Robin L. Simmons
Regional Land Manager

September 23, 2019

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Oklahoma Water Resources Board
3800 N. Classen Boulevard
Oklahoma City, OK 73118
Attn: Mr. Matt Cogburn

Re: Martin Marietta/TXI Mill Creek Limestone Quarry Monitoring Report Q2 2019

Dear Mr. Cogburn:

Attached please find the Q2 2019 Quarterly Monitoring Report for Martin Marietta/TXI's Mill Creek Limestone quarry. The report is summarized on the table labeled Appendix C. Supporting data is also included.

The table labeled Appendix C also shows corrected data for Q1 2019.

Please call if you have any questions or comments.

Sincerely,

Robin L. Simmons

Robin L. Simmons
Regional Land Manager

North Texas/Oklahoma District
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ATTACHMENT 1 (Appendix C)

Martin Marietta (TXI) Mill Creek 2019

Appendix C . Consumptive use of Pitwater

			Q1 2019	Q2 2019
	PIT GROUNDWATER VOLUME			
1	Total volume pumped from producing mine pit(s) (AC-FT)		586.68	659.40
2	Volume of precipitation that falls onto the surface of producing Mine Pits (AC-FT)		53.71	175.93
3	Portion of total precipitation that flows over the land surface that drains into the mine pit water (AC-FT)		17.50	64.53
4	**(WATER HELD IN PIT FROM PREVIOUS MONTHS) other non pit waters pumped from the producing mining pit (AC-FT)**			
5	add lines 2 through 4		71.21	240.45
6	**Pit Groundwater Volume (AC-FT)** (line 1 minus Line 5)		**515.47**	**418.95**
	DEFINED ELEMENTS OF CONSUMPTIVE USE			
7	Vol. of pit groundwater that is driven off (by drying) the mined material transp. off of the mine site (AC-FT)		0.00	0
8	Vol. of pit groundwater that is carried away with the the mined material transp. off of the mine site (AC-FT)		6.02	2.55
9	Vol. of pit groundwater that evaporates from producing mine pits, process ponds and lined ponds (excluding structures used for augmentation) (AC-FT)		16.71	21.03
10	Volume of pit groundwater that is used for other beneficial uses off of the mine site (AC-FT) (includes on-site dust control)		11.50	11.32
11	**DEFINED ELEMENTS OF CONSUMPTIVE USE** of Pit groundwater (AC-FT) (add lines 7 through 10)		**34.22**	**34.91**
	PIT GROUNDWATER BALANCE			
12	Lines 6 minus 11		481.25	384.05
13	**Groundwater Augmentation** Volume of pit water returned to GW Basin or subbasin. (Troy Recharge AC-FT)	Credits	586.24	920.70
14	**Stream Augmentation** volume of pit water discharged to a definite Stream, during flow conditions that are less than or equal to the accepted exceedance level (AC-FT)	Credits	0.00	0.00
15	**PPT and Runoff** Volume of Precipitation and surface runoff into a recharge pit or holding pond (AC-FT)	Credits	42.43	141.50
16	**Recycled Pit Groundwater** - Volume of ground water returned to the mine pit or holding basin (AC-FT)		426.34	298.89
17	**Other Non-Consumptive GW Losses** Including pit GW returned to the land surface from which surface runoff flows into a mine pit and other losses (AC-FT)		0.0	0.0
18	add lines 13 through 17		1055.01	1361.08
19	**OTHER CONSUMPTIVE USE** Line 12 minus Line 18		-573.75	-977.04
	TOTAL REPORTED CONSUMPTIVE USE (AC-FT)			
	TOTAL NET CONSUMPTIVE USE (AC-FT) Line 11 plus line 19		-539.53	-942.13

RESULTS FROM RUNOFF MODELLING

2019	PPT.	Quarry Monthly Totals				FW Pond Monthly Totals		Re-cycle Recharge (Troy) Monthly Totals		TXI-Mill Creek Totals	
		Sump Direct ppt	In-Quarry Runoff	Runoff from beyond Quarry	Quarry Totals	Direct ppt	Runoff	Direct ppt	Runoff	Direct ppt	Runoff
	Inches	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft
January	2.70	0.045	24.112	7.433	31.59	4.21	3.54	8.89	7.14	13.14	42.23
February	2.38	0.040	15.152	4.365	19.56	3.71	2.90	7.83	4.84	11.58	27.25
March	1.96	0.033	14.328	5.702	20.06	3.05	4.81	6.45	7.28	9.54	32.12
Q1 Subtotal		**0.12**	**53.59**	**17.50**	**71.21**	**10.97**	**11.25**	**23.17**	**19.26**	**34.26**	**101.60**
April	7.48	0.125	81.682	32.581	114.39	11.66	26.69	24.62	39.74	36.40	180.70
May	6.14	0.102	62.120	26.544	88.77	9.57	28.16	20.21	36.23	29.88	153.06
June	5.38	0.090	31.809	5.400	37.30	8.38	0.50	17.71	2.98	26.18	40.69
Q2 Subtotal	**19.00**	**0.32**	**175.61**	**64.52**	**240.45**	**29.61**	**55.35**	**62.54**	**78.95**	**92.47**	**374.44**
July	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
September	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Q3 Subtotal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
October	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
December	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Q4 Subtotal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
ANNUAL TOTALS	**19.00**	**0.43**	**229.20**	**82.02**	**311.66**	**40.58**	**66.61**	**85.72**	**98.21**	**126.73**	**476.05**

