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



SY2017 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

April 2017 Monitoring Report

Oklahoma Water Resources Board
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TABLE OF CONTENTS

Table of Contents..... 3
List of Tables..... 3
List of Figures..... 3
Summary of April Water Quality Sampling Results..... 4

LIST OF TABLES

TABLE 1 FIELD DATA FORM 3/29/2017 5
TABLE 2 LABORATORY ANALYSIS SUMMARY FROM 3/29/2017..... 6
TABLE 3 QA/QC DATA FROM 3/29/2017 WHERE SUBSCRIPT 1 DENOTES A LEVEL 2 RPD 6
TABLE 4 STATION DISCHARGE SUMMARY FROM 3/29/2017 6
TABLE 5 FIELD DATA FORM 4/21/2017 7
TABLE 6 PARTIAL LABORATORY ANALYSIS SUMMARY FROM 4/21/2017 7

LIST OF FIGURES

FIGURE 1 MONITORING STATION MAP 4
FIGURE 2 DISCHARGE SUMMARY WC-1 8
FIGURE 3 DISCHARGE SUMMARY TE-1..... 9
FIGURE 4 DISCHARGE SUMMARY TG-1 10
FIGURE 5 DISCHARGE SUMMARY CC-1 11
FIGURE 6 DISCHARGE SUMMARY JB-1 12
FIGURE 7 DISCHARGE SUMMARY LT-1 13
FIGURE 8 DISCHARGE SUMMARY LDB-1 14
FIGURE 9 DISCHARGE SUMMARY LRC-1..... 15
FIGURE 10 DISCHARGE SUMMARY UDB-1 16
FIGURE 11 DISCHARGE SUMMARY URC-2..... 17
FIGURE 12 MONTHLY HYDROGRAPH JB-1 18
FIGURE 13 MONTHLY HYDROGRAPH LDB-1 18
FIGURE 14 MONTHLY HYDROGRAPH LT-1..... 18
FIGURE 15 MONTHLY HYDROGRAPH TE-1 19
FIGURE 16 MONTHLY HYDROGRAPH TG-1 19
FIGURE 17 MONTHLY HYDROGRAPH UDB-1 19
FIGURE 18 MONTHLY HYDROGRAPH URC-2 20
FIGURE 19 MONTHLY HYDROGRAPH WC-1..... 20
FIGURE 20 MONTHLY HYDROGRAPH CC-1 20
FIGURE 21 MONTHLY HYDROGRAPH LRC-1 21
FIGURE 22 MARCH MESONET DATA..... 22
FIGURE 23 APRIL MESONET DATA..... 23

SUMMARY OF APRIL WATER QUALITY SAMPLING

Sampling for April 2017 occurred on the twenty-ninth of March and was considered an above average flow collection. Discharge measurements were conducted at all ten locations, in addition to water collections being made at the seven storm outfalls. Mesonet data for Norman on the twenty-ninth of March shows 0.72 inches of rain, with 3.30 inches occurring in the 72 hours prior, and 0.62 inches occurring in the 72 hours after the sampling event. A second sampling event occurred on the twenty-first of April, where only the storm outfalls were collected. Mesonet data on the twenty-first shows 1.16 inches of precipitation, with 0.01 inches of precipitation in the 72 hours before collection, and no precipitation following the sampling event. The total rainfall in Norman for the month of April was 5.20 inches. All water level gages were operational for the month with LRC-1 transmitting data starting on the nineteenth.

RESULTS

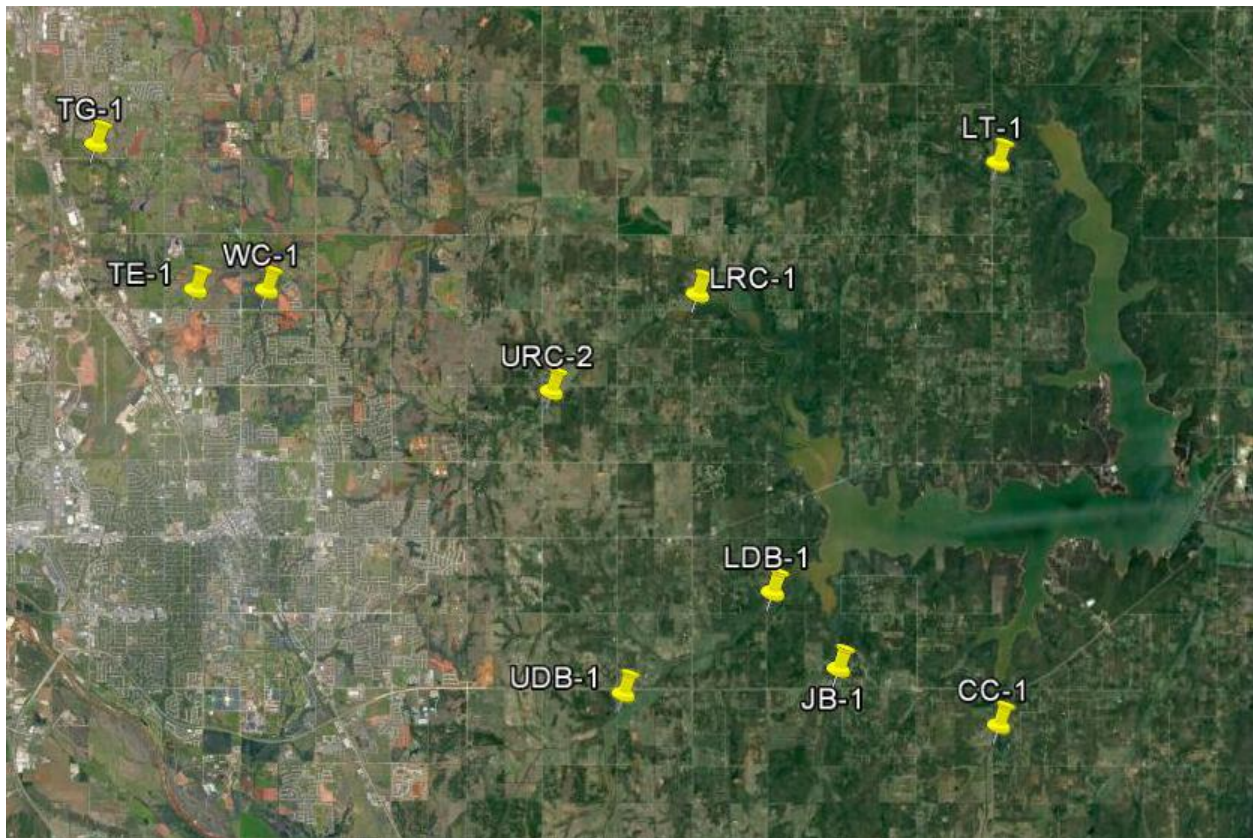


Figure 1 Monitoring Station Map

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
lt-1	3/29/2017	12:55	sd	N/A	N/A	N/A	N/A	N/A	field blank
urc-2	3/29/2017	06:45	sd	12.0	10.7	10.0	8.0	375.0	before flow : 16.45(8:40), 16.38 after (9:15). 17.53, 17.62 dcp at 6ish.td=17.06, dcp=17.18 around
jb-1	3/29/2017	7:45	sd	13.4	8.7	197.0	7.6	83.0	
sw-12	3/29/2017	9:30	sd	13.7	8.3	406.0	7.9	40.0	
sw-08	3/29/2017	10:00	sd	14.4	8.6	669.0	7.7	29.0	
sw-14	3/29/2017	10:20	sd	13.1	10.0	265.6	7.9	517.0	
sw-10	3/29/2017	11:00	sd	13.4	9.9	5.9	8.0	56.0	
sw-11	3/29/2017	11:15	sd	14.1	9.6	332.0	7.9	96.0	
sw-09	3/29/2017	11:45	sd	13.7	8.5	224.0	8.1	216.0	
sw-13	3/29/2017	12:00	sd	13.6	9.6	227.0	7.9	41.0	
lt-1	3/29/2017	12:25	sd	14.6	6.9	361.0	7.6	24.0	post stage=2.69
tg-1	3/29/2017	13:50	sd	14.4	9.6	307.0	7.9	143.0	after flow =10.12, dcp=10.13
udb-1	3/29/2017	6:30	jw	13.0	9.5	135.0	8.2	1000.0	final stage 20.64
cc-1	3/29/2017	7:35	jw	13.8	7.6	362.0	7.9	434.0	w ater sampled at 0.78, flow taken at 0.68 at 9:00
ldb-1	3/29/2017	9:40	jw	13.1	9.3	166.0	8.2	935.0	
lrc-1	3/29/2017	11:20	jw	14.1	8.6	266.0	7.9	640.0	final stage 21.72
wc-1	3/29/2017	12:30	jw	14.5	9.1	292.0	7.9	189.0	end stage 9.595
te-1	3/29/2017	13:15	jw	13.2	9.1	193.0	8.1	174.0	end stage 12.79

Table 1 Field Data Form 3/29/2017

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
TG-1	<0.050	0.746	0.390	135
CC-1	<0.050	0.275	0.672	209
JB-1	<0.050	0.359	0.175	33.0
UDB-1	<0.050	0.650	0.738	1140
LDB-1	<0.050	0.627	0.691	613
LRC-1	<0.050	0.558	0.542	676
URC-2	<0.050	0.588	0.520	696
WC-1	<0.050	0.648	0.406	108
TE-1	<0.050	0.840	0.383	106
LT-1	<0.050	0.059	0.091	9.20
SW-08	<0.050	7.99	0.253	10.7
SW-09	<0.050	0.662	0.872	114
SW-10	<0.050	0.443	0.276	36.0
SW-11	<0.050	1.97	0.490	93.3
SW-12	<0.050	0.340	0.103	13.6
SW-13	<0.050	0.527	0.115	37.2
SW-14	<0.050	0.709	0.574	336

