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***Lake Thunderbird TMDL Monitoring Plan Implementation:  
Sample Year (SY) 2022- August Report***

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**SY-2022 Monthly Report**

*Lake Thunderbird TMDL Monitoring Plan Implementation:*

*August 2022 Monitoring Report*

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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](mailto:sarah.dexter@owrb.ok.gov)  
Lance Phillips, Streams Program Manager, [lance.phillips@owrb.ok.gov](mailto:lance.phillips@owrb.ok.gov)  
Bill Cauthron, Monitoring Coordinator, [bill.cauthron@owrb.ok.gov](mailto:bill.cauthron@owrb.ok.gov)



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## SUMMARY OF AUGUST WATER QUALITY SAMPLING

Sampling for August 2022 occurred during base flow conditions on the tenth. Water samples were collected at seven locations, and because of extremely low water conditions no discharge measurements were collected. Samples were not collected at JB-1 due to construction activity, or LT-1 and TE-1 due to dry conditions. Mesonet shows no precipitation on the tenth, 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 August was 0.84 inches. All water level gauges were operational for the month, except for JB-1 due to road construction. The gauge at LT-1 was removed in 2018 as a result of equipment malfunction. The equipment has not been replaced due to intermittent streamflow and dry conditions. Furthermore, this station is being reviewed for a possible location change.

