Robin L. Simmons
Regional Land Manager

August 25, 2017

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

Re: Martin Marietta/TXI Mill Creek Limestone Quarry Monitoring Report Q2 2017

Dear Mr. Wilkins:

Attached please find the Q2 2017 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.

Please call if you have any questions or comments.

Sincerely,

Robin L. Simmons, EIT
Regional Land Manager

North Texas/Oklahoma District
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www.martinmarietta.com

Cogburn, Matt

From: Robin Simmons [Robin.Simmons@martinmarietta.com]
Sent: Friday, August 25, 2017 3:43 PM
To: Wilkins, Kent; Mackey, Anthony; Cogburn, Matt
Cc: Ron Kopplin; Johnny Parker
Subject: 2017 Q2 MM (TXI) Mill Creek Limestone Monitoring Report
Attachments: 2017 SSWMCP Q2 Report.pdf

Attached please find the Q2 2017 Water Monitoring Report and associated data and calculations for Martin Marietta (TXI) Mill Creek Limestone Quarry.

Robin Simmons
Regional Land Manager

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ATTACHMENT 1 (Appendix C)

Martin Marietta (TXI) Mill Creek 2017

Appendix C . Consumptive use of Pitwater

			Q1 2017	Q2 2017
PIT GROUNDWATER VOLUME				
1	Total volume pumped from producing mine pit(s) (AC-FT)		365.76	496.78
2	Volume of precipitation that falls onto the surface of producing Mine Pits (AC-FT)		53.05	124.09
3	Portion of total precipitation that flows over the land surface that drains into the mine pit water (AC-FT)		19.89	49 69
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		72.94	173.78
6	**Pit Groundwater Volume (AC-FT)** (line 1 minus Line 5)		**292.82**	**323.00**
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	0.00
8	Vol. of pit groundwater that is carried away with the the mined material transp. off of the mine site (AC-FT)		1 07	3.68
9	Vol. of pit groundwater that evaporates from producing mine pits, process ponds and lined ponds (excluding structures used for augmentation) (AC-FT)		0.81	2.48
10	Volume of pit groundwater that is used for other beneficial uses off of the mine site (AC-FT) (includes on-site dust control)		4.09	5.28
11	**DEFINED ELEMENTS OF CONSUMPTIVE USE** of Pit groundwater (AC-FT) (add lines 7 through 10)		**5.97**	**11.44**
PIT GROUNDWATER BALANCE				
12	Lines 6 minus 11		286.85	311.56
13	**Groundwater Augmentation** Volume of pit groundwater returned to GW Basin or subbasin. (Troy Recharge AC-FT)	**Credits**	7.49	45.67
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)		241.18	0.00
15	**PPT and Runoff** Volume of Precipitation and surface runoff into a recharge pit or holding pond (AC-FT)		46.55	112.42
16	**Recycled Pit Groundwater** - Volume of ground water returned to the mine pit or holding basin (AC-FT)		96.43	260.14
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)		0.00	0.00
18	add lines 13 through 17		391.65	418.23
19	**OTHER CONSUMPTIVE USE** Line 12 minus Line 18		-104.80	-106.67
TOTAL REPORTED CONSUMPTIVE USE (AC-FT)				
	TOTAL NET CONSUMPTIVE USE (AC-FT) Line 11 plus line 19		-98.83	-95.23

RESULTS FROM RUNOFF MODELLING

2017	PPT.	Quarry Monthly Totals				FW Pond Monthly Totals		Re-cycle Recharge (Trov) 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	3 40	0 057	34 537	16 111	50.70	5 30	18 05	11.19	22 93	16.55	91.63
February	2 12	0 035	15 391	3 544	18 97	3 30	1 04	6 98	2 83	10.32	22.81
March	0 80	0 013	3.007	0 244	3 26	1 25	0 00	2 63	0.04	3.89	3.29
Q1 Subtotal		**0.11**	**52.93**	**19.90**	**72.94**	**9.85**	**19.10**	**20.80**	**25.81**	**30.76**	**117.74**
April	3 69	0 062	22 325	3 755	26.14	5 75	0 38	12.15	2.09	17.96	28.55
May	8 45	0 141	91 645	42 711	134 50	13 17	51 67	27.81	62.32	41.12	248.34
June	1 44	0.024	9 889	3 226	13 14	2 24	1 71	4 74	3.31	7.01	18.13
Q2 Subtotal	13.58	**0.23**	**123.86**	**49.69**	**173.78**	**21.16**	**53.75**	**44.70**	**67.72**	**66.09**	**295.02**

Water Volume Movements		January	February	March	April	May	June
Pumped from Pit	(Ac-Ft)	132 9	117 2	115 7	140.2	161 7	194 8
Groundwater Component of Pitwater		82 2	98 2	112 4	114.1	27.2	181 7
Quarry dust suppression		2 8	0 9	1 5	0.7	0 4	4 9
Q- freshwater pond	(Ac-Ft)	23 3	-18 1	114 1	139 6	161 3	189 9
To Secondary FM7	(Ac-Ft)	398 3	471 9	547.4	477.4	545 6	579 0
To sand Plant FM8	(Ac-Ft)	79 8	85 0	102 5	88.4	94 8	104 3
to loadout FM6	(Ac-Ft)	322 5	332 9	395 2	349 5	367 6	474 4
to dust control FM9	(Ac-Ft)	0 9	0 9	0 9	0 6	0 1	0.0
to Plant FM7+FM8+FM6	(Ac-Ft)	800 6	889 8	1045 1	915.3	1008 0	1157 7
to stream Augmentation	Ac-ft	106.78	134 40	0.00	0.00	0 00	0.00
To Troy FM3	(Ac-Ft)	805 8	903 7	1046 9	918 1	1025 8	1157 1
From Troy to Freshwater Pond FM4	+	788 3	900 9	947 5	773 6	797.5	970.8

