
**Lake Thunderbird TMDL Monitoring
Plan Implementation: Sample Year
(SY) 2024- May Report**



OKLAHOMA
Water Resources Board

Lake Thunderbird TMDL Monitoring Plan Implementation: May 2024 Monitoring Report

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

Contact

Sarah Dexter, Project Leader, sarah.dexter@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 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	7

LIST OF FIGURES

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

SUMMARY OF MAY SAMPLING

Sampling for May 2024 occurred during a mix of base flow and above base flow conditions on the fourteenth. Water samples and discharge measurements were collected at nine locations. Two samples were collected at JB-1, one on the upstream side of the bridge and the other on the downstream side of the bridge. Mesonet shows no precipitation on the fourteenth, 0.94 inches of precipitation in the 72 hours prior to sampling, and 0.65 inches of precipitation in the 72 hours after sampling occurred. The total rainfall amount in Norman for the month of May was 3.74 inches. Samples were not collected at LT-1 since this station will be relocated.

RESULTS

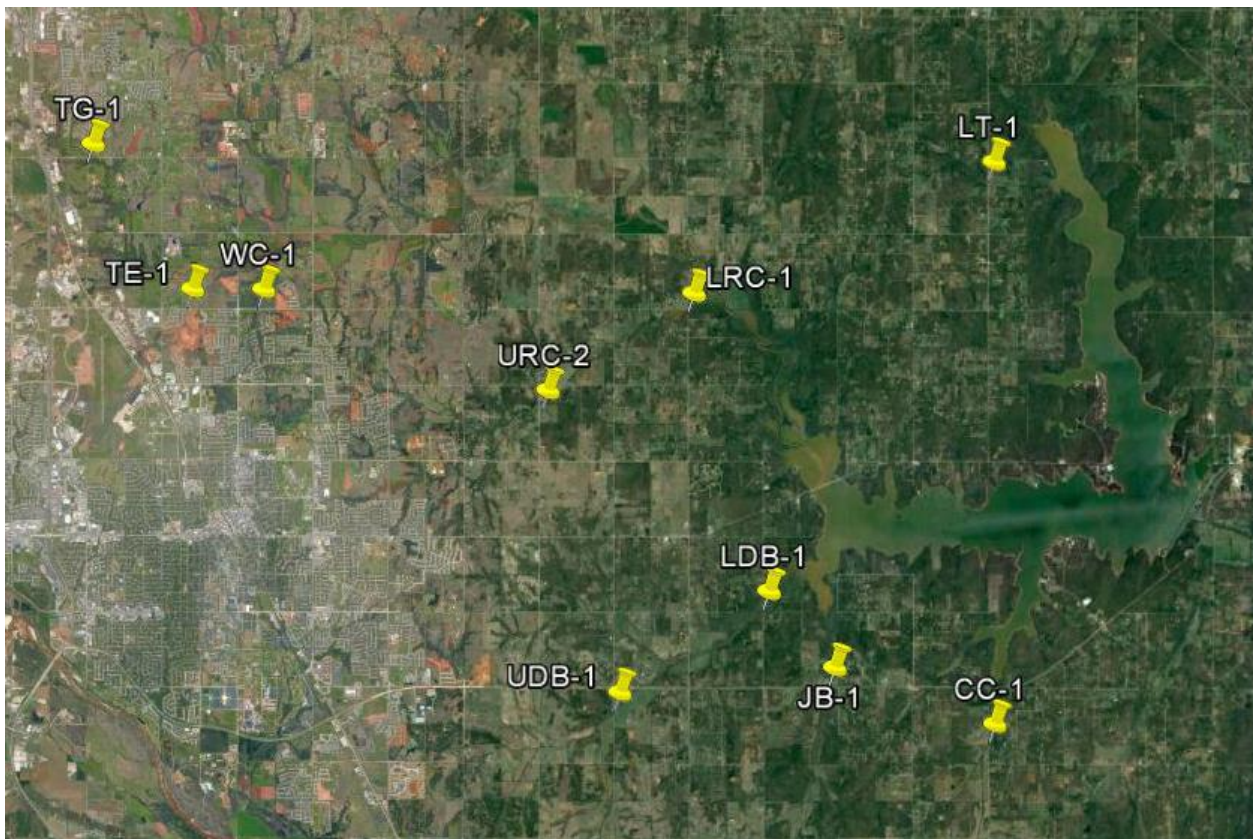


Figure 1 Monitoring Station Map

Monitoring Location ID	Monitoring Location Name	Date	Time	Field Crew	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/L)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Notes
CC-1	Clear Creek	5/14/2024	11:20	LS	18.0	8.24	7.96	665	13	Nominal channel conditions; upstream beaver dam is weakening/does not look maintained
JB-1	Jim Blue Creek	5/14/2024	10:09	LS	16.1	7.34	7.88	805	15	Collected two samples; water flowing underneath bridge; DCP may be frozen at 7.58
LDB-1	Lower Dave Blue Creek	5/14/2024	12:33	LS	22.7	7.56	7.87	363	189	Acting like lake backwater; visually flowing backward. Took flow the following day
LRC-1	Lower Rock Creek	5/14/2024	13:14	LS	21.1	9.18	8.08	431	50	Brown color from recent rain
TE-1	Little River Tributary	5/15/2024	11:12	LS	22.1	6.88	7.56	490	24	Muddy banks; was higher flow recently but has come back down. Brown color to water, two beaver dams still present upstream
TG-1	Little River	5/15/2024	12:28	LS	21.7	8.23	7.93	634	9	Brown color to water, sparse algae
UDB-1	Upper Dave Blue Creek	5/14/2024	8:36	LS	17.6	8.51	7.89	505	49	Brown coloration; flowing well
URC-2	Upper Rock Creek	5/14/2024	14:43	LS	20.5	7.69	8.01	449	53	Turbid; smells of cattle, but immediate riparian area intact on both sides of bridge
WC-1	Woodcrest Creek	5/15/2024	9:51	LS	18.8	6.34	7.77	639	19	Muddy banks; was higher flow recently but has come back down

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	0.13	0.44	0.060	11.0
JB-1	Jim Blue Creek (us)	<0.05	0.57	0.065	20.0
JB-1	Jim Blue Creek (ds)	<0.05	0.57	0.062	16.0
LDB-1	Lower Dave Blue Creek	0.24	1.06	0.207	134
LRC-1	Lower Rock Creek	0.12	0.86	0.097	41.0
TE-1	Little River Tributary	0.23	0.81	0.102	10.0
TG-1	Little River	0.27	0.62	0.093	6.0
UDB-1	Upper Dave Blue Creek	0.14	0.73	0.097	38.0
URC-2	Upper Rock Creek	0.09	0.81	0.091	50.0
WC-1	Woodcrest Creek	0.30	0.88	0.191	13.0

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	0.13	0.42	0.063	11.0
Duplicate RPD	0%	4.65%	4.88%	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	0.12	20.38
JB-1	Jim Blue Creek	0.99	7.53
LDB-1	Lower Dave Blue Creek	0.78	17.08
LRC-1	Lower Rock Creek	2.00	3.77
TE-1	Little River Tributary	0.44	10.95
TG-1	Little River	2.14	9.08
UDB-1	Upper Dave Blue Creek	4.96	17.72
URC-2	Upper Rock Creek	1.88	11.87
WC-1	Woodcrest Creek	0.64	7.42

Table 4 Station Discharge Summary

All rated stream discharges are provisional and subject to change.