## RESULTS

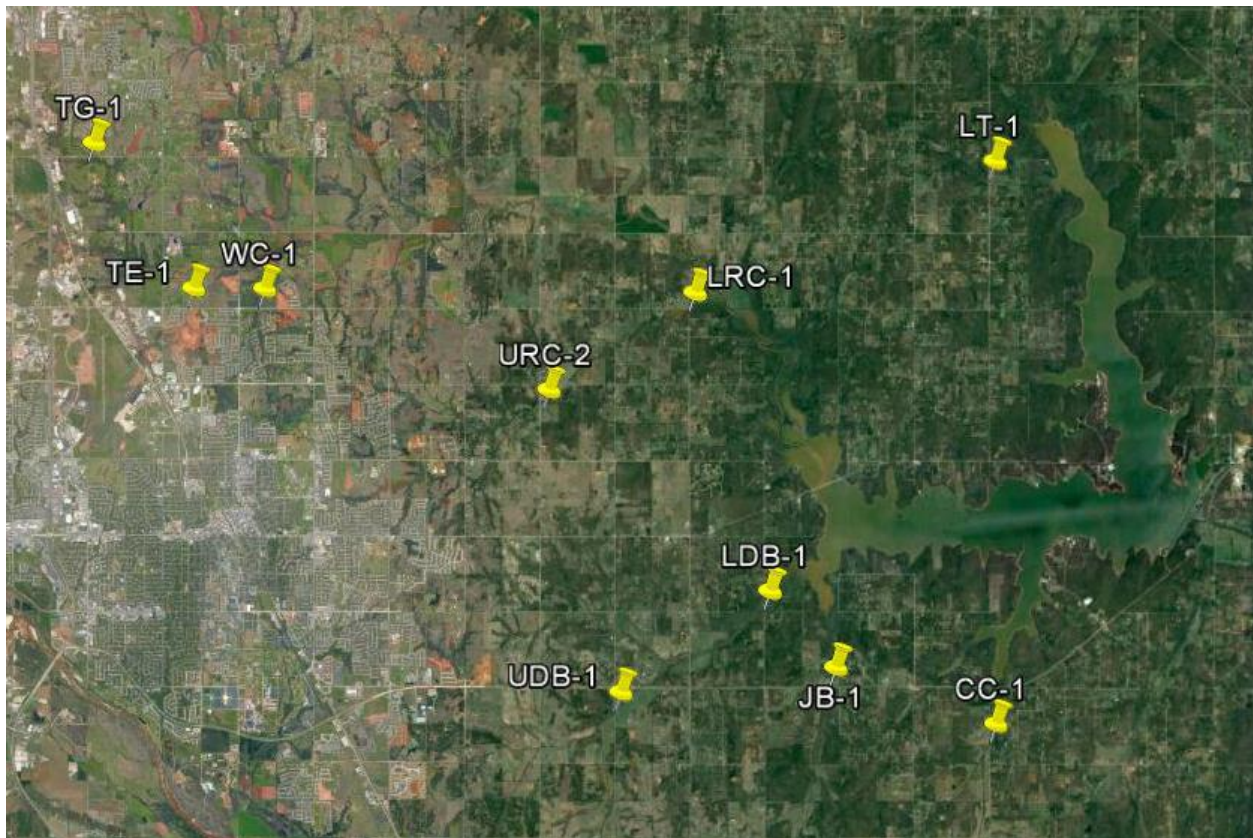


Figure 1 Monitoring Station Map

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	8/10/2022	9:00	SD	24.0	5.76	7.92	651	6	Very low water conditions, lots of vegetation on banks, orifice clear; used rp4 - only one over water
JB-1	Jim Blue Creek	8/10/2022	9:50	SD	N/A	N/A	N/A	N/A	N/A	Construction ongoing; did not sample
LDB-1	Lower Dave Blue Creek	8/10/2022	10:00	SD	28.1	3.30	8.23	596	22	Low conditions
LRC-1	Lower Rock Creek	8/10/2022	10:45	SD	26.1	5.43	7.94	651	4	Orifice out of water approx 6in; solar panel stolen, dcp not working
LT-1	Lake Laterals	8/10/2022	10:25	SD	N/A	N/A	N/A	N/A	N/A	Completely dry; did not sample
TE-1	Little River Tributary	8/10/2022	13:45	SD	N/A	N/A	N/A	N/A	N/A	Completely dry; did not sample
TG-1	Little River	8/10/2022	14:15	SD	29.1	9.70	8.25	734	2	Low conditions; orifice mostly under water
UDB-1	Upper Dave Blue Creek	8/10/2022	8:15	SD	24.3	4.81	8.19	903	11	Very low! Pool under bridge disconnected from up/downstream, very scummy upstream/under bridge, orifice in water; downstream almost dry- had small isolated pools
URC-2	Upper Rock Creek	8/10/2022	11:25	SD	27.3	9.67	7.51	955	26	Barely connected downstream/under bridge, not sure if connected farther up/downstream; orifice out of water approx 4in; scum common downstream
WC-1	Woodcrest Creek	8/10/2022	13:25	SD	27.5	7.45	8.04	882	24	Very low, barely connected under bridge on upstream side, very scummy up/downstream of bridge; orifice out of water a few inches

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	0.22	0.36	0.050	<5.0
JB-1	Jim Blue Creek	N/A	N/A	N/A	N/A
LDB-1	Lower Dave Blue Creek	<0.05	0.93	0.067	17.0
LRC-1	Lower Rock Creek	<0.05	0.25	0.035	<5.0
LT-1	Lake Laterals	N/A	N/A	N/A	N/A
TE-1	Little River Tributary	N/A	N/A	N/A	N/A
TG-1	Little River	<0.05	0.36	0.035	<5.0
UDB-1	Upper Dave Blue Creek	0.07	0.50	0.046	<5.0
URC-2	Upper Rock Creek	<0.05	0.71	0.105	6.0
WC-1	Woodcrest Creek	0.08	0.49	0.112	147

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	0.36	0.050	<5.0
Duplicate RPD	4.44%	0%	0%	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.

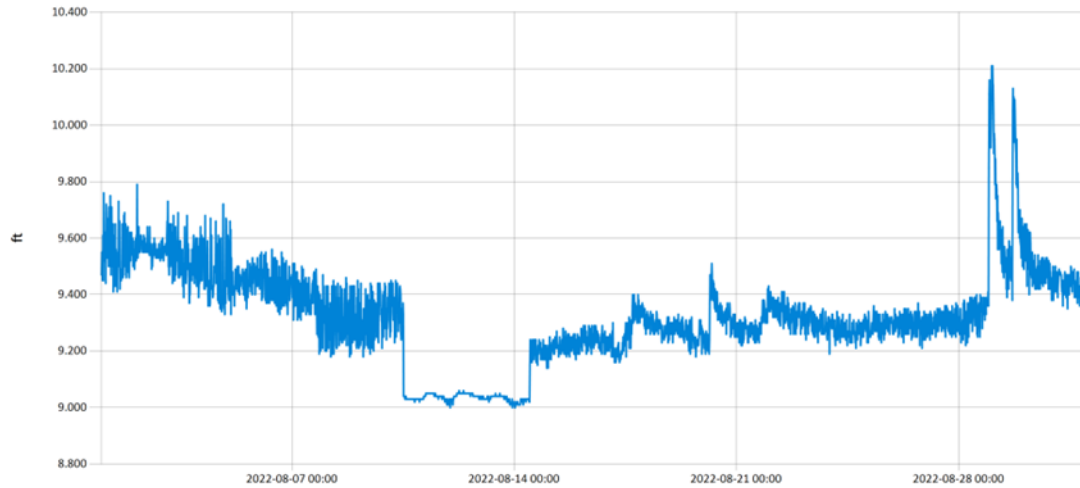
Monitoring Location ID	Monitoring Location Name	Discharge (cfs)	Stream Stage (ft)
CC-1	Clear Creek	0.38	20.32
JB-1	Jim Blue Creek	N/A	N/A
LDB-1	Lower Dave Blue Creek	1.20	15.69
LRC-1	Lower Rock Creek	0.22	3.80
LT-1	Lake Laterals	N/A	N/A
TE-1	Little River Tributary	N/A	N/A
TG-1	Little River	0.25	9.02
UDB-1	Upper Dave Blue Creek	0.00	17.07
URC-2	Upper Rock Creek	0.01	10.75
WC-1	Woodcrest Creek	0.01	7.24

