Robin L. Simmons
Regional Land Manager

December 21, 2018

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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 Monitoring Report Q3 2018

Dear Mr. Cogburn:

Attached please find the Q3 2018 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

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
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ATTACHMENT 1 (Appendix C)

Martin Marietta (TXI) Mill Creek 2018

Appendix C . Consumptive use of Pitwater

			Q1 2018	Q2 2018	Q3 2018
	PIT GROUNDWATER VOLUME				
1	Total volume pumped from producing mine pit(s) (AC-FT)		472.23	594.35	487.27
2	Volume of precipitation that falls onto the surface of producing Mine Pits (AC-FT)		109.54	89.47	186.63
3	Portion of total precipitation that flows over the land surface that drains into the mine pit water (AC-FT)		68.44	26.73	76.56
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		177.98	116.20	263.19
6	**Pit Groundwater Volume (AC-FT)** (line 1 minus Line 5)		**294.25**	**478.15**	**224.08**
	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
8	Vol. of pit groundwater that is carried away with the the mined material transp. off of the mine site (AC-FT)		4.03	10.52	7.27
9	Vol. of pit groundwater that evaporates from producing mine pits, process ponds and lined ponds (excluding structures used for augmentation) (AC-FT)		1.15	3.99	2.74
10	Volume of pit groundwater that is used for other beneficial uses off of the mine site (AC-FT) (includes on-site dust control)		8.69	35.42	9.27
11	**DEFINED ELEMENTS OF CONSUMPTIVE USE** of Pit groundwater (AC-FT) (add lines 7 through 10)		**13.88**	**49.92**	**19.29**
	PIT GROUNDWATER BALANCE				
12	Lines 6 minus 11		280.37	428.23	204.79
13	**Groundwater Augmentation** Volume of pit water returned to GW Basin or subbasin. (Troy Recharge AC-FT)	Credits	272.71	623.02	666.97
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	179.20	0.00	0.00
15	**PPT and Runoff** Volume of Precipitation and surface runoff into a recharge pit or holding pond (AC-FT)	Credits	106.38	68.95	162.33
16	**Recycled Pit Groundwater** - Volume of ground water returned to the mine pit or holding basin (AC-FT)		173.21	364.78	213.49
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
18	add lines 13 through 17		731.50	1056.76	1042.79
19	**OTHER CONSUMPTIVE USE** Line 12 minus Line 18		-451.12	-628.53	-837.99
	TOTAL REPORTED CONSUMPTIVE USE (AC-FT)				
	TOTAL NET CONSUMPTIVE USE (AC-FT) Line 11 plus line 19		-437.25	-578.61	-818.71

RESULTS FROM RUNOFF MODELLING

2018	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	0.25	0.004	0.175	0.000	0.18	0.39	0.00	0.82	0.00	1.22	0.17
February	7.50	0.125	93.183	48.293	141.60	11.69	53.63	24.69	69.73	36.50	264.83
March	2.28	0.038	16.020	4.087	20.14	3.55	1.54	7.51	3.64	11.10	25.29
Q1 Subtotal		**0.17**	**109.38**	**52.38**	**161.92**	**15.63**	**55.17**	**33.02**	**73.37**	**48.81**	**290.29**
April	3.46	0.058	22.332	3.975	26.36	5.39	0.28	11.39	2.13	16.84	28.72
May	5.98	0.100	55.732	21.603	77.43	9.32	19.94	19.68	27.58	29.10	124.85
June	2.37	0.040	11.209	1.154	12.40	3.69	0.02	7.80	0.37	11.53	12.75
Q2 Subtotal	**11.81**	**0.20**	**89.27**	**26.73**	**116.20**	**18.40**	**20.24**	**38.87**	**30.08**	**57.48**	**166.32**
July	2.16	0.04	10.55	1.53	12.12	3.37	0.11	7.11	0.80	10.51	13.00
August	3.62	0.06	36.69	14.47	51.22	5.64	13.80	11.92	18.65	17.62	83.61
September	12.07	25.15	114.14	60.56	199.85	18.81	64.67	39.73	84.12	83.69	323.49
Q3 Subtotal	**17.85**	**25.24**	**161.39**	**76.56**	**263.19**	**27.82**	**78.58**	**58.76**	**103.57**	**111.81**	**420.10**
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	**29.66**	**25.61**	**360.04**	**155.67**	**541.31**	**61.85**	**153.99**	**130.65**	**207.02**	**218.10**	**876.71**

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Water Volume Movements		December	January	February	March	April	May	June	July	August	Septembe
Pumped from Pit	(Ac-Ft)	132.9	103.4	160.8	208.0	155.0	220.0	219.4	133.2	170.3	183.8
Groundwater Component of Pitwater		118.8	103.2	19.2	187.9	128.6	142.6	207.0	121.1	119.1	34.0
Quarry dust suppression		4.0	2.8	3.4	5.4	4.9	8.5	9.3	5.3	5.2	2.5
Q- freshwater pond	(Ac-Ft)	0.0	18.7	60.1	202.6	150.1	211.5	210.1	127.9	165.1	181.3
To Secondary FM7	(Ac-Ft)	402.0	389.1	432.3	598.6	463.0	584.8	554.2	431.4	530.8	565.2
To sand Plant FM8	(Ac-Ft)	102.8	96.3	89.3	123.0	86.2	116.6	110.8	87.5	101.9	146.7
to loadout FM6	(Ac-Ft)	271.2	247.9	284.1	370.7	274.3	190.2	201.9	332.6	384.2	353.8
to dust control FM9	(Ac-Ft)	5.0	72.8	-116.8	0.0	117.0	1.4	1.6	1.3	1.0	0.7
to Plant FM7+FM8+FM6	(Ac-Ft)	776.0	733.4	805.8	1092.4	823.6	891.7	866.8	851.5	1016.9	1065.7
to stream Augmentation	Ac-ft	128.90	81.93	97.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
To Troy FM3	(Ac-Ft)	869.1	811.6	829.1	1200.7	893.8	1154.3	1139.9	888.0	1058.6	1116.6
From Troy to Freshwater Pond FM4	+	853.3	833.4	733.4	975.5	720.2	888.0	939.9	736.4	876.3	863.8