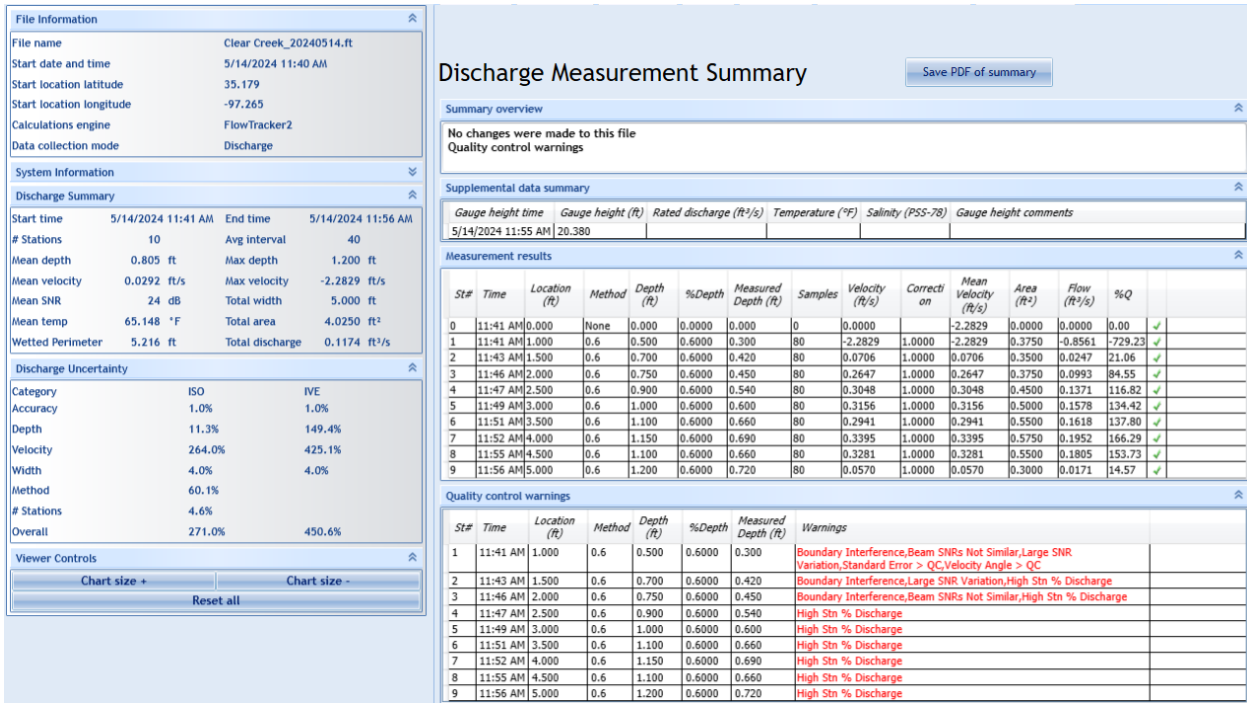


Figure 2 Discharge Measurement Summary CC-1

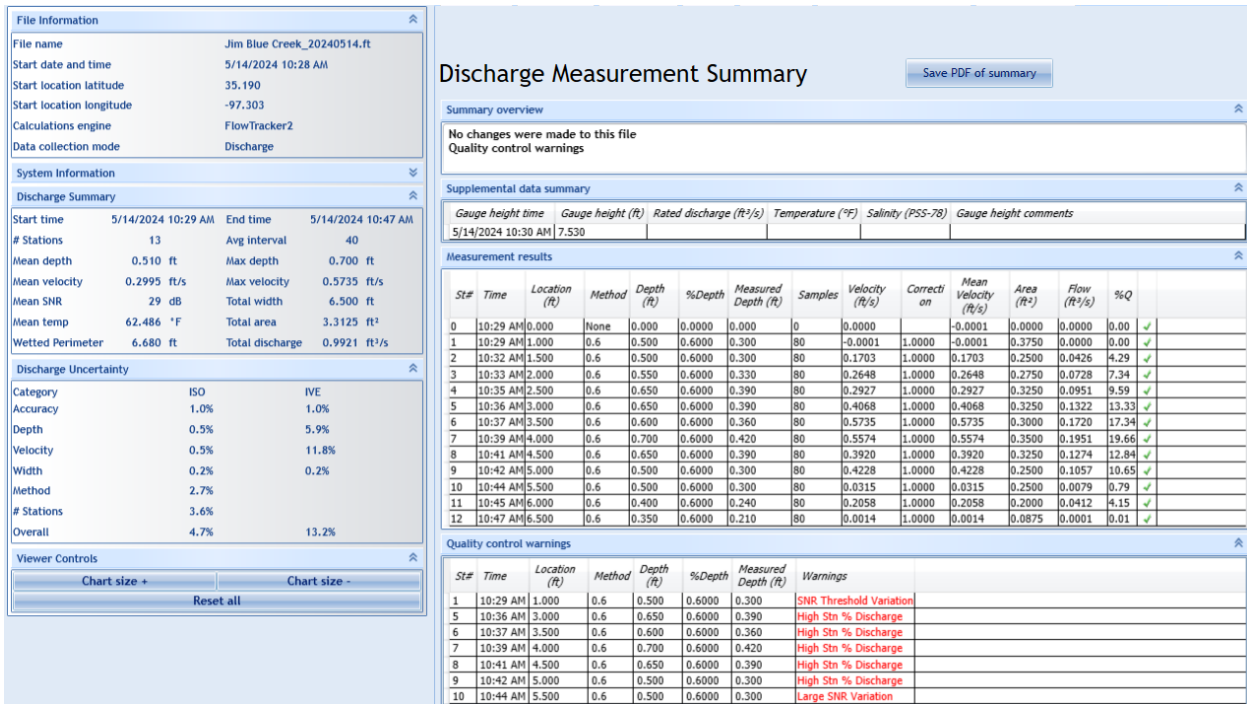


Figure 3 Discharge Measurement Summary JB-1

Discharge Measurement Summary

Date Measured: 2024-05-15

Site Information		Measurement Information	
Site Name	LDB	Operator	LES, RDW
Station Number		Vessel	Streamboat Willie
Location	Lower Dave Blue Creek - Norman	Measurement Number	
Gauge Height			

System Information		System Setup		Units	
Instrument Type	RS2	Transducer Depth (ft)	0.15	Distance	ft
Instrument Sub-Type	RS5	Screening Distance (ft)	0	Velocity	ft/s
Serial Number	RS522	Salinity (PSS-78)	0	Area	ft ²
	40008	Magnetic Declination (deg)	3	Discharge	ft ³ /s
Firmware Version	1.25			Temperature	°C

Discharge Calculation Settings				Discharge Results			
Track Reference	Bottom-Track	Left Method	Slope	Width (ft)	37.795		
Depth Reference	Vertical Beam	Right Method	Slope	Area (ft ²)	117.714		
Coordinate System	ENU	Top Fit Type	Power Fit		3		
Moving Bed Correction	None	Bottom Fit Type	Power Fit	Mean Speed (ft/s)	0.0062		
				Total Q (ft ³ /s)	0.7821		
				Max Depth (ft)	6.289		
				Max Speed (ft/s)	1.4696		

Measurement Results																	
Tr #		Start Time (UTC-5)	Duration	Track Distance (ft)	DMG (ft)	Width (ft)	Area (ft ²)	Boat Speed (ft/s)	Mean Speed (ft/s)	Left Q (ft ³ /s)	Right Q (ft ³ /s)	Top Q (ft ³ /s)	Bottom Q (ft ³ /s)	Middle Q (ft ³ /s)	Total Q (ft ³ /s)	Total Q Corrected (ft ³ /s)	% Measured
01	L	08:30:16	00:02:00	37.005	25.356	39.356	128.8337	0.3084	0.046	0.1949	-0.018	0.5333	1.1106	4.1027	5.9235		69.26
02	R	08:32:29	00:02:04	43.529	23.987	37.987	116.7402	0.351	0.0298	-0.2023	-0.0202	0.2869	0.7247	2.6863	3.4754		77.3
03	L	08:34:45	00:01:06	28.027	22.08	36.08	110.8695	0.4247	-0.0175	-0.1234	-0.2936	-0.1915	-0.3074	-1.0252	-1.9412		52.81
04	R	08:36:10	00:03:12	30.703	20.969	34.969	111.4809	0.1599	-0.0325	-0.4448	-0.2699	-0.3177	-0.8457	-1.7505	-3.6285		48.24
05	L	08:39:31	00:01:47	29.124	22.445	36.445	116.0347	0.2722	-0.0643	-0.1316	-0.6209	-0.6367	-1.3428	-4.7307	-7.4627		63.39
06	R	08:47:14	00:01:46	36.259	29.638	43.638	127.4586	0.3421	-0.0232	-0.0969	-0.3	-0.2893	-0.5226	-1.7477	-2.9565		59.12
07	L	08:57:53	00:01:36	30.436	23.078	37.078	113.1627	0.317	0.0289	-0.0318	0.2319	0.2553	0.6515	2.1609	3.2678		66.13
08	R	08:59:38	00:01:29	33.656	21.907	35.907	114.3503	0.3782	0.0318	-0.026	0.2925	0.3297	0.592	2.4487	3.6369		67.33
09	L	09:01:18	00:01:36	30.62	25.234	39.234	121.9822	0.319	0.0328	0.0256	0.1921	0.2682	0.7019	2.8148	4.0026		70.32
10	R	09:03:04	00:01:29	31.303	23.255	37.255	116.2303	0.3517	0.0301	0.0046	0.2106	0.2973	0.7741	2.2167	3.5033		63.27
Mean				33.066	23.795	37.795	117.7143	0.3224	0.0062	-0.0832	-0.0596	0.0536	0.1536	0.7176	0.7821	0	63.72
Std Dev				4.45	2.362	2.362	6.0043	0.0669	0.0353	0.1587	0.2864	0.3604	0.7922	2.6824	4.1787	0	8.11
COV				0.442	0.326	0.205	0.549	0.6811	18.756	-67.3854	-169.8557	237.6637	182.0833	132.0071	188.6935	0	12.73