Table 4 Station Discharge Summary

All rated stream discharges are provisional and subject to change.

Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59

UTC Offs et: -06:00

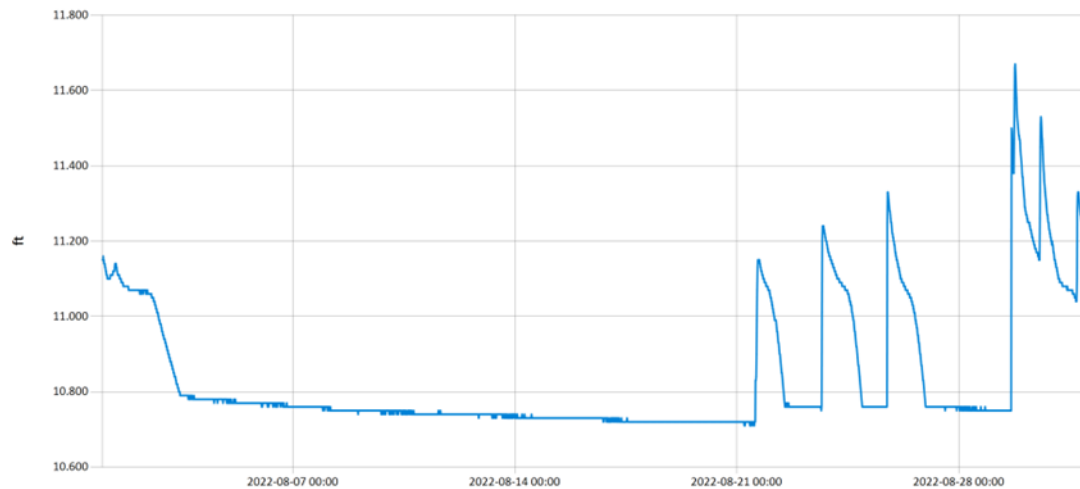


— Stage@TG

Figure 2 Monthly Hydrograph TG-1

Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59

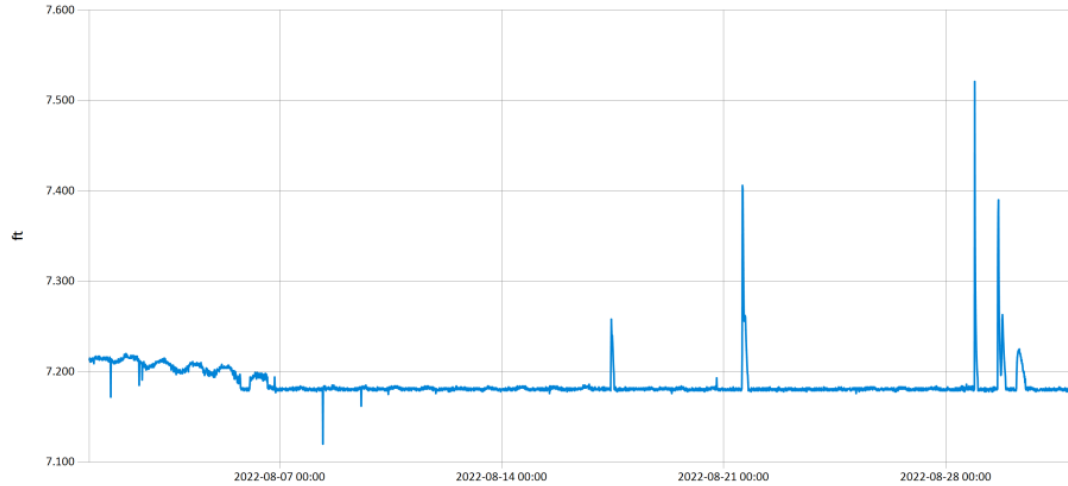
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— Stage@TE

