



Robin L. Simmons
Regional Land Manager

February 22, 2018

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 Q4 and Annual 2017

Dear Mr. Cogburn:

Attached please find the Annual and the Q4 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,

A handwritten signature in cursive script that reads '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 2017**

Appendix C . Consumptive use of Pitwater

Q1 2017 Q2 2017 Q3 2017 Q4 2017 2017 Total

PIT GROUNDWATER VOLUME							
1	Total volume pumped from producing mine pit(s) (AC-FT)		365.76	496.78	556.61	394.29	1813.44
2	Volume of precipitation that falls onto the surface of producing Mine Pits (AC-FT)		53.05	124.09	97.41	28.06	302.60
3	Portion of total precipitation that flows over the land surface that drains into the mine pit water (AC-FT)		19.89	49.69	26.76	3.95	100.29
4	(WATER HELD IN PIT FROM PREVIOUS MONTHS) other non pit waters pumped from the producing mining pit (AC-FT)						0.00
5	add lines 2 through 4		72.94	173.78	124.17	32.01	402.90
6	Pit Groundwater Volume (AC-FT) (line 1 minus Line 5)		292.82	323.00	432.44	362.29	1410.54
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	0.00	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	5.89	2.30	12.95
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	3.29	0.87	7.44
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	13.20	9.83	32.40
11	DEFINED ELEMENTS OF CONSUMPTIVE USE of Pit groundwater (AC-FT) (add lines 7 through 10)		5.97	11.44	22.39	13.00	52.79
PIT GROUNDWATER BALANCE							
12	Lines 6 minus 11		286.85	311.56	410.05	349.29	1357.75
13	Groundwater Augmentation Volume of pit groundwater returned to GW Basin or subbasin (Troy Recharge AC-FT)	Credits	7.49	45.67	64.63	18.75	136.55
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	0.00	226.57	467.75
15	PPT and Runoff Volume of Precipitation and surface runoff into a recharge pit or holding pond (AC-FT)		46.55	112.42	64.57	19.02	242.56
16	Recycled Pit Groundwater - Volume of ground water returned to the mine pit or holding basin (AC-FT)		96.43	260.14	339.85	128.80	825.21
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	0.00	0.00	0.00
18	add lines 13 through 17		391.65	418.23	469.05	393.14	1672.07
19	OTHER CONSUMPTIVE USE Line 12 minus Line 18		-104.80	-106.67	-59.00	-43.85	-314.32
TOTAL REPORTED CONSUMPTIVE USE (AC-FT)							
TOTAL NET CONSUMPTIVE USE (AC-FT) Line 11 plus line 19			-98.83	-95.23	-36.61	-30.85	-261.53

RESULTS FROM RUNOFF MODELLING

2017	PPT. Inches	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
		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
July	3.95	0.07	35.94	12.54	48.54	6.16	8.27	13.00	14.02	19.22	70.77
August	6.34	0.11	51.94	12.91	64.96	9.88	3.86	20.87	10.34	30.85	79.05
September	1.73	0.03	9.32	1.32	10.67	2.70	0.08	5.69	0.66	8.42	11.37
Q3 Subtotal	12.02	0.20	97.21	26.76	124.17	18.73	12.20	39.57	25.02	58.50	161.19
October	1.69	0.03	6.16	6.75	12.93	2.63	0.00	5.56	0.15	8.22	13.06
November	0.04	0.00	0.00	0.00	0.00	0.06	0.00	0.13	0.00	0.19	0.00
December	1.80	0.03	11.47	14.07	25.57	2.81	0.37	5.93	1.71	8.76	27.61
Q4 Subtotal	3.53	0.06	17.63	20.82	38.50	5.50	0.38	11.62	1.85	17.18	40.67
ANNUAL TOTALS	29.13	0.59	291.63	117.17	409.39	55.24	85.43	116.69	120.40	172.52	614.62

Water Volume Movements		January	February	March	April	May	June	July	August	September	October	November	December
Pumped from Pit	(Ac-Ft)	132.9	117.2	115.7	140.2	161.7	194.8	178.9	212.9	164.8	139.0	122.4	132.9
Groundwater Component of Pitwater		82.2	98.2	112.4	114.1	27.2	181.7	130.3	148.0	154.1	128.3	111.8	122.2
Quarry dust suppression		2.8	0.9	1.5	0.7	0.4	4.9	5.6	4.5	4.4	3.4	2.3	4.0
Q- freshwater pond	(Ac-Ft)	23.3	-18.1	114.1	139.6	161.3	189.9	173.2	208.4	160.4	135.6	22.4	0.0
To Secondary FM7	(Ac-Ft)	398.3	471.9	547.4	477.4	545.6	579.0	489.4	517.6	506.9	541.0	482.4	402.0
To sand Plant FM8	(Ac-Ft)	79.8	85.0	102.5	88.4	94.8	104.3	85.9	91.4	89.0	91.4	89.0	102.8
to loadout FM6	(Ac-Ft)	322.5	332.9	395.2	349.5	367.6	474.4	449.5	453.5	421.6	406.0	297.6	271.2
to dust control FM9	(Ac-Ft)	0.9	0.9	0.9	0.6	0.1	0.0	0.4	4.7	8.3	7.1	6.0	5.0
to Plant FM7+FM8+FM6	(Ac-Ft)	800.6	889.8	1045.1	915.3	1008.0	1157.7	1024.9	1062.6	1017.5	1038.4	869.0	776.0
to stream Augmentation	Ac-ft	106.78	134.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.67	128.90
To Troy FM3	(Ac-Ft)	805.8	903.7	1046.9	918.1	1025.8	1157.1	1035.6	1039.9	1071.5	1121.2	1014.9	869.1
From Troy to Freshwater Pond FM4	+	788.3	900.9	947.5	773.6	797.5	970.8	858.9	854.6	952.1	971.8	971.2	853.3