Figure 4 Discharge Measurement Summary LDB-1

File Information

File name: Lower Rock Creek_20240514.ft
 Start date and time: 5/14/2024 1:34 PM
 Start location latitude: 35.261
 Start location longitude: -97.336
 Calculations engine: FlowTracker2
 Data collection mode: Discharge

System Information

Discharge Summary

Start time: 5/14/2024 1:34 PM End time: 5/14/2024 2:17 PM
 # Stations: 19 Avg interval: 40
 Mean depth: 1.043 ft Max depth: 1.900 ft
 Mean velocity: 0.1066 ft/s Max velocity: -1.0834 ft/s
 Mean SNR: 39 dB Total width: 18.000 ft
 Mean temp: 70.039 °F Total area: 18.7750 ft²
 Wetted Perimeter: 18.527 ft Total discharge: 2.0012 ft³/s

Discharge Uncertainty

Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.5%	6.9%
Velocity	30.9%	78.9%
Width	0.5%	0.5%
Method	6.5%	
# Stations	2.5%	
Overall	31.7%	79.2%

Viewer Controls

Chart size + Chart size -
 Reset all

Discharge Measurement Summary

Save PDF of summary

Summary overview

No changes were made to this file
 Quality control warnings

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
5/14/2024 1:37 PM	3.770				

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	1:34 PM	0.000	None	0.000	0.000	0.000	0	0.0000		-0.1069	0.0000	0.0000	0.00	✓
1	1:35 PM	1.000	0.6	0.300	0.6000	0.180	80	-0.1069	1.0000	-0.1069	0.3000	-0.0321	-1.60	✓
2	1:37 PM	2.000	0.6	0.400	0.6000	0.240	80	-0.0766	1.0000	-0.0766	0.4000	-0.0306	-1.53	✓
3	1:39 PM	3.000	0.6	0.400	0.6000	0.240	80	-0.0829	1.0000	-0.0829	0.4000	-0.0332	-1.66	✓
4	1:40 PM	4.000	0.6	0.500	0.6000	0.300	80	-0.0781	1.0000	-0.0781	0.5000	-0.0391	-1.95	✓
5	1:42 PM	5.000	0.6	0.600	0.6000	0.360	80	-0.0421	1.0000	-0.0421	0.6000	-0.0253	-1.26	✓
6	1:44 PM	6.000	0.6	0.600	0.6000	0.360	80	-0.0392	1.0000	-0.0392	0.6000	-0.0235	-1.17	✓
7	1:45 PM	7.000	0.6	0.800	0.6000	0.480	80	-0.0122	1.0000	-0.0122	0.8000	-0.0098	-0.49	✓
8	1:47 PM	8.000	0.6	0.950	0.6000	0.570	80	0.0714	1.0000	0.0714	0.9500	0.0678	3.39	✓
9	1:49 PM	9.000	0.6	1.000	0.6000	0.600	80	0.1027	1.0000	0.1027	1.0000	0.1027	5.13	✓
10	1:51 PM	10.000	0.6	1.350	0.6000	0.810	80	0.2305	1.0000	0.2305	1.3500	0.3112	15.55	✓
11	1:53 PM	11.000	0.2/0.6/0.8	1.700	0.2000	0.340	80	0.1808	1.0000	0.2561	1.7000	0.4353	21.75	✓
11	1:53 PM	11.000	0.2/0.6/0.8	1.700	0.6000	1.020	80	0.3067	1.0000	0.2561	1.7000	0.4353	21.75	✓
11	1:53 PM	11.000	0.2/0.6/0.8	1.700	0.8000	1.360	80	0.2302	1.0000	0.2561	1.7000	0.4353	21.75	✓
12	1:59 PM	12.000	0.2/0.8	1.900	0.2000	0.380	80	0.3536	1.0000	0.2874	1.9000	0.5460	27.28	✓
12	1:59 PM	12.000	0.2/0.8	1.900	0.8000	1.520	80	0.2211	1.0000	0.2874	1.9000	0.5460	27.28	✓
13	2:03 PM	13.000	0.2/0.8	1.700	0.2000	0.340	80	0.3392	1.0000	0.3172	1.7000	0.5393	26.95	✓
13	2:03 PM	13.000	0.2/0.8	1.700	0.8000	1.360	80	0.2953	1.0000	0.3172	1.7000	0.5393	26.95	✓
14	2:06 PM	14.000	0.2/0.8	1.650	0.2000	0.330	80	0.4015	1.0000	0.3504	1.6500	0.5782	28.89	✓
14	2:06 PM	14.000	0.2/0.8	1.650	0.8000	1.320	80	0.2993	1.0000	0.3504	1.6500	0.5782	28.89	✓
15	2:10 PM	15.000	0.2/0.8	1.700	0.2000	0.340	80	0.4092	1.0000	0.3486	1.7000	0.5926	29.61	✓
15	2:10 PM	15.000	0.2/0.8	1.700	0.8000	1.360	80	0.2880	1.0000	0.3486	1.7000	0.5926	29.61	✓
16	2:13 PM	16.000	0.6	1.500	0.6000	0.900	80	0.3251	1.0000	0.3251	1.5000	0.4877	24.37	✓
17	2:14 PM	17.000	0.6	1.400	0.6000	0.840	80	-1.0834	1.0000	-1.0834	1.4000	-1.5167	-75.79	✓
18	2:17 PM	18.000	0.6	0.650	0.6000	0.390	80	0.1560	1.0000	0.1560	0.6500	0.0507	2.53	✓

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	1:35 PM	1.000	0.6	0.300	0.6000	0.180	SNR Threshold Variation, Velocity Angle > QC
2	1:37 PM	2.000	0.6	0.400	0.6000	0.240	SNR Threshold Variation, Velocity Angle > QC
3	1:39 PM	3.000	0.6	0.400	0.6000	0.240	Large SNR Variation, SNR Threshold Variation, Velocity Angle > QC
4	1:40 PM	4.000	0.6	0.500	0.6000	0.300	SNR Threshold Variation, Velocity Angle > QC
6	1:44 PM	6.000	0.6	0.600	0.6000	0.360	SNR Threshold Variation
8	1:47 PM	8.000	0.6	0.950	0.6000	0.570	Velocity Angle > QC
9	1:49 PM	9.000	0.6	1.000	0.6000	0.600	Velocity Angle > QC
10	1:51 PM	10.000	0.6	1.350	0.6000	0.810	High Stn % Discharge
11	1:53 PM	11.000	0.2/0.6/0.8	1.700	0.2000	0.340	High Stn % Discharge
11	1:53 PM	11.000	0.2/0.6/0.8	1.700	0.6000	1.020	High Stn % Discharge
11	1:53 PM	11.000	0.2/0.6/0.8	1.700	0.8000	1.360	High Stn % Discharge
12	1:59 PM	12.000	0.2/0.8	1.900	0.2000	0.380	High Stn % Discharge
12	1:59 PM	12.000	0.2/0.8	1.900	0.8000	1.520	High Stn % Discharge
13	2:03 PM	13.000	0.2/0.8	1.700	0.2000	0.340	High Stn % Discharge
13	2:03 PM	13.000	0.2/0.8	1.700	0.8000	1.360	High Stn % Discharge
14	2:06 PM	14.000	0.2/0.8	1.650	0.2000	0.330	High Stn % Discharge
14	2:06 PM	14.000	0.2/0.8	1.650	0.8000	1.320	High Stn % Discharge
15	2:10 PM	15.000	0.2/0.8	1.700	0.2000	0.340	High Stn % Discharge
15	2:10 PM	15.000	0.2/0.8	1.700	0.8000	1.360	High Stn % Discharge
16	2:13 PM	16.000	0.6	1.500	0.6000	0.900	High Stn % Discharge
17	2:14 PM	17.000	0.6	1.400	0.6000	0.840	Low SNR, Large SNR Variation, SNR Threshold Variation, Standard Error > QC, High % Spikes, Velocity Angle > QC
18	2:17 PM	18.000	0.6	0.650	0.6000	0.390	Water Depth > QC