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Quarter Summary	2nd QTR
Total Tons Shipped	1,400,000
Total Acre Feet	30.38
Average Moisture %	2.95%

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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: 2018-12-20 16:46:28 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.
#

agency_cd	site_no	datetime	111780_00060_00003	111780_00060_00003_cd
5s	15s	20d	14n	10s
USGS	07331200	2018-07-01	7.26	A
USGS	07331200	2018-07-02	5.41	A
USGS	07331200	2018-07-03	5.22	A
USGS	07331200	2018-07-04	5.52	A
USGS	07331200	2018-07-05	4.77	A
USGS	07331200	2018-07-06	4.04	A
USGS	07331200	2018-07-07	3.23	A
USGS	07331200	2018-07-08	2.37	A
USGS	07331200	2018-07-09	1.79	A
USGS	07331200	2018-07-10	1.52	A
USGS	07331200	2018-07-11	1.38	A
USGS	07331200	2018-07-12	1.32	A
USGS	07331200	2018-07-13	1.91	A
USGS	07331200	2018-07-14	1.32	A
USGS	07331200	2018-07-15	1.07	A
USGS	07331200	2018-07-16	0.98	A
USGS	07331200	2018-07-17	0.91	A
USGS	07331200	2018-07-18	0.90	A
USGS	07331200	2018-07-19	0.81	A
USGS	07331200	2018-07-20	0.77	A
USGS	07331200	2018-07-21	0.71	A
USGS	07331200	2018-07-22	0.71	A
USGS	07331200	2018-07-23	0.72	A
USGS	07331200	2018-07-24	0.69	A
USGS	07331200	2018-07-25	0.68	A
USGS	07331200	2018-07-26	0.68	A
USGS	07331200	2018-07-27	0.69	A
USGS	07331200	2018-07-28	0.74	A
USGS	07331200	2018-07-29	0.72	A
USGS	07331200	2018-07-30	1.22	A
USGS	07331200	2018-07-31	0.76	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: 2018-12-20 16:47:39 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.
#
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agency_cd	site_no	datetime	111780_00060_00003	111780_00060_00003_cd
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USGS	07331200	2018-08-02	0.63	A
USGS	07331200	2018-08-03	0.60	A
USGS	07331200	2018-08-04	0.57	A
USGS	07331200	2018-08-05	0.56	A
USGS	07331200	2018-08-06	0.52	A
USGS	07331200	2018-08-07	0.52	A
USGS	07331200	2018-08-08	0.84	A
USGS	07331200	2018-08-09	0.62	A
USGS	07331200	2018-08-10	0.57	A
USGS	07331200	2018-08-11	0.53	A
USGS	07331200	2018-08-12	1.04	A
USGS	07331200	2018-08-13	75.8	A
USGS	07331200	2018-08-14	48.6	A
USGS	07331200	2018-08-15	6.01	A
USGS	07331200	2018-08-16	3.66	A
USGS	07331200	2018-08-17	3.13	A
USGS	07331200	2018-08-18	2.53	A
USGS	07331200	2018-08-19	2.12	A
USGS	07331200	2018-08-20	1.55	A
USGS	07331200	2018-08-21	1.28	A
USGS	07331200	2018-08-22	1.12	A
USGS	07331200	2018-08-23	1.02	A
USGS	07331200	2018-08-24	0.94	A
USGS	07331200	2018-08-25	0.85	A
USGS	07331200	2018-08-26	0.79	A
USGS	07331200	2018-08-27	0.74	A
USGS	07331200	2018-08-28	0.69	A
USGS	07331200	2018-08-29	0.67	A
USGS	07331200	2018-08-30	0.65	A
USGS	07331200	2018-08-31	0.62	A

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Contact: gs-w_support_nwisweb@usgs.gov
retrieved: 2018-12-20 16:48:09 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.
e Value has been estimated.
#

agency_cd	site_no	datetime	111780_00060_00003	111780_00060_00003_cd
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USGS	07331200	2018-09-01	0.59	A
USGS	07331200	2018-09-02	0.56	A
USGS	07331200	2018-09-03	0.58	A
USGS	07331200	2018-09-04	0.81	A
USGS	07331200	2018-09-05	1.03	A
USGS	07331200	2018-09-06	0.93	A
USGS	07331200	2018-09-07	10.9	A
USGS	07331200	2018-09-08	3.70	A
USGS	07331200	2018-09-09	1.92	A
USGS	07331200	2018-09-10	1.59	A
USGS	07331200	2018-09-11	1.36	A
USGS	07331200	2018-09-12	1.28	A
USGS	07331200	2018-09-13	1.25	A
USGS	07331200	2018-09-14	1.14	A
USGS	07331200	2018-09-15	1.39	A
USGS	07331200	2018-09-16	1.31	A
USGS	07331200	2018-09-17	1.27	A
USGS	07331200	2018-09-18	1.25	A
USGS	07331200	2018-09-19	1.13	A
USGS	07331200	2018-09-20	1.05	A
USGS	07331200	2018-09-21	1710	A
USGS	07331200	2018-09-22	782	A
USGS	07331200	2018-09-23	258	A
USGS	07331200	2018-09-24	204	A
USGS	07331200	2018-09-25	191	A:e
USGS	07331200	2018-09-26	168	A
USGS	07331200	2018-09-27	121	A
USGS	07331200	2018-09-28	105	A
USGS	07331200	2018-09-29	88.2	A
USGS	07331200	2018-09-30	72.2	A