Figure 3 Monthly Hydrograph TE-1

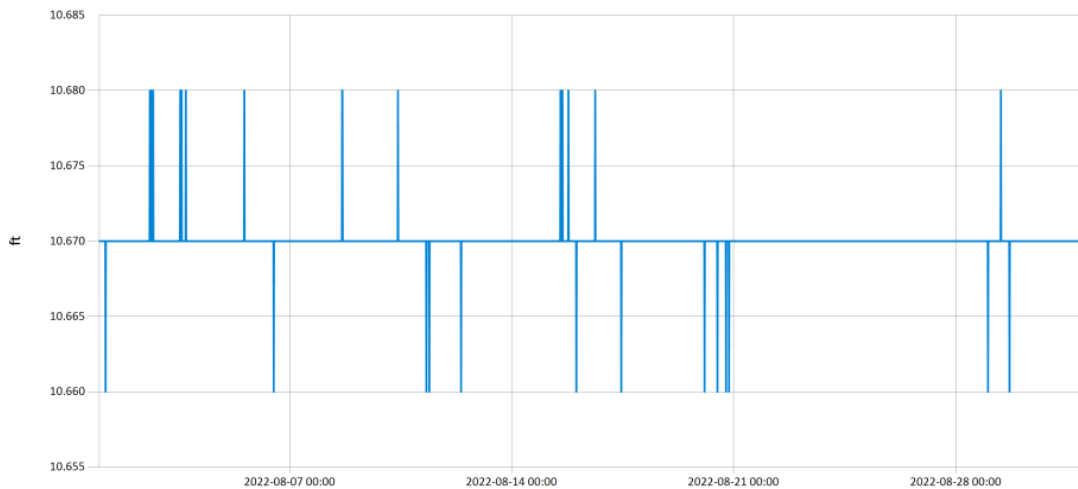
Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59 UTC Offset: -06:00