Figure 5 Discharge Measurement Summary LRC-1

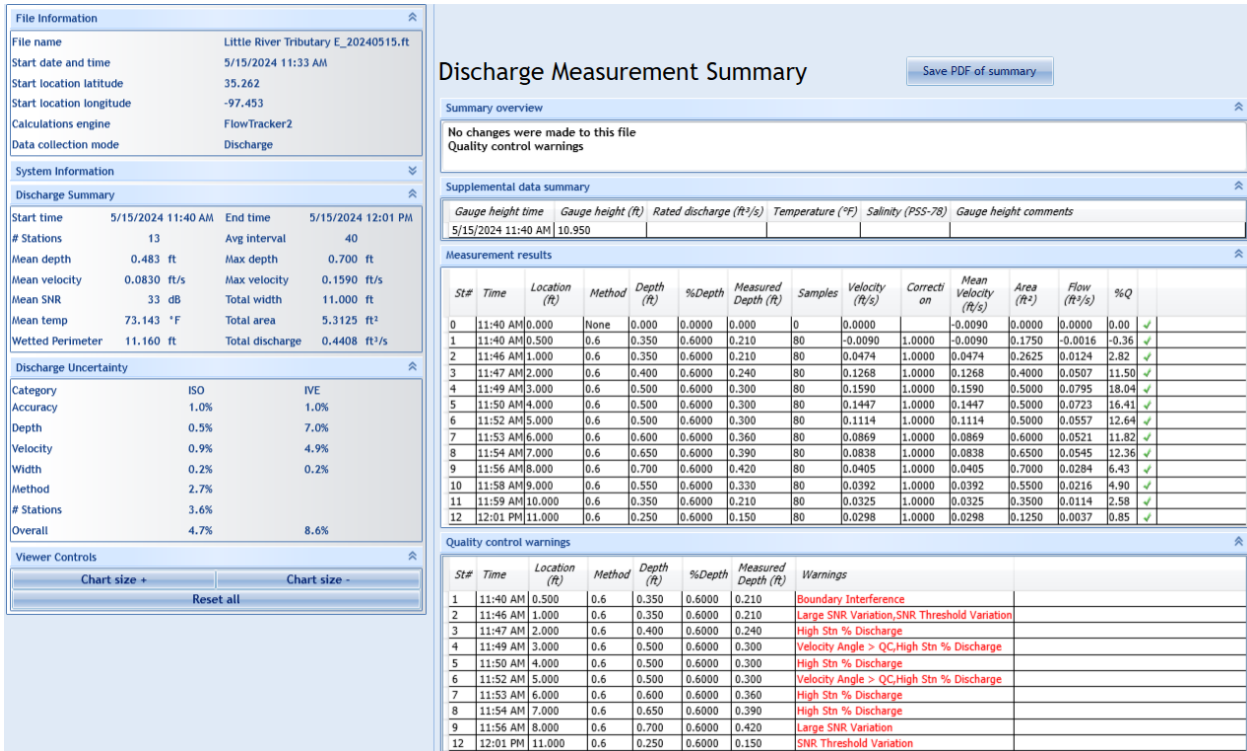


Figure 6 Discharge Measurement Summary TE-1

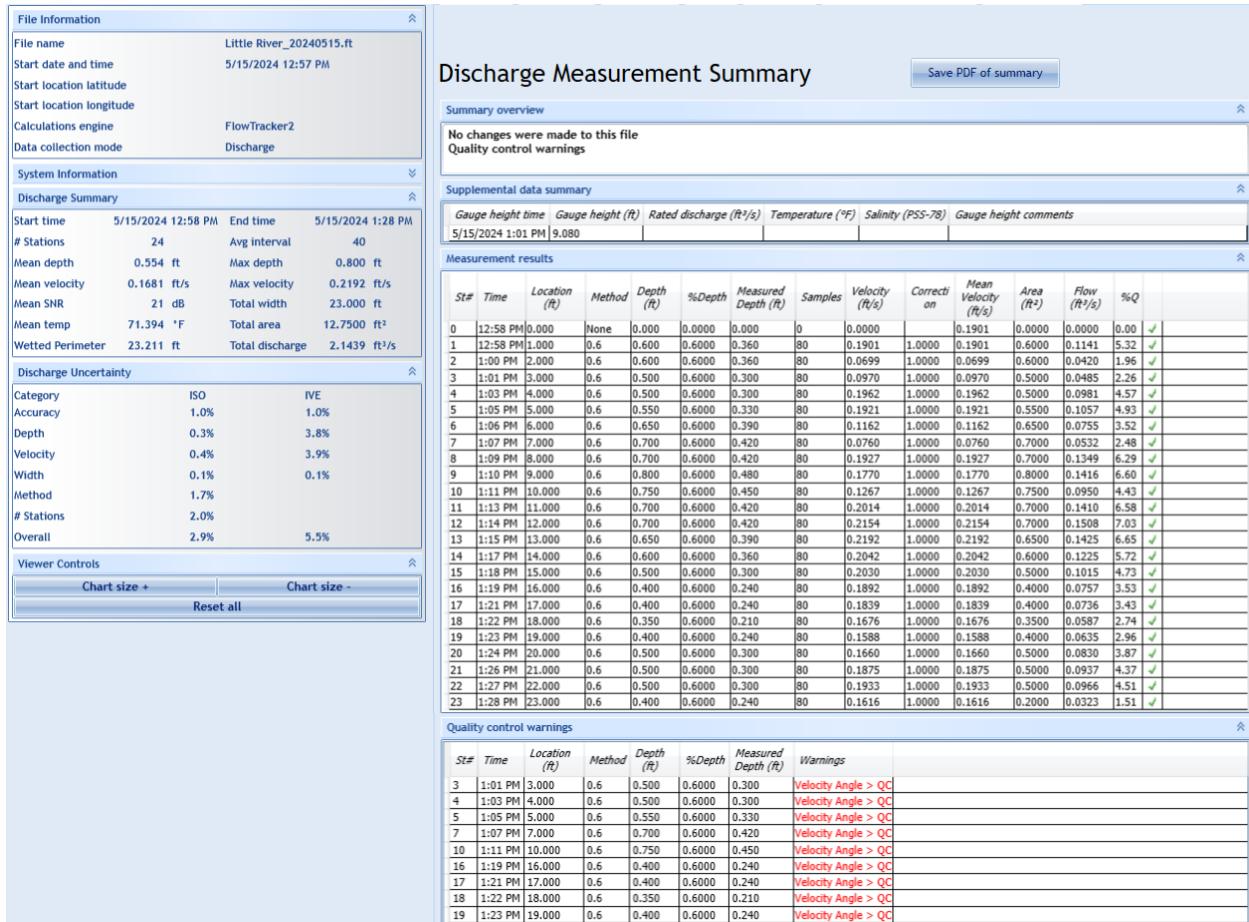


Figure 7 Discharge Measurement Summary TG-1

File Information

File name: Upper Dave Blue Creek_20240514.ft
 Start date and time: 5/14/2024 9:09 AM
 Start location latitude: 35.185
 Start location longitude: -97.353
 Calculations engine: FlowTracker2
 Data collection mode: Discharge

System Information

Discharge Summary

Start time: 5/14/2024 9:13 AM End time: 5/14/2024 9:47 AM
 # Stations: 16 Avg interval: 40
 Mean depth: 0.710 ft Max depth: 0.950 ft
 Mean velocity: 0.9310 ft/s Max velocity: 1.7435 ft/s
 Mean SNR: 37 dB Total width: 7.500 ft
 Mean temp: 63.824 °F Total area: 5.3250 ft²
 Wetted Perimeter: 8.081 ft Total discharge: 4.9574 ft³/s

Discharge Uncertainty

Category	ISO	IVE
Accuracy	1.0%	1.0%
Depth	0.5%	4.0%
Velocity	1.7%	5.3%
Width	0.2%	0.2%
Method	2.6%	
# Stations	3.1%	
Overall	4.6%	6.7%

Viewer Controls

Chart size + Chart size -
 Reset all

Discharge Measurement Summary

Save PDF of summary

Summary overview

No changes were made to this file
 Quality control warnings

Supplemental data summary

Gauge height time	Gauge height (ft)	Rated discharge (ft³/s)	Temperature (°F)	Salinity (PSS-78)	Gauge height comments
5/14/2024 9:41 AM	17.720				

