.2	6.6	510.0	7.6	24.0	
urc-2	10/11/2017	11:00	SD	15.8	5.4	453.0	7.3	11.0	ORIFICE CLEAR, BURIED IN SEDIMENT. CLEARED ORIFICE. STAGE AT ARRIVAL 12, AFTER 12.4
sw-08	9/26/2017	17:00	JM	22.3	8.5	267.0	7.3	20.0	
sw-09	9/26/2017	15:10	JM	23.6	7.7	400.0	7.5	31.0	
sw-10	9/26/2017	14:40	JM	24.6	6.2	409.0	7.1	22.0	
sw-11	9/26/2017	14:50	JM	22.6	8.7	198.0	6.6	34.0	
sw-12	9/26/2017	16:30	JM	21.7	7.1	384.0	7.5	188.0	
sw-13	9/26/2017	15:30	JM	22.7	7.6	246.0	7.3	41.0	
sw-14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NOT SAMPLED, WATER NOT FLOWING THROUGH CULVERT

Table 1 Field Data Form Where the Asterisk Denotes a Sample from the Autosampler

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
TG-1	1.34	0.23	0.312	252
CC-1	0.78	<0.05	0.195	38.0
JB-1	0.74	<0.05	0.127	<5.0
UDB-1	0.74	0.08	0.197	90.0
LDB-1	0.67	0.09	0.170	50.0
LRC-1	0.58	<0.05	0.070	9.0
URC-2	0.66	<0.05	0.074	<5.0
WC-1	0.75	0.28	0.215	54.0
TE-1	0.61	0.21	0.183	80.0
LT-1	N/A	N/A	N/A	N/A
SW-08	0.64	0.49	0.115	11.3
SW-09	1.33	0.10	0.284	12.0
SW-10	1.32	0.19	0.291	43.8
SW-11	0.57	0.21	0.201	42.0
SW-12	0.85	<0.05	0.127	108
SW-13	0.49	0.17	0.102	33.8
SW-14	N/A	N/A	N/A	N/A

Table 2 Laboratory Analysis Summary

Site Name	TKN	Nitrate/Nitrite	TP	TSS
Duplicate	<0.10 mg/L	<0.05 mg/L	<0.010 mg/L	<5.0 mg/L
Duplicate RPD	3.80%	0%	0%	23.01%** ₁

Table 3 QA/QC Data Where Subscript 1 Denotes a Level 2 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)	16.86	0.85	15.8	18.35	16.41	17.06	12.05	9.78	13.25	N/A
DISCHARGE (ft ³ /s)	700	5	0.3	33	10	<1	<1	16	48	N/A

