



Robin L. Simmons
Regional Land Manager

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January 17, 2023

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Oklahoma Water Resources Board

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

Re: Martin Marietta/TXI Mill Creek Limestone Quarry Revised Monitoring Report Q4 and Annual 2021

Dear Mr. Cogburn:

Attached please find the revised Q4 and Annual 2021 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.

MEPS for this facility is 128 acre-feet of groundwater per calendar year per permit 2000-533.

Please call if you have any questions or comments.

Sincerely,

A handwritten signature in blue ink that reads 'Robin L. Simmons'.

Robin L. Simmons
Regional Land Manager

North Texas/Oklahoma District
1503 LBJ Parkway Suite 400, Dallas, Texas 75234
t. (972) 350-8228 m. (214) 213-6024 e. Robin.Simmons@martinmarietta.com
www.martinmarietta.com

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ATTACHMENT 1 (Appendix C)
Martin Marietta (TXI) Mill Creek 2021

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Appendix C . Consumptive use of Pitwater

Q1 2021 Q2 2021 Q3 2021 Q4 2021 2021 Total

PIT GROUNDWATER VOLUME							
1	Total volume pumped from producing mine pit(s) (AC-FT)		673.826	633.937	567.966	560.908	2436.64
2	Volume of precipitation that falls onto the surface of producing Mine Pits (AC-FT)		11.5257	32.6363	12.638	5.84567	62.65
3	Portion of total precipitation that flows over the land surface that drains into the mine pit water (AC-FT)		51.9943	38.964	11.9726	3.84944	106.78
4	(WATER HELD IN PIT FROM PREVIOUS MONTHS) other non pit waters pumped from the producing mining pit (AC-FT) If Positive - increased water stored in pit, If negative - decreased water stored in pit		-91.5971	56.5935	-74.5063	-289.976	-399.49
5	add lines 2 & 3, Subtract line 4		155.12	15.01	99.12	280.63	549.87
6	Pit Groundwater Volume (AC-FT) (line 1 minus Line 5)		518.71	618.93	468.85	280.28	1886.77
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)		3.20	4.37	3.82	3.54	14.93
9	Vol. of pit groundwater that evaporates from producing mine pits, process ponds and lined ponds (excluding structures used for augmentation) (AC-FT)		0.00	0.00	0.00	0.30	0.30
10	Volume of pit groundwater that is used for other beneficial uses off of the mine site (AC-FT) (includes on-site dust control)		13.71	12.51	25.41	19.21	70.84
11	DEFINED ELEMENTS OF CONSUMPTIVE USE of Pit groundwater (AC-FT) (add lines 7 through 10)		16.90	16.88	29.23	23.05	86.07
PIT GROUNDWATER BALANCE							
12	Lines 6 minus 11		501.81	602.05	439.62	257.23	1800.70
13	Groundwater Augmentation Volume of pit water returned to GW Basin or subbasin. (Troy Recharge AC-FT)	Credits	334.00	384.94	373.61	697.09	1789.65
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)		42.79	74.47	145.05	45.32	307.63
15	PPT and Runoff Volume of Precipitation and surface runoff into a recharge pit or holding pond (AC-FT)		19.72	53.77	19.33	7.39	100.21
16	Recycled Pit Groundwater - Volume of ground water returned to the mine pit or holding basin (AC-FT)		333.90	342.24	356.95	365.99	1399.07
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)		32.6	0.0	0.0	15.3	47.83
18	add lines 13 through 17		762.97	855.43	894.94	1131.06	3644.39
19	OTHER CONSUMPTIVE USE Line 12 minus Line 18		-261.17	-253.38	-455.32	-873.83	-1843.70
TOTAL REPORTED CONSUMPTIVE USE (AC-FT)							
TOTAL NET CONSUMPTIVE USE (AC-FT) Line 11 plus line 19			-244.26	-236.50	-426.09	-850.78	-1757.62