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	9:13 AM	0.000	None	0.000	0.0000	0.000	0	0.0000		-0.2439	0.0000	0.0000	0.00	✓
1	9:13 AM	0.500	0.6	0.550	0.6000	0.330	80	-0.2439	1.0000	-0.2439	0.2750	-0.0671	-1.35	✓
2	9:18 AM	1.000	0.6	0.700	0.6000	0.420	80	0.1100	1.0000	0.1100	0.3500	0.0385	0.78	✓
3	9:19 AM	1.500	0.6	0.700	0.6000	0.420	80	0.4581	1.0000	0.4581	0.3500	0.1603	3.23	✓
4	9:21 AM	2.000	0.6	0.700	0.6000	0.420	80	0.2876	1.0000	0.2876	0.3500	0.1007	2.03	✓
5	9:23 AM	2.500	0.6	0.850	0.6000	0.510	80	0.7046	1.0000	0.7046	0.4250	0.2995	6.04	✓
6	9:25 AM	3.000	0.6	0.900	0.6000	0.540	80	0.9565	1.0000	0.9565	0.4500	0.4304	8.68	✓
7	9:27 AM	3.500	0.6	0.900	0.6000	0.540	80	1.2425	1.0000	1.2425	0.4500	0.5591	11.28	✓
8	9:28 AM	4.000	0.6	0.800	0.6000	0.480	80	1.5559	1.0000	1.5559	0.4000	0.6224	12.55	✓
9	9:30 AM	4.500	0.6	0.950	0.6000	0.570	80	1.7115	1.0000	1.7115	0.4750	0.8129	16.40	✓
10	9:31 AM	5.000	0.6	0.950	0.6000	0.570	80	1.5824	1.0000	1.5824	0.4750	0.7516	15.16	✓
11	9:33 AM	5.500	0.6	0.850	0.6000	0.510	80	1.7435	1.0000	1.7435	0.4250	0.7410	14.95	✓
12	9:34 AM	6.000	0.6	0.700	0.6000	0.420	80	1.1028	1.0000	1.1028	0.3500	0.3860	7.79	✓
13	9:36 AM	6.500	0.6	0.600	0.6000	0.360	80	0.2390	1.0000	0.2390	0.3000	0.0717	1.45	✓
14	9:37 AM	7.000	0.6	0.500	0.6000	0.300	80	0.2015	1.0000	0.2015	0.2500	0.0504	1.02	✓
15	9:47 AM	7.500	None	0.000	0.0000	0.000	0	0.0000		0.2015	0.0000	0.0000	0.00	✓

Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	9:13 AM	0.500	0.6	0.550	0.6000	0.330	Boundary Interference, Velocity Angle > QC
2	9:18 AM	1.000	0.6	0.700	0.6000	0.420	Velocity Angle > QC
5	9:23 AM	2.500	0.6	0.850	0.6000	0.510	Standard Error > QC, Velocity Angle > QC
6	9:25 AM	3.000	0.6	0.900	0.6000	0.540	Standard Error > QC, Velocity Angle > QC
7	9:27 AM	3.500	0.6	0.900	0.6000	0.540	Standard Error > QC, Velocity Angle > QC, High Stn % Discharge
8	9:28 AM	4.000	0.6	0.800	0.6000	0.480	Standard Error > QC, Velocity Angle > QC, High Stn % Discharge
9	9:30 AM	4.500	0.6	0.950	0.6000	0.570	Standard Error > QC, Velocity Angle > QC, High Stn % Discharge
10	9:31 AM	5.000	0.6	0.950	0.6000	0.570	Standard Error > QC, High Stn % Discharge
11	9:33 AM	5.500	0.6	0.850	0.6000	0.510	Standard Error > QC, High Stn % Discharge
12	9:34 AM	6.000	0.6	0.700	0.6000	0.420	Standard Error > QC, Velocity Angle > QC
13	9:36 AM	6.500	0.6	0.600	0.6000	0.360	Velocity Angle > QC
14	9:37 AM	7.000	0.6	0.500	0.6000	0.300	Velocity Angle > QC