Table 4 Station Discharge Summary

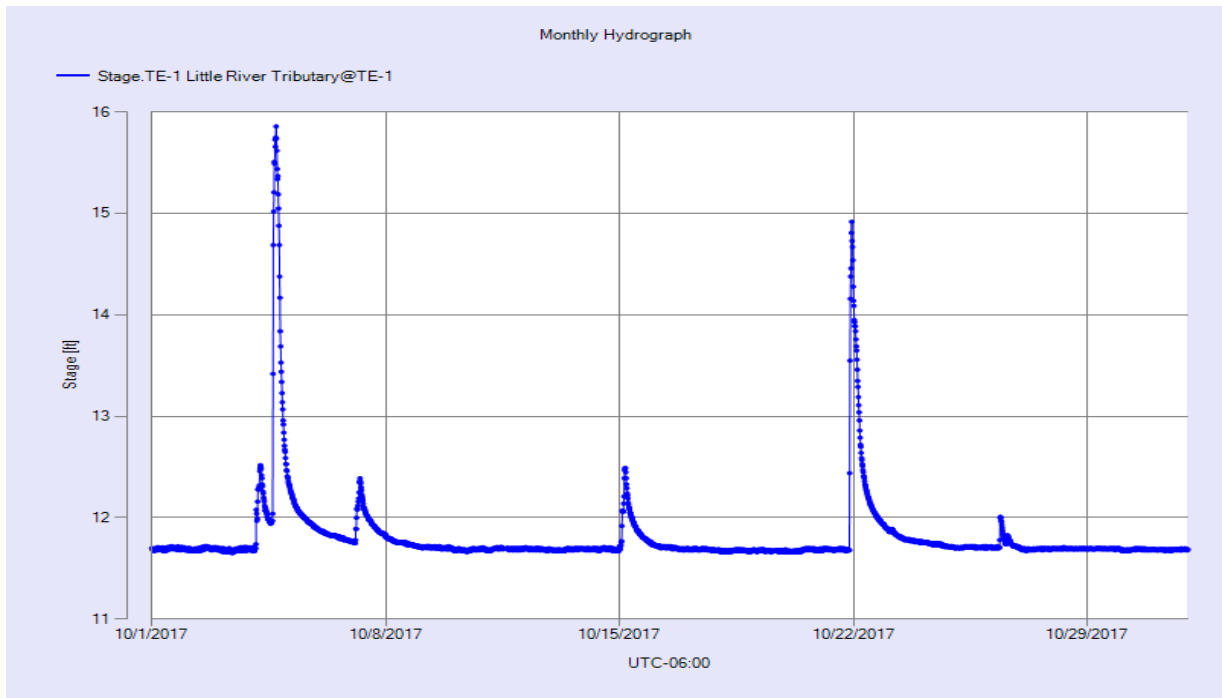


Figure 2 Monthly Hydrograph TE-1

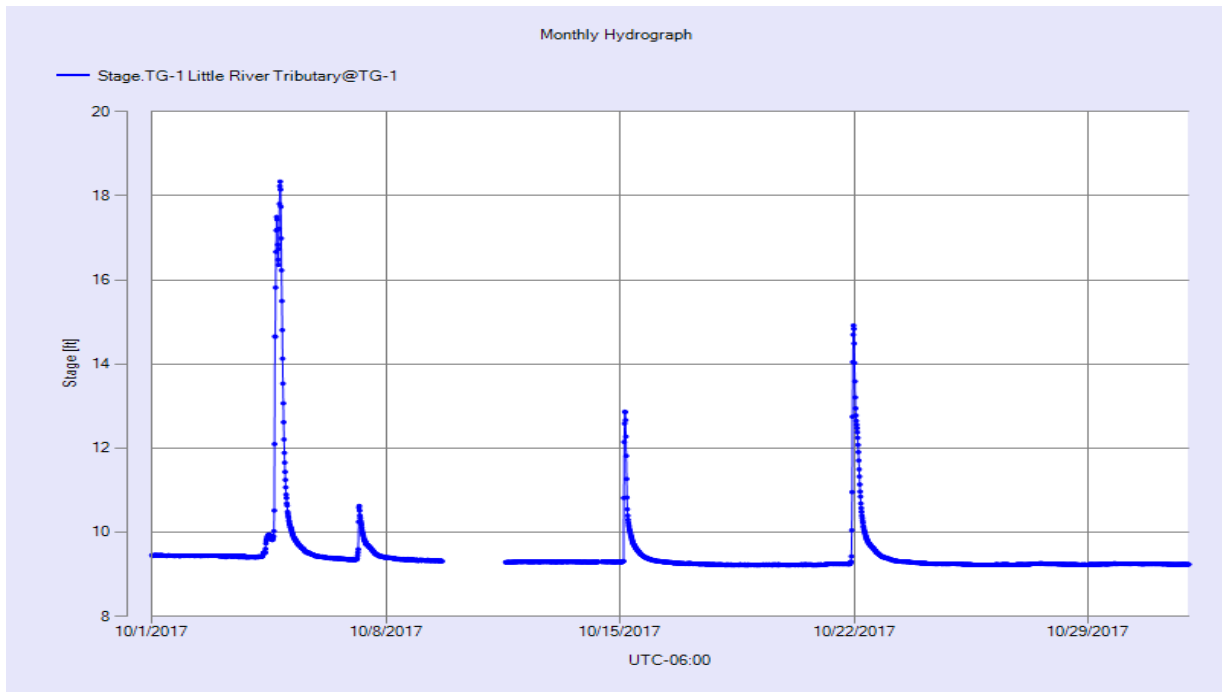


Figure 3 Monthly Hydrograph TG-1

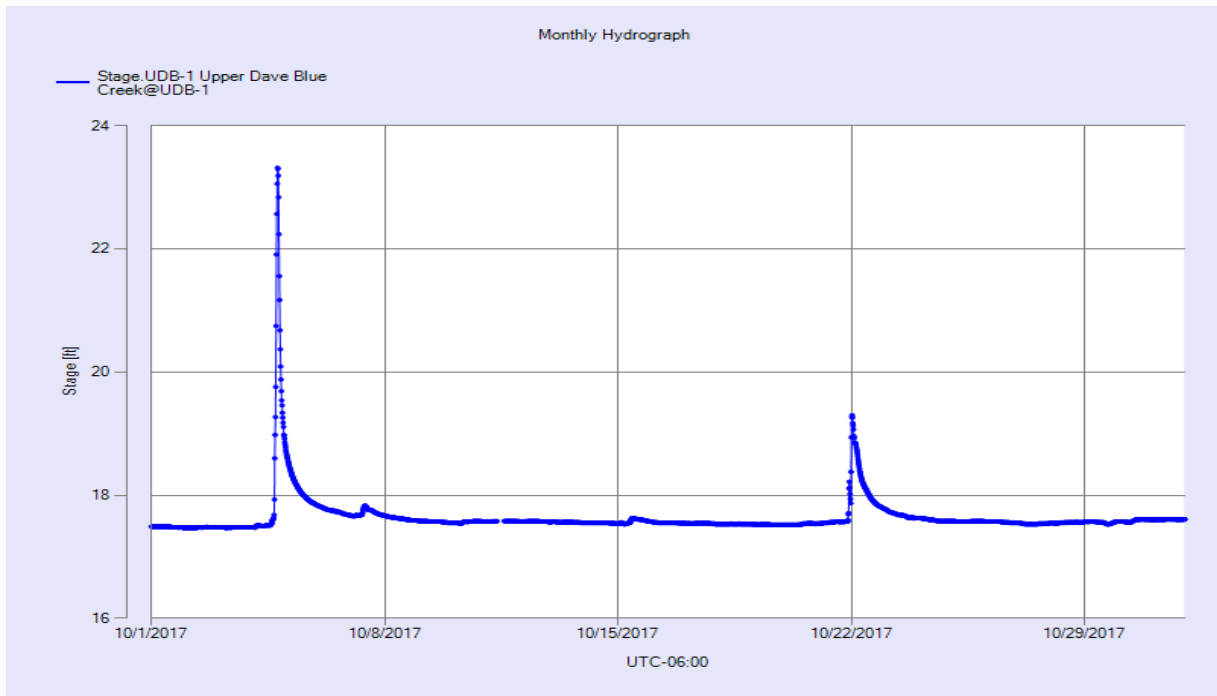


Figure 4 Monthly Hydrograph UDB-1

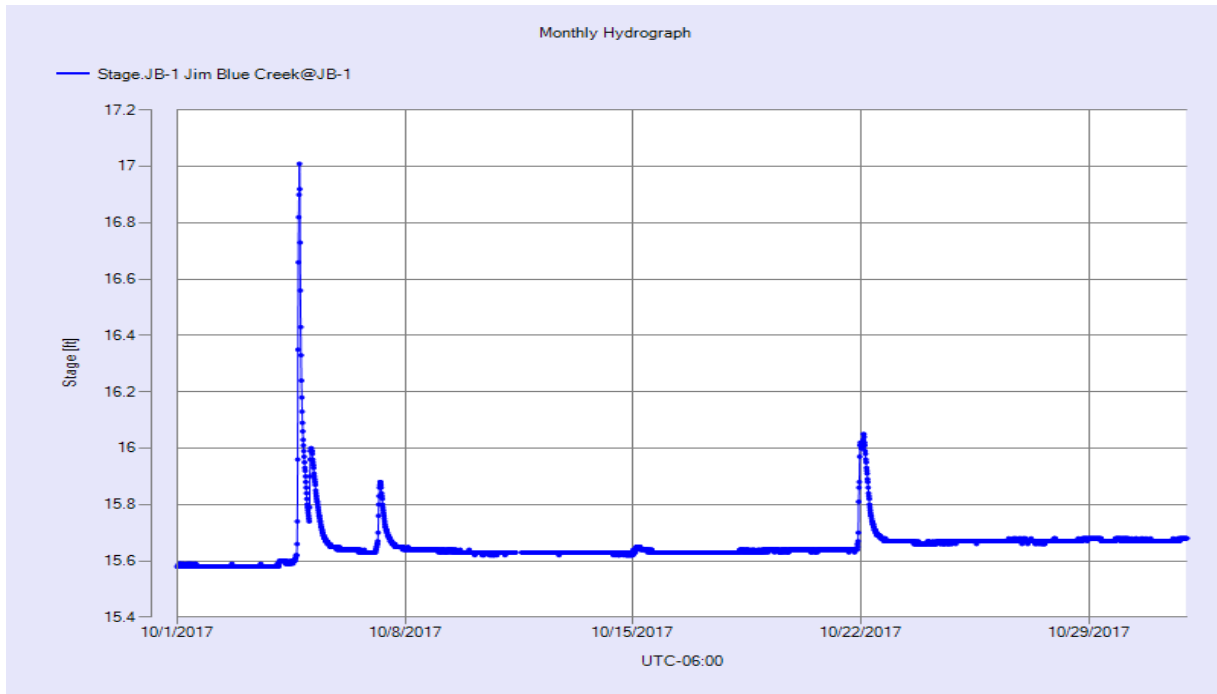


Figure 5 Monthly Hydrograph JB-1

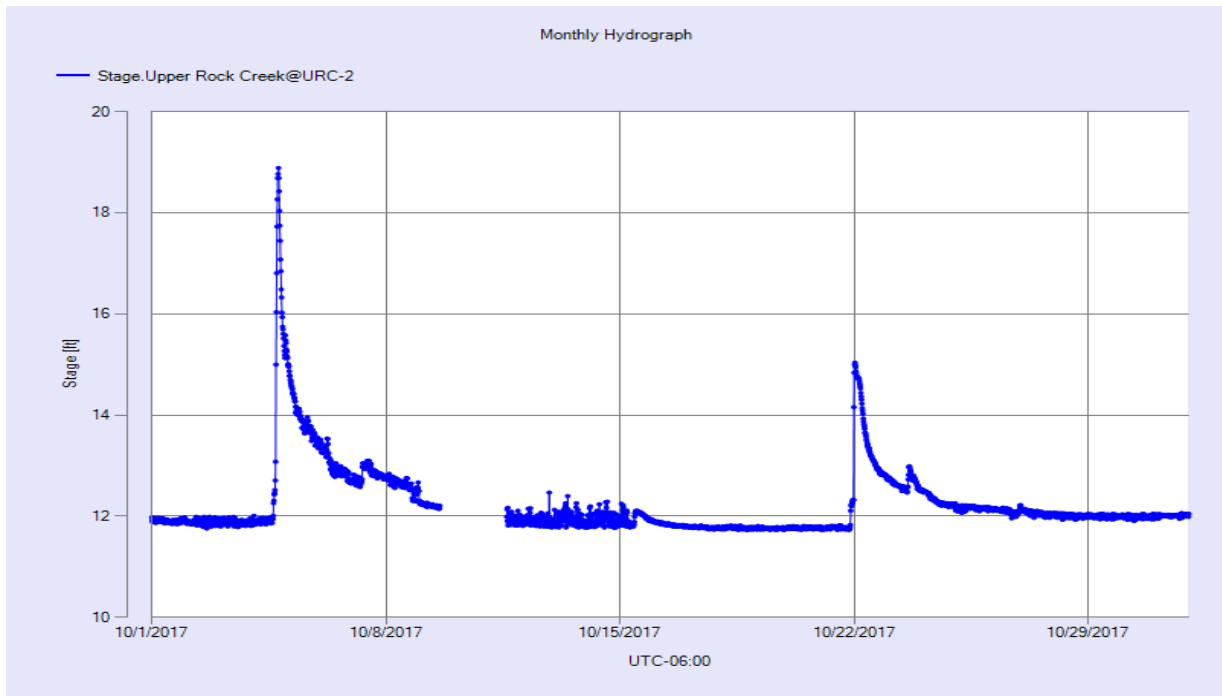


Figure 6 Monthly Hydrograph URC-2

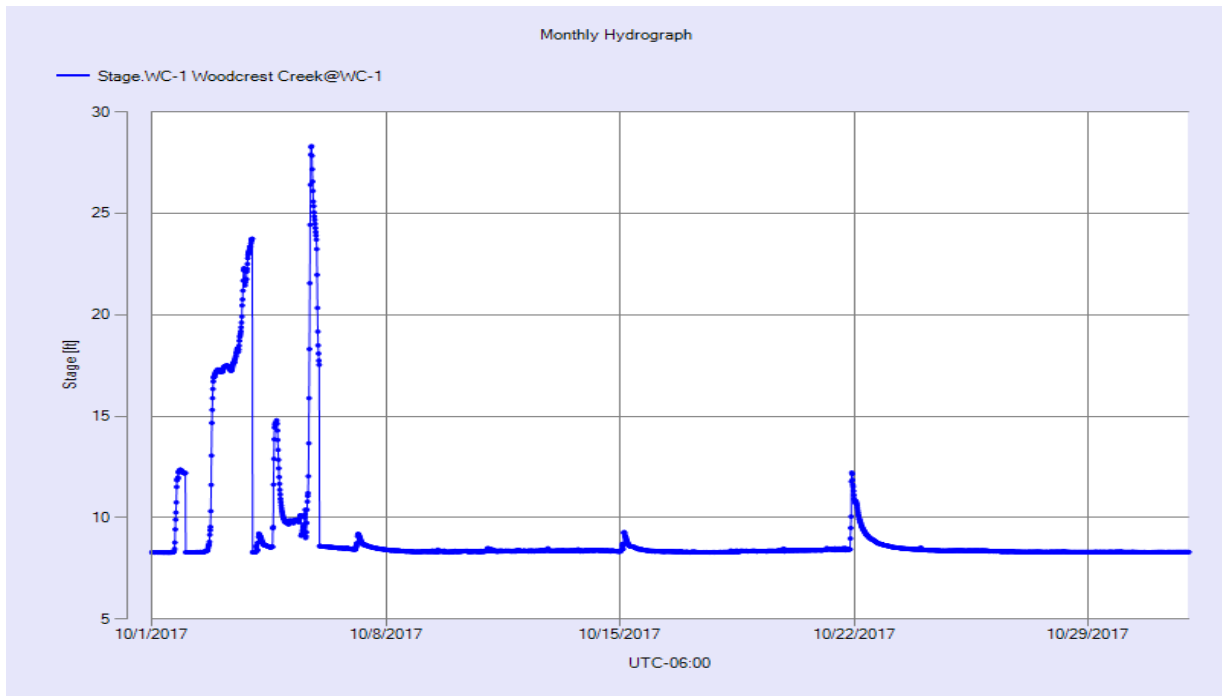


Figure 7 Monthly Hydrograph WC-1

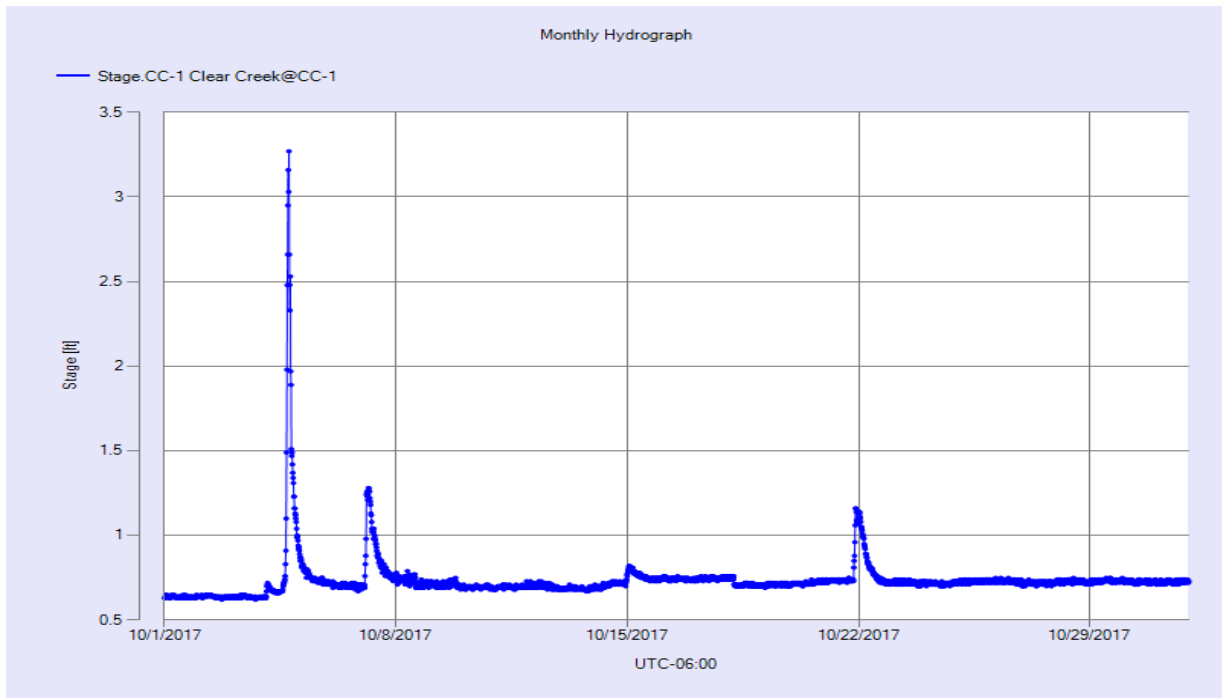


Figure 8 Monthly Hydrograph CC-1

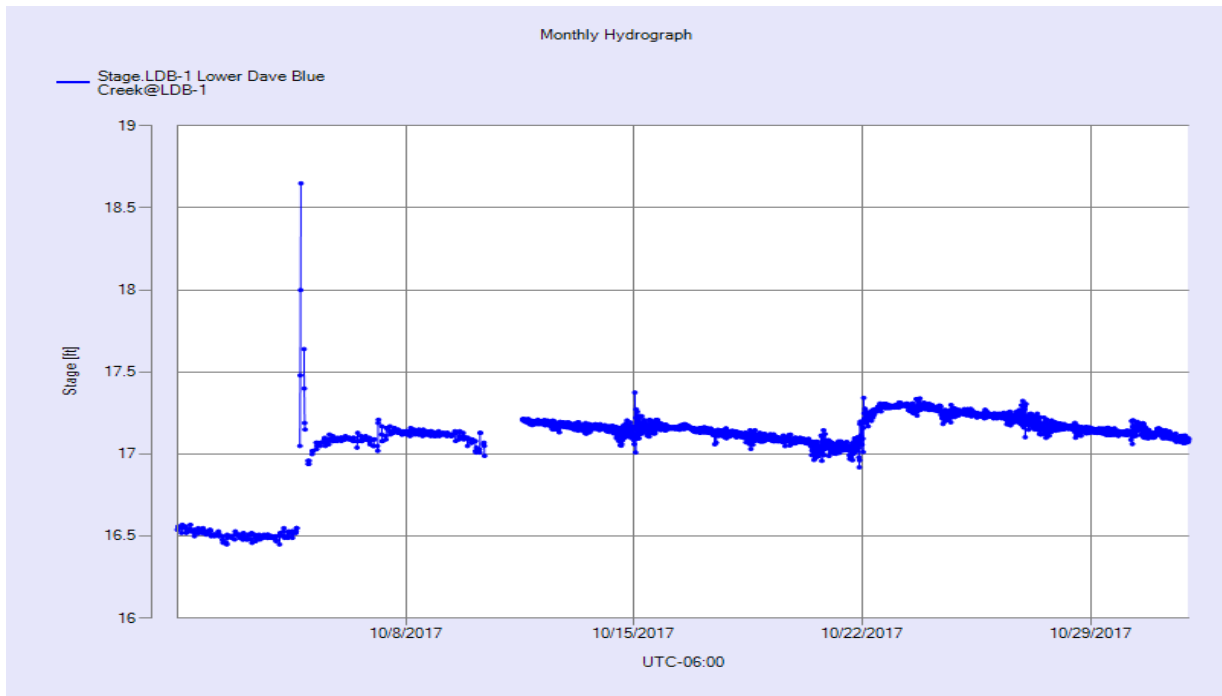