Water Volume Movements	January	February	March	April	May	June	July	August	September	October	November	December
Pumped from Pit	180.4	271.6	221.8	238.1	202.2	193.6	188.1	192.1	187.8	194.5	188.1	178.3
Groundwater Component of Pitwater	120.2	290.5	90.5	122.2	153.5	184.8	164.9	123.2	156.8	158.0	152.0	146.9
Quarry dust suppression	2.1	7.7	5.9	6.8	2.8	7.3	7.5	9.8	11.4	8.2	5.3	6.8
Q- freshwater pond	162.0	249.6	203.8	169.1	199.4	186.3	170.6	137.7	86.0	174.0	174.3	147.1
To Secondary FM7	336.0	293.0	430.5	541.0	513.3	511.8	445.5	565.5	576.3	592.8	518.9	499.5
To sand Plant FM8	104.6	77.0	138.1	182.0	161.7	163.9	148.5	172.1	170.0	170.9	143.1	154.2
to loadout FM6	267.9	187.2	369.4	456.3	400.4	437.9	399.2	463.9	465.2	508.4	426.2	444.3
to dust control FM9	2.265	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
to Plant FM7+FM8+FM6	708.5	557.2	938.0	1179.2	1075.5	1113.5	993.2	1201.6	1211.4	1272.2	1088.2	1098.0
to stream Augmentation	16.25	14.31	12.23	62.24	0.00	0.00	10.02	44.58	90.45	12.38	8.53	24.41
bypass discharge	0.378851	0.378851	0.649776	0	0.378851	0.762633	0.648809	0.149587	0.34444	0.1495868	1.8942553	2.5025203
To Troy FM3	721.6	529.8	939.5	1212.3	1117.8	1147.7	1003.6	1249.6	1248.8	1310.7	1056.7	1119.6
To Booster FM2	729.0	524.3	966.5	1248.5	1136.8	1215.3	1047.5	1278.5	1266.6	1328.5	1058.2	1137.4
From Troy to Freshwater Pond FM4	550.2	432.6	726.9	910.1	766.2	865.0	825.1	1023.6	1065.7	1088.4	820.8	940.2

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RESULTS FROM RUNOFF MODELLING

2021		Quarry Monthly Totals				FW Pond Monthly Totals		Re-cycle Recharge (Troy) Monthly Totals		TXI-Mill Creek Totals	
	PPT.	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	1.25	2.958	6.382	0.799	10.14	1.95	0.01	3.65	0.28	8.55	7.47
February	0.81	1.917	1.668	0.037	3.62	1.26	0.00	2.36	0.01	5.54	1.72
March	2.81	6.650	31.492	11.616	49.76	4.38	6.93	8.20	5.22	19.23	55.25
Q1 Subtotal	4.87	11.53	39.54	12.45	63.52	7.59	6.93	14.20	5.51	33.32	64.44
April	5.36	12.685	47.746	14.610	75.04	8.35	7.43	15.63	6.41	36.67	76.19
May	6.11	14.460	47.774	14.906	77.14	9.52	10.01	17.82	6.74	41.80	79.43
June	2.32	5.491	10.849	7.721	24.06	3.62	0.03	6.77	0.41	15.87	19.01
Q2 Subtotal	13.79	32.64	106.37	37.24	176.24	21.49	17.47	40.22	13.55	94.35	174.64
July	1.53	3.62	4.88	0.57	9.07	2.38	0.00	4.46	0.20	10.47	5.65
August	3.03	7.17	27.34	8.08	42.59	4.72	3.65	8.84	3.50	20.73	42.57
September	0.78	1.85	2.63	0.16	4.64	1.22	0.00	2.28	0.05	5.34	2.85
Q3 Subtotal	5.34	12.64	34.86	8.80	56.30	8.32	3.65	15.58	3.76	36.53	51.07
October	1.00	2.37	3.85	4.04	10.25	1.56	0.00	2.92	0.07	6.84	7.95
November	0.94	2.22	3.61	3.90	9.73	1.46	0.00	2.74	0.10	6.43	7.60
December	0.53	1.25	1.85	1.90	5.01	0.83	0.00	1.55	0.02	3.63	3.77
Q4 Subtotal	2.47	5.85	9.30	9.84	24.99	3.85	0.00	7.20	0.18	16.90	19.33
ANNUAL TOTALS	26.47	62.65	190.07	68.34	321.06	41.25	28.06	77.20	23.01	181.10	309.48

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Quarter Summary	4th Qtr
Total Tons Shipped	1,480,000
Total Acre Feet	27.43
Average Moisture %	2.52%

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Date	Daily Total Rain (in)
10/1/2021	0
10/2/2021	0.04
10/3/2021	0
10/4/2021	0
10/5/2021	0
10/6/2021	0
10/7/2021	0
10/8/2021	0
10/9/2021	0
10/10/2021	0
10/11/2021	0
10/12/2021	0
10/13/2021	0.56
10/14/2021	0.04
10/15/2021	0
10/16/2021	0
10/17/2021	0
10/18/2021	0
10/19/2021	0
10/20/2021	0
10/21/2021	0
10/22/2021	0
10/23/2021	0
10/24/2021	0
10/25/2021	0
10/26/2021	0
10/27/2021	0.36
10/28/2021	0
10/29/2021	0
10/30/2021	0
10/31/2021	0

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Date	Daily Total Rain (in)
11/1/2021	0
11/2/2021	0.1
11/3/2021	0.23
11/4/2021	0
11/5/2021	0
11/6/2021	0
11/7/2021	0
11/8/2021	0
11/9/2021	0
11/10/2021	0.61
11/11/2021	0
11/12/2021	0
11/13/2021	0
11/14/2021	0
11/15/2021	0
11/16/2021	0
11/17/2021	0
11/18/2021	0
11/19/2021	0
11/20/2021	0
11/21/2021	0
11/22/2021	0
11/23/2021	0
11/24/2021	0
11/25/2021	0
11/26/2021	0
11/27/2021	0
11/28/2021	0
11/29/2021	0
11/30/2021	0