Table 2 Laboratory Analysis Summary From 3/29/2017

Site Name	TKN	Nitrate/Nitrite	TP	TSS
Field Blank	0.064 mg/L	<0.050 mg/L	<0.005 mg/L	<2.50 mg/L
Duplicate	<0.050 mg/L	0.857 mg/L	0.379 mg/L	91.7 mg/L
Duplicate RPD	0%	2%	1.05%	14.47%* ₁

Table 3 QA/QC Data From 3/29/2017 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)	10.18	0.78	16	20.94	16.67	22.16	16.45	9.675	12.81	2.7
DISCHARGE (ft ³ /s)	31.515	3.385	0.380	207	190	103	124.498	15.684	12.877	4.876

Table 4 Station Discharge Summary From 3/29/2017

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
sw-14	4/21/2017	13:20	jm	14.8	9.5	147.0	7.3	506.0	
sw-08	4/21/2017	14:20	jm	17.4	7.7	661.0	7.6	150.0	
sw-12	4/21/2017	14:40	jm	17.3	6.9	487.0	7.8	97.0	
sw-13	4/21/2017	15:00	jm	17.3	8.1	189.0	7.9	103.0	
sw-09	4/21/2017	15:25	jm	18.9	8.4	290.0	7.8	101.0	
sw-10	4/21/2017	15:45	jm	19.9	8.3	269.0	7.9	9.0	
sw-11	4/21/2017	16:00	jm	17.7	9.4	91.4	7.6	1000.0	

Table 5 Field Data Form 4/21/2017

Site Name	TKN (mg/L)	Nitrate/Nitrite (mg/L)	TP (mg/L)	TSS (mg/L)
SW-08	N/A	0.847	0.272	146
SW-09	N/A	<0.050	0.598	64.0
SW-10	N/A	<0.050	0.073	200
SW-11	N/A	0.776	1.02	3270
SW-12	N/A	0.067	0.139	218
SW-13	N/A	0.230	0.515	642
SW-14	N/A	0.266	0.359	340

Table 6 Partial Laboratory Analysis Summary From 4/21/2017

Discharge Measurement Summary

Date Generated: Wed May 3 2017

File Information

File Name WC329.WAD
Start Date and Time 2017/03/29 10:12:28

Site Details

Site Name
Operator(s) AS

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	0.5%
Velocity	0.9%	3.2%
Width	0.1%	0.1%
Method	1.6%	-
# Stations	1.8%	-
Overall	2.8%	3.3%

Summary

Averaging Int. 40 # Stations 28
Start Edge LEW Total Width 17.500
Mean SNR 45.5 dB Total Area 8.650
Mean Temp 57.69 °F Mean Depth 0.494
Disch. Equation Mid-Section Mean Velocity 1.8131
Total Discharge 15.6843

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Wed Mar 29 10:38:04 CDT 2017	17.500	9.675		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:12	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>10:12</i>	<i>1.50</i>	<i>0.6</i>	<i>0.400</i>	<i>0.6</i>	<i>0.160</i>	<i>0.8304</i>	<i>1.00</i>	<i>0.8304</i>	<i>0.600</i>	<i>0.4981</i>	<i>3.2</i>
2	10:13	3.00	0.6	0.500	0.6	0.200	1.3501	1.00	1.3501	0.500	0.6750	4.3
3	10:14	3.50	0.6	0.500	0.6	0.200	1.5928	1.00	1.5928	0.250	0.3982	2.5
4	10:15	4.00	0.6	0.500	0.6	0.200	1.8799	1.00	1.8799	0.250	0.4700	3.0
5	10:16	4.50	0.6	0.500	0.6	0.200	1.9364	1.00	1.9364	0.250	0.4841	3.1
6	10:16	5.00	0.6	0.500	0.6	0.200	1.7221	1.00	1.7221	0.250	0.4305	2.7
7	10:17	5.50	0.6	0.500	0.6	0.200	2.0318	1.00	2.0318	0.250	0.5080	3.2
8	10:18	6.00	0.6	0.500	0.6	0.200	1.7792	1.00	1.7792	0.250	0.4448	2.8
9	10:19	6.50	0.6	0.500	0.6	0.200	2.0837	1.00	2.0837	0.250	0.5209	3.3
<i>10</i>	<i>10:20</i>	<i>7.00</i>	<i>0.6</i>	<i>0.500</i>	<i>0.6</i>	<i>0.200</i>	<i>2.1778</i>	<i>1.00</i>	<i>2.1778</i>	<i>0.250</i>	<i>0.5445</i>	<i>3.5</i>
11	10:21	7.50	0.6	0.600	0.6	0.240	2.3760	1.00	2.3760	0.300	0.7129	4.5
12	10:22	8.00	0.6	0.600	0.6	0.240	2.3770	1.00	2.3770	0.225	0.5349	3.4
13	10:23	8.25	0.6	0.600	0.6	0.240	2.4055	1.00	2.4055	0.150	0.3609	2.3
<i>14</i>	<i>10:23</i>	<i>8.50</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>2.0505</i>	<i>1.00</i>	<i>2.0505</i>	<i>0.150</i>	<i>0.3076</i>	<i>2.0</i>
15	10:24	8.75	0.6	0.600	0.6	0.240	2.1335	1.00	2.1335	0.150	0.3201	2.0
<i>16</i>	<i>10:25</i>	<i>9.00</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>1.8891</i>	<i>1.00</i>	<i>1.8891</i>	<i>0.375</i>	<i>0.7085</i>	<i>4.5</i>
17	10:26	10.00	0.6	0.600	0.6	0.240	2.1306	1.00	2.1306	0.600	1.2785	8.2
18	10:27	11.00	0.6	0.600	0.6	0.240	2.4373	1.00	2.4373	0.450	1.0969	7.0
<i>19</i>	<i>10:28</i>	<i>11.50</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>2.0200</i>	<i>1.00</i>	<i>2.0200</i>	<i>0.300</i>	<i>0.6061</i>	<i>3.9</i>
20	10:28	12.00	0.6	0.600	0.6	0.240	2.2352	1.00	2.2352	0.300	0.6706	4.3
21	10:29	12.50	0.6	0.600	0.6	0.240	2.1302	1.00	2.1302	0.300	0.6391	4.1
<i>22</i>	<i>10:30</i>	<i>13.00</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>1.8314</i>	<i>1.00</i>	<i>1.8314</i>	<i>0.300</i>	<i>0.5495</i>	<i>3.5</i>
23	10:31	13.50	0.6	0.600	0.6	0.240	2.3212	1.00	2.3212	0.300	0.6964	4.4
24	10:32	14.00	0.6	0.600	0.6	0.240	2.2730	1.00	2.2730	0.300	0.6820	4.3
<i>25</i>	<i>10:33</i>	<i>14.50</i>	<i>0.6</i>	<i>0.600</i>	<i>0.6</i>	<i>0.240</i>	<i>0.9537</i>	<i>1.00</i>	<i>0.9537</i>	<i>0.600</i>	<i>0.5723</i>	<i>3.6</i>
26	10:34	16.00	0.6	0.500	0.6	0.200	1.2986	1.00	1.2986	0.750	0.9739	6.2
27	10:34	17.50	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 2 Discharge Summary WC-1

Discharge Measurement Summary

Date Generated: Wed May 3 2017

File Information

File Name TE329.WAD
Start Date and Time 2017/03/29 10:56:33

Site Details

Site Name
Operator(s) AS

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	0.3%
Velocity	0.9%	2.5%
Width	0.1%	0.1%
Method	1.7%	-
# Stations	2.2%	-
Overall	3.1%	2.7%

Summary

Averaging Int. 40 # Stations 23
Start Edge LEW Total Width 9.500
Mean SNR 41.1 dB Total Area 12.337
Mean Temp 55.45 °F Mean Depth 1.299
Disch. Equation Mid-Section Mean Velocity 1.0438
Total Discharge 12.8774

