Sanitary Sewer Overflow Initiative
City-wide Hydraulic Model
Temporary Flow Monitoring Final Report
Phase 2 - Allison, Laguna Madre and Whitecap Service Areas

Department of Engineering Services
Professional Engineering Services Project No.: E10015

City of Corpus Christi
WASTEWATER
DEPARTMENT

City of Corpus Christi
Wastewater Department

I certify that this report was prepared under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Texas.

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February 2014

DRAFT REPORT

Submitted by:

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  - Location Map
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- Rain Gauge Summary Data
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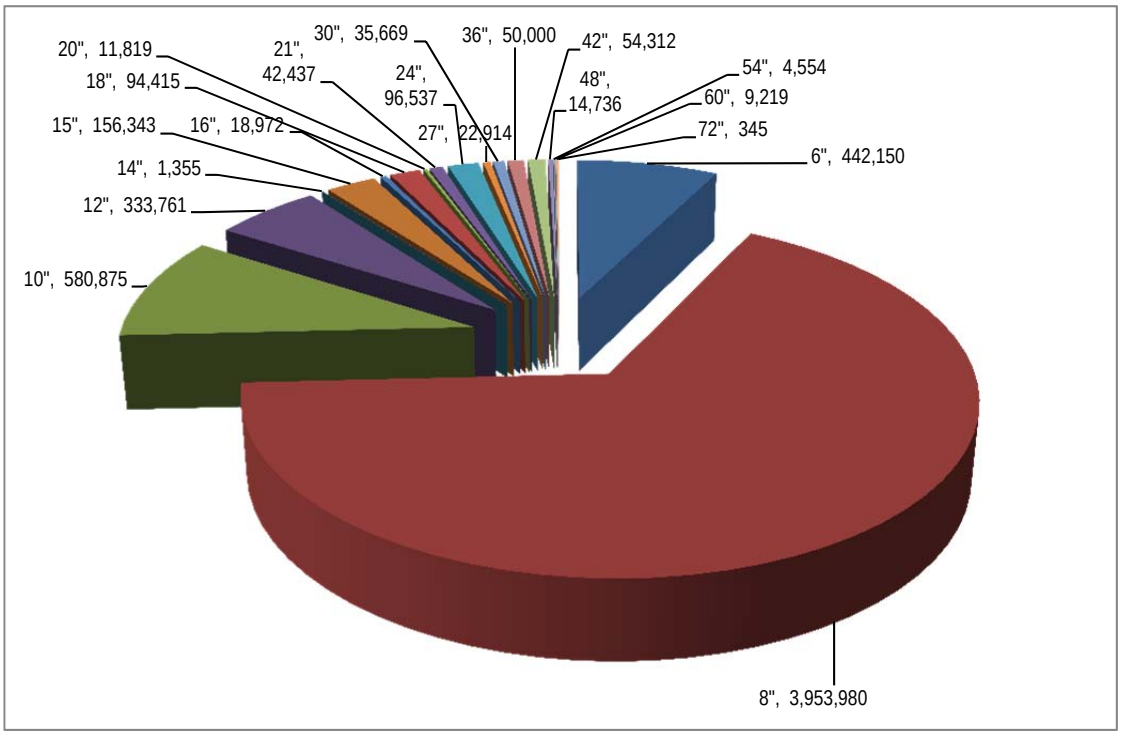
I. Introduction

This report presents the temporary flow monitoring of portions of the Corpus Christi wastewater collection system during the period September 5 through November 28, 2012 and April 15 through July 11, 2013. Drainage areas monitored included the Laguna, Whitecap and Allison service areas.

Figure 1 and Table 1 present a summary of the Corpus Christi wastewater collection system assets. The Corpus Christi wastewater collection system currently consists of 1,122 miles (5,924,393 linear feet) of gravity sewers. Stretched end to end the underground sewers would reach from Corpus Christi to Chicago, Illinois. Note that 6-inch pipes account for 7.5% of the total system while 8-inch pipes account for 66.7% of the total system.

The purpose of this project was to establish current dry and wet weather flows at key locations within the City. Future use for this data will include the calibration of a hydraulic model of the collection system and the prioritization of areas for infiltration/inflow testing and evaluation. The flow data included in this report will be used to benchmark the reduction in wet weather infiltration/inflow within the collection system. By comparing this flow data to future flows following rehabilitation will establish the effectiveness of repairs.

Figure 1
Wastewater Collection System



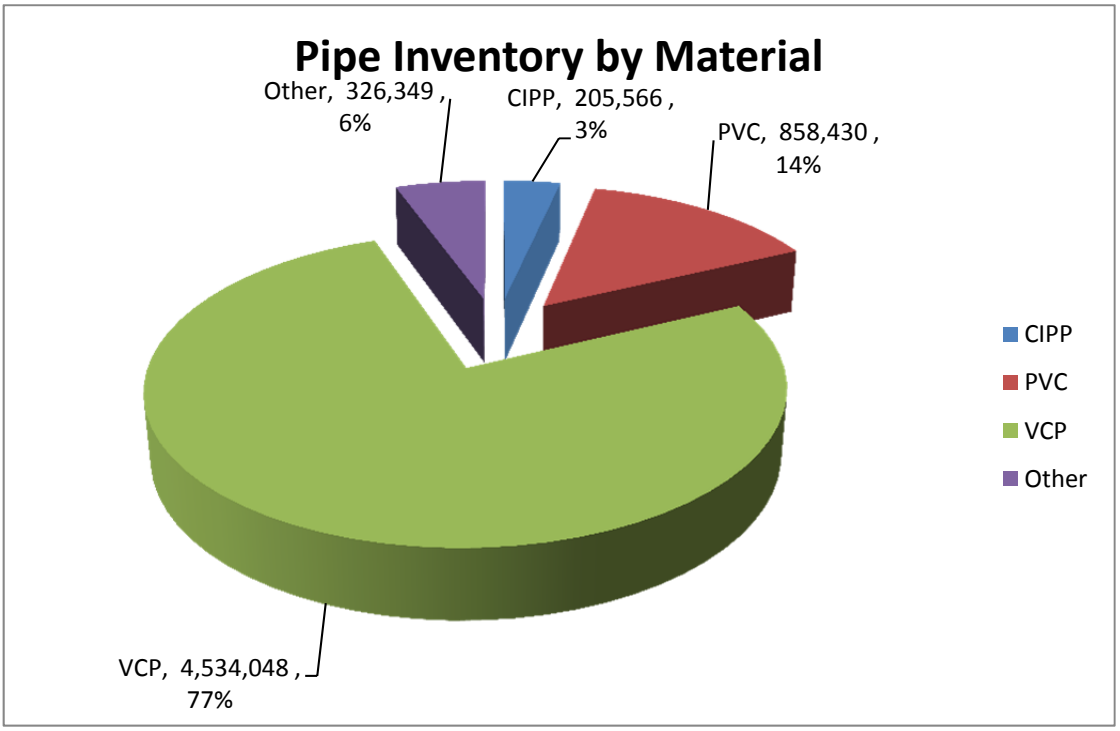


Table 1
Collection System Inventory by
Pipe Size and Service Area

Pipe Diameter	SERVICE AREA						Total	Percent
	OSO	GREENWOOD	ALLISON	BROADWAY	LAGUNA	WHITECAP		
6"	148,519	49,173	5,761	237,126	1,312	260	442,150	7.5%
8"	1,808,680	745,602	481,927	395,711	285,826	236,234	3,953,980	66.7%
10"	251,755	101,865	62,137	86,062	55,221	23,835	580,875	9.8%
12"	157,156	89,658	25,073	39,008	20,692	2,174	333,761	5.6%
14"	98	601	242	413			1,355	0.0%
15"	56,917	31,291	24,255	24,276	14,752	4,852	156,343	2.6%
16"	12,226	5,962	784	-			18,972	0.3%
18"	34,560	16,965	19,979	10,577	8,085	4,249	94,415	1.6%
20"	383	10,546	890				11,819	0.2%
21"	29,195	3,158	237	7,684	564	1,598	42,437	0.7%
24"	53,428	11,745	6,358	23,650	1,356		96,537	1.6%
27"	8,513		8,119	6,281			22,914	0.4%
30"	2,045	20,576	9,520	1,101		2,426	35,669	0.6%
36"	28,215	2,850	2,117	13,018		3,801	50,000	0.8%
42"	40,585	8,364		5,363			54,312	0.9%
48"	5,255	6,674		2,666	140		14,736	0.2%
54"		4,554					4,554	0.1%
60"		9,219					9,219	0.2%
72"	345						345	0.0%
Feet	2,637,875	1,118,804	647,400	852,936	387,948	279,431	5,924,393	100.0%
Miles	500	212	123	162	73	53	1122	100.0%

Data Source: Wastewater Department GIS Asset Database

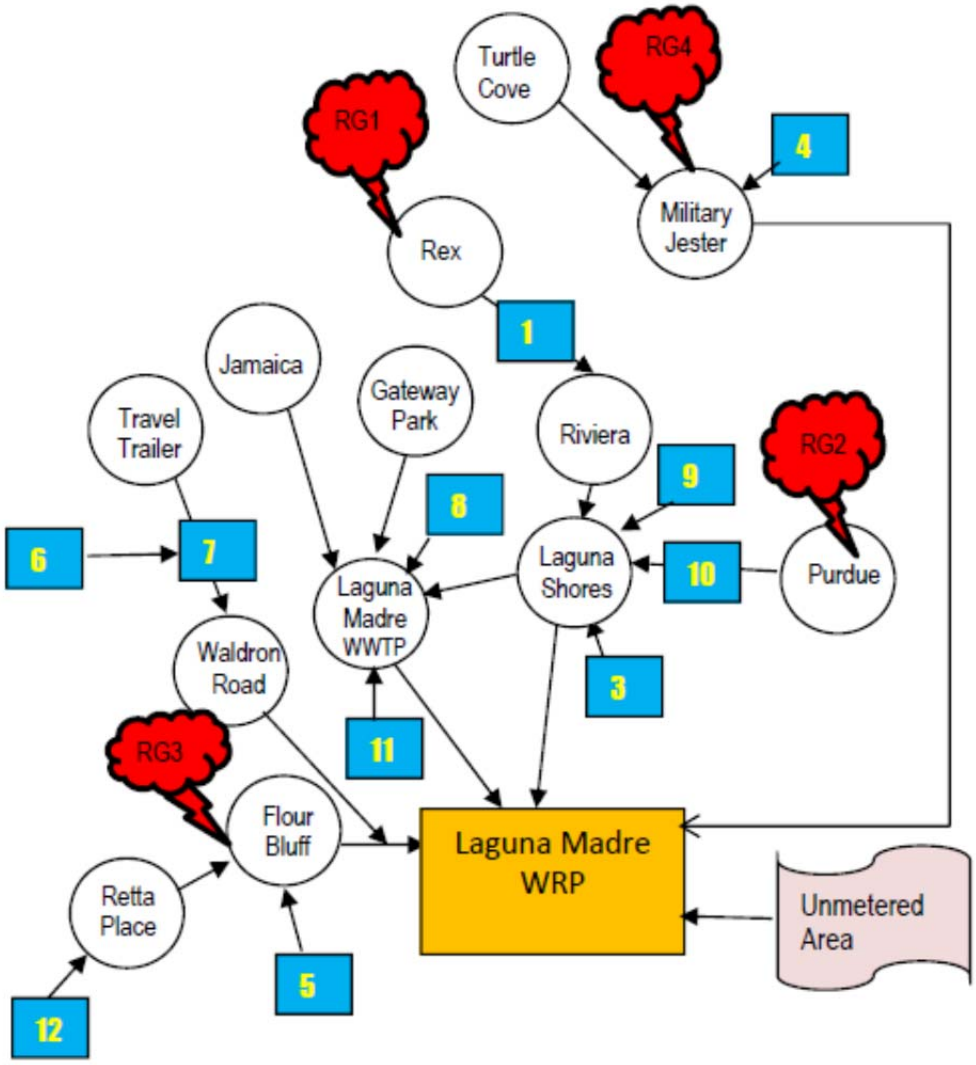
Pipe Type	OSO	GREENWOOD	ALLISON	BROADWAY	LAGUNA	WHITECAP	Total	% of Total
CIPP	96,086	56,855	3,679	48,560	386	-	205,566	3%
PVC	523,806	159,949	95,908	22,543	34,169	22,055	858,430	14%
VCP	1,832,131	860,560	540,865	722,380	326,070	252,042	4,534,048	77%
Other	185,852	41,440	6,947	59,453	27,323	5,334	326,349	6%
Total	2,637,875	1,118,804	647,399	852,936	387,948	279,431	5,924,393	100%

CIPP-Cured in Place and Lined Pipe
PVC- Polyvinyl Chloride Pipe
VCP-Vitrified Clay Pipe

Figures 2-4 present wastewater schematic diagrams that graphically represent the association between each flow meter placed in the collection system. This flow monitoring study consisted of twenty-seven (27) meter sites. The flow meter sites determine the boundary and resulting linear feet of sewer within each monitored area.

To determine the individual flow from Laguna Basin 007 (known as discrete flow), one must take the data recorded by meter 007 (known as cumulative flow) and subtract the data from meter 006. Discrete flow is used to determine the ranking of each metered basin and the individual wastewater contribution by area. Table 2 lists the flow meter installations. Site installation map, photographs and summary hydrographs are presented in the Appendix for each meter site.

Figure 2
Laguna Flow Meter Schematic Diagram



1101	Jamaica	2092 Jamaica
1059	Turtle Cove	9547 blue Jay Street
1058	Travel Trailer	9441 S.P.I.D.
1086	Flour Bluff	1720 Flour Bluff Drive
1064	Retta Place	2443 Vialoux Drive
1062	Waldron Rd.	1350 Waldron Road
1063	Purdue	630 Purdue Road
1060	Military/Jester	722 Jester Street
1005	Laguna Madre WWTP	201 Jester
1088	Gateway Park	1143 Laguna Shores Drive
1007	Laguna Shores	2902 Laguna Shores Drive
1065	Riviera	138 Riviera Road
1066	Rex	4046 Whitely Drive

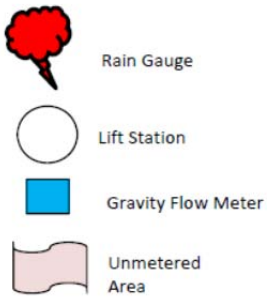
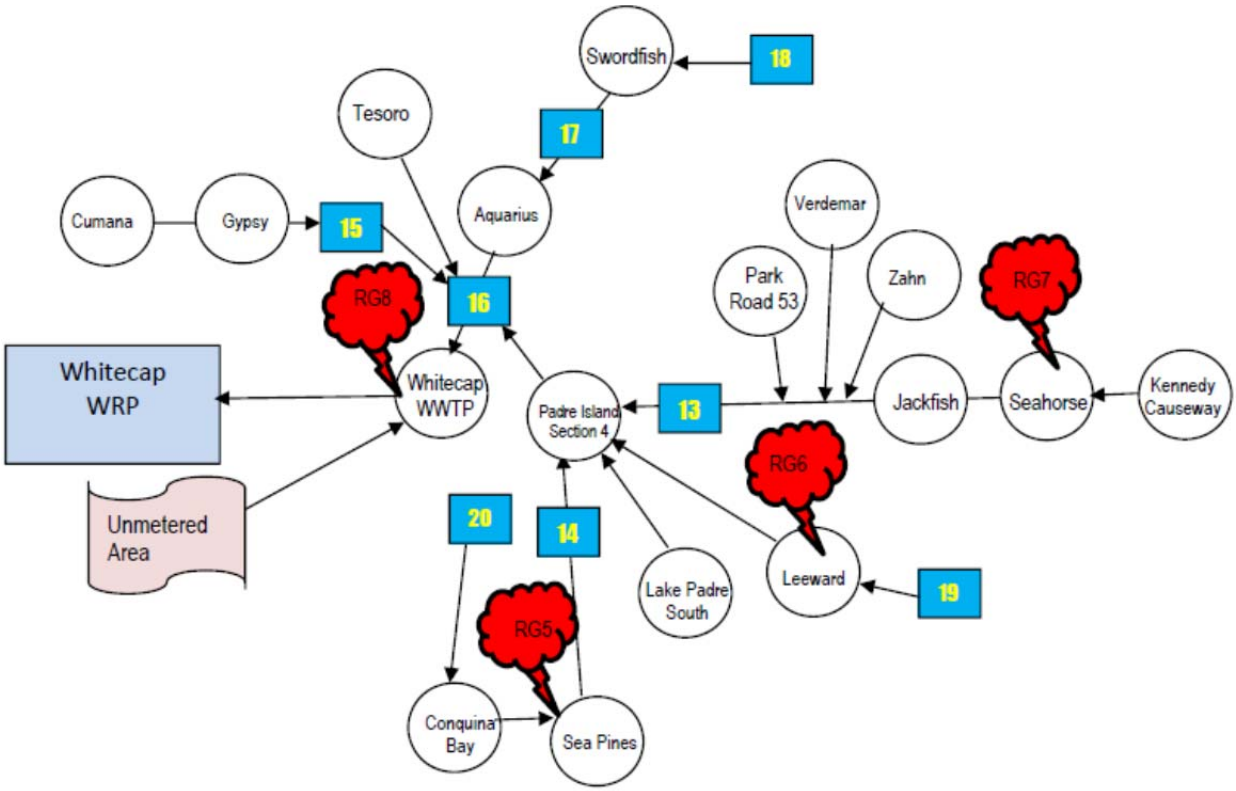


Figure 3
Whitecap Flow Meter Schematic Diagram



1067	Kennedy Causeway	13301 S.P.I.D.
1068	Seahorse	14300 Dorsel Street
1070	Swordfish	14500 Swordfish Street
1069	Jackfish	14124 Jackfish Street
1095	Verdemar	14501 Verdemar Street
1084	Park Road 53	11125 Park Road 53
1071	Tesoro	13618 Port Royal Ct.
1006	Whitecap WWTP	13409 Whitecap Blvd.
1072	Aquarius	15000 Aquarius Street
1075	Cumana	15600 Cumana Street
1092	Coquina Bay	13921 Sea Pines Blvd.
1091	Sea Pines	14192 Sea Pines Blvd.
1074	Gypsy	15601 Gypsy Street
1073	Padre Island Section 4	14201 Whitecap Blvd.
1089	Lake Padre South	14501 Whitecap Blvd.
1085	Leeward	14865 Runninglight Drive
1010	Zahn	125 Zahn Road

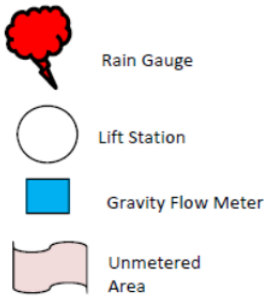
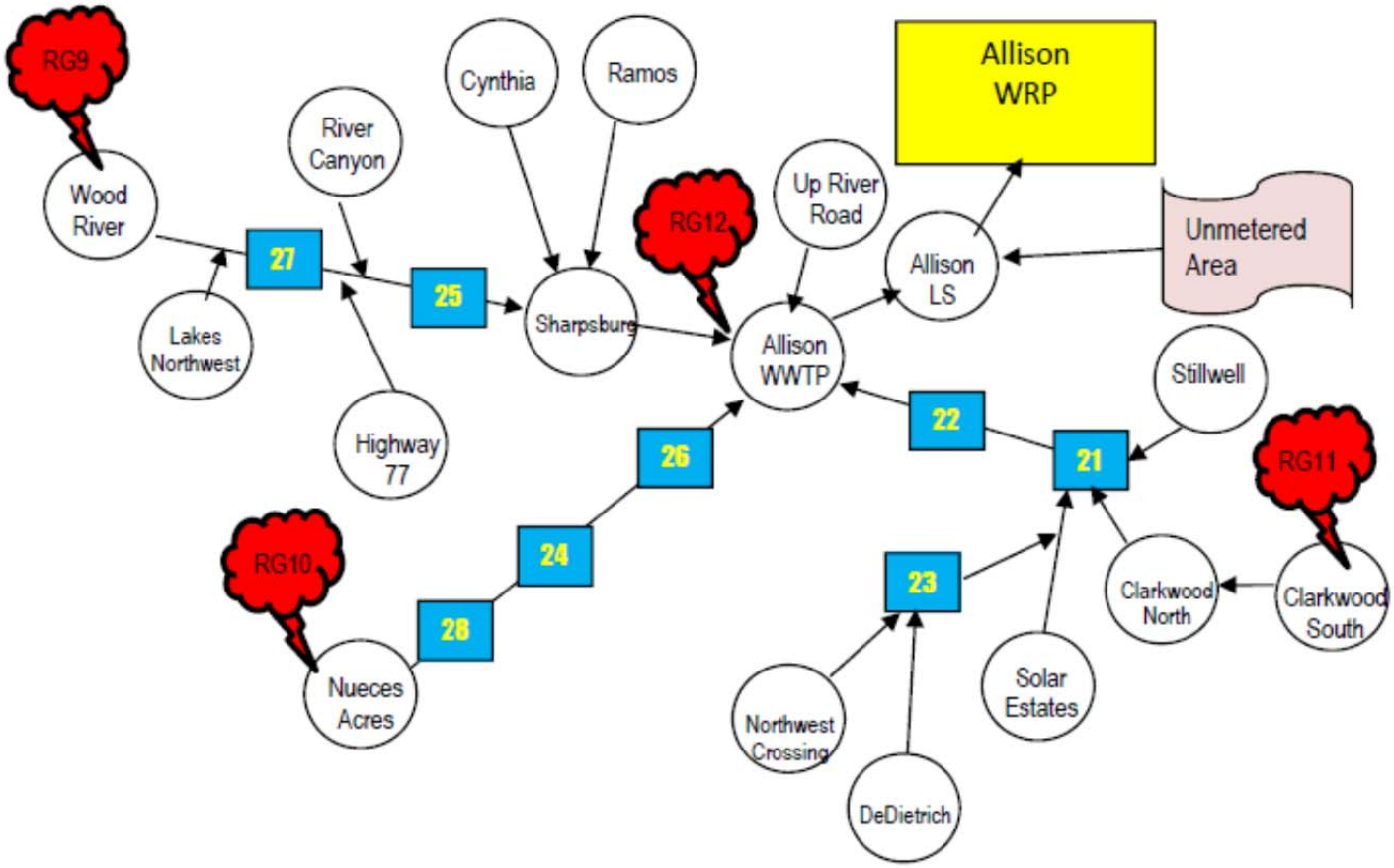


Figure 4
Allison Flow Meter Schematic Diagram



1019	Wood River	4601 Spring Creek Drive
1020	River Canyon	13842 River Ridge Drive
1082	Cynthia	5210 Cynthia Street
1078	Ramos	4810 Ramos
1077	Sharpsburg	4412 Sharpsburg Road
1021	Up River Road	12510 Up River Road
1046	Highway 77	3386 County Road 52
1022	Nueces Acres	11501 Haven Drive
1004	Allison WWTP	4101Allison Drive
1098	Allison (L.S.)	4101 Allison Drive
1023	Solar Estates	9201 Moonlight Street
1024	Clarkwood North	2001 Clarkwood Road
1027	Stillwell	8100 Stillwell Lane
1094	DeDietrich	150 McKenzie Road
1076	Northwest Crossing	1921 Oregon Trail
1025	Clarkwood South	1025 Clarkwood Road
1035	Lakes Northwest	3614 Perfection Lake

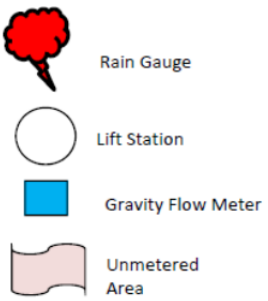


Table 2
Wastewater Flow Meter Locations

FLOW METER	MH NUMBER / Map Page	Pipe Size
Laguna 001	112161900	18
Laguna 003	112120850	15
Laguna 004	103050240	12
Laguna 005	102152810	15
Laguna 006	103130350	`15
Laguna 007	103130170	24
Laguna 008	103101930	15
Laguna 009	112081050	12
Laguna 010	113050150	12
Laguna 011	103100970	12
Laguna 012	112031040	8
Whitecap 013	124070410	18
Whitecap 014	124070590	8
Whitecap 015	124062430	18
Whitecap 016	124052400	36
Whitecap 017	124023780	18
Whitecap 018	114141800	8
Whitecap 019	124041000	21
Whitecap 020	124106340	8
Allison 021	057050161	27
Allison 022	057010020	27
Allison 023	056120670	24
Allison 024	056010150	24
Allison 025	045160410	24
Allison 026	046150010	30
Allison 027	055010010	18
Allison 028	056051270	18

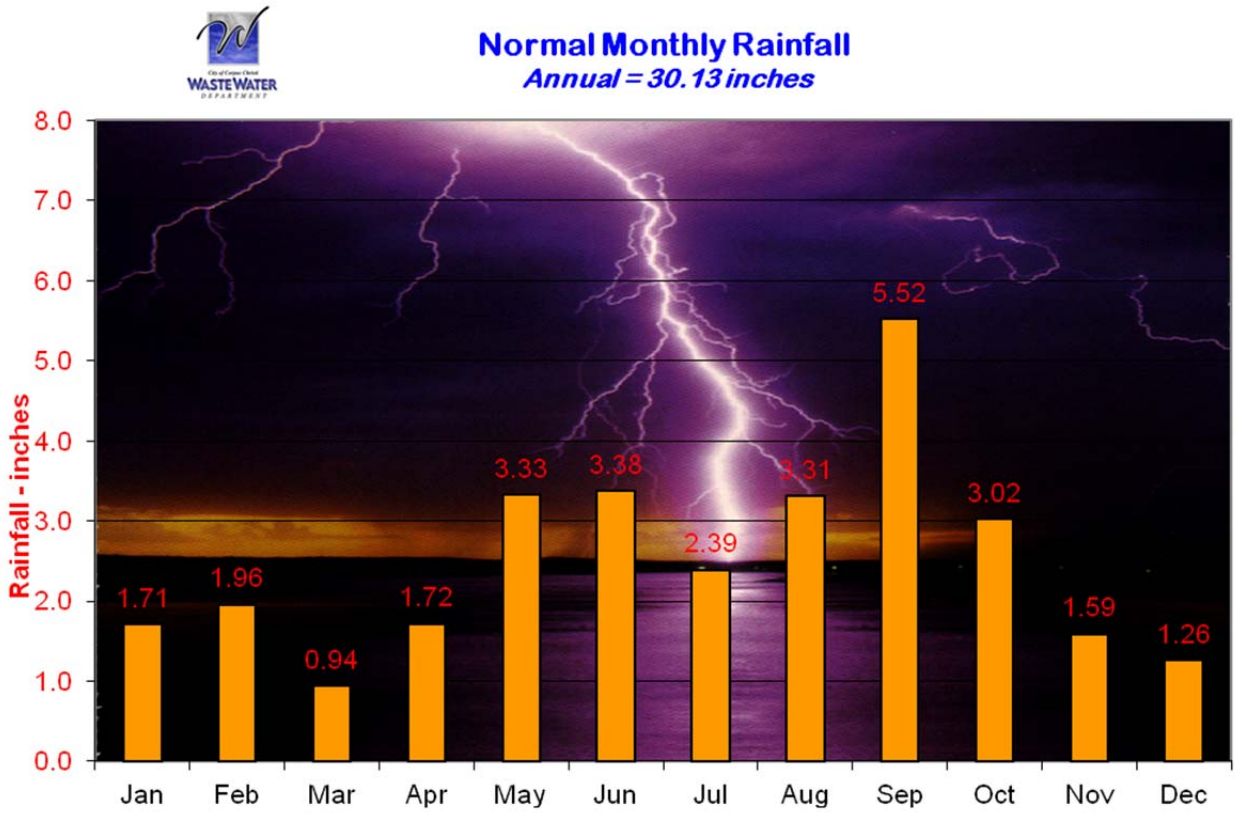
II. Flow Data Analysis

Wastewater flow data was obtained from the twenty-seven (27) temporary flow meters in order to establish flow hydraulics at key locations within the collection system. The temporary flow meters used were Sigma Model 910 area/velocity flow meters and Sigma tipping bucket rainfall gauges manufactured by HACH. For analysis, rainfall totals from twelve (12) temporary rainfall gauges were evaluated. Storm events were investigated to establish the Rainfall Dependent Infiltration/Inflow (RDII). The normal rainfall totals are presented graphically in Figure 5. Normal annual rainfall is 30.13 inches. Corpus Christi recorded an average of 4.25 inches during the monitoring period September 5 through November 28, 2012 and 4.89 inches during the monitoring period April 15 through July 11, 2013. The normal historical rainfall during this period would be expected to be approximately 10.1 inches during the 2012 monitoring and 8.8 inches during the 2013 monitoring. The average rainfall was approximately 42% of normal for 2012 and 56% of normal for 2013.

Each meter was field calibrated prior to installation. Calibration of each meter is a simple procedure consisting of independent verification of the depth of flow and velocity. The flow sensors were secured to a steel mounting band that fits securely in the pipeline. The data logger for each site was installed in the top of each metering manhole and the meter was activated at user defined sampling intervals, typically 15 minutes. Routine maintenance and service was undertaken weekly to confirm normal operation.

Typical Flow Meter Installation

Figure 5
Rainfall Summary



Dry Weather Results

Total daily wastewater volume during dry weather was determined from analysis of the dry weather period. These days were representative of dry weather flow conditions with low groundwater potential. Dry weather data for each metering site is summarized in Tables 3-5. Silt was present at ten of the meter locations, with the worst observed deposition being present in the Laguna Madre basin. Scouring velocity is not adequate and capacity of the sewer lines is reduced by this deposition. Dry weather surcharge was observed at sites Laguna 004, 008 and 009, Whitecap 014, 015 and Allison 026.

The ratio of peak recorded liquid depth (includes debris depth) to the pipeline diameter (d/D) provides a method to gauge the capacity of the pipeline being utilized during dry weather. When the d/D ratio exceeds 50%, then the pipeline is over half full. Laguna sites 001, 003, 004, 006, 008, 009, 011 and 012 were observed to exceed a d/D of 50% during peak dry weather conditions. Whitecap sites 014, 015, 005, 016, 018, 019 and 020 were observed to exceed a d/D of 50% during peak dry weather conditions. Allison sites 022 and 026 were observed to exceed a d/D of 50% during peak dry weather conditions.

Table 3
Laguna Dry Weather Summary

DESCRIPTION/SITE	Site 001	Site 003	Site 004	Site 005	Site 006	Site 007	Site 008	Site 009	Site 010
Dry Weather Period	10/17 - 10/23	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27
Daily Average Flow (mgd)	0.35	0.14	0.08	0.22	0.10	0.30	0.04	0.38	0.07
Discrete Daily Average Flow (mgd)	0.35	0.14	0.08	0.22	0.10	0.20	0.04	0.38	0.07
Minimum Flow (mgd)	0.14	0.09	0.00	0.13	0.00	0.21	0.00	0.13	0.00
Maximum Flow (mgd)	0.61	0.21	0.19	0.42	0.26	0.40	0.94	0.74	0.25
Peaking Ratio	1.76	1.49	2.30	1.90	2.56	1.33	25.55	1.93	3.75
Pipe Diameter (in)	18	15	12	15	15	24	15	12	12
Daily Average Level (in)	9.90	8.78	11.38	4.37	9.07	9.03	13.61	8.27	2.16
Minimum Level (in)	8.86	7.75	9.31	3.36	8.31	8.16	10.93	6.31	0.90
Maximum Level (in)	11.23	10.14	14.20	6.18	10.03	9.87	20.16	30.79	4.10
Peak Flow Depth/Diameter	62%	68%	118%	41%	67%	41%	134%	257%	34%
Average Silt Level (in)	3.5	6	6	0	5	5	5.5	0	0
Daily Average Velocity (fps)	0.71	0.65	0.35	0.81	0.36	0.88	sensor fouled	1.08	0.85

DESCRIPTION/SITE	Site 011	Site 012
Dry Weather Period	10/21 - 10/27	10/21 - 10/27
Daily Average Flow (mgd)	0.07	0.04
Discrete Daily Average Flow (mgd)	0.07	0.04
Minimum Flow (mgd)	0.05	0.00
Maximum Flow (mgd)	0.11	0.29
Peaking Ratio	1.47	7.58
Pipe Diameter (in)	12	12
Daily Average Level (in)	5.40	2.67
Minimum Level (in)	4.50	0.38
Maximum Level (in)	6.58	8.31
Peak Flow Depth/Diameter	55%	69%
Average Silt Level (in)	2	0
Daily Average Velocity (fps)	sensor fouled	1.10

Table 4
Whitecap Dry Weather Summary

DESCRIPTION/SITE	Site 013	Site 014	Site 015	Site 016	Site 017	Site 018	Site 019	Site 020
Dry Weather Period	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27
Daily Average Flow (mgd)	0.27	0.08	0.12	1.42	0.16	0.06	0.63	0.01
Discrete Daily Average Flow (mgd)	0.27	0.07	0.12	0.27	0.11	0.06	0.63	0.01
Minimum Flow (mgd)	0.10	0.03	0.00	0.51	0.06	0.04	0.04	0.00
Maximum Flow (mgd)	0.72	0.14	0.71	2.41	0.29	0.08	0.97	0.41
Peaking Ratio	2.66	1.76	5.77	1.69	1.79	1.44	1.54	28.67
Pipe Diameter (in)	18	8	18	36	18	8	21	8
Daily Average Level (in)	5.08	4.56	13.76	19.88	3.51	5.19	11.91	11.71
Minimum Level (in)	3.73	2.54	9.93	17.66	2.19	3.89	2.66	2.81
Maximum Level (in)	8.30	8.11	38.03	21.51	4.73	6.40	16.26	21.27
Peak Flow Depth/Diameter	46%	101%	211%	60%	26%	80%	77%	266%
Average Silt Level (in)	0	0	9	8	0	0	0	0
Daily Average Velocity (fps)	1.01	0.35	0.30	1.48	1.09	sensor fouled	0.15	0.09

Table 5
Allison Dry Weather Summary

DESCRIPTION/SITE	Site 021	Site 022	Site 023	Site 024	Site 025	Site 026	Site 027	Site 028
Dry Weather Period	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/21 - 10/27	10/17 - 10/23	10/21 - 10/27	10/21 - 10/27
Daily Average Flow (mgd)	1.51	1.80	0.21	0.38	0.32	0.44	0.06	0.19
Discrete Daily Average Flow (mgd)	1.30	0.30	0.21	0.19	0.26	0.06	0.06	0.19
Minimum Flow (mgd)	0.65	0.59	0.05	0.10	0.07	0.00	0.01	0.06
Maximum Flow (mgd)	2.48	3.16	0.46	0.80	0.62	1.96	0.19	0.40
Peaking Ratio	1.64	1.75	2.20	2.11	1.94	4.51	3.07	2.16
Pipe Diameter (in)	27	27	24	24	24	30	18	18
Daily Average Level (in)	4.16	11.27	3.12	3.71	3.88	37.18	1.77	3.32
Minimum Level (in)	2.59	7.13	1.97	2.32	1.90	26.67	1.05	2.22
Maximum Level (in)	5.37	19.62	4.40	5.05	5.17	48.13	2.85	5.10
Peak Flow Depth/Diameter	20%	73%	18%	21%	22%	160%	16%	28%
Average Silt Level (in)	0	0	0	0	0	10.5	0	0
Daily Average Velocity (fps)	5.90	1.82	1.29	1.82	1.45	0.20	0.97	1.24

Wet Weather Results

For the 2012 monitoring period, rainfall was recorded at twelve (12) gauging sites with two major storm events that averaged 0.67 inches and 1.90 inches. Three major storm events were recorded during the 2013 monitoring period averaging 2.33 inches, 1.55 inches and 1.78 inches. One localized storm was also recorded June 7th and used in analysis where applicable. Figure 6 presents data from Site 013 located in the Whitecap Service Area. The storm event of September 28 and 29, 2012 shows the increase in wastewater flow due primarily to Rainfall Dependent Infiltration/Inflow (RDII). The high peak flows are a characteristic of wet weather inflow.

The wet weather analysis summarizes the system responses observed during the wet weather periods. The analysis computes the volume of wet weather I/I, also known as rainfall dependent I/I (RDII), which entered the collection system during the storm. Tables 6-8 present a summary of the wet weather system response and compares this response to dry weather conditions. From this data, the discrete RDII was calculated for the storm event. The total discrete RDII for each meter basin was normalized using the average rainfall which established the rainfall dependent infiltration/inflow volume per inch of rainfall. Figures 7-9 present the ranking of the metered basins based on the observed wet weather flows.