— Stage@WC

Figure 4 Monthly Hydrograph WC-1

Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59 UTC Offset: -06:00



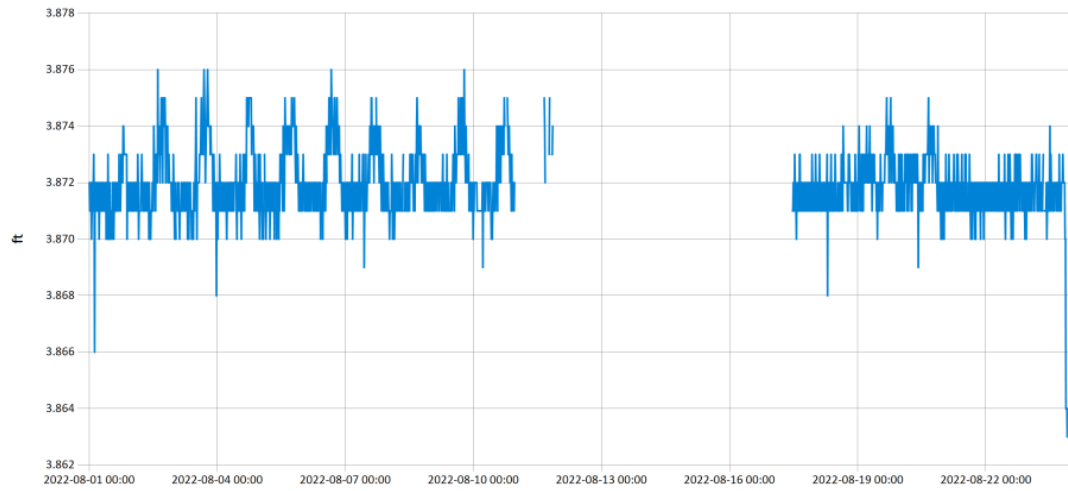
— Stage@URC

Figure 5 Monthly Hydrograph URC-2



Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59

UTC Offs et: -06:00

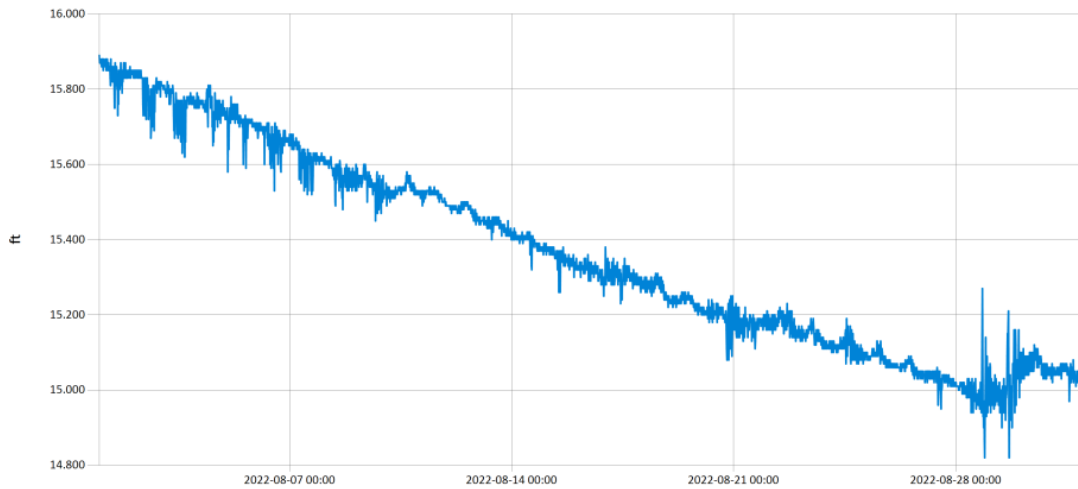


— Stage@LRC

Figure 6 Monthly Hydrograph LRC-1

Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59

UTC Offs et: -06:00



— Stage@LDB

Figure 7 Monthly Hydrograph LDB-1

Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59 UTC Offs et: -06:00

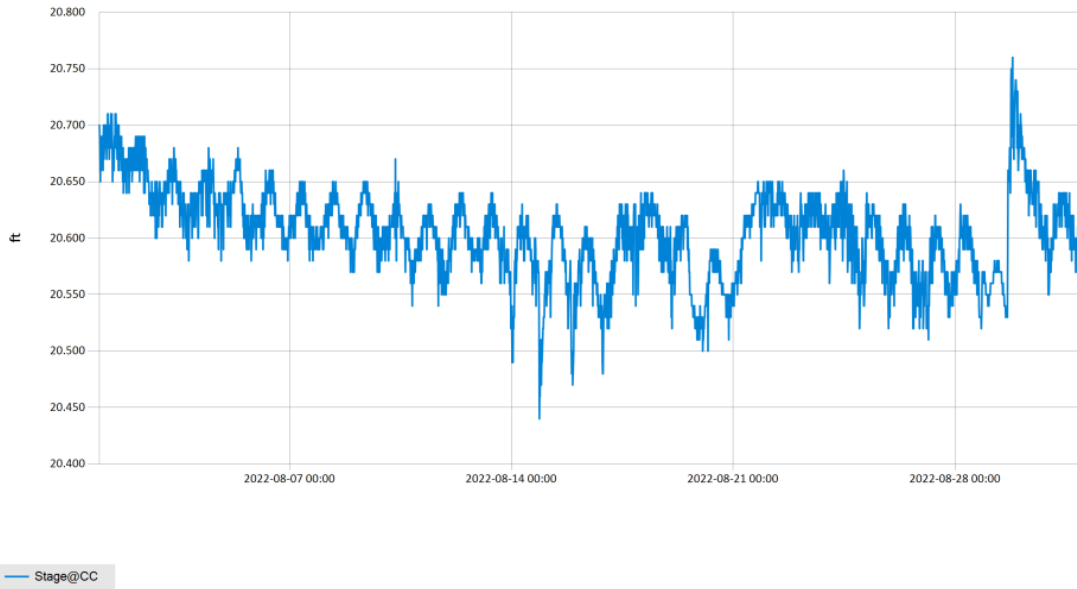


Figure 8 Monthly Hydrograph CC-1

Period Selected: 2022-08-01 00:00 - 2022-08-31 23:59 UTC Offs et: -06:00

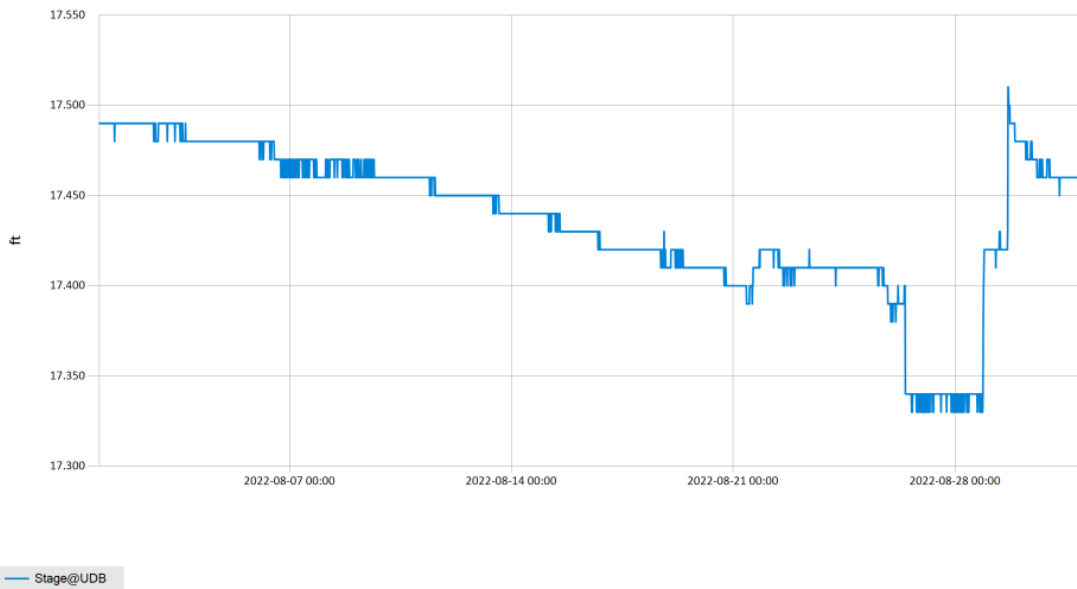


Figure 9 Monthly Hydrograph UDB-1

MESONET CLIMATOLOGICAL DATA SUMMARY																					
August 2022																					
(NRMN) Norman																					
Nearest City: 2.1 NW Norman																					
Latitude: 35-14-09																					
Longitude: 97-27-53																					
Time Zone: Midnight-Midnight CST																					
County: Cleveland																					
Elevation: 1171 feet																					
DAY	TEMPERATURE ( °F )				DEG DAYS		HUMIDITY (%)			RAIN		PRESSURE (in)			WIND SPEED (mph)		SOLAR (MJ/m <sup>2</sup> )	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	SOD		BARE	MAX	MIN	
1	93	79	84.0	66.1	0	21	65	40	55	0.00	28.76	30.01	S	8.8	20.9	13.55	80.0	81.5	88	78	
2	101	76	88.9	65.2	0	23	79	29	49	0.00	28.67	29.92	SSE	9.6	24.6	25.40	81.0	86.5	95	79	