Figure 8 Discharge Measurement Summary UDB-1

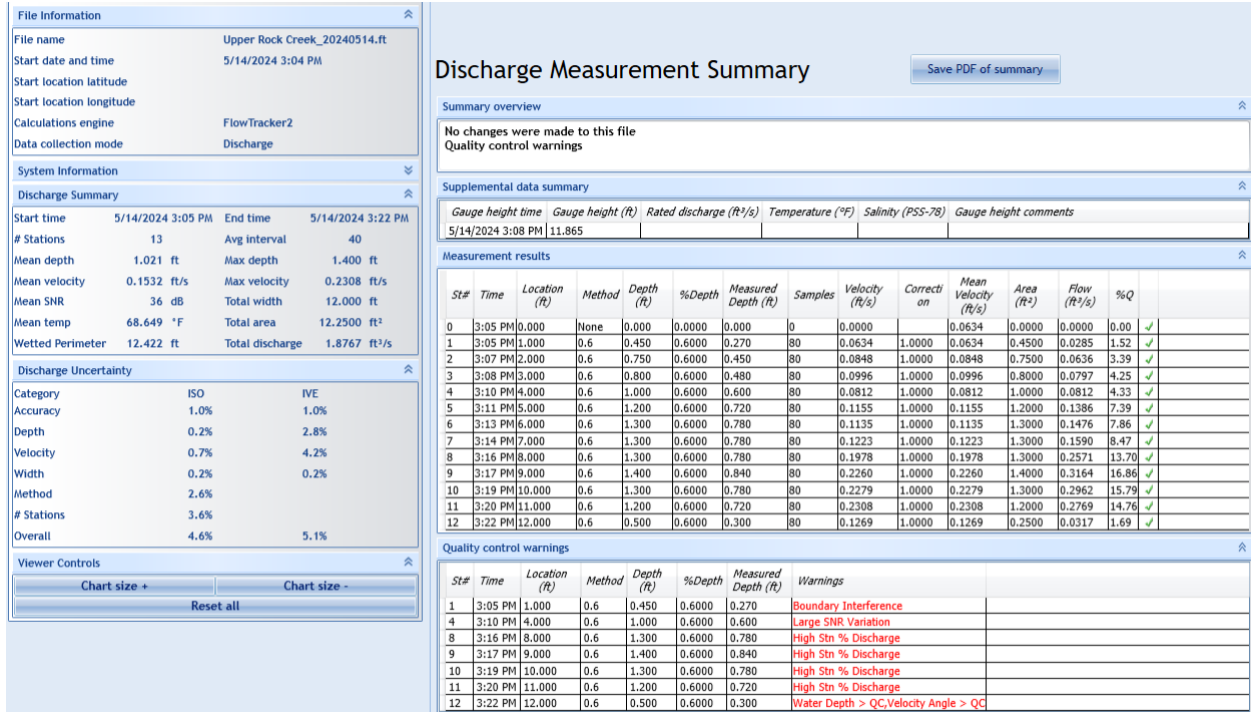


Figure 9 Discharge Measurement Summary URC-2

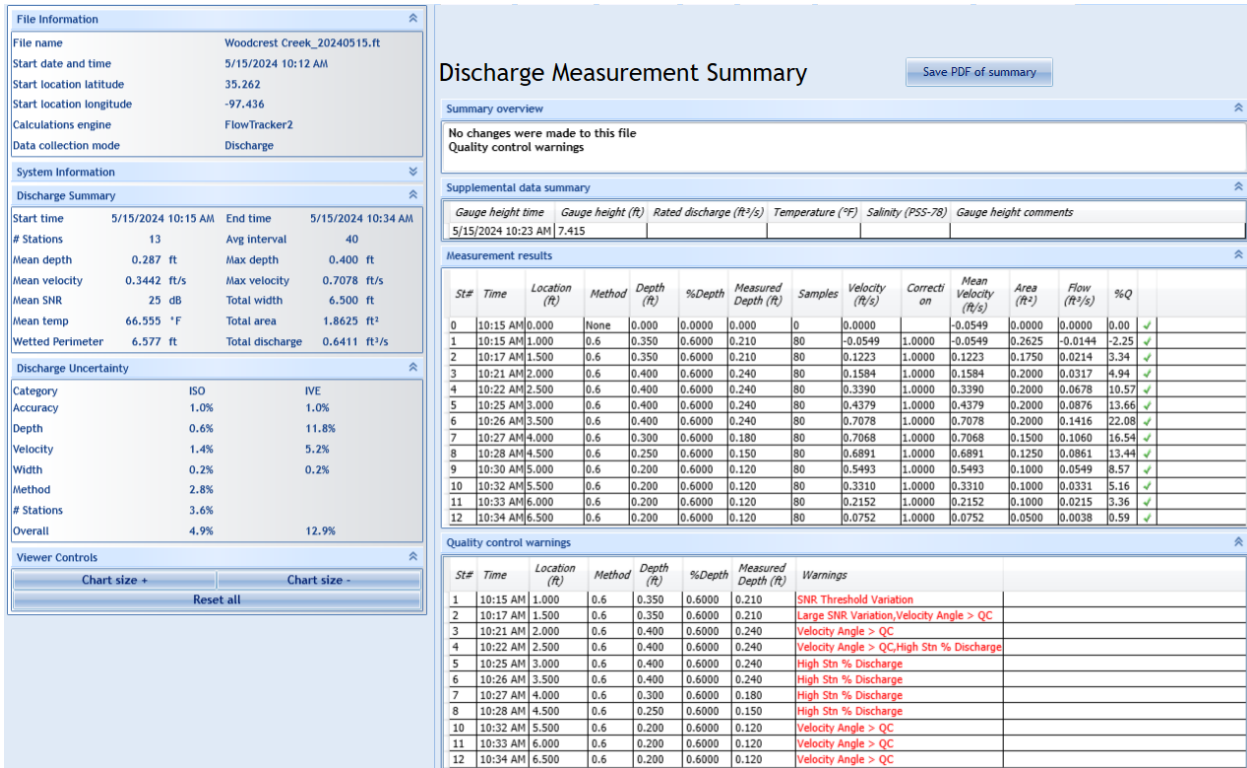


Figure 10 Discharge Measurement Summary WC-1

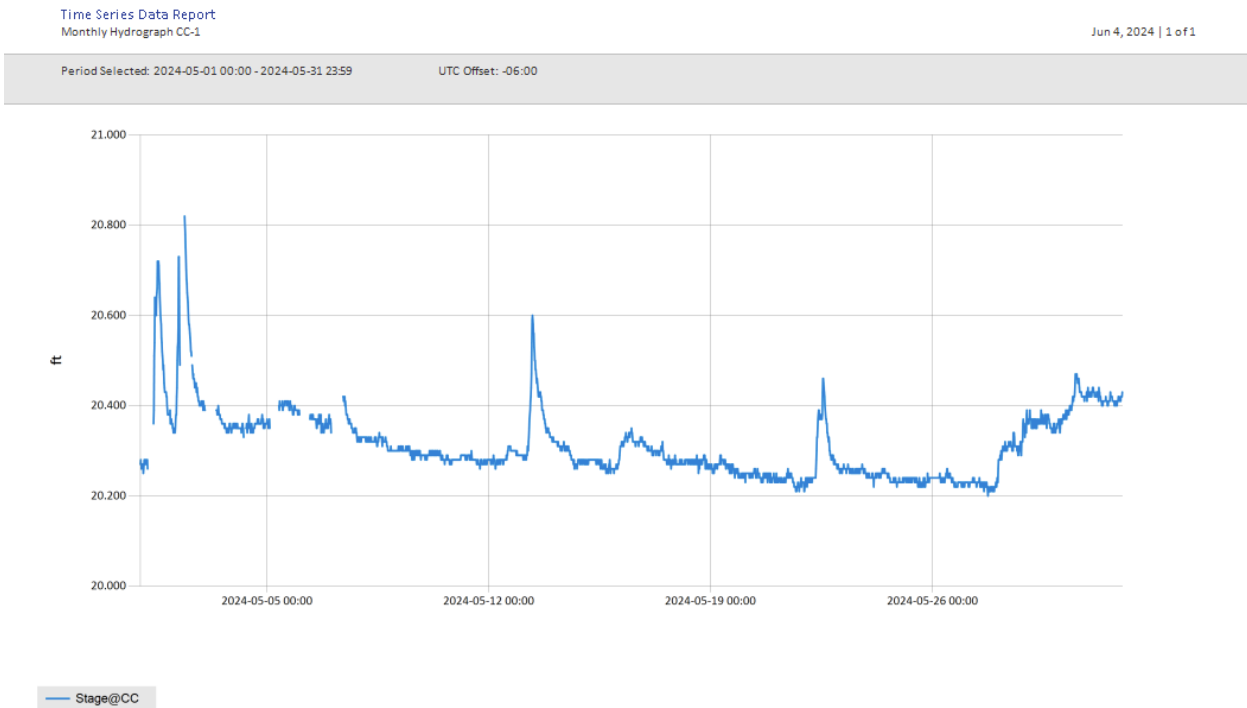
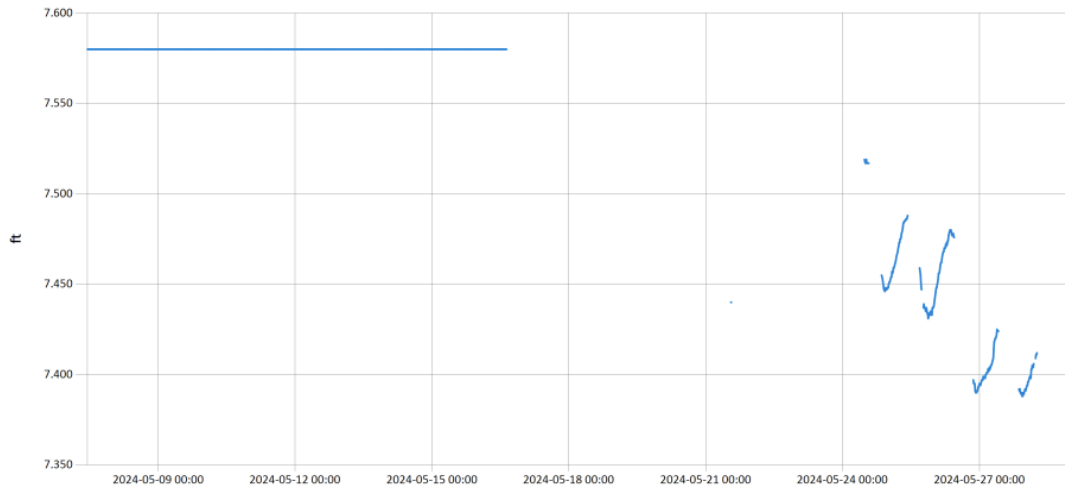


Figure 11 Monthly Hydrograph CC-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59

UTC Offset: -06:00

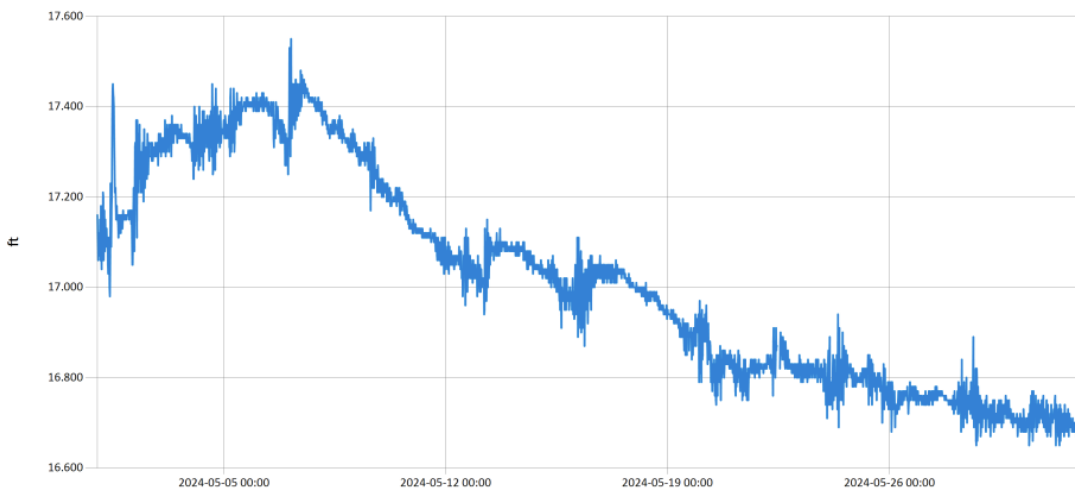


— Stage@JB

Figure 12 Monthly Hydrograph JB-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59

UTC Offset: -06:00



— Stage@LDB

Figure 13 Monthly Hydrograph LDB-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59 UTC Offs et: -06:00

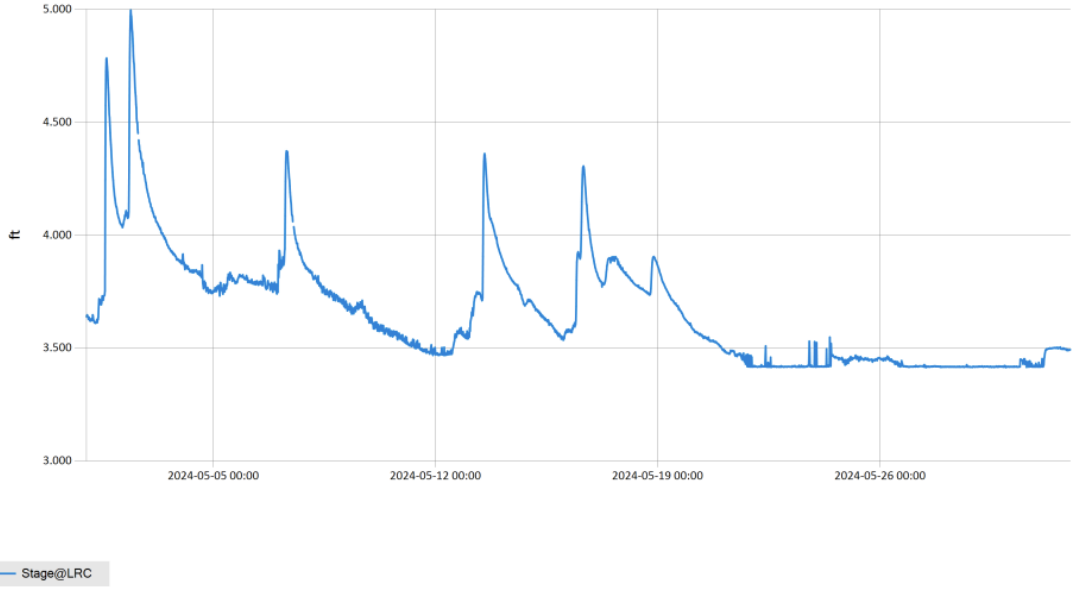


Figure 14 Monthly Hydrograph LRC-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59 UTC Offs et: -06:00