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Date	Daily Total Rain (in)
12/1/2021	0
12/2/2021	0
12/3/2021	0
12/4/2021	0
12/5/2021	0
12/6/2021	0
12/7/2021	0
12/8/2021	0
12/9/2021	0
12/10/2021	0
12/11/2021	0
12/12/2021	0
12/13/2021	0
12/14/2021	0
12/15/2021	0
12/16/2021	0
12/17/2021	0.46
12/18/2021	0
12/19/2021	0
12/20/2021	0
12/21/2021	0
12/22/2021	0
12/23/2021	0
12/24/2021	0
12/25/2021	0
12/26/2021	0
12/27/2021	0
12/28/2021	0.01
12/29/2021	0.06
12/30/2021	0

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# 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: 2021-12-08 15:43:27 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.
#      4 Statistic computed from less than expected number of instantaneous values for the period
#
agency_cd      site_no      datetime      111780_00060_00003      111780_00060_00003_cd
5s      15s      20d      14n      10s
USGS      07331200      2021-10-01      2.80      A
USGS      07331200      2021-10-02      2.46      A
USGS      07331200      2021-10-03      2.51      A
USGS      07331200      2021-10-04      2.12      A
USGS      07331200      2021-10-05      1.74      A
USGS      07331200      2021-10-06      1.51      P
USGS      07331200      2021-10-07      1.54      P
USGS      07331200      2021-10-08      1.26      P
USGS      07331200      2021-10-09      1.21      P
USGS      07331200      2021-10-10      1.50      P
USGS      07331200      2021-10-11      1.78      P
USGS      07331200      2021-10-12      1.80      P
USGS      07331200      2021-10-13      2.96      P
USGS      07331200      2021-10-14      3.00      P
USGS      07331200      2021-10-15      2.05      P
USGS      07331200      2021-10-16      2.28      P
USGS      07331200      2021-10-17      2.25      P
USGS      07331200      2021-10-18      1.98      P
USGS      07331200      2021-10-19      1.76      P
USGS      07331200      2021-10-20      1.62      P
USGS      07331200      2021-10-21      1.60      P
USGS      07331200      2021-10-22      1.62      P
USGS      07331200      2021-10-23      1.46      P
USGS      07331200      2021-10-24      1.27      P
USGS      07331200      2021-10-25      1.35      P
USGS      07331200      2021-10-26      1.29      P:[4]
USGS      07331200      2021-10-27      2.74      P:[4]
USGS      07331200      2021-10-28      1.85      P
USGS      07331200      2021-10-29      0.78      P
USGS      07331200      2021-10-30      1.13      P
USGS      07331200      2021-10-31      1.28      P

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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: 2021-12-08 15:44:54 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		2021-11-01	1.11 P
USGS	07331200		2021-11-02	1.07 P
USGS	07331200		2021-11-03	2.07 P
USGS	07331200		2021-11-04	1.24 P
USGS	07331200		2021-11-05	1.58 P
USGS	07331200		2021-11-06	2.13 P
USGS	07331200		2021-11-07	1.27 P
USGS	07331200		2021-11-08	1.13 P
USGS	07331200		2021-11-09	1.09 P
USGS	07331200		2021-11-10	1.05 P
USGS	07331200		2021-11-11	0.97 P
USGS	07331200		2021-11-12	0.71 P
USGS	07331200		2021-11-13	0.68 P
USGS	07331200		2021-11-14	1.02 P
USGS	07331200		2021-11-15	0.99 P
USGS	07331200		2021-11-16	0.84 P
USGS	07331200		2021-11-17	0.86 P
USGS	07331200		2021-11-18	0.84 P
USGS	07331200		2021-11-19	0.85 P
USGS	07331200		2021-11-20	0.94 P
USGS	07331200		2021-11-21	0.91 P
USGS	07331200		2021-11-22	1.57 P
USGS	07331200		2021-11-23	4.22 P
USGS	07331200		2021-11-24	2.84 P
USGS	07331200		2021-11-25	1.93 P
USGS	07331200		2021-11-26	1.66 P
USGS	07331200		2021-11-27	1.65 P
USGS	07331200		2021-11-28	1.46 P
USGS	07331200		2021-11-29	1.05 P
USGS	07331200		2021-11-30	0.96 P