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Wed Mar 29 11:01:12 CDT 2017	4.000	12.810		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:56	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	10:56	3.00	0.6	1.400	0.6	0.560	0.4098	1.00	0.4098	2.275	0.9322	7.2
2	10:58	3.25	0.6	1.500	0.6	0.600	0.5833	1.00	0.5833	0.375	0.2188	1.7
3	10:59	3.50	0.6	1.600	0.6	0.640	0.7582	1.00	0.7582	0.400	0.3033	2.4
4	11:00	3.75	0.6	1.800	0.6	0.720	1.0997	1.00	1.0997	0.450	0.4948	3.8
5	11:01	4.00	0.2/0.6/0.8	2.000	0.2	1.600	1.4094	1.00	0.8240	0.500	0.4120	3.2
5	11:04	4.00	0.2/0.6/0.8	2.000	0.6	0.800	0.9111					
5	11:03	4.00	0.2/0.6/0.8	2.000	0.8	0.400	0.0643					
6	11:07	4.25	0.8/0.6/0.2	2.000	0.2	1.600	1.7270	1.00	1.0176	0.500	0.5088	4.0
6	11:06	4.25	0.8/0.6/0.2	2.000	0.6	0.800	1.1076					
6	11:05	4.25	0.8/0.6/0.2	2.000	0.8	0.400	0.1280					
7	11:08	4.50	0.2/0.6/0.8	2.000	0.2	1.600	1.8415	1.00	1.5593	0.500	0.7797	6.1
7	11:09	4.50	0.2/0.6/0.8	2.000	0.6	0.800	1.5676					
7	11:09	4.50	0.2/0.6/0.8	2.000	0.8	0.400	1.2605					
8	11:11	4.75	0.6	1.900	0.6	0.760	1.8389	1.00	1.8389	0.475	0.8735	6.8
9	11:12	5.00	0.6	1.900	0.6	0.760	1.8816	1.00	1.8816	0.475	0.8937	6.9
10	11:13	5.25	0.6	1.900	0.6	0.760	1.8123	1.00	1.8123	0.475	0.8608	6.7
11	11:13	5.50	0.6	1.900	0.6	0.760	1.7585	1.00	1.7585	0.475	0.8353	6.5
12	11:14	5.75	0.6	1.900	0.6	0.760	1.8015	1.00	1.8015	0.475	0.8557	6.6
13	11:15	6.00	0.6	1.900	0.6	0.760	1.7372	1.00	1.7372	0.475	0.8251	6.4
14	11:16	6.25	0.6	1.900	0.6	0.760	1.6522	1.00	1.6522	0.475	0.7848	6.1
15	11:16	6.50	0.6	1.900	0.6	0.760	1.5669	1.00	1.5669	0.475	0.7443	5.8
16	11:17	6.75	0.6	1.900	0.6	0.760	1.3087	1.00	1.3087	0.475	0.6216	4.8
17	11:18	7.00	0.6	1.900	0.6	0.760	1.2198	1.00	1.2198	0.475	0.5794	4.5
18	11:19	7.25	0.6	1.800	0.6	0.720	1.1371	1.00	1.1371	0.450	0.5117	4.0
19	11:20	7.50	0.6	1.700	0.6	0.680	0.9524	1.00	0.9524	0.425	0.4048	3.1
20	11:21	7.75	0.6	1.600	0.6	0.640	0.6657	1.00	0.6657	0.400	0.2663	2.1
21	11:22	8.00	0.6	1.500	0.6	0.600	0.1302	1.00	0.1302	1.313	0.1710	1.3
22	11:22	9.50	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 TE-1

Discharge Measurement Summary

Date Generated: Wed May 3 2017

File Information

File Name TG.WAD
Start Date and Time 2017/03/29 12:16:05

Site Details

Site Name TG
Operator(s) LO

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 ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.3%
Velocity	1.2%	9.5%
Width	0.1%	0.1%
Method	1.7%	-
# Stations	1.9%	-
Overall	3.0%	9.6%

Summary

Averaging Int. 40 # Stations 27
Start Edge LEW Total Width 26.000
Mean SNR 46.4 dB Total Area 28.900
Mean Temp 55.12 °F Mean Depth 1.112
Disch. Equation Mid-Section Mean Velocity 1.0905
Total Discharge 31.5150

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:16	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>12:16</i>	<i>1.00</i>	<i>0.6</i>	<i>0.900</i>	<i>0.6</i>	<i>0.360</i>	<i>0.1663</i>	<i>1.00</i>	<i>0.1663</i>	<i>0.900</i>	<i>0.1497</i>	<i>0.5</i>
2	12:17	2.00	0.6	1.100	0.6	0.440	0.6890	1.00	0.6890	1.100	0.7579	2.4
3	12:18	3.00	0.6	1.300	0.6	0.520	1.1371	1.00	1.1371	1.300	1.4781	4.7
<i>4</i>	<i>12:19</i>	<i>4.00</i>	<i>0.6</i>	<i>1.400</i>	<i>0.6</i>	<i>0.560</i>	<i>1.0007</i>	<i>1.00</i>	<i>1.0007</i>	<i>1.400</i>	<i>1.4009</i>	<i>4.4</i>
5	12:20	5.00	0.6	1.400	0.6	0.560	0.8793	1.00	0.8793	1.400	1.2309	3.9
6	12:21	6.00	0.6	1.500	0.6	0.600	0.6732	1.00	0.6732	1.500	1.0098	3.2
7	12:22	7.00	0.6	1.500	0.6	0.600	0.8163	1.00	0.8163	1.500	1.2244	3.9
8	12:23	8.00	0.6	1.600	0.6	0.640	1.0262	1.00	1.0262	1.600	1.6421	5.2
9	12:24	9.00	0.6	1.600	0.6	0.640	0.8281	1.00	0.8281	1.600	1.3250	4.2
<i>10</i>	<i>12:25</i>	<i>10.00</i>	<i>0.6</i>	<i>1.600</i>	<i>0.6</i>	<i>0.640</i>	<i>0.7044</i>	<i>1.00</i>	<i>0.7044</i>	<i>1.600</i>	<i>1.1271</i>	<i>3.6</i>
11	12:26	11.00	0.6	1.400	0.6	0.560	1.2785	1.00	1.2785	1.400	1.7899	5.7
12	12:27	12.00	0.6	1.400	0.6	0.560	1.1358	1.00	1.1358	1.400	1.5901	5.0
13	12:28	13.00	0.6	1.400	0.6	0.560	1.9603	1.00	1.9603	1.400	2.7443	8.7
<i>14</i>	<i>12:29</i>	<i>14.00</i>	<i>0.6</i>	<i>1.100</i>	<i>0.6</i>	<i>0.440</i>	<i>0.6027</i>	<i>1.00</i>	<i>0.6027</i>	<i>1.100</i>	<i>0.6630</i>	<i>2.1</i>
15	12:30	15.00	0.6	1.200	0.6	0.480	0.3317	1.00	0.3317	1.200	0.3981	1.3
16	12:31	16.00	0.6	1.200	0.6	0.480	2.3629	1.00	2.3629	1.200	2.8357	9.0
17	12:33	17.00	0.6	1.000	0.6	0.400	1.9314	1.00	1.9314	1.000	1.9314	6.1
18	12:34	18.00	0.6	1.000	0.6	0.400	0.1765	1.00	0.1765	1.000	0.1765	0.6
<i>19</i>	<i>12:34</i>	<i>19.00</i>	<i>0.6</i>	<i>0.900</i>	<i>0.6</i>	<i>0.360</i>	<i>1.6010</i>	<i>1.00</i>	<i>1.6010</i>	<i>0.900</i>	<i>1.4408</i>	<i>4.6</i>
20	12:35	20.00	0.6	0.900	0.6	0.360	1.6421	1.00	1.6421	0.900	1.4777	4.7
21	12:36	21.00	0.6	0.800	0.6	0.320	1.5295	1.00	1.5295	0.800	1.2234	3.9
22	12:37	22.00	0.6	0.800	0.6	0.320	1.8835	1.00	1.8835	0.800	1.5066	4.8
23	12:38	23.00	0.6	0.800	0.6	0.320	1.7930	1.00	1.7930	0.800	1.4341	4.6
24	12:39	24.00	0.6	0.600	0.6	0.240	1.2559	1.00	1.2559	0.600	0.7536	2.4
<i>25</i>	<i>12:40</i>	<i>25.00</i>	<i>0.6</i>	<i>0.500</i>	<i>0.6</i>	<i>0.200</i>	<i>0.4075</i>	<i>1.00</i>	<i>0.4075</i>	<i>0.500</i>	<i>0.2037</i>	<i>0.6</i>
26	12:40	26.00	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 May 3 2017

File Information

File Name CC329.WAD
Start Date and Time 2017/03/29 06:40:56

Site Details

Site Name
Operator(s) AS

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	1.9%
Velocity	2.4%	9.6%
Width	0.2%	0.2%
Method	2.5%	-
# Stations	2.8%	-
Overall	4.6%	9.8%

Summary

Averaging Int. 40 # Stations 18
Start Edge LEW Total Width 13.000
Mean SNR 51.6 dB Total Area 8.500
Mean Temp 56.90 °F Mean Depth 0.654
Disch. Equation Mid-Section Mean Velocity 0.3983
Total Discharge 3.3854

Supplemental Data

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Wed Mar 29 06:39:22 CDT 2017	0.000	0.780		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	06:40	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	06:40	3.00	0.6	0.600	0.6	0.240	0.0233	1.00	0.0233	1.050	0.0245	0.7
2	06:42	3.50	0.6	0.700	0.6	0.280	0.1329	1.00	0.1329	0.350	0.0465	1.4
3	06:43	4.00	0.6	0.700	0.6	0.280	0.3068	1.00	0.3068	0.350	0.1074	3.2
4	06:43	4.50	0.6	0.700	0.6	0.280	0.3763	1.00	0.3763	0.350	0.1317	3.9
5	06:44	5.00	0.6	0.900	0.6	0.360	0.5784	1.00	0.5784	0.450	0.2603	7.7
6	06:45	5.50	0.6	0.900	0.6	0.360	0.6578	1.00	0.6578	0.450	0.2960	8.7
7	06:46	6.00	0.6	0.900	0.6	0.360	0.8878	1.00	0.8878	0.450	0.3995	11.8
8	06:47	6.50	0.6	1.100	0.6	0.440	0.4304	1.00	0.4304	0.550	0.2368	7.0
9	06:48	7.00	0.6	1.000	0.6	0.400	0.8425	1.00	0.8425	0.500	0.4213	12.4
10	06:49	7.50	0.6	1.000	0.6	0.400	1.0384	1.00	1.0384	0.500	0.5192	15.3
11	06:50	8.00	0.6	1.000	0.6	0.400	1.0984	1.00	1.0984	0.500	0.5492	16.2
12	06:51	8.50	0.6	0.900	0.6	0.360	0.6703	1.00	0.6703	0.450	0.3016	8.9
13	06:52	9.00	0.6	0.900	0.6	0.360	0.3261	1.00	0.3261	0.450	0.1467	4.3
14	06:53	9.50	0.6	0.900	0.6	0.360	0.0810	1.00	0.0810	0.450	0.0365	1.1
15	06:53	10.00	0.6	0.900	0.6	0.360	-0.0007	1.00	-0.0007	0.450	-0.0003	0.0
16	06:54	10.50	0.6	0.800	0.6	0.320	-0.0761	1.00	-0.0761	1.200	-0.0913	-2.7
17	06:54	13.00	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 5 Discharge Summary CC-1