Figure 6
Wet Weather Flow
Meter Site Whitecap 013

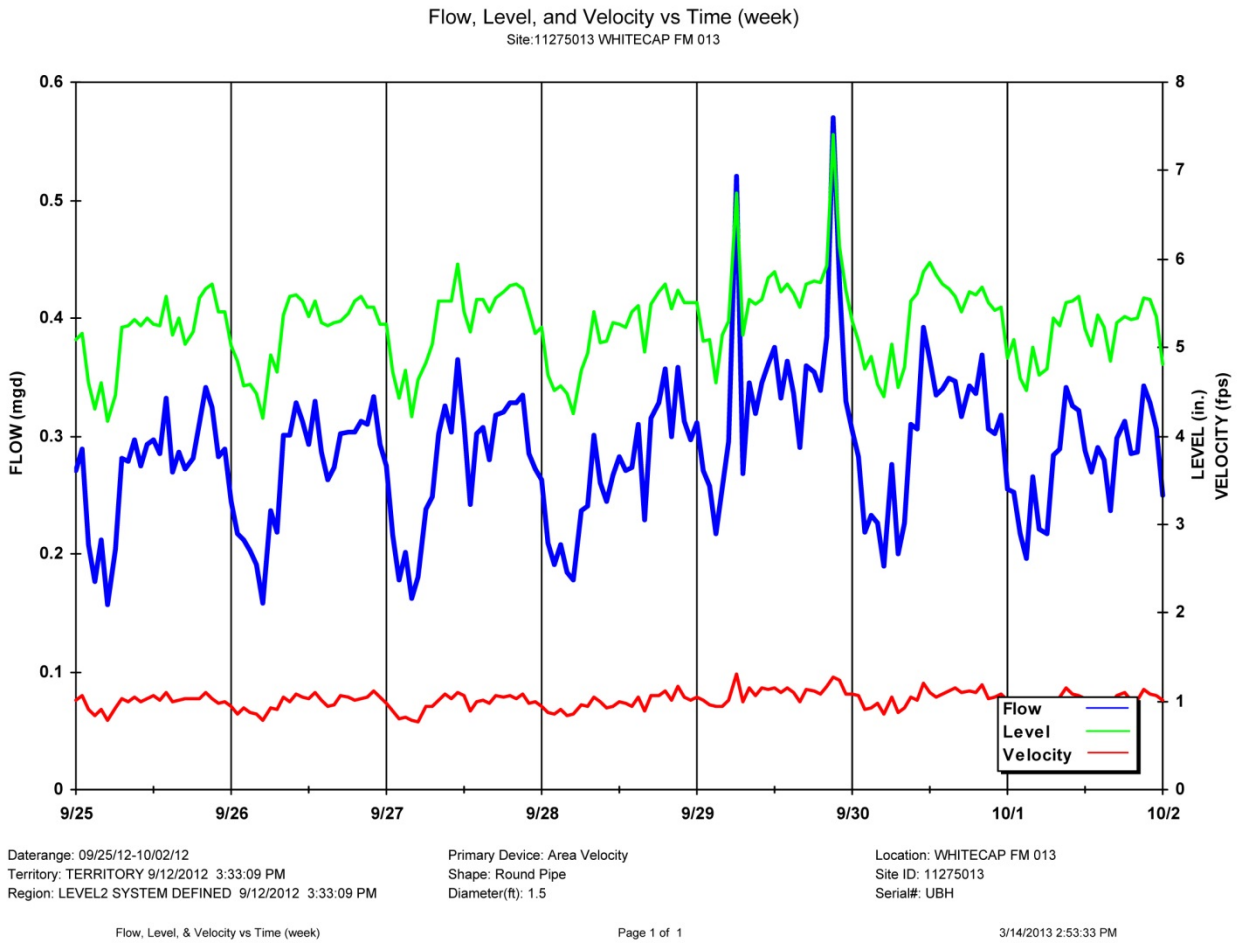


Table 6
Laguna Basin Wet Weather Flow Summary

Meter	Pipe Diameter (in)	Basin Footage (lf)	Storm Event Date	Basin Rainfall (in)	Cumulative Storm Event Volume (mg)	Equivalent Base Flow Volume (mg)	RDII Volume (mg)	Peak Flow Rate (mgd)	Peaking Factor	Maximum Level (in)	Maximum d/D	Discrete RDII (mg)	Discrete RDII (mg/in)	Discrete RDII (gal/in/lf)
001	18	47499	9/16	0.62	0.41	0.40	0.01	0.47	1.2	11.01	61.2%	0.01	0.02	0.41
			9/28 - 9/29	1.54	0.79	0.65	0.14	0.54	1.7	10.78	59.9%	0.14	0.09	1.85
			4/28 - 4/30	1.83	0.90	0.88	0.02	0.33	1.1	11.59	64.4%	0.02	0.01	0.24
			5/11 - 5/12	2.19	0.66	0.64	0.01	0.36	1.1	12.29	68.3%	0.01	0.01	0.14
			6/30	0.73	0.37	0.36	0.01	0.39	1.1	13.03	72.4%	0.01	0.01	0.22
	Average												0.03	0.57
003	15	38595	9/16	0.55	0.19	0.18	0.02	0.24	1.4	10.80	72.0%	0.02	0.03	0.74
			9/28 - 9/29	1.93	0.26	0.24	0.01	0.20	1.7	9.92	66.1%	0.01	0.01	0.19
			4/28 - 4/30	2.30	0.51	0.47	0.03	0.41	2.6	13.34	89.0%	0.03	0.01	0.36
			5/11 - 5/12	1.85	0.35	0.29	0.06	0.41	2.8	14.72	98.1%	0.06	0.03	0.85
			6/30	0.91	0.19	0.17	0.02	0.24	1.4	10.16	67.8%	0.02	0.02	0.51
	Average												0.02	0.53
004	12	29414	9/16	0.80	0.10	0.07	0.02	0.19	2.6	14.95	124.6%	0.02	0.03	1.06
			9/28 - 9/29	2.05	0.19	0.18	0.02	0.22	2.5	16.15	134.6%	0.02	0.01	0.32
			4/28 - 4/30	2.50	0.45	0.39	0.06	1.07	8.1	40.64	338.7%	0.06	0.02	0.82
			5/11 - 5/12	2.39	0.33	0.31	0.02	0.34	2.2	16.03	133.6%	0.02	0.01	0.29
			6/30	0.99	0.15	0.14	0.01	0.29	2.1	14.07	117.2%	0.01	0.02	0.51
	Average												0.02	0.60
005	15	27393	9/16	0.37	0.20	0.20	0.00	0.27	1.4	4.84	32.3%	0.00	0.01	0.21
			9/28 - 9/29	2.21	0.31	0.29	0.02	0.46	3.2	13.70	91.3%	0.02	0.01	0.38
			4/28 - 4/30	2.47	0.37	0.45	0.00	0.21	1.4	4.29	28.6%	0.00	0.00	0.00
			5/11 - 5/12	2.12	0.46	0.44	0.01	0.32	1.5	5.34	35.6%	0.01	0.01	0.25
			6/30	0.97	0.28	0.27	0.01	0.33	1.2	5.46	36.4%	0.01	0.01	0.23
	Average												0.01	0.21
006/007	24	38295	9/16	0.65	0.29	0.27	0.02	0.55	2.0	11.06	46.1%	0.02	0.03	0.71
			9/28 - 9/29	2.12	0.64	0.54	0.10	0.51	1.9	10.77	44.9%	0.10	0.05	1.19
			4/28 - 4/30	2.49	1.97	1.61	0.36	1.38	2.6	13.82	57.6%	0.36	0.15	3.82
			5/11 - 5/12	2.15	1.08	1.06	0.02	0.83	1.6	10.49	43.7%	0.02	0.01	0.26
			6/30	0.99	0.51	0.49	0.03	0.72	1.5	9.97	41.6%	0.03	0.03	0.71
	Average												0.05	1.34
008	15	26458	9/16	0.75	Surcharged, No Velocity					20.23	134.9%	Surcharged, No Velocity		
			9/28 - 9/29	2.08	Surcharged, No Velocity					26.72	178.1%	Surcharged, No Velocity		
			4/28 - 4/30	2.49	Surcharged, No Velocity					50.62	337.5%	Surcharged, No Velocity		
			5/11 - 5/12	2.25	Surcharged, No Velocity					26.55	177.0%	Surcharged, No Velocity		
			6/30	0.99	Surcharged, No Velocity					15.39	102.6%	Surcharged, No Velocity		
	Average													
009	12	44002	9/16	0.47	0.34	0.33	0.01	0.55	1.7	14.40	120.0%	0.01	0.02	0.42
			9/28 - 9/29	2.22	0.68	0.64	0.04	0.51	1.6	16.92	141.0%	0.04	0.02	0.40
			4/28 - 4/30	2.62	1.02	0.92	0.10	0.55	1.8	35.37	294.7%	0.10	0.04	0.85
			5/11 - 5/12	1.65	0.76	0.63	0.12	0.55	1.7	33.93	282.7%	0.12	0.07	1.69
			6/30	1.02	0.38	0.38	0.00	0.49	1.3	9.32	77.7%	0.00	0.00	0.03
	Average												0.03	0.68
010	12	24643	4/28 - 4/30	2.75	0.12	0.13	0.00	0.22	5.3	13.85	115.4%	0.00	0.00	0.00
			5/11 - 5/12	1.41	0.10	0.09	0.01	0.15	3.4	2.87	23.9%	0.01	0.01	0.38
			6/30	1.07	0.06	0.06	0.00	0.15	2.5	2.69	22.4%	0.00	0.00	0.12
	Average												0.00	0.17
011	12	11746	9/16	0.83	0.06	0.06	0.00	0.08	1.3	5.47	45.6%	0.00	0.00	0.02
			9/28 - 9/29	2.04	0.14	0.13	0.00	0.10	1.5	5.74	47.8%	0.00	0.00	0.04
													0.00	0.03
012	8	17320	4/28 - 4/30	2.48	0.10	0.08	0.02	0.27	9.8	25.12	314.0%	0.02	0.01	0.49
			5/11 - 5/12	2.36	0.08	0.06	0.03	0.36	12.4	18.58	232.2%	0.03	0.01	0.66
			6/30	0.98	0.04	0.04	0.00	0.09	2.3	2.24	28.0%	0.00	0.00	0.29
	Average												0.01	0.48
												Total	0.17	

Definitions

Basin Rainfall - Average rainfall across basin

Cumulative Storm Event Volume - Total flow recorded at meter site

Equivalent Base Flow Volume - Dry weather average flow for storm duration.

Rainfall Derived I/I Volume - Storm event volume minus equivalent base flow volume

Peak Flow Rate - Observed peak flow rate during storm event

Peaking Factor - Peak rate divided by average dry weather flow rate

Maximum Level - Recorded maximum flow level during storm events

Maximum d/D - Ratio of maximum recorded depth of flow to pipe diameter

Discrete RDII (million gallons per inch of rainfall) - RDII divided by rainfall

Discrete RDII (gallons per inch of rainfall per linear foot) - RDII divided by rainfall divided by sub area footage

Table 7
Whitecap Basin Wet Weather Flow Summary

Meter	Pipe Diameter (in)	Basin Footage (lf)	Storm Event Date	Basin Rainfall (in)	Cumulative Storm Event Volume (mg)	Equivalent Base Flow Volume (mg)	RDII Volume (mg)	Peak Flow Rate (mgd)	Peaking Factor	Maximum Level (in)	Maximum d/D	Discrete RDII (mg)	Discrete RDII (mg/in)	Discrete RDII (gal/in/lf)
013	18	53278	9/16	0.77	0.28	0.27	0.01	0.71	2.7	7.64	42.4%	0.01	0.01	0.22
			9/28 - 9/29	2.27	0.64	0.53	0.11	0.70	2.6	9.07	50.4%	0.11	0.05	0.89
			4/28 - 4/30	1.10	0.84	0.77	0.07	0.92	3.6	55.13	306.3%	0.07	0.06	1.16
			5/11 - 5/12	1.50	0.55	0.52	0.03	0.50	1.9	7.47	41.5%	0.03	0.02	0.31
			6/30	0.79	0.30	0.30	0.01	0.38	1.3	5.95	33.0%	0.01	0.01	0.14
			7/16 - 7/17	1.70	0.61	0.57	0.04	0.61	2.1	7.37	41.0%	0.04	0.02	0.45
	Average												0.03	0.53
014/20	8	42518	9/16	0.73	0.08	0.06	0.02	0.14	2.4	7.38	92.3%	0.02	0.02	0.58
			9/28 - 9/29	2.24	0.15	0.13	0.02	0.14	2.2	7.96	99.5%	0.02	0.01	0.21
			4/28 - 4/30	1.52	0.41	0.40	0.01	0.28	2.1	58.16	727.0%	0.01	0.01	0.12
			5/11 - 5/12	0.88	0.32	0.29	0.03	0.24	1.6	9.45	118.1%	0.03	0.04	0.86
			6/30	1.01	0.16	0.16	0.00	0.24	1.6	8.64	108.0%	0.00	0.00	0.02
			7/16 - 7/17	1.66	0.33	0.32	0.01	0.24	1.5	8.94	111.7%	0.01	0.01	0.14
	Average												0.01	0.32
015	18	47015	9/16	0.72	0.15	0.12	0.03	0.62	5.2	56.02	311.2%	0.03	0.04	0.93
			9/28 - 9/29	2.23	0.29	0.21	0.08	0.77	7.2	45.70	253.9%	0.08	0.04	0.76
			5/11 - 5/12	0.89	0.40	0.28	0.12	0.40	2.9	4.26	23.7%	0.12	0.14	2.92
			6/30	0.92	0.17	0.16	0.00	0.39	2.4	4.51	25.1%	0.00	0.00	0.07
			7/16 - 7/17	1.66	0.23	0.18	0.05	0.22	2.4	3.35	18.6%	0.05	0.03	0.60
	Average												0.05	1.06
016	36	82687	9/16	0.79	1.80	1.64	0.17	2.84	1.7	23.03	64.0%	0.11	0.14	1.74
			9/28 - 9/29	2.22	3.24	2.70	0.54	2.42	1.8	21.82	60.6%	0.26	0.12	1.44
			4/28 - 4/30	1.68	6.10	4.05	2.05	4.23	3.1	42.57	118.2%	1.48	0.88	10.65
			5/11 - 5/12	1.03	2.63	2.52	0.11	2.14	1.7	15.34	42.6%	0.00	0.00	0.00
			6/30	0.68	1.66	1.60	0.05	2.62	1.6	18.26	50.7%	0.02	0.03	0.34
			7/16 - 7/17	1.67	3.06	2.83	0.23	2.23	1.6	15.47	43.0%	0.15	0.09	1.05
	Average												0.21	2.54
017/018	18	38134	9/16	0.73	0.23	0.21	0.02	0.34	1.6	5.12	28.4%	0.02	0.02	0.59
			9/28 - 9/29	2.24	0.56	0.42	0.14	0.38	1.8	5.40	30.0%	0.14	0.06	1.63
			4/28 - 4/30	1.30	0.74	0.38	0.36	1.83	14.5	21.76	120.9%	0.36	0.28	7.24
			5/11 - 5/12	1.34	0.38	0.35	0.03	0.36	2.0	3.90	21.7%	0.03	0.02	0.61
			6/30	0.70	0.21	0.18	0.03	0.27	1.6	3.47	19.3%	0.03	0.04	1.09
			7/16 - 7/17	1.68	0.28	0.26	0.03	0.22	1.7	3.48	19.3%	0.03	0.02	0.41
	Average												0.07	1.93
019	21	11304	9/16	1.00	0.66	0.65	0.01	1.00	1.5	16.77	79.8%	0.01	0.01	0.89
			9/28 - 9/29	2.27	1.26	1.25	0.01	0.96	1.5	16.15	76.9%	0.01	0.00	0.28
			4/28 - 4/30	1.32	1.80	1.66	0.14	1.22	2.2	36.31	172.9%	0.14	0.10	9.18
			5/11 - 5/12	1.33	1.43	1.33	0.10	1.13	1.7	14.34	68.3%	0.10	0.08	6.65
			6/30	0.85	0.72	0.72	0.00	0.96	1.3	13.27	63.2%	0.00	0.00	0.00
			7/16 - 7/17	1.68	1.59	1.59	0.01	1.30	1.6	14.51	69.1%	0.01	0.00	0.32
	Average												0.03	2.89
												Total	0.41	

Definitions

Basin Rainfall - Average rainfall across basin
Cumulative Storm Event Volume - Total flow recorded at meter site
Equivalent Base Flow Volume - Dry weather average flow for storm duration.
Rainfall Derived I/I Volume - Storm event volume minus equivalent base flow volume
Peak Flow Rate - Observed peak flow rate during storm event
Peaking Factor - Peak rate divided by average dry weather flow rate
Maximum Level - Recorded maximum flow level during storm events
Maximum d/D - Ratio of maximum recorded depth of flow to pipe diameter
Discrete RDII (million gallons per inch of rainfall) - RDII divided by rainfall
Discrete RDII (gallons per inch of rainfall per linear foot) - RDII divided by rainfall divided by sub area footage

Table 8
Allison Basin Wet Weather Flow Summary

Meter	Pipe Diameter (in)	Basin Footage (lf)	Storm Event Date	Basin Rainfall (in)	Cumulative Storm Event Volume (mg)	Equivalent Base Flow Volume (mg)	RDII Volume (mg)	Peak Flow Rate (mgd)	Peaking Factor	Maximum Level (in)	Maximum d/D	Discrete RDII (mg)	Discrete RDII (mg/in)	Discrete RDII (gal/in/lf)
021	27	137480	9/16	0.34	1.26	1.20	0.07	2.48	2.4	5.28	19.6%	0.05	0.14	0.99
			9/28 - 9/29	1.34	5.25	3.97	1.29	4.22	2.1	6.75	25.0%		*Note 1	
			4/28 - 4/30	2.34	3.62	2.39	1.23	2.30	2.9	5.10	18.9%	0.99	0.42	3.08
			6/7	0.45	1.92	1.43	0.49	2.78	2.0	5.82	21.5%	0.47	1.04	7.55
			6/30	0.65	1.35	1.07	0.28	1.61	1.5	4.44	16.5%	0.28	0.42	3.09
			7/16 - 7/17	2.84	3.45	3.15	0.30	2.27	1.4	5.24	19.4%	0.26	0.09	0.65
	Average												0.42	3.07
022	27	35245	9/16	0.32	1.85	1.80	0.05	2.95	1.6	30.93	114.6%	0.00	0.00	0.00
			9/28 - 9/29	1.64	4.75	3.61	1.14	3.08	1.7	36.78	136.2%	0.00	0.00	0.00
			4/28 - 4/30	3.12	5.86	4.77	1.09	3.81	2.4	137.72	510.1%	0.00	0.00	0.00
			5/11 - 5/12	2.95	3.35	3.18	0.17	5.33	3.3	92.00	340.7%	0.00	0.00	0.00
			6/7	0.69	2.00	1.85	0.15	2.57	1.4	47.27	175.1%	0.00	0.00	0.00
			6/30	0.62	1.38	1.50	0.00	2.75	1.8	26.12	96.8%	0.00	0.00	0.00
			7/16 - 7/17	2.45	4.74	3.18	1.56	4.67	2.9	94.15	348.7%	1.26	0.52	14.61
	Average												0.07	2.09
023	24	91897	9/16	0.50	0.21	0.19	0.02	0.39	2.1	4.27	17.8%	0.02	0.04	0.47
			4/28 - 4/30	3.08	0.69	0.45	0.24	1.57	10.4	7.64	31.8%	0.24	0.08	0.84
			5/11 - 5/12	2.68	0.40	0.34	0.06	0.46	2.7	4.27	17.8%	0.06	0.02	0.24
			6/7	0.67	0.19	0.16	0.03	0.45	2.8	4.18	17.4%	0.03	0.04	0.41
			6/30	0.55	0.17	0.16	0.00	0.25	1.5	3.22	13.4%	0.00	0.00	0.04
			7/16 - 7/17	2.67	0.36	0.32	0.04	0.36	2.3	3.77	15.7%	0.04	0.02	0.18
	Average												0.03	0.36
024	24	69413	9/16	0.23	0.37	0.31	0.06	0.62	2.0	4.20	17.5%	0.02	0.10	1.48
			9/28 - 9/29	1.49	0.58	0.54	0.04	0.58	2.1	3.99	16.6%	0.00	0.00	0.00
			4/28 - 4/30	3.74	1.09	0.80	0.29	1.75	6.6	7.05	29.4%	0.17	0.04	0.64
			5/11 - 5/12	3.37	0.90	0.72	0.18	1.88	5.2	8.39	35.0%	0.03	0.01	0.13
			6/7	0.88	0.16	0.11	0.04	0.66	5.8	2.64	11.0%	0.03	0.03	0.44
			6/30	0.39	0.30	0.27	0.03	0.43	1.6	3.31	13.8%	0.02	0.05	0.66
			7/16 - 7/17	2.70	0.58	0.35	0.23	0.64	3.6	4.04	16.8%	0.20	0.07	1.05
	Average												0.04	0.63
025	24	77551	9/16	0.16	0.34	0.34	0.00	0.62	1.8	5.08	21.2%	0.00	0.02	0.30
			9/28 - 9/29	1.52	0.69	0.53	0.17	0.84	3.2	5.26	21.9%	0.16	0.10	1.32
			4/28 - 4/30	3.32	0.87	0.19	0.67	6.36	99.3	117.49	489.5%	0.65	0.20	2.54
			5/11 - 5/12	2.48	0.67	0.42	0.25	3.18	15.0	22.66	94.4%	0.23	0.09	1.17
			6/7	0.48	0.30	0.27	0.03	0.61	2.3	4.36	18.2%	0.01	0.02	0.32
			6/30	0.59	0.25	0.23	0.02	0.38	1.6	3.64	15.2%	0.02	0.03	0.42
			7/16 - 7/17	2.53	0.65	0.45	0.21	0.67	3.0	4.73	19.7%	0.18	0.07	0.91
	Average												0.08	1.00
026	30	113035	9/16	0.20	1.05	0.99	0.05	1.84	1.8	50.51	168.4%	0.00	0.00	0.00
			9/28 - 9/29	1.58	1.48	1.41	0.07	2.02	2.9	52.03	173.4%	0.02	0.02	0.13
	Average												0.01	0.07
027	18	104599	9/16	0.03	0.03	0.04	0.00	0.13	3.3	2.45	13.6%	0.00	0.00	0.00
			9/28 - 9/29	1.54	0.13	0.12	0.01	0.20	3.4	2.97	16.5%	0.01	0.01	0.07
			4/28 - 4/30	3.06	0.19	0.17	0.02	0.55	9.7	5.49	30.5%	0.02	0.01	0.07
			5/11 - 5/12	1.70	0.13	0.11	0.02	0.19	3.4	2.73	15.2%	0.02	0.01	0.12
			6/7	0.12	0.10	0.08	0.02	0.33	4.2	4.13	22.9%	0.02	0.16	1.51
			6/30	0.75	0.04	0.06	0.00	0.09	1.5	1.80	10.0%	0.00	0.00	0.00
			7/16 - 7/17	2.38	0.14	0.11	0.03	0.16	3.0	2.64	14.7%	0.03	0.01	0.12
	Average												0.03	0.27
028	18	54542	9/16	0.19	0.23	0.19	0.04	0.41	2.1	4.51	25.1%	0.04	0.20	3.72
			9/28 - 9/29	1.42	0.41	0.36	0.05	0.40	2.2	4.56	25.4%	0.05	0.03	0.61
			4/28 - 4/30	3.73	0.71	0.59	0.12	1.18	6.0	7.78	43.2%	0.12	0.03	0.59
			5/11 - 5/12	3.39	0.45	0.30	0.15	1.13	7.5	7.70	42.8%	0.15	0.04	0.79
			6/7	0.89	0.19	0.17	0.02	0.39	2.3	4.47	24.8%	0.02	0.02	0.35
			6/30	0.39	0.20	0.19	0.01	0.25	1.4	3.66	20.3%	0.01	0.02	0.38
			7/16 - 7/17	2.71	0.42	0.38	0.04	0.41	2.1	4.53	25.2%	0.04	0.01	0.26
	Average												0.05	0.96
												Total	0.74	

*Note 1 - Upstream meter not operational

Definitions

Basin Rainfall - Average rainfall across basin
Cumulative Storm Event Volume - Total flow recorded at meter site
Equivalent Base Flow Volume - Dry weather average flow for storm duration.
Rainfall Derived I/I Volume - Storm event volume minus equivalent base flow volume
Peak Flow Rate - Observed peak flow rate during storm event
Peaking Factor - Peak rate divided by average dry weather flow rate
Maximum Level - Recorded maximum flow level during storm events
Maximum d/D - Ratio of maximum recorded depth of flow to pipe diameter
Discrete RDII (million gallons per inch of rainfall) - RDII divided by rainfall
Discrete RDII (gallons per inch of rainfall per linear foot) - RDII divided by rainfall divided by sub area footage

Figure 7

RDII Priority Ranking of Laguna Meter Basins

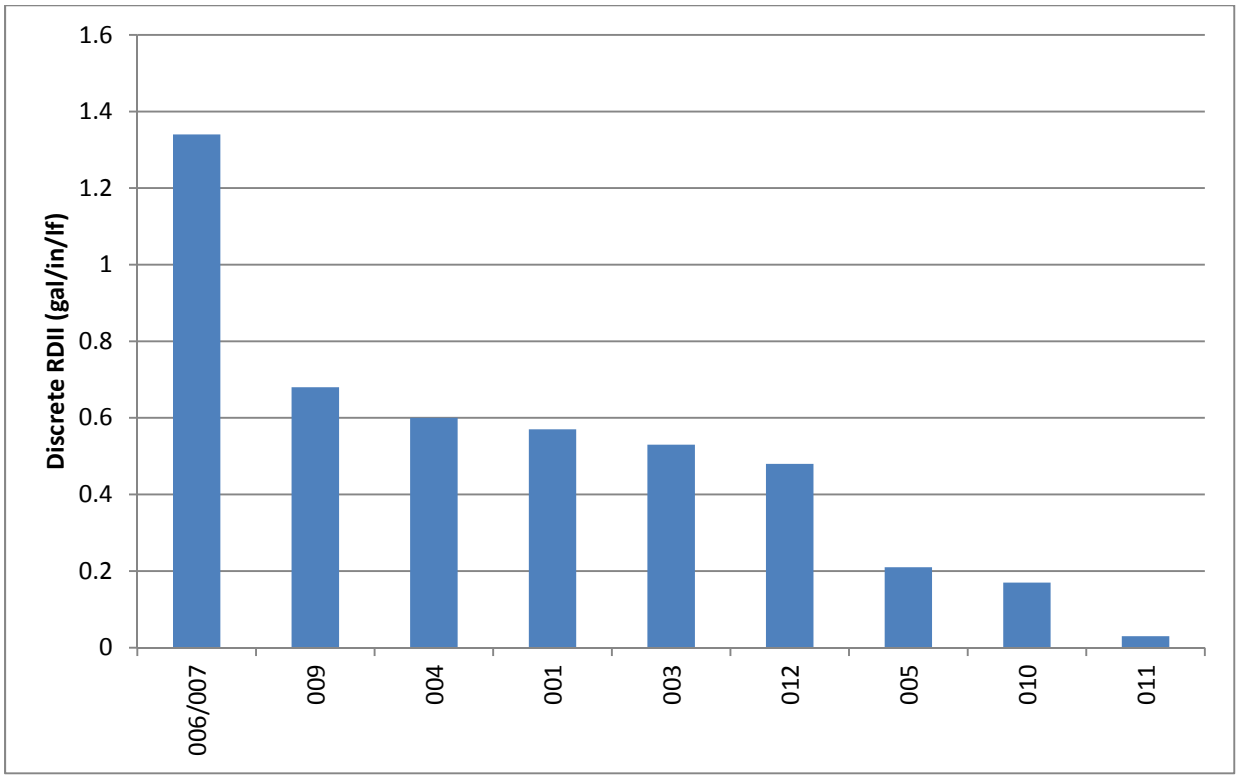


Figure 8

RDII Priority Ranking of Whitecap Meter Basins

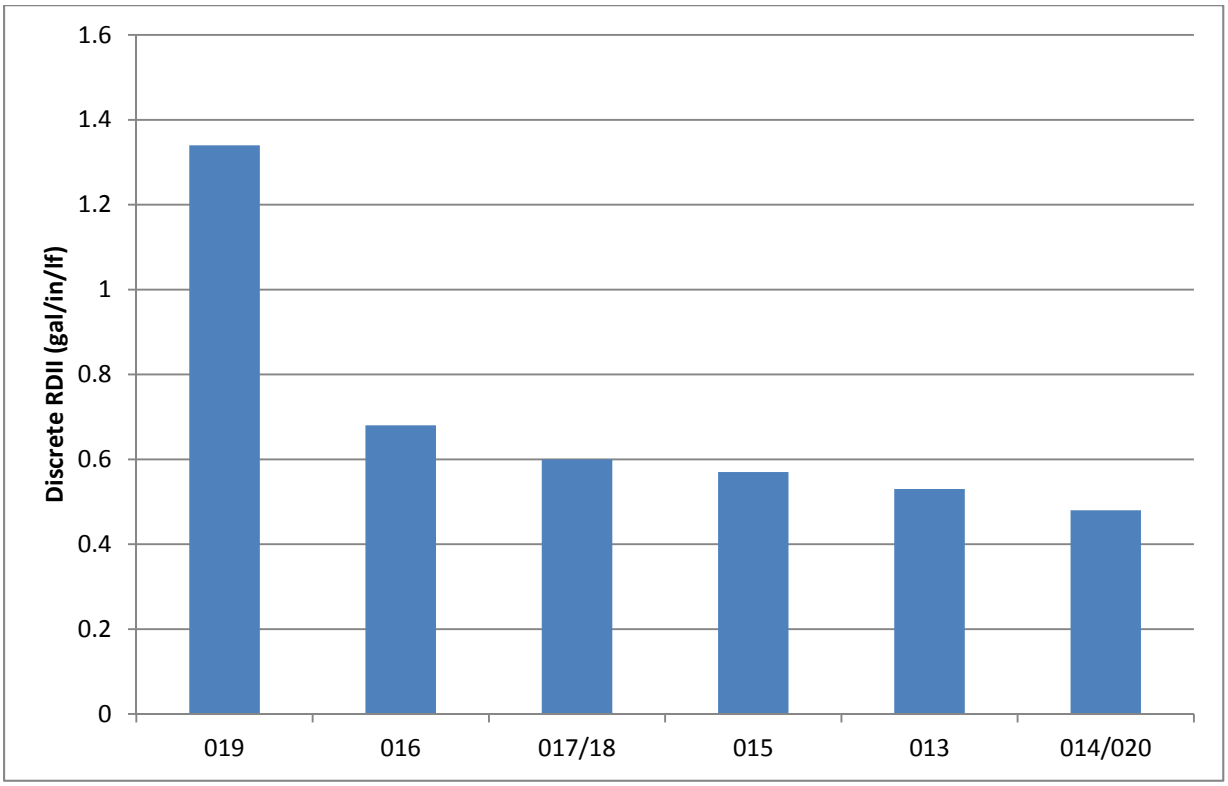
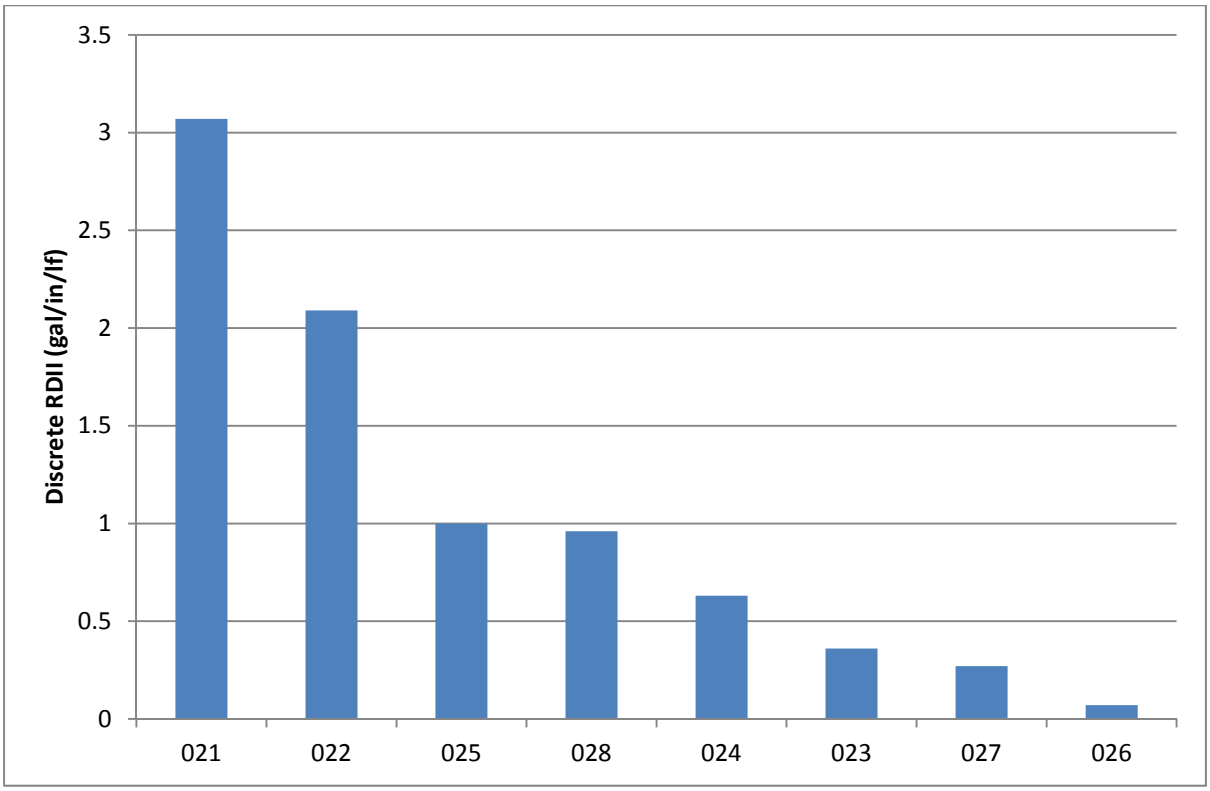


Figure 9

RDII Priority Ranking of Allison Meter Basins



Figures 10-12 present a summary of peak flow rates recorded in 2012 and 2013 compared to a representative average dry weather day. Peak flow rates are a qualitative measure of the impact of wet weather on the collection system. Peak flow can be affected by bottlenecks in the system due to inadequate capacity, roots, broken pipe, etc. In addition, the peak flow rate will normally be reduced due to pumping stations equalizing flows (cutting off peak flow rates). High peak flows will also create elevated depth of flow in the pipelines. Wet weather surcharging was observed during at least one of the analyzed rain events at Laguna meter sites 004, 008, 009, 010 and 012, Whitecap meter sites 013, 014, 015, 016, 017 and 019, and Allison meter sites 022, 025 and 026.

Figure 10
Laguna Peak Flow Rates
Dry Weather versus Wet Weather Comparison

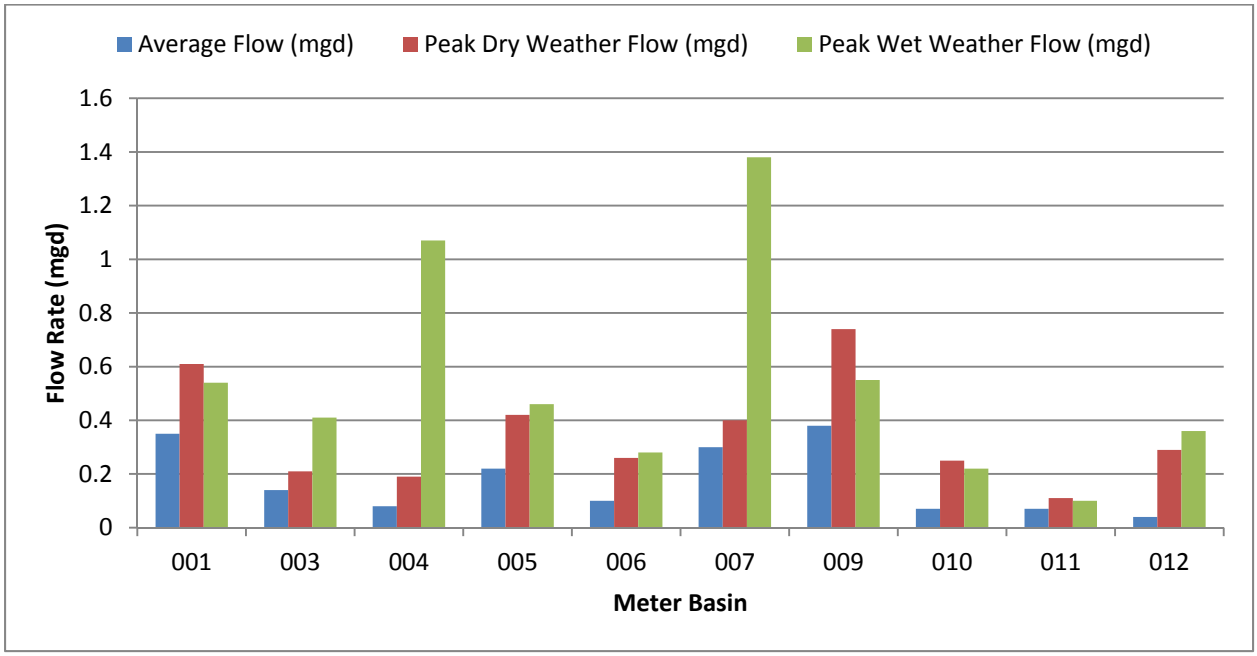


Figure 11
Whitecap Peak Flow Rates
Dry Weather versus Wet Weather Comparison

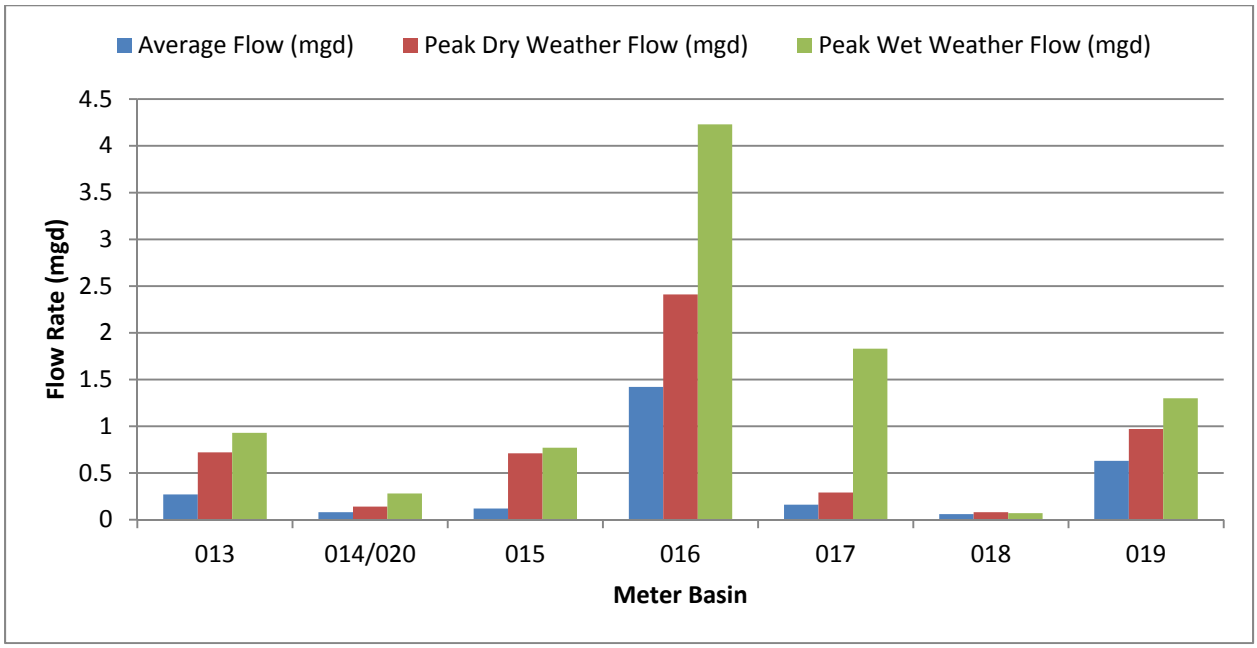
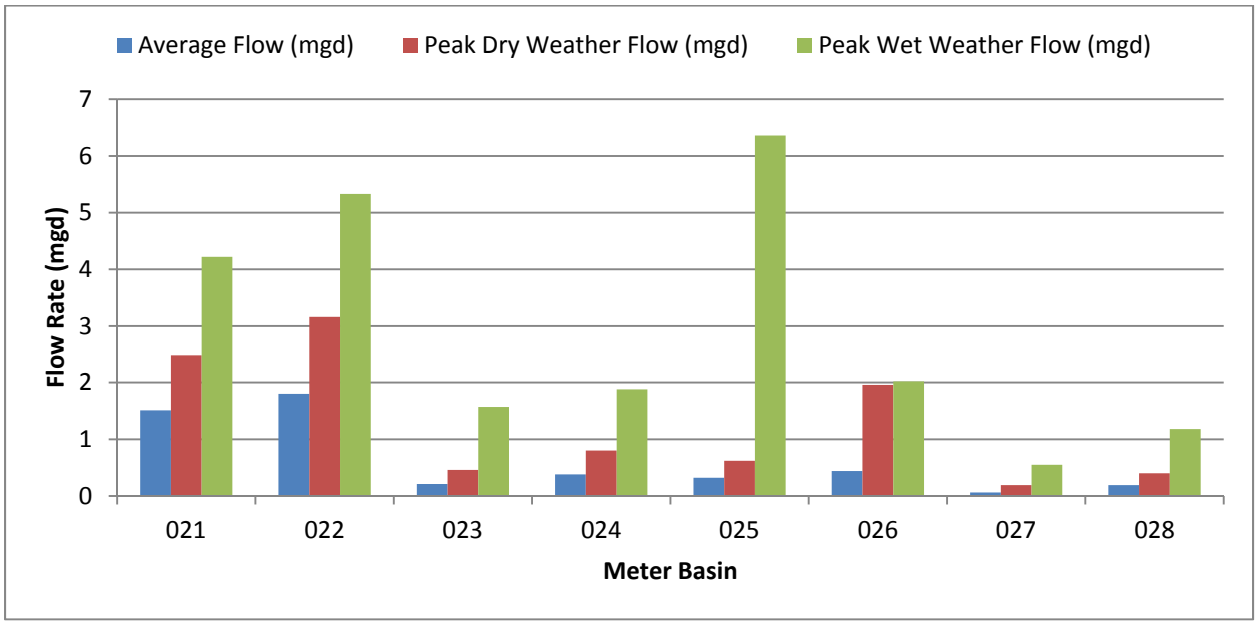


Figure 12
Allison Peak Flow Rates
Dry Weather versus Wet Weather Comparison



The calculated RDII rate is 0.17 million gallons per inch of rainfall for the monitored areas of the Laguna basin, 0.41 million gallons per inch of rainfall for the monitored areas of the Whitecap basin and 0.74 million gallons per inch of rainfall for the monitored areas of the Allison basin based on the wet weather analysis. The RDII value is highly variable and is dependent on soil moisture conditions prior to the rainfall event. The data presented in this report is based on a lower than normal rainfall season. Using the normal annual precipitation of 30.13 inches, the annual projected wet weather RDII for the monitored areas is 39.8 million gallons (1.32 mg/in x 30.13 inches).