Quarter Summary	1st QTR
Total Tons Shipped	1,480,000
Total Acre Feet	29 58
Average Moisture %	2 72%

```
# ---------------------------------- WARNING ----------------------------------------
# Some of the data that you have obtained from this U.S. Geological Survey database
# may not have received Director's approval. Any such data values are qualified
# as provisional and are subject to revision. Provisional data are released on the
# condition that neither the USGS nor the United States Government may be held liable
# for any damages resulting from its use.
#
# 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: 2017-06-12 09:57:23 EDT       (nadww02)
#
# 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.
#     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        2017-04-01      7.54    A
USGS    07331200        2017-04-02      15.0    A
USGS    07331200        2017-04-03      10.8    A
USGS    07331200        2017-04-04      8.99    P
USGS    07331200        2017-04-05      7.94    P
USGS    07331200        2017-04-06      6.75    P
USGS    07331200        2017-04-07      5.98    P
USGS    07331200        2017-04-08      5.22    P
USGS    07331200        2017-04-09      4.53    P
USGS    07331200        2017-04-10      4.49    P
USGS    07331200        2017-04-11      4.26    P
USGS    07331200        2017-04-12      3.45    P
USGS    07331200        2017-04-13      2.72    P
USGS    07331200        2017-04-14      2.32    P
USGS    07331200        2017-04-15      2.03    P
USGS    07331200        2017-04-16      1.96    P
USGS    07331200        2017-04-17      2.84    P
USGS    07331200        2017-04-18      2.71    P
USGS    07331200        2017-04-19      2.36    P
USGS    07331200        2017-04-20      1.86    P
USGS    07331200        2017-04-21      1.86    P
USGS    07331200        2017-04-22      1.86    P
USGS    07331200        2017-04-23      1.68    P
USGS    07331200        2017-04-24      1.67    P
USGS    07331200        2017-04-25      1.71    P
USGS    07331200        2017-04-26      1.93    P
USGS    07331200        2017-04-27      1.71    P
USGS    07331200        2017-04-28      2.00    P
USGS    07331200        2017-04-29      2.27    P
USGS    07331200        2017-04-30      2.23    P
```

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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: 2017-06-12 09:57:56 EDT       (nadww02)
#
# 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:
#     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        2017-05-01      2.02    P
USGS    07331200        2017-05-02      1.90    P
USGS    07331200        2017-05-03      2.03    P
USGS    07331200        2017-05-04      2.34    P
USGS    07331200        2017-05-05      2.42    P
USGS    07331200        2017-05-06      2.61    P
USGS    07331200        2017-05-07      2.80    P
USGS    07331200        2017-05-08      3.18    P
USGS    07331200        2017-05-09      2.59    P
USGS    07331200        2017-05-10      1.58    P
USGS    07331200        2017-05-11      1.70    P
USGS    07331200        2017-05-12      1.70    P
USGS    07331200        2017-05-13      1.63    P
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USGS    07331200        2017-05-22      192     P
USGS    07331200        2017-05-23      146     P
USGS    07331200        2017-05-24      101     P
USGS    07331200        2017-05-25      132     P
USGS    07331200        2017-05-26      110     P
USGS    07331200        2017-05-27      134     P
USGS    07331200        2017-05-28      506     P
USGS    07331200        2017-05-29      148     P
USGS    07331200        2017-05-30      102     P
USGS    07331200        2017-05-31      80.2    P
```

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# Automated-retrieval info: https://help.waterdata.usgs.gov/faq/automated-retrievals
#
# Contact:   gs-w_support_nwisweb@usgs.gov
# retrieved: 2017-08-25 09:49:57 EDT       (nadww02)
#
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# -----------------------------------------------------------------------------------
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#            TS   parameter     statistic     Description
#        111780       00060     00003     Discharge, cubic feet per second (Mean)
#
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#
agency_cd       site_no datetime        111780_00060_00003      111780_00060_00003_cd
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USGS    07331200        2017-06-01      150     P
USGS    07331200        2017-06-02      130     P
USGS    07331200        2017-06-03      126     P
USGS    07331200        2017-06-04      92.9    P
USGS    07331200        2017-06-05      79.6    P
USGS    07331200        2017-06-06      35.1    P
USGS    07331200        2017-06-07      18.6    P
USGS    07331200        2017-06-08      13.5    P
USGS    07331200        2017-06-09      14.5    P
USGS    07331200        2017-06-10      15.3    P
USGS    07331200        2017-06-11      13.2    P
USGS    07331200        2017-06-12      15.5    P
USGS    07331200        2017-06-13      9.80    P
USGS    07331200        2017-06-14      17.1    P
USGS    07331200        2017-06-15      16.4    P
USGS    07331200        2017-06-16      10.6    P
USGS    07331200        2017-06-17      10.2    P
USGS    07331200        2017-06-18      10.5    P
USGS    07331200        2017-06-19      18.9    P
USGS    07331200        2017-06-20      14.1    P
USGS    07331200        2017-06-21      9.49    P
USGS    07331200        2017-06-22      19.5    P
USGS    07331200        2017-06-23      30.9    P
USGS    07331200        2017-06-24      14.7    P
USGS    07331200        2017-06-25      6.47    P
USGS    07331200        2017-06-26      9.27    P
USGS    07331200        2017-06-27      8.72    P
USGS    07331200        2017-06-28      10.4    P
USGS    07331200        2017-06-29      13.8    P
USGS    07331200        2017-06-30      11.1    P
```