Discharge Measurement Summary

Date Generated: Wed May 3 2017

File Information

File Name JB329.WAD
Start Date and Time 2017/03/29 05:50:51

Site Details

Site Name
Operator(s) AS

System Information

Sensor Type FlowTracker
Serial # P4709
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)
Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	0.8%
Velocity	1.3%	10.7%
Width	0.1%	0.1%
Method	2.2%	-
# Stations	2.4%	-
Overall	3.7%	10.8%

Summary

Averaging Int. 40 # Stations 21
Start Edge LEW Total Width 8.000
Mean SNR 38.5 dB Total Area 3.137
Mean Temp 55.67 °F Mean Depth 0.392
Disch. Equation Mid-Section Mean Velocity 0.1212
Total Discharge 0.3801

Supplemental Data (Gauge Height Change = -0.095ft)

#	Time	Location	Gauge Height	Rated Flow	Comments
1	Wed Mar 29 05:49:30 CDT 2017	0.000	16.000		
2	Wed Mar 29 06:11:30 CDT 2017	8.000	15.905		

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	05:50	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>05:50</i>	<i>2.00</i>	<i>0.6</i>	<i>0.400</i>	<i>0.6</i>	<i>0.160</i>	<i>0.0000</i>	<i>1.00</i>	<i>0.0000</i>	<i>0.500</i>	<i>0.0000</i>	<i>0.0</i>
<i>2</i>	<i>05:51</i>	<i>2.50</i>	<i>0.6</i>	<i>0.400</i>	<i>0.6</i>	<i>0.160</i>	<i>0.0039</i>	<i>1.00</i>	<i>0.0039</i>	<i>0.200</i>	<i>0.0008</i>	<i>0.2</i>
3	05:52	3.00	0.6	0.500	0.6	0.200	0.0669	1.00	0.0669	0.250	0.0167	4.4
4	05:53	3.50	0.6	0.500	0.6	0.200	0.1512	1.00	0.1512	0.188	0.0284	7.5
5	05:54	3.75	0.6	0.500	0.6	0.200	0.0285	1.00	0.0285	0.125	0.0036	0.9
6	05:55	4.00	0.6	0.500	0.6	0.200	0.0617	1.00	0.0617	0.125	0.0077	2.0
7	05:56	4.25	0.6	0.500	0.6	0.200	0.0092	1.00	0.0092	0.125	0.0011	0.3
8	05:57	4.50	0.6	0.500	0.6	0.200	0.2402	1.00	0.2402	0.125	0.0300	7.9
9	05:58	4.75	0.6	0.500	0.6	0.200	0.2812	1.00	0.2812	0.125	0.0351	9.2
10	05:59	5.00	0.6	0.500	0.6	0.200	0.1726	1.00	0.1726	0.125	0.0216	5.7
11	06:00	5.25	0.6	0.500	0.6	0.200	0.0774	1.00	0.0774	0.125	0.0097	2.5
12	06:01	5.50	0.6	0.500	0.6	0.200	0.0919	1.00	0.0919	0.125	0.0115	3.0
13	06:01	5.75	0.6	0.500	0.6	0.200	0.0551	1.00	0.0551	0.125	0.0069	1.8
14	06:02	6.00	0.6	0.500	0.6	0.200	0.1329	1.00	0.1329	0.125	0.0166	4.4
15	06:03	6.25	0.6	0.500	0.6	0.200	0.2861	1.00	0.2861	0.125	0.0358	9.4
16	06:04	6.50	0.6	0.500	0.6	0.200	0.4209	1.00	0.4209	0.125	0.0526	13.8
17	06:05	6.75	0.6	0.500	0.6	0.200	0.3829	1.00	0.3829	0.125	0.0479	12.6
18	06:05	7.00	0.6	0.500	0.6	0.200	0.1329	1.00	0.1329	0.125	0.0166	4.4
19	06:06	7.25	0.6	0.500	0.6	0.200	0.1503	1.00	0.1503	0.250	0.0376	9.9
20	06:06	8.00	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 JB-1

Discharge Measurement Summary

Date Generated: Wed May 3 2017

File Information

File Name NORM.WAD
Start Date and Time 2017/03/29 10:27:52

Site Details

Site Name NORM
Operator(s) LO

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 ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	0.6%
Velocity	1.4%	2.5%
Width	0.1%	0.1%
Method	2.0%	-
# Stations	2.3%	-
Overall	3.5%	2.7%

Summary

Averaging Int. 40 # Stations 22
Start Edge LEW Total Width 10.500
Mean SNR 25.4 dB Total Area 13.225
Mean Temp 55.40 °F Mean Depth 1.260
Disch. Equation Mid-Section Mean Velocity 0.3687
Total Discharge 4.8758

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:27	0.00	None	1.100	0.0	0.0	0.0000	1.00	0.0394	0.275	0.0108	0.2
1	10:27	0.50	0.6	1.100	0.6	0.440	0.0394	1.00	0.0394	0.550	0.0217	0.4
2	10:29	1.00	0.6	1.200	0.6	0.480	0.1086	1.00	0.1086	0.600	0.0652	1.3
3	10:34	1.50	0.6	1.200	0.6	0.480	0.0942	1.00	0.0942	0.600	0.0565	1.2
4	10:35	2.00	0.6	1.300	0.6	0.520	0.1073	1.00	0.1073	0.650	0.0697	1.4
5	10:37	2.50	0.6	1.300	0.6	0.520	0.1932	1.00	0.1932	0.650	0.1256	2.6
6	10:37	3.00	0.6	1.400	0.6	0.560	0.2277	1.00	0.2277	0.700	0.1594	3.3
7	10:39	3.50	0.6	1.500	0.6	0.600	0.3622	1.00	0.3622	0.750	0.2717	5.6
8	10:40	4.00	0.6	1.500	0.6	0.600	0.3228	1.00	0.3228	0.750	0.2421	5.0
9	10:41	4.50	0.6	1.600	0.6	0.640	0.4229	1.00	0.4229	0.800	0.3383	6.9
10	10:42	5.00	0.6	1.600	0.6	0.640	0.5610	1.00	0.5610	0.800	0.4488	9.2
11	10:43	5.50	0.6	1.500	0.6	0.600	0.6050	1.00	0.6050	0.750	0.4537	9.3
12	10:44	6.00	0.6	1.400	0.6	0.560	0.7336	1.00	0.7336	0.700	0.5135	10.5
13	10:45	6.50	0.6	1.400	0.6	0.560	0.7215	1.00	0.7215	0.700	0.5050	10.4
14	10:46	7.00	0.6	1.400	0.6	0.560	0.6227	1.00	0.6227	0.700	0.4359	8.9
15	10:47	7.50	0.6	1.300	0.6	0.520	0.4495	1.00	0.4495	0.650	0.2921	6.0
16	10:48	8.00	0.6	1.200	0.6	0.480	0.4167	1.00	0.4167	0.600	0.2500	5.1
17	10:49	8.50	0.6	1.100	0.6	0.440	0.3340	1.00	0.3340	0.550	0.1837	3.8
18	10:50	9.00	0.6	1.000	0.6	0.400	0.3140	1.00	0.3140	0.500	0.1570	3.2
19	10:51	9.50	0.6	1.000	0.6	0.400	0.3514	1.00	0.3514	0.500	0.1757	3.6
20	10:52	10.00	0.6	0.900	0.6	0.360	0.2208	1.00	0.2208	0.450	0.0994	2.0
21	10:52	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 7 Discharge Summary LT-1

Station Number:
Station Name: LDB32917

Meas. No: 0
Date: 03/29/2017

Party:	Width: 39.3 ft	Processed by:
Boat/Motor:	Area: 105 ft ²	Mean Velocity: 1.68 ft/s
Gage Height: 16.67 ft	G.H.Change: 0.000 ft	Discharge: 190 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.270 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth: Composite (VB)	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 6.55 ft/s	Type/Freq.: RiverRay / 0 kHz
WT 3-Beam Solution: YES	Max. Depth: 4.53 ft	Serial #: 645654 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Mean Depth: 2.51 ft	Bin Size: 50 cm Blank: 50 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 41.09	BT Mode: 0 BT Pings: 1
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 1 WT Pings: 1
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 55.4 °F	WV : 170
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO
Performed Moving Bed Test: YES
Performed Compass Calibration: NO Evaluation: NO
Meas. Location:

Project Name: station_0ldv32917.mmt
Software: 2.17

Tr.#	Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad		
	L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins	
000	<i>L</i>	3	3	137	32.4	37.5	18.8	0.953	2.44	92.0	29	63	10:14	10:15	1.05	1.46	33	3
001	<i>R</i>	3	3	78	23.7	23.9	24.7	9.92	2.83	85.0	38	102	10:15	10:16	1.20	0.84	47	3
002	<i>L</i>	3	3	79	45.3	48.1	35.7	0.212	5.23	134	23	53	10:16	10:17	1.15	2.56	58	0
003	<i>R</i>	3	3	71	72.5	74.6	47.5	5.79	8.93	209	48	126	10:17	10:18	1.34	1.66	21	1
004	<i>L</i>	3	3	90	23.8	7.91	15.1	1.48	1.48	49.9	28	55	10:18	10:19	0.77	0.91	89	0
005	<i>R</i>	3	3	58	107	168	73.8	2.22	10.5	362	66	217	10:19	10:19	1.04	1.67	47	0
006	<i>L</i>	3	3	107	21.6	21.1	21.6	-0.530	8.62	72.3	27	50	10:20	10:20	1.17	1.44	37	1
007	<i>R</i>	3	3	35	152	242	119	0.000	0.000	512	56	177	10:21	10:21	1.59	2.89	83	0
Mean	3	3	81	59.7	77.9	44.5	2.51	5.00	190	39	105	Total	00:07		1.16	1.68	52	1
SDev	0	0	31	47.6	83.4	35.6	3.59	3.92	165	15.7	63.4				0.24	0.72		
SD/M	0.00	0.00	0.38	0.80	1.07	0.80	1.43	0.78	0.87	0.40	0.60				0.20	0.43		

Remarks:

Discharge for transects in *italics* have a total Q more than 5% from the mean

Figure 8 Discharge Summary LDB-1

Station Number:
Station Name: LRC-1

Meas. No: 0
Date: 03/29/2017

Party: as	Width: 27.1 ft	Processed by:
Boat/Motor:	Area: 111 ft ²	Mean Velocity: 0.930 ft/s
Gage Height: 22.16 ft	G.H.Change: 0.000 ft	Discharge: 103 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.270 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth: Composite (VB)	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 7.18 ft/s	Type/Freq.: RiverRay / 0 kHz
WT 3-Beam Solution: YES	Max. Depth: 6.25 ft	Serial #: 645654 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Mean Depth: 4.09 ft	Bin Size: 50 cm Blank: 50 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 52.20	BT Mode: 0 BT Pings: 1
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 1 WT Pings: 1
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 57.5 °F	WV : 170
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO
Performed Moving Bed Test: NO
Performed Compass Calibration: NO Evaluation: NO
Meas. Location:

Project Name: LRC1032917_0.mmt
Software: 2.17

Tr.#	Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad		
	L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins	
002	L	1	2	69	23.1	52.7	22.0	2.54	0.247	101	28	113	11:49	11:49	0.60	0.89	6	0
003	R	1	2	57	26.2	62.7	22.3	2.44	0.388	114	29	117	11:50	11:50	0.84	0.98	18	0
004	L	1	2	50	24.5	53.9	24.8	2.86	1.62	108	27	113	11:50	11:51	0.75	0.95	2	0
005	R	1	2	62	23.8	51.8	21.9	2.51	0.953	101	27	112	11:51	11:51	0.82	0.90	8	0
007	R	1	2	66	20.9	48.4	19.4	3.00	1.20	92.9	25	100	11:52	11:53	0.55	0.94	5	0
Mean	1	2	60	23.7	53.9	22.1	2.67	0.883	103	27	111	Total	00:04		0.71	0.93	8	0
SDev	0	0	8	1.94	5.35	1.92	0.247	0.571	7.99	1.5	6.6				0.13	0.04		
SD/M	0.00	0.00	0.13	0.08	0.10	0.09	0.09	0.65	0.08	0.06	0.06				0.19	0.04		

Remarks:

Discharge for transects in *italics* have a total Q more than 5% from the mean

Figure 9 Discharge Summary LRC-1

Station Number:
Station Name: UDB

Meas. No: 0
Date: 03/29/2017

Party:	Width: 34.0 ft	Processed by:
Boat/Motor:	Area: 81.1 ft ²	Mean Velocity: 2.55 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: -207 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.270 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth: Composite (VB)	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 0 kHz
WT 3-Beam Solution: YES	Serial #: 645654 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 50 cm Blank: 50 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 0 BT Pings: 1
BT Up Vel.: 32.81 ft/s	WT Mode: 1 WT Pings: 1
WT Up Vel.: 32.81 ft/s	WV : 170
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO
Performed Moving Bed Test: NO
Performed Compass Calibration: NO Evaluation: NO
Meas. Location:

Project Name: station_0udb32917.mmt
Software: 2.17

Tr.#	Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad		
	L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins	
000	R	2	4	220	-59.8	-56.6	-44.1	-2.30	-6.85	-170	21	51	07:02	07:04	0.47	3.35	20	3
001	L	2	1	103	-129	-133	-113	-9.75	-2.19	-387	35	101	07:04	07:05	0.65	3.82	41	4
002	R	2	1	146	-58.4	-48.6	-46.7	-4.20	-1.66	-160	29	69	07:05	07:07	0.50	2.31	42	4
003	L	2	1	105	-85.3	-43.9	-57.6	-6.82	-1.94	-196	47	110	07:07	07:08	0.73	1.77	37	2
004	R	2	1	151	-75.7	-68.1	-49.3	-2.51	-2.12	-198	26	60	07:08	07:10	0.54	3.31	37	4
005	L	2	1	93	-131	-105	-89.4	-6.14	-1.84	-333	50	124	07:10	07:11	0.97	2.69	44	1
006	R	2	1	142	-35.8	-40.8	-24.0	-3.28	-2.08	-106	21	54	07:11	07:12	0.47	1.96	44	1
007	L	2	1	91	-67.0	-35.6	-39.9	-3.71	-2.44	-149	36	81	07:13	07:13	0.73	1.84	34	1
008	R	2	1	114	-40.7	-32.4	-29.2	-3.43	-2.22	-108	23	57	07:15	07:16	0.52	1.88	44	5
009	L	2	1	115	-123	-67.2	-68.7	-3.14	-1.91	-264	51	104	07:16	07:17	0.77	2.55	55	4
Mean		2	1	128	-80.7	-63.1	-56.2	-4.53	-2.52	-207	34	81	Total	00:15	0.63	2.55	40	3
SDev		0	1	39	35.8	32.4	27.4	2.35	1.54	93.6	11.8	26.7			0.17	0.73		
SD/M		0.00	0.73	0.30	0.44	0.51	0.49	0.52	0.61	0.45	0.35	0.33			0.26	0.29		

Remarks:

Discharge for transects in *italics* have a total Q more than 5% from the mean

Figure 10 Discharge Summary UDB-1

Station Number:
Station Name: urc-2

Meas. No: 1
Date: 03/29/2017

Party: lo sd	Width: 24.0 ft	Processed by:
Boat/Motor:	Area: 67.7 ft ²	Mean Velocity: 1.84 ft/s
Gage Height: 16.45 ft	G.H.Change: 0.000 ft	Discharge: 125 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.270 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth: Composite (BT)	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 4.28 ft/s	Type/Freq.: RiverRay / 0 kHz
WT 3-Beam Solution: YES	Max. Depth: 4.34 ft	Serial #: 645650 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Mean Depth: 2.84 ft	Bin Size: 50 cm Blank: 50 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 38.01	BT Mode: 0 BT Pings: 1
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 1 WT Pings: 1
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 57.9 °F	WV : 170
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: YES Evaluation: YES
 Meas. Location:

Project Name: urc_1.mmt
Software: 2.17

Tr.#	Edge Distance		#Ens.	Discharge							Width	Area	Time		Mean Vel.		% Bad	
	L	R		Top	Middle	Bottom	Left	Right	Total	Start			End	Boat	Water	Ens.	Bins	
000	L	0	5	307	44.8	40.9	23.9	0.000	14.6	124	26	67	00:17	00:20	0.27	1.87	37	0
001	R	0	5	163	34.7	53.5	25.4	0.000	12.4	126	22	68	00:21	00:22	0.36	1.86	25	0
002	L	0	5	191	38.1	43.4	25.5	0.000	18.0	125	27	72	00:23	00:24	0.31	1.74	45	0
005	R	0	5	133	31.8	51.6	23.3	0.000	16.0	123	21	64	00:28	00:29	0.32	1.90	23	0
Mean		0	5	198	37.4	47.3	24.6	0.000	15.3	125	24	68	Total	00:12	0.31	1.84	32	0
SDev		0	0	76	5.58	6.14	1.08	0.000	2.36	1.47	3.0	3.2			0.04	0.07		
SD/M		0.00	0.00	0.38	0.15	0.13	0.04	0.00	0.15	0.01	0.12	0.05			0.13	0.04		

Remarks:

Figure 11 Discharge Summary URC-2

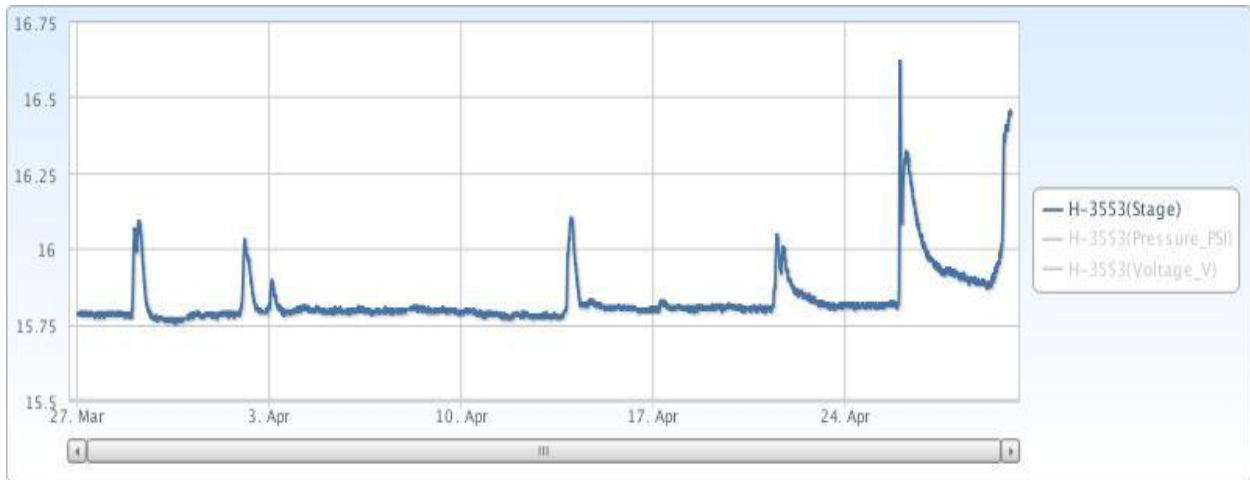


Figure 12 Monthly Hydrograph JB-1

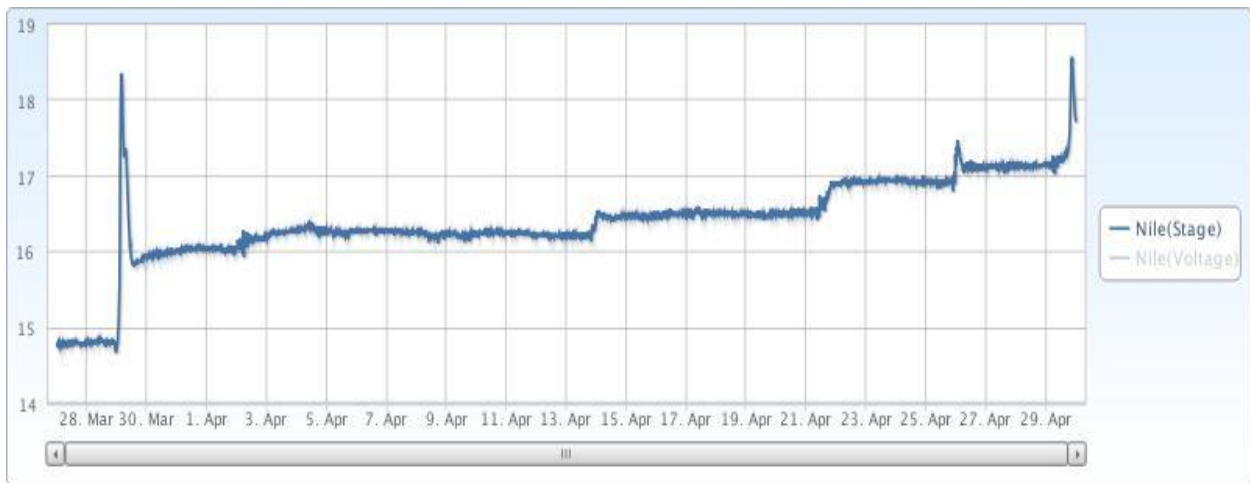


Figure 13 Monthly Hydrograph LDB-1

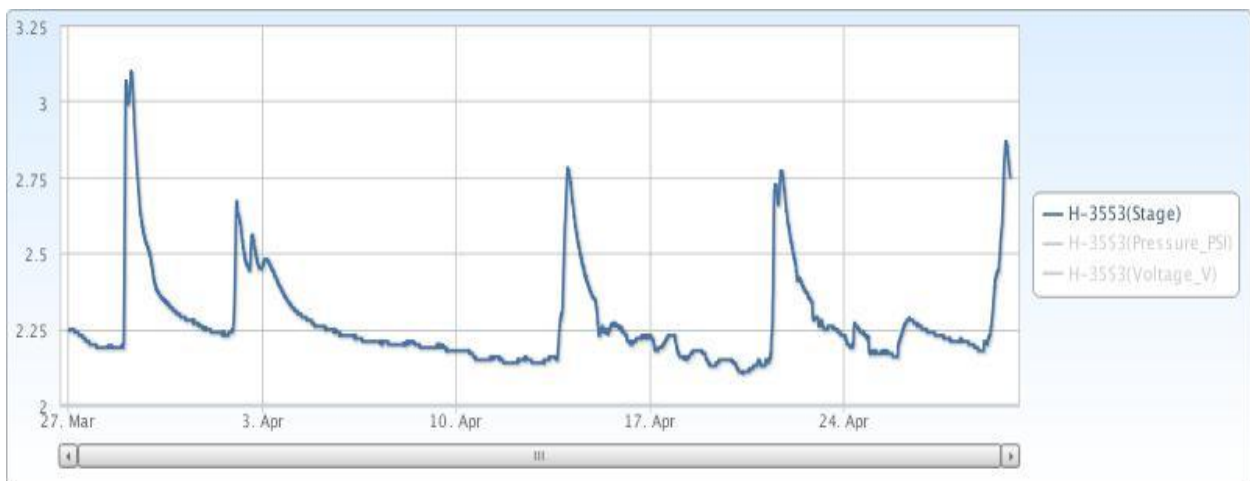


Figure 14 Monthly Hydrograph LT-1

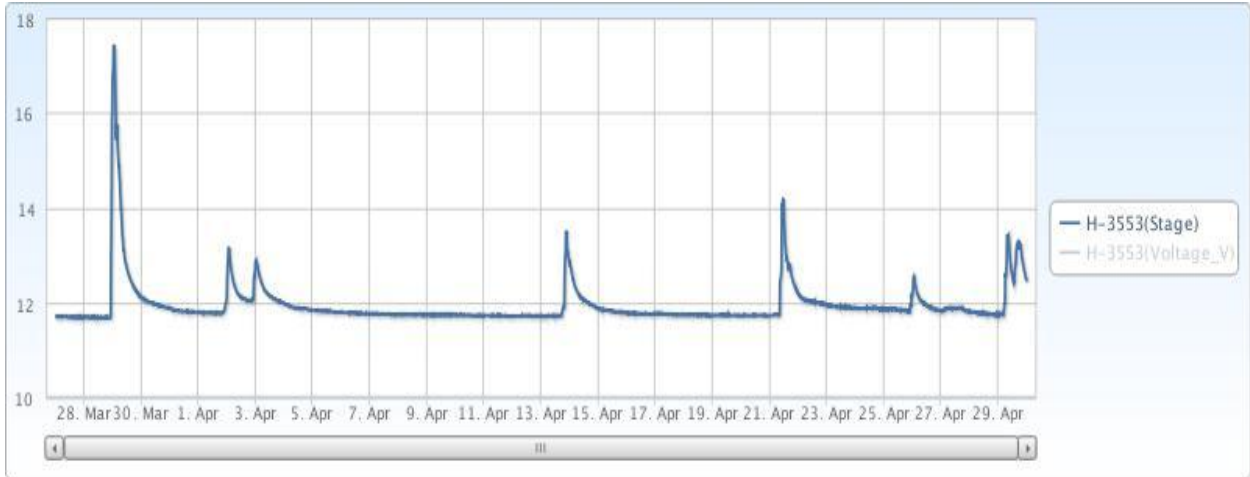


Figure 15 Monthly Hydrograph TE-1

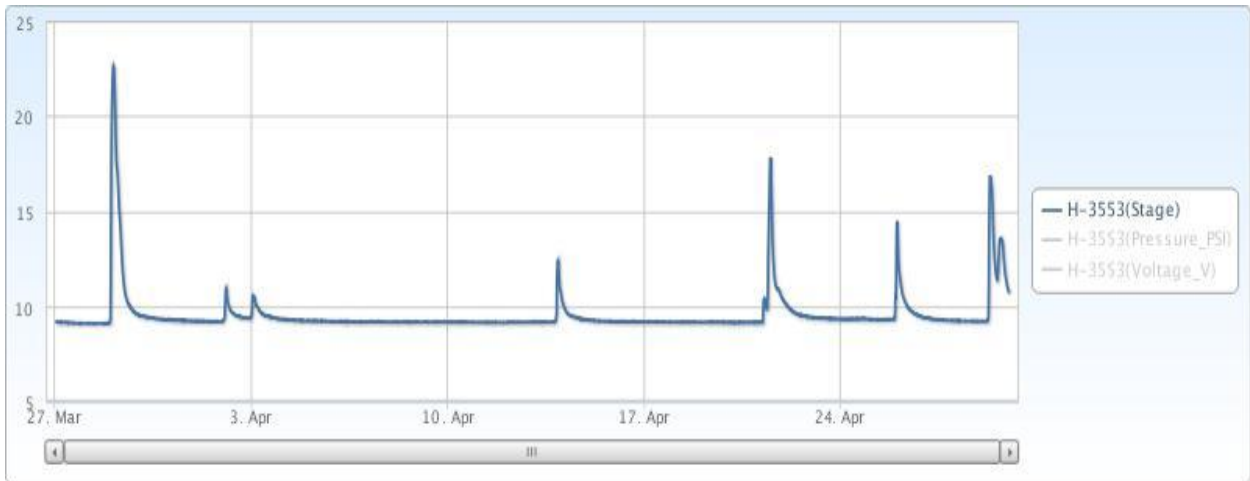


Figure 16 Monthly Hydrograph TG-1

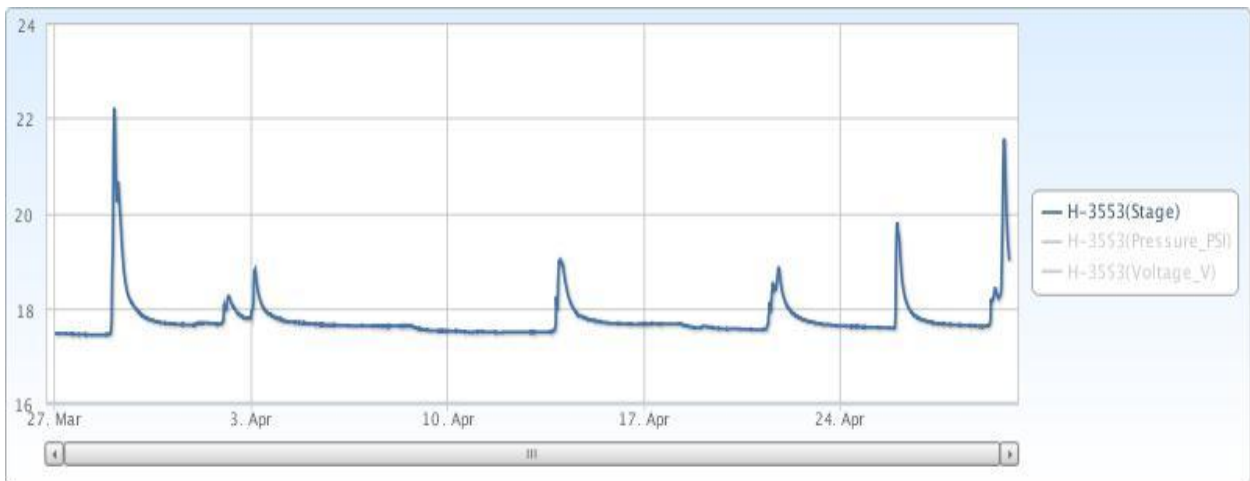


Figure 17 Monthly Hydrograph UDB-1

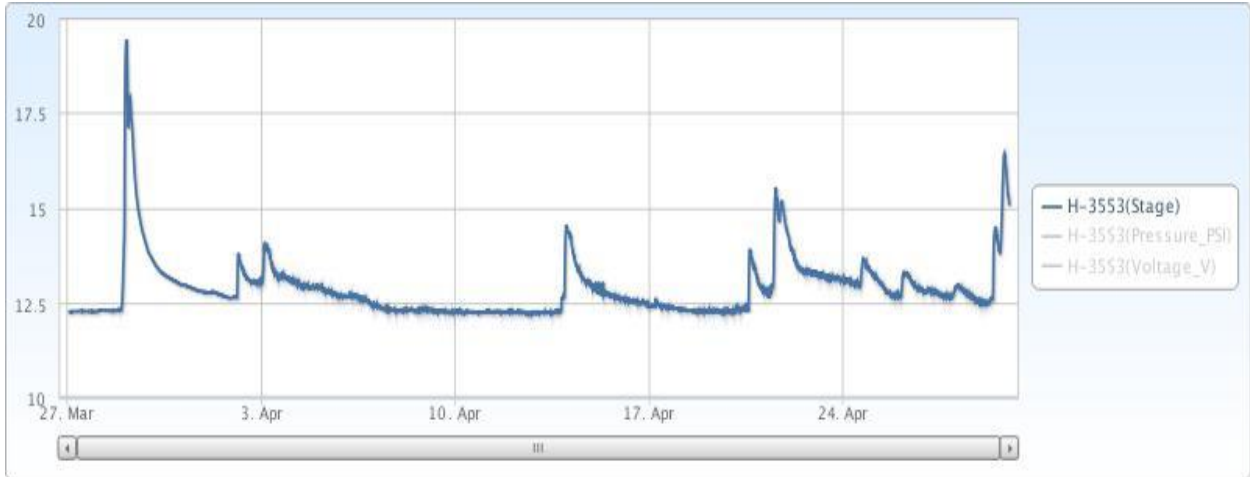


Figure 18 Monthly Hydrograph URC-2

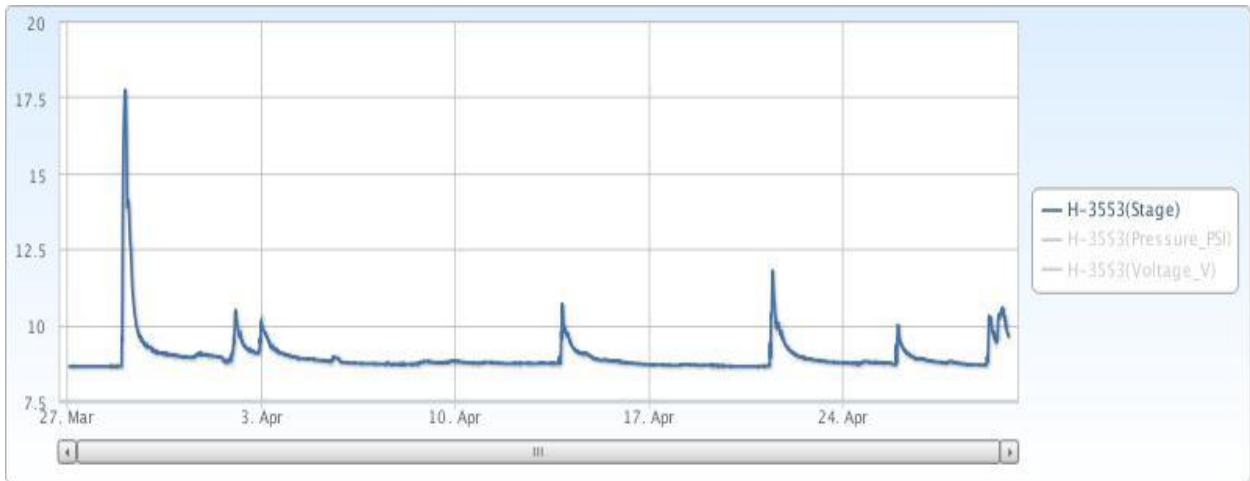


Figure 19 Monthly Hydrograph WC-1

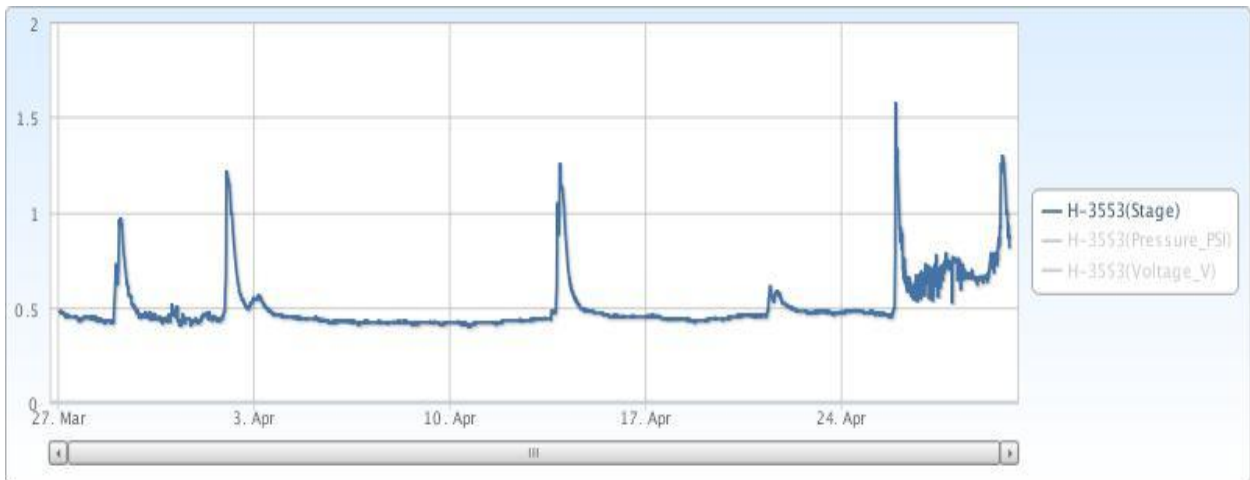


Figure 20 Monthly Hydrograph CC-1



Figure 21 Monthly Hydrograph LRC-1

MESONET CLIMATOLOGICAL DATA SUMMARY					March 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	69	35	49.1	18.5	13	0	61	12	34	0.00	28.92	30.17	NNW	13.9	43.1	20.82	54.1	53.9	59	49		
2	64	26	46.1	17.9	20	0	84	11	41	0.00	29.15	30.41	SSW	3.2	13.2	20.50	51.1	50.6	59	43		
3	69	29	51.8	22.9	16	0	86	14	39	0.00	29.16	30.42	S	8.1	29.6	19.52	50.8	51.5	59	45		
4	64	46	53.0	37.1	10	0	93	18	58	0.00	29.00	30.26	S	12.5	37.2	6.97	51.0	52.0	54	49		
5	59	51	55.3	54.2	10	0	100	89	96	0.03	28.78	30.03	S	13.1	26.8	3.71	52.5	53.7	55	52		
6	80	56	68.8	55.6	0	3	99	17	67	0.01	28.52	29.76	S	17.6	43.8	10.12	55.7	59.1	64	55		
7	64	37	52.6	8.9	15	0	42	8	19	0.00	28.95	30.21	N	8.2	27.5	21.84	54.9	57.2	63	51		
8	75	41	58.2	26.9	7	0	53	15	32	0.00	28.94	30.20	S	9.6	29.6	20.41	53.0	55.1	62	48		
9	81*	55*	68.2*	55.3*	0*	3*	90*	46*	65*	0.00*	28.78*	30.03*	SSW*	10.6*	28.1*	NA	56.1*	60.6*	67*	55*		
10	67	44	55.6	35.2	9	0	84	30	48	0.00	28.97	30.23	NE	11.7	30.1	18.71	57.0	61.0	65	57		
11	53	37	44.4	37.4	20	0	99	48	78	0.01	28.99	30.25	NE	12.1	26.7	3.33	54.8	55.6	60	51		
12	48	36	41.4	35.9	23	0	92	68	81	0.00	28.99	30.24	S	7.4	23.5	5.95	51.9	50.8	53	49		
13	48	33	42.4	28.7	25	0	96	34	61	0.02	28.96	30.22	NNW	13.1	36.9	21.07	51.8	51.7	56	49		
14	55	29	40.6	25.1	23	0	86	31	57	0.00	29.01	30.27	NE	6.3	22.1	20.75	51.1	51.1	59	45		
15	60	30	44.3	30.2	20	0	85	35	60	0.00	29.06	30.31	SSE	8.2	18.4	21.22	51.6	52.3	59	46		
16	73	44	58.5	50.2	6	0	88	54	75	0.00	28.80	30.05	SSE	12.6	33.2	15.47	53.4	55.5	62	50		
17	79	60	68.7	59.4	0	5	96	47	74	0.00	28.80	30.05	S	7.4	23.3	14.15	57.6	61.8	68	57		
18	84	58	70.0	53.8	0	6	87	38	59	0.00	28.96	30.22	SSE	8.6	19.4	20.63	59.5	64.6	71	59		
19	87	61	73.5	60.2	0	9	96	33	67	0.00	28.83	30.08	S	12.1	29.7	21.80	61.9	67.7	74	62		
