
***Lake Thunderbird TMDL Monitoring Plan Implementation:
Sample Year (SY) 2016- November Report***



SY2016 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

November 2016 Monitoring Report

Oklahoma Water Resources Board
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SUMMARY OF NOVEMBER WATER QUALITY SAMPLING

Sampling for November 2016 occurred on the sixteenth and was considered a typical base flow collection. Discharge measurements were not collected this month due to low water levels. All sites were at or near stage levels where greater than five discharge measurements have been collected this year, or the streams were not flowing or disconnected. Water quality measurements were made at the ten designated monitoring stations with the exception of LT-1, which was completely dry up and downstream of the station location. All water level gages were operational for the month with the exception of CC-1 and LRC-1. CC-1 had not been recording data as expected, so the equipment was shipped back to the manufacturer for repair and will be reinstalled at the site location this week. The replacement equipment for LRC-1 arrived last week and will be installed within the next few days. In the week following collection, it was discovered that the membrane in the DI machine needed to be replaced. This malfunction caused the DI blank samples to have a slightly elevated TP level and a high TKN level. The issue has been fixed, and is an isolated incident with the deionized water and not the equipment used for sampling, since equipment is not reused at the sampling locations. Mesonet data for Norman shows a total of 0.48 inches of rainfall for the month of November with no precipitation in the 72 hours preceding or following the sampling event.