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```
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# 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: 2022-03-08 15:09:53 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	2021-12-01	0.88	P
USGS	07331200	2021-12-02	0.91	P
USGS	07331200	2021-12-03	1.06	P
USGS	07331200	2021-12-04	4.01	P
USGS	07331200	2021-12-05	3.50	P
USGS	07331200	2021-12-06	2.51	P
USGS	07331200	2021-12-07	1.99	P
USGS	07331200	2021-12-08	1.49	P
USGS	07331200	2021-12-09	1.21	P
USGS	07331200	2021-12-10	0.78	P
USGS	07331200	2021-12-11	0.78	P
USGS	07331200	2021-12-12	0.75	P
USGS	07331200	2021-12-13	0.81	P
USGS	07331200	2021-12-14	0.75	P
USGS	07331200	2021-12-15	0.81	P
USGS	07331200	2021-12-16	0.84	P
USGS	07331200	2021-12-17	1.07	P
USGS	07331200	2021-12-18	3.23	P
USGS	07331200	2021-12-19	1.01	P
USGS	07331200	2021-12-20	0.98	P
USGS	07331200	2021-12-21	1.06	P
USGS	07331200	2021-12-22	1.00	P
USGS	07331200	2021-12-23	0.75	P
USGS	07331200	2021-12-24	0.75	P
USGS	07331200	2021-12-25	0.84	P
USGS	07331200	2021-12-26	0.81	P
USGS	07331200	2021-12-27	0.80	P
USGS	07331200	2021-12-28	1.06	P
USGS	07331200	2021-12-29	1.50	P
USGS	07331200	2021-12-30	1.83	P
USGS	07331200	2021-12-31	2.40	P

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MESONET CLIMATOLOGICAL DATA SUMMARY (TISH) Tishomingo Latitude: 34-19-57										October 2021 Nearest City: 6.0 N Oklahoma 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	60	68.0	64.9	0	4	98	68	91	0.02	29.11	30.05	E	3.2	9.7	8.35	73.7	73.2	79	69									
2	83	62	72.2	64.7	0	7	98	48	80	0.00	29.08	30.02	NW	5.8	18.6	14.75	75.6	75.5	83	71									
3	84	56	68.7	57.4	0	5	96	37	71	0.00	29.09	30.03	NW	6.4	18.1	19.53	74.0	74.7	87	67									
4	86	54	68.4	49.1	0	5	92	22	57	0.00	29.10	30.05	NW	7.5	25.9	20.42	72.2	74.3	88	64									
5	83	50	67.1	46.7	0	2	89	22	53	0.00	29.13	30.07	NNE	7.0	20.5	20.44	70.9	74.2	88	64									
6	84	52	66.0	53.1	0	3	96	34	67	0.00	29.10	30.05	NNW	4.4	14.8	14.92	70.3	73.1	82	65									
7	89	50	69.8	55.0	0	4	98	29	65	0.00	29.08	30.03	SSE	5.4	19.4	18.84	70.9	74.6	87	65									
8	91	62	75.0	60.7	0	12	88	36	64	0.00	29.03	29.97	S	9.7	26.3	18.42	72.8	76.9	87	69									
9	91	63	76.6	58.3	0	12	86	26	56	0.00	28.93	29.87	S	12.0	26.8	19.15	73.7	77.7	88	70									
10	86	65	74.6	65.7	0	11	94	55	75	0.20	28.75	29.68	SSE	13.7	39.7	9.64	73.9	76.4	83	71									
11	81	50	65.3	50.6	0	1	93	23	66	0.00	28.88	29.81	W	6.7	25.3	19.54	72.9	73.0	83	67									