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Date	Daily Rainf	Total Daily Evaporation
7/1/2018	0.03	0.04
7/2/2018	0.01	0.076
7/3/2018	0	0.059
7/4/2018	0	0.042
7/5/2018	0	0.018
7/6/2018	0.25	0.138
7/7/2018	0	0.14
7/8/2018	0	0.046
7/9/2018	0	0.04
7/10/2018	0.01	0.053
7/11/2018	0.52	0.059
7/12/2018	0.31	0.083
7/13/2018	0	0.2
7/14/2018	0	0.355
7/15/2018	0	0.175
7/16/2018	0	0.018
7/17/2018	0	0.045
7/18/2018	0	0.009
7/19/2018	0	0.026
7/20/2018	0	0.052
7/21/2018	0	0.234
7/22/2018	0	0.447
7/23/2018	0	0.399
7/24/2018	0	0.367
7/25/2018	0	0.357
7/26/2018	0	0.099
7/27/2018	0	0.081
7/28/2018	0.04	0.09
7/29/2018	0	0.068
7/30/2018	0.99	0.161
7/31/2018	0	0.259
8/1/2018	0	0.292
8/2/2018	0	0.357
8/3/2018	0	0.248
8/4/2018	0	0.094
8/5/2018	0	0.089
8/6/2018	0	0.056
8/7/2018	0	0.344
8/8/2018	0.59	0.026
8/9/2018	0	0.081
8/10/2018	0	0.281
8/11/2018	0	0.269
8/12/2018	0.88	0.532
8/13/2018	2.06	0.59
8/14/2018	0.02	0.174
8/15/2018	0.07	0.273

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8/16/2018	0	0.371
8/17/2018	0	0.359
8/18/2018	0	0.275
8/19/2018	0	0.221
8/20/2018	0	0.31
8/21/2018	0	0.222
8/22/2018	0	0.267
8/23/2018	0	0.256
8/24/2018	0	0.134
8/25/2018	0	0.08
8/26/2018	0	0.07
8/27/2018	0	0.068
8/28/2018	0	0.152
8/29/2018	0	0.705
8/30/2018	0	0.15
8/31/2018	0	0.08
9/1/2018	0	0.075
9/2/2018	0	0.053
9/3/2018	0.26	0.067
9/4/2018	0.5	0.142
9/5/2018	0.15	0.195
9/6/2018	1.5	0.135
9/7/2018	0.49	0.312
9/8/2018	0	0.034
9/9/2018	0.01	0.07
9/10/2018	0.01	0.066
9/11/2018	0	0.127
9/12/2018	0	0.124
9/13/2018	0	0.137
9/14/2018	0	0.243
9/15/2018	0.51	0.197
9/16/2018	0	0.229
9/17/2018	0.61	0.244
9/18/2018	0	0.203
9/19/2018	0	0.321
9/20/2018	0	0.313
9/21/2018	5.45	0.751
9/22/2018	1.73	1.16
9/23/2018	0.1	0.146
9/24/2018	0.72	0.684
9/25/2018	0.01	0.199
9/26/2018	0.02	0.195
9/27/2018	0	0.152
9/28/2018	0	0.079
9/29/2018	0	0.042
9/30/2018	0	0.107