Quarter Summary	4th QTR
Total Tons Shipped	1,380,000
Total Acre Feet	29 19
Average Moisture %	2.88%

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# ----- 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: 2018-02-09 12:06:31 EST (caww01)
#

```

```

# 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		2017-10-01	7.36 A
USGS	07331200		2017-10-02	7.35 A
USGS	07331200		2017-10-03	7.50 P
USGS	07331200		2017-10-04	7.70 P
USGS	07331200		2017-10-05	7.40 P
USGS	07331200		2017-10-06	7.07 P
USGS	07331200		2017-10-07	6.78 P
USGS	07331200		2017-10-08	5.90 P
USGS	07331200		2017-10-09	4.84 P
USGS	07331200		2017-10-10	4.51 P
USGS	07331200		2017-10-11	3.82 P
USGS	07331200		2017-10-12	3.37 P
USGS	07331200		2017-10-13	3.05 P
USGS	07331200		2017-10-14	2.75 P
USGS	07331200		2017-10-15	2.66 P
USGS	07331200		2017-10-16	2.62 P
USGS	07331200		2017-10-17	2.65 P
USGS	07331200		2017-10-18	2.68 P
USGS	07331200		2017-10-19	2.57 P
USGS	07331200		2017-10-20	2.65 P
USGS	07331200		2017-10-21	2.89 P
USGS	07331200		2017-10-22	3.94 P
USGS	07331200		2017-10-23	2.39 P
USGS	07331200		2017-10-24	2.25 P
USGS	07331200		2017-10-25	2.36 P
USGS	07331200		2017-10-26	2.32 P
USGS	07331200		2017-10-27	2.49 P
USGS	07331200		2017-10-28	2.61 P
USGS	07331200		2017-10-29	2.69 P
USGS	07331200		2017-10-30	2.62 P
USGS	07331200		2017-10-31	2.60 P

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#
# Contact: gs-w\_support\_nwisweb@usgs.gov
# retrieved: 2018-02-09 12:07:26 EST (caww01)
#
# 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      2017-11-01      2.59      P
USGS      07331200      2017-11-02      2.56      P
USGS      07331200      2017-11-03      2.49      P
USGS      07331200      2017-11-04      2.55      P
USGS      07331200      2017-11-05      2.50      P
USGS      07331200      2017-11-06      2.66      P
USGS      07331200      2017-11-07      2.73      P
USGS      07331200      2017-11-08      2.76      P
USGS      07331200      2017-11-09      2.73      P
USGS      07331200      2017-11-10      2.71      P
USGS      07331200      2017-11-11      2.69      P
USGS      07331200      2017-11-12      2.77      P
USGS      07331200      2017-11-13      2.63      P
USGS      07331200      2017-11-14      2.71      P
USGS      07331200      2017-11-15      2.76      P
USGS      07331200      2017-11-16      2.66      P
USGS      07331200      2017-11-17      2.73      P
USGS      07331200      2017-11-18      2.58      P
USGS      07331200      2017-11-19      2.57      P
USGS      07331200      2017-11-20      2.74      P
USGS      07331200      2017-11-21      2.78      P
USGS      07331200      2017-11-22      2.53      P
USGS      07331200      2017-11-23      2.62      P
USGS      07331200      2017-11-24      2.60      P
USGS      07331200      2017-11-25      2.52      P
USGS      07331200      2017-11-26      2.43      P
USGS      07331200      2017-11-27      2.41      P
USGS      07331200      2017-11-28      2.33      P
USGS      07331200      2017-11-29      2.30      P
USGS      07331200      2017-11-30      2.23      P

```

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#
# Contact: gs-w_support_nwisweb@usgs.gov
# retrieved: 2018-02-09 12:07:51 EST (caww01)
#