RESULTS

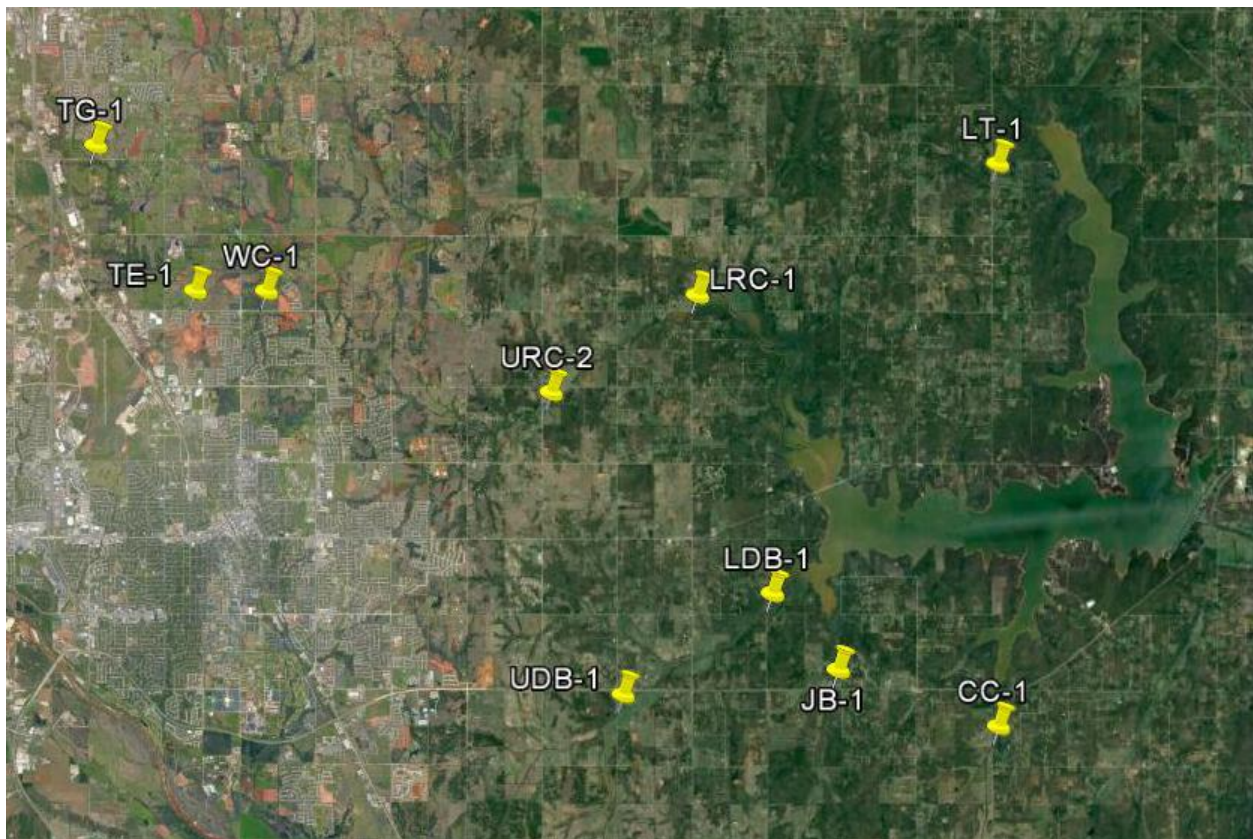


Figure 1 Monitoring Station Map

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	11/16/2016	9:30	sd	11.1	10.3	806.0	7.8	23.0	
tg-1	11/16/2016	15:30	sd	N/A	N/A	N/A	N/A	N/A	QA 33
udb-1	11/16/2016	8:42	sd	10.6	2.5	1193.0	7.2	5.0	barely flow ing ds
jb-1	11/16/2016	10:31	sd	10.5	9.5	757.0	7.8	9.0	no visible flow . Barely connnected to us pool. Sampled in ds run
ldb-1	11/16/2016	11:09	sd	12.5	6.8	1014.0	8.1	23.0	
lt-1	11/16/2016	N/A	sd	N/A	N/A	N/A	N/A	N/A	completely dry upstream. Very small scummy pool isolated on ds. Staff gage/bubbler out of w ater debris on ds causing w ater level to be artificially higher
lrc-1	11/16/2016	11:54	sd	11.1	5.8	956.0	7.5	19.0	
urc-2	11/16/2016	12:26	sd	13.1	5.6	930.0	7.3	9.0	barely flow ing/connected.
wc-1	11/16/2016	12:57	sd	12.0	6.7	916.0	7.6	8.0	barely connected/flow ing under bridge. Collected on ds
te-1	11/16/2016	13:22	sd	14.1	8.3	1101.0	7.8	14.0	barely connected/flow ing on ds
tg-1	11/16/2016	14:10	sd	13.7	7.8	878.0	7.6	4.0	debris under bridge causing w ater to have pool-like conditions us

Table 1 Field Data Form

SITE NAME	QA CODE	TKN	NITRATE/NITRITE	TP	TSS
TG-1	10	0.26	0.067	0.068	3.50
CC-1	12	0.351	0.105	0.035	5.50
CC-1	22	0.309	0.105	0.037	7.70
JB-1	10	1.48	<0.050	0.042	7.0
UDB-1	10	0.296	<0.050	0.200	<2.50
LDB-1	10	0.204	<0.050	0.049	13.6
LRC-1	10	0.327	<0.050	0.046	14.2
URC-2	10	0.385	<0.050	0.106	10.0
WC-1	10	0.292	<0.050	0.052	2.90
TE-1	10	0.332	<0.050	0.026	4.30
TG-1	33	0.353	<0.050	0.007	<2.50
LT-1	10	N/A	N/A	N/A	N/A