Figure 9 Monthly Hydrograph LDB-1

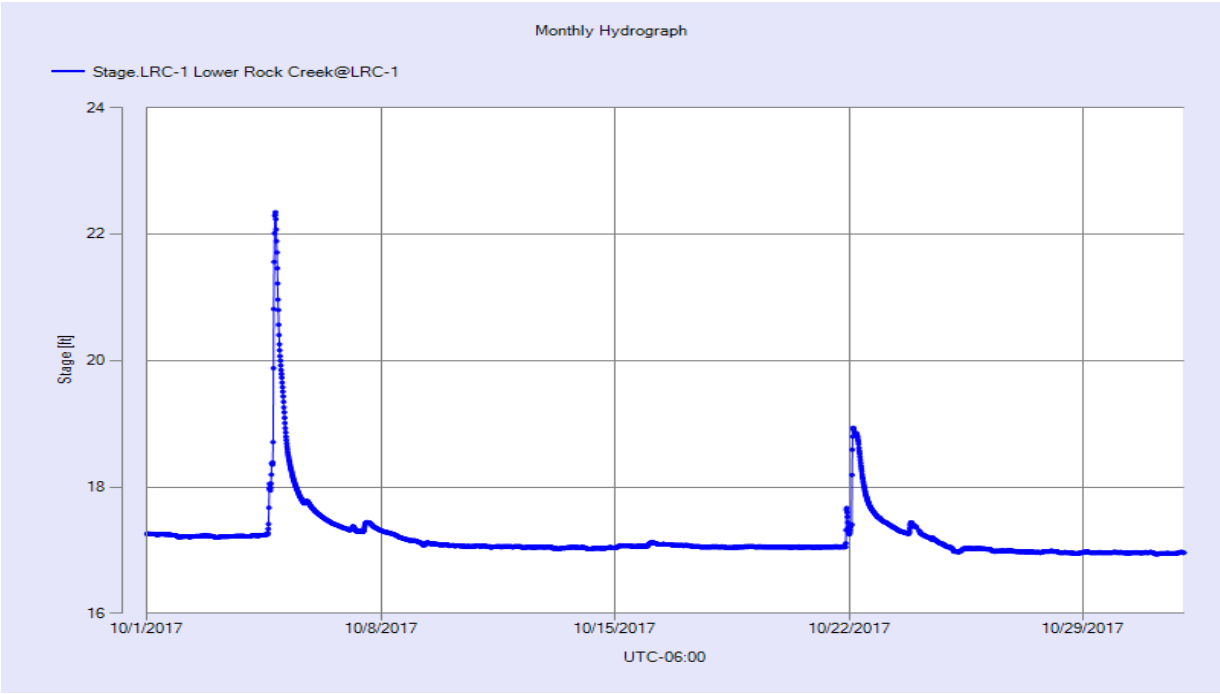


Figure 10 Monthly Hydrograph LRC-1

MESONET CLIMATOLOGICAL DATA SUMMARY				October 2017				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 ²)	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG	MAX	SOD	BARE		MAX	MIN		
1	82	63	71.8	54.4	0	7	69	41	55	0.00	28.72	29.97	SSE	8.6	21.2	19.90	71.1	69.6	76	64		
2	86	65	75.3	62.6	0	10	82	49	66	0.00	28.67	29.92	SSE	10.4	25.9	17.94	71.6	72.5	80	66		
3	85	70	76.4	70.0	0	13	95	60	81	0.00	28.87	30.12	SSE	9.0	22.4	12.30	73.2	75.3	81	71		