12	75	49	65.0	59.2	3	0	94	59	82	0.00	28.92	29.86	ESE	7.7	20.4	5.77	69.2	68.5	73	62									
13	77	60	67.8	65.1	0	4	98	77	91	1.84	28.86	29.79	SE	7.6	35.8	4.66	71.2	71.7	75	68									
14	79	63	68.6	65.6	0	6	99	66	91	0.07	28.90	29.84	ESE	5.2	21.1	8.96	70.7	70.7	76	68									
15	70	50	63.8	53.5	5	0	99	36	73	0.00	29.08	30.03	NNW	9.7	33.0	15.57	70.8	68.7	73	61									
16	71	43	55.6	37.9	8	0	91	22	59	0.00	29.37	30.32	NNW	6.4	20.0	19.34	66.8	62.1	71	56									
17	74	40	55.2	42.2	8	0	96	25	69	0.00	29.31	30.26	NW	4.1	17.1	16.88	64.9	61.6	71	54									
18	74	40	57.7	43.6	8	0	98	31	65	0.00	29.15	30.09	SSE	6.7	22.7	18.38	64.2	61.6	70	54									
19	78	53	64.9	51.8	0	0	83	43	64	0.00	29.07	30.01	SE	9.8	24.9	17.27	65.9	64.9	74	59									
20	80	56	67.5	60.9	0	3	98	59	80	0.00	29.12	30.06	SSW	6.6	22.9	10.12	67.5	67.3	74	61									
21	76	50	62.4	45.1	2	0	87	30	56	0.00	29.22	30.17	NNE	6.8	18.3	17.99	67.2	67.6	77	60									
22	79	51	64.2	48.8	0	0	89	36	60	0.00	29.10	30.04	SSE	5.6	16.7	14.88	66.1	67.0	76	60									
23	84	54	69.9	61.8	0	4	96	54	77	0.00	28.90	29.83	SSE	9.3	25.8	16.36	67.5	69.6	79	62									
24	84	57	71.1	63.3	0	5	92	51	77	0.01	28.86	29.79	S	12.1	28.3	9.68	69.5	71.2	78	67									
25	79	49	63.0	52.4	1	0	98	38	72	0.01	29.02	29.96	ENE	6.3	16.6	16.97	67.3	68.5	79	61									
26	78*	60*	69.4*	60.3*	0*	4*	82*	63*	73*	0.00*	28.85*	29.79*	SE *	10.2*	27.3*	NA	68.0*	69.6*	75*	66*									
27	74	56	61.2	55.0	0	0	98	58	81	1.30	28.66	29.59	WNW	9.9	30.4	7.70	67.7	67.1	71	61									
28	68	54	60.3	35.6	4	0	59	25	41	0.00	28.79	29.73	NW	16.8	48.2	16.22	64.4	59.0	63	55									
29	68	42	56.7	31.6	10	0	74	22	40	0.00	28.98	29.91	NNW	14.5	40.6	17.44	62.2	55.6	61	52									
30	72	37	52.4	35.2	11	0	92	22	58	0.00	28.97	29.91	NW	4.3	11.1	17.11	60.4	56.0	66	48									
31	70	40	54.6	44.4	10	0	95	44	71	0.00	29.14	30.08	NNE	7.6	19.6	16.27	60.6	58.1	67	51									
	79*	52*	65.3*	52.9*	<- Monthly Averages ->						29.02*	29.96*	NW *	8.0*	48.2*	15.05*	68.8*	68.7*	77*	62*									
Temperature - Highest: 91*							Degree Days - Total HDD: 69*					Number of Days With: Tmax ≥ 90: 2* Rainfall ≥ 0.01 inch: 7* Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 3* Tmin ≤ 32: 0* Avg Wind Speed ≥ 10 mph: 6* Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 6*																	
Lowest: 37*							Total CDD: 90*																						
Rainfall: Monthly Total: 3.45* in.							Humidity - Highest: 99*																						
Greatest 24 Hr: 1.84* in.							Lowest: 22*																						