Table 2 Laboratory Analysis Summary

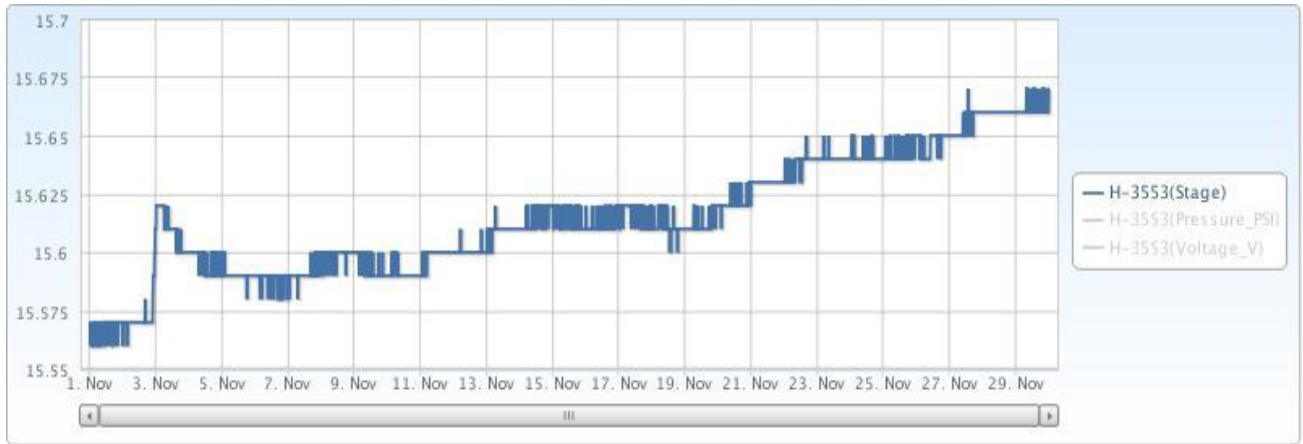


Figure 2 Monthly Hydrograph JB-1

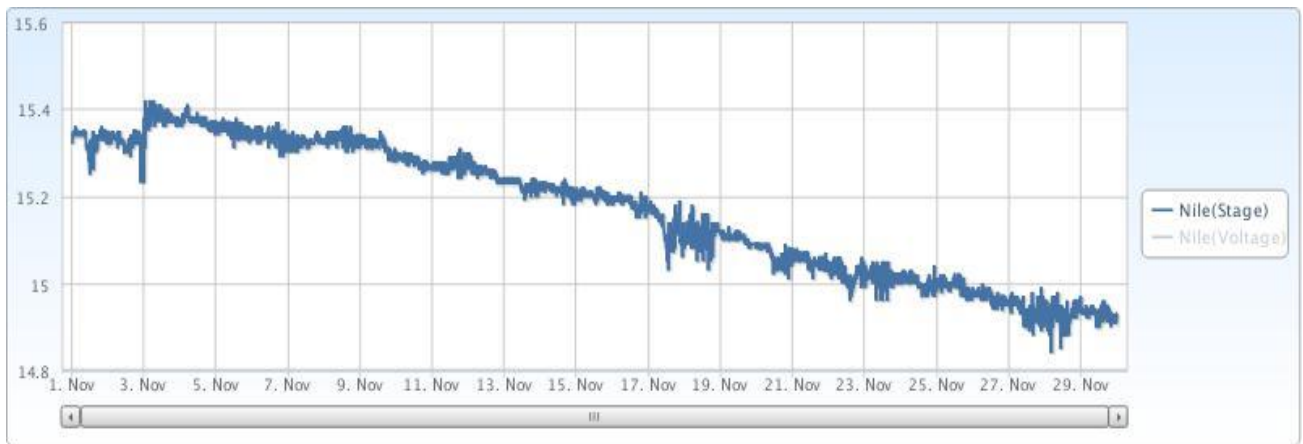


Figure 3 Monthly Hydrograph LDB-1

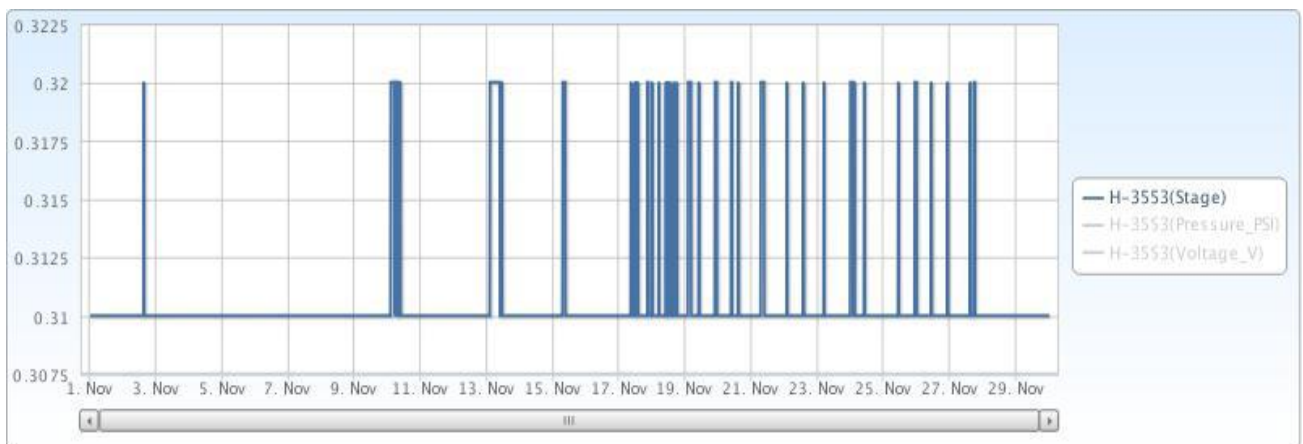


Figure 4 Monthly Hydrograph LT-1

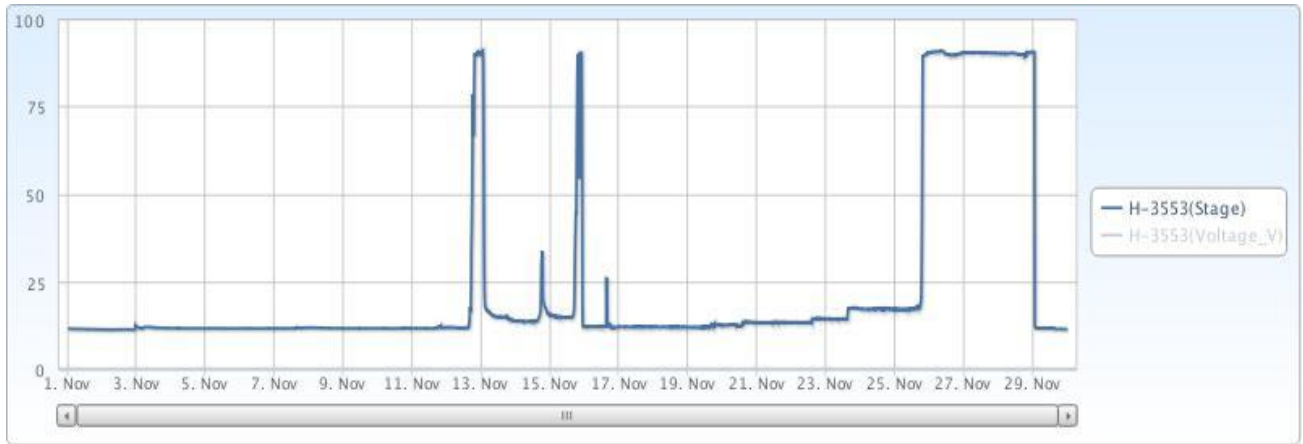


Figure 5 Monthly Hydrograph TE-1



Figure 6 Monthly Hydrograph TG-1

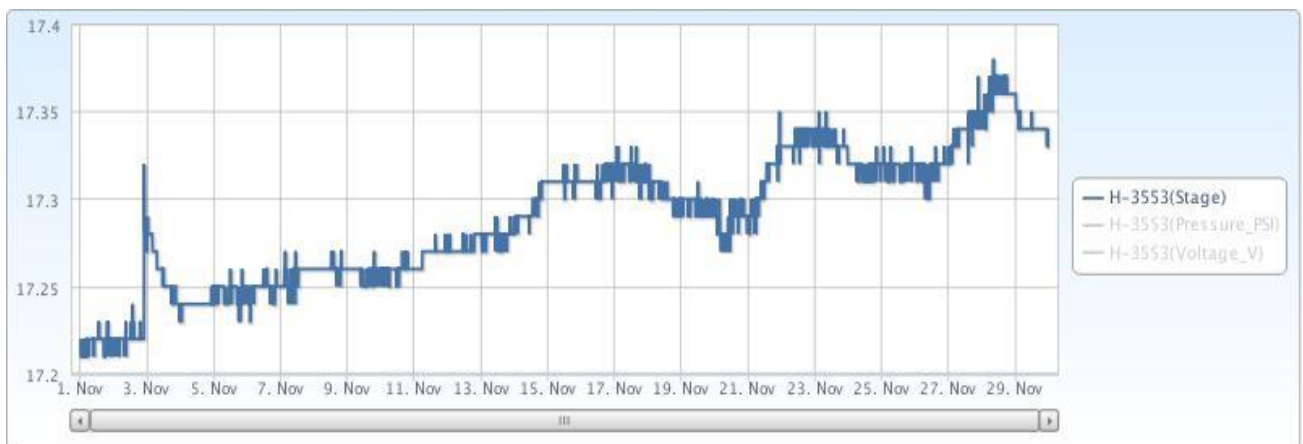


Figure 7 Monthly Hydrograph UDB-1



Figure 8 Monthly Hydrograph URC-2



Figure 9 Monthly Hydrograph WC-1

MESONET CLIMATOLOGICAL DATA SUMMARY				November 2016				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	83	63	72.3	63.0	0	8	94	55	74	0.00	28.66	29.90	S	11.5	27.9	13.62	68.4	70.9	76	67		
2	83	64	73.9	67.3	0	8	97	59	81	0.25	28.83	30.08	S	9.5	36.5	8.85	70.2	72.6	76	70		
3	72	58	64.1	59.9	0	0	98	67	87	0.00	29.01	30.27	N	6.0	16.4	8.00	68.8	68.3	71	65		
4	66	57	60.7	59.2	4	0	100	84	95	0.01	29.08	30.34	NNE	5.8	19.0	3.31	66.4	64.4	66	63		
5	73	58	64.6	50.8	0	1	100	39	63	0.00	29.02	30.28	SSE	5.4	17.0	11.34	66.1	65.6	71	62		
6	69	55	61.2	50.1	3	0	93	49	68	0.03	28.90	30.15	SE	6.2	16.3	6.76	65.4	65.4	68	63		
7	64	59	61.0	59.6	4	0	100	85	95	0.15	28.88	30.13	ESE	3.3	10.8	2.68	65.2	64.2	65	63		
8	61	57	59.4	56.8	6	0	100	81	91	0.00	29.02	30.28	N	8.8	23.3	2.94	64.8	62.8	64	61		