4	75	71	72.8	72.0	0	8	100	92	97	2.33	28.97	30.22	SSE	6.6	18.3	1.37	73.7	74.3	76	73		
5	83	69	74.5	67.5	0	11	98	58	80	0.02	28.84	30.09	SSE	6.3	18.7	10.79	73.7	74.1	78	71		
6	85	69	76.3	65.3	0	12	85	55	70	0.00	28.61	29.86	S	10.3	26.4	17.48	74.0	73.6	78	70		
7	79	54	67.6	54.7	0	2	99	27	68	0.20	28.55	29.80	NW	5.7	29.7	20.10	73.5	71.4	76	67		
8	83	51	67.9	47.8	0	2	92	26	54	0.00	28.46	29.70	SSE	6.7	21.1	20.08	70.3	66.5	72	61		
9	86	54	70.1	57.9	0	5	87	48	66	0.00	28.54	29.78	SSE	12.9	32.6	15.01	70.7	67.6	75	63		
10	61	45	51.9	41.6	12	0	91	51	69	0.00	28.96	30.22	NNW	13.6	37.7	17.21	67.7	60.9	64	58		
11	69	41	54.8	44.5	10	0	96	40	71	0.00	28.93	30.18	SSE	3.2	11.3	18.32	65.5	60.8	69	54		