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Water Volume Movements		January	February	March	April	May	June
Pumped from Pit	(Ac-Ft)	200.7	179.8	206.2	214.2	248.5	196.7
Groundwater Component of Pitwater		194.1	185.3	211.1	99.8	159.8	159.4
Quarry dust suppression		2.7	2.5	6.0	5.0	5.5	6.7
Q- freshwater pond	(Ac-Ft)	198.0	177.3	200.2	209.1	243.1	190.0
To Secondary FM7	(Ac-Ft)	415.8	410.2	519.5	513.0	548.3	478.1
To sand Plant FM8	(Ac-Ft)	78.9	82.8	108.0	114.5	113.8	105.9
to loadout FM6	(Ac-Ft)	277.1	284.7	361.2	377.7	420.4	396.4
to dust control FM9	(Ac-Ft)	0.031	0.061	0.675	0.000	0.123	0.031
to Plant FM7+FM8+FM6	(Ac-Ft)	771.7	777.8	988.6	1005.2	1082.5	980.4
to stream Augmentation	Ac-ft	0.00	0.00	0.00	0.00	0.00	0.00
To Troy FM3	(Ac-Ft)	769.6	785.8	995.1	1017.2	1111.7	982.8
From Troy to Freshwater Pond FM4	+	554.2	483.3	773.2	768.6	781.5	780.6

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Quarter Summary	2nd Qtr
Total Tons Shipped	1,040,000
Total Acre Feet	19.92
Average Moisture %	2.61%

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#
Additional info: https://help.waterdata.usgs.gov/policies/provisional-data-statement
#
File-format description: https://help.waterdata.usgs.gov/faq/about-tab-delimited-output
Automated-retrieval info: https://help.waterdata.usgs.gov/faq/automated-retrievals
#
Contact: gs-w_support_nwisweb@usgs.gov
retrieved: 2019-09-23 10:07:23 EDT (nadww01)
#
Data for the following 1 site(s) are contained in this file
USGS 07331200 Mill Creek near Mill Creek, OK

#
Data provided for site 07331200
TS parameter statistic Description
111780 00060 00003 Discharge, cubic feet per second (Mean)
#
Data-value qualification codes included in this output:
A Approved for publication -- Processing and review completed.
#

agency_cd	site_no	datetime	111780_00060_00003	111780_00060_00003_cd
5s	15s	20d	14n	10s
USGS	07331200	2019-04-01	13.9	A
USGS	07331200	2019-04-02	13.7	A
USGS	07331200	2019-04-03	13.5	A
USGS	07331200	2019-04-04	13.1	A
USGS	07331200	2019-04-05	13.2	A
USGS	07331200	2019-04-06	19.5	A
USGS	07331200	2019-04-07	14.9	A
USGS	07331200	2019-04-08	13.3	A
USGS	07331200	2019-04-09	11.1	A
USGS	07331200	2019-04-10	9.60	A
USGS	07331200	2019-04-11	7.74	A
USGS	07331200	2019-04-12	6.88	A
USGS	07331200	2019-04-13	102	A
USGS	07331200	2019-04-14	166	A
USGS	07331200	2019-04-15	63.6	A
USGS	07331200	2019-04-16	40.7	A
USGS	07331200	2019-04-17	27.7	A
USGS	07331200	2019-04-18	22.9	A
USGS	07331200	2019-04-19	19.2	A
USGS	07331200	2019-04-20	16.2	A
USGS	07331200	2019-04-21	13.1	A
USGS	07331200	2019-04-22	9.78	A
USGS	07331200	2019-04-23	9.33	A
USGS	07331200	2019-04-24	9.26	A
USGS	07331200	2019-04-25	8.36	A
USGS	07331200	2019-04-26	6.87	A
USGS	07331200	2019-04-27	6.27	A
USGS	07331200	2019-04-28	5.37	A
USGS	07331200	2019-04-29	4.72	A
USGS	07331200	2019-04-30	32.9	A