3	103	80	91.0	63.3	0	26	56	27	41	0.00	28.60	29.84	S	10.2	24.7	25.25	81.9	89.3	97	83	
4	99*	80*	88.8*	67.3*	0*	24*	60*	37*	50*	0.00*	28.66*	29.91*	S *	9.6*	26.2*	18.71*	82.2*	89.0*	94*	85*	
5	103	77	90.0	65.9	0	25	81	26	48	0.01	28.70	29.95	SSE	8.3	20.8	24.20	83.2	90.0	97	84	
6	100	78	88.9	65.7	0	24	72	28	48	0.00	28.75	30.00	SSE	9.0	23.2	24.77	83.7	90.9	97	85	
7	99	76	87.7	65.8	0	22	75	34	50	0.00	28.78	30.03	SSE	8.2	21.6	23.52	83.7	90.6	96	85	
8	99	79	87.1	65.9	0	24	62	34	50	0.00	28.77	30.01	S	7.4	22.0	21.33	83.3	90.0	95	85	
9	98*	75*	83.5*	66.9*	0*	22*	75*	31*	59*	0.00*	28.78*	30.03*	SSE*	6.2*	32.0*	NA	83.7*	90.1*	98*	84*	
10	98	74	85.0	66.3	0	21	85	31	57	0.00	28.84	30.09	ENE	4.6	17.2	22.80	83.7	90.3	96	85	
11	97	68	83.5	61.8	0	17	84	27	51	0.00	28.83	30.08	NE	5.6	17.2	26.11	83.2	89.7	96	83	
12	95	71	83.2	63.2	0	18	79	30	54	0.00	28.83	30.08	ESE	5.9	21.1	25.20	83.4	89.7	96	84	
13	98	76	85.9	65.0	0	22	75	30	52	0.00	28.80	30.05	ESE	6.1	15.6	24.97	84.1	90.3	97	84	
14	100	73	86.9	59.3	0	21	64	23	42	0.00	28.73	29.97	SE	6.4	28.2	25.67	84.2	90.5	97	84	
15	100	75	87.7	63.1	0	22	69	28	46	0.00	28.68	29.93	S	6.5	21.2	22.45	83.8	90.1	96	85	
16	102	75	89.2	62.5	0	24	69	25	43	0.00	28.66	29.91	SSW	8.7	25.7	23.21	83.8	90.3	96	85	
17	80	71	74.7	67.9	0	10	92	69	80	0.08	28.79	30.04	NNE	9.4	22.7	7.43	81.8	85.6	91	82	
18	86	69	75.9	63.8	0	13	91	43	68	0.00	28.77	30.02	NE	5.9	27.2	19.83	80.6	84.0	90	80	
19	93	63	78.8	60.4	0	13	98	30	59	0.00	28.70	29.95	SSE	4.4	16.0	24.49	79.9	85.0	92	78	
20	97	70	81.8	64.1	0	18	76	33	57	0.01	28.73	29.98	S	6.7	31.9	19.42	81.2	86.2	92	81	
21	78	70	72.7	67.8	0	9	95	54	85	0.42	28.80	30.05	ENE	3.6	14.8	5.49	79.4	81.8	86	78	