Date	Daily Rainfall Total	Total Daily Evaporation
4/1/2017	0.17	0.568
4/2/2017	1.11	0.938
4/3/2017	0	0.063
4/4/2017	0	0.084
4/5/2017	0	0.179
4/6/2017	0	0.571
4/7/2017	0	0.685
4/8/2017	0	0.976
4/9/2017	0	0.478
4/10/2017	0	0.382
4/11/2017	0	0.914
4/12/2017	0	0.58
4/13/2017	0	0.41
4/14/2017	0	0.171
4/15/2017	0	0.443
4/16/2017	0	0.035
4/17/2017	0.63	0.112
4/18/2017	0.01	0.168
4/19/2017	0	0.082
4/20/2017	0	0.169
4/21/2017	0.98	0.284
4/22/2017	0	0.571
4/23/2017	0	0.285
4/24/2017	0	0.202
4/25/2017	0	0.18
4/26/2017	0.24	0.541
4/27/2017	0	0.377
4/28/2017	0	0.338
4/29/2017	0.55	0.621
4/30/2017	0	0.243
5/1/2017	0	0.279
5/2/2017	0	0.188
5/3/2017	0	0.211
5/4/2017	0	0.215
5/5/2017	0	0.261
5/6/2017	0	0.266
5/7/2017	0	0.269
5/8/2017	0	0.372
5/9/2017	0	0.337
5/10/2017	0.32	0.423
5/11/2017	0.02	0.455
5/12/2017	0.03	0.426
5/13/2017	0	0.256
5/14/2017	0	0.334
5/15/2017	0	0.369
5/16/2017	0	0.232

5/17/2017	0.4	0.247
5/18/2017	2.76	0.682
5/19/2017	3.27	0.107
5/20/2017	0.04	0 044
5/21/2017	0	0.002
5/22/2017	0	0.001
5/23/2017	0	0.006
5/24/2017	0	0.003
5/25/2017	0	0
5/26/2017	0	0.272
5/27/2017	1.07	0.579
5/28/2017	0.54	0.121
5/29/2017	0	0.274
5/30/2017	0	0.33
5/31/2017	0	0.329
6/1/2017	0.83	0.069
6/2/2017	0.03	0.039
6/3/2017	0.15	0.07
6/4/2017	0.06	0.075
6/5/2017	0.01	0.092
6/6/2017	0	0.314
6/7/2017	0	0.304
6/8/2017	0.01	0.264
6/9/2017	0	0.224
6/10/2017	0	0.312
6/11/2017	0	0.283
6/12/2017	0	0.273
6/13/2017	0	0.118
6/14/2017	0	0.012
6/15/2017	0	0.02
6/16/2017		0.022
6/17/2017		0.008
6/18/2017		0.013
6/19/2017		0.136
6/20/2017		0.237
6/21/2017		0.021
6/22/2017		0.011
6/23/2017		0.019
6/24/2017		0.041
6/25/2017		0.013
6/26/2017		0.012
6/27/2017		0.011
6/28/2017		0.009
6/29/2017		0.03
6/30/2017		0.017