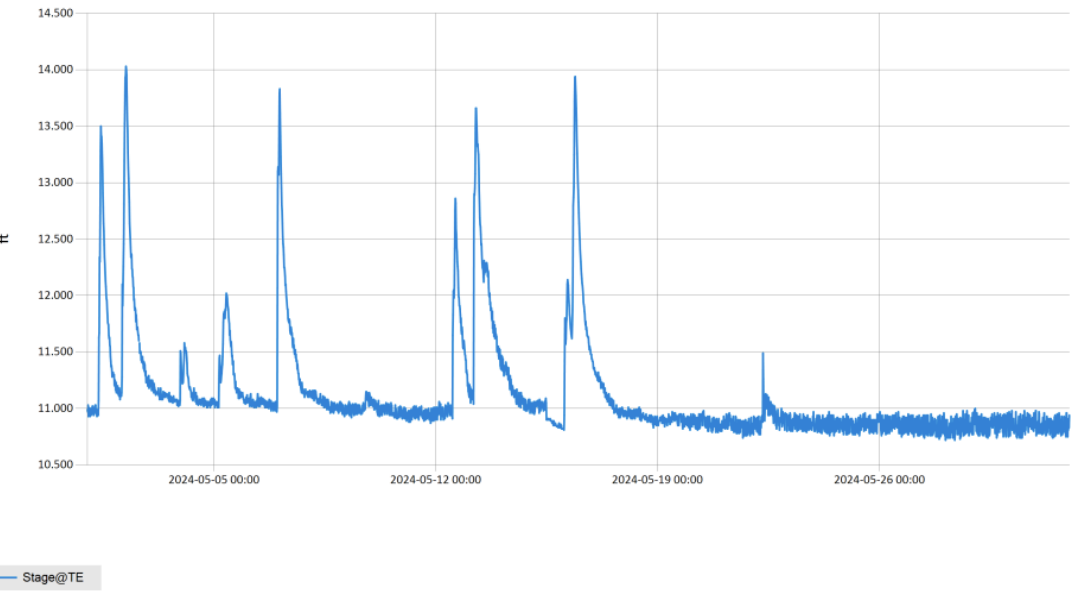


Figure 15 Monthly Hydrograph TE-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59

UTC Offset: -06:00

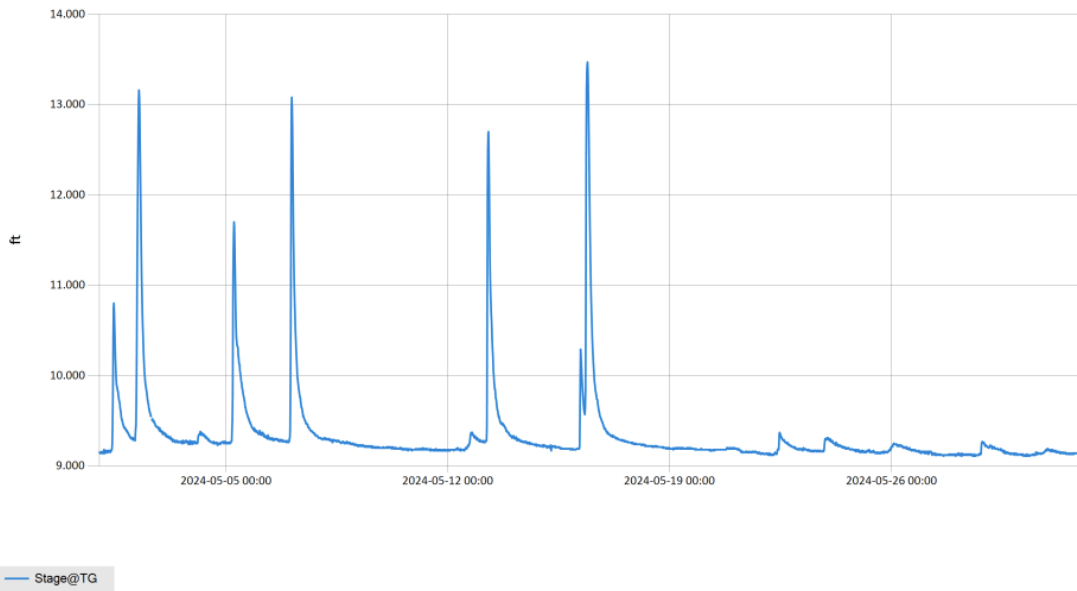


Figure 16 Monthly Hydrograph TG-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59