```

```

# 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	2017-12-01	2.27	P
USGS	07331200	2017-12-02	2.27	P
USGS	07331200	2017-12-03	2.23	P
USGS	07331200	2017-12-04	2.24	P
USGS	07331200	2017-12-05	2.05	P
USGS	07331200	2017-12-06	2.09	P
USGS	07331200	2017-12-07	2.09	P
USGS	07331200	2017-12-08	2.05	P
USGS	07331200	2017-12-09	2.12	P
USGS	07331200	2017-12-10	2.09	P
USGS	07331200	2017-12-11	2.11	P
USGS	07331200	2017-12-12	2.13	P
USGS	07331200	2017-12-13	2.15	P
USGS	07331200	2017-12-14	2.13	P
USGS	07331200	2017-12-15	2.08	P
USGS	07331200	2017-12-16	2.12	P
USGS	07331200	2017-12-17	2.47	P
USGS	07331200	2017-12-18	2.20	P
USGS	07331200	2017-12-19	3.12	P
USGS	07331200	2017-12-20	3.55	P
USGS	07331200	2017-12-21	2.22	P
USGS	07331200	2017-12-22	2.18	P
USGS	07331200	2017-12-23	2.26	P
USGS	07331200	2017-12-24	2.10	P
USGS	07331200	2017-12-25	2.04	P
USGS	07331200	2017-12-26	2.06	P
USGS	07331200	2017-12-27	2.06	P
USGS	07331200	2017-12-28	2.11	P
USGS	07331200	2017-12-29	2.12	P
USGS	07331200	2017-12-30	2.13	P
USGS	07331200	2017-12-31	2.08	P

Date	Daily Rainfall Total	Total Daily Evaporation
10/1/2017	0	0.15
10/2/2017	0	0.024
10/3/2017	0.04	0.046
10/4/2017	0.46	0.29
10/5/2017	0	0.113
10/6/2017	0	0.064
10/7/2017	0	0.02
10/8/2017	0	0.013
10/9/2017	0.01	0.018
10/10/2017	0.17	0.173
10/11/2017	0	0.004
10/12/2017	0	0.002
10/13/2017	0	0.004
10/14/2017	0	0.004
10/15/2017	0.11	0.115
10/16/2017	0	0.007
10/17/2017	0	0.003
10/18/2017	0	0.004
10/19/2017	0	0.005
10/20/2017	0	0.001
10/21/2017	0.73	0.001
10/22/2017	0.17	0.171
10/23/2017	0	0.001
10/24/2017	0	0.001
10/25/2017	0	0.004
10/26/2017	0	0.004
10/27/2017	0	0.006
10/28/2017	0	0.002
10/29/2017	0	0.004
10/30/2017	0	0.009
10/31/2017	0	0.002
11/1/2017	0	0.002
11/2/2017	0	0.003
11/3/2017	0	0.001
11/4/2017	0	0.007
11/5/2017	0	0.003
11/6/2017	0	0
11/7/2017	0	0.006
11/8/2017	0.01	0.012
11/9/2017	0	0.004
11/10/2017	0	0.005
11/11/2017	0	0
11/12/2017	0	0.007
11/13/2017	0	0.007
11/14/2017	0.02	0.021
11/15/2017	0.01	0.016

11/16/2017	0	0.006
11/17/2017	0	0.003
11/18/2017	0	0.007
11/19/2017	0	0.232
11/20/2017	0	0.212
11/21/2017	0	0.276
11/22/2017	0	0.317
11/23/2017	0	0.212
11/24/2017	0	0.244
11/25/2017	0	0.228
11/26/2017	0	0.213
11/27/2017	0	0.197
11/28/2017	0	0.169
11/29/2017	0	0.598
11/30/2017	0	0.521
12/1/2017	0	0.216
12/2/2017	0	0.414
12/3/2017	0	0.451
12/4/2017	0	0.386
12/5/2017	0	0.182
12/6/2017	0	0.14
12/7/2017	0	0.248
12/8/2017	0	0.011
12/9/2017	0	0.001
12/10/2017	0	0.007
12/11/2017	0	0.007
12/12/2017	0	0.236
12/13/2017	0	0.09
12/14/2017	0	0.24
12/15/2017	0	0.215
12/16/2017	0.23	0.512
12/17/2017	0.12	0.383
12/18/2017	0.01	0.904
12/19/2017	1.15	1.251
12/20/2017	0.12	0.844
12/21/2017	0	0.384
12/22/2017	0.15	0.601
12/23/2017	0.02	0.757
12/24/2017	0	0.289
12/25/2017	0	0.119
12/26/2017	0	0.164
12/27/2017	0	0.075
12/28/2017	0	0.028
12/29/2017	0	0.336
12/30/2017	0	0.171
12/31/2017	0	0.391

MESONET CLIMATOLOGICAL DATA SUMMARY					October 2017					Time Zone: Midnight-Midnight CST												
(TISH) Tishomingo					Nearest City: 6.0 N Tishomingo					County: Johnston												
Latitude: 34-19-57					Longitude: 96-40-44					Elevation: 879 feet												
DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)		PRESSURE (in)			WIND SPEED (mph)			SOLAR (MJ/m2)	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m2)	SOD	BARE	MAX	MIN		
1	84	60	70.3	55.2	0	7	90	32	62	0.00	29.04	29.98	SSE	5.6	19.4	18.80	73.2	73.3	83	67		
2	89	59	75.0	64.7	0	9	96	48	72	0.00	29.00	29.94	SE	9.5	27.0	18.70	73.8	75.4	85	67		
3	85	71	75.4	72.1	0	13	99	65	90	0.18	29.19	30.13	SE	8.1	20.8	6.92	75.6	76.0	80	74		
4	83	70	75.4	71.0	0	12	100	64	87	0.33	29.28	30.22	SE	6.1	23.5	8.88	76.5	76.2	80	74		
5	86	67	75.3	65.2	0	11	96	45	73	0.00	29.15	30.10	SE	4.9	13.7	19.00	76.7	76.4	84	71		
6	86	65	75.8	64.3	0	11	96	49	69	0.00	28.95	29.89	SSE	9.8	25.2	19.11	76.4	77.0	86	71		
7	83	53	71.2	55.9	0	3	91	26	63	0.00	28.84	29.78	NNW	7.2	20.4	20.00	75.2	76.6	86	71		
8	86	48	66.8	48.5	0	2	98	19	59	0.00	28.77	29.71	SSE	4.0	14.5	20.96	71.4	72.9	84	63		
9	92	56	74.3	63.3	0	9	95	49	70	0.13	28.83	29.77	S	9.9	26.4	15.67	72.8	75.3	84	68		
10	65	42	54.6	44.7	11	0	98	50	71	0.01	29.22	30.17	NW	9.9	27.2	19.48	69.6	67.7	74	62		
11	72	41	55.4	47.1	9	0	99	45	77	0.00	29.23	30.17	N	4.4	14.0	19.10	66.1	65.5	77	56		
12	84	51	67.3	54.8	0	2	98	36	68	0.00	29.11	30.06	SE	6.1	18.6	18.45	68.2	70.0	81	61		
13	89	60	74.5	64.9	0	10	96	49	74	0.00	29.09	30.03	SSE	7.8	23.9	17.11	71.6	74.4	84	66		
14	90	66	77.6	66.9	0	13	98	43	72	0.00	29.04	29.98	S	10.4	28.5	17.70	73.5	76.8	86	70		
15	77	44	60.2	47.0	5	0	95	32	65	0.10	29.31	30.26	N	14.0	39.2	18.43	70.7	70.6	76	63		
16	71	39	53.5	39.5	10	0	97	28	66	0.00	29.40	30.35	NNE	5.1	16.2	19.48	65.5	65.4	77	56		
17	73	37	55.6	42.6	10	0	99	33	67	0.00	29.28	30.22	SSE	5.8	23.1	19.24	64.4	64.7	76	56		
18	79	41	60.6	45.1	5	0	97	31	61	0.00	29.17	30.11	SSE	6.9	23.3	18.66	64.9	65.5	76	56		
19	80	43	62.8	51.1	4	0	99	35	69	0.00	29.17	30.12	SSE	5.9	19.3	16.76	66.0	66.6	77	58		
20	82	54	68.1	59.4	0	3	97	53	75	0.00	29.06	30.01	SSE	10.9	29.8	13.87	67.9	69.1	77	62		
21	82	60	72.5	65.7	0	6	98	61	80	0.95	28.94	29.88	SSE	11.9	37.4	7.75	70.8	72.5	77	69		
22	71	44	59.1	46.9	7	0	98	24	71	0.11	29.16	30.11	NNW	9.0	25.0	18.01	67.7	66.1	70	59		
23	78	41	58.6	42.3	6	0	96	31	60	0.00	29.16	30.11	NNW	7.4	22.4	17.06	63.6	61.3	70	54		
24	66	42	54.9	30.7	11	0	71	21	43	0.00	29.32	30.27	NW	10.9	34.9	18.26	62.1	59.8	68	54		
25	77	35	55.0	35.8	9	0	93	20	56	0.00	29.13	30.08	WSW	5.8	20.3	17.76	60.2	58.9	70	50		
26	83	41	62.7	44.5	3	0	98	27	57	0.00	28.81	29.75	S	10.6	37.3	17.48	61.3	62.0	72	53		
27	56	32	44.1	26.2	21	0	68	30	50	0.00	29.15	30.10	N	14.5	40.1	11.47	59.1	57.1	63	50		
28	57	28	39.4	20.1	23	0	90	15	53	0.00	29.19	30.14	NW	6.7	23.0	17.13	54.6	51.3	60	44		
29	74	28	49.1	32.2	14	0	94	26	59	0.00	28.96	29.90	WSW	4.3	17.0	16.79	54.6	53.9	65	44		
30	65*	39*	51.7*	36.7*	13*	0*	95*	35*	59*	0.00*	29.04*	29.98*	NNE*	10.8*	30.5*	NA	56.4*	56.5*	65*	50*		
31	52	39	44.9	31.8	19	0	94	39	62	0.02	29.17	30.11	NNE	6.6	23.5	7.51	54.9	53.0	57	49		
-- Monthly Averages --										29.10*	30.05*	SSE*	8.1*	40.1*	16.52*	67.3*	67.3*	76*	60*			
Temperature - Highest: 92*					Degree Days - Total HDD: 178*					Number of Days With:												
Lowest: 28*					Total CDD: 111*					Tmax >= 90: 2*			Rainfall >= 0.01 inch: 8*									