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

July 2018
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	92	72	79.9	71.6	0	17	93	58	76	0.02	28.98	29.91	S	8.3	38.4	15.25	83.4	85.9	94	82
2	96	71	81.8	72.6	0	19	97	38	76	0.01	29.02	29.96	E	5.2	14.2	20.13	82.9	85.0	95	79
3	99	69	84.8	68.4	0	19	94	27	62	0.00	29.02	29.96	E	6.2	22.7	29.54	84.3	89.2	100	79
4	89	70	80.1	71.5	0	14	97	57	76	0.00	29.13	30.07	E	7.2	22.2	25.35	84.5	89.8	98	82
5	91	72	80.3	72.0	0	17	95	53	77	0.23	29.27	30.22	NE	5.3	24.6	22.28	84.0	87.0	93	82
6	95	71	80.4	71.7	0	18	97	46	77	0.27	29.25	30.20	NE	5.9	31.2	24.37	84.0	86.3	97	79
7	91	70	80.2	70.6	0	15	99	49	75	0.00	29.18	30.12	ENE	4.9	15.1	27.82	84.0	86.4	96	78
8	92	72	81.0	69.7	0	17	92	46	71	0.00	29.16	30.10	E	6.5	18.9	28.64	84.5	89.1	99	80
9	91	70	80.6	71.4	0	16	99	49	76	0.00	29.20	30.15	E	5.0	18.9	25.60	84.6	89.9	99	81
10	94	69	81.1	70.9	0	17	100	43	74	0.00	29.16	30.10	E	3.3	14.5	25.98	85.1	90.7	101	82
11	98	70	82.4	70.1	0	19	99	37	71	0.00	29.08	30.03	ESE	3.8	18.2	26.50	85.9	91.6	102	83
12	97	70	78.8	71.8	0	19	99	43	82	0.58	29.10	30.04	ESE	4.8	28.7	19.19	84.8	88.6	99	82
13	93	69	79.5	71.8	0	16	100	53	79	0.00	29.12	30.06	SSE	5.1	20.8	21.07	83.1	84.2	90	78
14	96	71	84.4	70.6	0	19	98	40	66	0.00	29.07	30.01	SSE	6.6	20.5	22.14	83.6	86.0	94	79
15	98	71	85.5	70.5	0	20	96	39	64	0.00	29.03	29.97	SSE	6.5	19.7	26.30	84.6	88.6	98	80
16	99	72	86.1	70.5	0	21	95	37	63	0.00	29.04	29.98	SE	4.4	15.6	24.90	85.7	90.6	99	82
17	99	73	86.3	70.9	0	21	92	38	63	0.00	29.03	29.97	E	5.8	17.8	26.06	86.8	92.1	102	84
18	97	75	85.2	69.2	0	21	90	33	62	0.00	28.97	29.91	E	5.2	13.2	16.78	85.9	90.4	95	85
19	110	71	90.2	66.3	0	26	100	17	55	0.00	28.90	29.83	SW	5.6	19.6	28.74	87.0	91.7	102	82
20	109	76	93.3	61.4	0	28	67	17	38	0.00	28.92	29.85	SSW	8.9	25.3	28.02	88.7	93.6	102	86
21	110	76	92.4	63.9	0	28	67	19	42	0.00	28.96	29.90	NE	8.0	22.8	27.23	89.2	93.7	103	86
22	103	76	87.5	67.9	0	25	77	31	55	0.00	28.95	29.89	NE	6.8	18.1	24.62	89.3	94.0	104	86
23	97	74	83.4	64.4	0	20	79	29	55	0.00	29.01	29.95	NE	9.3	22.7	20.06	87.9	91.9	99	86
24	96	70	82.9	63.3	0	18	85	32	54	0.00	29.12	30.06	NNE	7.2	20.9	28.18	87.7	91.5	101	83
25	100	68	84.0	61.4	0	19	84	25	51	0.00	29.08	30.03	N	4.2	16.4	28.20	88.0	92.2	102	83
26	100	69	84.4	63.3	0	19	83	28	53	0.00	29.05	29.99	NE	6.9	21.1	20.51	87.6	91.4	99	84
27	96	73	83.2	66.7	0	20	80	35	60	0.00	29.08	30.03	NE	8.2	20.8	25.83	88.7	92.6	102	85
28	95	75	82.4	70.0	0	20	90	38	68	0.05	29.09	30.03	ESE	6.1	17.1	17.67	87.2	89.9	95	86
29	93	73	80.2	72.4	0	18	97	48	79	0.14	29.04	29.98	SE	6.6	19.3	18.49	85.4	87.4	95	83
30	90	68	78.1	67.9	0	14	100	44	73	1.10	29.05	30.00	NNE	8.1	48.5	22.32	83.8	84.1	89	78
31	86	63	74.1	61.7	0	9	95	40	69	0.00	29.11	30.05	N	8.4	22.1	27.54	82.9	82.1	92	74
	97	71	83.0	68.6	<- Monthly Averages ->						29.07	30.01	E	6.3	48.5	24.04	85.6	89.3	98	82

Temperature - Highest: 110
Lowest: 63

Degree Days - Total HDD: 0
Total CDD: 586

Rainfall: Monthly Total: 2.40 in.
Greatest 24 Hr: 1.10 in.

Humidity - Highest: 100
Lowest: 17

Number of Days With:
Tmax ≥ 90: 29
Tmax ≤ 32: 0
Tmin ≤ 32: 0
Tmin ≤ 0: 0

Rainfall ≥ 0.01 inch: 8
Rainfall ≥ 0.10 inch: 5
Avg Wind Speed ≥ 10 mph: 0
Max Wind Speed ≥ 30 mph: 3