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

April 2017
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	77	49	63.3	53.3	2	0	96	40	73	0.19	28.97	29.91	SE	9.1	28.0	18.28	64.1	63.0	72	55
2	64	57	59.6	57.7	4	0	99	80	94	0.62	28.86	29.79	ENE	6.8	25.1	6.17	63.0	61.6	65	60
3	75	51	61.7	52.4	2	0	99	40	75	0.00	28.72	29.65	WSW	6.3	25.1	25.55	65.3	64.5	73	57
4	81	49	64.3	51.5	0	0	97	36	67	0.02	28.71	29.64	W	11.3	33.4	17.24	65.3	62.7	69	58
5	67	45	55.3	37.2	9	0	82	28	54	0.00	29.02	29.96	NW	15.5	42.0	22.93	61.9	58.3	64	54
6	71	39	56.4	36.3	10	0	85	25	51	0.00	29.23	30.18	NW	5.8	17.8	26.76	61.8	59.0	70	49
7	74	42	59.6	42.5	7	0	90	35	55	0.00	29.20	30.15	SSE	8.1	24.0	26.04	63.1	61.2	72	51
8	80	53	67.2	56.1	0	1	86	50	69	0.00	28.93	29.87	S	15.2	37.9	25.74	65.3	65.4	75	56
9	80	63	70.9	61.0	0	7	86	54	72	0.00	28.85	29.79	S	17.0	35.3	21.49	67.5	69.1	77	63
10	74*	55*	67.0*	54.0*	0*	0*	87*	37*	65*	0.00*	29.05*	29.99*	N *	9.8*	33.5*	NA	66.9*	68.0*	72*	63*
11	75	52	62.9	46.9	2	0	99	40	58	0.00	29.22	30.17	NNE	9.9	25.3	26.03	65.0	66.9	78	57
12	71	56	63.4	59.3	1	0	100	65	88	0.00	29.25	30.20	ESE	5.8	20.7	12.32	65.9	67.6	73	64
13	78	54	67.6	60.2	0	1	100	55	79	0.00	29.19	30.13	SSE	8.8	24.3	18.83	66.4	69.1	77	62
14	80	61	69.8	56.6	0	5	85	41	65	0.00	29.11	30.05	SSE	10.5	29.3	25.16	68.3	72.4	82	65
15	81	59	69.9	60.7	0	5	94	52	74	0.00	29.05	29.99	S	12.3	30.1	23.99	68.8	72.9	82	65
16	74	62	68.5	63.9	0	3	98	76	86	0.05	29.06	30.00	S	8.8	26.1	5.63	68.0	69.9	73	67
17	66	57	61.8	60.8	3	0	100	92	96	1.23	29.09	30.03	ENE	6.5	31.3	3.27	65.3	65.0	67	62
18	79	52	65.5	60.4	0	0	100	59	85	0.01	29.09	30.03	S	5.9	15.8	24.07	67.7	67.2	76	59
19	79	59	68.8	63.3	0	4	100	61	84	0.00	29.06	30.00	S	10.5	24.2	13.80	68.7	67.6	72	63
20	79	65	71.2	66.2	0	7	97	68	85	0.00	29.04	29.98	S	7.9	18.3	14.80	70.4	70.0	75	66
21	74	53	64.7	61.6	1	0	98	75	90	1.37	28.90	29.84	N	10.5	37.8	11.07	68.9	68.1	73	64
22	57	43	51.4	44.6	15	0	94	62	78	0.00	29.12	30.06	NNW	12.6	30.5	11.47	63.5	59.9	64	55
23	70	41	54.8	42.0	10	0	97	32	67	0.00	29.14	30.09	NW	7.1	25.1	29.55	63.6	59.4	69	50
24	74	38	59.2	46.3	9	0	98	40	66	0.00	28.87	29.81	SSE	9.7	28.7	28.29	65.0	60.5	69	51
25	81	57	70.1	60.8	0	4	88	58	73	0.00	28.54	29.46	S	13.5	31.0	24.23	67.9	65.5	74	57
26	74	42	55.0	50.9	7	0	99	66	87	0.81	28.67	29.60	NNW	10.3	28.2	9.09	66.1	63.5	68	57
27	70	40	57.0	47.7	10	0	100	49	74	0.00	28.77	29.70	SSE	8.4	27.4	26.15	64.5	60.1	68	52
28	79	60	69.5	63.3	0	4	93	64	81	0.00	28.67	29.60	ESE	6.7	17.2	14.61	67.8	65.6	73	59
29	76	50	66.1	63.0	2	0	98	81	90	1.28	28.65	29.58	S	13.0	35.1	9.39	69.5	68.8	73	62
30	58	44	50.3	38.4	14	0	94	44	66	0.00	28.78	29.71	WSW	17.6	49.1	18.23	63.8	60.0	65	53
	74*	52*	63.1*	54.0*	<- Monthly Averages ->						28.96*	29.90*	S *	10.0*	49.1*	18.63*	66.0*	65.1*	72*	59*

Temperature - Highest: 81*
Lowest: 38*

Degree Days - Total HDD: 110*
Total CDD: 42*

Number of Days With:
Tmax ≥ 90: 0*
Tmax ≤ 32: 0*
Tmin ≤ 32: 0*
Tmin ≤ 0: 0*
Rainfall ≥ 0.01 inch: 9*
Rainfall ≥ 0.10 inch: 6*
Avg Wind Speed ≥ 10 mph: 13*
Max Wind Speed ≥ 30 mph: 12*

Rainfall: Monthly Total: 5.58* in.
Greatest 24 Hr: 1.37* in.