Rainfall: Monthly Total: 1.83* in					Humidity - Highest: 100*					Tmax < 32: 0*			Rainfall >= 0.10 inch: 6*									
Greatest 24 Hr: 0.95* in.					Lowest: 15*					Tmin < 32: 3*			Avg Wind Speed >= 10 mph: 8*									
										Tmin < 0: 0*			Max Wind Speed >= 30 mph: 6*									

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

November 2017
 Nearest City: 6.0 N Tishomingo
 Longitude: 96-40-44

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

DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN (in)	PRESSURE (in)		WIND SPEED (mph)			SOLAR (MJ/m2)	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG		STN	MSL	DIR	AVG	MAX		SOD	BARE	MAX	MIN
1	73	45	57.1	50.4	6	0	100	52	80	0.00	28.83	29.77	SSE	9.4	25.4	11.07	57.3	56.8	65	51
2	90	54	70.0	51.1	0	7	94	17	59	0.00	28.87	29.81	S	11.1	27.4	16.09	61.6	63.8	73	57
3	69	43	56.5	52.1	9	0	100	53	87	0.00	29.10	30.04	N	5.0	16.3	9.70	61.7	62.6	70	59
4	86	43	66.3	59.5	1	0	100	54	81	0.01	28.96	29.90	S	9.5	27.5	12.33	62.4	63.7	73	56
5	89	53	72.1	59.2	0	6	96	27	69	0.00	28.91	29.85	S	11.7	27.0	15.02	67.1	70.4	79	66
6	57	49	53.5	49.4	12	0	98	79	86	0.00	29.06	30.00	NNW	7.4	17.2	3.79	63.0	62.5	65	60
7	52	44	46.9	41.9	17	0	87	71	83	0.00	29.22	30.17	N	11.1	23.5	4.24	59.6	57.7	60	55
8	47	36	43.0	39.2	23	0	96	73	86	0.04	29.31	30.26	N	8.2	21.9	2.26	56.3	52.5	55	50
9	61	31	44.1	37.5	19	0	99	51	80	0.01	29.31	30.26	NW	3.4	12.7	14.70	55.1	52.6	62	45
10	64	32	49.2	37.3	17	0	100	37	69	0.00	29.29	30.24	SE	6.6	21.4	15.08	55.3	54.1	63	46
11	63	50	56.5	45.2	9	0	75	54	66	0.00	29.16	30.11	SE	10.2	26.5	4.51	57.5	57.3	60	55
12	72	50	59.1	49.9	4	0	95	50	73	0.00	29.30	30.25	NE	8.0	23.0	8.91	59.8	60.5	67	55
13	60	49	55.4	49.9	10	0	92	74	82	0.01	29.35	30.30	SE	7.1	16.1	4.76	59.7	59.3	62	56
14	75	55	63.5	57.5	0	0	98	59	82	0.00	29.11	30.05	SSE	10.1	23.2	8.11	61.5	62.0	67	58
15	68	54	63.1	55.6	4	0	96	47	78	0.02	29.08	30.02	NNE	7.2	22.0	3.49	62.9	63.1	65	59
16	61	49	55.4	48.2	10	0	93	54	78	0.00	29.14	30.08	ESE	6.6	16.4	2.49	59.7	58.5	61	56
17	83	58	70.9	62.6	0	6	100	52	77	0.00	28.85	29.78	S	14.9	35.5	11.98	63.5	65.4	73	59
18	71	36	56.9	44.0	11	0	80	44	63	0.00	29.01	29.95	NNW	14.8	43.6	11.68	62.5	63.0	66	54
19	61	30	44.1	27.6	19	0	90	23	58	0.00	29.32	30.27	NW	4.4	12.0	14.56	56.5	54.8	64	48
20	64	28	46.5	30.1	19	0	97	26	59	0.00	29.11	30.05	S	8.5	27.6	14.39	54.5	52.9	61	46
21	66	34	50.7	37.1	15	0	94	34	62	0.00	29.05	29.99	NNE	8.5	32.4	10.38	55.3	53.9	61	48
22	53	27	39.0	18.6	25	0	82	25	46	0.00	29.37	30.32	N	7.7	20.7	14.26	53.5	51.1	58	45
23	69	26	45.2	26.3	18	0	89	21	55	0.00	29.16	30.10	SSW	3.7	16.5	13.51	52.7	51.1	61	43
24	78	34	55.8	34.2	9	0	90	20	50	0.00	28.92	29.85	S	7.7	26.4	12.95	54.5	54.5	64	47
25	73	45	57.5	36.7	6	0	78	30	48	0.00	29.11	30.05	NNE	8.9	23.1	11.38	56.4	56.9	64	51
26	70	36	53.8	33.0	12	0	79	28	47	0.00	29.29	30.24	NNE	5.5	16.2	12.92	55.5	55.6	64	49
27	74	37	56.5	43.5	10	0	92	45	64	0.00	29.10	30.05	SSE	10.0	27.3	12.76	55.9	56.4	64	49
28	75	51	62.7	48.2	2	0	84	39	61	0.00	29.04	29.98	S	12.3	32.0	12.70	58.3	59.5	66	54
29	59	36	50.3	44.9	17	0	100	61	83	0.00	29.19	30.14	WNW	5.4	16.5	5.67	58.2	58.0	61	53
30	64	34	48.4	38.4	16	0	100	41	72	0.00	29.27	30.22	N	6.8	19.7	12.76	55.1	54.5	62	49