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JAN 17 2023

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

November 2021
Nearest City: 6.0 N Tishomingo
Longitude: 96-40-44 Oklahoma Water Resources Board

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	70	49	57.8	48.3	5	0	91	49	72	0.03	29.25	30.20	NNE	8.8	23.6	11.51	62.1	60.1	66	55
2	53	46	48.4	45.6	15	0	97	80	90	0.36	29.34	30.29	NNE	11.3	22.8	3.87	61.3	56.8	59	55
3	48	44	45.7	43.9	19	0	97	88	94	0.34	29.35	30.29	NE	7.3	16.7	2.54	58.8	54.1	56	53
4	55	39	47.3	41.4	18	0	97	56	81	0.00	29.34	30.29	S	2.3	12.0	9.58	58.7	55.4	62	52
5	59	33	44.6	38.3	19	0	99	47	81	0.00	29.28	30.23	SSE	3.7	13.7	14.54	57.5	54.3	63	49
6	64	33	48.0	38.8	17	0	98	44	74	0.00	29.28	30.22	SE	4.0	13.1	15.72	56.6	53.9	63	47
7	73	36	54.0	44.2	11	0	98	41	72	0.00	29.21	30.16	SSE	7.0	19.7	15.70	57.2	55.2	64	48
8	73	41	57.6	50.5	8	0	99	51	80	0.00	29.20	30.15	SSE	8.0	24.9	15.24	58.2	56.8	65	50
9	75	51	62.0	57.1	2	0	98	61	85	0.00	29.16	30.10	SSE	7.3	22.7	10.71	60.0	59.9	67	55
10	69	56	63.3	59.3	3	0	96	77	87	0.30	28.94	29.88	S	10.2	27.9	2.92	61.7	61.6	63	60
11	65	38	52.6	38.0	13	0	94	29	62	0.00	29.12	30.06	NNW	7.7	26.7	14.10	60.4	57.6	64	53
12	62	36	48.6	29.2	16	0	90	17	53	0.00	29.22	30.17	NW	8.4	33.7	13.37	57.5	52.7	59	48
13	61	29	45.2	27.8	20	0	87	25	54	0.00	29.24	30.19	S	5.2	15.9	13.35	55.2	49.9	58	43
14	65	38	50.2	35.2	14	0	89	31	60	0.00	29.16	30.11	NNE	6.1	23.9	14.17	55.2	52.3	61	46
15	76	34	53.9	43.6	10	0	96	38	72	0.00	29.13	30.07	SSE	3.7	15.9	14.30	55.5	54.0	64	46
16	78	50	66.0	58.1	1	0	98	53	78	0.00	28.94	29.87	S	13.4	33.0	13.54	58.1	58.5	65	53
17	77	48	62.9	48.2	3	0	91	32	61	0.00	29.01	29.95	S	14.9	34.9	12.63	60.6	60.6	67	53
18	57	27	45.5	19.0	23	0	84	17	39	0.00	29.49	30.44	NNE	11.1	29.8	14.52	57.0	51.8	59	47
19	58	27	44.1	23.7	23	0	86	25	49	0.00	29.38	30.33	SSE	8.6	27.9	13.69	53.3	47.9	55	42
20	70	42	55.4	42.2	9	0	91	46	62	0.00	29.11	30.05	SE	9.4	24.9	12.12	54.7	51.6	59	45
21	60	45	55.2	45.4	13	0	99	44	72	0.00	29.19	30.13	N	9.1	28.1	3.94	56.5	54.0	56	49
22	64	32	47.2	31.1	17	0	88	29	57	0.00	29.33	30.27	NNW	4.5	13.2	13.93	54.3	50.5	59	44
23	69	32	51.2	33.6	14	0	94	22	58	0.00	29.14	30.08	SSE	8.9	27.4	13.84	53.4	50.8	59	44
24	72	53	61.6	52.5	2	0	88	58	72	0.00	29.01	29.95	S	12.5	31.3	7.50	55.9	55.4	61	51
25	62	31	45.3	28.4	19	0	78	31	53	0.00	29.38	30.33	N	13.9	33.0	13.52	55.6	53.5	59	47
26	60	23	40.7	24.3	24	0	91	23	57	0.00	29.31	30.26	SSW	6.2	16.0	13.77	51.6	47.8	57	41
27	67	36	47.2	37.5	14	0	98	34	71	0.00	29.11	30.05	S	7.0	21.8	8.35	51.7	49.1	56	44
28	63	34	48.9	33.6	16	0	99	30	59	0.00	29.25	30.20	N	8.1	23.5	13.24	52.7	51.5	60	46
29	72	30	50.4	35.1	14	0	94	27	61	0.00	29.16	30.10	SSW	6.4	18.9	13.09	51.9	51.1	61	43
30	74	36	55.1	43.2	10	0	97	39	67	0.00	29.09	30.03	S	5.7	19.5	12.92	53.1	53.5	63	46
	66	38	51.9	39.9	<- Monthly Averages ->						29.20	30.15	S	8.0	34.9	11.74	56.5	54.1	61	48

Temperature - Highest: 78 Lowest: 23				Degree Days - Total HDD: 389 Total CDD: 0				Number of Days With:			
Rainfall: Monthly Total: 1.03 in. Greatest 24 Hr: 0.36 in.				Humidity - Highest: 99 Lowest: 17				Tmax ≥ 90: 0 Rainfall ≥ 0.01 inch: 4 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 3 Tmin ≤ 32: 8 Avg Wind Speed ≥ 10 mph: 7 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 5			

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* Denotes incomplete record

Monthly data generated on Sunday, January 30, 2022 at 18:45 UTC

JAN 17 2023

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

Temperature - Highest: 80 Lowest: 19	Degree Days - Total HDD: 363 Total CDD: 8	Number of Days With: Tmax ≥ 90: 0 Rainfall ≥ 0.01 inch: 7 Tmax ≤ 32: 0 Rainfall ≥ 0.10 inch: 1 Tmin ≤ 32: 10 Avg Wind Speed ≥ 10 mph: 8 Tmin ≤ 0: 0 Max Wind Speed ≥ 30 mph: 7
Rainfall: Monthly Total: 0.56 in. Greatest 24 Hr: 0.42 in.	Humidity - Highest: 99 Lowest: 19	