Humidity - Highest: 100*
Lowest: 25*

* Denotes incomplete record

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

May 2017
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	75	38	56.9	40.9	8	0	96	28	60	0.00	28.98	29.92	W	7.4	27.3	29.88	63.4	59.1	70	48
2	82	45	66.1	53.6	2	0	97	42	67	0.00	28.97	29.91	SSE	7.1	24.1	28.84	67.5	64.7	75	54
3	69	50	60.7	51.8	5	0	91	51	73	0.01	28.92	29.86	NNW	12.4	33.7	13.62	67.7	63.2	68	57
4	70	45	57.1	43.5	8	0	85	35	62	0.00	29.09	30.03	NNW	12.0	32.6	25.83	64.8	59.3	67	52
5	75	46	60.8	45.7	5	0	96	35	62	0.00	29.07	30.01	NW	7.3	24.6	29.81	66.4	62.4	73	52
6	82	44	64.0	50.9	2	0	98	34	68	0.00	29.01	29.95	SW	4.1	14.4	29.65	68.8	67.1	80	55
7	82	49	67.9	53.5	0	1	99	34	64	0.00	29.01	29.95	SSE	6.5	21.3	30.06	71.3	70.6	82	59
8	80	56	68.9	57.7	0	3	96	42	70	0.00	29.05	29.99	SSE	8.0	24.6	29.66	72.7	72.6	84	62
9	82	62	71.6	62.6	0	7	92	50	75	0.00	29.03	29.97	SSE	8.0	22.1	25.57	74.2	75.1	86	67
10	76	66	70.5	67.1	0	6	98	72	89	0.48	28.97	29.91	SE	7.2	23.6	6.83	72.6	72.0	75	70
11	81	58	71.5	62.5	0	4	96	44	75	0.06	28.91	29.85	SSW	8.4	27.3	18.46	72.9	71.8	77	67
12	74	55	63.8	57.0	0	0	95	56	80	0.00	28.96	29.90	N	10.9	34.3	18.43	71.3	67.3	73	63
13	79	52	66.0	53.1	0	0	96	36	67	0.00	29.00	29.94	SE	4.3	12.2	29.82	71.8	70.9	83	60
14	84	50	69.6	58.7	0	2	99	46	71	0.00	28.97	29.91	SSE	6.6	20.6	30.11	73.3	73.7	85	62
15	85	61	74.0	62.2	0	8	98	43	69	0.00	28.94	29.88	SSE	9.1	23.7	29.13	75.8	77.2	88	68
16	82	64	73.5	63.4	0	8	92	57	71	0.00	28.83	29.77	SSE	14.8	33.4	16.82	74.4	75.2	81	69
17	85	62	73.9	59.1	0	8	99	28	66	0.49	28.76	29.69	SSW	13.4	32.7	29.77	75.3	74.7	81	69
18	88	64	76.2	68.7	0	11	99	52	80	1.59	28.82	29.75	SSE	12.9	46.0	20.68	76.1	76.2	86	70
19	78	64	70.0	67.5	0	6	100	78	92	4.57	28.85	29.78	ESE	7.6	50.9	4.99	72.4	72.0	74	70
20	74	55	64.9	58.0	0	0	99	51	80	0.01	29.00	29.94	NNW	7.9	21.3	21.06	73.0	72.0	79	68
21	75	50	63.3	52.6	2	0	97	45	70	0.00	29.19	30.13	NE	6.3	16.5	27.56	72.7	70.6	80	62
22	75	52	65.3	57.6	1	0	98	53	78	0.13	29.08	30.02	S	4.8	35.5	21.05	72.8	70.4	77	63
23	68*	52*	62.0*	57.1*	5*	0*	100*	65*	85*	0.01*	28.94*	29.88*	NW *	6.8*	24.2*	NA	72.1*	68.3*	71*	63*
24	74	50	61.3	48.2	3	0	94	38	66	0.00	28.84	29.78	NW	8.8	27.3	31.22	70.3	65.1	72	58
25	86	53	71.2	56.1	0	5	86	42	61	0.00	28.72	29.65	SSE	11.6	31.8	29.27	71.6	67.6	76	59
26	94	70	81.1	70.9	0	17	95	52	73	0.00	28.77	29.71	S	11.3	25.9	27.72	76.2	75.7	86	67
27	92	64	78.9	73.2	0	13	99	60	84	2.67	28.85	29.79	S	12.0	54.6	24.62	78.8	79.3	89	73
28	81	64	72.2	64.1	0	8	98	54	77	0.03	29.00	29.94	N	8.4	22.5	27.03	77.1	76.2	83	70
29	85	60	72.3	59.1	0	7	98	34	68	0.00	29.09	30.03	NW	3.7	9.4	29.84	78.1	76.4	85	68
30	87	58	72.6	60.0	0	7	98	31	69	0.00	29.12	30.06	NW	3.4	12.5	30.39	78.8	76.2	85	67
31	87	59	74.6	62.9	0	8	99	41	70	0.00	29.10	30.04	ESE	4.3	16.0	29.42	79.5	76.4	85	68
	80*	55*	68.5*	58.0*	<- Monthly Averages ->						28.96*	29.90*	SSE*	8.3*	54.6*	24.90*	72.7*	70.9*	79*	63*

Temperature - Highest: 94*
Lowest: 38*

Degree Days - Total HDD: 43*
Total CDD: 131*

Number of Days With:
Tmax ≥ 90: 2*
Tmax ≤ 32: 0*
Tmin ≤ 32: 0*
Tmin ≤ 0: 0*
Rainfall ≥ 0.01 inch: 11*
Rainfall ≥ 0.10 inch: 6*
Avg Wind Speed ≥ 10 mph: 9*
Max Wind Speed ≥ 30 mph: 10*

Rainfall: Monthly Total: 10.05* in.
Greatest 24 Hr: 4.57* in.