Rainfall distribution over the collection system is critical in the analysis of wet weather flows. Localized rainfall can be very heavy over one area and no rainfall in an adjacent area. Rainfall gauges provide detailed information at points across the study area, but do not provide information on the rainfall between the gauges. Various mathematical models for distributing the rainfall between gauges have been developed. The rainfall distribution methodology for this project uses the nine rain gauges and ESRI spatial analyst operating with the GIS mapping system. The rain gauges provide precipitation estimates that are stored as points within the GIS maps. This “point” precipitation is used by the ESRI software to distribute rainfall between the rain gauges thus determining the rainfall across the entire study area. The resulting data provides detailed rainfall over each meter drainage basin.

Figures 13 and 14 present a graphical picture of the rainfall distribution for two of the analyzed storm events, September 16, 2012 and September 28-29, 2012. In Figure 13, for example, total rainfall for the period ranged from a low of 0.47 inches on the southern portion of Laguna Madre to a high of 0.74 inches for the northern portion of the basin.

Figure 13
September 16, 2012 Rainfall Distribution Map

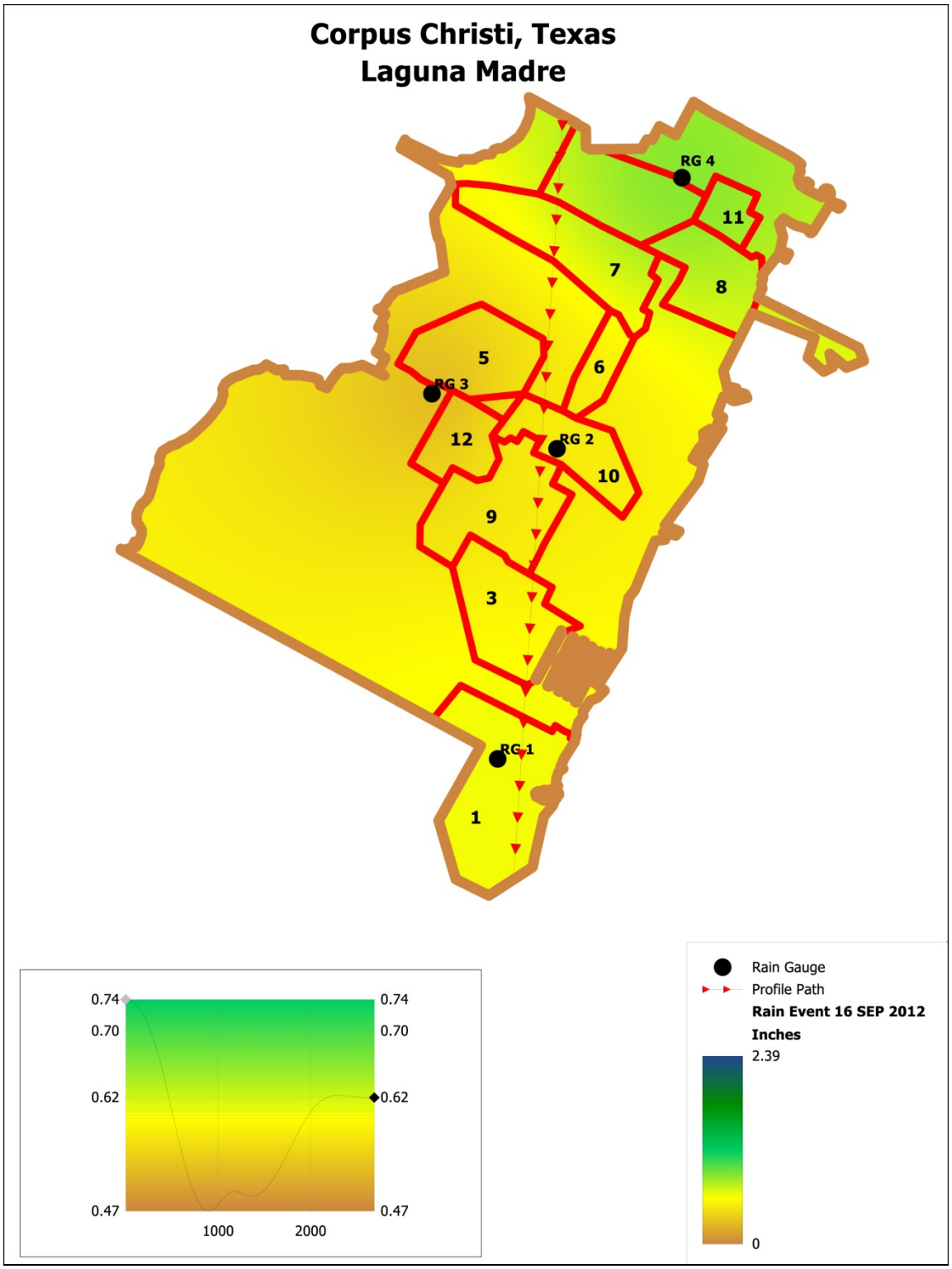
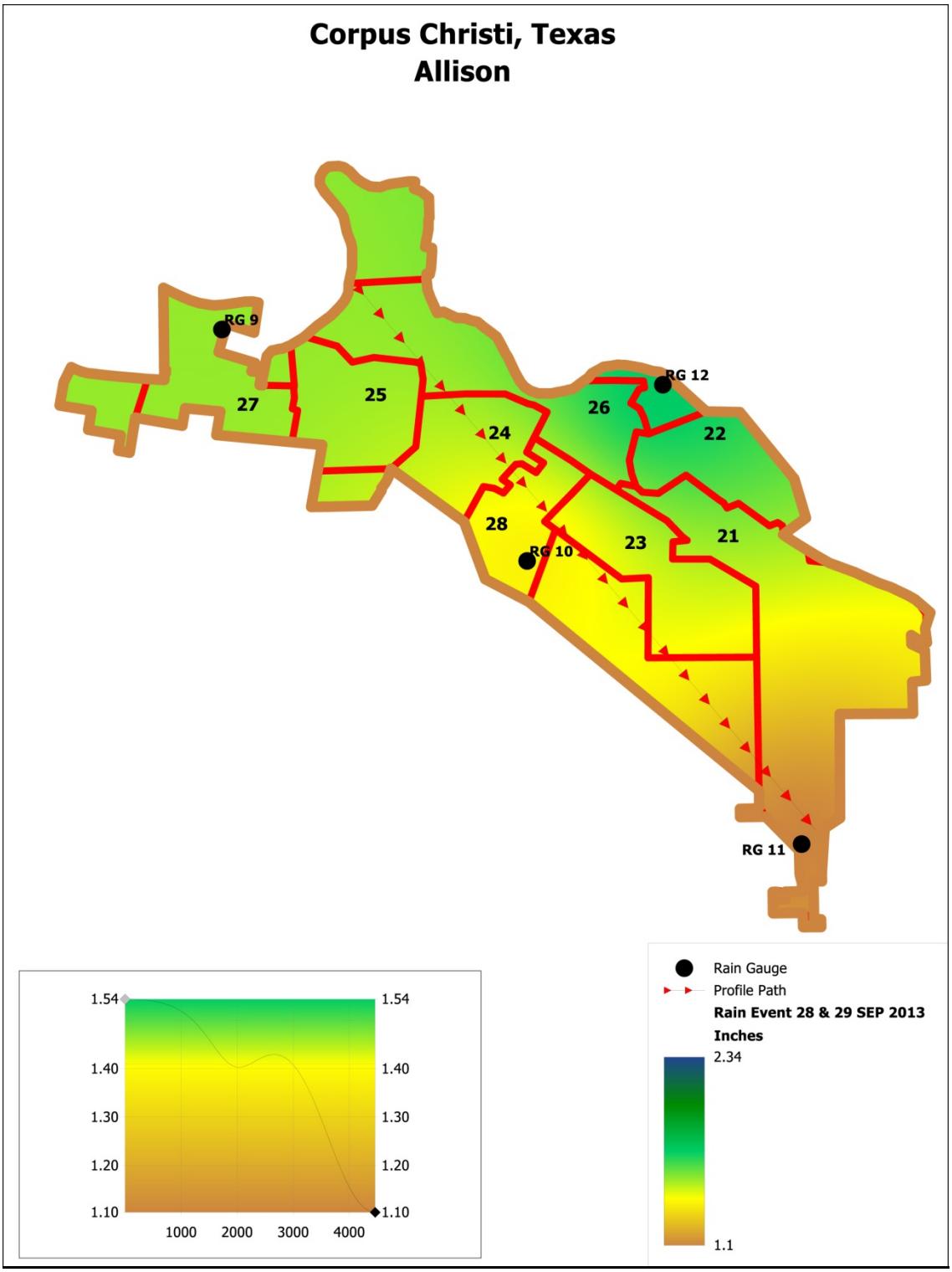


Figure 14
September 28&29, 2012 Rainfall Distribution Map



III. Priority Ranking of Basins

Tables 9-11 present one method of ranking the monitored basins of the three drainage areas. The basins were arranged in descending order of rainfall dependent infiltration/inflow per inch per linear foot of sewer (RDII/in/lf). Note that the data presents an average of the storm events using the rainfall distribution data. These values are qualitative in nature and are highly dependent on basin boundaries.

The linear footage within each basin was determined from the GIS maps. The ranking is highly dependent on the linear feet of pipeline within each basin. The results or this priority ranking are presented in Figures 15-17. Based on the storm events analyzed, the distribution of rainfall dependent infiltration/inflow (RDII) is widespread.

Table 9

Ranking of Laguna Basins

Ranking	Laguna Meter Site	Basin Footage (ft)	Discrete RDII (mg/in)	Cumulative Footage (ft)	% of Total Footage	Cumulative RDII (mg/in)	% of Total RDII
1	006/007	38,295	0.05	38,295	14%	0.05	29%
2	009	44,002	0.03	82,297	30%	0.08	47%
3	004	29,414	0.02	111,711	40%	0.1	59%
4	001	47,499	0.03	159,210	57%	0.13	76%
5	003	38,595	0.02	197,805	71%	0.15	88%
6	012	17,320	0.01	215,125	77%	0.16	94%
7	005	27,393	0.01	242,518	87%	0.17	100%
8	010	24,643	0	267,161	96%	0.17	100%
9	011	11,746	0	278,907	100%	0.17	100%

Table 10

Ranking of Whitecap Basins

Ranking	Whitecap Meter Site	Basin Footage (ft)	Discrete RDII (mg/in)	Cumulative Footage (ft)	% of Total Footage	Cumulative RDII (mg/in)	% of Total RDII
1	019	11,304	0.03	11,304	4%	0.03	8%
2	016	82,687	0.21	93,991	34%	0.24	60%
3	017/018	38,134	0.07	132,125	48%	0.31	78%
4	015	47,015	0.05	179,140	65%	0.36	90%
5	013	53,278	0.03	232,418	85%	0.39	98%
6	014/020	42,518	0.01	274,936	100%	0.4	100%

Table 11

Ranking of Allison Basins

Ranking	Allison Meter Site	Basin Footage (ft)	Discrete RDII (mg/in)	Cumulative Footage (ft)	% of Total Footage	Cumulative RDII (mg/in)	% of Total RDII
1	021	137,480	0.42	137,480	20%	0.42	58%
2	022	35,245	0.07	172,725	25%	0.49	67%
3	025	77,551	0.08	250,276	37%	0.57	78%
4	028	54,542	0.05	304,818	45%	0.62	85%
5	024	69,413	0.04	374,231	55%	0.66	90%
6	023	91,897	0.03	466,128	68%	0.69	95%
7	027	104,599	0.03	570,727	83%	0.72	99%
8	026	113,035	0.01	683,762	100%	0.73	100%

Figure 15

Laguna RDII Distribution by Priority

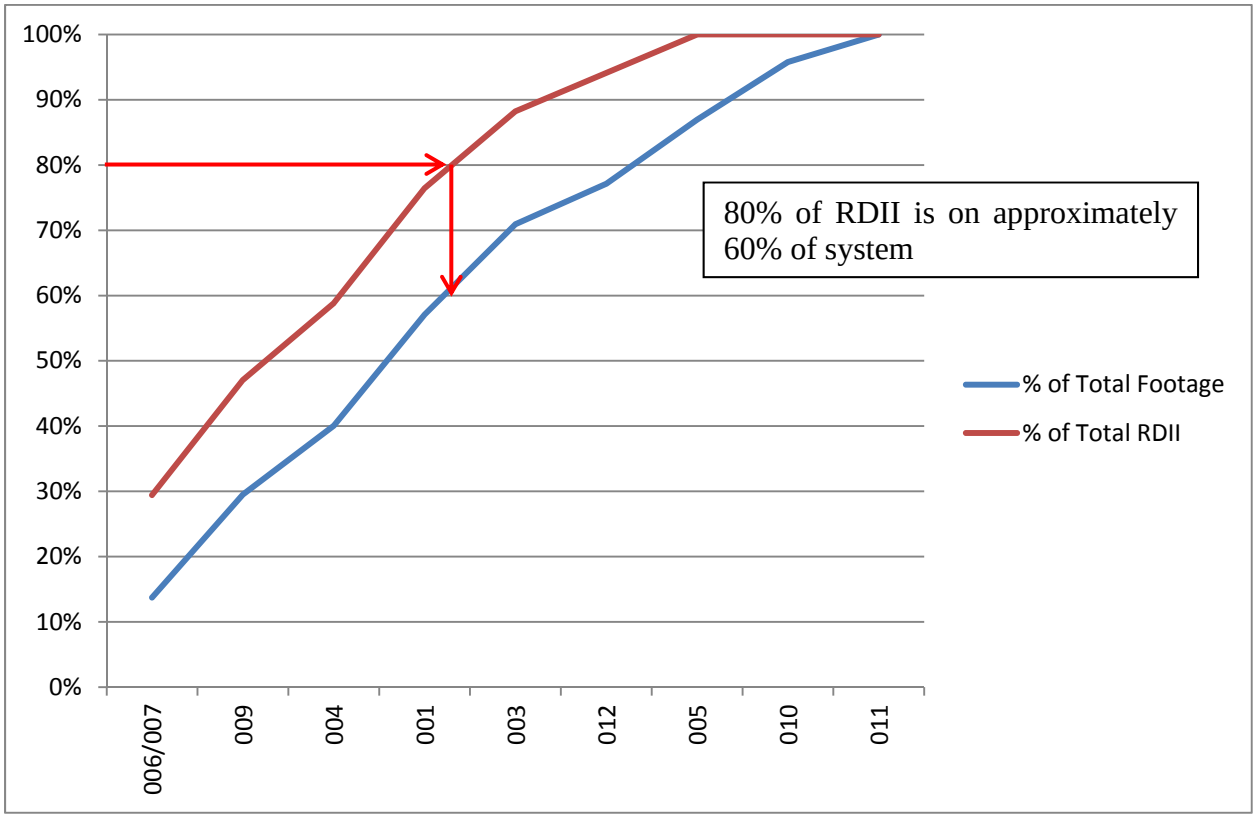


Figure 16

Whitecap RDII Distribution by Priority

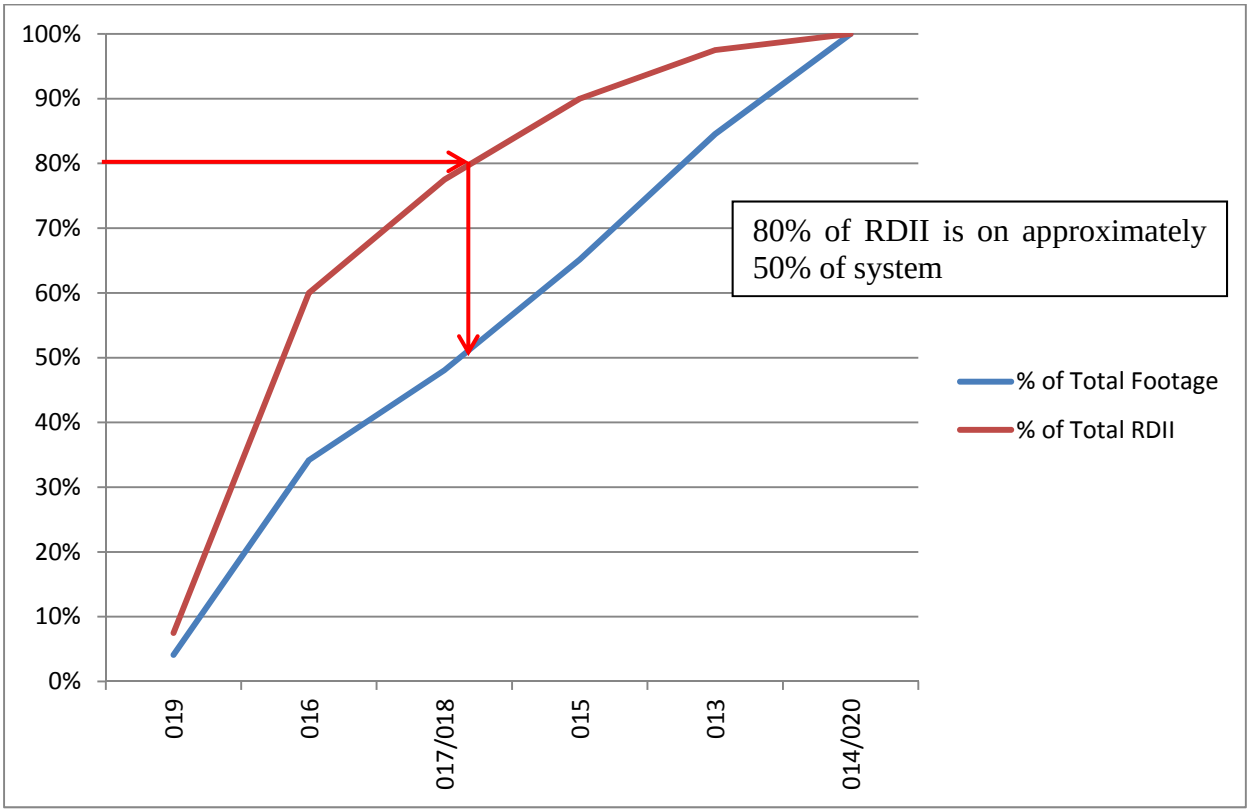
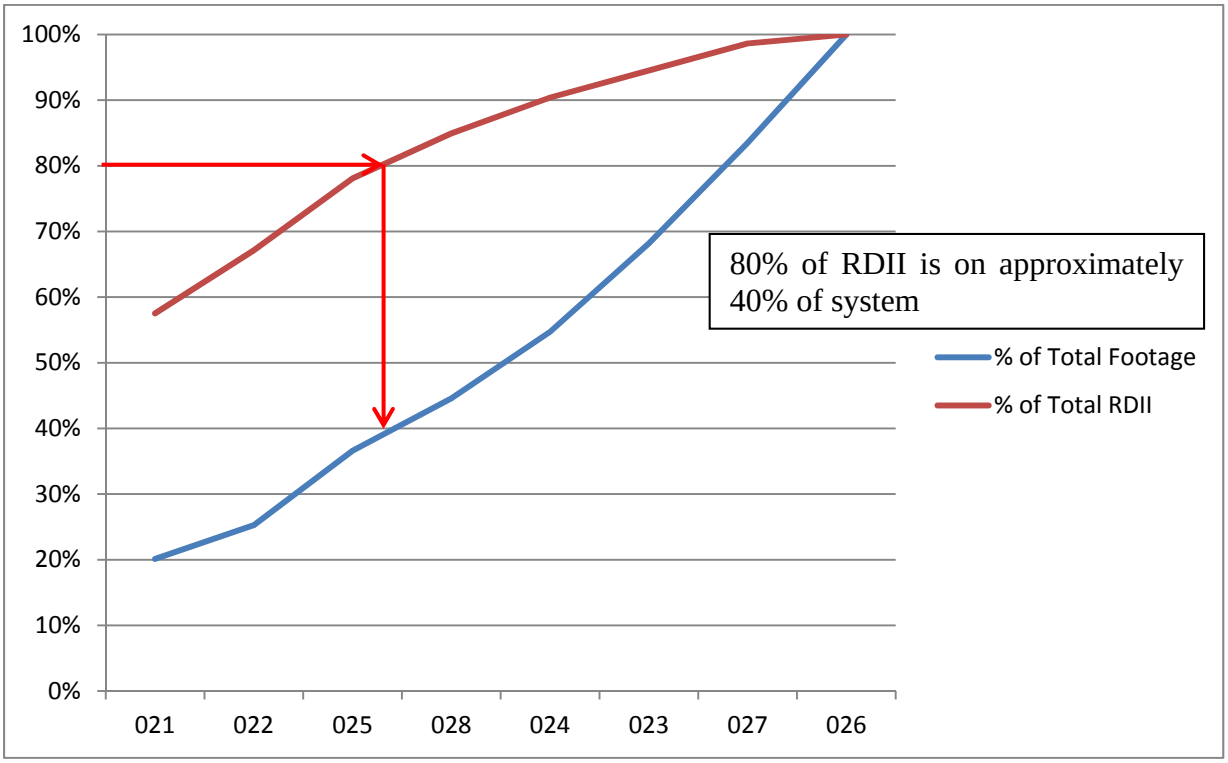


Figure 17

Allison RDII Distribution by Priority



IV. Conclusions and Recommendations

Extraneous water from infiltration/inflow (I/I) sources reduces the capacity of the collection system to transport wastewater and may result in Sanitary Sewer Overflows (SSO's). Groundwater may enter the collection system through defects such as open pipe joints, cracks, broken pipe, dropped joints, etc. Inflow (Rainfall Dependent Infiltration/Inflow – RDII) normally occurs when rainfall enters the sewer system through yard drains, missing cleanout caps, roof leaders, manhole covers and frame seals, storm sewer cross connections, etc.

This report quantifies the existing wastewater flows and extraneous infiltration/inflow (I/I) (based on very limited rainfall data). Following is a summary of conclusions and recommendations:

1. Dry weather flows are adequately transported and treated without overflow. The dry weather flows are highly influenced by pumping stations. Peak flows recorded during the monitoring will be dependent on pump station capacity. Excessive debris in the lines reduces capacity.
2. Using the normal annual precipitation of 30.13 inches, the annual projected wet weather RDII for the monitored areas is 39.8 million gallons (1.32 mg/in x 30.13 inches).
3. Hydraulic data from twenty-seven (27) metering sites and twelve (12) rainfall gauges has been compiled. Supporting data is included in appendices and electronic files accompany this report. This data will be used for hydraulic model calibration and establishing the benchmark for SSO abatement efforts.
4. Priority ranking of basins based on RDII provides guidance for analysis of wet weather infiltration/inflow alternatives.

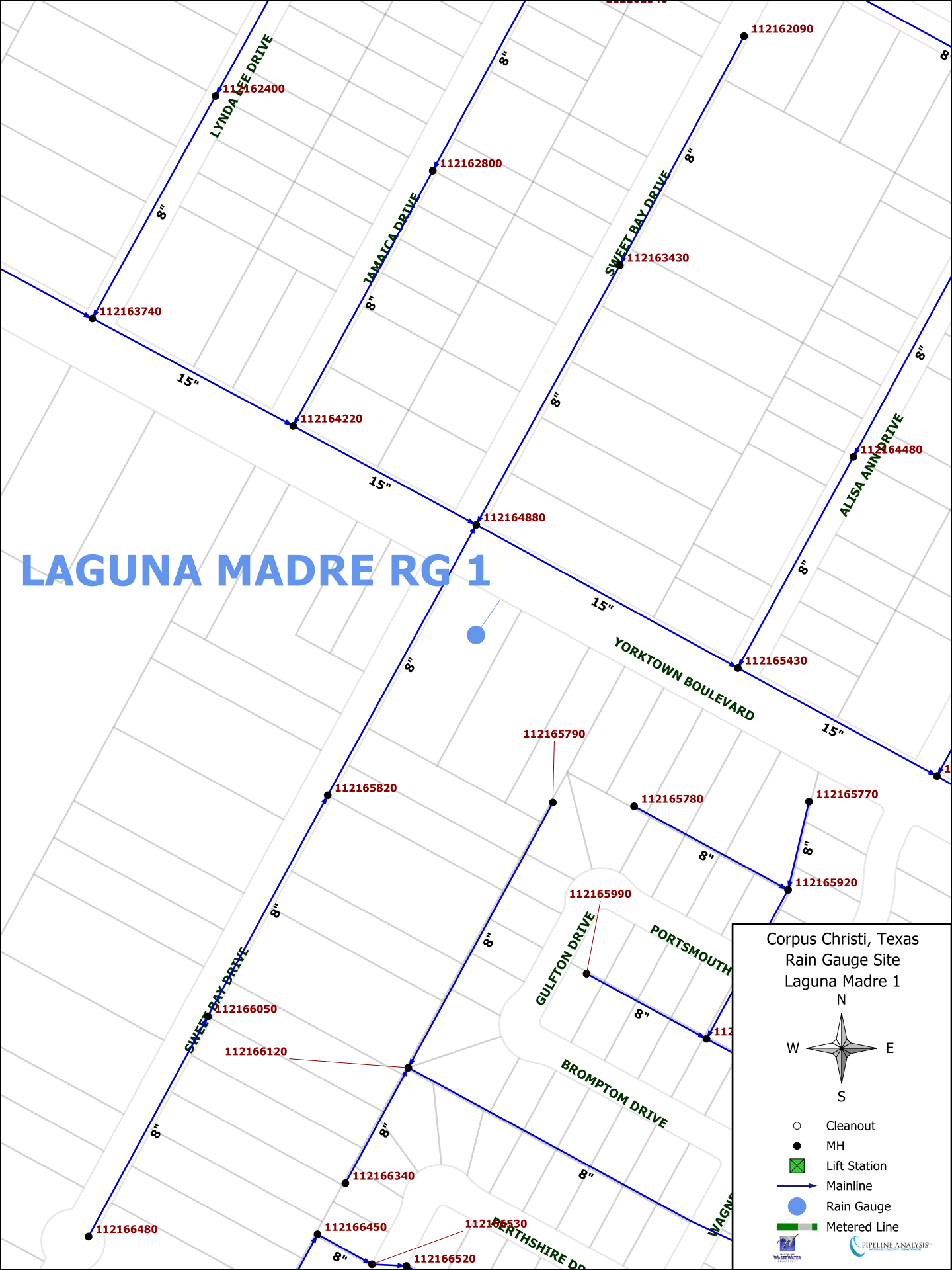
Laguna FM001

Laguna Meter Site 001

11275LAGUNAFM001A001.jpg

11275LAGUNAFM001I002.jpg

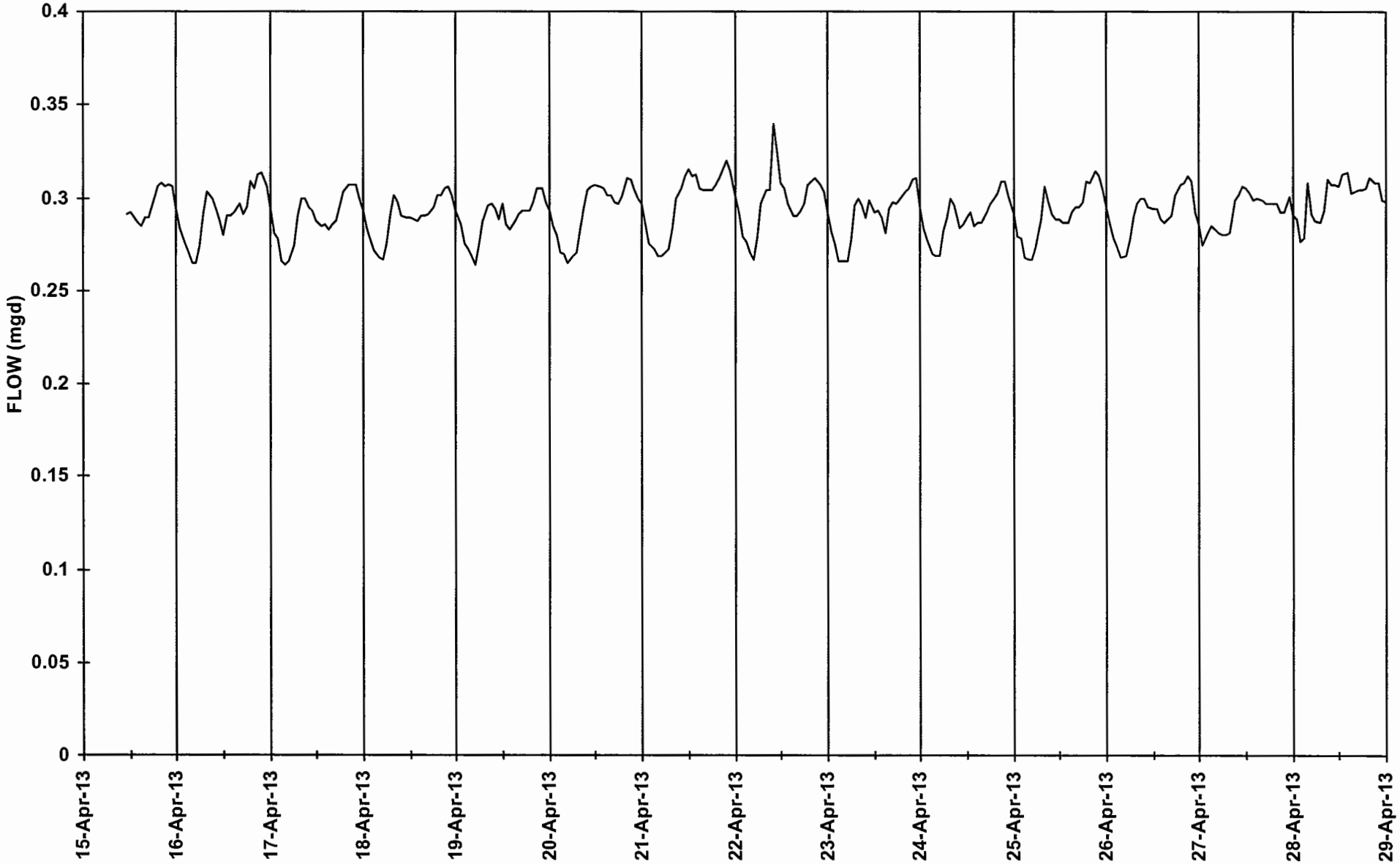
11275LAGUNAFM001P003.jpg



LAGUNA MADRE RG 1
LYNDA LEE DRIVE
JAMAICA DRIVE
SWEET BAY DRIVE
ALISA ANN DRIVE
YORKTOWN BOULEVARD
GULFTON DRIVE
PORTSMOUTH
BROMPTOM DRIVE
PERTHSHIRE DR
112162090
112162400
112162800
112163430
112163740
112164220
112164480
112164880
112165430
112165790
112165820
112165780
112165770
112165920
112165990
112166050
112166120
112166340
112166480
112166450
112166530
112166520
8"
15"
Corpus Christi, Texas
Rain Gauge Site
Laguna Madre 1
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



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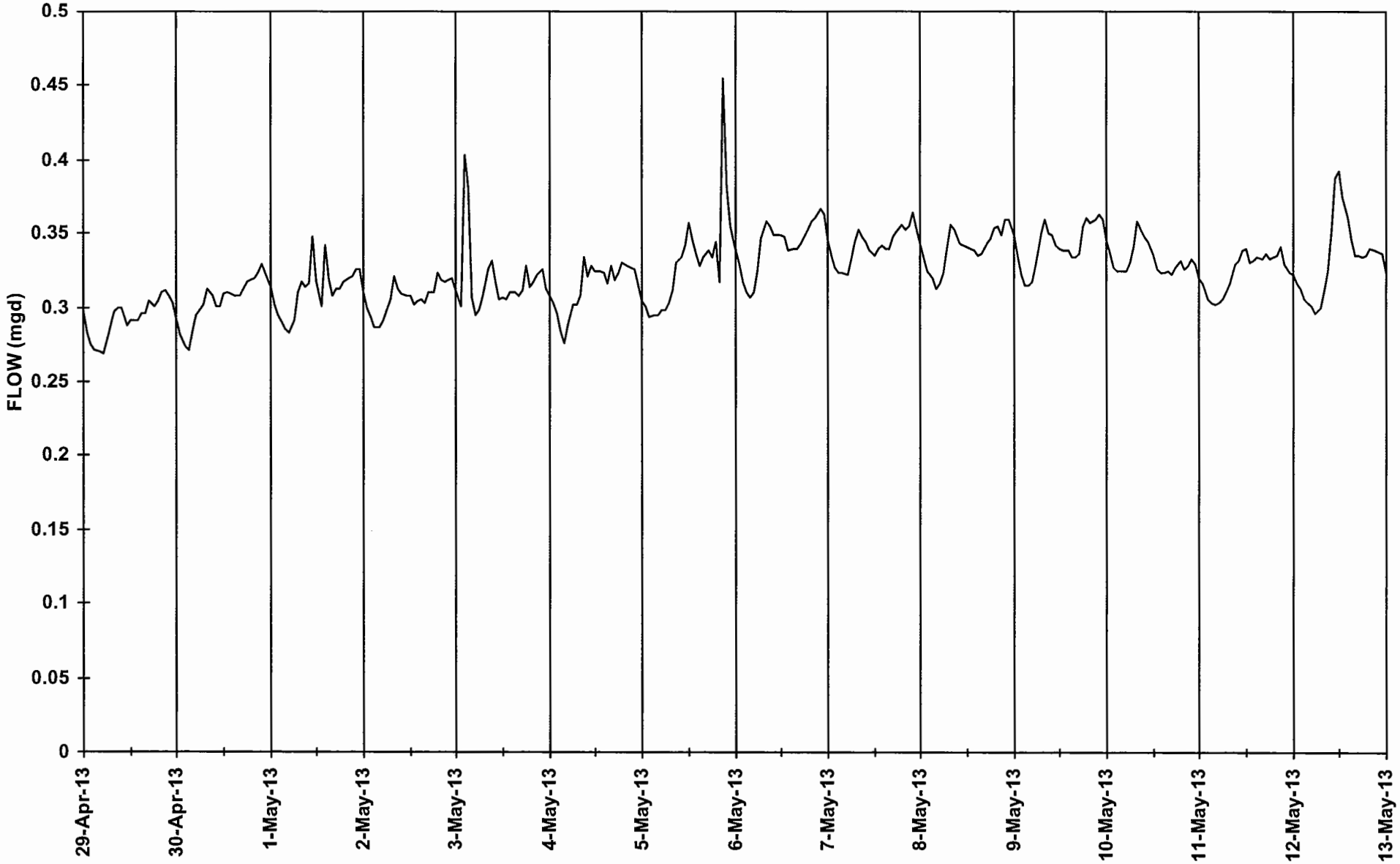
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