12	82	53	68.0	55.3	0	3	90	43	66	0.00	28.78	30.03	SSE	8.2	21.2	17.73	66.7	65.7	74	59		
13	87	66	76.0	65.0	0	12	87	52	70	0.00	28.76	30.00	S	9.2	22.1	17.45	69.4	71.6	79	66		
14	89	61	78.1	66.8	0	10	93	51	70	0.17	28.70	29.95	S	12.8	55.7	17.37	71.6	74.8	81	70		
15	67	45	56.4	43.3	9	0	96	34	64	0.28	29.07	30.33	N	13.1	32.4	18.86	68.9	65.6	74	59		
16	69	42	54.7	40.4	9	0	93	30	64	0.00	29.11	30.37	SSE	3.2	13.9	18.62	65.2	60.4	67	54		
17	73	44	58.9	43.0	6	0	89	33	58	0.00	28.94	30.20	SSE	7.0	20.8	18.31	64.2	60.9	68	54		
18	80	50	64.6	45.6	0	0	77	31	52	0.00	28.82	30.07	SSE	8.6	23.2	17.99	64.6	63.3	71	57		
19	78	54	65.1	49.2	0	1	72	37	58	0.00	28.85	30.10	SSE	7.2	17.8	13.02	64.9	64.3	70	60		
20	80	60	69.4	59.1	0	5	86	47	71	0.00	28.72	29.96	SSE	11.3	29.7	14.34	66.1	67.0	73	62		
21	80	56	70.2	64.3	0	3	99	64	82	1.47	28.61	29.85	SSE	12.5	36.0	7.78	67.9	69.7	73	67		
22	69	49	57.2	44.4	6	0	94	29	67	0.00	28.89	30.14	NNW	8.0	29.5	17.64	65.6	64.8	69	61		
23	72	46	59.0	40.1	6	0	80	33	51	0.00	28.88	30.13	N	9.9	30.2	15.51	62.9	59.6	64	55		
24	64	41	52.6	31.5	12	0	74	22	48	0.00	29.04	30.30	NW	12.4	38.4	17.27	61.1	54.4	58	51		
25	76	38	58.0	36.2	8	0	85	23	48	0.00	28.81	30.06	WSW	6.8	20.2	16.87	59.5	53.8	61	47		