20	90	64	76.7	52.7	0	12	74	26	47	0.00	28.69	29.94	SSW	13.2	28.6	22.27	63.1	69.2	75	64		
21	85	55	71.3	53.3	0	5	76	40	54	0.00	28.73	29.98	S	10.3	27.0	18.79	63.5	69.6	75	65		
22	74	51	61.1	50.4	2	0	86	52	68	0.00	28.84	30.10	SE	11.2	21.6	17.09	62.4	66.9	71	62		
23	83	56	70.0	51.8	0	5	92	27	58	0.00	28.64	29.89	SSE	17.0	46.1	21.24	62.8	67.4	72	63		
24	78	53	67.8	44.2	0	1	95	14	49	0.06	28.50	29.74	S	15.1	36.5	18.50	63.0	68.2	73	65		
25	61	47	52.0	44.9	11	0	96	55	78	0.03	28.69	29.93	NW	12.1	34.1	10.31	60.2	61.4	66	59		
26	77	42	59.7	51.5	5	0	97	48	77	0.01	28.55	29.79	SSE	9.1	36.0	12.62	58.5	59.3	64	54		
27	69	52	57.9	48.8	4	0	94	44	74	0.00	28.65	29.89	NNW	10.3	26.0	17.21	60.1	62.1	67	59		
28	69	48	57.9	53.0	7	0	100	61	85	3.29	28.60	29.84	ESE	11.0	28.8	10.11	59.4	60.9	64	57		
29	61	46	53.1	49.8	11	0	100	65	89	0.72	28.48	29.72	WNW	10.3	28.3	8.70	57.7	58.7	62	57		
30	63	45	52.2	43.1	11	0	86	52	72	0.00	28.53	29.77	WNW	11.7	29.0	19.45	56.6	57.2	63	53		
31	72	42	55.5	46.0	8	0	97	45	73	0.00	28.59	29.83	ENE	9.3	23.2	24.27	57.3	57.2	64	51		
70* 45* 57.3* 42.0*					<- Monthly Averages ->					28.81* 30.06*		S * 10.9* 46.1*			16.25*		56.6* 58.8* 64* 54*					
Temperature - Highest: 90*					Degree Days - Total HDD: 278*					Number of Days With:												
Lowest: 26*					Total CDD: 47*					Tmax ≥ 90: 1*					Rainfall ≥ 0.10 inch: 9*							
										Tmax ≤ 32: 0*					Rainfall ≥ 0.10 inch: 2*							
Rainfall: Monthly Total: 4.18* in.					Humidity - Highest: 100*					Tmin ≤ 32: 4*					Avg Wind Speed ≥ 10 mph: 20*							
Greatest 24 Hr: 3.29* in.					Lowest: 8*					Tmin ≤ 0: 0*					Max Wind Speed ≥ 30 mph: 10*							

Figure 22 March Mesonet Data

MESONET CLIMATOLOGICAL DATA SUMMARY				April 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	76	46	58.1	49.6	4	0	100	30	78	0.62	28.69	29.94	ENE	8.7	27.9	12.44	58.0	57.0	61	52
2	62	54	56.4	56.0	7	0	100	83	98	0.36	28.56	29.81	NNW	6.6	39.5	4.58	58.6	58.4	60	57
3	75	51	61.7	51.4	2	0	100	40	73	0.00	28.41	29.65	W	7.3	20.0	24.90	60.6	62.6	70	57
4	76	47	59.1	51.2	3	0	93	48	76	0.00	28.43	29.66	WNW	12.7	28.8	18.28	61.4	62.7	68	59
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00*	NA	NA	NW	NA	42.2*	NA	NA	NA	NA	NA
6	70	38	55.8	32.6	11	0	87	21	47	0.00	28.94	30.20	ENE	4.8	15.9	25.94	58.2	55.7	64	47
7	76	44	61.8	39.5	5	0	67	31	45	0.00	28.87	30.12	SSE	9.8	26.2	25.27	59.5	57.0	64	50
8	82	58	69.7	53.6	0	5	73	44	57	0.00	28.56	29.80	S	15.4	36.3	24.98	61.6	61.8	70	55