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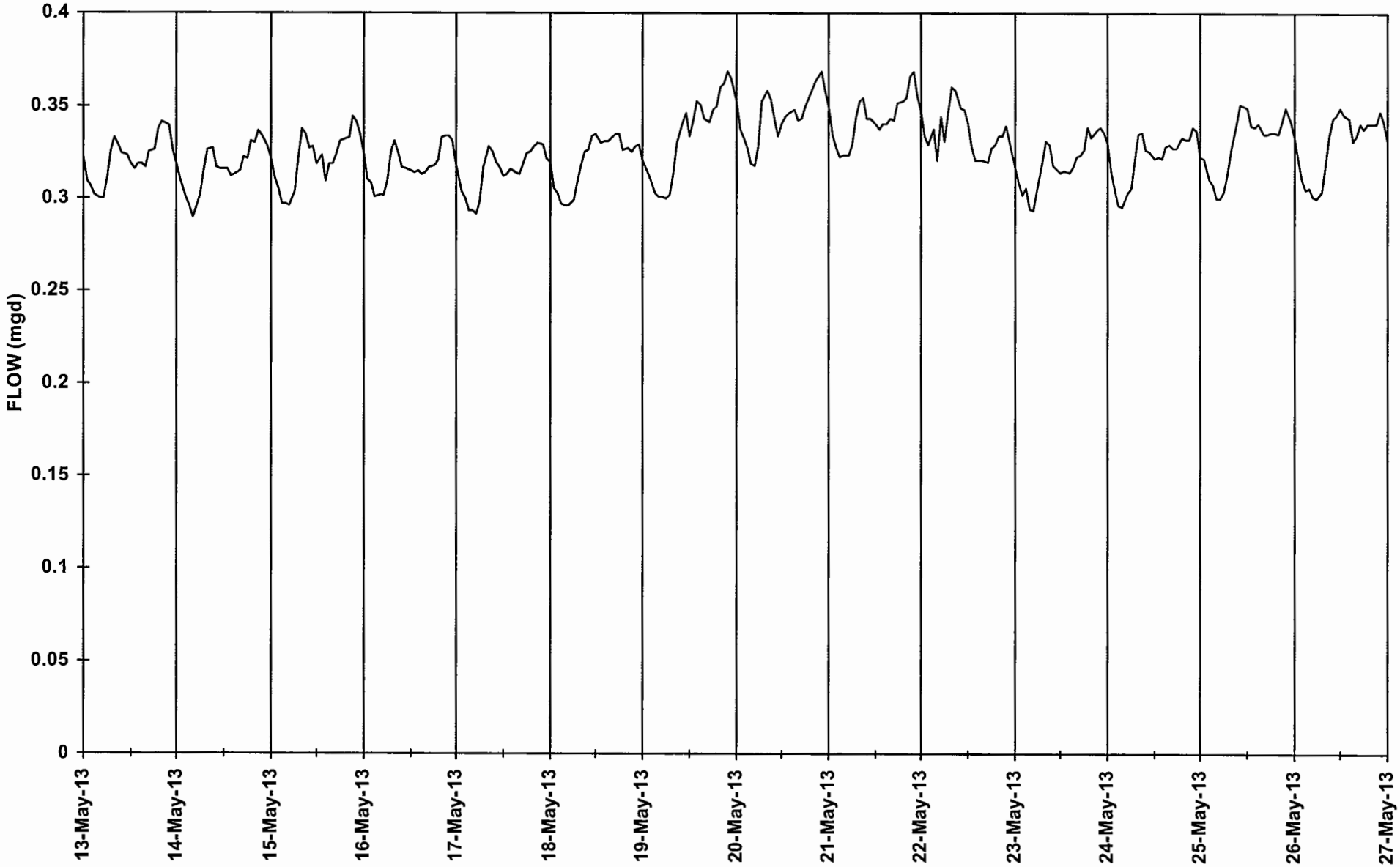
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



Daterange: 05/13/13 00:00-05/27/13 00:00
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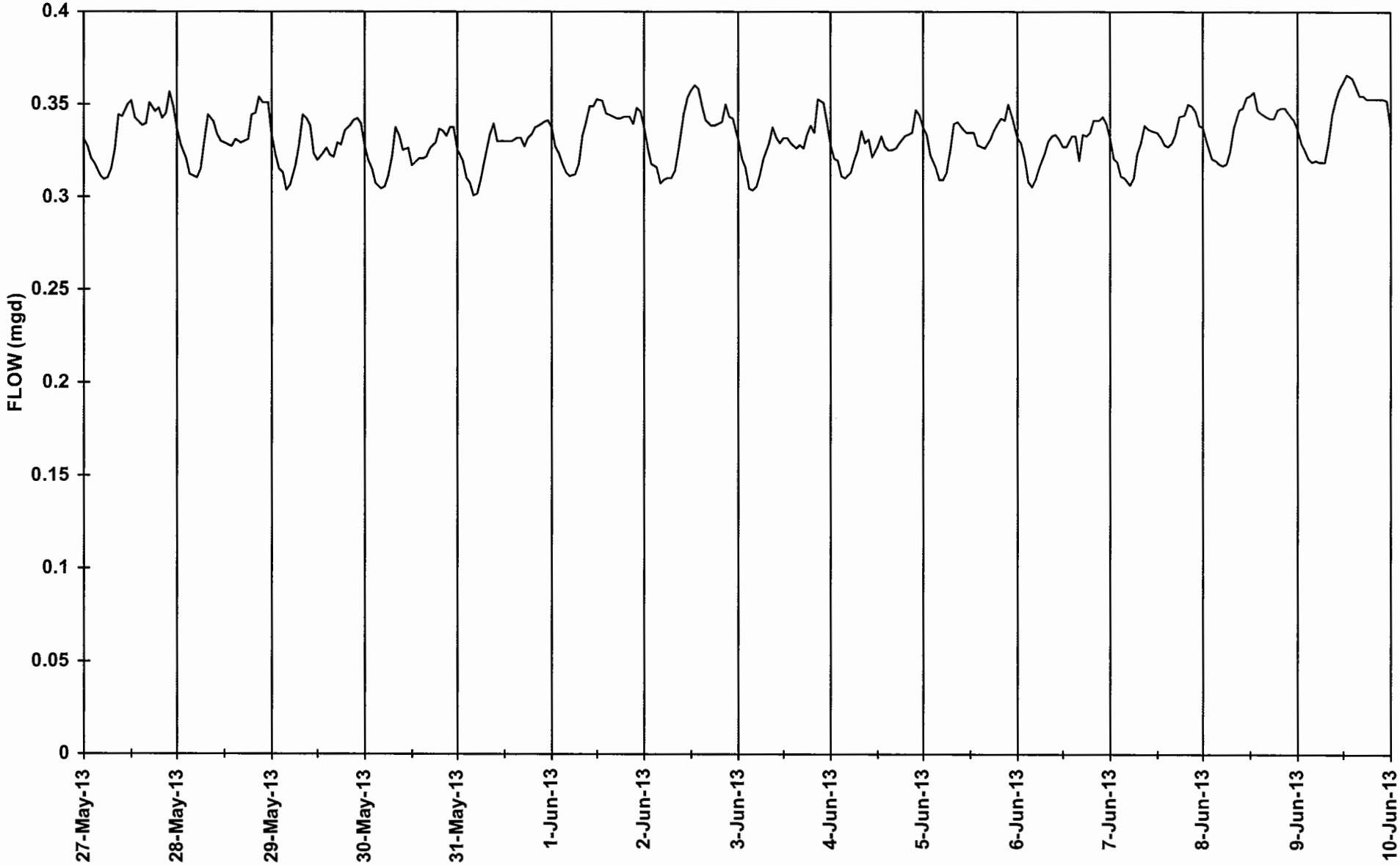
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



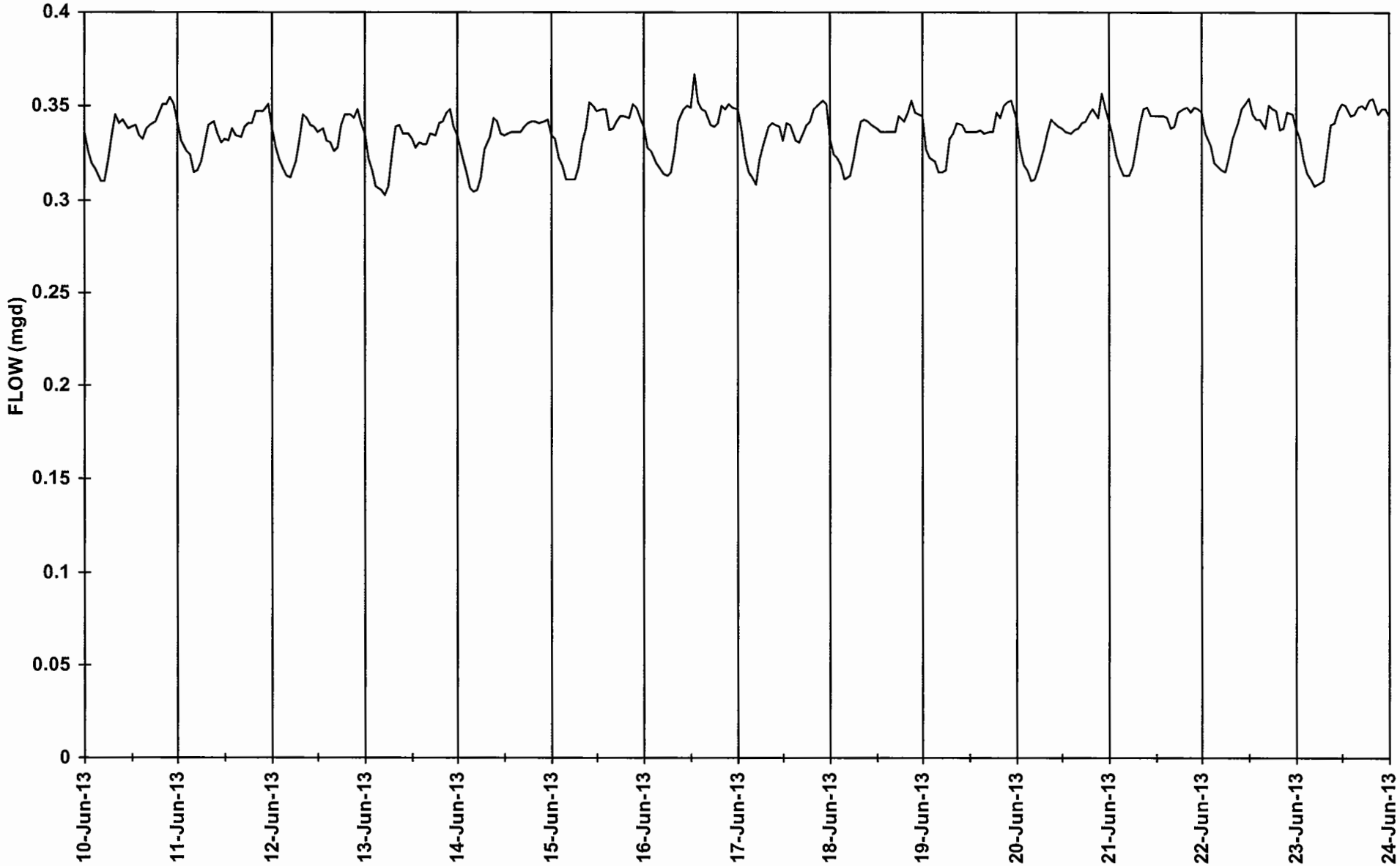
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



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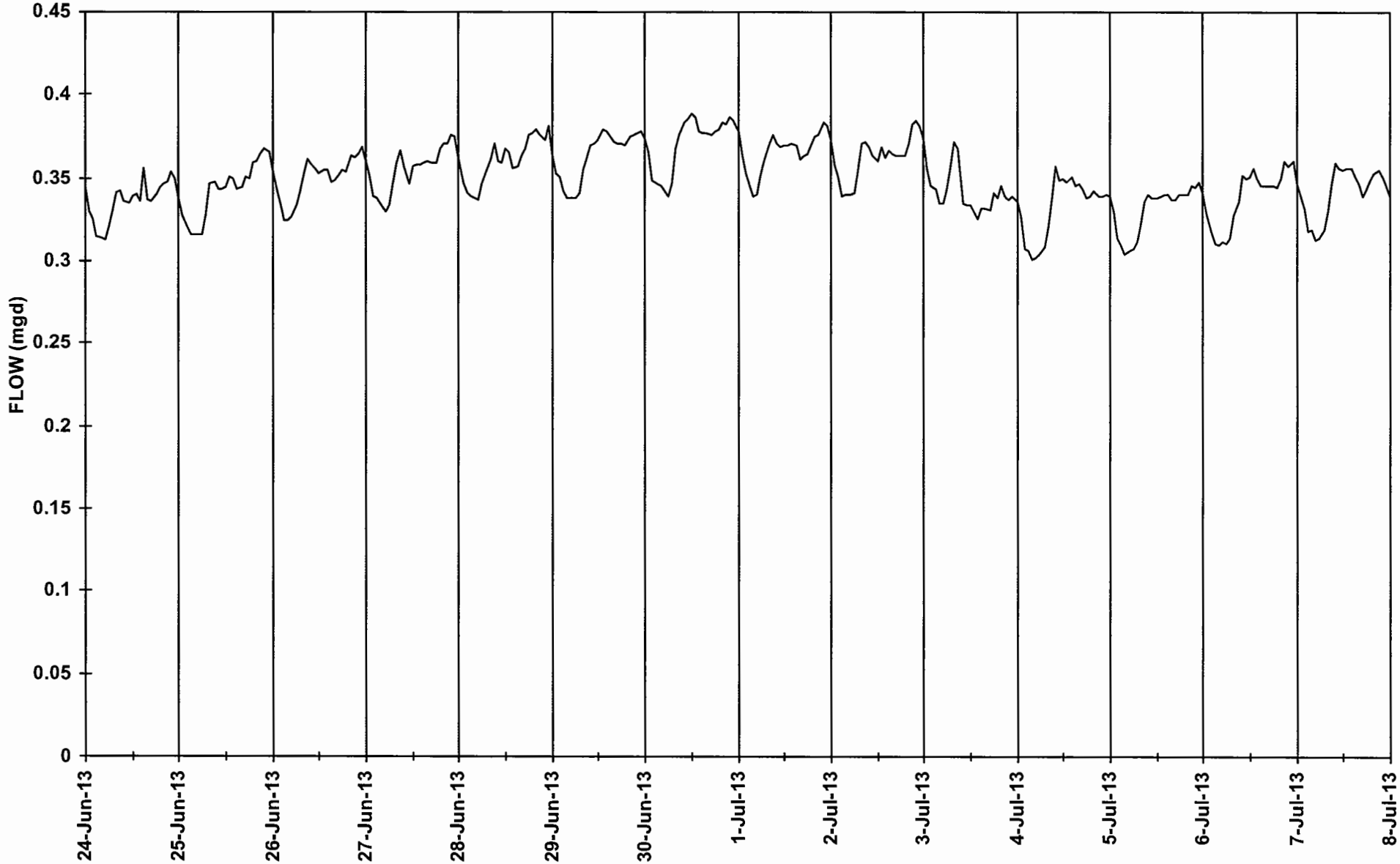
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



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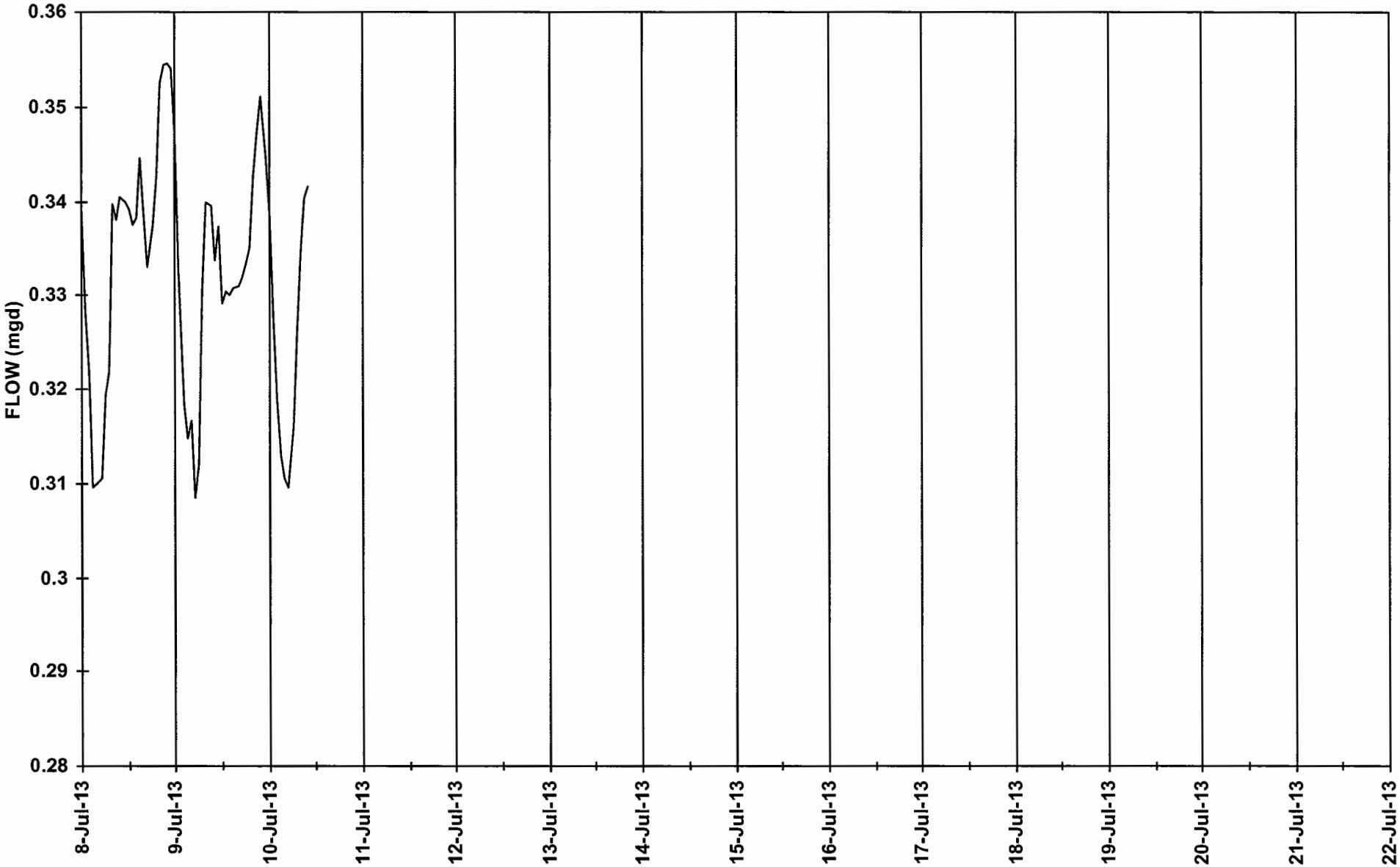
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Flow vs Time (day)

Site:12275001 LAGUNA FM 001



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Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.5Roughness: 0.013
Slope: 0.00005

Location: LAGUNA FM 001
Site ID: 12275001
Serial#: VGP

Laguna FM003

Laguna Meter Site 003

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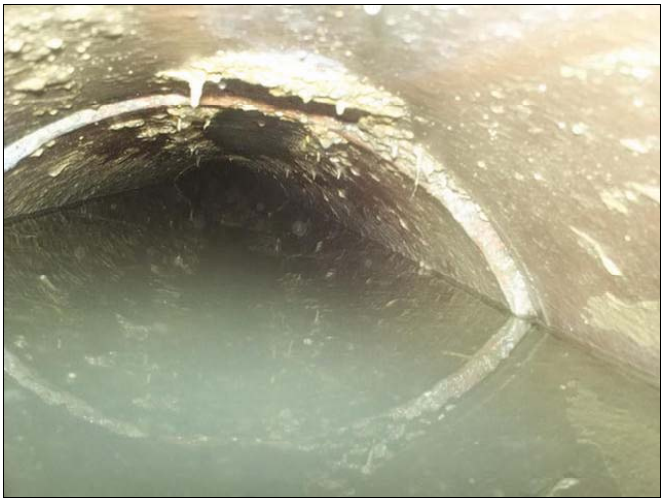
11275LAGUNAFM003I025.jpg



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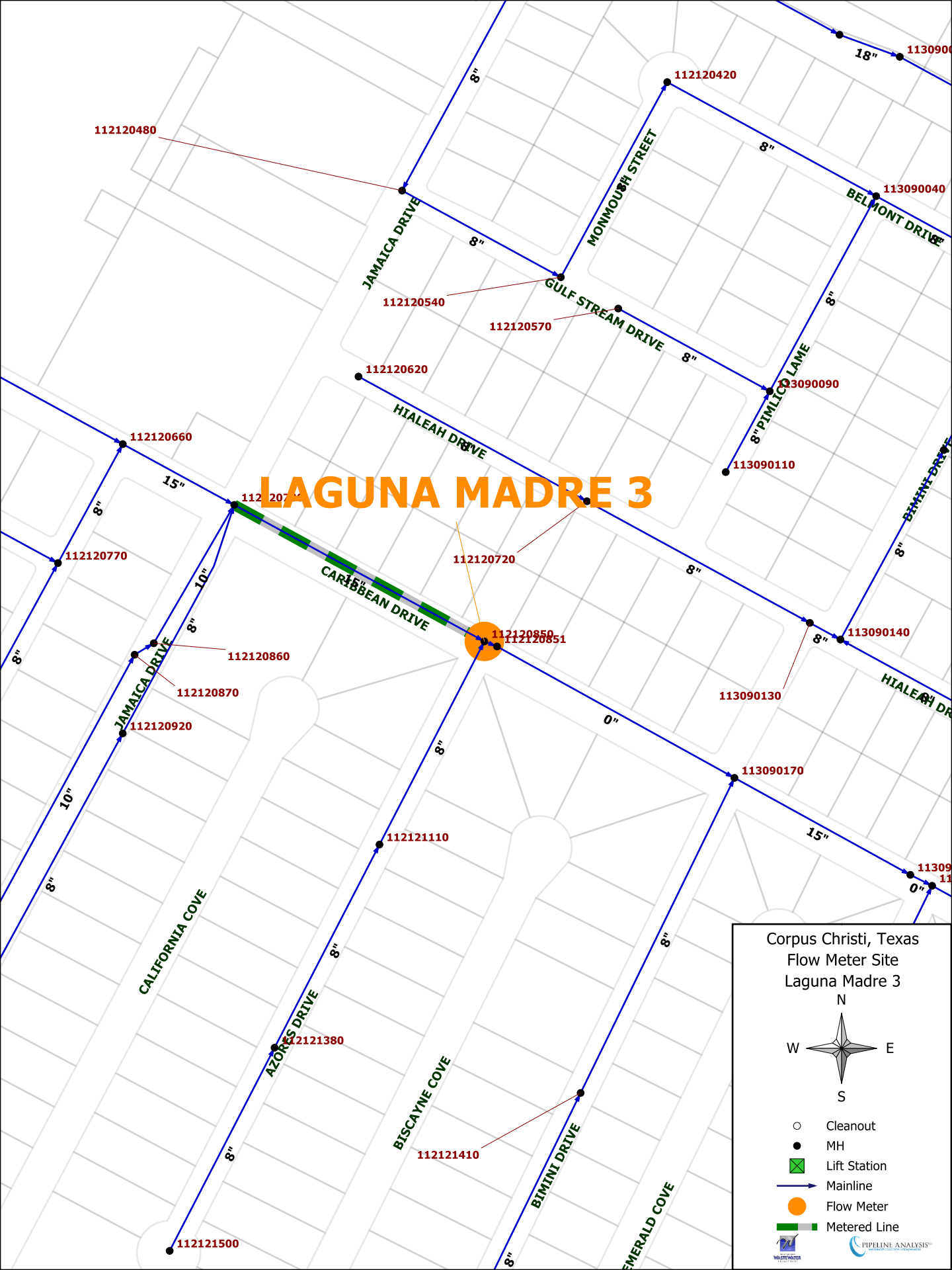
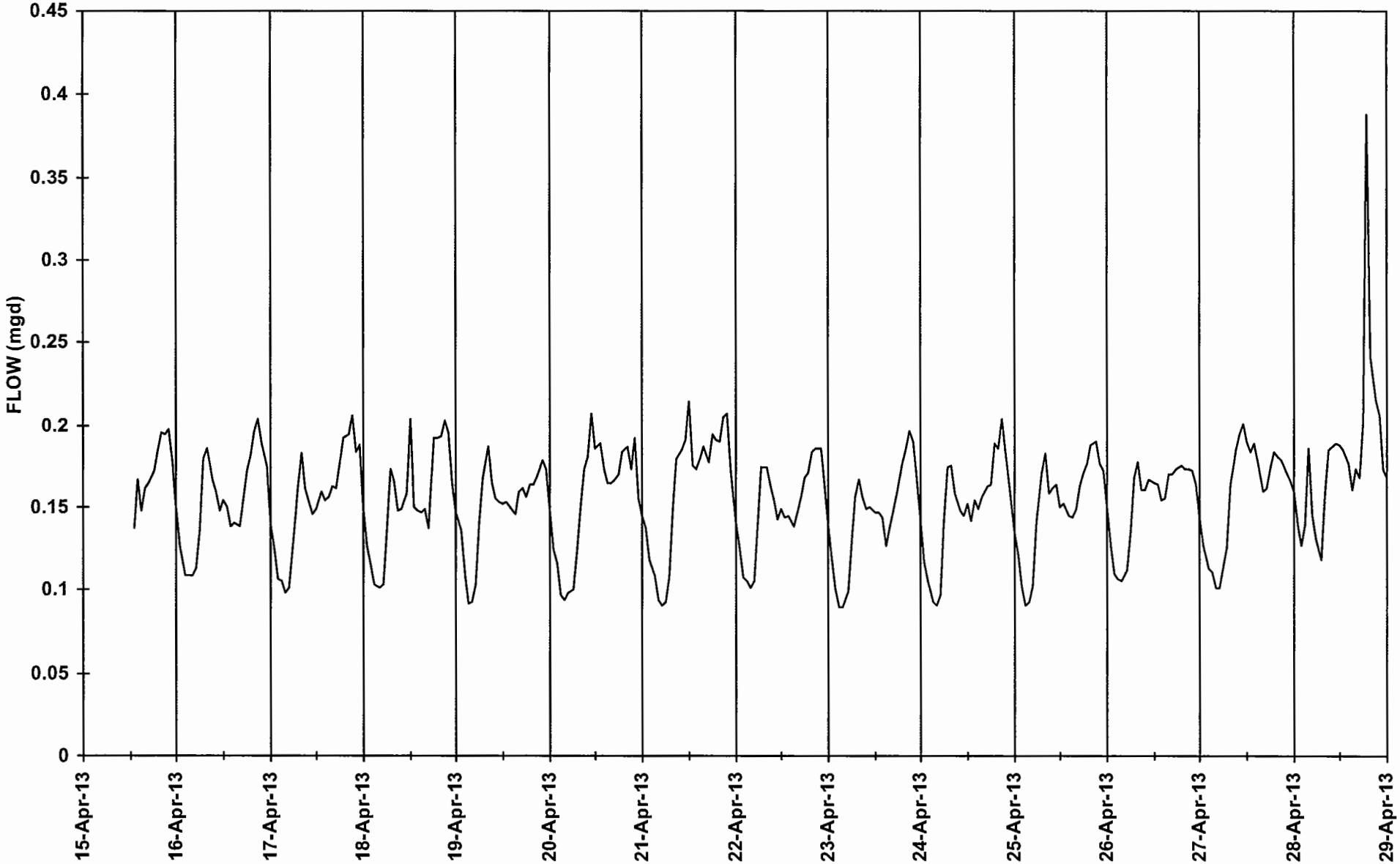

LAGUNA MADRE 3
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 3
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
112120480
112120420
113090040
112120540
112120570
112120620
113090090
113090110
112120660
112120770
112120720
112120850
112120851
112120860
112120870
112120920
113090140
113090130
113090170
112121110
112121380
112121410
112121500
JAMAICA DRIVE
MONMOUTH STREET
BELMONT DRIVE
GULF STREAM DRIVE
PIMLICO LANE
HIALEAH DRIVE
CARIBBEAN DRIVE
BIMINI DRIVE
CALIFORNIA COVE
AZORES DRIVE
BISCAYNE COVE
EMERALD COVE
18"
8"
15"
10"
0"

Flow vs Time (day)

Site:12275003 LAGUNA FM 003



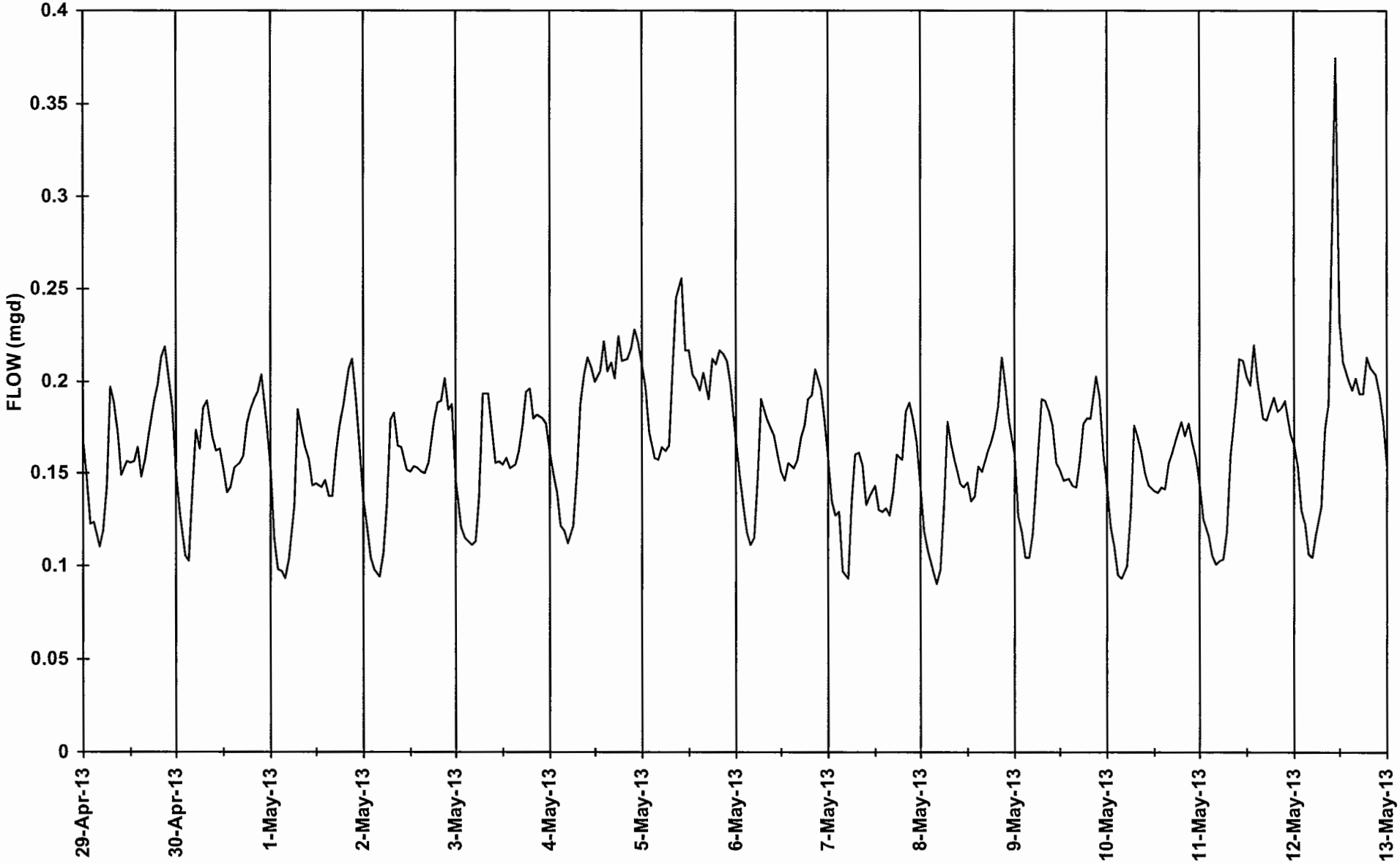
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 03
Site ID: 12275003
Serial#: VGR

Flow vs Time (day)

Site:12275003 LAGUNA FM 003



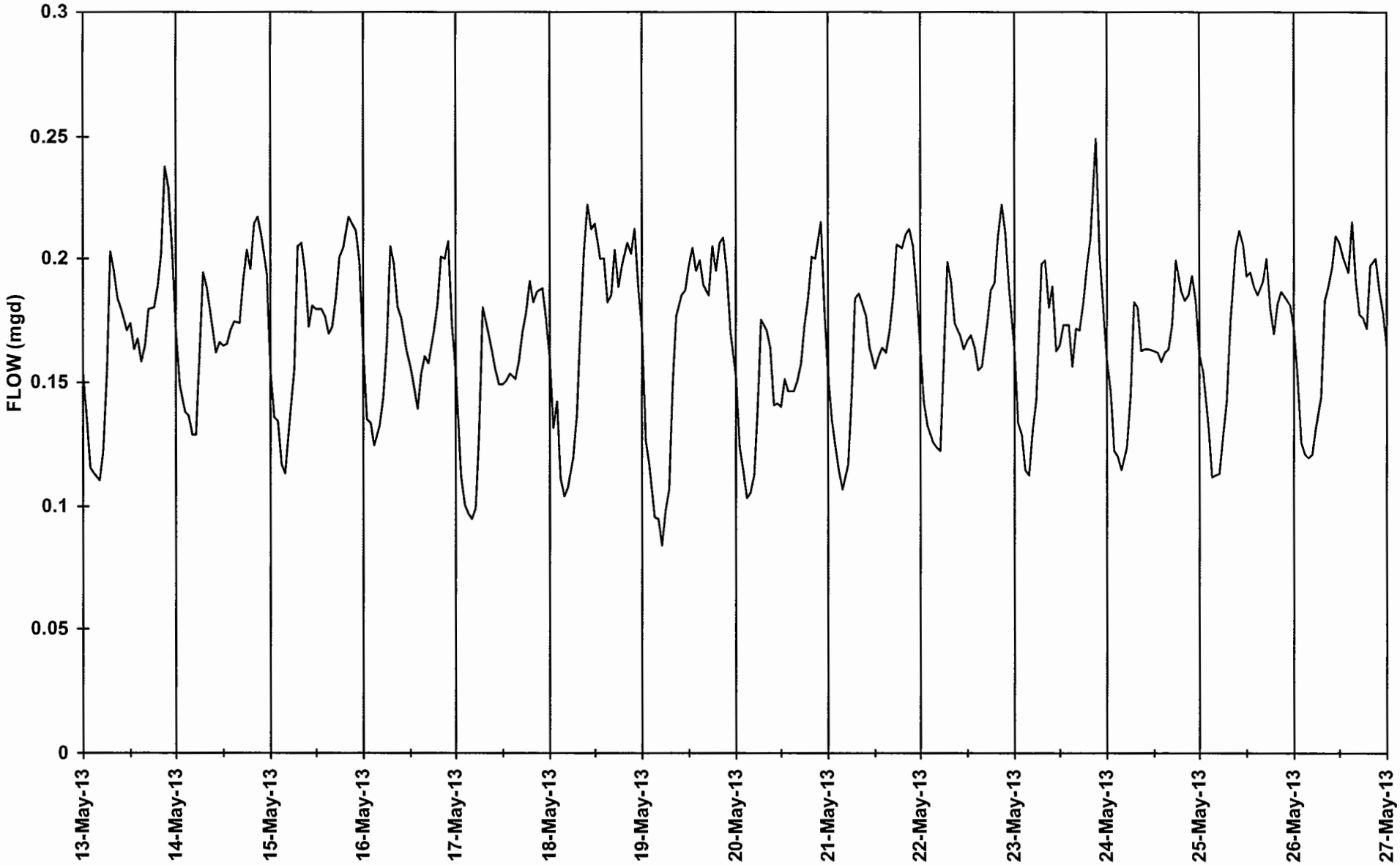
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 03
Site ID: 12275003
Serial#: VGR

Flow vs Time (day)

Site:12275003 LAGUNA FM 003



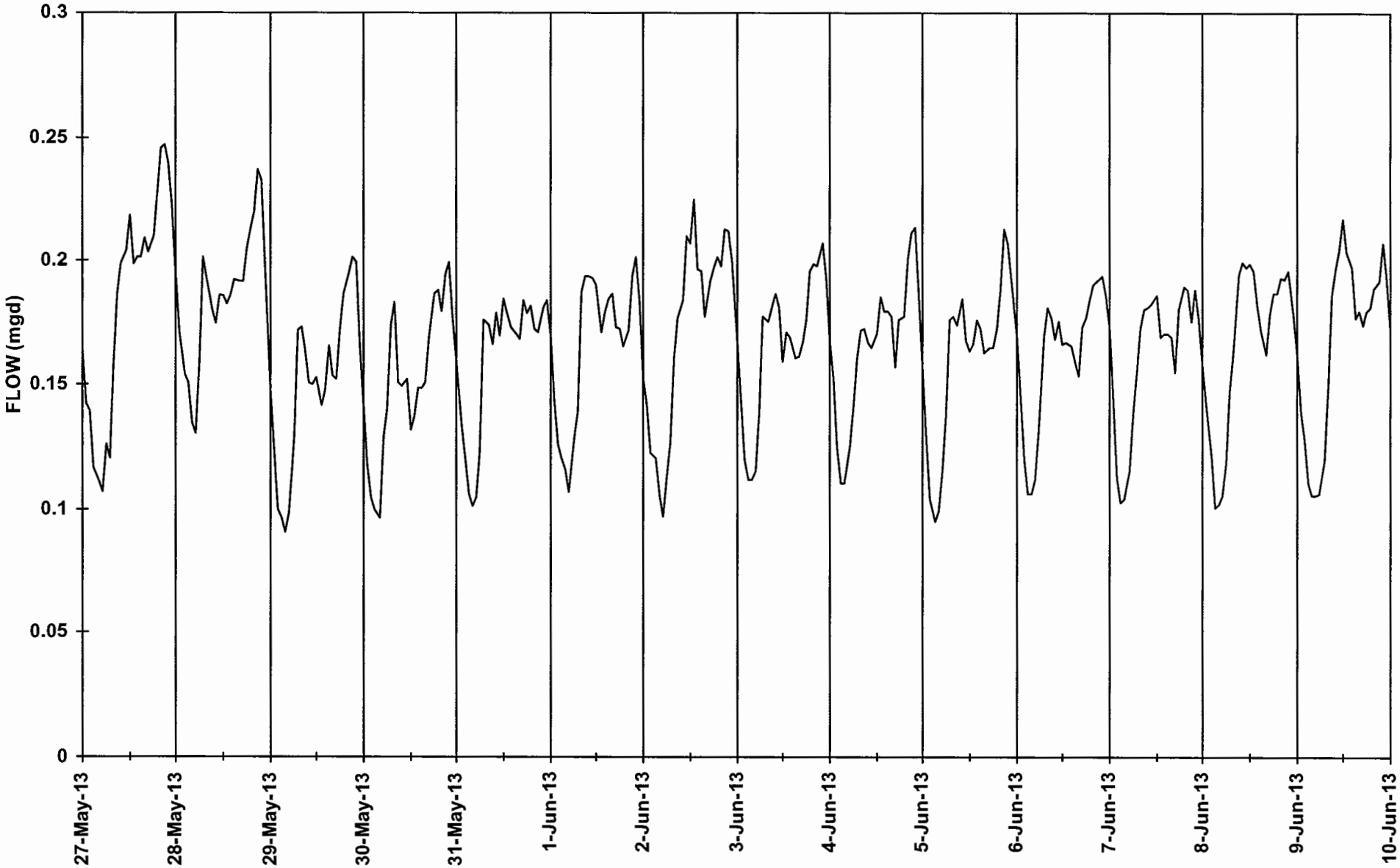
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 03
Site ID: 12275003
Serial#: VGR