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* Denotes incomplete record

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

August 2018
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	90	61	75.5	59.9	0	10	95	30	64	0.00	29.10	30.04	ENE	4.2	14.3	28.10	81.8	84.0	95	74
2	91	61	78.2	60.2	0	11	95	34	58	0.00	29.09	30.03	E	4.9	16.1	27.81	81.9	85.7	96	76
3	94	61	79.9	58.8	0	13	95	27	53	0.00	29.09	30.03	ESE	6.3	21.9	28.43	82.4	86.7	97	77
4	95	64	81.1	61.0	0	15	83	27	54	0.00	29.06	30.01	ESE	6.9	23.0	21.64	82.2	85.5	93	78
5	97	68	83.3	67.0	0	17	97	36	61	0.00	29.12	30.06	SE	7.7	23.7	25.40	83.7	87.7	96	79
6	96	72	84.2	66.5	0	19	85	37	58	0.00	29.12	30.06	S	6.8	24.2	25.60	85.2	89.2	98	81
7	99	70	83.7	68.9	0	20	96	31	66	0.54	29.04	29.98	SSE	7.5	34.1	24.06	85.7	89.5	98	82
8	80	70	73.9	71.4	0	10	98	72	92	1.10	29.05	30.00	E	5.1	26.3	7.00	81.1	81.4	86	79
9	89	69	77.6	71.3	0	14	99	53	83	0.00	29.07	30.01	ENE	3.5	13.4	21.03	81.5	82.4	91	76
10	90	70	79.7	71.2	0	15	99	51	78	0.01	29.06	30.00	S	4.4	22.8	24.25	82.7	83.8	92	77
11	86	70	76.6	68.9	0	13	98	55	79	0.00	29.08	30.02	S	5.3	16.8	17.62	81.9	82.5	90	78
12	86	71	76.6	71.7	0	13	98	62	86	0.15	29.08	30.03	E	6.5	23.5	16.44	81.7	81.8	87	78
13	75	71	72.4	71.9	0	8	100	95	98	3.78	29.05	30.00	ESE	5.1	22.0	3.67	78.6	77.8	80	76
14	83	69	74.6	71.4	0	11	100	68	90	0.44	29.00	29.94	S	7.7	27.7	15.31	77.4	77.3	82	74
15	93	74	82.4	73.4	0	19	95	52	76	0.01	28.98	29.92	SSW	8.6	23.8	24.47	80.6	80.9	87	76
16	95*	73*	82.8*	73.1*	0*	19*	95*	46*	74*	0.00*	29.04*	29.98*	S *	6.7*	20.8*	NA	83.1*	82.1*	88*	77*
17	96	75	84.7	74.6	0	21	94	52	73	0.00	29.05	29.99	SSW	6.8	19.1	25.47	84.7	83.4	90	78
18	91	73	80.5	74.9	0	17	99	64	84	0.00	29.02	29.96	NNE	4.6	13.0	21.29	85.1	83.7	91	78
19	89	74	79.5	73.3	0	16	98	58	83	0.00	28.92	29.86	SW	4.8	21.2	15.70	84.2	82.0	87	78
20	84	66	75.0	66.4	0	10	98	53	77	0.00	29.03	29.97	NW	7.4	22.8	24.59	82.4	80.2	87	75
21	86	64	74.5	65.5	0	10	96	49	76	0.00	29.17	30.11	NW	5.6	13.8	23.92	81.2	79.2	88	71
22	87	65	76.2	67.0	0	11	98	50	75	0.00	29.21	30.16	ENE	5.1	14.5	22.26	81.7	81.2	91	73
23	94	69	80.8	69.8	0	16	95	51	71	0.00	29.07	30.01	SE	7.5	21.1	23.00	82.5	83.4	94	75
24	95	71	82.9	69.3	0	18	88	41	66	0.00	28.97	29.91	S	8.9	25.4	24.98	83.4	85.8	96	77
25	94	73	83.5	70.5	0	18	90	44	67	0.00	29.05	29.99	S	8.2	21.2	25.33	83.9	87.2	97	78
26	93	73	82.7	69.7	0	18	90	42	67	0.00	29.06	30.00	SSE	8.0	22.8	22.84	83.8	87.2	96	80
27	94	75	83.5	69.9	0	20	87	45	65	0.00	28.98	29.92	SSE	10.9	26.2	24.45	83.7	87.7	97	80
28	95	74	83.9	70.9	0	19	94	45	67	0.00	28.99	29.92	SSE	10.3	24.6	24.82	83.9	88.4	98	80
29	95	73	84.0	71.9	0	19	96	43	69	0.00	29.06	30.00	SSE	6.9	16.5	24.49	84.7	89.8	100	81
30	94	72	82.5	70.5	0	18	98	45	69	0.00	29.07	30.01	SSE	6.2	18.9	24.35	85.0	90.3	100	82
31	94	70	82.8	69.2	0	17	94	44	66	0.00	29.01	29.95	SSE	6.9	20.0	23.47	84.6	89.6	99	81
	91*	70*	80.0*	69.0*	<- Monthly Averages ->						29.05*	30.00*	SSE*	6.6*	34.1*	22.06*	82.8*	84.4*	92*	78*

Temperature - Highest: 99*
Lowest: 61*

Degree Days - Total HDD: 0*
Total CDD: 476*

Rainfall: Monthly Total: 6.03* in.
Greatest 24 Hr: 3.78* in.

Humidity - Highest: 100*
Lowest: 27*

Number of Days With:
Tmax ≥ 90: 21*
Tmax ≤ 32: 0*
Tmin ≤ 32: 0*
Tmin ≤ 0: 0*
Rainfall ≥ 0.01 inch: 7*
Rainfall ≥ 0.10 inch: 5*
Avg Wind Speed ≥ 10 mph: 2*
Max Wind Speed ≥ 30 mph: 1*

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Monthly data generated on Monday, September 17, 2018 at 17:14 UTC