Humidity - Highest: 100*
Lowest: 28*

* Denotes incomplete record

Monthly data generated on Monday July 31, 2017 at 19:06 UTC

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

June 2017
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	83	65	70.8	66.6	0	9	98	66	87	1.08	29.07	30.01	E	4.9	29.7	14.77	77.6	75.0	80	72
2	75	65	69.9	68.3	0	5	100	82	95	0.04	29.03	29.97	E	6.0	15.5	6.54	74.7	72.7	75	71
3	80	67	71.9	68.4	0	8	100	68	90	0.82	29.00	29.94	SE	4.2	14.5	16.36	76.0	74.9	81	70
4	83	66	73.4	68.6	0	9	100	53	86	1.18	28.89	29.82	E	3.2	19.2	20.15	77.5	77.0	84	71
5	84	68	73.6	69.2	0	11	100	62	87	0.00	28.86	29.80	NNE	6.5	19.7	15.54	77.9	77.5	82	74
6	91	67	77.9	65.2	0	14	99	38	69	0.01	28.94	29.88	NNE	8.9	22.4	29.85	79.3	77.1	84	71
7	83	64	73.5	61.7	0	9	91	47	68	0.00	29.04	29.98	NE	6.5	15.7	27.10	79.3	75.8	84	69
8	83	58	71.6	58.9	0	6	97	43	67	0.00	29.03	29.97	E	5.0	15.2	27.03	78.8	74.7	82	67
9	82	65	72.7	63.0	0	8	92	59	72	0.00	28.96	29.90	SSE	8.1	21.9	24.42	78.8	74.4	81	69
10	86	67	76.7	65.7	0	12	93	51	70	0.00	28.93	29.87	SSE	11.9	27.2	26.00	79.4	76.2	84	70
11	87	71	78.2	66.9	0	14	93	48	70	0.00	28.96	29.90	SSE	12.5	29.4	27.43	80.0	78.4	87	72
12	90	71	80.2	70.1	0	16	98	50	73	0.00	28.97	29.91	SSE	11.5	26.0	26.95	81.1	80.6	89	73
13	91	75	82.2	72.3	0	18	93	54	73	0.00	28.94	29.88	SSE	14.0	27.9	25.05	82.1	82.6	90	77
14	91	75	81.4	72.0	0	18	91	53	74	0.00	28.95	29.89	S	11.1	27.5	17.92	81.4	82.2	89	77
15	93	72	82.2	73.3	0	17	98	58	76	0.00	28.96	29.90	S	8.5	24.5	28.51	83.4	85.0	95	76
16	96	68	82.3	71.0	0	17	92	42	71	0.00	28.87	29.81	SSE	10.3	30.6	28.18	84.2	86.1	96	77
17	90	74	81.8	74.1	0	17	95	61	78	0.00	28.77	29.70	SSE	10.8	26.1	20.27	83.6	85.4	91	80
18	81	69	74.6	72.2	0	10	98	83	92	0.04	28.89	29.82	NE	9.0	24.4	6.40	80.3	80.1	83	76
19	85	65	73.6	68.2	0	10	97	61	84	0.02	29.05	29.99	ENE	6.0	20.3	17.73	78.7	79.1	88	73
20	91	63	77.2	66.1	0	12	100	35	73	0.00	29.08	30.02	ESE	4.1	14.0	30.56	81.5	84.7	96	74
21	91	64	77.7	63.6	0	12	99	32	67	0.00	28.96	29.90	ESE	5.0	20.5	31.42	82.4	86.6	98	76
22	89	67	77.4	70.5	0	13	98	56	81	0.00	28.78	29.72	ENE	3.6	14.7	18.10	81.4	85.3	93	79
23	96	70	81.6	71.0	0	18	100	44	73	0.02	28.89	29.82	NE	7.0	31.1	23.84	82.6	87.1	96	79
24	83	66	72.9	62.1	0	10	93	38	71	0.05	29.18	30.13	NE	8.1	24.2	14.22	79.3	81.2	86	77
25	88	63	76.2	58.0	0	10	87	29	57	0.00	29.26	30.20	ESE	5.8	22.9	29.56	80.4	84.4	96	74
26	84	64	74.5	61.2	0	9	93	38	66	0.00	29.18	30.12	ESE	4.8	17.8	22.81	80.5	84.6	93	78
27	91	64	77.4	67.0	0	13	96	45	72	0.00	29.06	30.00	SE	6.1	23.9	24.09	81.4	85.8	95	77
28	90	69	79.4	69.2	0	14	99	49	73	0.00	28.97	29.91	SSE	10.7	30.0	26.00	83.0	86.5	95	79
29	91	71	80.7	71.0	0	16	96	51	74	0.00	28.90	29.84	SSE	12.0	29.3	25.74	83.9	87.0	96	80
30	93	67	79.3	71.6	0	15	97	54	79	0.14	28.97	29.91	SSE	9.0	31.9	18.57	83.9	86.7	95	82
	87	67	76.7	67.6	<- Monthly Averages ->						28.98	29.92	SSE	7.8	31.9	22.37	80.5	81.1	89	75

Temperature - Highest: 96
Lowest: 58

Rainfall: Monthly Total: 3.40 in.
Greatest 24 Hr: 1.18 in.

Degree Days - Total HDD: 0
Total CDD: 370

Humidity - Highest: 100
Lowest: 29

Number of Days With:
Tmax ≥ 90: 14
Tmax ≤ 32: 0
Tmin ≤ 32: 0
Tmin ≤ 0: 0
Rainfall ≥ 0.01 inch: 10
Rainfall ≥ 0.10 inch: 4
Avg Wind Speed ≥ 10 mph: 9
Max Wind Speed ≥ 30 mph: 4