UTC Offset: -06:00

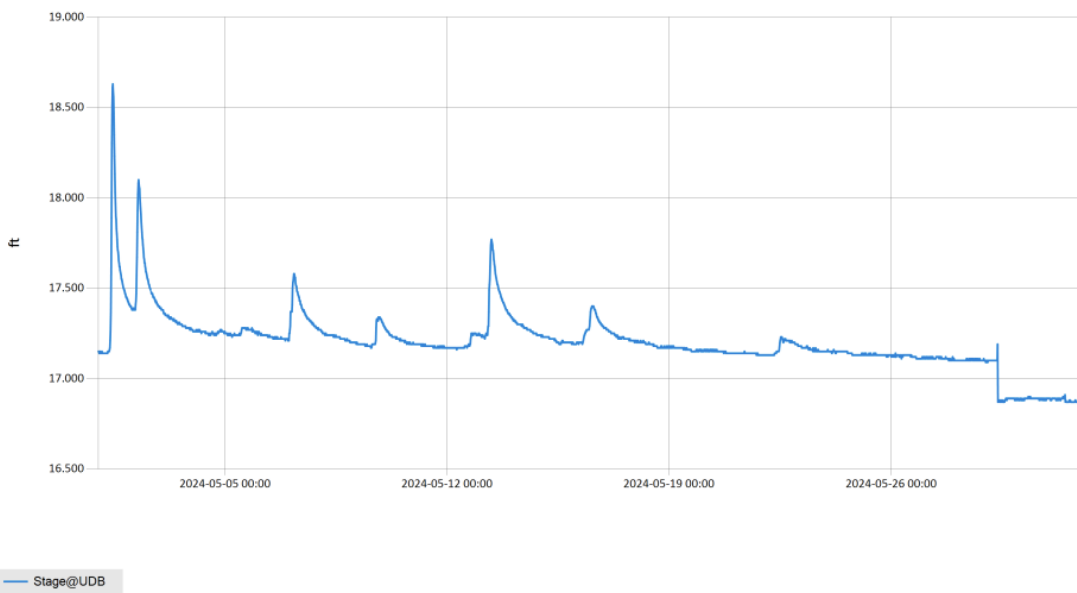


Figure 17 Monthly Hydrograph UDB-1

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59

UTC Offset: -06:00

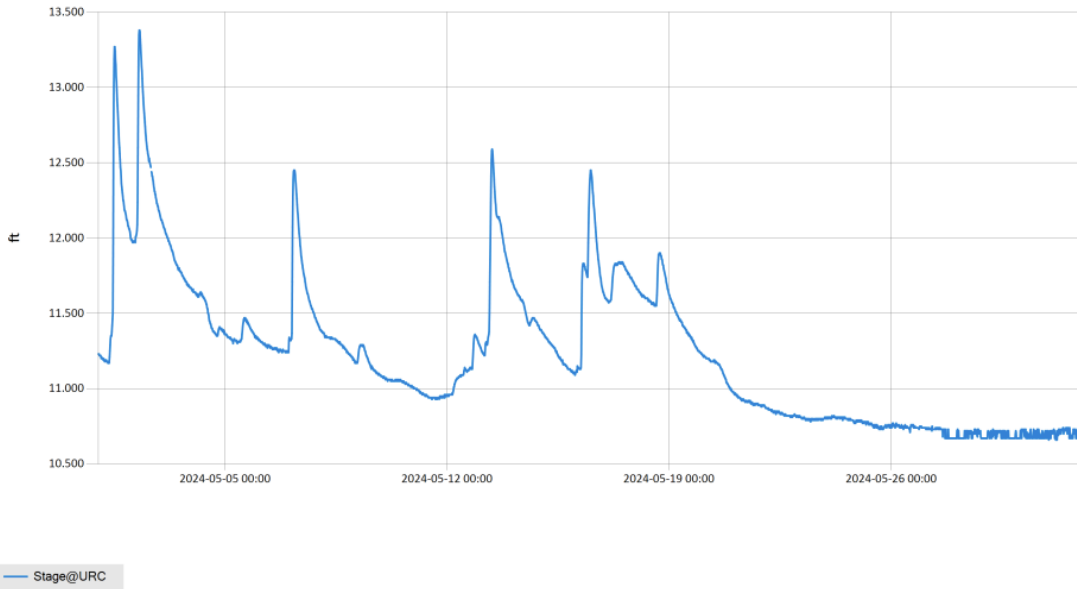


Figure 18 Monthly Hydrograph URC-2

Period Selected: 2024-05-01 00:00 - 2024-05-31 23:59

UTC Offset: -06:00

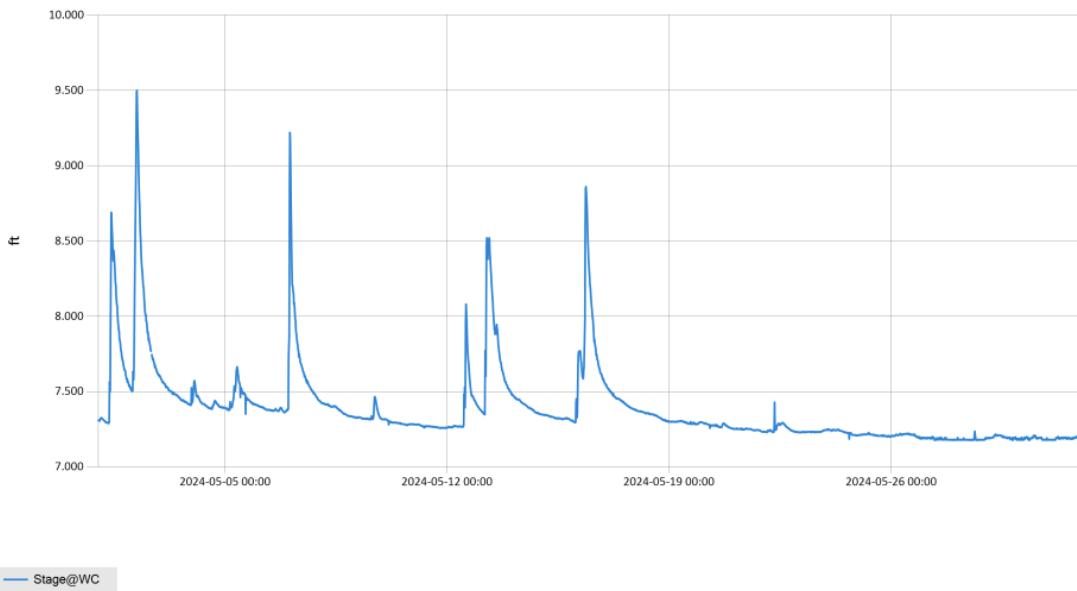


Figure 19 Monthly Hydrograph WC-1

MESONET CLIMATOLOGICAL DATA SUMMARY				May 2024				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	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m ²)	SOD	BARE	MAX	MIN		
1	78	62	71.3	62.4	0	5	96	51	75	0.68	28.59	29.83	SSE	12.4	34.1	20.06	68.6	69.4	74	65		
2	73	63	68.6	64.0	0	3	97	73	85	0.59	28.55	29.79	E	7.0	39.7	10.11	68.4	69.9	72	67		
3	80	63	71.1	63.9	0	6	98	61	79	0.08	28.64	29.89	NE	8.6	23.9	21.84	69.6	72.2	78	67		
4	73	63	66.2	60.3	0	3	95	69	81	0.07	28.73	29.97	NE	8.4	27.0	12.25	69.0	69.7	72	67		
5	69	58	62.7	59.4	2	0	96	76	89	0.14	28.69	29.94	ENE	8.4	24.1	10.46	67.1	66.6	70	64		
6	81	61	71.1	66.6	0	6	98	73	86	0.37	28.44	29.67	S	11.5	41.0	11.15	67.7	68.1	72	65		
7	81*	58*	72.2*	48.8*	0*	4*	93*	18*	49*	0.00*	28.39*	29.62*	SSE*	7.6*	20.8*	NA	69.4*	71.2*	77*	65*		
8	81	62	74.1	60.5	0	7	90	43	64	0.00	28.34	29.57	S	9.8	30.2	25.47	70.8	71.3	77	66		
9	77	55	67.1	46.5	0	1	74	30	49	0.02	28.65	29.89	NE	8.3	25.2	20.48	68.7	66.1	70	62		
10	76	53	65.9	50.8	0	0	83	39	60	0.00	28.81	30.06	NE	5.8	18.3	26.00	68.0	65.9	73	59		
11	79	53	66.9	54.9	0	1	94	38	68	0.02	28.75	30.00	SSW	3.6	20.8	18.83	68.2	66.7	73	60		
12	71	55	63.5	58.9	2	0	98	63	85	0.34	28.62	29.86	SSE	5.7	23.5	10.66	67.4	65.9	68	63		
13	76	58	65.3	58.3	0	2	97	50	80	0.58	28.52	29.76	NW	6.6	26.2	16.91	67.7	67.5	73	63		
14	79	56	67.6	55.1	0	2	95	42	67	0.00	28.57	29.81	NW	6.7	20.0	26.69	68.3	68.8	75	63		
15	86	59	73.6	59.9	0	7	90	47	64	0.02	28.55	29.79	SSE	9.2	33.2	20.72	69.3	68.7	73	64		
16	76	62	67.9	60.5	0	4	97	54	79	0.63	28.59	29.83	ESE	7.0	25.9	18.17	70.2	69.8	75	66		
17	80	60	69.8	60.5	0	5	98	50	74	0.00	28.55	29.79	S	4.0	15.1	22.84	70.9	71.7	79	66		
18	88	62	75.9	62.3	0	10	93	41	65	0.00	28.62	29.86	S	6.5	16.3	27.75	72.4	72.8	79	66		
19	88	69	79.1	67.1	0	13	80	57	67	0.00	28.63	29.87	SSE	11.9	31.7	25.86	73.7	73.4	79	68		
20	88	67	78.8	65.1	0	12	86	49	64	0.00	28.53	29.77	S	13.3	34.3	26.81	74.3	73.9	78	70		
21	90	72	79.4	63.6	0	16	86	22	62	0.00	28.47	29.71	S	11.1	29.9	24.37	74.9	75.7	83	71		
22	77	61	69.9	58.5	0	4	91	45	69	0.06	28.62	29.87	NE	11.4	34.3	23.72	73.7	73.8	78	70		
23	85	65	74.6	67.5	0	10	97	57	80	0.00	28.53	29.77	SSE	8.5	35.0	11.16	73.1	73.2	77	70		
24	84	64	76.1	62.1	0	9	88	43	64	0.01	28.50	29.74	S	9.1	27.3	24.16	74.4	76.3	82	72		
25	87	60	74.6	65.0	0	8	91	60	73	0.03	28.50	29.74	SSE	9.5	27.6	21.26	73.9	75.8	82	69		
26	92	62	80.5	61.2	0	12	87	28	55	0.00	28.41	29.65	NW	11.3	29.0	27.92	75.6	78.8	85	73		
27	91	58	77.2	55.8	0	9	89	23	53	0.00	28.71	29.95	E	5.0	19.4	28.07	75.1	79.2	87	71		
28	80	69	73.2	61.0	0	9	84	48	66	0.07	28.83	30.08	E	8.5	31.6	17.44	74.7	77.4	81	75		
29	82	63	72.0	63.1	0	8	92	57	75	0.00	28.83	30.08	ESE	6.9	17.8	16.09	73.6	75.3	80	72		
30	77	66	70.6	65.5	0	7	94	65	85	0.03	28.71	29.96	SE	7.5	19.7	13.07	73.2	74.6	78	73		
31	78	64	69.4	63.0	0	6	92	59	81	0.00	28.70	29.95	ENE	5.2	16.8	13.63	72.8	74.2	79	71		
81* 61* 71.5* 60.4*				<- Monthly Averages ->				28.60*		29.84*		S * 8.3* 41.0*			19.80*		71.1* 71.7* 77* 67*					
Temperature - Highest: 92*							Degree Days - Total HDD: 4*					Number of Days With:										
Lowest: 53*							Total CDD: 191*					Tmax ≥ 90: 3*			Rainfall ≥ 0.01 inch: 17*							
Rainfall: Monthly Total: 3.74* in.							Humidity - Highest: 98*					Tmax ≤ 32: 0*			Rainfall ≥ 0.10 inch: 7*							
Greatest 24 Hr: 0.68* in.							Lowest: 18*					Tmin ≤ 32: 0*			Avg Wind Speed ≥ 10 mph: 7*							
												Tmin ≤ 0: 0*			Max Wind Speed ≥ 30 mph: 10*							

Figure 20 May Mesonet Data