9	83	63	71.8	60.6	0	8	88	48	69	0.00	28.49	29.73	S	14.8	35.6	17.43	63.8	66.5	72	62
10	73	53	65.0	40.9	2	0	86	21	45	0.00	28.78	30.03	N	12.3	30.7	26.16	64.2	67.8	74	62
11	74	45	59.6	37.8	6	0	79	22	48	0.00	28.95	30.21	NE	6.8	17.2	26.32	62.6	65.2	74	57
12	74	54	65.1	56.3	1	0	99	51	75	0.00	28.94	30.19	SSE	7.8	21.3	16.62	63.4	66.6	72	62
13	75	59	64.1	60.4	0	2	98	60	89	1.12	28.88	30.13	SSE	8.5	22.4	9.68	63.8	65.5	69	62
14	80	61	69.1	58.1	0	5	98	41	71	0.01	28.77	30.02	S	11.0	30.0	24.73	65.0	67.0	73	62
15	81	64	71.5	61.2	0	8	88	53	71	0.00	28.70	29.95	S	12.7	28.8	20.84	66.5	67.5	73	63
16	72	62	67.6	63.6	0	2	100	77	87	0.00	28.74	29.99	SE	8.2	22.2	5.91	66.4	66.2	68	65
17	70*	58*	64.4*	60.2*	1*	0*	100*	69*	87*	0.00*	28.79*	30.04*	SE	7.8*	28.1*	NA	65.6*	65.0*	68*	63*
18	79	52	66.1	58.9	0	0	100	49	80	0.00	28.77	30.02	SSE	6.9	22.4	24.86	66.0	65.7	72	60
19	78	62	70.1	61.9	0	5	96	59	76	0.00	28.72	29.97	S	11.9	30.9	21.59	67.3	67.6	73	64
20	73	63	67.2	61.8	0	3	96	67	83	0.00	28.74	29.99	S	8.8	23.6	8.20	67.2	67.3	69	66
21	63	49	55.9	54.3	9	0	99	86	94	1.16	28.64	29.89	N	13.0	55.3	6.32	64.4	63.2	66	60
22	59	46	50.8	42.5	12	0	88	53	74	0.00	28.86	30.11	N	14.5	29.7	10.52	60.1	58.0	61	56
23	70	40	56.0	38.1	10	0	91	27	55	0.00	28.86	30.11	NW	5.9	18.3	28.74	60.2	59.3	68	51
24	75	46	62.6	44.7	4	0	77	38	53	0.00	28.52	29.76	SSE	11.3	33.8	26.77	61.7	59.4	66	52
25	83	58	70.2	57.4	0	6	97	47	66	0.59	28.19	29.42	S	11.7	28.6	22.72	64.2	63.6	70	58
26	58	41	50.3	43.8	15	0	99	53	79	0.02	28.42	29.65	N	13.4	34.7	11.06	62.1	60.1	65	56
27	69	38	55.9	45.4	11	0	98	46	71	0.00	28.45	29.69	SSE	8.4	30.7	18.15	59.5	57.4	64	51
28	78	57	67.8	58.5	0	3	94	48	73	0.00	28.37	29.61	ESE	7.7	18.9	22.76	63.2	63.8	71	56
29	70	47	53.5	52.5	7	0	100	84	96	1.22	28.40	29.63	NNW	12.4	36.1	1.58	62.6	61.0	66	57
30	53	42	46.3	39.6	17	0	98	58	78	0.09	28.41	29.64	SW	18.1	44.2	16.09	58.0	56.2	59	53
73* 52* 61.8* 51.5*				<- Monthly Averages ->				28.65* 29.90*		S * 10.3* 55.3*		17.98*		62.6* 62.6* 68* 58*						
Temperature - Highest: 83*				Degree Days - Total HDD: 128*				Number of Days With:				Tmax ≥ 90: 0*				Rainfall ≥ 0.01 inch: 10*				
Lowest: 38*				Total CDD: 47*				Tmax ≤ 32: 0*				Rainfall ≥ 0.10 inch: 6*								
Rainfall: Monthly Total: 5.20* in.				Humidity - Highest: 100*				Tmin ≤ 32: 0*				Avg Wind Speed ≥ 10 mph: 14*								
Greatest 24 Hr: 1.22* in.				Lowest: 21*				Tmin ≤ 0: 0*				Max Wind Speed ≥ 30 mph: 13*								

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Figure 23 April Mesonet Data

* Denotes incomplete record