* Denotes incomplete record

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

September 2018
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	94	71	82.1	69.3	0	17	91	44	67	0.00	29.00	29.94	ESE	6.1	21.3	23.71	84.6	89.9	100	81
2	91	71	80.4	70.4	0	16	92	54	73	0.00	29.01	29.95	ESE	6.7	20.5	20.59	84.4	89.3	98	82
3	82	73	75.5	72.1	0	12	98	72	89	0.38	29.04	29.98	E	8.5	22.2	9.24	82.7	84.4	89	80
4	87	72	76.2	72.8	0	14	98	62	90	0.57	29.08	30.02	SE	8.2	26.3	15.36	82.0	81.1	86	78
5	86	72	76.0	73.5	0	14	99	66	92	0.95	29.11	30.05	NNE	3.7	15.6	11.85	81.6	80.7	87	77
6	86	73	78.1	72.8	0	15	97	59	85	0.00	29.12	30.06	N	4.4	11.9	15.25	82.2	81.5	88	77
7	86	71	75.7	73.2	0	14	99	68	92	0.66	29.05	30.00	N	5.1	19.9	11.64	81.5	80.0	86	76
8	75	66	71.4	69.2	0	6	98	82	93	0.01	29.00	29.94	N	7.9	18.6	5.50	79.5	76.3	78	74
9	70	64	67.1	62.9	0	2	98	77	87	0.01	29.00	29.94	N	7.6	20.1	6.97	77.0	72.6	74	71
10	77	64	69.3	65.4	0	5	98	71	88	0.00	29.05	29.99	NNE	5.0	12.6	10.90	76.6	73.4	79	69
11	80	67	72.5	66.6	0	8	99	60	83	0.00	29.09	30.03	ESE	4.7	14.4	15.08	77.9	76.3	83	71
12	82	68	73.0	69.5	0	10	98	70	89	0.04	29.10	30.04	ESE	4.7	12.6	9.85	78.3	76.4	82	73
13	85	70	75.3	71.2	0	12	99	62	88	0.00	29.11	30.06	SE	5.0	14.9	13.50	78.7	77.3	83	73
14	90	68	78.0	70.6	0	14	99	50	80	0.01	29.10	30.04	E	4.0	14.6	20.48	79.7	79.8	89	72
15	86	70	76.2	72.4	0	13	99	66	89	0.92	29.10	30.04	NE	4.1	13.8	15.86	80.0	80.1	87	75
16	89	71	78.4	70.6	0	15	99	49	80	0.00	29.04	29.99	ESE	3.0	10.7	19.45	80.7	81.5	89	75
17	91	68	77.7	71.6	0	15	99	53	84	0.03	29.02	29.97	SSE	3.0	17.4	19.12	80.9	81.2	90	75
18	92	69	79.7	71.5	0	16	100	49	79	0.01	29.02	29.96	S	3.8	15.1	21.77	81.5	81.3	89	75
19	92	68	80.5	71.2	0	15	100	46	76	0.00	28.99	29.93	S	5.4	22.9	21.36	81.7	80.8	87	75
20	91	72	80.7	71.2	0	17	97	49	74	0.00	28.99	29.93	S	8.7	24.5	20.52	82.0	81.0	88	76
21	76	68	71.7	71.0	0	7	100	88	98	7.09	29.03	29.97	NE	8.4	26.0	0.53	77.8	75.6	78	74
22	68	63	64.7	64.0	0	1	99	94	98	2.15	29.06	30.00	NE	15.3	28.4	3.49	73.8	71.8	74	70
23	70	63	66.5	65.3	0	2	100	89	96	0.02	29.00	29.94	NE	8.9	19.3	6.69	73.2	71.7	75	69
24	78	67	70.9	69.0	0	7	100	76	94	0.01	28.96	29.90	SE	3.5	11.9	9.55	75.1	74.6	80	71
25	88	67	75.3	69.2	0	13	100	50	84	0.01	29.00	29.94	SSW	5.8	20.6	19.15	76.9	76.6	84	71
26	69	53	60.3	52.5	4	0	88	57	76	0.04	29.19	30.13	NNE	13.3	33.6	6.17	73.7	68.8	75	63
27	75	51	63.2	54.6	2	0	96	52	75	0.00	29.11	30.05	SE	4.9	13.4	21.66	71.9	69.2	80	61
28	69	58	63.3	61.4	1	0	100	81	94	0.00	29.15	30.09	ESE	5.7	15.9	5.83	71.6	68.6	72	66
29	72	60	65.8	64.7	0	1	100	88	96	0.00	29.20	30.14	ESE	5.4	13.2	5.47	71.4	69.0	73	66
30	83	68	73.5	68.5	0	11	100	59	86	0.00	29.17	30.11	SSE	7.1	19.1	14.97	73.9	73.9	81	70
	82	67	73.3	68.3	<- Monthly Averages ->						29.06	30.00	ESE	6.3	33.6	13.38	78.4	77.5	83	73

Temperature - Highest: 94
Lowest: 51

Degree Days - Total HDD: 7
Total CDD: 292

Rainfall: Monthly Total: 12.91 in.
Greatest 24 Hr: 7.09 in.

Humidity - Highest: 100
Lowest: 44

Number of Days With:
Tmax ≥ 90: 7
Tmax ≤ 32: 0
Tmin ≤ 32: 0
Tmin ≤ 0: 0
Rainfall ≥ 0.01 inch: 17
Rainfall ≥ 0.10 inch: 7
Avg Wind Speed ≥ 10 mph: 2
Max Wind Speed ≥ 30 mph: 1

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Date	Reference ET, Short [in]	Reference ET, Tall [in]	Cool Season Grass ET [in]	Warm Season Grass ET [in]	Pan Evaporation [in]
2018-10-14	0.02	0.02	0.02	0.01	0.03
2018-10-13	0.02	0.03	0.02	0.01	0.03
2018-10-12	0.03	0.04	0.03	0.02	0.04
2018-10-11	0.12	0.16	0.11	0.08	0.15
2018-10-10	0.10	0.12	0.10	0.06	0.13
2018-10-09	0.03	0.04	0.03	0.02	0.04
2018-10-08	0.09	0.12	0.09	0.06	0.12
2018-10-07	0.08	0.10	0.08	0.05	0.10
2018-10-06	0.13	0.17	0.13	0.08	0.17
2018-10-05	0.16	0.21	0.15	0.10	0.20
2018-10-04	0.15	0.19	0.14	0.09	0.19
2018-10-03	0.17	0.21	0.16	0.10	0.21
2018-10-02	0.10	0.11	0.09	0.06	0.11
2018-10-01	0.12	0.14	0.11	0.07	0.14
2018-09-30	0.13	0.16	0.12	0.08	0.16
2018-09-29	0.05	0.05	0.04	0.03	0.06
2018-09-28	0.05	0.06	0.05	0.03	0.06
2018-09-27	0.14	0.16	0.13	0.08	0.17
2018-09-26	0.11	0.16	0.10	0.07	0.14
2018-09-25	0.15	0.18	0.14	0.10	0.18
2018-09-24	0.08	0.09	0.07	0.05	0.09
2018-09-23	0.05	0.06	0.05	0.03	0.07
2018-09-22	0.04	0.05	0.04	0.03	0.06
2018-09-21	0.03	0.03	0.02	0.02	0.03
2018-09-20	0.19	0.24	0.18	0.12	0.24
2018-09-19	0.18	0.21	0.17	0.11	0.22
2018-09-18	0.17	0.20	0.16	0.11	0.21
2018-09-17	0.15	0.16	0.14	0.09	0.18
2018-09-16	0.15	0.16	0.14	0.09	0.18
2018-09-15	0.13	0.14	0.12	0.08	0.15
2018-09-14	0.16	0.18	0.15	0.10	0.19
2018-09-13	0.12	0.14	0.11	0.07	0.14
2018-09-12	0.09	0.11	0.09	0.06	0.11
2018-09-11	0.12	0.14	0.11	0.07	0.14
2018-09-10	0.09	0.11	0.09	0.06	0.11
2018-09-09	0.07	0.08	0.06	0.04	0.08
2018-09-08	0.06	0.07	0.05	0.03	0.07
2018-09-07	0.11	0.13	0.10	0.07	0.13
2018-09-06	0.13	0.15	0.12	0.08	0.16
2018-09-05	0.10	0.11	0.10	0.06	0.12
2018-09-04	0.15	0.18	0.14	0.09	0.19
2018-09-03	0.10	0.13	0.10	0.06	0.13
2018-09-02	0.20	0.24	0.18	0.12	0.25
2018-09-01	0.22	0.27	0.21	0.14	0.28
2018-08-31	0.22	0.28	0.21	0.14	0.29
2018-08-30	0.23	0.28	0.21	0.14	0.28
2018-08-29	0.23	0.28	0.21	0.14	0.29
2018-08-28	0.26	0.34	0.24	0.16	0.34
2018-08-27	0.27	0.35	0.25	0.17	0.36