Flow vs Time (day)

Site:12275003 LAGUNA FM 003



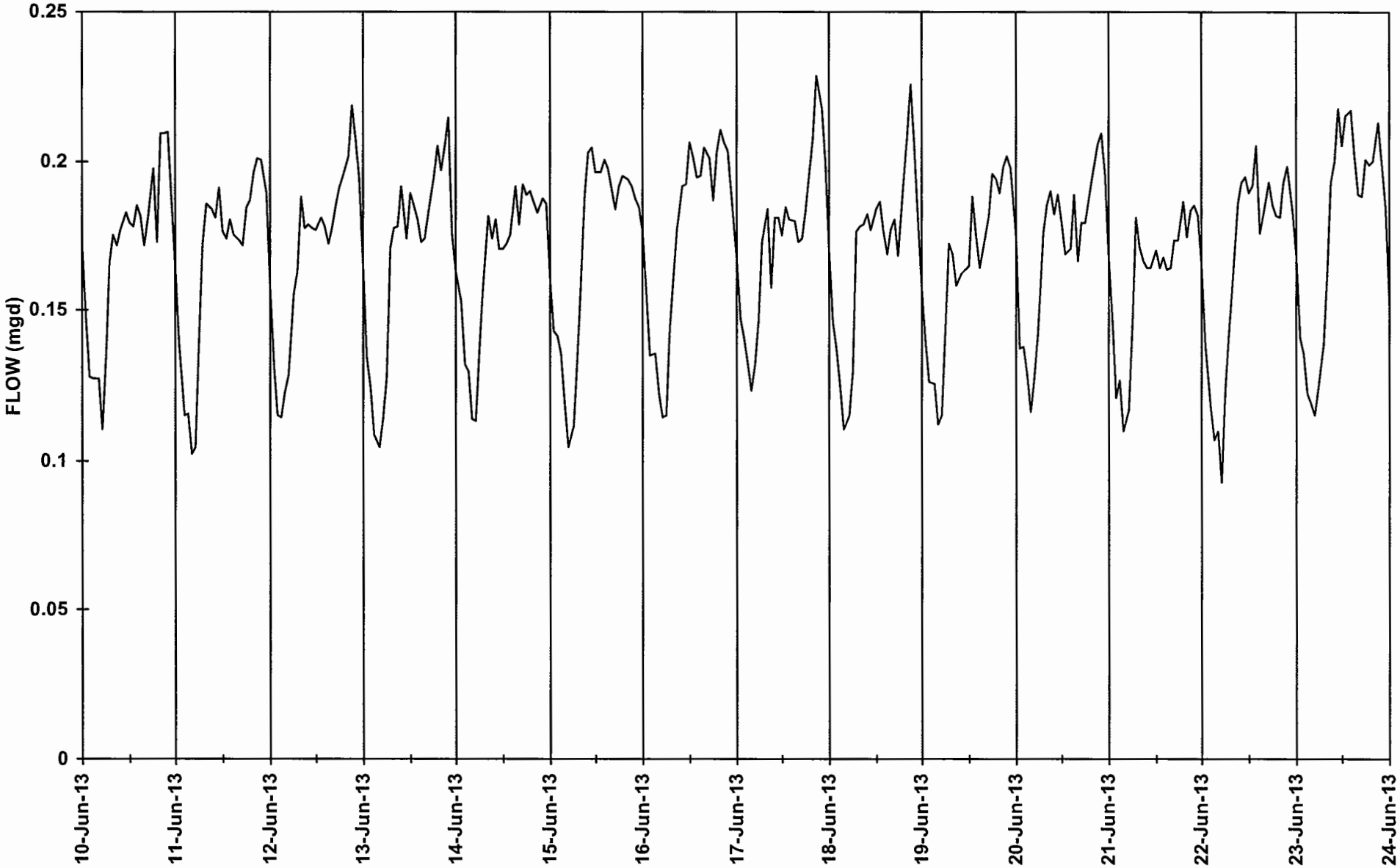
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 03
Site ID: 12275003
Serial#: VGR

Flow vs Time (day)

Site:12275003 LAGUNA FM 003



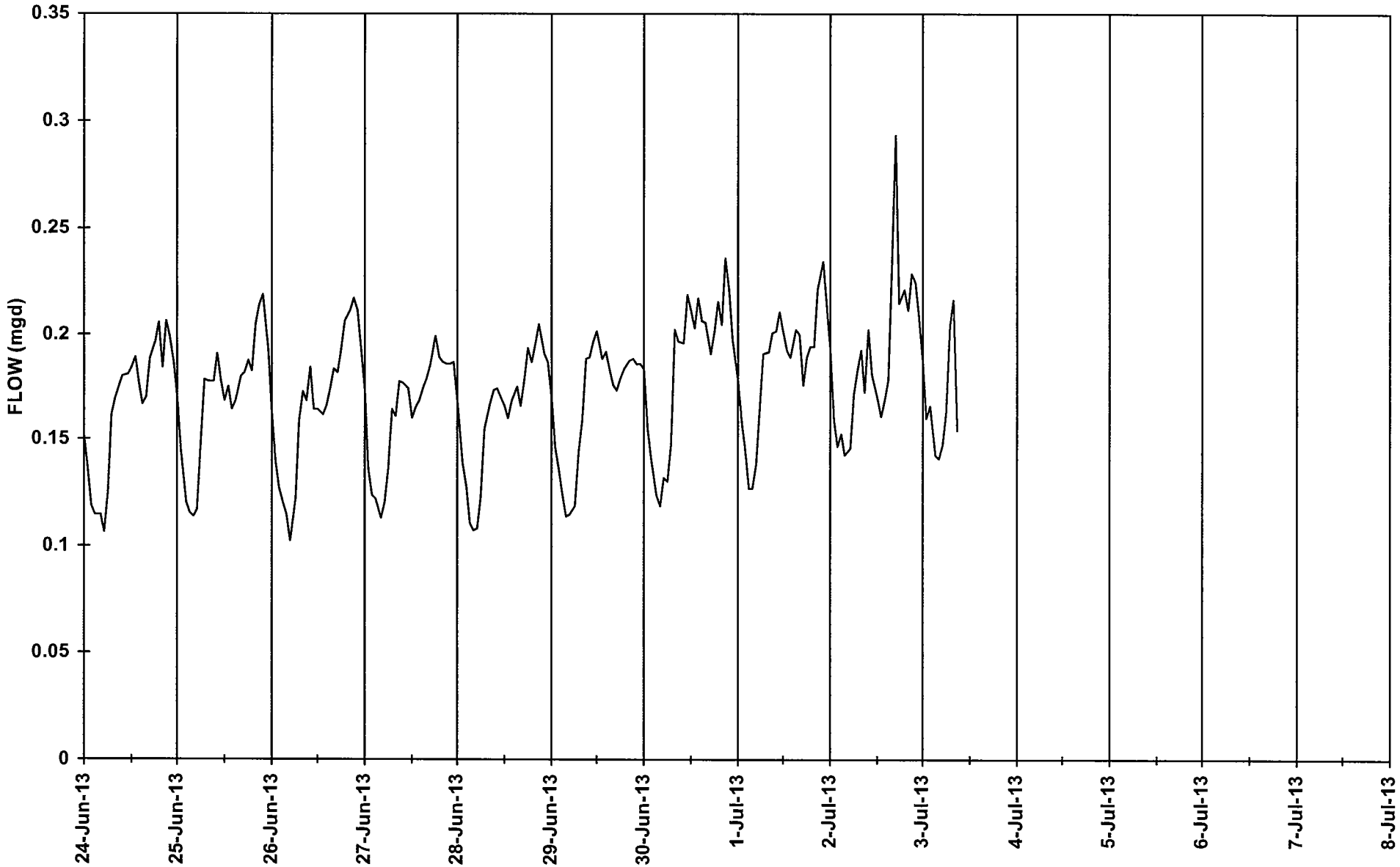
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 03
Site ID: 12275003
Serial#: VGR

Flow vs Time (day)

Site:12275003 LAGUNA FM 003



Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 03
Site ID: 12275003
Serial#: VGR

Laguna FM004

Laguna Meter Site 004

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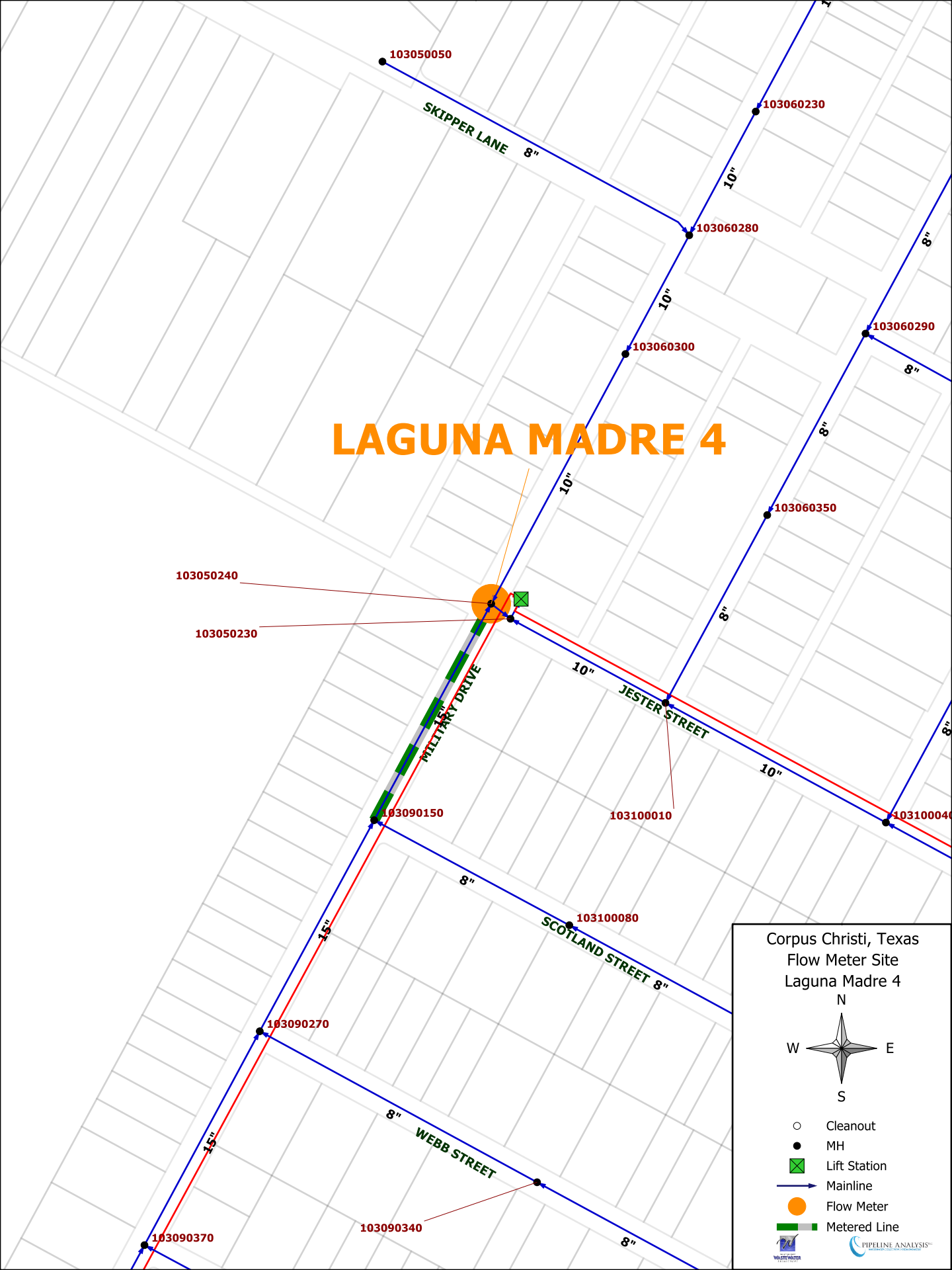
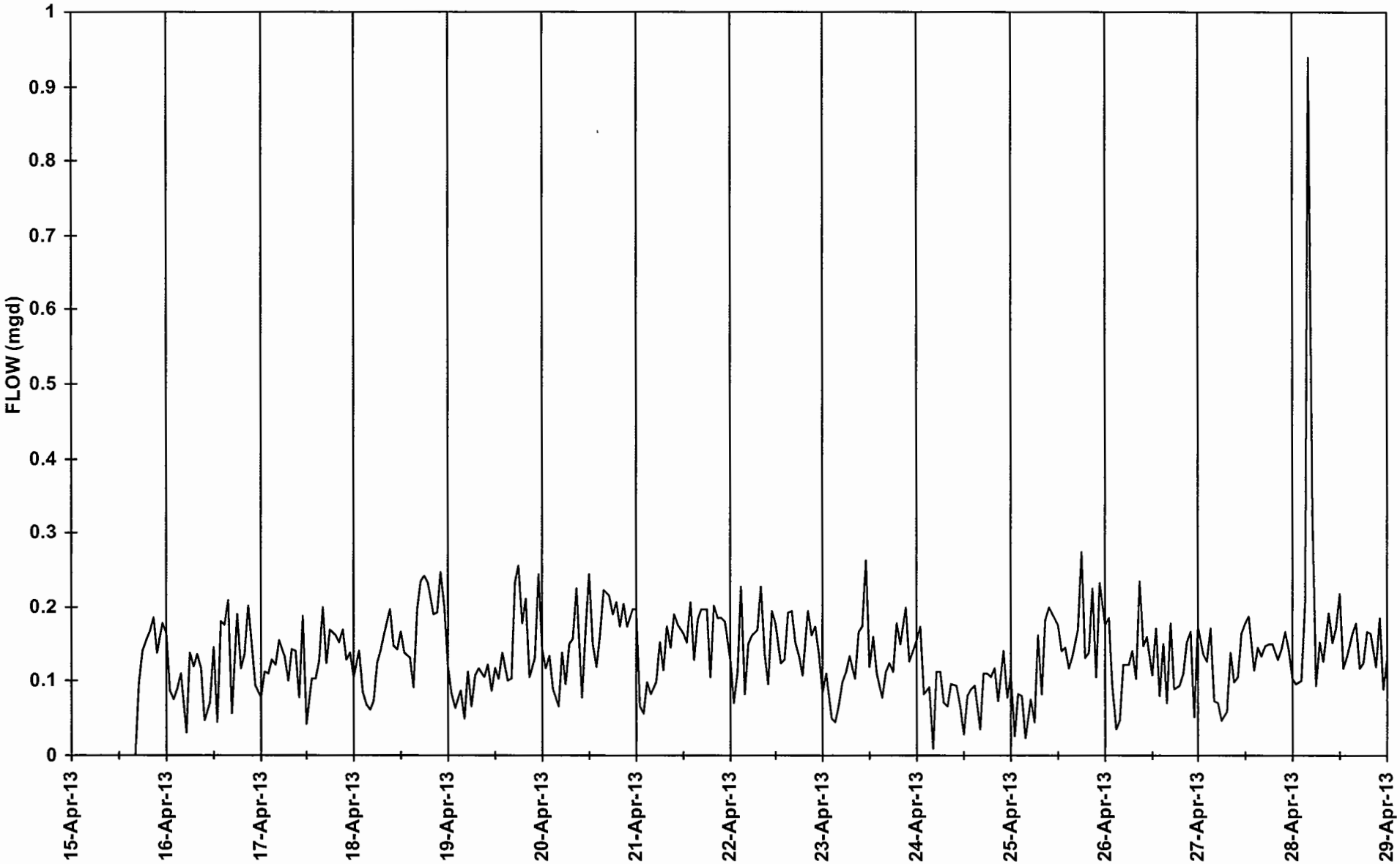
11275LAGUNAFM004I006.jpg

11275LAGUNAFM004P004.jpg


LAGUNA MADRE 4
103050050
SKIPPER LANE 8"
103060230
10"
103060280
10"
103060300
10"
103060290
8"
8"
8"
103060350
8"
103050240
103050230
MILITARY DRIVE
15"
10"
JESTER STREET
10"
103100010
103100040
8"
103090150
8"
103100080
SCOTLAND STREET 8"
15"
103090270
8"
WEBB STREET
15"
103090340
8"
103090370
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 4
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



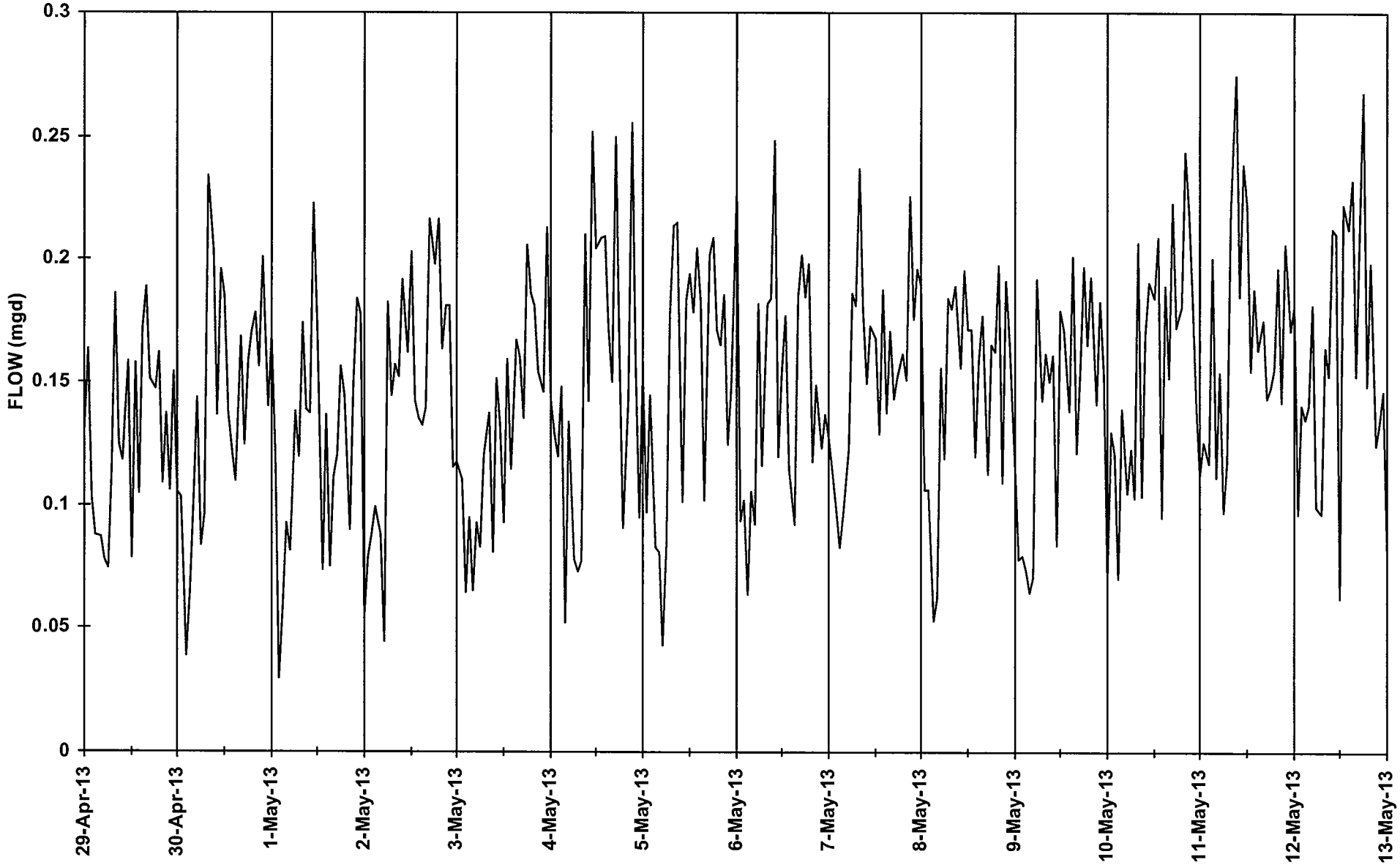
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



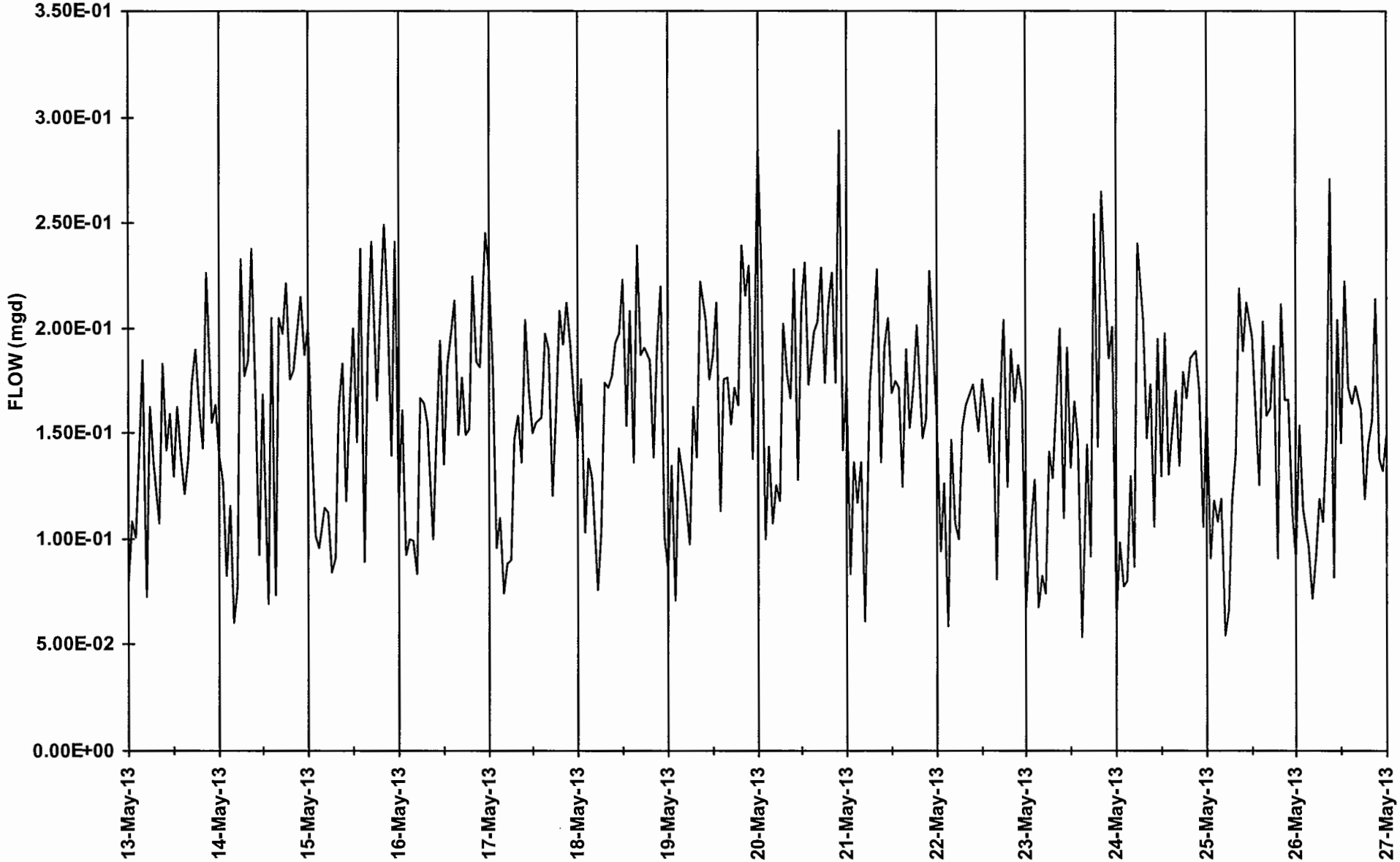
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



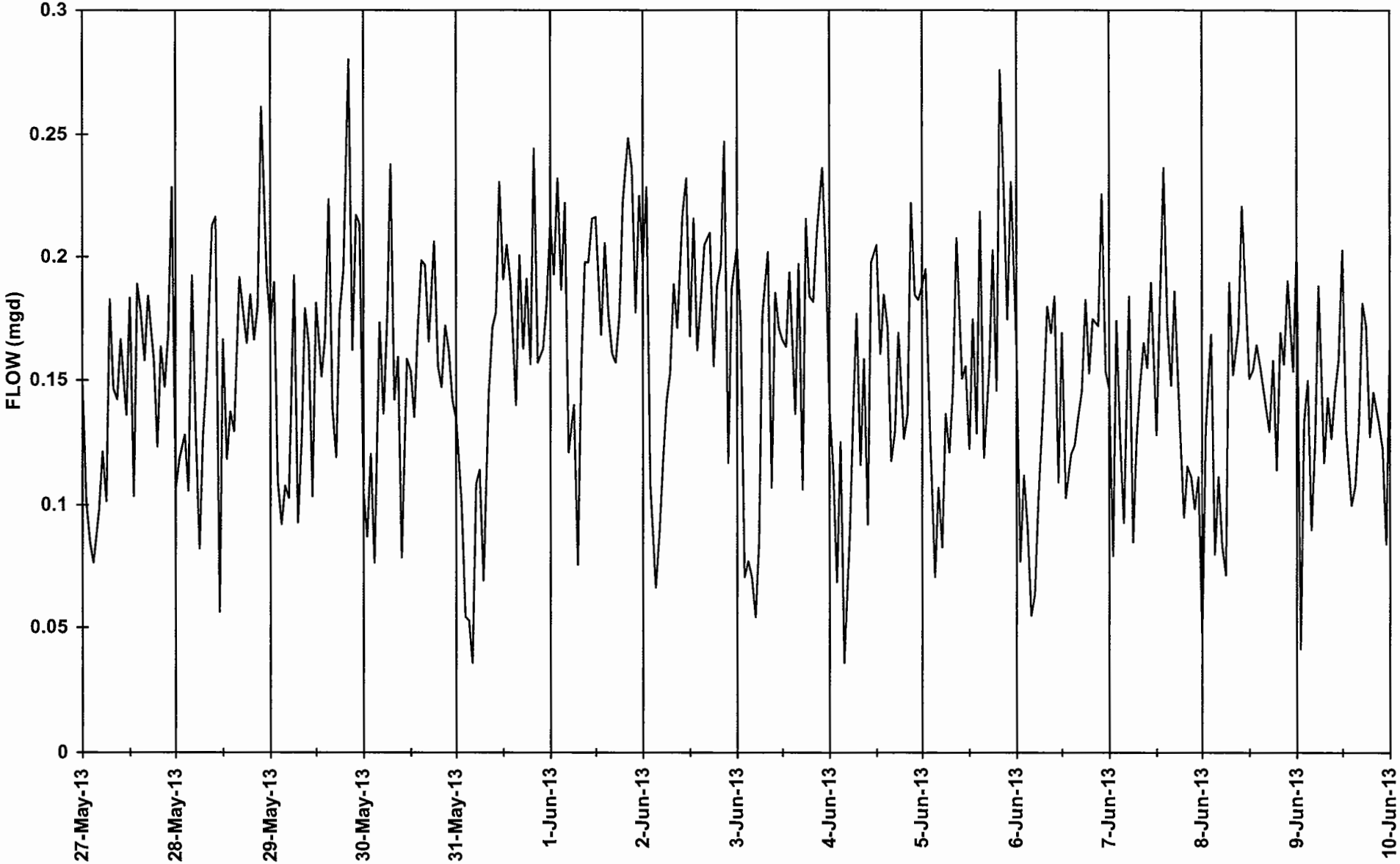
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



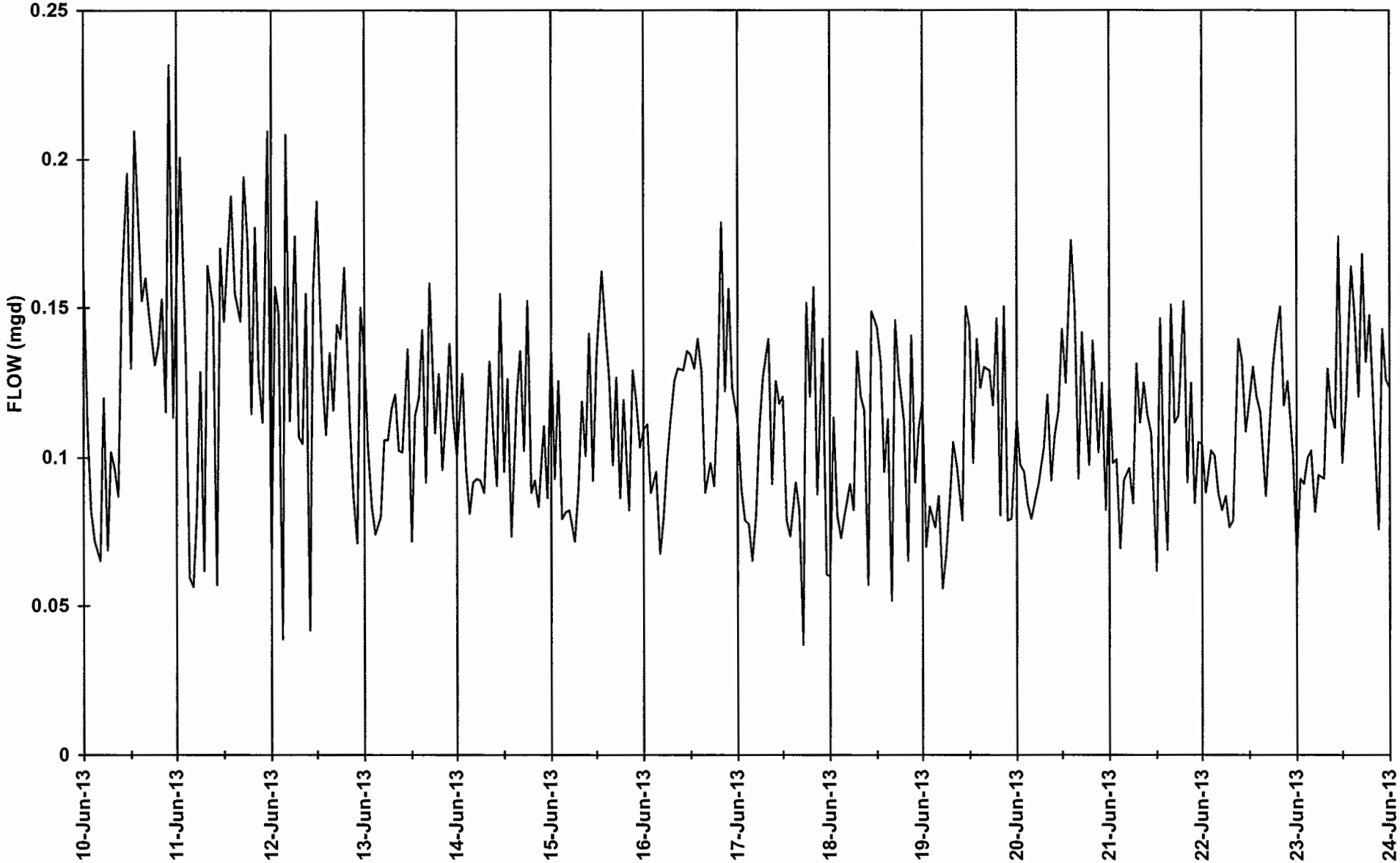
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



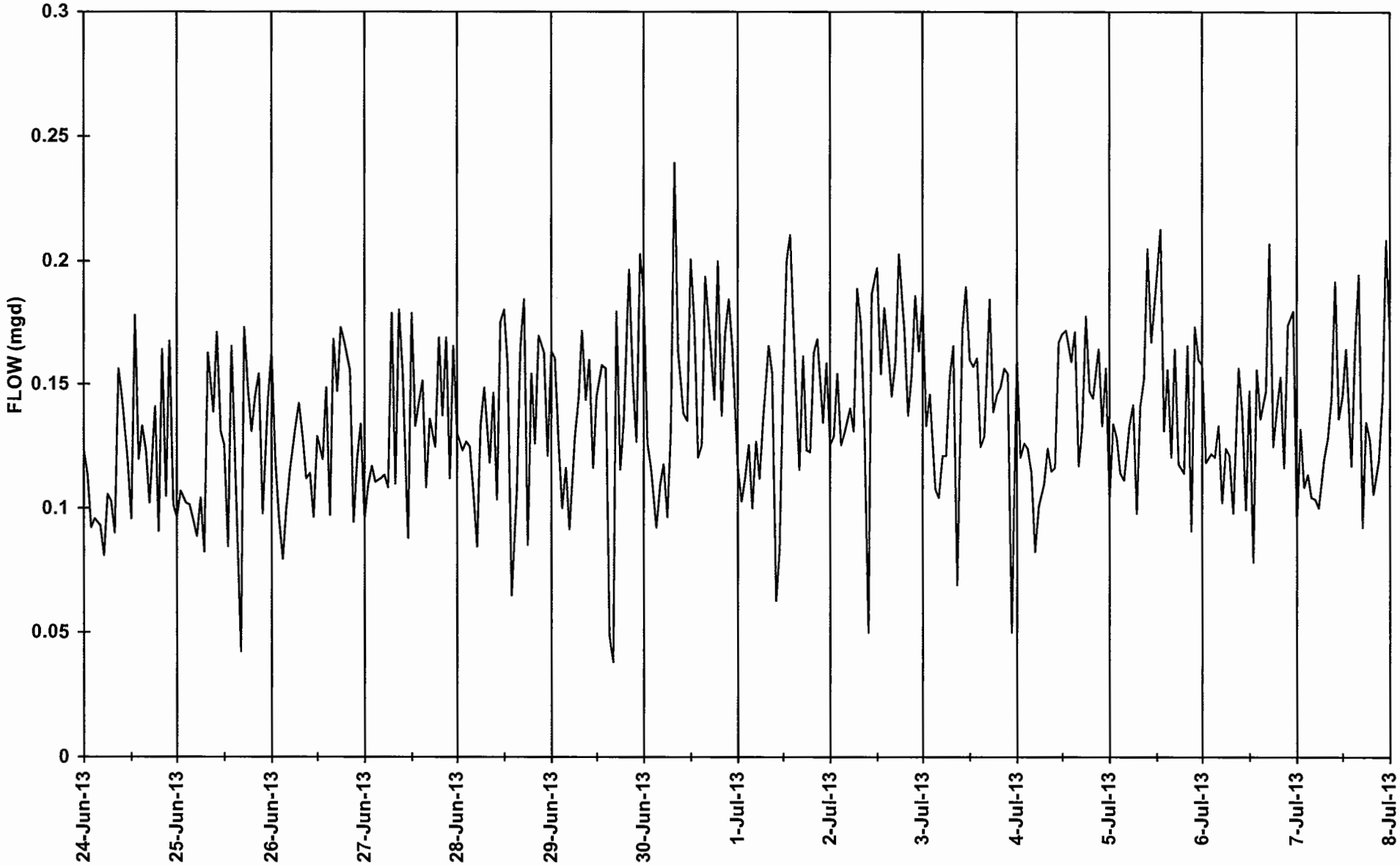
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



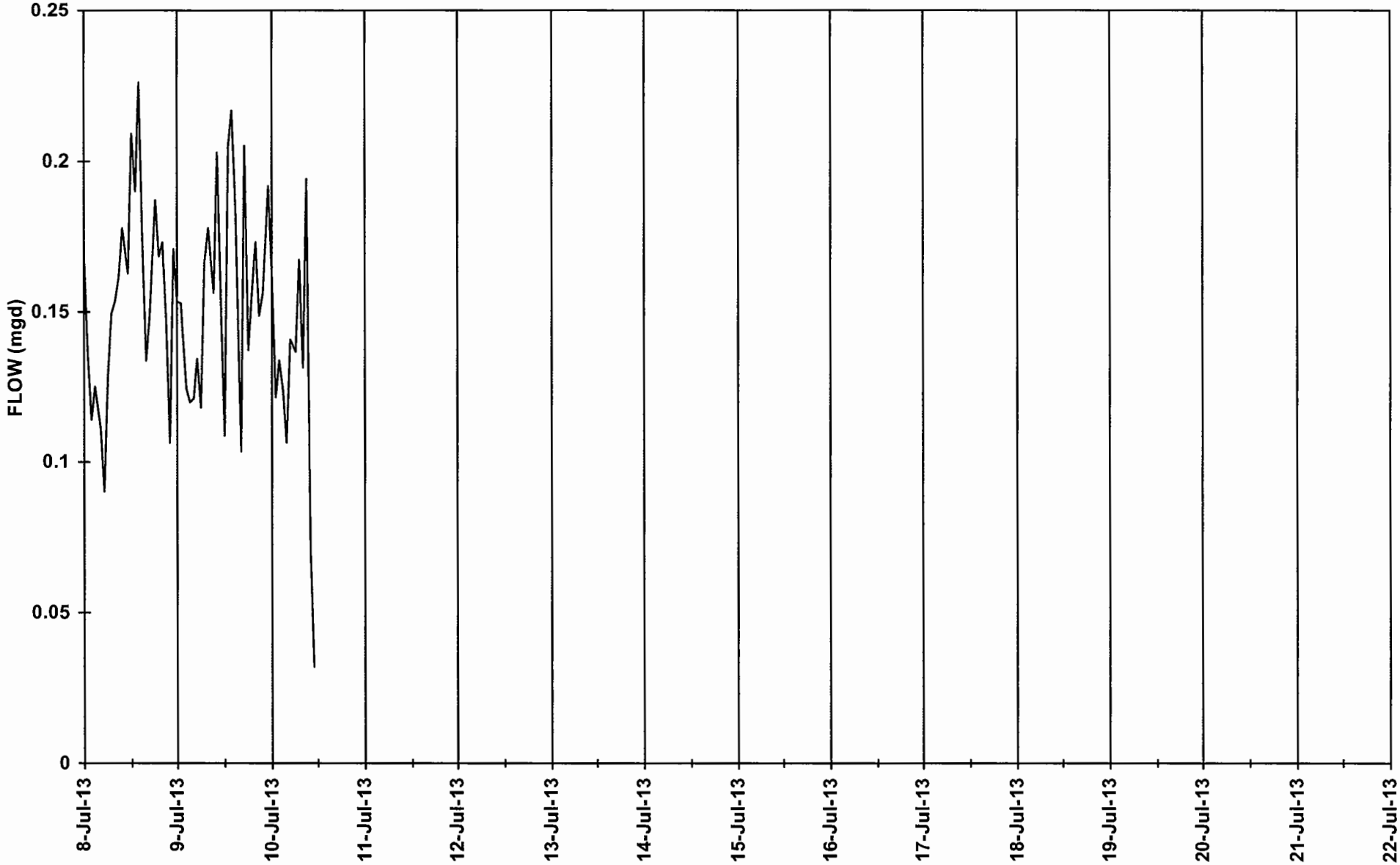
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Flow vs Time (day)