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# Additional info: https://help.waterdata.usgs.gov/policies/provisional-data-statement
#
# File-format description:  https://help.waterdata.usgs.gov/faq/about-tab-delimited-output
# Automated-retrieval info: https://help.waterdata.usgs.gov/faq/automated-retrievals
#
# Contact:   gs-w_support_nwisweb@usgs.gov
# retrieved: 2019-09-23 10:10:19 EDT       (nadww01)
#
# Data for the following 1 site(s) are contained in this file
#    USGS 07331200 Mill Creek near Mill Creek, OK
# ------------------------------------------------------------------------------------
#
# Data provided for site 07331200
#            TS   parameter     statistic     Description
#        111780       00060     00003     Discharge, cubic feet per second (Mean)
#
# Data-value qualification codes included in this output:
#     A  Approved for publication -- Processing and review completed.
#
agency_cd       site_no datetime        111780_00060_00003      111780_00060_00003_cd
5s      15s     20d     14n     10s
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USGS    07331200        2019-05-02      173     A
USGS    07331200        2019-05-03      104     A
USGS    07331200        2019-05-04      104     A
USGS    07331200        2019-05-05      75.0    A
USGS    07331200        2019-05-06      54.9    A
USGS    07331200        2019-05-07      42.7    A
USGS    07331200        2019-05-08      102     A
USGS    07331200        2019-05-09      77.2    A
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USGS    07331200        2019-05-11      68.3    A
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USGS    07331200        2019-05-13      32.8    A
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USGS    07331200        2019-05-15      20.4    A
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USGS    07331200        2019-05-17      14.8    A
USGS    07331200        2019-05-18      112     A
USGS    07331200        2019-05-19      73.8    A
USGS    07331200        2019-05-20      38.5    A
USGS    07331200        2019-05-21      115     A
USGS    07331200        2019-05-22      72.1    A
USGS    07331200        2019-05-23      43.0    A
USGS    07331200        2019-05-24      31.8    A
USGS    07331200        2019-05-25      25.3    A
USGS    07331200        2019-05-26      21.8    A
USGS    07331200        2019-05-27      17.4    A
USGS    07331200        2019-05-28      14.3    A
USGS    07331200        2019-05-29      16.7    A
USGS    07331200        2019-05-30      21.2    A
USGS    07331200        2019-05-31      15.8    A
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#
# Contact:   gs-w_support_nwisweb@usgs.gov
# retrieved: 2019-09-23 10:11:08 EDT       (nadww01)
#
# Data for the following 1 site(s) are contained in this file
#    USGS 07331200 Mill Creek near Mill Creek, OK
# ------------------------------------------------------------------------------------
#
# Data provided for site 07331200
#           TS   parameter     statistic     Description
#       111780       00060     00003     Discharge, cubic feet per second (Mean)
#
# Data-value qualification codes included in this output:
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#     P  Provisional data subject to revision.
#
agency_cd       site_no datetime        111780_00060_00003      111780_00060_00003_cd
5s      15s     20d     14n     10s
USGS    07331200        2019-06-01      13.0    A
USGS    07331200        2019-06-02      12.3    A
USGS    07331200        2019-06-03      12.5    A
USGS    07331200        2019-06-04      12.4    A
USGS    07331200        2019-06-05      11.1    A
USGS    07331200        2019-06-06      199     A
USGS    07331200        2019-06-07      124     A
USGS    07331200        2019-06-08      57.9    A
USGS    07331200        2019-06-09      82.2    A
USGS    07331200        2019-06-10      62.2    A
USGS    07331200        2019-06-11      39.9    A
USGS    07331200        2019-06-12      30.3    A
USGS    07331200        2019-06-13      24.1    A
USGS    07331200        2019-06-14      21.1    A
USGS    07331200        2019-06-15      17.4    A
USGS    07331200        2019-06-16      25.9    A
USGS    07331200        2019-06-17      21.1    A
USGS    07331200        2019-06-18      16.5    A
USGS    07331200        2019-06-19      74.2    A
USGS    07331200        2019-06-20      26.6    A
USGS    07331200        2019-06-21      16.6    A
USGS    07331200        2019-06-22      12.6    A
USGS    07331200        2019-06-23      13.3    A
USGS    07331200        2019-06-24      69.7    A
USGS    07331200        2019-06-25      25.1    P
USGS    07331200        2019-06-26      15.4    P
USGS    07331200        2019-06-27      10.7    P
USGS    07331200        2019-06-28      7.58    P
USGS    07331200        2019-06-29      5.98    P
USGS    07331200        2019-06-30      5.42    P
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Date	Daily Rainfall Total	Total Daily Evaporation
4/1/2019	0	0.003
4/2/2019	0	0.007
4/3/2019	0	0.003
4/4/2019	0.03	0.033
4/5/2019	0	0.008
4/6/2019	0.31	0.092
4/7/2019	0.01	0.013
4/8/2019	0	0.004
4/9/2019	0	0.005
4/10/2019	0	0.006
4/11/2019	0	0.002
4/12/2019	0	0.008
4/13/2019	1.78	0.942
4/14/2019	0.09	0.096
4/15/2019	0	0.01
4/16/2019	1.71	0.001
4/17/2019	0.12	0.011
4/18/2019	0.13	0.31
4/19/2019	0	0.145
4/20/2019	0	0.246
4/21/2019	0	0.266
4/22/2019	0	0.151
4/23/2019	0.01	0.126
4/24/2019	0.01	0.052
4/25/2019	0	0.222
4/26/2019	0	0.216
4/27/2019	0	0.166
4/28/2019	0	0.273
4/29/2019	0	0.141
4/30/2019	3.28	0.057
5/1/2019	2.22	0.833
5/2/2019	0.27	0.266
5/3/2019	0.11	0.115
5/4/2019	0	0.011
5/5/2019	0	0.011
5/6/2019	0	0.226
5/7/2019	0	0.206
5/8/2019	0.82	0.246
5/9/2019	0	0.418
5/10/2019	0.01	0.018
5/11/2019	0.18	0.193
5/12/2019	0	0.012
5/13/2019	0	0.217
5/14/2019	0	0.333
5/15/2019	0	0.295
5/16/2019	0	0.281

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5/17/2019	0	0.241
5/18/2019	1.54	0.415
5/19/2019	0	0.157
5/20/2019	0	0.121
5/21/2019	0.62	0.408
5/22/2019	0	0.097
5/23/2019	0	0.258
5/24/2019	0	0.246
5/25/2019	0	0.266
5/26/2019	0	0.212
5/27/2019	0	0.258
5/28/2019	0	0.161
5/29/2019	0.36	0.171
5/30/2019	0.01	0.116
5/31/2019	0	0.214
6/1/2019	0.16	0.263
6/2/2019	0	0.109
6/3/2019	0.39	0.287
6/4/2019	0.09	0.054
6/5/2019	0.15	0.097
6/6/2019	0.67	0.12
6/7/2019	0	0.083
6/8/2019	0	0.213
6/9/2019	0.57	0.331
6/10/2019	0	0.278
6/11/2019	0	0.204
6/12/2019	0.23	0.272
6/13/2019	0	0.26
6/14/2019	0	0.18
6/15/2019	0	0.211
6/16/2019	1.07	0.571
6/17/2019	0.01	0.047
6/18/2019	0	0.219
6/19/2019	1.02	0.191
6/20/2019	0	0.262
6/21/2019	0	0.309
6/22/2019	0	0.269
6/23/2019	1.02	0.154
6/24/2019	0	0.165
6/25/2019	0	0.258
6/26/2019	0	0.253
6/27/2019	0	0.237
6/28/2019	0	0.258
6/29/2019	0	0.31
6/30/2019	0	0.235

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MESONET CLIMATOLOGICAL DATA SUMMARY
(TISH) Tishomingo
Latitude: 34-19-57