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2018-08-26	0.23	0.29	0.21	0.14	0.29
2018-08-25	0.24	0.31	0.23	0.15	0.31
2018-08-24	0.26	0.33	0.24	0.16	0.34
2018-08-23	0.22	0.28	0.21	0.14	0.28
2018-08-22	0.18	0.21	0.17	0.11	0.22
2018-08-21	0.19	0.23	0.18	0.12	0.24
2018-08-20	0.20	0.23	0.18	0.12	0.25
2018-08-19	0.15	0.17	0.14	0.09	0.17
2018-08-18	0.18	0.21	0.17	0.11	0.22
2018-08-17	0.24	0.29	0.22	0.15	0.30
2018-08-16	0.22	0.27	0.21	0.14	0.27
2018-08-15	0.23	0.29	0.22	0.15	0.30
2018-08-14	0.13	0.15	0.12	0.08	0.16
2018-08-13	0.04	0.04	0.04	0.03	0.05
2018-08-12	0.15	0.18	0.14	0.09	0.18
2018-08-11	0.16	0.19	0.15	0.10	0.19
2018-08-10	0.20	0.22	0.19	0.12	0.24
2018-08-09	0.17	0.19	0.16	0.11	0.21
2018-08-08	0.07	0.08	0.07	0.05	0.09
2018-08-07	0.26	0.34	0.24	0.16	0.34
2018-08-06	0.26	0.32	0.24	0.16	0.33
2018-08-05	0.26	0.34	0.24	0.16	0.34
2018-08-04	0.24	0.31	0.22	0.15	0.31
2018-08-03	0.26	0.34	0.25	0.16	0.35
2018-08-02	0.23	0.27	0.21	0.14	0.29
2018-08-01	0.22	0.25	0.20	0.14	0.27
2018-07-31	0.24	0.30	0.22	0.15	0.31
2018-07-30	0.21	0.27	0.20	0.13	0.27
2018-07-29	0.19	0.24	0.18	0.12	0.24
2018-07-28	0.20	0.26	0.19	0.13	0.26
2018-07-27	0.29	0.38	0.27	0.18	0.38
2018-07-26	0.25	0.33	0.23	0.15	0.33
2018-07-25	0.26	0.31	0.24	0.16	0.33
2018-07-24	0.29	0.37	0.27	0.18	0.38
2018-07-23	0.27	0.38	0.26	0.17	0.37
2018-07-22	0.29	0.37	0.27	0.18	0.38
2018-07-21	0.36	0.49	0.33	0.22	0.50
2018-07-20	0.37	0.50	0.34	0.23	0.52
2018-07-19	0.31	0.39	0.29	0.19	0.40
2018-07-18	0.19	0.24	0.18	0.12	0.24
2018-07-17	0.26	0.31	0.24	0.16	0.33
2018-07-16	0.23	0.27	0.22	0.15	0.29
2018-07-15	0.26	0.32	0.24	0.16	0.33
2018-07-14	0.23	0.28	0.21	0.14	0.29
2018-07-13	0.20	0.23	0.18	0.12	0.24
2018-07-12	0.20	0.24	0.18	0.12	0.24
2018-07-11	0.24	0.27	0.22	0.15	0.29
2018-07-10	0.22	0.24	0.20	0.14	0.26
2018-07-09	0.22	0.25	0.20	0.14	0.27