	68	42	55.0	43.6	← Monthly Averages →						29.13	30.07	S	8.4	43.6	10.28	58.4	58.2	65	53
Temperature - Highest: 90					Degree Days - Total HDD: 322					Number of Days With:										
Lowest: 26					Total CDD: 18					Tmax ≥ 90: 1					Rainfall ≥ 0.01 inch: 5					
										Tmax ≤ 32: 0					Rainfall ≥ 0.10 inch: 0					
Rainfall: Monthly Total: 0.09 in.					Humidity - Highest: 100					Tmin ≤ 32: 6					Avg Wind Speed ≥ 10 mph: 9					
Greatest 24 Hr: 0.04 in.					Lowest: 17					Tmin ≤ 0: 0					Max Wind Speed ≥ 30 mph: 4					

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

December 2017
Nearest City: 6.0 N Tishomingo
Longitude: 96-40-44

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

DAY	TEMPERATURE (F)				DEG DAYS		HUMIDITY (%)			RAIN	PRESSURE (in)		WIND SPEED (mph)			SOLAR	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m2)	SOD	BARE	MAX	MIN
1	67	38	53.6	40.4	12	0	85	41	62	0.00	29.19	30.13	SSW	6.1	19.8	9.89	55.8	55.4	62	50
2	75	50	60.2	50.9	3	0	92	48	73	0.00	29.11	30.05	ESE	5.6	15.4	10.64	58.0	58.5	66	53
3	78	53	63.7	56.0	0	0	97	51	78	0.00	29.05	29.99	S	10.1	29.1	8.01	59.5	60.3	66	56
4	82	53	67.7	52.6	0	2	97	24	63	0.00	28.92	29.86	S	15.7	34.8	5.88	62.2	63.8	69	61
5	52	37	42.6	18.1	20	0	63	22	39	0.00	29.34	30.29	N	10.6	31.3	4.83	56.5	54.8	60	51
6	55	33	42.2	20.7	21	0	67	23	44	0.00	29.38	30.33	NW	5.1	18.6	6.23	53.5	50.9	55	48
7	38	17	30.8	14.8	37	0	78	32	53	0.00	29.43	30.39	N	11.1	29.7	9.82	49.5	45.4	50	40
8	46	8	27.1	11.6	38	0	91	25	57	0.00	29.22	30.16	NW	5.0	15.9	12.56	46.1	41.2	49	35
9	58	24	40.5	21.6	24	0	74	26	49	0.00	29.27	30.21	NW	8.5	24.1	12.71	47.3	44.1	53	38
10	71	23	46.3	19.0	18	0	87	11	42	0.00	29.34	30.29	W	6.8	20.4	13.00	48.1	46.3	56	38
11	73	27	50.2	19.1	15	0	73	12	35	0.00	29.22	30.17	NW	7.6	20.6	13.00	49.5	48.7	58	41
12	53	26	41.9	23.9	25	0	84	23	52	0.00	29.35	30.30	NNW	8.5	27.0	12.84	50.0	48.6	55	44
13	68	23	44.7	22.1	19	0	92	15	50	0.00	29.01	29.95	SW	6.1	20.6	12.53	48.5	47.2	56	40
14	54	30	44.3	25.7	23	0	76	34	49	0.00	29.13	30.07	N	10.1	25.7	12.18	49.4	48.3	55	44
15	52	25	38.4	24.7	26	0	89	30	62	0.00	29.26	30.21	NW	6.4	18.3	12.60	47.7	45.5	53	40
16	62	21	42.3	29.4	23	0	99	23	68	0.32	29.11	30.05	S	9.4	31.2	9.43	47.0	44.7	52	37
17	46	42	44.4	43.6	21	0	100	93	97	0.02	29.11	30.05	SSE	5.6	15.6	1.92	49.6	47.4	49	46
18	50	44	46.4	46.0	18	0	100	95	98	0.02	29.20	30.14	SSE	5.0	14.1	2.63	50.8	48.9	51	47
19	57	50	53.2	53.2	12	0	100	100	100	1.02	29.09	30.03	SSE	5.0	16.3	1.01	52.8	51.9	54	50
20	60	47	53.9	52.5	11	0	100	79	95	0.11	28.99	29.93	SW	5.0	13.7	5.41	54.9	54.5	58	52
21	74	42	55.9	46.3	7	0	100	36	75	0.01	28.88	29.82	SSE	8.8	24.6	12.22	53.8	53.3	59	48
22	45	32	36.1	33.2	26	0	97	80	89	0.51	29.08	30.02	N*	NA	26.9*	1.21	49.6	45.7	52	41
23	45	27	33.6	29.7	29	0	99	60	86	0.01	29.23	30.18	ENE*	NA	14.6*	11.77	45.5	42.0	50	38
24	41	25	34.2	26.7	32	0	100	42	76	0.00	29.34	30.29	N	10.0	30.1	9.65	45.1	41.0	45	38
25	41	22	31.2	17.0	34	0	91	26	59	0.00	29.40	30.35	E	6.5	19.2	7.28	42.7	37.9	41	36
26	38	28	33.1	21.6	32	0	86	51	63	0.00	29.40	30.35	NNE	10.3	23.5	2.62	41.7	36.5	38	36
27	31	22	26.9	16.7	39	0	72	58	65	0.00	29.58	30.53	NNE	10.1	26.2	4.38	40.8	35.2	36	35