April 2019
Nearest City: 6.0 N Tishomingo
Longitude: 96-40-44

Time Zone: Midnight-Midnight CST
County: Johnston
Elevation: 879 feet

DAY	TEMPERATURE (F) MAX	MIN	AVG	DEWPT	DEG DAYS HDD	CDD	HUMIDITY (%) MAX	MIN	AVG	RAIN (in)	PRESSURE (in) STN	MSL	WIND SPEED (mph) DIR	AVG	MAX	SOLAR (MJ/m2)	4" SOIL TEMPERATURES SOD	BARE	MAX	MIN
1	58	37	46.0	28.6	17	0	73	31	52	0.00	29.28	30.22	NNE	5.1	13.8	19.04	53.9	51.8	61	45
2	70	32	53.4	37.5	14	0	97	33	59	0.00	29.18	30.13	SSE	8.5	22.5	24.89	55.1	55.0	66	45
3	67	45	58.3	43.3	9	0	80	41	59	0.00	29.12	30.06	SSE	11.6	27.7	14.45	56.1	56.9	62	50
4	71	50	60.0	55.0	5	0	100	59	85	0.07	29.05	29.99	ENE	5.0	18.6	12.79	58.9	60.0	67	56
5	75	47	60.8	53.2	4	0	100	47	79	0.00	29.07	30.01	ESE	5.1	15.6	23.09	61.3	62.3	73	54
6	68	54	60.4	57.9	4	0	100	72	92	0.21	28.96	29.90	SSE	6.6	28.7	8.07	61.3	61.5	65	59
7	72	54	63.4	60.6	2	0	100	69	91	0.01	28.96	29.90	ESE	5.3	20.2	8.89	61.5	61.8	67	57
8	82	54	67.8	51.7	0	3	100	24	63	0.00	28.99	29.93	NNW	8.0	24.3	25.92	63.7	65.5	74	58
9	87	50	69.6	48.6	0	3	89	25	52	0.00	28.92	29.86	SSE	7.7	22.7	25.54	64.7	67.4	79	57
10	88	63	75.2	52.4	0	10	63	29	47	0.00	28.61	29.54	SSE	17.7	39.0	22.36	65.6	69.8	78	62
11	74	40	58.0	37.1	8	0	81	28	47	0.00	28.72	29.65	WNW	10.2	28.1	22.19	64.1	67.9	74	61
12	66	36	51.5	31.0	14	0	89	28	48	0.00	28.98	29.92	NNE	9.7	22.4	24.21	59.7	61.8	71	53
13	52	40	46.1	41.1	19	0	96	49	84	2.02	28.81	29.74	NNE	20.4	48.4	2.07	55.3	54.4	60	50
14	65	40	51.7	38.5	13	0	93	36	64	0.02	28.97	29.91	NW	9.8	35.3	27.55	55.5	56.2	67	48
15	78	46	62.7	47.2	3	0	87	37	59	0.00	28.98	29.92	S	14.0	34.0	26.56	59.4	58.4	66	51
16	76	56	65.9	56.7	0	1	89	56	73	0.00	28.98	29.92	SSE	14.1	31.6	18.44	62.1	61.5	68	56
17	75	60	67.8	63.7	0	2	96	72	87	0.03	28.82	29.75	SSE	11.7	28.1	8.21	63.9	64.6	69	61
18	70	50	60.3	48.9	5	0	98	33	70	0.04	28.86	29.80	NNW	13.6	50.4	22.17	63.6	62.3	67	56
19	66	45	55.2	39.9	9	0	84	33	59	0.00	29.08	30.02	NW	11.2	29.8	25.82	61.4	57.5	64	51
20	77	41	60.3	45.1	6	0	91	35	61	0.00	29.05	29.99	SSE	7.1	22.4	28.05	62.4	59.8	70	50
21	80	51	67.3	53.9	0	0	94	42	65	0.00	28.96	29.90	SSE	12.7	34.7	26.97	64.7	64.0	73	55
22	75*	61*	67.9*	59.9*	0*	3*	88*	62*	76*	0.00*	29.06*	30.00*	S *	9.6*	23.9*	NA	65.7*	66.2*	72*	61*
23	75	60	67.3	62.2	0	3	96	65	84	0.07	29.04	29.98	S	7.3	20.9	14.37	67.0	68.5	74	64
24	66	56	60.5	58.4	4	0	99	79	93	0.00	28.94	29.88	NE	4.4	14.5	7.34	65.4	64.5	68	62
25	80	55	67.2	54.5	0	3	100	35	68	0.00	28.92	29.86	NNW	8.0	21.9	26.58	66.8	68.9	80	60
26	76	47	63.0	46.3	4	0	93	27	59	0.00	29.16	30.10	SSE	5.2	14.8	27.46	67.3	70.1	83	58
27	81	52	67.1	57.0	0	1	94	46	71	0.00	28.92	29.86	SSW	7.9	25.2	15.64	66.9	69.0	78	62
28	81	57	69.2	56.3	0	4	82	43	64	0.00	28.93	29.87	SSE	12.9	30.6	24.46	68.6	72.7	83	64
29	78	64	70.3	63.1	0	6	94	63	78	0.00	28.97	29.91	S	11.3	30.0	16.76	69.3	72.5	79	66
30	77	61	70.7	67.7	0	4	99	79	90	3.33	28.94	29.87	SSE	12.4	37.6	6.41	69.2	71.2	74	67
	73*	50*	62.2*	50.6*	<- Monthly Averages ->						28.97*	29.91*	SSE*	9.8*	50.4*	19.18*	62.7*	63.5*	71*	57*

Temperature - Highest: 88*
Lowest: 32*

Degree Days - Total HDD: 140*
Total CDD: 43*

Rainfall: Monthly Total: 5.80* in.
Greatest 24 Hr: 3.33* in.