22	89	70	77.4	66.5	0	15	96	40	72	0.00	28.74	29.99	NE	7.5	20.7	17.51	78.9	79.9	86	76	
23	85	69	76.6	66.0	0	12	93	50	72	0.00	28.72	29.96	NE	6.1	18.6	12.14	78.3	80.0	85	76	
24	91	67	78.6	65.1	0	14	95	40	66	0.00	28.76	30.01	ESE	4.8	17.8	17.70	78.0	81.6	89	75	
25	94	64	80.3	59.7	0	14	88	28	53	0.00	28.80	30.05	E	4.2	18.6	24.59	78.2	84.1	93	76	
26	95	65	81.4	61.2	0	15	88	31	53	0.00	28.77	30.02	SSE	3.9	16.7	22.88	78.6	85.5	93	78	
27	95	70	83.3	66.5	0	18	87	34	59	0.00	28.64	29.88	SSE	7.1	19.7	22.79	79.9	86.7	93	80	
28	98	70	84.0	68.5	0	19	83	36	62	0.02	28.56	29.80	S	10.4	42.7	14.78	80.5	86.2	91	82	
29	96	68	78.6	68.4	0	17	93	44	73	0.30	28.66	29.91	S	8.1	30.2	14.74	79.6	83.7	91	79	
30	91	67	79.6	69.0	0	14	97	48	72	0.00	28.80	30.05	NE	5.7	19.4	19.43	78.6	81.9	89	76	
31	92	72	81.2	69.9	0	17	90	47	70	0.00	28.81	30.06	E	5.4	16.4	16.27	79.6	83.9	89	78	
<- Monthly Averages ->																					
95* 72* 83.1* 65.1*				<- Monthly Averages ->				28.74* 29.99*		SSE* 6.9* 42.7*		20.22*		81.4* 86.6* 93* 81*							
Temperature - Highest: 103*						Degree Days - Total HDD: 0*						Number of Days With:									
Lowest: 63*						Total CDD: 575*						Tmax ≥ 90: 26*				Rainfall ≥ 0.01 inch: 6*					
Rainfall: Monthly Total: 0.84* in.						Humidity - Highest: 98*						Tmax ≤ 32: 0*				Rainfall ≥ 0.10 inch: 2*					
Greatest 24 Hr: 0.42* in.						Lowest: 23*						Tmin ≤ 32: 0*				Avg Wind Speed ≥ 10 mph: 2*					
												Tmin ≤ 0: 0*				Max Wind Speed ≥ 30 mph: 4*					

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\* Denotes incomplete record

Figure 10 August Mesonet Data