* Denotes incomplete record

Monthly data generated on Monday, August 21, 2017 at 19:01 UTC

Date	Reference ET, Short [in]	Reference ET, Tall [in]	Cool Season Grass ET [in]	Warm Season Grass ET [in]	Pan Evaporation [in]
2017-08-20	0.21	0.24	0.19	0.13	0.26
2017-08-19	0.22	0.24	0.20	0.13	0.26
2017-08-18	0.22	0.24	0.20	0.13	0.26
2017-08-17	0.17	0.19	0.16	0.11	0.21
2017-08-16	0.11	0.14	0.10	0.07	0.13
2017-08-15	0.21	0.24	0.19	0.13	0.26
2017-08-14	0.15	0.16	0.14	0.09	0.18
2017-08-13	0.16	0.18	0.15	0.10	0.19
2017-08-12	0.13	0.15	0.12	0.08	0.15
2017-08-11	0.18	0.21	0.17	0.11	0.22
2017-08-10	0.18	0.20	0.17	0.11	0.22
2017-08-09	0.18	0.20	0.17	0.11	0.22
2017-08-08	0.21	0.25	0.19	0.13	0.26
2017-08-07	0.13	0.17	0.12	0.08	0.17
2017-08-06	0.14	0.17	0.13	0.09	0.18
2017-08-05	0.28	0.37	0.26	0.18	0.38
2017-08-04	0.23	0.27	0.21	0.14	0.28
2017-08-03	0.20	0.22	0.19	0.13	0.24
2017-08-02	0.13	0.15	0.12	0.08	0.15
2017-08-01	0.10	0.12	0.09	0.06	0.12
2017-07-31	0.20	0.24	0.19	0.12	0.25
2017-07-30	0.22	0.27	0.21	0.14	0.28
2017-07-29	0.26	0.33	0.24	0.16	0.34
2017-07-28	0.19	0.23	0.18	0.12	0.23
2017-07-27	0.27	0.34	0.25	0.17	0.35
2017-07-26	0.25	0.31	0.23	0.16	0.32
2017-07-25	0.24	0.28	0.22	0.15	0.30

2017-07-24	0.22	0.25	0.21	0.14	0.27
2017-07-23	0.26	0.32	0.24	0.16	0 33
2017-07-22	0.26	0.31	0.24	0.16	0.33
2017-07-21	0.27	0.32	0.25	0.16	0.34
2017-07-20	0 26	0.30	0.24	0.16	0.32
2017-07-19	0 25	0.29	0.23	0.15	0.31
2017-07-18	0.23	0.26	0.21	0.14	0.28
2017-07-17	0.23	0.26	0.22	0.15	0.28
2017-07-16	0.23	0.25	0.21	0.14	0.27
2017-07-15	0.19	0.21	0.18	0.12	0.23
2017-07-14	0.24	0.26	0.22	0.15	0.29
2017-07-13	0.24	0.27	0.22	0.15	0.29
2017-07-12	0.26	0.31	0 24	0.16	0.33
2017-07-11	0.25	0.29	0.23	0.16	0.31
2017-07-10	0.23	0.27	0.22	0.14	0.29
2017-07-09	0.20	0.23	0.18	0.12	0.24
2017-07-08	0.20	0.23	0.18	0.12	0.24
2017-07-07	0.24	0.26	0.22	0.15	0 29
2017-07-06	0.21	0.23	0.19	0.13	0 25
2017-07-05	0 21	0.24	0.20	0.13	0.26
2017-07-04	0.22	0.25	0.20	0.14	0.27
2017-07-03	0.20	0.25	0.19	0.13	0.26
2017-07-02	0.18	0.22	0.17	0.11	0.22
2017-07-01	0.20	0.23	0.19	0.12	0.24
2017-06-30	0.20	0.25	0.18	0.12	0 25
2017-06-29	0.26	0.33	0.24	0.16	0.34
2017-06-28	0.25	0.31	0.23	0.15	0.32
2017-06-27	0.22	0.26	0.20	0.14	0.27

2017-06-26	0.19	0 23	0.18	0.12	0.24
2017-06-25	0.25	0.31	0.23	0.16	0.32
2017-06-24	0:17	0 22	0.16	0.10	0.22
2017-06-23	0.23	0 28	0.22	0.14	0.29
2017-06-22	0.16	0 18	0.15	0 10	0.19
2017-06-21	0.26	0.30	0.24	0.16	0.32
2017-06-20	0.24	0.27	0.23	0.15	0.29
2017-06-19	0.16	0.19	0.15	0.10	0.19
2017-06-18	0.07	0.09	0.07	0.05	0.09
2017-06-17	0.20	0.25	0.19	0.13	0.27
2017-06-16	0 28	0.35	0.26	0.17	0.37
2017-06-15	0 25	0.30	0 24	0.16	0.32
2017-06-14	0 22	0 29	0.20	0.13	0.29
2017-06-13	0 26	0.34	0.24	0.16	0.35
2017-06-12	0.26	0.32	0.24	0.16	0.34
2017-06-11	0 26	0.34	0.24	0.16	0 36
2017-06-10	0.24	0.31	0.23	0.15	0.33
2017-06-09	0.21	0.25	0.19	0.13	0.26
2017-06-08	0.21	0.24	0.19	0.13	0.26
2017-06-07	0.22	0.27	0.21	0.14	0.28
2017-06-06	0.27	0.34	0.25	0 17	0 35
2017-06-05	0.14	0.17	0.13	0.09	0 18
2017-06-04	0:16	0.17	0.15	0.10	0.19
2017-06-03	0.13	0.15	0.12	0.08	0.16
2017-06-02	0.06	0.07	0.06	0.04	0.07
2017-06-01	0.13	0.16	0.12	0.08	0.16
2017-05-31	0.22	0.26	0.21	0.14	0 27
2017-05-30	0 22	0 25	0.21	0.14	0.27