Humidity - Highest: 100*
Lowest: 24*

Number of Days With:
Tmax ≥ 90: 0*
Tmax ≤ 32: 0*
Tmin ≤ 32: 1*
Tmin ≤ 0: 0*
Rainfall ≥ 0.01 inch: 9*
Rainfall ≥ 0.10 inch: 3*
Avg Wind Speed ≥ 10 mph: 13*
Max Wind Speed ≥ 30 mph: 10*

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* Denotes incomplete record

Monthly data generated on Thursday, June 20, 2019 at 18:51 UTC

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MESONET CLIMATOLOGICAL DATA SUMMARY
(TISH) Tishomingo
Latitude: 34-19-57

May 2019
Nearest City: 6.0 N Tishomingo
Longitude: 96-40-44

Time Zone: Midnight-Midnight CST
County: Johnston
Elevation: 879 feet

DAY	TEMPERATURE (F) MAX	MIN	AVG	DEWPT	DEG DAYS HDD	CDD	HUMIDITY (%) MAX	MIN	AVG	RAIN (in)	PRESSURE (in) STN	MSL	WIND SPEED (mph) DIR	AVG	MAX	SOLAR (MJ/m2)	4" SOIL TEMPERATURES SOD	BARE	MAX	MIN
1	69	60	64.0	62.1	0	0	99	84	94	1.97	28.99	29.93	SE	9.7	34.0	5.86	66.8	67.2	70	65
2	73	58	64.8	60.3	0	0	98	65	86	0.16	29.04	29.98	NE	7.7	27.8	16.90	67.1	67.7	75	63
3	78	58	64.3	59.9	0	3	100	52	87	0.10	29.00	29.94	NE	8.1	27.0	17.08	68.9	68.9	76	64
4	67	51	61.2	56.5	6	0	99	66	86	0.00	28.99	29.93	N	7.1	19.5	16.38	68.0	66.7	71	62
5	79	49	65.5	58.7	1	0	100	57	81	0.00	28.95	29.89	SSE	4.9	16.7	23.82	68.7	67.3	76	58
6	82	63	72.1	63.0	0	7	96	47	75	0.00	28.98	29.92	SSE	8.8	24.3	24.85	72.2	70.9	77	66
7	83	61	71.7	65.9	0	7	100	60	83	0.00	28.99	29.93	SSE	8.4	24.1	20.98	72.8	71.0	79	65
8	71	58	63.8	61.7	0	0	100	83	93	1.51	28.81	29.74	SE	8.2	35.5	6.34	70.4	68.2	71	66
9	62	49	56.6	52.1	10	0	100	73	85	0.00	29.00	29.94	N	11.3	27.0	8.32	67.2	64.1	66	58
10	62	45	53.7	45.9	12	0	98	62	76	0.18	29.12	30.06	NE	10.6	28.4	13.96	64.0	58.6	63	53
11	61	53	56.0	53.8	8	0	100	79	93	0.14	28.98	29.92	NNE	5.3	16.7	6.99	64.1	60.7	64	58
12	76	49	62.3	52.1	2	0	99	35	74	0.00	28.94	29.88	NW	5.1	18.8	28.96	67.8	65.5	74	57
13	80	49	65.6	56.3	1	0	99	47	75	0.00	28.99	29.93	SSW	5.4	17.4	27.01	69.6	67.3	76	58
14	82	54	69.4	59.0	0	3	99	45	72	0.00	29.03	29.97	S	6.1	19.4	29.07	71.6	69.9	79	61
15	84	56	71.4	62.5	0	5	99	50	76	0.00	29.04	29.98	S	6.4	20.0	28.84	73.6	71.9	81	63
16	84	58	72.5	62.8	0	6	99	50	73	0.00	29.01	29.95	SSE	8.1	23.3	27.44	74.6	72.4	80	65
17	82	64	74.1	65.6	0	8	91	60	76	0.00	28.87	29.81	SSE	12.0	25.9	23.66	74.7	72.6	79	66
18	74	62	67.7	66.0	0	3	100	80	95	1.73	28.75	29.69	SSE	10.1	26.4	1.59	71.6	69.1	72	67
19	78	57	68.3	58.9	0	2	100	50	74	0.01	28.93	29.87	ENE	6.5	22.2	30.13	72.9	72.3	82	64
20	83	63	73.2	67.2	0	8	95	71	82	0.00	28.82	29.76	SSE	11.9	33.0	8.65	72.6	70.4	75	66
21	77	61	69.6	59.3	0	4	100	34	73	0.73	28.66	29.59	SSW	10.7	30.6	19.02	72.7	71.5	77	68
22	86*	60*	73.7*	67.5*	0*	8*	94*	65*	82*	0.00*	28.82*	29.75*	SSE*	10.8*	26.4*	NA	72.4*	70.7*	77*	64*
23	86	73	78.8	70.9	0	15	95	56	78	0.00	29.02	29.96	SSE	11.8	29.6	21.60	75.7	75.2	81	71
24	86	72	78.4	70.3	0	14	92	59	77	0.00	29.04	29.98	SSE	12.7	30.2	23.01	77.2	76.1	81	72
25	86	65	76.2	67.7	0	10	99	57	77	0.03	29.07	30.01	SSE	9.9	24.2	26.81	77.9	76.0	83	70
26	84	71	76.5	68.8	0	12	96	60	78	0.00	29.07	30.01	SSE	9.1	25.1	19.82	78.1	76.0	82	71
27	85	72	77.3	68.0	0	13	88	57	74	0.00	28.92	29.86	SSE	13.0	27.7	24.88	78.3	77.0	85	71
28	83	70	76.2	69.7	0	12	93	65	81	0.00	28.79	29.72	S	11.9	32.7	14.65	77.1	75.8	81	72
29	77	62	69.7	68.1	0	5	99	86	95	0.39	28.84	29.78	NNE	7.2	24.9	3.29	75.2	72.3	75	68
30	81	58	69.6	60.3	0	5	100	41	76	0.00	29.02	29.96	NNW	4.8	17.7	29.96	76.2	73.3	82	65
31	85	58	72.1	61.1	0	6	98	39	72	0.00	29.05	29.99	S	3.3	11.9	29.44	77.4	76.4	88	67
	78*	59*	68.9*	62.0*	<- Monthly Averages ->						28.95*	29.89*	SSE*	8.6*	35.5*	19.31*	72.2*	70.4*	77*	65*

Temperature - Highest: 86*
Lowest: 45*

Degree Days - Total HDD: 41*
Total CDD: 156*

Rainfall: Monthly Total: 6.95* in.
Greatest 24 Hr: 1.97* in.