9	67	42	55.8	43.5	11	0	93	32	66	0.00	29.09	30.35	N	7.1	17.0	13.35	63.5	61.3	67	58		
10	70	37	54.0	44.2	11	0	100	39	74	0.00	29.04	30.30	SSW	3.7	16.3	14.05	60.3	58.6	66	52		
11	71	47	57.8	49.8	6	0	100	55	76	0.00	28.98	30.24	N	7.1	18.9	13.09	61.5	61.1	67	56		
12	65	41	50.9	39.9	12	0	92	46	68	0.00	29.05	30.31	NNE	6.1	17.5	14.03	60.3	59.0	65	54		
13	68	38	54.0	45.8	12	0	100	46	76	0.00	28.90	30.16	SSE	6.1	19.7	13.43	59.0	58.2	65	53		
14	68	46	55.3	48.2	8	0	99	47	80	0.00	28.77	30.02	S	5.9	18.8	13.29	59.9	59.7	65	55		
15	81*	42*	58.0*	46.1*	4*	0*	100*	25*	72*	0.00*	28.75*	30.00*	SW *	3.5*	13.6*	NA	59.1*	59.3*	67*	53*		
16	84*	44*	62.8*	45.9*	1*	0*	100*	22*	62*	0.00*	28.62*	29.87*	S *	6.7*	28.7*	NA	59.6*	60.7*	68*	55*		
17	78	59	68.0	50.2	0	4	69	35	54	0.00	28.48	29.72	S	14.6	37.3	12.28	61.3	63.6	68	60		
18	69	39	49.8	33.0	11	0	80	34	54	0.00	28.96	30.22	NNW	17.7	38.3	13.62	60.0	60.7	65	55		
19	51	27	39.0	22.8	26	0	87	24	55	0.00	29.28	30.54	NNW	5.5	16.7	13.88	55.6	53.7	59	49		
20	64	33	47.7	26.5	17	0	73	24	46	0.00	28.97	30.23	SSE	9.5	26.7	13.37	54.1	52.6	58	48		
21	70	41	54.8	37.0	10	0	70	31	53	0.00	28.73	29.98	SSE	8.9	24.6	12.31	55.3	55.1	60	50		
22	75	47	62.6	51.4	4	0	92	38	69	0.00	28.59	29.83	S	12.6	32.0	10.74	58.8	60.1	65	57		