Date	Reference ET, Short [in]	Reference ET, Tall [in]	Cool Season Grass ET [in]	Warm Season Grass ET [in]	Pan Evaporation [in]
2022-02-09	0.11	0.16	0.10	0.07	0.14
2022-02-08	0.11	0.17	0.10	0.07	0.14
2022-02-07	0.09	0.13	0.08	0.06	0.12
2022-02-06	0.07	0.09	0.06	0.04	0.08
2022-02-05	0.06	0.08	0.05	0.03	0.07
2022-02-04	0.06	0.09	0.05	0.04	0.08
2022-02-03	0.02	0.03	0.02	0.01	0.03
2022-02-02	0.07	0.11	0.07	0.04	0.10
2022-02-01	0.09	0.14	0.09	0.06	0.12
2022-01-31	0.11	0.16	0.10	0.07	0.14
2022-01-30	0.08	0.12	0.07	0.05	0.11
2022-01-29	0.11	0.17	0.10	0.07	0.15
2022-01-28	0.09	0.13	0.08	0.05	0.12
2022-01-27	0.05	0.07	0.05	0.03	0.06
2022-01-26	0.08	0.12	0.07	0.05	0.10
2022-01-25	0.12	0.18	0.11	0.07	0.18
2022-01-24	0.08	0.11	0.07	0.05	0.09
2022-01-23	0.08	0.12	0.07	0.05	0.10
2022-01-22	0.05	0.07	0.05	0.03	0.06
2022-01-21	0.05	0.07	0.05	0.03	0.06
2022-01-20	0.07	0.10	0.06	0.04	0.10
2022-01-19	0.10	0.15	0.09	0.06	0.14
2022-01-18	0.10	0.15	0.09	0.06	0.13
2022-01-17	0.07	0.10	0.06	0.04	0.09
2022-01-16	0.06	0.10	0.06	0.04	0.08
2022-01-15	0.08	0.13	0.08	0.05	0.13
2022-01-14	0.09	0.14	0.08	0.05	0.12
2022-01-13	0.10	0.16	0.10	0.06	0.13
2022-01-12	0.08	0.12	0.07	0.05	0.10
2022-01-11	0.08	0.12	0.07	0.05	0.10
2022-01-10	0.07	0.12	0.07	0.05	0.10
2022-01-09	0.10	0.16	0.10	0.06	0.15
2022-01-08	0.06	0.08	0.05	0.03	0.07
2022-01-07	0.05	0.08	0.05	0.03	0.07
2022-01-06	0.05	0.08	0.05	0.03	0.08
2022-01-05	0.09	0.15	0.09	0.06	0.13
2022-01-04	0.09	0.15	0.09	0.06	0.12
2022-01-03	0.06	0.09	0.05	0.03	0.07
2022-01-02	0.05	0.08	0.05	0.03	0.07
2022-01-01	0.05	0.08	0.05	0.03	0.07
2021-12-31	0.04	0.06	0.04	0.03	0.05
2021-12-30	0.07	0.10	0.06	0.04	0.09
2021-12-29	0.06	0.09	0.06	0.04	0.07
2021-12-28	0.10	0.16	0.09	0.06	0.13
2021-12-27	0.09	0.13	0.08	0.05	0.11
2021-12-26	0.06	0.09	0.06	0.04	0.08
2021-12-25	0.08	0.12	0.08	0.05	0.10
2021-12-24	0.13	0.21	0.13	0.08	0.19
2021-12-23	0.09	0.14	0.08	0.05	0.12
2021-12-22	0.06	0.09	0.06	0.04	0.07
2021-12-21	0.05	0.07	0.04	0.03	0.06

2021-12-20	0.02	0.03	0.02	0.02	0.03
2021-12-19	0.04	0.06	0.04	0.02	0.05
2021-12-18	0.07	0.12	0.07	0.05	0.11
2021-12-17	0.08	0.12	0.07	0.05	0.10
2021-12-16	0.14	0.22	0.13	0.09	0.20
2021-12-15	0.11	0.17	0.10	0.07	0.16
2021-12-14	0.08	0.12	0.07	0.05	0.10
2021-12-13	0.11	0.17	0.10	0.07	0.14
2021-12-12	0.07	0.12	0.07	0.05	0.10
2021-12-11	0.08	0.13	0.07	0.05	0.11
2021-12-10	0.12	0.19	0.11	0.08	0.17
2021-12-09	0.09	0.13	0.08	0.05	0.11
2021-12-08	0.05	0.07	0.05	0.03	0.06
2021-12-07	0.05	0.08	0.05	0.03	0.07
2021-12-06	0.16	0.26	0.15	0.10	0.25
2021-12-05	0.06	0.08	0.05	0.04	0.07
2021-12-04	0.04	0.06	0.04	0.03	0.05
2021-12-03	0.06	0.08	0.06	0.04	0.07
2021-12-02	0.08	0.12	0.08	0.05	0.10
2021-12-01	0.07	0.10	0.07	0.04	0.09
2021-11-30	0.08	0.12	0.08	0.05	0.10
2021-11-29	0.09	0.14	0.09	0.06	0.12
2021-11-28	0.09	0.14	0.09	0.06	0.12
2021-11-27	0.08	0.12	0.07	0.05	0.10
2021-11-26	0.07	0.11	0.07	0.05	0.10
2021-11-25	0.14	0.23	0.13	0.09	0.21
2021-11-24	0.10	0.16	0.10	0.06	0.14
2021-11-23	0.12	0.18	0.11	0.07	0.15
2021-11-22	0.07	0.10	0.07	0.04	0.09
2021-11-21	0.06	0.08	0.05	0.04	0.07
2021-11-20	0.11	0.17	0.10	0.07	0.15
2021-11-19	0.10	0.15	0.09	0.06	0.13
2021-11-18	0.12	0.19	0.11	0.07	0.18
2021-11-17	0.16	0.26	0.15	0.10	0.24
2021-11-16	0.11	0.16	0.10	0.07	0.14
2021-11-15	0.07	0.10	0.07	0.05	0.09
2021-11-14	0.09	0.13	0.08	0.05	0.11
2021-11-13	0.07	0.11	0.07	0.05	0.09
2021-11-12	0.11	0.16	0.10	0.07	0.14
2021-11-11	0.10	0.15	0.09	0.06	0.13
2021-11-10	0.04	0.06	0.04	0.03	0.06
2021-11-09	0.08	0.10	0.07	0.05	0.10
2021-11-08	0.09	0.13	0.09	0.06	0.12
2021-11-07	0.10	0.14	0.09	0.06	0.12
2021-11-06	0.07	0.09	0.06	0.04	0.08
2021-11-05	0.06	0.07	0.05	0.04	0.07
2021-11-04	0.04	0.05	0.04	0.03	0.05
2021-11-03	0.03	0.03	0.02	0.02	0.03
2021-11-02	0.04	0.06	0.04	0.03	0.06
2021-11-01	0.11	0.16	0.10	0.07	0.14
2021-10-31	0.11	0.15	0.10	0.07	0.13