Humidity - Highest: 100*
Lowest: 34*

Number of Days With:
Tmax ≥ 90: 0*
Tmax ≤ 32: 0*
Tmin ≤ 32: 0*
Tmin ≤ 0: 0*
Rainfall ≥ 0.01 inch: 11*
Rainfall ≥ 0.10 inch: 9*
Avg Wind Speed ≥ 10 mph: 11*
Max Wind Speed ≥ 30 mph: 6*

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* Denotes incomplete record

Monthly data generated on Friday, June 21, 2019 at 14:46 UTC

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MESONET CLIMATOLOGICAL DATA SUMMARY
(TISH) Tishomingo
Latitude: 34-19-57

June 2019
Nearest City: 6.0 N Tishomingo
Longitude: 96-40-44

Time Zone: Midnight-Midnight CST
County: Johnston
Elevation: 879 feet

DAY	TEMPERATURE (F) MAX	MIN	AVG	DEWPT	DEG DAYS HDD	CDD	HUMIDITY (%) MAX	MIN	AVG	RAIN (in)	PRESSURE (in) STN	MSL	WIND SPEED (mph) DIR	AVG	MAX	SOLAR (MJ/m2)	4" SOIL TEMPERATURES SOD	BARE	MAX	MIN
1	88	60	72.0	66.3	0	9	100	49	84	0.20	29.01	29.95	SW	3.7	38.8	23.85	77.9	77.5	91	69
2	82	66	73.7	67.4	0	9	100	56	83	0.00	29.00	29.94	S	3.9	15.2	18.26	77.9	76.3	82	71
3	85	68	74.1	71.0	0	12	99	72	90	0.56	29.01	29.95	E	5.6	41.8	15.68	77.9	76.7	83	72
4	81	67	72.0	70.0	0	9	100	72	94	0.36	29.00	29.94	SE	4.8	29.0	9.36	76.1	73.8	79	71
5	82	68	72.8	71.6	0	10	100	77	96	0.60	28.93	29.87	SSE	3.8	19.5	9.42	76.0	75.1	80	71
6	81	64	70.3	68.4	0	7	100	68	94	0.69	28.83	29.76	E	4.8	26.2	15.06	76.4	75.7	83	72
7	84	63	72.7	67.3	0	9	100	60	85	0.00	28.84	29.77	NNW	7.2	21.6	18.99	76.3	74.8	81	69
8	86	65	75.9	67.6	0	11	99	51	78	0.00	28.90	29.84	NNE	4.6	14.6	29.89	78.8	78.4	88	69
9	83	66	73.8	67.4	0	9	99	57	82	0.74	29.05	29.99	N	8.1	31.6	16.35	77.8	76.5	82	72
10	78	58	68.4	54.1	0	3	95	38	63	0.00	29.31	30.26	NNE	12.2	30.2	29.05	77.4	72.9	79	68
11	79	55	67.2	56.1	0	2	95	45	70	0.00	29.18	30.12	SSE	6.1	19.1	24.85	75.8	71.8	81	64
12	82	61	70.1	60.0	0	6	99	41	74	0.17	29.09	30.03	NNW	8.9	26.6	29.43	77.7	73.4	81	67
13	81	57	69.9	54.7	0	4	92	37	62	0.00	29.16	30.10	E	4.8	12.3	30.03	77.2	74.2	84	64
14	88	62	74.9	64.2	0	10	85	54	70	0.00	28.99	29.93	SSE	10.5	29.4	20.75	76.8	74.1	82	68
15	90	72	80.1	70.8	0	16	86	58	74	0.00	28.88	29.82	SSE	11.4	31.6	21.76	79.0	77.9	86	72
16	72	64	67.5	65.9	0	3	100	73	95	1.12	28.93	29.87	SE	5.4	27.7	5.28	76.3	73.3	77	71
17	85	66	73.7	67.1	0	10	100	53	82	0.00	28.96	29.90	NW	4.7	14.8	24.40	77.4	76.4	85	70
18	89	65	77.4	68.4	0	12	100	47	76	0.00	28.94	29.88	SE	4.1	15.0	26.48	79.1	79.2	88	71
19	88	64	77.0	69.1	0	11	100	58	78	0.82	28.83	29.76	SSW	6.3	47.7	26.08	80.1	80.7	89	72
20	93	65	80.9	73.5	0	14	100	59	80	0.00	28.82	29.76	SSE	8.6	21.2	28.47	81.5	81.9	90	73
21	93	79	84.7	75.5	0	21	95	53	75	0.00	28.85	29.78	S	14.9	32.7	27.18	83.4	82.8	88	79
22	92	78	82.3	74.3	0	20	92	56	78	0.00	28.92	29.85	S	12.6	29.0	19.95	83.1	81.4	87	77
23	91	66	77.7	72.4	0	14	100	64	85	0.64	28.86	29.79	S	12.7	35.5	13.76	81.6	79.2	86	75
24	86*	64*	74.2*	67.6*	0*	10*	100*	49*	82*	0.00*	28.96*	29.90*	ESE*	3.8*	12.3*	NA	80.9*	78.9*	88*	71*
25	90	69	78.7	71.2	0	15	100	54	80	0.00	29.02	29.96	SSE	7.7	19.5	27.23	82.5	80.1	87	74
26	89	68	79.1	70.7	0	14	100	53	77	0.00	29.14	30.09	S	8.3	19.9	27.28	82.5	80.0	87	73
27	89	68	78.9	71.6	0	14	99	59	80	0.00	29.19	30.14	SSE	7.0	17.3	26.61	83.0	81.1	90	73
28	91	71	81.0	71.7	0	16	100	50	76	0.00	29.15	30.10	SSW	6.2	18.6	28.80	84.0	84.1	95	75
29	93	69	80.5	72.0	0	16	100	42	79	0.00	29.11	30.06	ESE	4.0	19.2	30.02	85.2	87.3	100	77
30	88	71	77.8	70.7	0	14	100	54	81	0.00	29.09	30.03	ESE	5.5	19.5	22.25	84.8	86.2	96	79
	86*	66*	75.3*	67.9*	<- Monthly Averages ->						29.00*	29.94*	SSE*	7.1*	47.7*	22.29*	79.5*	78.1*	86*	72*

Temperature - Highest: 93*
Lowest: 55*

Degree Days - Total HDD: 0*
Total CDD: 328*

Rainfall: Monthly Total: 5.90* in.
Greatest 24 Hr: 1.12* in.