Site:12275004 LAGUNA FM 004



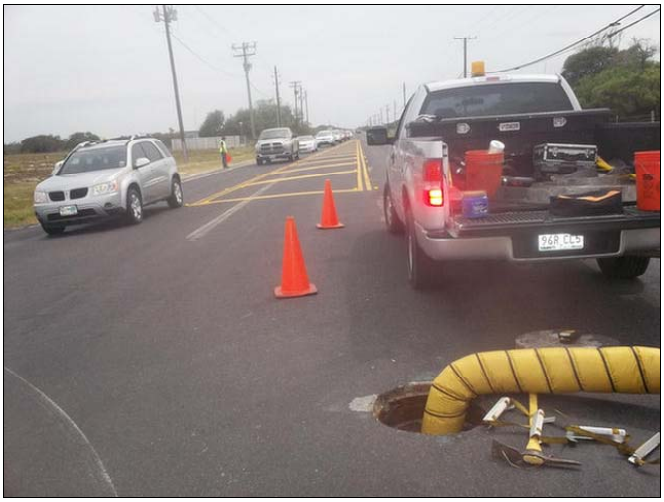
Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 04
Site ID: 12275004
Serial#: WLQ

Laguna FM005

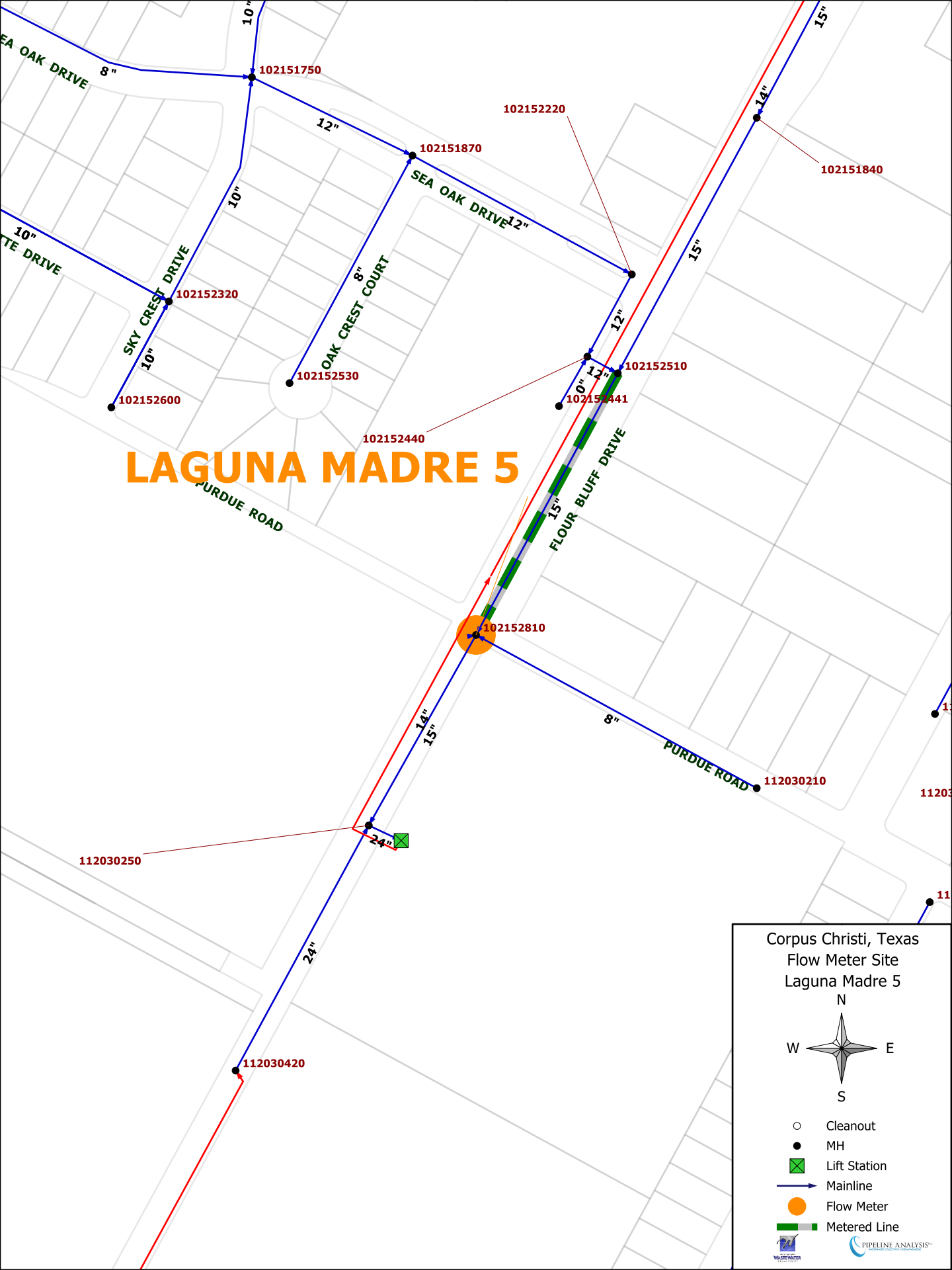
Laguna Meter Site 005



11275LAGUNAFM005A040.jpg

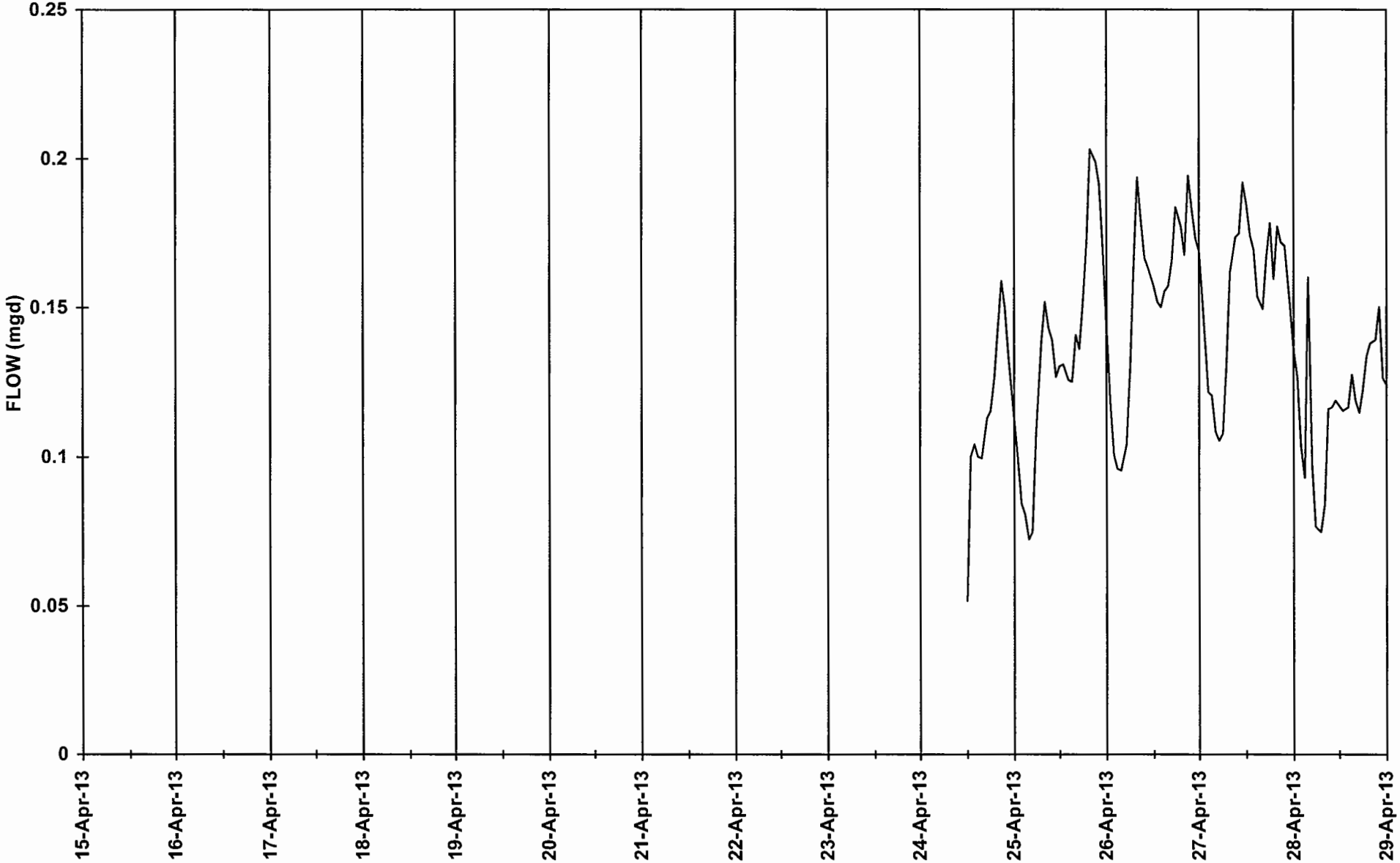
11275LAGUNAFM005I041.jpg

11275LAGUNAFM005P042.jpg


LAGUNA MADRE 5
SEA OAK DRIVE
SKY CREST DRIVE
OAK CREST COURT
PURDUE ROAD
FLOUR BLUFF DRIVE
102151750
102151870
102152320
102152530
102152600
102152220
102151840
102152510
102152441
102152440
102152810
112030210
112030250
112030420
8"
10"
12"
14"
15"
24"
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 5
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



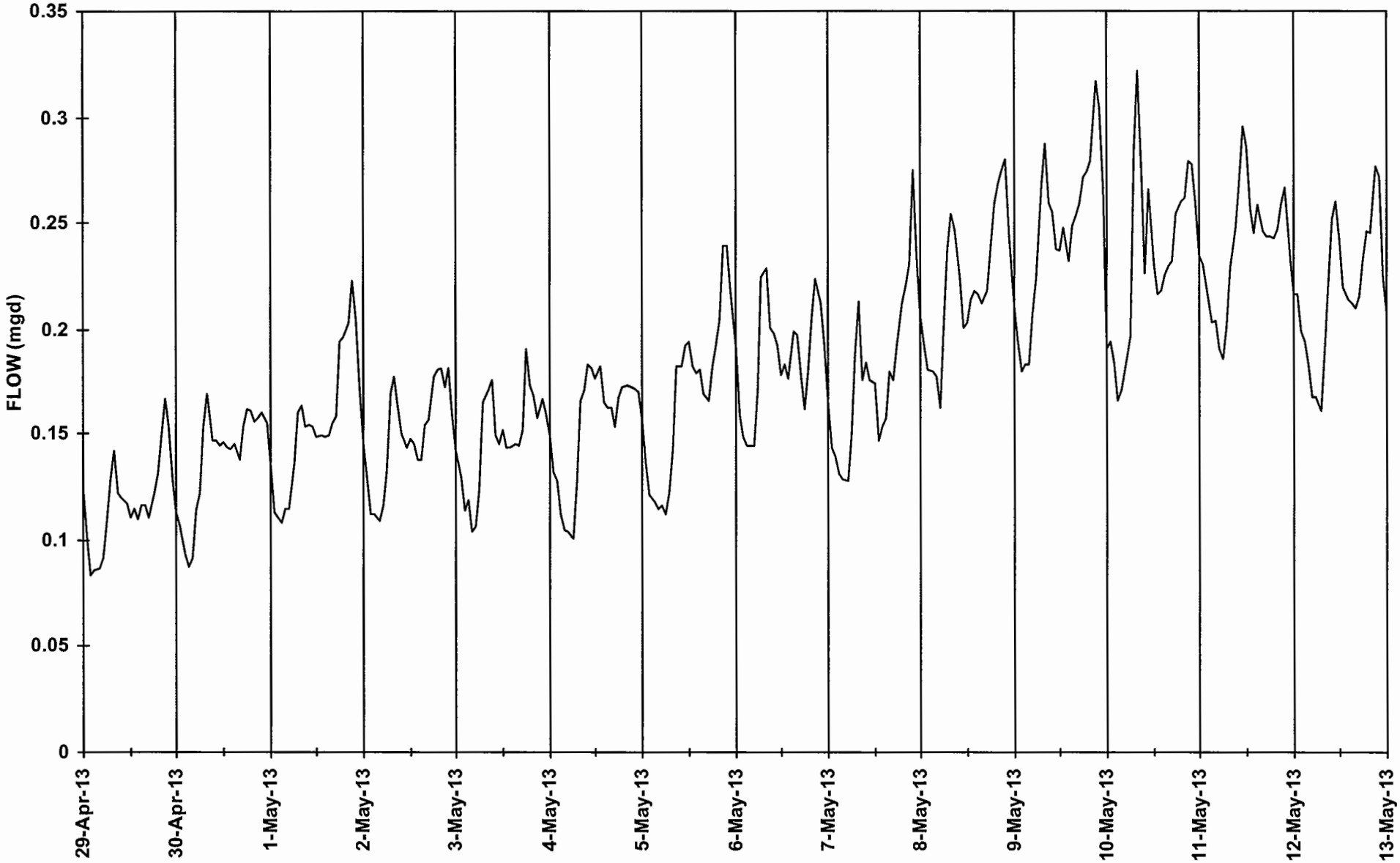
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



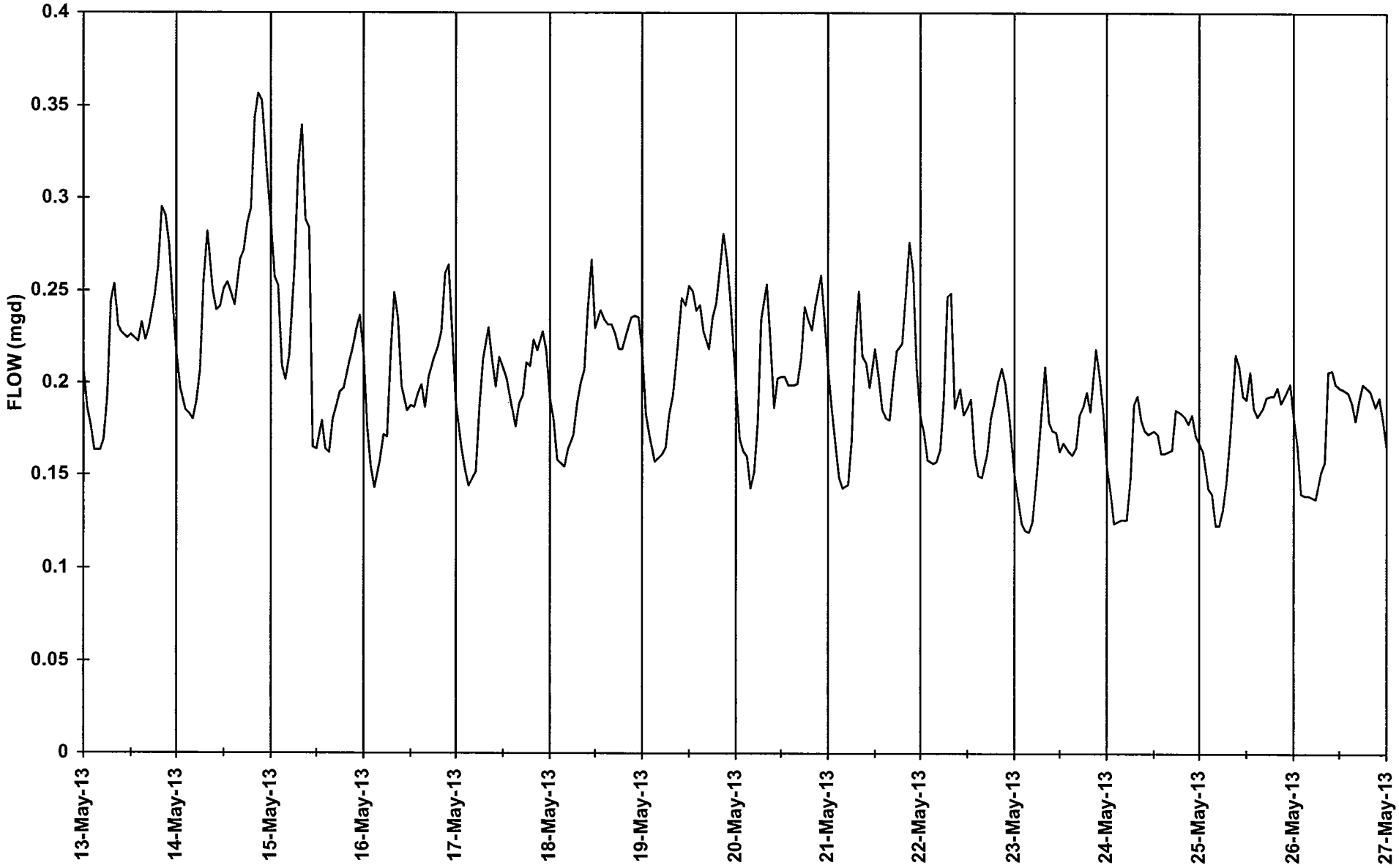
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



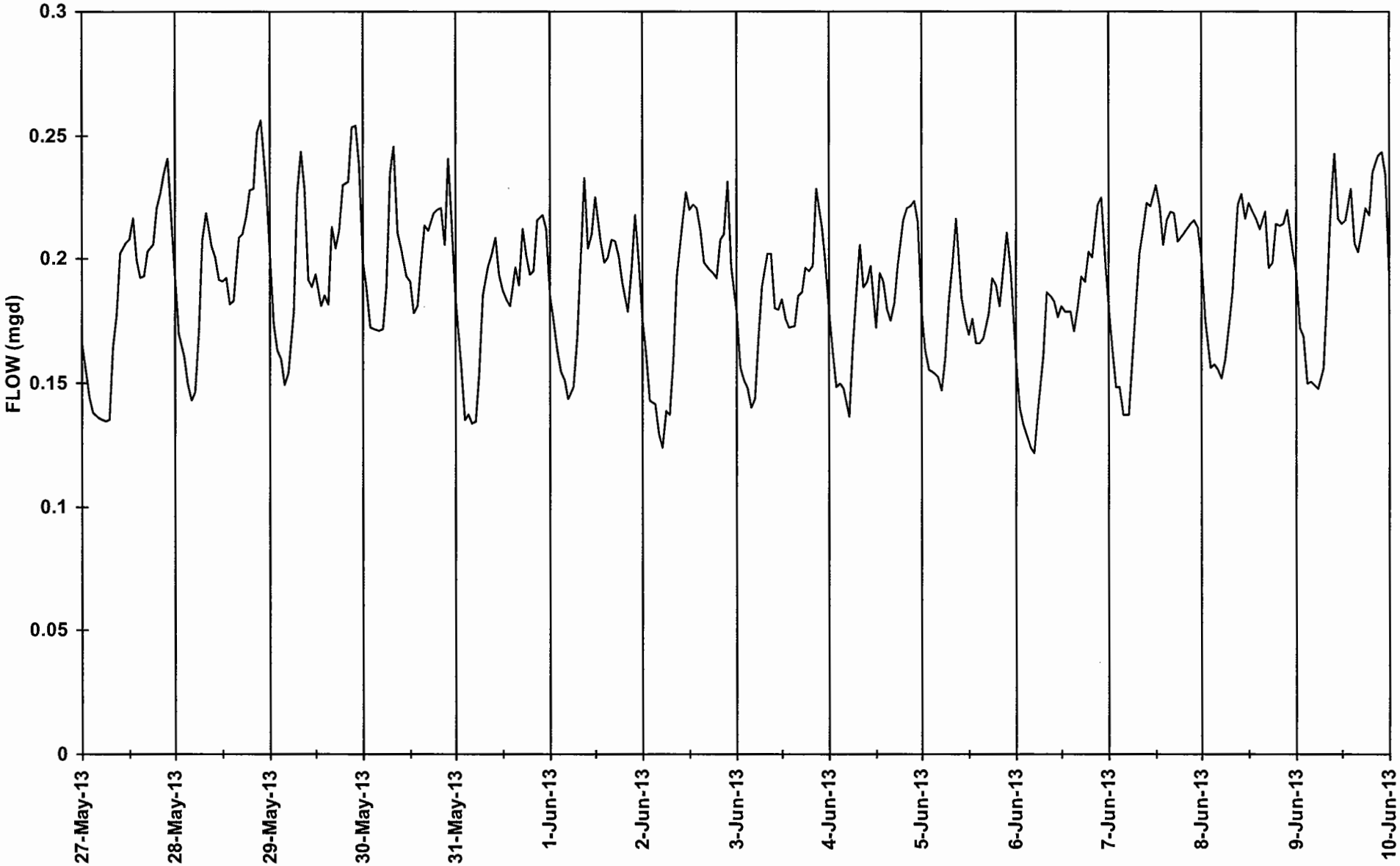
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



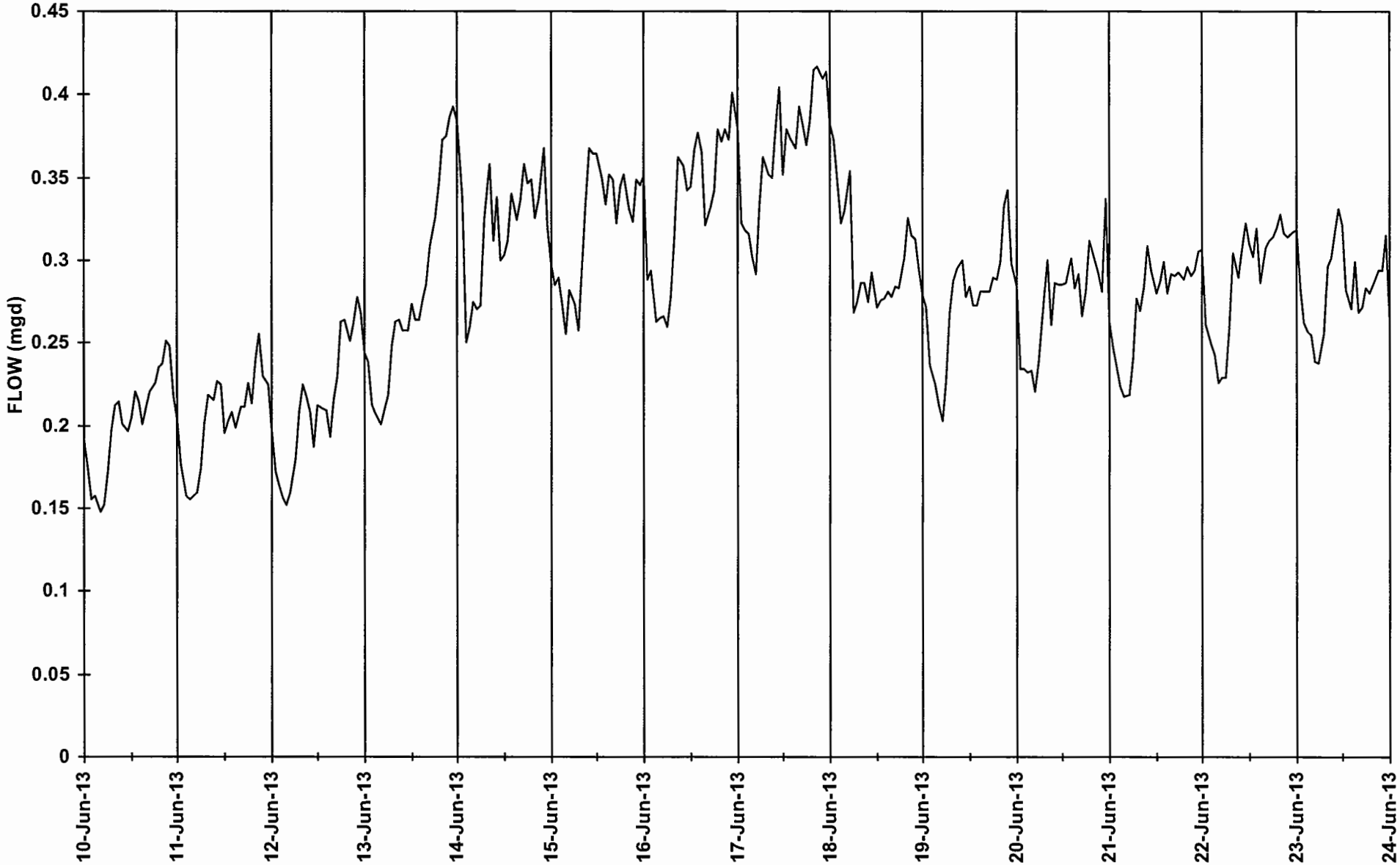
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



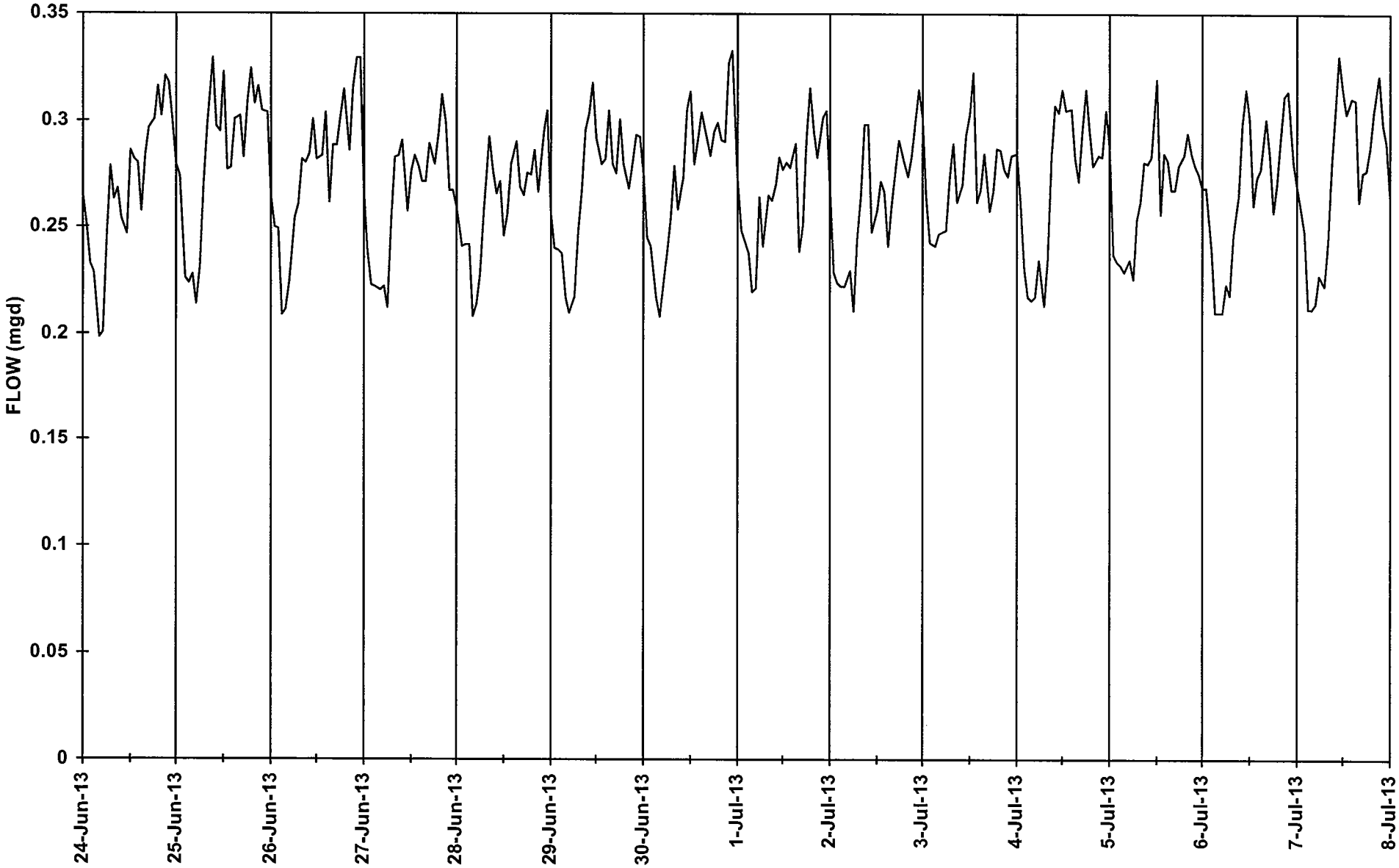
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



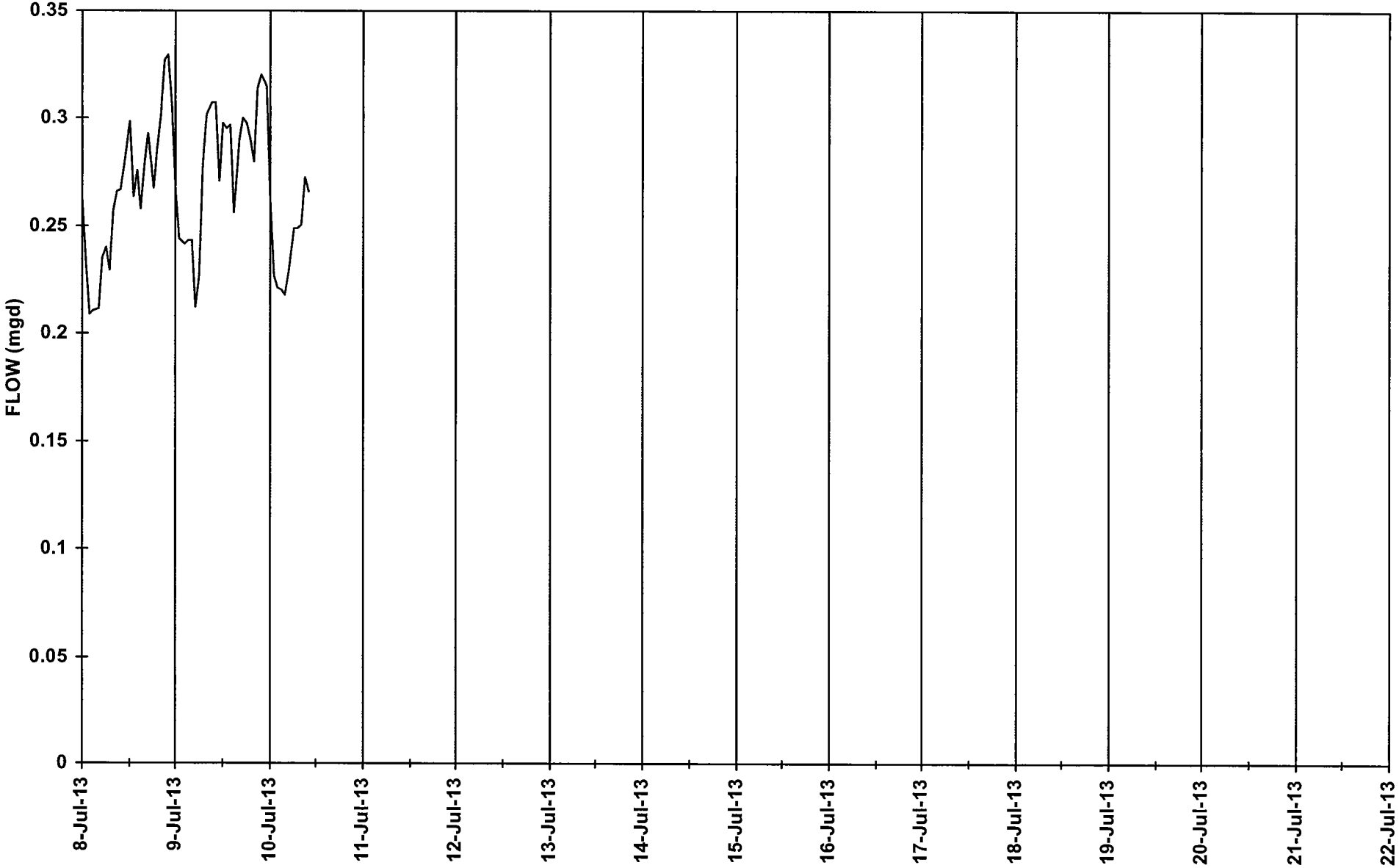
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

Flow vs Time (day)

Site:12275005 LAGUNA FM 005



Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Manning Equation
Shape: Round Pipe
Diameter(ft): 1.25Roughness: 0.013
Slope: 0.0008

Location: LAGUNA FM 005
Site ID: 11275005
Serial#: WK9

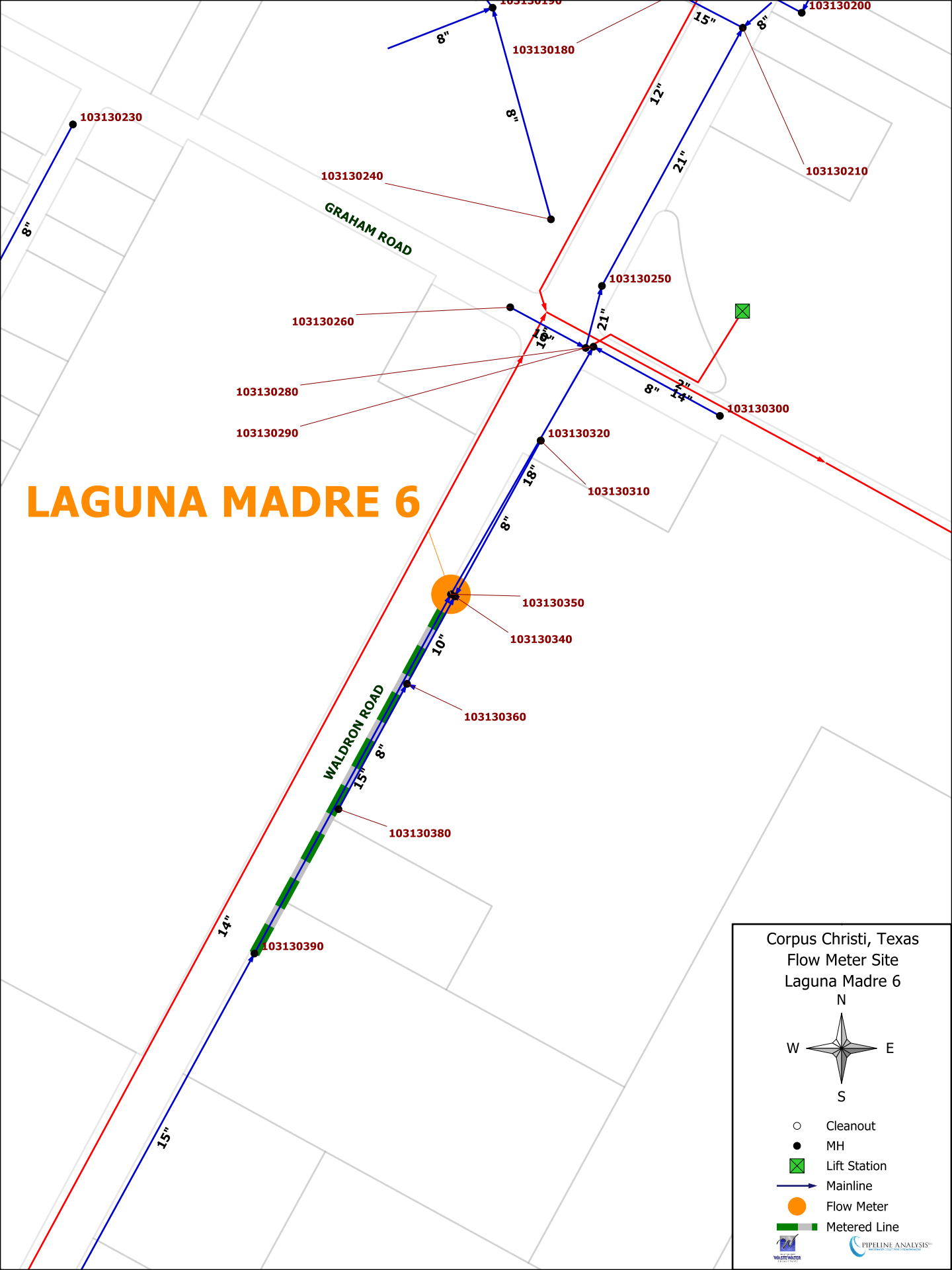
Laguna FM006

Laguna Meter Site 006

11275LAGUNAFM006A007.jpg

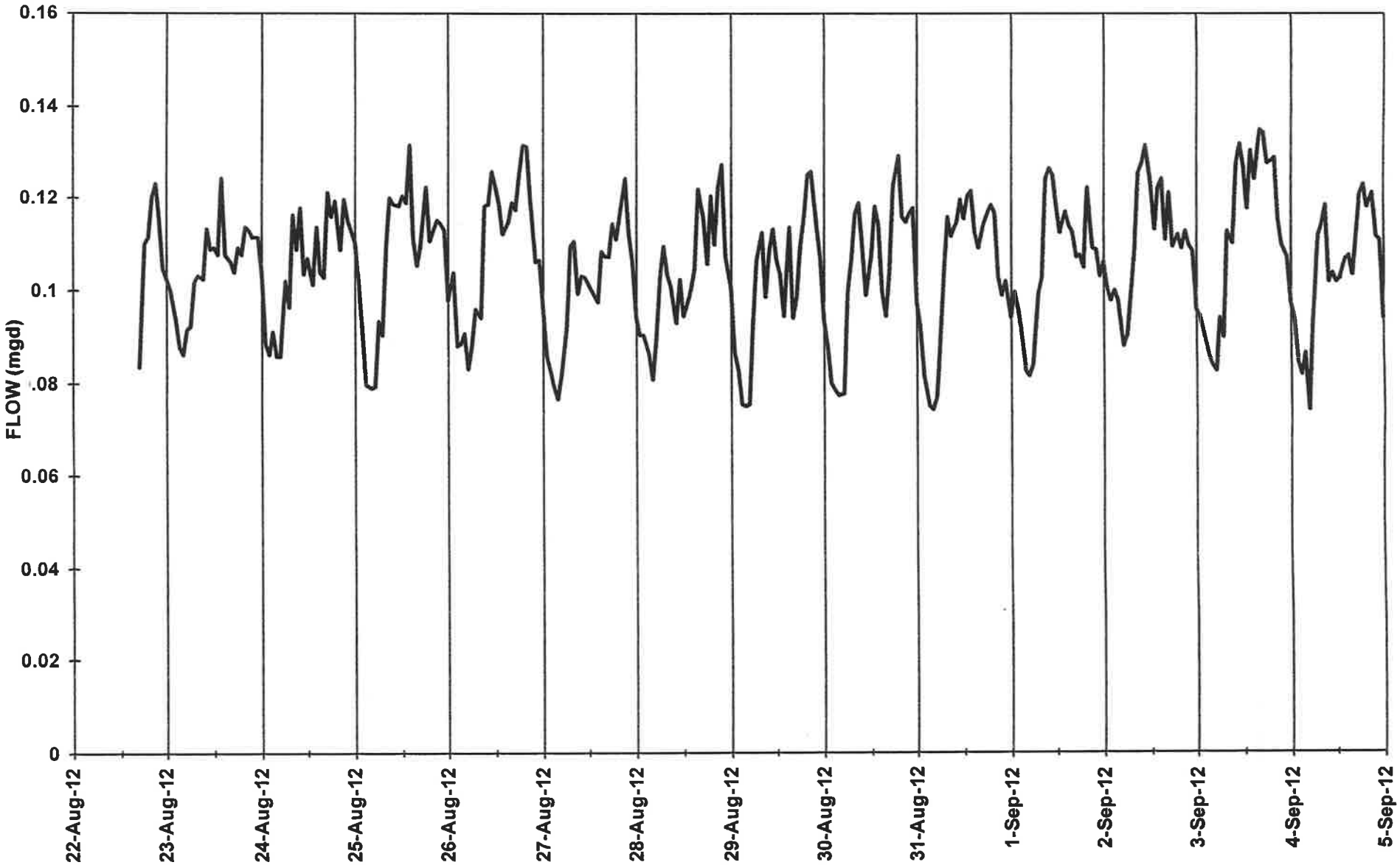
11275LAGUNAFM006I008.jpg

11275LAGUNAFM006P012.jpg


LAGUNA MADRE 6
GRAHAM ROAD
WALDRON ROAD
103130190
103130180
103130200
103130210
103130230
103130240
103130250
103130260
103130280
103130290
103130300
103130310
103130320
103130340
103130350
103130360
103130380
103130390
8"
15"
12"
21"
18"
14"
10"
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 6
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