2017-05-29	0.22	0.25	0.21	0.14	0.27
2017-05-28	0.21	0.25	0.19	0.13	0.27
2017-05-27	0.21	0.26	0.20	0.13	0.28
2017-05-26	0.28	0 35	0.26	0.17	0.37
2017-05-25	0.27	0.36	0.25	0 17	0.37
2017-05-24	0.21	0.27	0.20	0.13	0.28
2017-05-23	0.09	0.10	0.09	0 06	0.11
2017-05-22	0.15	0.17	0.14	0.09	0.18
2017-05-21	0.19	0.22	0.17	0.12	0.23
2017-05-20	0.15	0.18	0.14	0.09	0.19
2017-05-19	0.07	0.09	0.06	0.04	0.08
2017-05-18	0.20	0.26	0.19	0.12	0.27
2017-05-17	0.27	0.37	0.26	0.17	0.38
2017-05-16	0.18	0.25	0.17	0.11	0.25
2017-05-15	0.24	0.29	0.22	0.15	0.31
2017-05-14	0.22	0.26	0.20	0.14	0.28
2017-05-13	0.20	0.24	0.19	0.13	0.25
2017-05-12	0.15	0.20	0.14	0 09	0.20
2017-05-11	0.16	0.19	0.15	0.10	0.20
2017-05-10	0.07	0.09	0.07	0 05	0.09
2017-05-09	0.20	0.25	0.19	0.13	0.26
2017-05-08	0.22	0.26	0 20	0.13	0.28
2017-05-07	0.22	0.27	0.20	0.14	0.28
2017-05-06	0.20	0.23	0.18	0.12	0 24
2017-05-05	0.21	0.26	0.19	0.13	0 27
2017-05-04	0.19	0.26	0.18	0.12	0.27
2017-05-03	0.12	0.17	0.12	0.08	0.17
2017-05-02	0.21	0.26	0.19	0.13	0.26

2017-05-01	0.21	0.28	0.19	0.13	0.28
2017-04-30	0.14	0.19	0.13	0.09	0.20
2017-04-29	0.06	0.07	0.06	0.04	0.08
2017-04-28	0.13	0.16	0.12	0.08	0.16
2017-04-27	0.16	0.19	0.15	0.10	0.20
2017-04-26	0.11	0.16	0.10	0.07	0.14
2017-04-25	0.20	0.27	0.19	0.13	0.28
2017-04-24	0.19	0.25	0.18	0.12	0.25
2017-04-23	0.18	0.23	0.17	0.11	0.23
2017-04-22	0.09	0.12	0.08	0.05	0.12
2017-04-21	0.08	0.10	0.08	0.05	0.10
2017-04-20	0.13	0.16	0.12	0.08	0.16
2017-04-19	0.13	0.16	0.12	0.08	0.16
2017-04-18	0.16	0.18	0.15	0.10	0.19
2017-04-17	0.04	0.04	0.03	0.02	0.04
2017-04-16	0.07	0.09	0.07	0.04	0.09
2017-04-15	0.20	0.26	0.19	0.12	0.27
2017-04-14	0.22	0.29	0.20	0.14	0.30
2017-04-13	0.15	0.18	0.14	0.09	0.18
2017-04-12	0.09	0.11	0.09	0.06	0.11
2017-04-11	0.21	0.29	0.20	0.13	0.30
2017-04-10	0.13	0.18	0.12	0.08	0.17
2017-04-09	0.21	0.29	0.20	0.13	0.31
2017-04-08	0.22	0.30	0.20	0.13	0.31
2017-04-07	0.19	0.25	0.18	0.12	0.25
2017-04-06	0.17	0.22	0.16	0.10	0.22
2017-04-05	0.20	0.30	0.19	0.13	0.31
2017-04-04	0.19	0.28	0.18	0.12	0.26

2017-04-03	0.17	0.21	0.16	0.10	0.21
2017-04-02	0.06	0 07	0.05	0.04	0.07
2017-04-01	0.16	0.21	0.15	0.10	0.21
2017-03-31	0.19	0.25	0.18	0.12	0.25
2017-03-30	0.16	0.22	0.15	0.10	0.22
2017-03-29	0.17	0.23	0.15	0.10	0.23
2017-03-28	0.10	0.14	0.10	0.06	0.13
2017-03-27	0.14	0.18	0.13	0.09	0.18
2017-03-26	0.17	0.23	0.15	0.10	0.22
2017-03-25	0 13	0.17	0.12	0.08	0.17
2017-03-24	0.22	0.33	0.21	0.14	0.34
2017-03-23	0 25	0.37	0.23	0.15	0.37
2017-03-22	0.08	0.11	0.08	0 05	0.11
2017-03-21	0 21	0.28	0.19	0.13	0.27
2017-03-20	0.26	0.38	0.24	0.16	0.37
2017-03-19	0.17	0.22	0.16	0 11	0.22
2017-03-18	0.15	0.18	0.14	0.09	0.19
2017-03-17	0.12	0.17	0.11	0.08	0.16
2017-03-16	0.08	0.11	0.07	0.05	0.10
2017-03-15	0.12	0.17	0.11	0.07	0.16
2017-03-14	0.11	0.15	0.10	0.07	0.14
2017-03-13	0.10	0.14	0.10	0.06	0.14
2017-03-12	0.09	0.12	0.08	0.05	0.11
2017-03-11	0.09	0.13	0.08	0.06	0.12
2017-03-10	0.12	0.17	0.11	0.08	0.17
2017-03-09	0.12	0.17	0.12	0.08	0 16
2017-03-08	0.17	0.25	0.16	0.11	0 23
2017-03-07	0.21	0 33	0.20	0.13	0.33

Mill Creek Water Levels Second Quarter 2017