Humidity - Highest: 100*
Lowest: 37*

Number of Days With:
Tmax ≥ 90: 8*
Tmax ≤ 32: 0*
Tmin ≤ 32: 0*
Tmin ≤ 0: 0*
Rainfall ≥ 0.01 inch: 10*
Rainfall ≥ 0.10 inch: 10*
Avg Wind Speed ≥ 10 mph: 6*
Max Wind Speed ≥ 30 mph: 8*

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* Denotes incomplete record

Monthly data generated on Monday, July 01, 2019 at 14:46 UTC

Date	Reference ET, Short [in]	Reference ET, Tall [in]	Cool Season Grass ET [in]	Warm Season Grass ET [in]	Pan Evaporation [in]
2019-06-30	0.19	0.22	0.18	0.12	0.23
2019-06-29	0.25	0.27	0.23	0.15	0.30
2019-06-28	0.24	0.28	0.23	0.15	0.30
2019-06-27	0.22	0.25	0.20	0.14	0.27
2019-06-26	0.23	0.28	0.22	0.14	0.29
2019-06-25	0.23	0.27	0.22	0.14	0.29
2019-06-24	0.21	0.23	0.19	0.13	0.25
2019-06-23	0.16	0.21	0.15	0.10	0.21
2019-06-22	0.23	0.30	0.21	0.14	0.31
2019-06-21	0.29	0.37	0.27	0.18	0.39
2019-06-20	0.24	0.28	0.22	0.15	0.30
2019-06-19	0.21	0.24	0.20	0.13	0.26
2019-06-18	0.21	0.23	0.20	0.13	0.25
2019-06-17	0.19	0.22	0.18	0.12	0.23
2019-06-16	0.07	0.09	0.07	0.04	0.09
2019-06-15	0.23	0.29	0.21	0.14	0.30
2019-06-14	0.22	0.28	0.20	0.13	0.28
2019-06-13	0.22	0.25	0.20	0.13	0.27
2019-06-12	0.23	0.28	0.21	0.14	0.29
2019-06-11	0.18	0.22	0.17	0.11	0.23
2019-06-10	0.24	0.31	0.22	0.15	0.33
2019-06-09	0.15	0.18	0.14	0.09	0.18
2019-06-08	0.23	0.25	0.21	0.14	0.28
2019-06-07	0.16	0.19	0.15	0.10	0.20
2019-06-06	0.12	0.14	0.11	0.08	0.15
2019-06-05	0.09	0.10	0.08	0.05	0.10
2019-06-04	0.09	0.10	0.08	0.06	0.11
2019-06-03	0.14	0.16	0.13	0.09	0.17
2019-06-02	0.15	0.16	0.14	0.09	0.17
2019-06-01	0.19	0.20	0.17	0.12	0.22
2019-05-31	0.21	0.23	0.20	0.13	0.25
2019-05-30	0.21	0.24	0.20	0.13	0.26
2019-05-29	0.04	0.05	0.04	0.03	0.05
2019-05-28	0.15	0.20	0.14	0.09	0.20
2019-05-27	0.23	0.30	0.22	0.14	0.31
2019-05-26	0.18	0.22	0.17	0.11	0.23
2019-05-25	0.22	0.26	0.20	0.14	0.28
2019-05-24	0.21	0.27	0.20	0.13	0.29
2019-05-23	0.21	0.26	0.19	0.13	0.27
2019-05-22	0.15	0.19	0.14	0.09	0.19
2019-05-21	0.17	0.22	0.16	0.10	0.22
2019-05-20	0.12	0.16	0.11	0.07	0.15
2019-05-19	0.21	0.24	0.19	0.13	0.25
2019-05-18	0.04	0.06	0.04	0.03	0.05
2019-05-17	0.20	0.24	0.18	0.12	0.26
2019-05-16	0.21	0.25	0.20	0.13	0.27
2019-05-15	0.21	0.24	0.19	0.13	0.26
2019-05-14	0.21	0.24	0.19	0.13	0.26
2019-05-13	0.18	0.21	0.17	0.11	0.22