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2021-10-30	0.10	0.13	0.09	0.06	0.12
2021-10-29	0.19	0.30	0.18	0.12	0.31
2021-10-28	0.21	0.33	0.20	0.13	0.34
2021-10-27	0.10	0.15	0.09	0.06	0.13
2021-10-26	0.11	0.16	0.10	0.07	0.14
2021-10-25	0.12	0.16	0.11	0.07	0.15
2021-10-24	0.12	0.18	0.11	0.08	0.16
2021-10-23	0.13	0.18	0.12	0.08	0.17
2021-10-22	0.11	0.15	0.11	0.07	0.14
2021-10-21	0.14	0.20	0.13	0.09	0.18
2021-10-20	0.09	0.12	0.09	0.06	0.11
2021-10-19	0.15	0.22	0.14	0.09	0.20
2021-10-18	0.12	0.17	0.11	0.08	0.15
2021-10-17	0.10	0.13	0.09	0.06	0.12
2021-10-16	0.13	0.19	0.12	0.08	0.17
2021-10-15	0.10	0.13	0.09	0.06	0.13
2021-10-14	0.08	0.09	0.07	0.05	0.09
2021-10-13	0.06	0.07	0.05	0.04	0.07
2021-10-12	0.07	0.09	0.06	0.04	0.08
2021-10-11	0.16	0.22	0.15	0.10	0.20
2021-10-10	0.15	0.23	0.14	0.10	0.21
2021-10-09	0.23	0.34	0.21	0.14	0.32
2021-10-08	0.20	0.28	0.18	0.12	0.26
2021-10-07	0.15	0.19	0.14	0.09	0.18
2021-10-06	0.12	0.16	0.12	0.08	0.15
2021-10-05	0.18	0.25	0.17	0.11	0.24
2021-10-04	0.19	0.27	0.18	0.12	0.25
2021-10-03	0.16	0.20	0.15	0.10	0.20
2021-10-02	0.12	0.15	0.11	0.07	0.15
2021-10-01	0.07	0.07	0.06	0.04	0.08
2021-09-30	0.09	0.12	0.08	0.06	0.11
2021-09-29	0.16	0.20	0.14	0.10	0.19
2021-09-28	0.18	0.24	0.17	0.11	0.23
2021-09-27	0.18	0.24	0.17	0.11	0.23
2021-09-26	0.19	0.26	0.18	0.12	0.25
2021-09-25	0.14	0.17	0.13	0.09	0.18
2021-09-24	0.15	0.19	0.14	0.09	0.18
2021-09-23	0.14	0.18	0.13	0.09	0.18
2021-09-22	0.20	0.29	0.19	0.13	0.28
2021-09-21	0.23	0.34	0.21	0.14	0.34
2021-09-20	0.21	0.28	0.19	0.13	0.26
2021-09-19	0.17	0.20	0.16	0.10	0.20
2021-09-18	0.18	0.23	0.17	0.11	0.23
2021-09-17	0.17	0.19	0.15	0.10	0.20
2021-09-16	0.17	0.20	0.16	0.10	0.20
2021-09-15	0.16	0.19	0.15	0.10	0.19
2021-09-14	0.16	0.20	0.15	0.10	0.20
2021-09-13	0.17	0.20	0.15	0.10	0.20
2021-09-12	0.17	0.20	0.16	0.10	0.20
2021-09-11	0.20	0.25	0.18	0.12	0.25
2021-09-10	0.20	0.26	0.18	0.12	0.25
2021-09-09	0.19	0.24	0.18	0.12	0.24

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