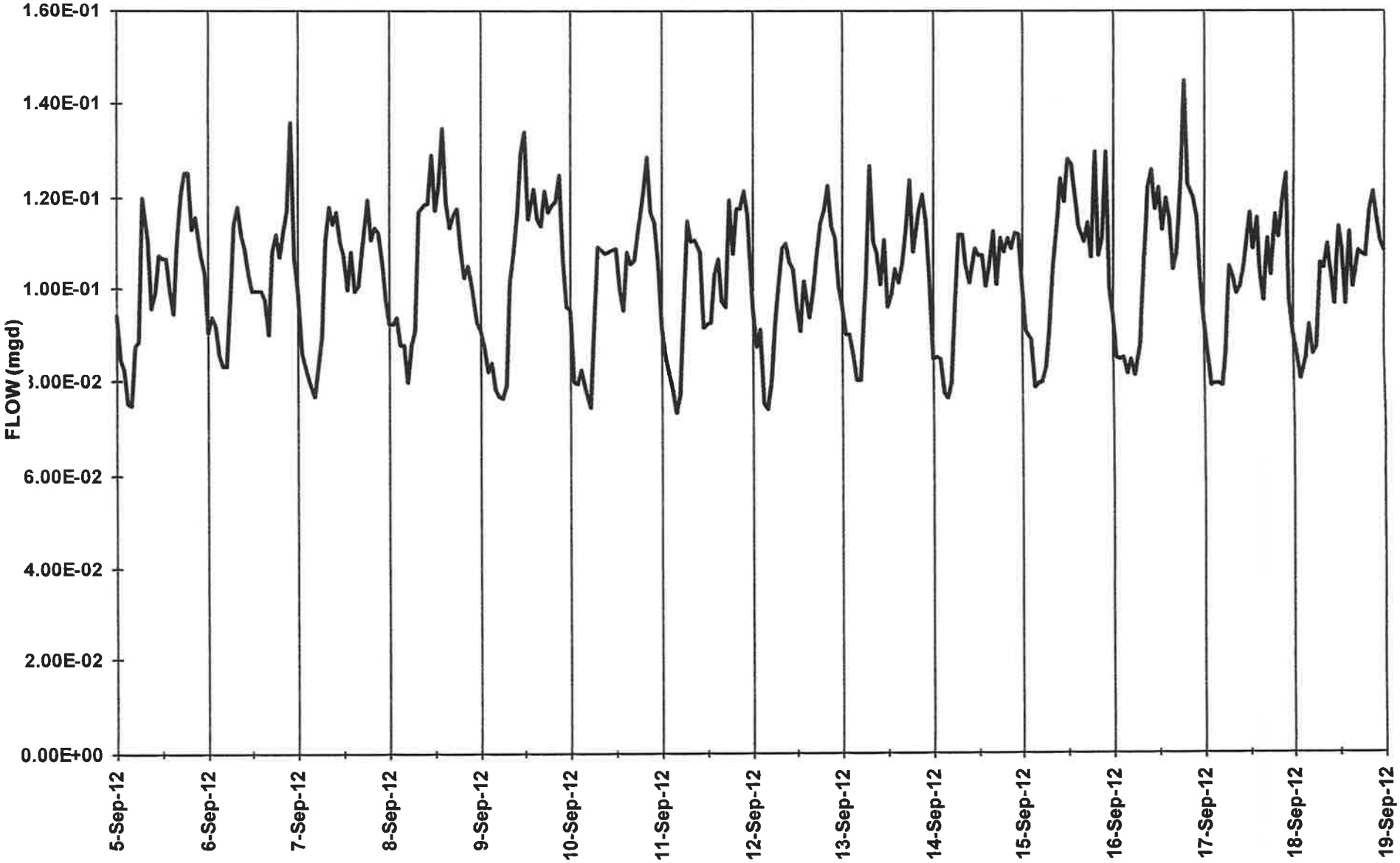
Daterange: 08/22/12-09/05/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



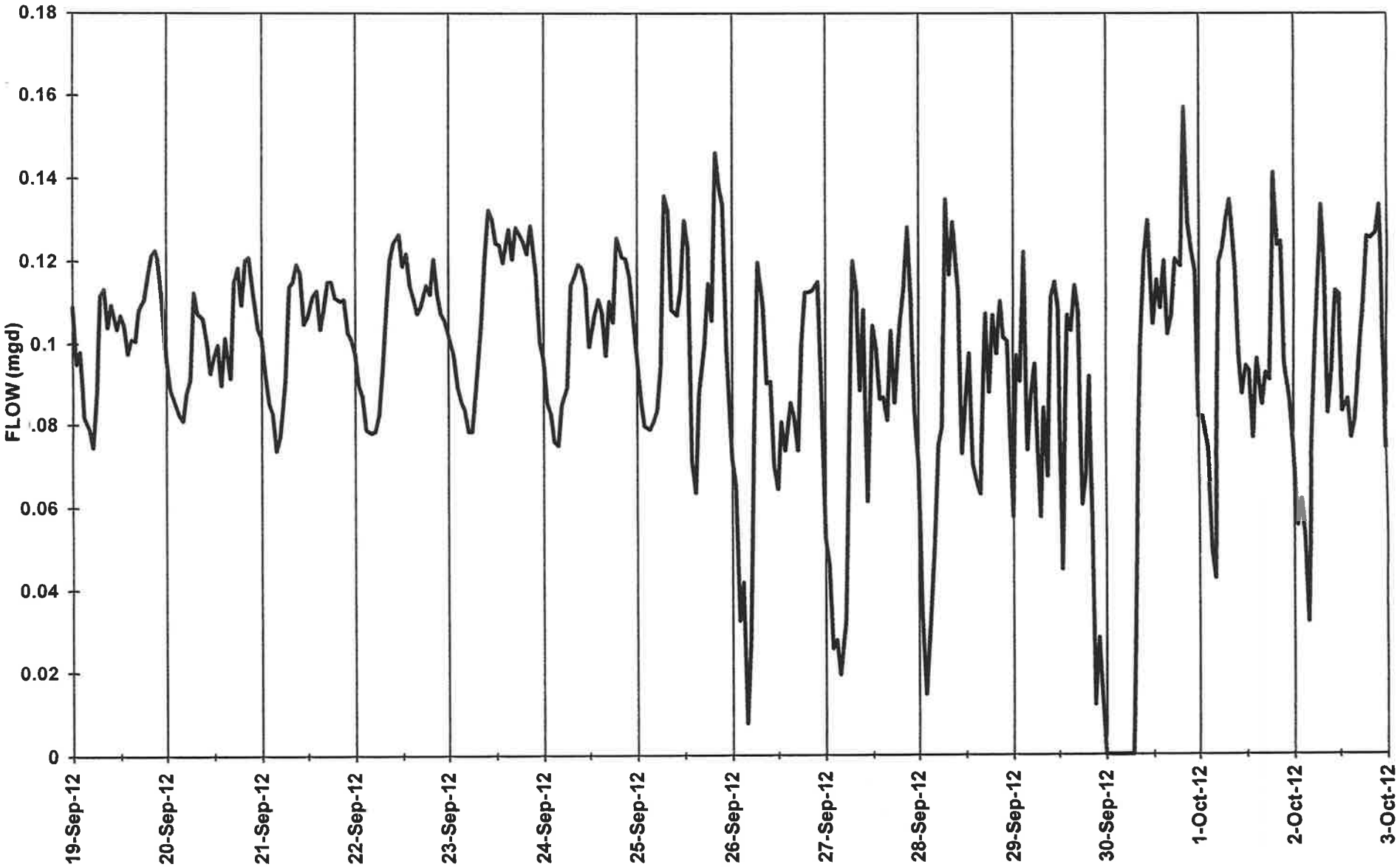
Daterange: 09/05/12-09/19/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



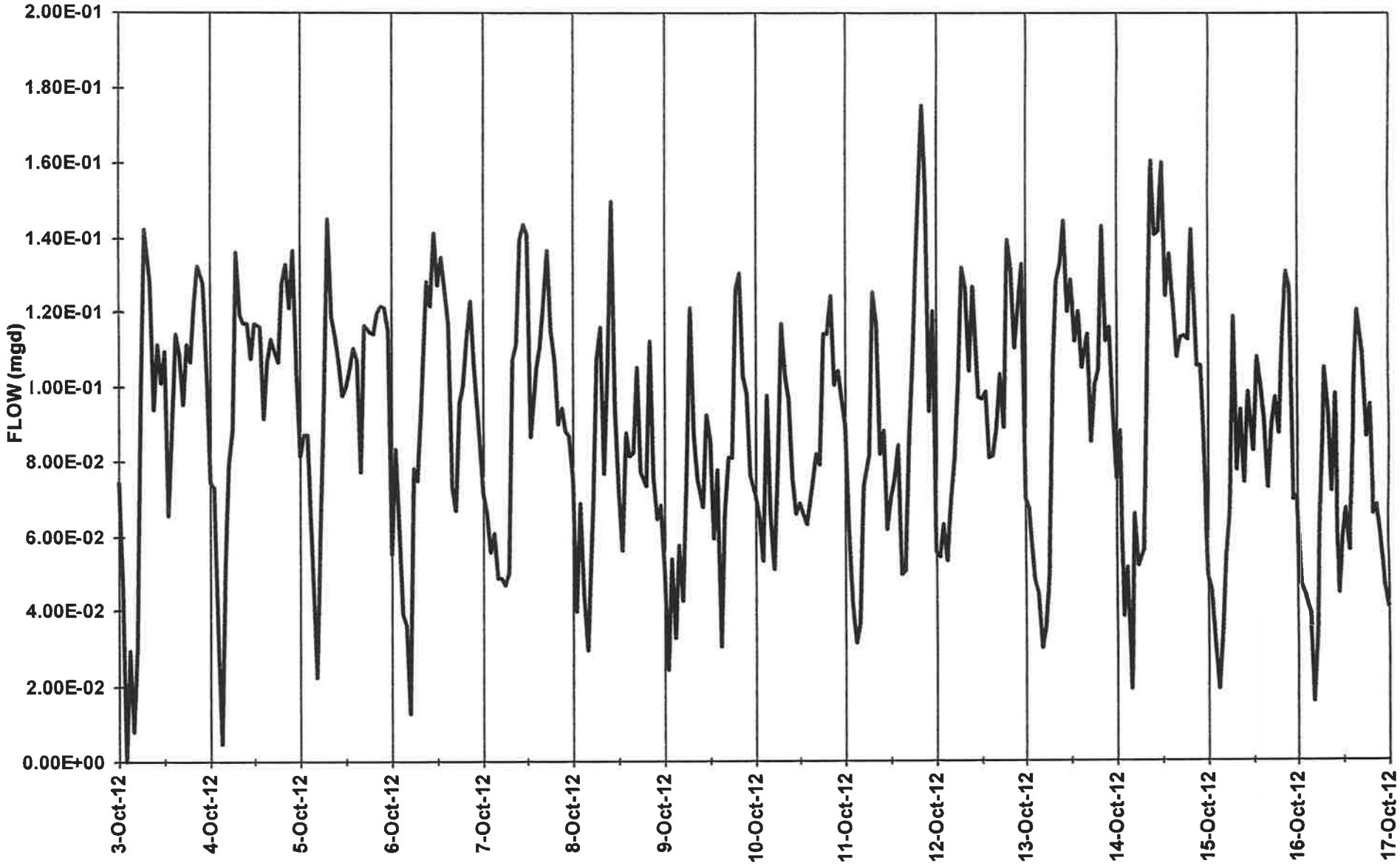
Daterange: 09/19/12-10/03/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



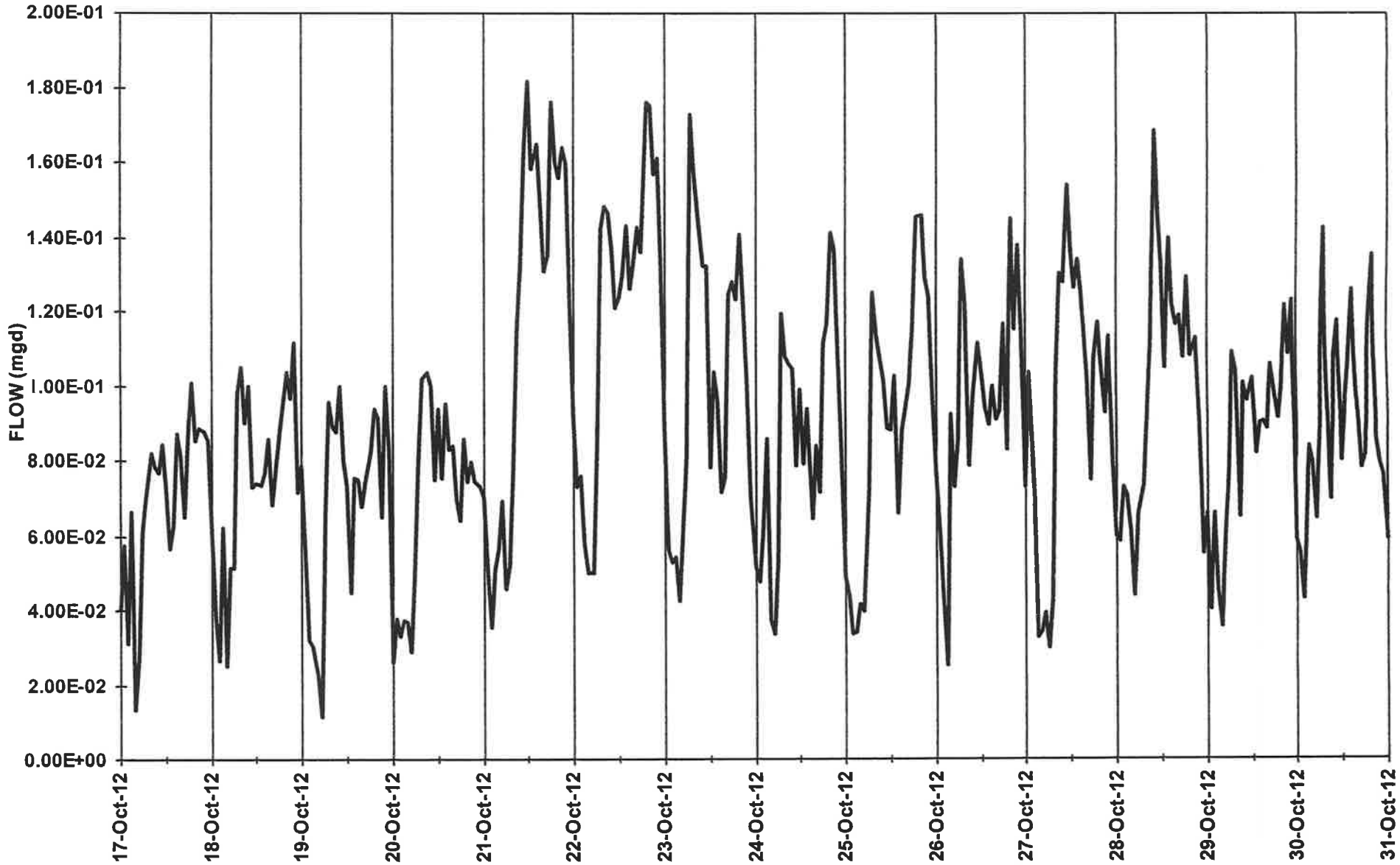
Daterange: 10/03/12-10/17/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



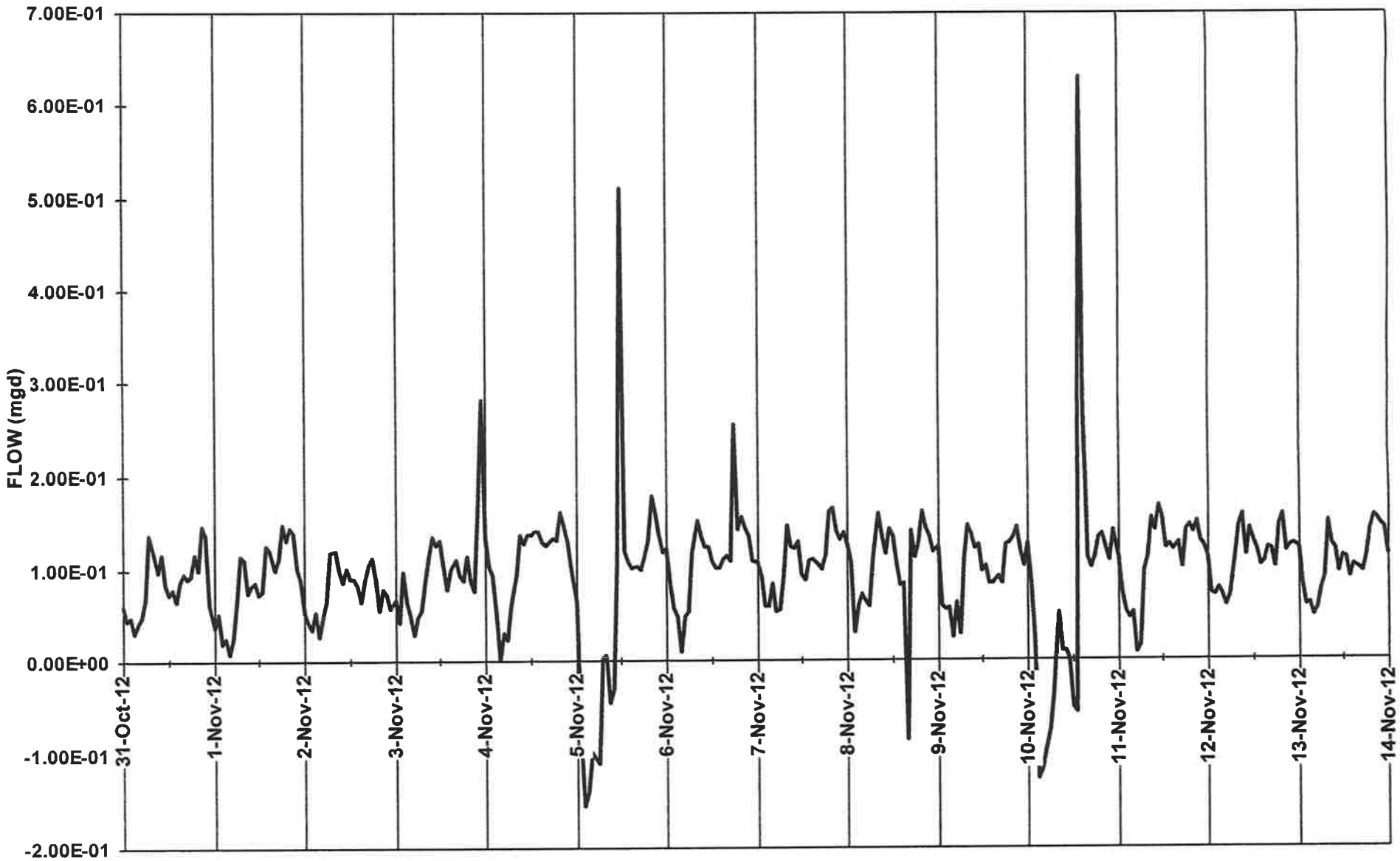
Daterange: 10/17/12-10/31/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



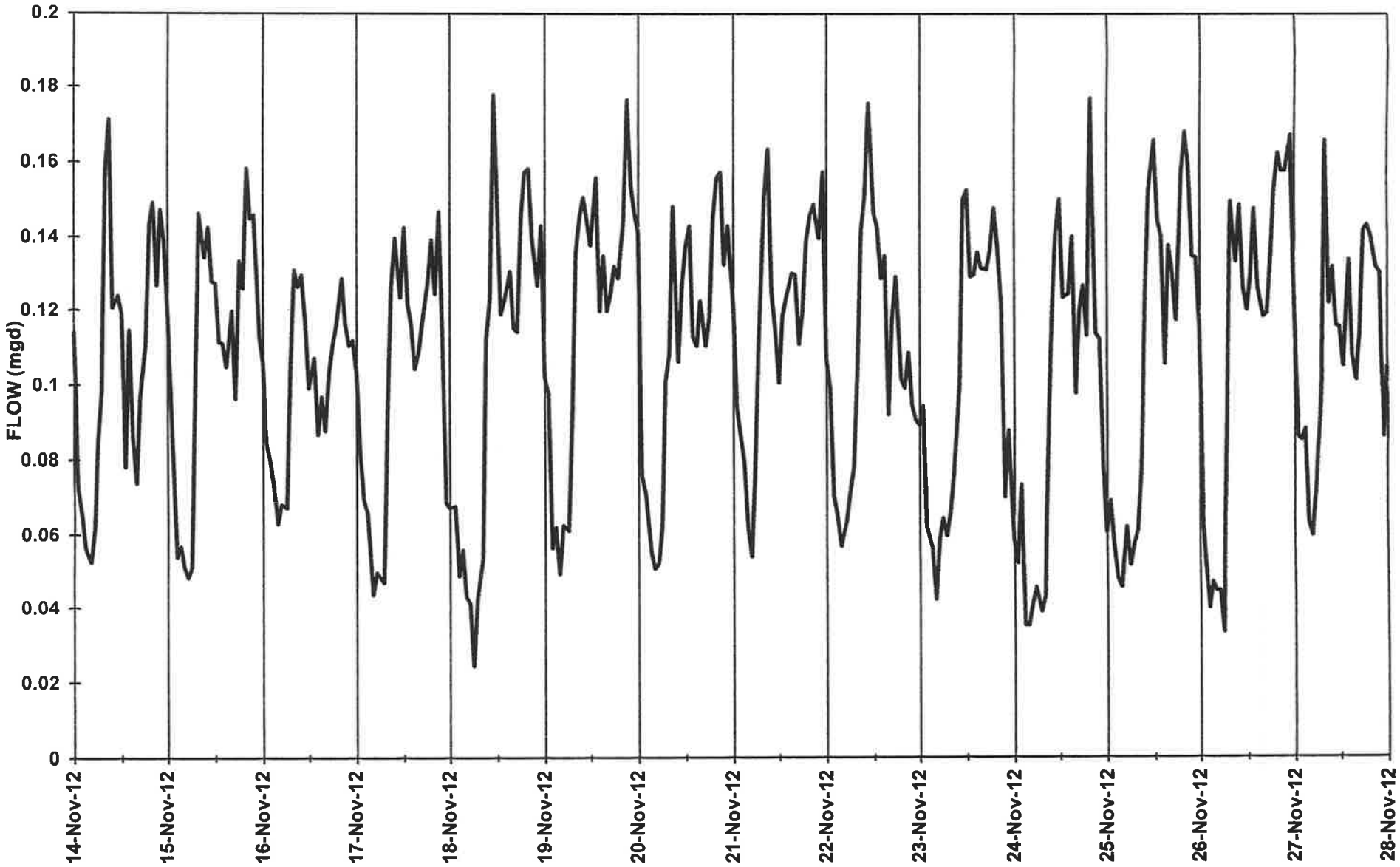
Daterange: 10/31/12-11/14/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



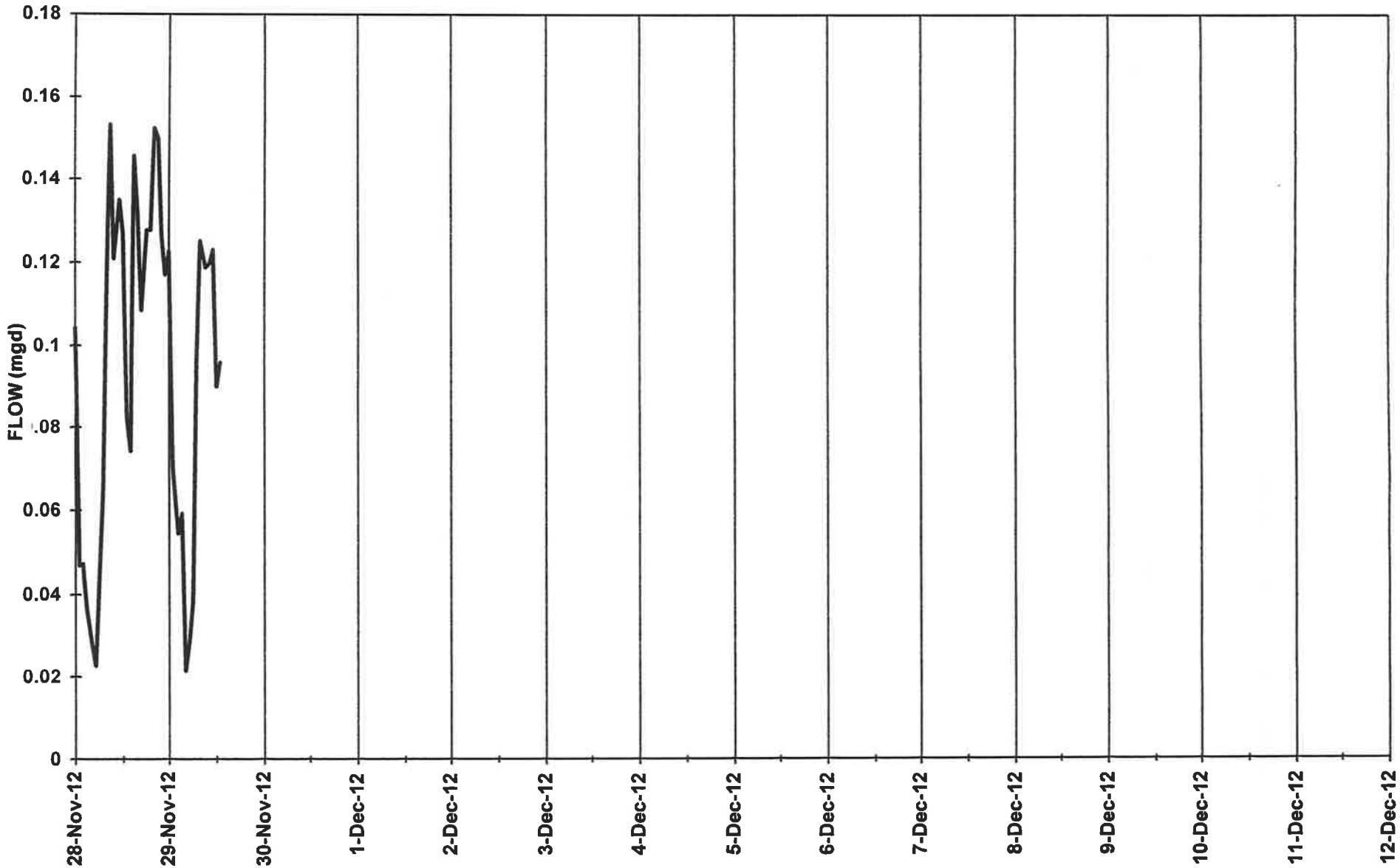
Daterange: 11/14/12-11/28/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

Flow vs Time (week)

Site:11275006 LAGUNA FM 006



Daterange: 11/28/12-12/12/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM SITE 006
Site ID: 11275006
Serial#: WLV

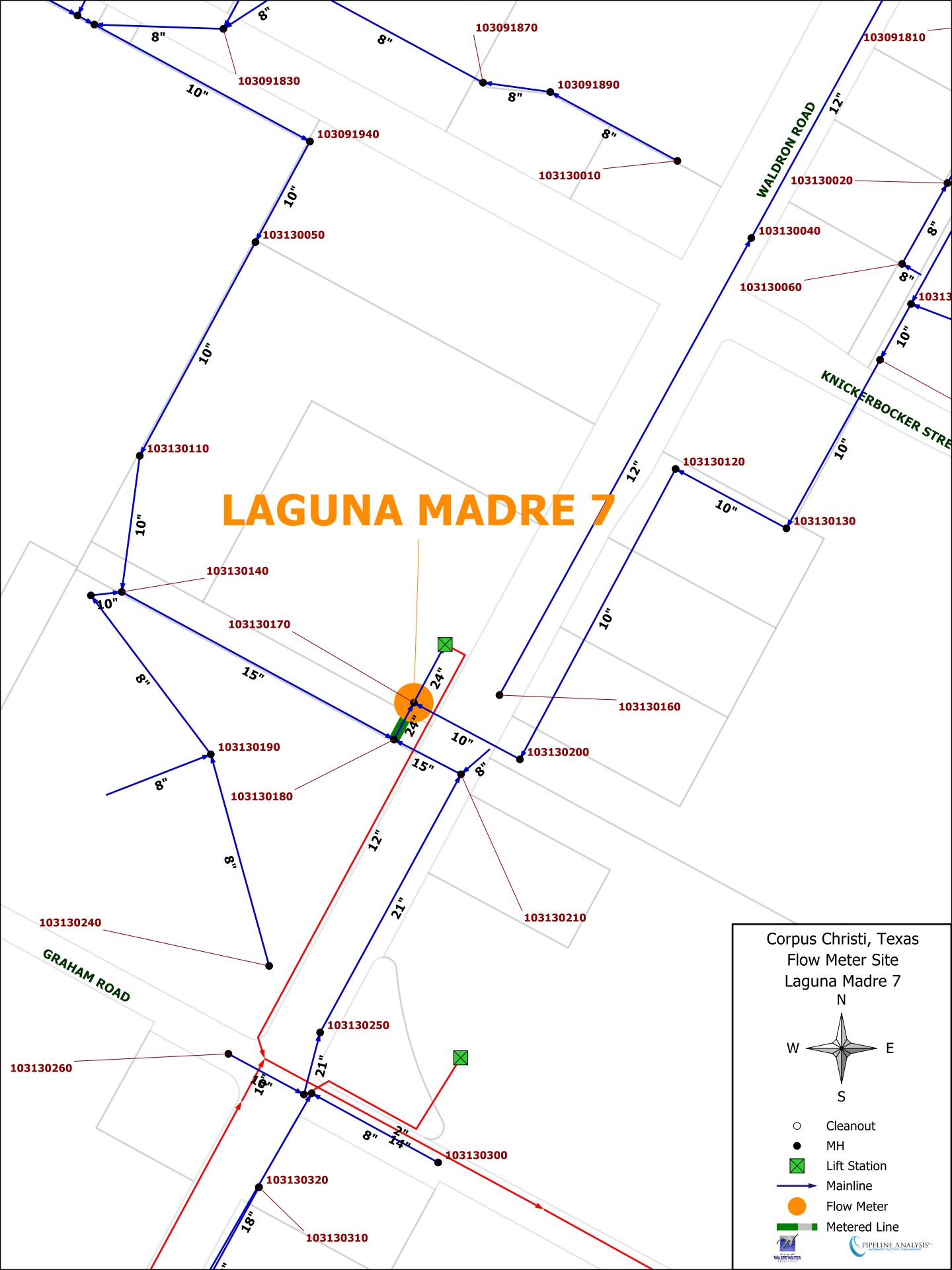
Laguna FM007

Laguna Meter Site 007

11275LAGUNAFM007A009.jpg

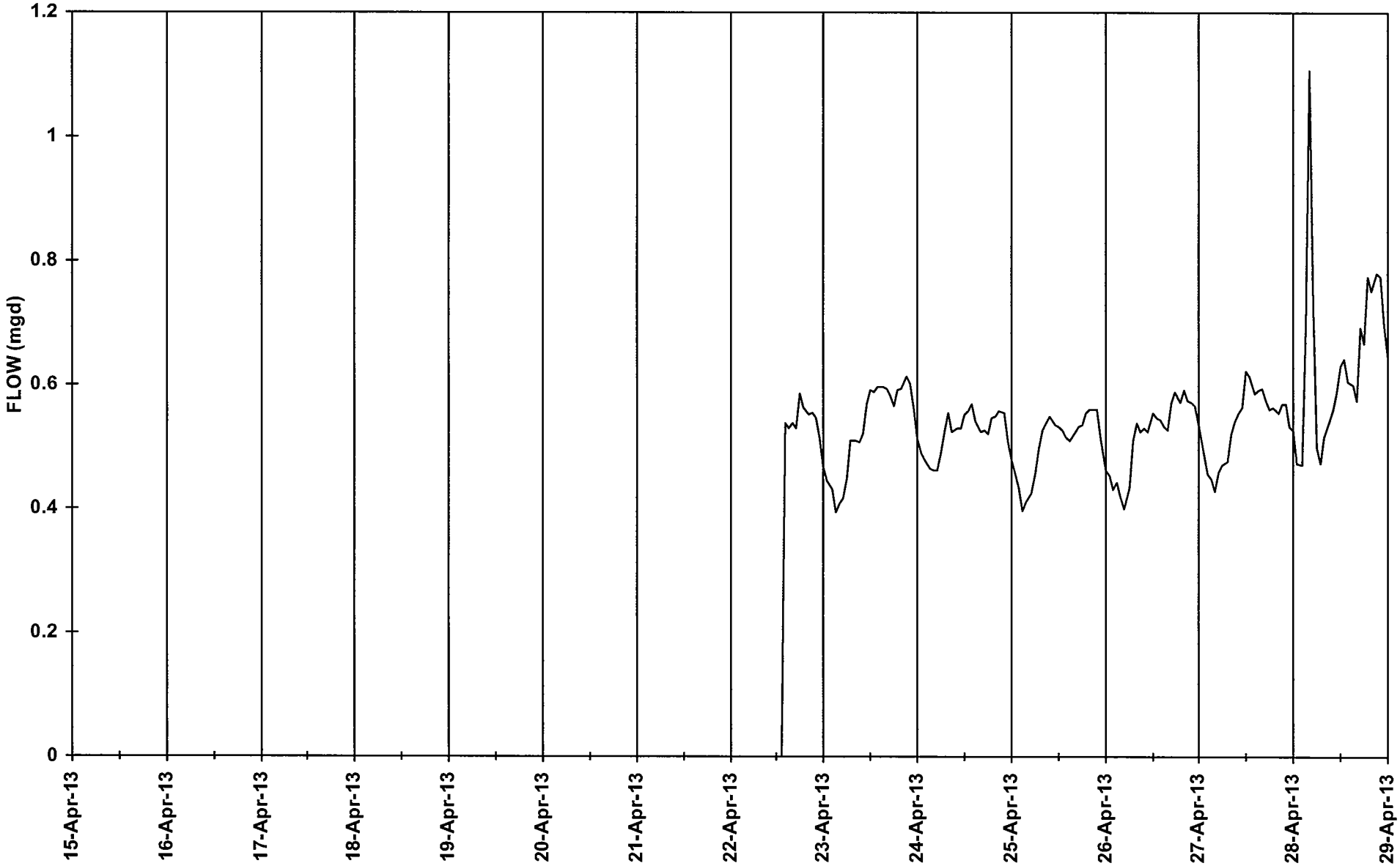
11275LAGUNAFM007I010.jpg

11275LAGUNAFM007P011.jpg


LAGUNA MADRE 7
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 7
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
WALDRON ROAD
KNICKERBOCKER STRE
GRAHAM ROAD
103091830
103091870
103091890
103091940
103091810
103130010
103130020
103130040
103130050
103130060
103130110
103130120
103130130
103130140
103130160
103130170
103130180
103130190
103130200
103130210
103130240
103130250
103130260
103130300
103130310
103130320
8"
10"
12"
15"
18"
21"
24"
14"
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