26	80	49	63.1	41.3	0	0	62	31	46	0.00	28.51	29.75	S	13.7	43.5	16.56	61.0	56.8	63	52		
27	49	30	41.5	22.2	25	0	69	25	47	0.00	28.90	30.15	N	16.6	43.8	14.52	58.6	51.5	55	48		
28	54	27	39.9	17.6	25	0	75	15	46	0.00	28.89	30.14	NW	6.3	20.2	17.06	55.4	48.7	56	43		
29	75	38	55.7	31.8	8	0	55	27	41	0.00	28.62	29.87	S	6.0	16.9	15.97	56.1	52.7	61	45		
30	62	45	53.3	33.5	12	0	77	31	48	0.00	28.78	30.03	NNE	13.9	39.2	15.66	57.5	55.8	61	52		
31	50	36	42.3	26.9	22	0	81	36	55	0.00	28.87	30.13	NE	6.4	19.5	8.53	55.8	52.3	55	49		
	74	51	62.7	48.2	<- Monthly Averages ->							28.80	30.05	SSE	9.2	55.7	15.73	66.1	63.9	70	59	
Temperature - Highest: 89					Degree Days - Total HDD: 171					Number of Days With:												
Lowest: 27					Total CDD: 103					Tmax ≥ 90: 0 Rainfall ≥ 0.01 inch: 6												
Rainfall: Monthly Total: 4.47 in.					Humidity - Highest: 100					Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 5												
Greatest 24 Hr: 2.33 in.					Lowest: 15					Tmin ≤ 32: 2 Avg Wind Speed ≥ 10 mph: 12												
										Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 10												

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* Denotes incomplete record

Figure 11 October Mesonet Data