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2019-05-12	0.19	0.22	0.18	0.12	0.23
2019-05-11	0.06	0.06	0.05	0.04	0.07
2019-05-10	0.11	0.14	0.10	0.07	0.14
2019-05-09	0.06	0.08	0.06	0.04	0.08
2019-05-08	0.07	0.08	0.06	0.04	0.08
2019-05-07	0.17	0.20	0.16	0.10	0.21
2019-05-06	0.20	0.25	0.19	0.13	0.26
2019-05-05	0.16	0.18	0.15	0.10	0.19
2019-05-04	0.10	0.11	0.09	0.06	0.13
2019-05-03	0.15	0.19	0.14	0.09	0.19
2019-05-02	0.12	0.14	0.11	0.08	0.15
2019-05-01	0.06	0.07	0.05	0.04	0.07
2019-04-30	0.06	0.07	0.05	0.04	0.08
2019-04-29	0.15	0.20	0.14	0.10	0.20
2019-04-28	0.23	0.31	0.21	0.14	0.32
2019-04-27	0.15	0.19	0.14	0.09	0.19
2019-04-26	0.19	0.23	0.17	0.11	0.24
2019-04-25	0.21	0.26	0.19	0.13	0.27
2019-04-24	0.06	0.07	0.06	0.04	0.07
2019-04-23	0.12	0.14	0.11	0.07	0.14
2019-04-22	0.14	0.18	0.13	0.08	0.18
2019-04-21	0.22	0.30	0.21	0.14	0.30
2019-04-20	0.19	0.25	0.18	0.12	0.25
2019-04-19	0.19	0.25	0.17	0.12	0.26
2019-04-18	0.17	0.23	0.16	0.10	0.24
2019-04-17	0.08	0.11	0.08	0.05	0.11
2019-04-16	0.17	0.23	0.16	0.11	0.23
2019-04-15	0.23	0.32	0.21	0.14	0.32
2019-04-14	0.17	0.23	0.16	0.11	0.23
2019-04-13	0.06	0.09	0.05	0.04	0.09
2019-04-12	0.17	0.24	0.16	0.11	0.24
2019-04-11	0.21	0.30	0.19	0.13	0.30
2019-04-10	0.31	0.47	0.29	0.19	0.49
2019-04-09	0.23	0.30	0.21	0.14	0.30
2019-04-08	0.21	0.28	0.20	0.13	0.28
2019-04-07	0.07	0.08	0.07	0.04	0.09
2019-04-06	0.07	0.08	0.06	0.04	0.08
2019-04-05	0.15	0.17	0.14	0.09	0.18
2019-04-04	0.10	0.12	0.09	0.06	0.12
2019-04-03	0.14	0.20	0.13	0.09	0.20
2019-04-02	0.16	0.22	0.15	0.10	0.21
2019-04-01	0.12	0.16	0.11	0.07	0.15
2019-03-31	0.12	0.17	0.12	0.08	0.17
2019-03-30	0.13	0.19	0.12	0.08	0.18
2019-03-29	0.11	0.15	0.10	0.07	0.15
2019-03-28	0.17	0.24	0.16	0.11	0.24
2019-03-27	0.16	0.22	0.15	0.10	0.21
2019-03-26	0.13	0.16	0.12	0.08	0.17
2019-03-25	0.15	0.19	0.14	0.09	0.19

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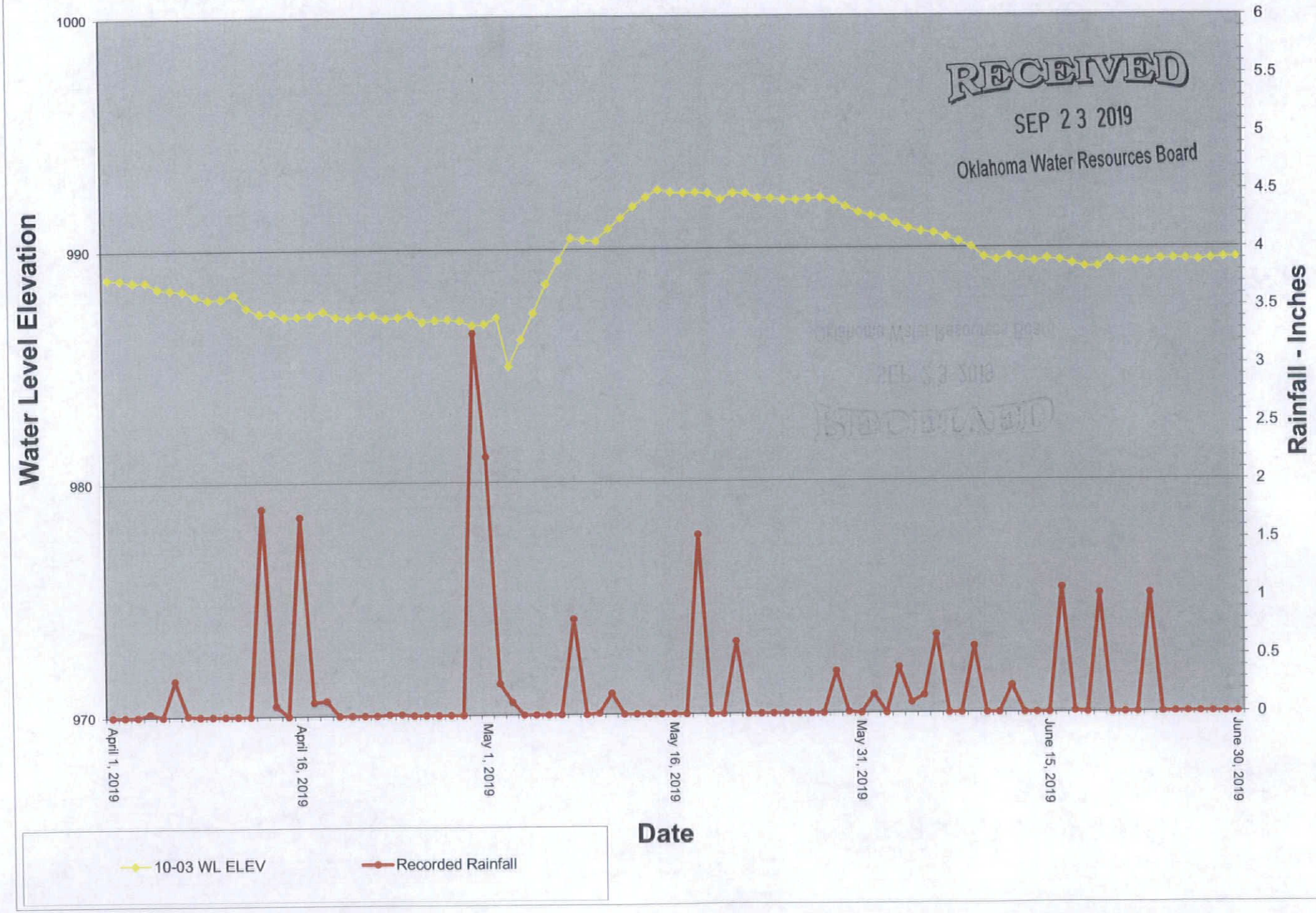
Mill Creek Water Levels 2nd Quarter 2019



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