28	37	31	34.1	22.2	31	0	70	55	61	0.00	29.46	30.41	ESE	3.5	11.0	3.60	42.0	37.1	40	35
29	43	33	38.3	29.2	27	0	90	58	70	0.00	29.31	30.26	S	6.8	20.1	3.85	43.3	39.3	42	37
30	41	25	32.8	29.1	32	0	93	78	86	0.00	29.30	30.25	NNE	9.5	27.1	1.91	43.3	39.5	41	36
31	25	15	20.9	10.1	45	0	93	39	65	0.00	29.54	30.50	NNE	13.9	30.9	4.54	39.3	34.6	36	33
54 31 42.3 29.9				<- Monthly Averages ->						29.23 30.18	NW * 8.0* 34.8*			7.75	49.1	46.7	52	43		

Temperature - Highest: 82 Lowest: 8	Degree Days - Total HDD: 701 Total CDD: 3	Number of Days With: Tmax > 90: 0 Tmax < 32: 2 Tmin < 32: 19 Tmin < 0: 0	Rainfall > 0.01 inch: 8 Rainfall > 0.10 inch: 4 Avg Wind Speed > 10 mph: 9* Max Wind Speed > 30 mph: 5*
Rainfall: Monthly Total: 2.02 in. Greatest 24 Hr: 1.02 in.	Humidity - Highest: 100 Lowest: 11		

Date	Reference ET, Short [in]	Reference ET, Tall [in]	Cool Season Grass ET [in]	Warm Season Grass ET [in]	Pan Evaporation [in]
2018-01-15	0.07	0.11	0.06	0.04	0.09
2018-01-14	0.07	0.10	0.06	0.04	0.09
2018-01-13	0.06	0.10	0.06	0.04	0.09
2018-01-12	0.06	0.10	0.06	0.04	0.09
2018-01-11	0.08	0.12	0.07	0.05	0.11
2018-01-10	0.05	0.07	0.04	0.03	0.06
2018-01-09	0.02	0.02	0.02	0.01	0.03
2018-01-08	0.07	0.10	0.06	0.04	0.09
2018-01-07	0.06	0.08	0.05	0.03	0.07
2018-01-06	0.08	0.13	0.08	0.05	0.11
2018-01-05	0.05	0.08	0.05	0.03	0.06
2018-01-04	0.04	0.05	0.04	0.02	0.05
2018-01-03	0.06	0.09	0.06	0.04	0.08
2018-01-02	0.03	0.04	0.02	0.02	0.03
2018-01-01	0.04	0.06	0.04	0.02	0.05
2017-12-31	0.03	0.05	0.03	0.02	0.05
2017-12-30	0.03	0.04	0.03	0.02	0.04
2017-12-29	0.04	0.06	0.04	0.03	0.05
2017-12-28	0.03	0.04	0.03	0.02	0.04
2017-12-27	0.04	0.06	0.04	0.02	0.05
2017-12-26	0.05	0.08	0.05	0.03	0.07
2017-12-25	0.05	0.07	0.04	0.03	0.06
2017-12-24	0.04	0.06	0.04	0.02	0.05
2017-12-23	0.04	0.06	0.04	0.02	0.05
2017-12-22	0.04	0.06	0.04	0.02	0.05
2017-12-21	0.10	0.16	0.09	0.06	0.13
2017-12-20	0.03	0.03	0.03	0.02	0.03
2017-12-19	0.02	0.02	0.02	0.01	0.02
2017-12-18	0.02	0.02	0.02	0.01	0.02
2017-12-17	0.02	0.02	0.02	0.01	0.02
2017-12-16	0.09	0.14	0.08	0.05	0.11
2017-12-15	0.06	0.09	0.05	0.04	0.07
2017-12-14	0.08	0.13	0.06	0.05	0.12
2017-12-13	0.09	0.14	0.08	0.06	0.12
2017-12-12	0.07	0.12	0.07	0.05	0.10
2017-12-11	0.13	0.21	0.12	0.08	0.18
2017-12-10	0.11	0.19	0.11	0.07	0.15
2017-12-09	0.09	0.14	0.08	0.05	0.12
2017-12-08	0.05	0.07	0.04	0.03	0.06
2017-12-07	0.05	0.08	0.05	0.03	0.08
2017-12-06	0.06	0.10	0.06	0.04	0.09
2017-12-05	0.11	0.18	0.10	0.07	0.16
2017-12-04	0.17	0.27	0.16	0.10	0.24
2017-12-03	0.10	0.15	0.09	0.06	0.12
2017-12-02	0.08	0.11	0.07	0.05	0.10
2017-12-01	0.07	0.11	0.07	0.05	0.09
2017-11-30	0.07	0.11	0.07	0.05	0.09
2017-11-29	0.04	0.05	0.03	0.02	0.05
2017-11-28	0.13	0.21	0.13	0.08	0.19

2017-11-27	0.12	0.18	0.11	0.07	0.15
2017-11-26	0.09	0.13	0.08	0.05	0.11
2017-11-25	0.13	0.21	0.12	0.08	0.18
2017-11-24	0.13	0.21	0.12	0.08	0.17
2017-11-23	0.07	0.11	0.07	0.04	0.09
2017-11-22	0.09	0.14	0.08	0.05	0.12
2017-11-21	0.09	0.14	0.09	0.06	0.12
2017-11-20	0.10	0.15	0.09	0.08	0.13
2017-11-19	0.07	0.10	0.06	0.04	0.08
2017-11-18	0.13	0.20	0.12	0.08	0.18
2017-11-17	0.13	0.20	0.12	0.08	0.18
2017-11-16	0.05	0.07	0.05	0.03	0.06
2017-11-15	0.05	0.07	0.05	0.03	0.06