23	60	38	49.3	39.3	16	0	95	48	70	0.00	28.85	30.10	NW	9.9	30.2	11.69	57.8	57.9	62	54		
24	67	36	51.2	40.4	13	0	99	37	71	0.00	28.92	30.17	S	7.6	23.2	12.65	55.6	55.0	61	51		
25	57	33	44.1	34.6	20	0	98	43	71	0.00	29.15	30.42	N	7.8	29.5	12.89	55.2	54.1	59	51		
26	63	25	45.4	35.9	21	0	100	32	75	0.00	29.04	30.30	S	5.9	20.0	12.42	52.9	51.5	57	45		
27	63	49	55.8	53.5	9	0	97	84	92	0.04	28.55	29.79	S	13.4	32.1	1.31	55.5	54.9	57	54		
28	65	46	57.2	36.8	10	0	89	24	50	0.00	28.19	29.42	WSW	11.3	37.9	11.26	56.8	56.8	61	54		
29	61	39	50.0	27.5	15	0	63	23	43	0.00	28.39	29.62	NNW	8.6	22.2	12.75	54.5	54.0	59	51		
30	55	31	41.7	21.7	22	0	76	21	49	0.00	28.73	29.98	WNW	8.8	28.3	12.64	52.0	50.6	55	47		
68* 45* 56.1* 44.7*				<- Monthly Averages ->				28.85* 30.10*		S * 8.1* 38.3*			10.81*		60.1* 59.8* 65* 56*							
Temperature - Highest: 84*				Degree Days - Total HDD: 275*				Number of Days With:				Rainfall ≥ 0.01 inch: 5*										
Lowest: 25*				Total CDD: 20*				Tmax ≥ 90: 0*				Rainfall ≥ 0.10 inch: 2*										
Rainfall: Monthly Total: 0.48* in.				Humidity - Highest: 100*				Tmin ≤ 32: 0*				Avg Wind Speed ≥ 10 mph: 6*										
Greatest 24 Hr: 0.25* in.				Lowest: 21*				Tmin ≤ 0: 0*				Max Wind Speed ≥ 30 mph: 7*										

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* Denotes incomplete record

Figure 10 Mesonet Data