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2018-07-08	0.25	0.30	0.24	0.16	0.32
2018-07-07	0.23	0.26	0.22	0.14	0.28
2018-07-06	0.23	0.27	0.21	0.14	0.28
2018-07-05	0.20	0.24	0.19	0.13	0.25
2018-07-04	0.22	0.25	0.20	0.13	0.27
2018-07-03	0.29	0.35	0.27	0.18	0.37
2018-07-02	0.20	0.23	0.18	0.12	0.24
2018-07-01	0.18	0.24	0.17	0.11	0.23
2018-06-30	0.25	0.33	0.24	0.16	0.33
2018-06-29	0.29	0.36	0.27	0.18	0.38
2018-06-28	0.28	0.35	0.26	0.18	0.37
2018-06-27	0.30	0.37	0.27	0.18	0.39
2018-06-26	0.29	0.36	0.27	0.18	0.38
2018-06-25	0.25	0.31	0.23	0.16	0.32
2018-06-24	0.17	0.23	0.16	0.11	0.23
2018-06-23	0.22	0.27	0.20	0.14	0.28
2018-06-22	0.17	0.20	0.15	0.10	0.20
2018-06-21	0.24	0.27	0.22	0.15	0.29
2018-06-20	0.19	0.21	0.17	0.12	0.22
2018-06-19	0.17	0.21	0.16	0.11	0.21
2018-06-18	0.24	0.30	0.22	0.15	0.31
2018-06-17	0.27	0.34	0.25	0.17	0.36
2018-06-16	0.27	0.33	0.25	0.17	0.35
2018-06-15	0.28	0.35	0.26	0.17	0.36
2018-06-14	0.27	0.33	0.25	0.17	0.34
2018-06-13	0.23	0.28	0.22	0.15	0.29
2018-06-12	0.13	0.16	0.12	0.08	0.16
2018-06-11	0.25	0.30	0.23	0.15	0.32
2018-06-10	0.22	0.26	0.21	0.14	0.28
2018-06-09	0.26	0.32	0.24	0.16	0.34
2018-06-08	0.22	0.26	0.20	0.14	0.27
2018-06-07	0.07	0.10	0.07	0.05	0.09
2018-06-06	0.23	0.27	0.22	0.14	0.29
2018-06-05	0.18	0.21	0.17	0.11	0.22
2018-06-04	0.14	0.16	0.13	0.09	0.17
2018-06-03	0.27	0.35	0.25	0.17	0.36
2018-06-02	0.26	0.32	0.24	0.16	0.34
2018-06-01	0.26	0.32	0.25	0.16	0.34
2018-05-31	0.25	0.31	0.23	0.16	0.33
2018-05-30	0.27	0.33	0.25	0.17	0.35
2018-05-29	0.24	0.28	0.22	0.15	0.30
2018-05-28	0.23	0.25	0.21	0.14	0.27
2018-05-27	0.24	0.28	0.23	0.15	0.30
2018-05-26	0.23	0.25	0.21	0.14	0.27
2018-05-25	0.08	0.09	0.07	0.05	0.09
2018-05-24	0.23	0.26	0.21	0.14	0.28
2018-05-23	0.23	0.25	0.21	0.14	0.27
2018-05-22	0.21	0.23	0.19	0.13	0.25
2018-05-21	0.20	0.22	0.18	0.12	0.24
2018-05-20	0.14	0.16	0.13	0.09	0.17

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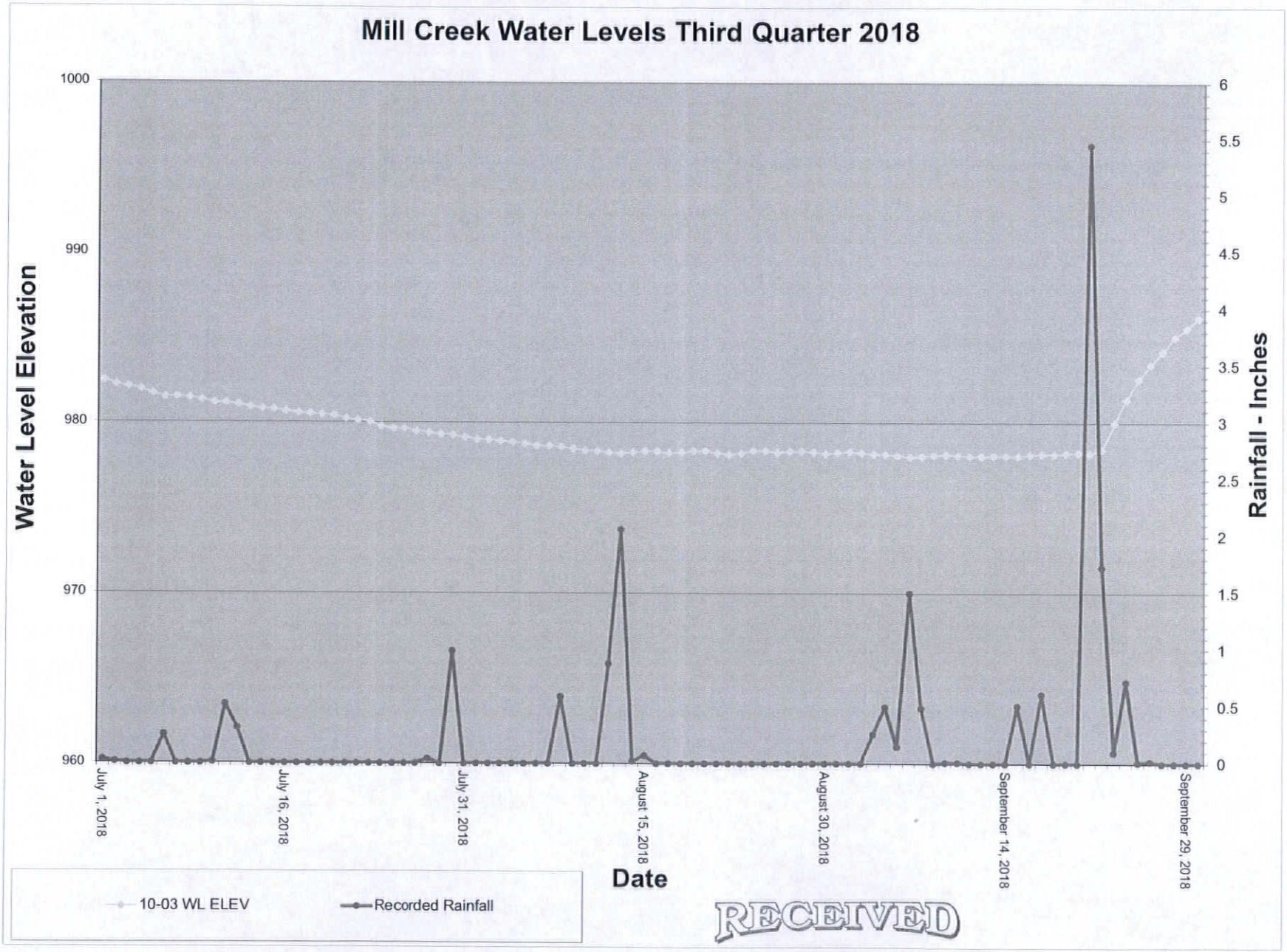

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