2017-11-14	0.09	0.13	0.08	0.08	0.12
2017-11-13	0.05	0.06	0.04	0.03	0.06
2017-11-12	0.09	0.14	0.09	0.08	0.12
2017-11-11	0.09	0.13	0.08	0.05	0.11
2017-11-10	0.08	0.12	0.08	0.05	0.10
2017-11-09	0.06	0.07	0.05	0.03	0.07
2017-11-08	0.03	0.04	0.03	0.02	0.03
2017-11-07	0.05	0.07	0.05	0.03	0.07
2017-11-06	0.04	0.05	0.04	0.02	0.05
2017-11-05	0.18	0.26	0.16	0.11	0.24
2017-11-04	0.12	0.18	0.11	0.08	0.15
2017-11-03	0.06	0.08	0.08	0.04	0.08
2017-11-02	0.21	0.33	0.20	0.13	0.29
2017-11-01	0.10	0.15	0.10	0.06	0.13
2017-10-31	0.07	0.10	0.07	0.04	0.09
2017-10-30	0.12	0.18	0.11	0.07	0.16
2017-10-29	0.10	0.14	0.09	0.06	0.12
2017-10-28	0.10	0.15	0.09	0.06	0.13
2017-10-27	0.13	0.21	0.12	0.08	0.20
2017-10-26	0.17	0.26	0.16	0.11	0.23
2017-10-25	0.13	0.19	0.12	0.08	0.17
2017-10-24	0.16	0.24	0.14	0.10	0.23
2017-10-23	0.14	0.20	0.13	0.08	0.17
2017-10-22	0.12	0.17	0.11	0.08	0.16
2017-10-21	0.10	0.14	0.09	0.06	0.13
2017-10-20	0.14	0.19	0.13	0.09	0.18
2017-10-19	0.12	0.16	0.11	0.07	0.15
2017-10-18	0.14	0.19	0.13	0.08	0.18
2017-10-17	0.11	0.15	0.11	0.07	0.14
2017-10-16	0.12	0.16	0.11	0.07	0.15
2017-10-15	0.18	0.26	0.17	0.11	0.25
2017-10-14	0.18	0.24	0.16	0.11	0.23
2017-10-13	0.15	0.20	0.14	0.10	0.19
2017-10-12	0.14	0.19	0.13	0.09	0.17
2017-10-11	0.11	0.13	0.10	0.07	0.13
2017-10-10	0.12	0.16	0.11	0.07	0.15

2017-10-09	0 18	0 25	0 17	0 11	0 23
2017-10-08	0 14	0 18	0 13	0 09	0 17
2017-10-07	0 16	0 22	0 15	0 10	0 21
2017-10-06	0 18	0 23	0 16	0 11	0 23
2017-10-05	0 15	0 18	0 14	0 09	0 18
2017-10-04	0 09	0 11	0 09	0 06	0 11
2017-10-03	0 10	0 13	0 09	0 06	0 12
2017-10-02	0 17	0 23	0 16	0 11	0 22
2017-10-01	0 18	0 20	0 14	0 10	0 20
2017-09-30	0 15	0 19	0 14	0 09	0 18
2017-09-29	0 09	0 12	0 09	0 06	0 11
2017-09-28	0 04	0 05	0 03	0 02	0 05
2017-09-27	0 05	0 06	0 04	0 03	0 06
2017-09-26	0 11	0 14	0 10	0 07	0 13
2017-09-25	0 17	0 22	0 16	0 10	0 21
2017-09-24	0 19	0 24	0 17	0 12	0 24
2017-09-23	0 19	0 23	0 17	0 12	0 23
2017-09-22	0 17	0 22	0 16	0 11	0 22
2017-09-21	0 22	0 29	0 20	0 14	0 29
2017-09-20	0 23	0 31	0 21	0 14	0 31
2017-09-19	0 20	0 26	0 19	0 12	0 26
2017-09-18	0 16	0 20	0 15	0 10	0 19
2017-09-17	0 17	0 22	0 16	0 11	0 21
2017-09-16	0 21	0 27	0 19	0 13	0 27
2017-09-15	0 21	0 28	0 20	0 13	0 28
2017-09-14	0 20	0 26	0 19	0 12	0 25
2017-09-13	0 17	0 20	0 15	0 10	0 20
2017-09-12	0 16	0 21	0 15	0 10	0 20
2017-09-11	0 18	0 21	0 16	0 11	0 22
2017-09-10	0 17	0 21	0 16	0 11	0 21
2017-09-09	0 16	0 19	0 15	0 10	0 20
2017-09-08	0 16	0 20	0 15	0 10	0 20
2017-09-07	0 16	0 20	0 15	0 10	0 20
2017-09-06	0 20	0 27	0 19	0 13	0 27
2017-09-05	0 18	0 23	0 17	0 11	0 23
2017-09-04	0 20	0 24	0 19	0 13	0 25
2017-09-03	0 19	0 22	0 18	0 12	0 23
2017-09-02	0 15	0 17	0 14	0 09	0 18
2017-09-01	0 18	0 20	0 17	0 11	0 21
2017-08-31	0 21	0 27	0 20	0 13	0 27
2017-08-30	0 21	0 27	0 20	0 13	0 28
2017-08-29	0 21	0 26	0 19	0 13	0 26
2017-08-28	0 20	0 24	0 19	0 13	0 25
2017-08-27	0 18	0 21	0 17	0 11	0 22
2017-08-26	0 18	0 22	0 17	0 11	0 23
2017-08-25	0 16	0 19	0 15	0 10	0 19
2017-08-24	0 13	0 15	0 12	0 08	0 16
2017-08-23	0 18	0 20	0 16	0 11	0 21
2017-08-22	0 21	0 24	0 19	0 13	0 25
2017-08-21	0 19	0 22	0 18	0 12	0 23

Mill Creek Water Levels Fourth Quarter 2017