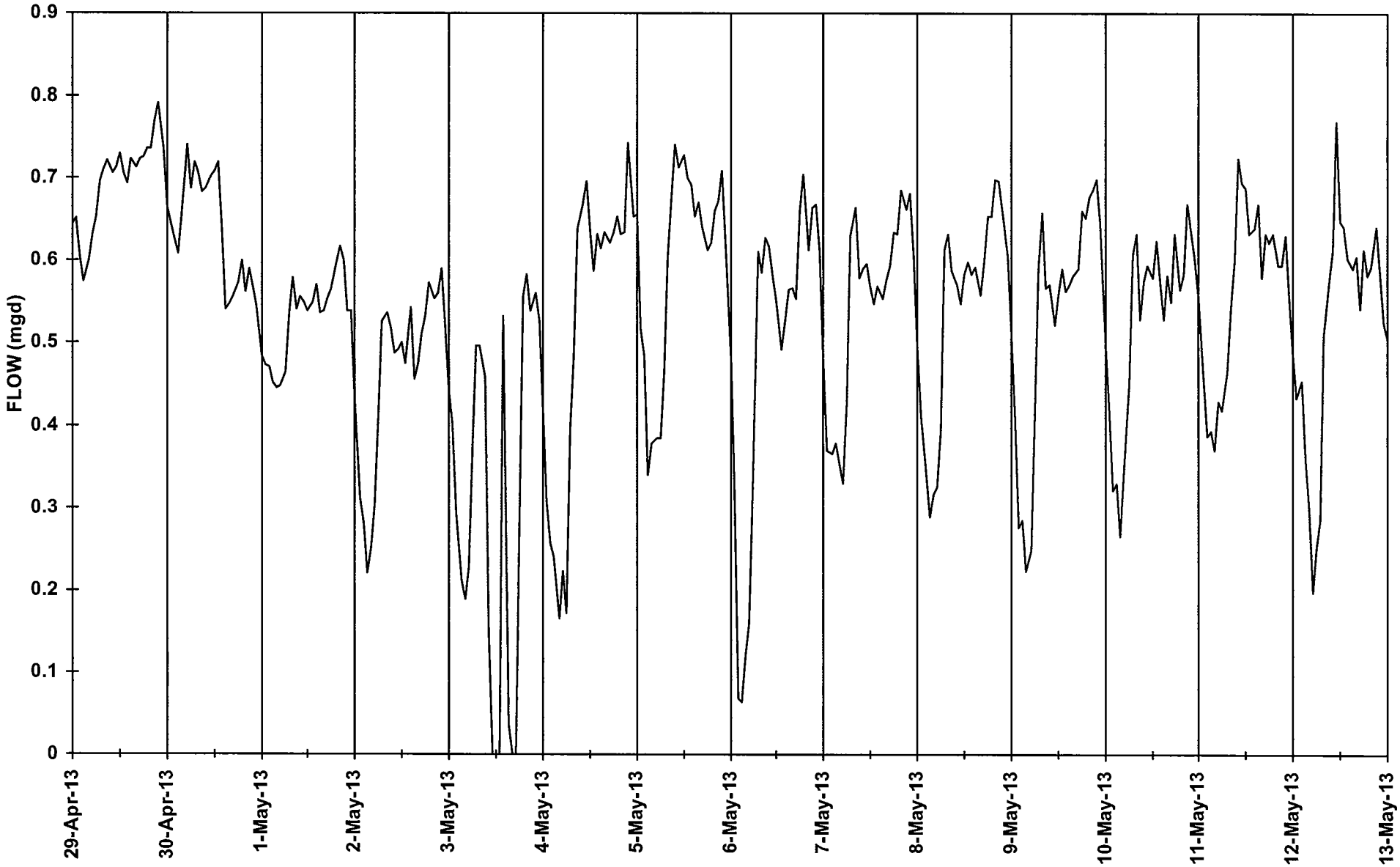
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



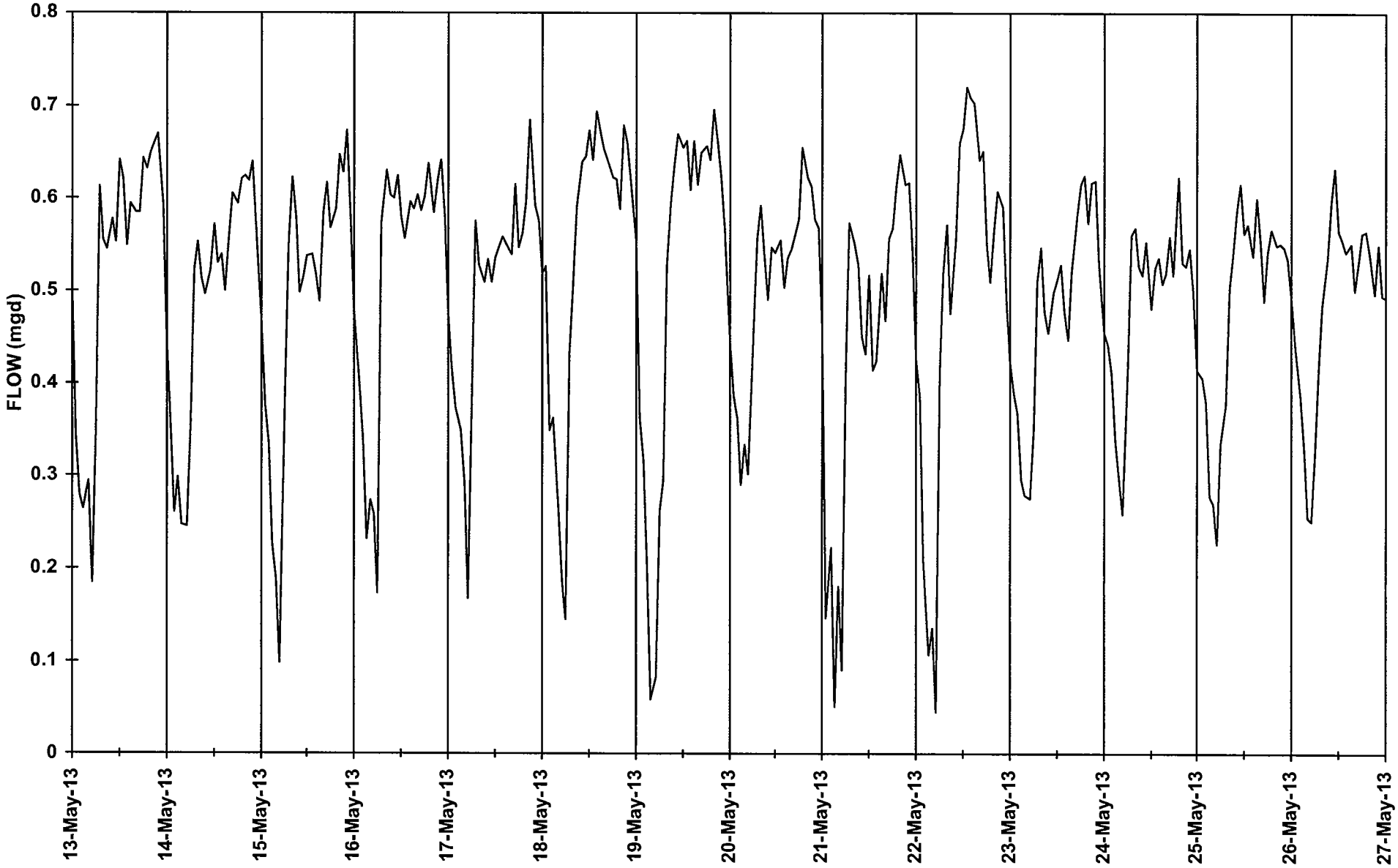
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



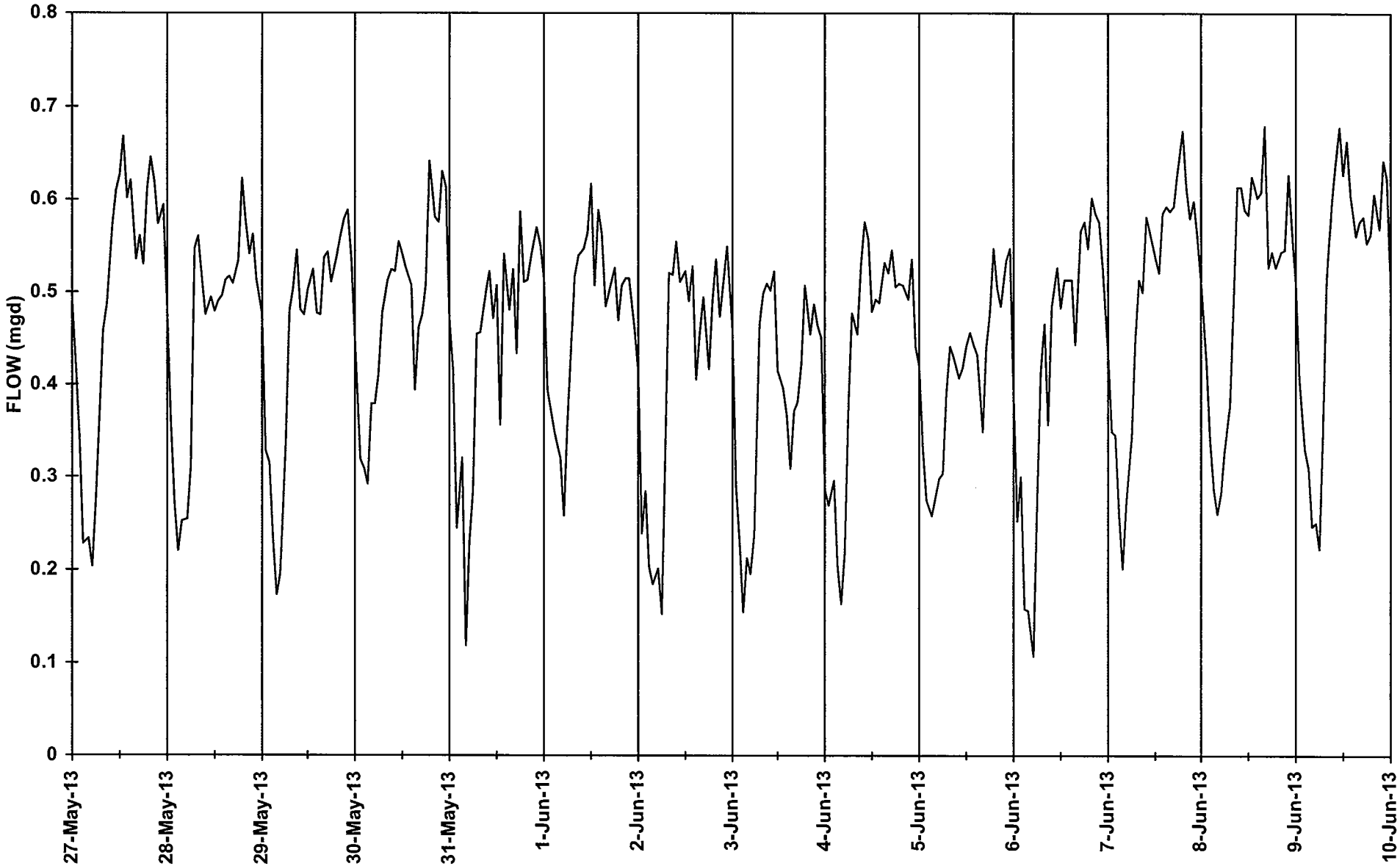
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



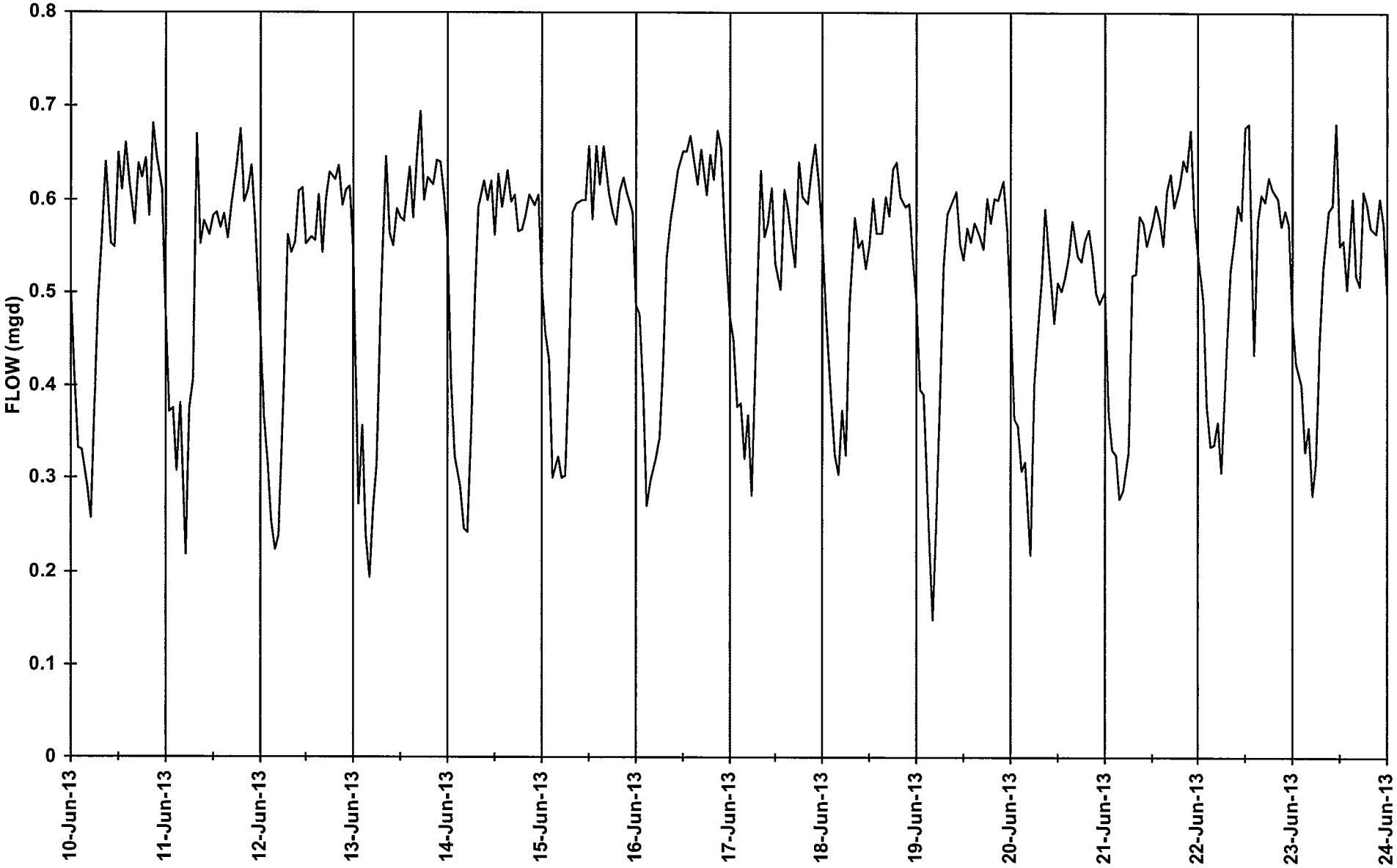
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



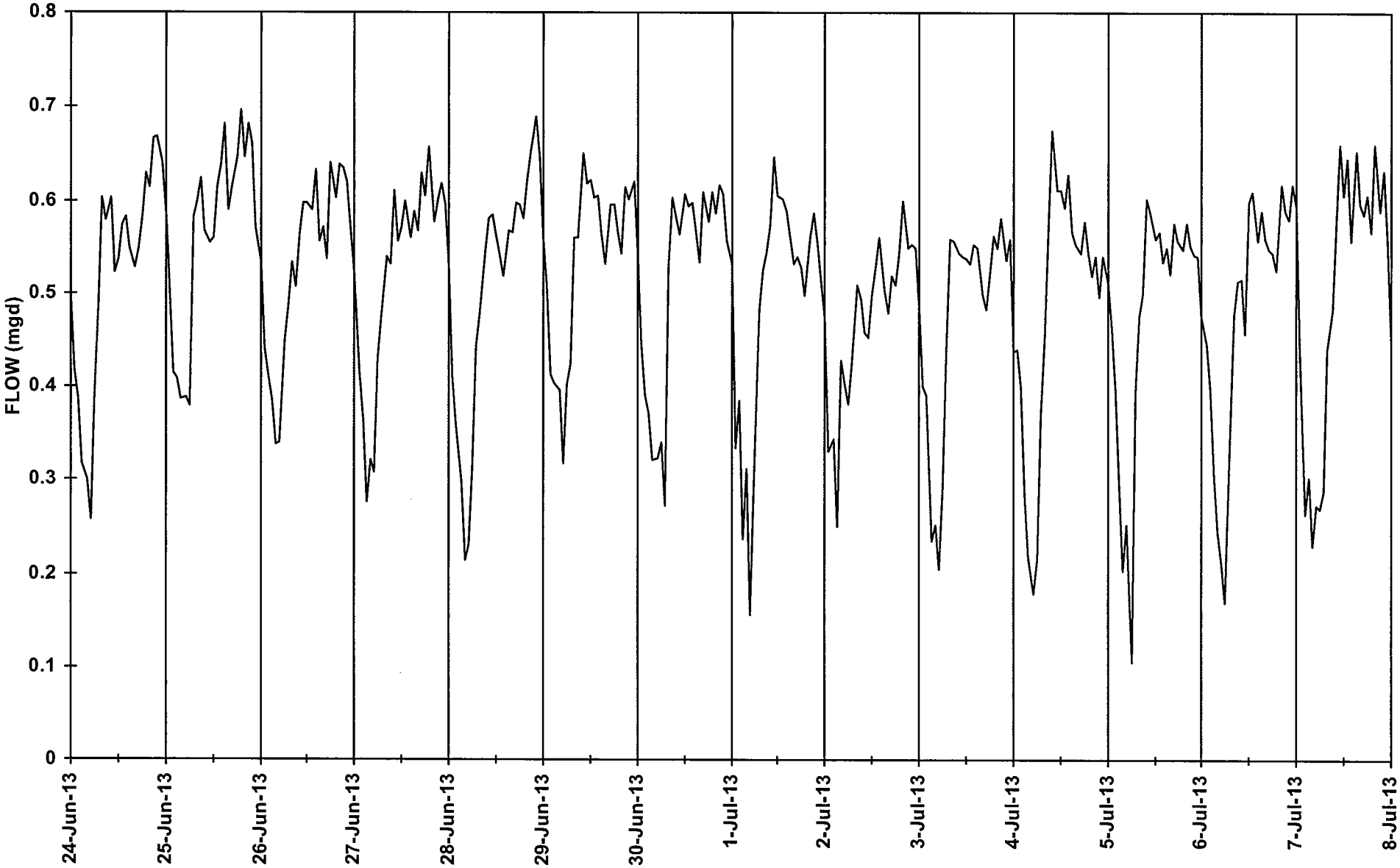
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



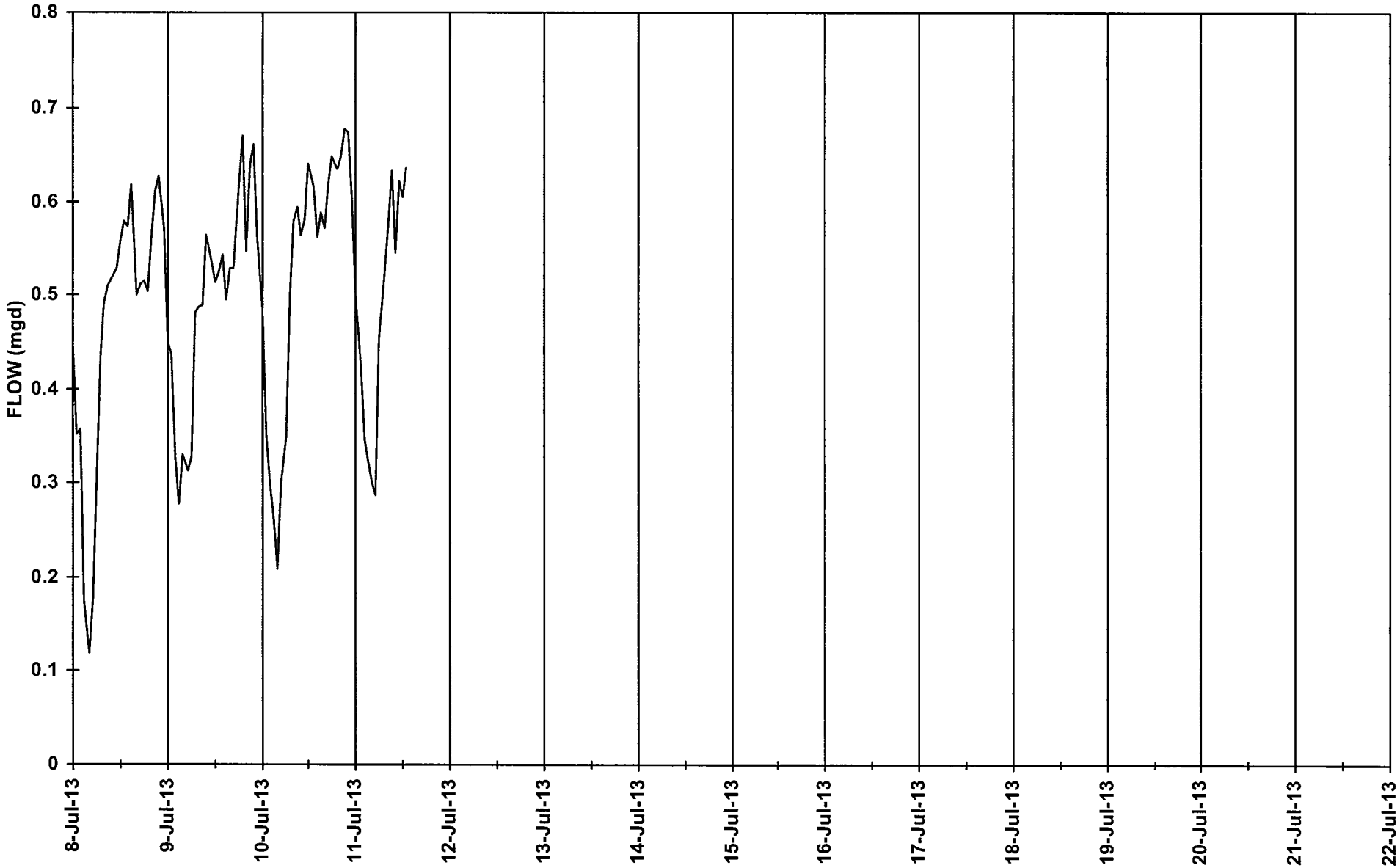
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

Flow vs Time (day)

Site:12275007 LAGUNA FM 007



Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2

Location: LAGUNA FM 007
Site ID: 12275007
Serial#: WLF

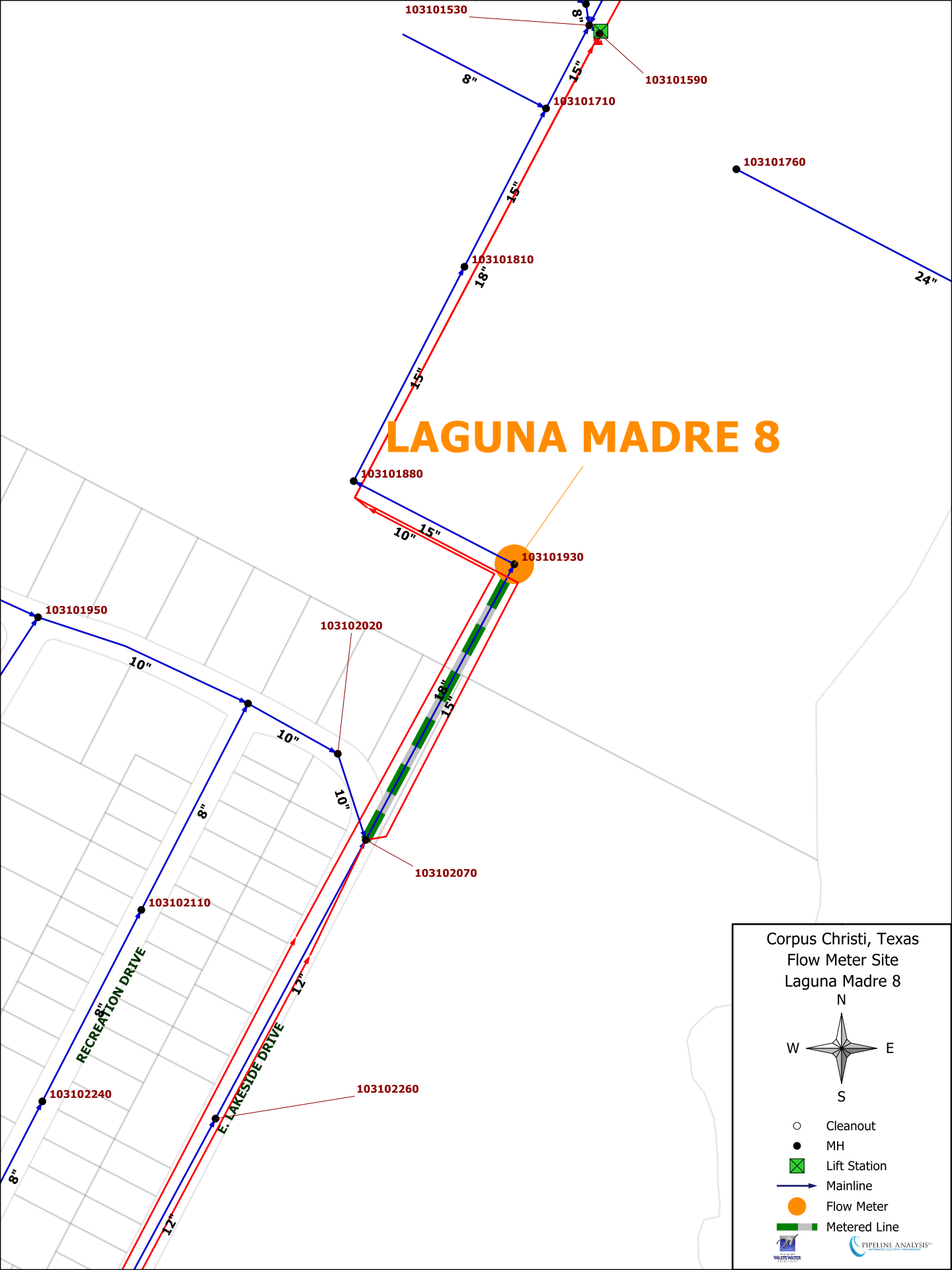
Laguna FM008

Laguna Meter Site 008

11275LAGUNAFM008A016.jpg

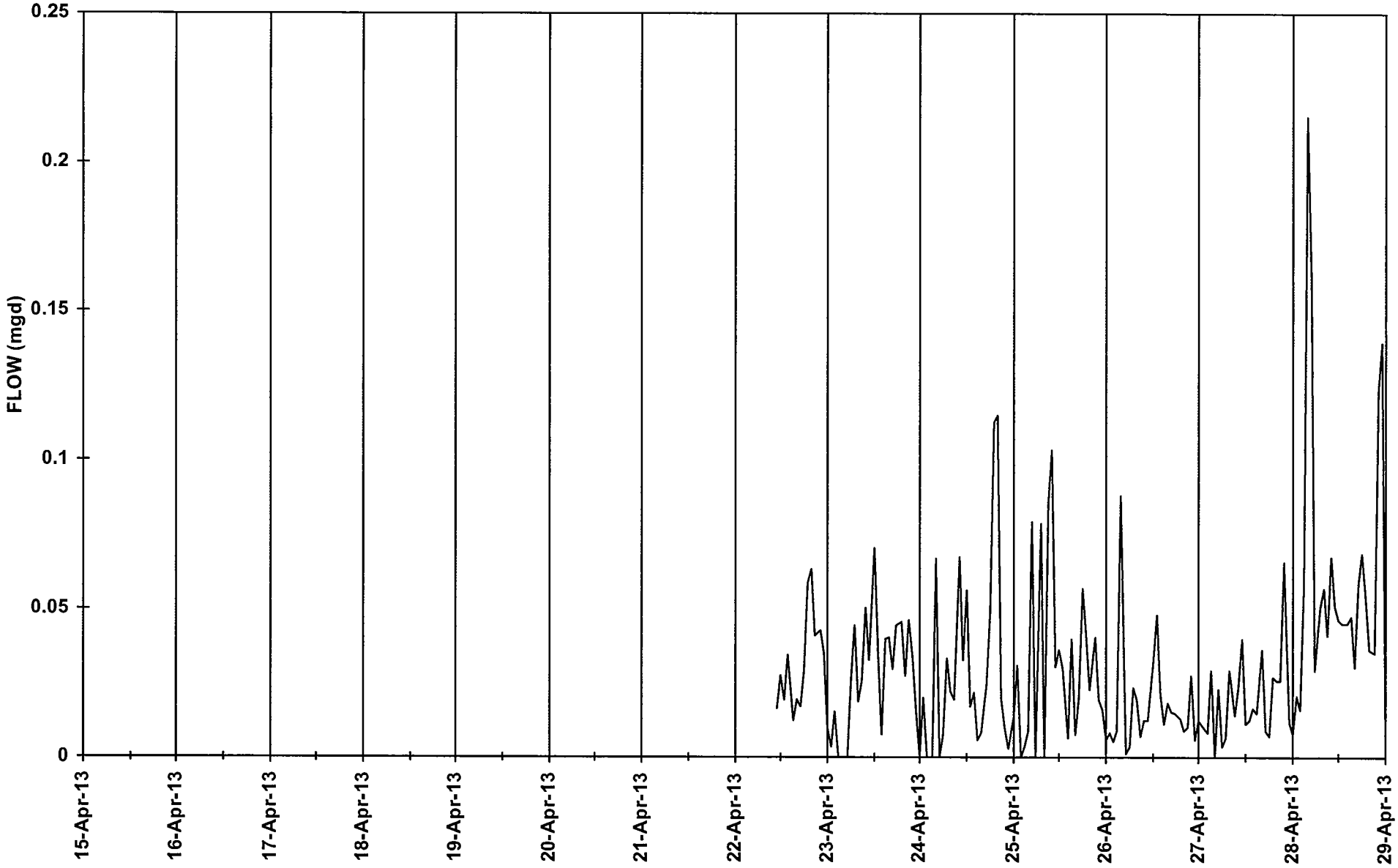
11275LAGUNAFM008I017.jpg

11275LAGUNAFM008P018.jpg


LAGUNA MADRE 8
103101530
103101590
103101710
103101760
103101810
103101880
103101930
103101950
103102020
103102070
103102110
103102240
103102260
8"
15"
18"
10"
24"
12"
RECREATION DRIVE
E. LAKESIDE DRIVE
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 8
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



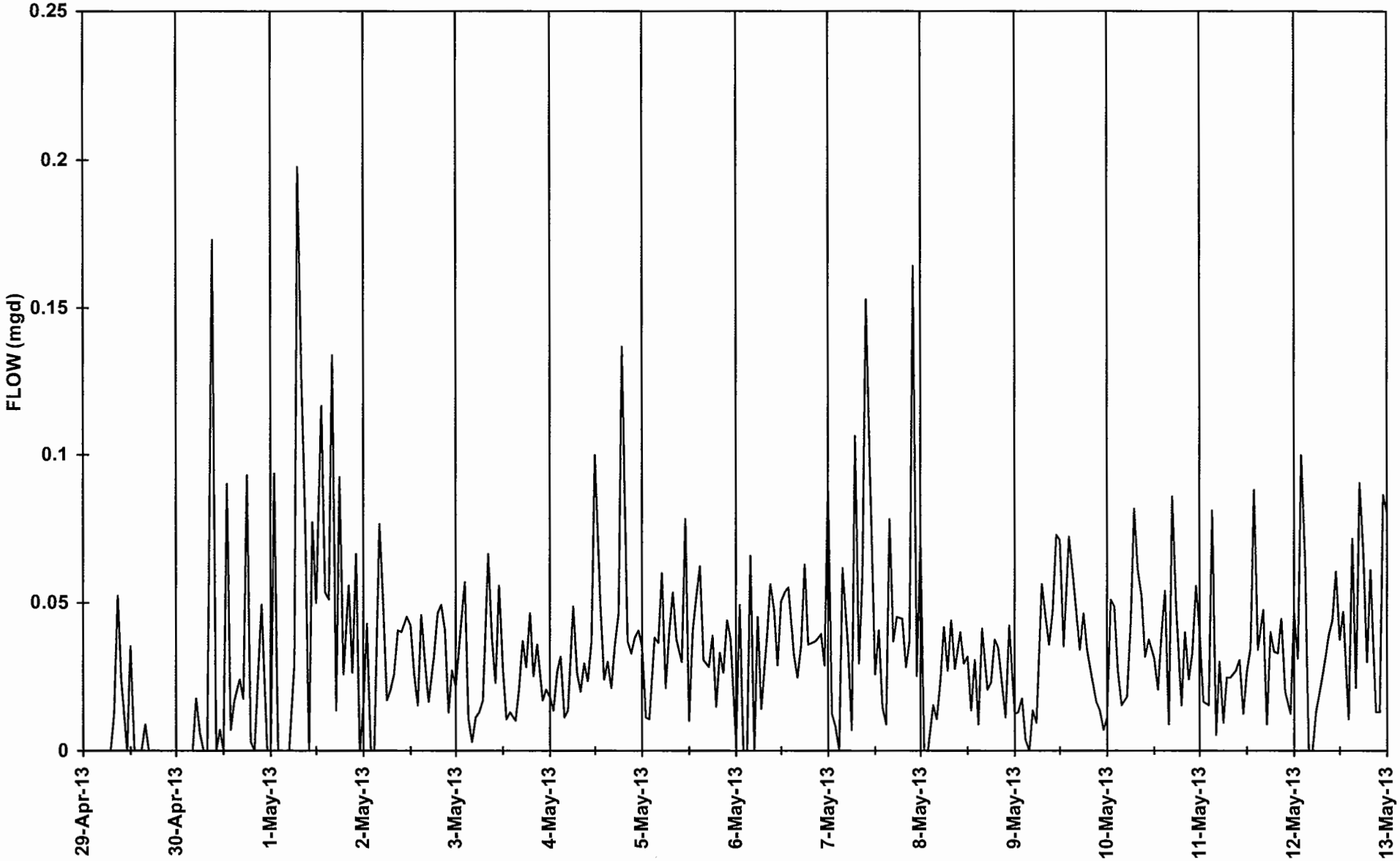
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



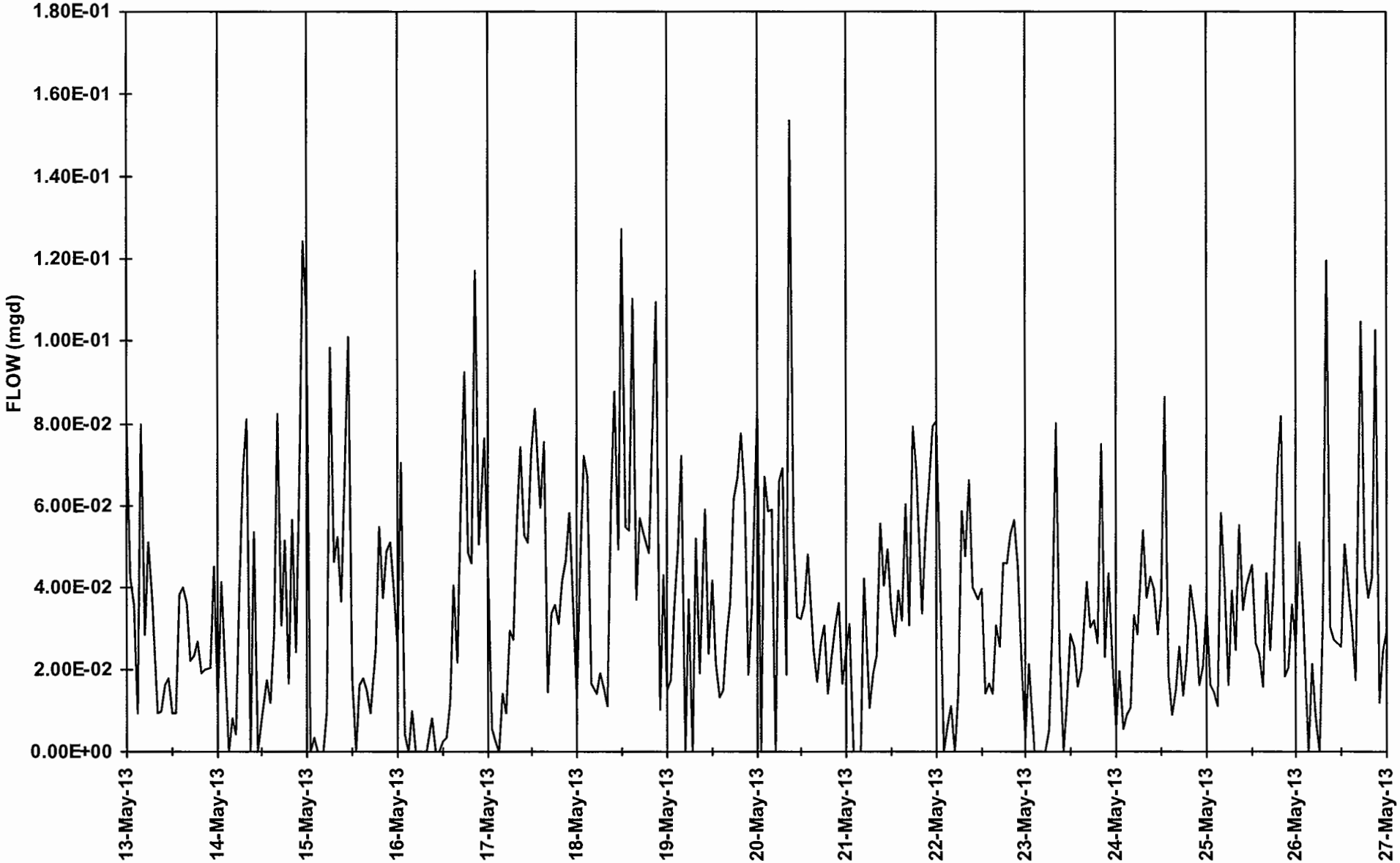
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



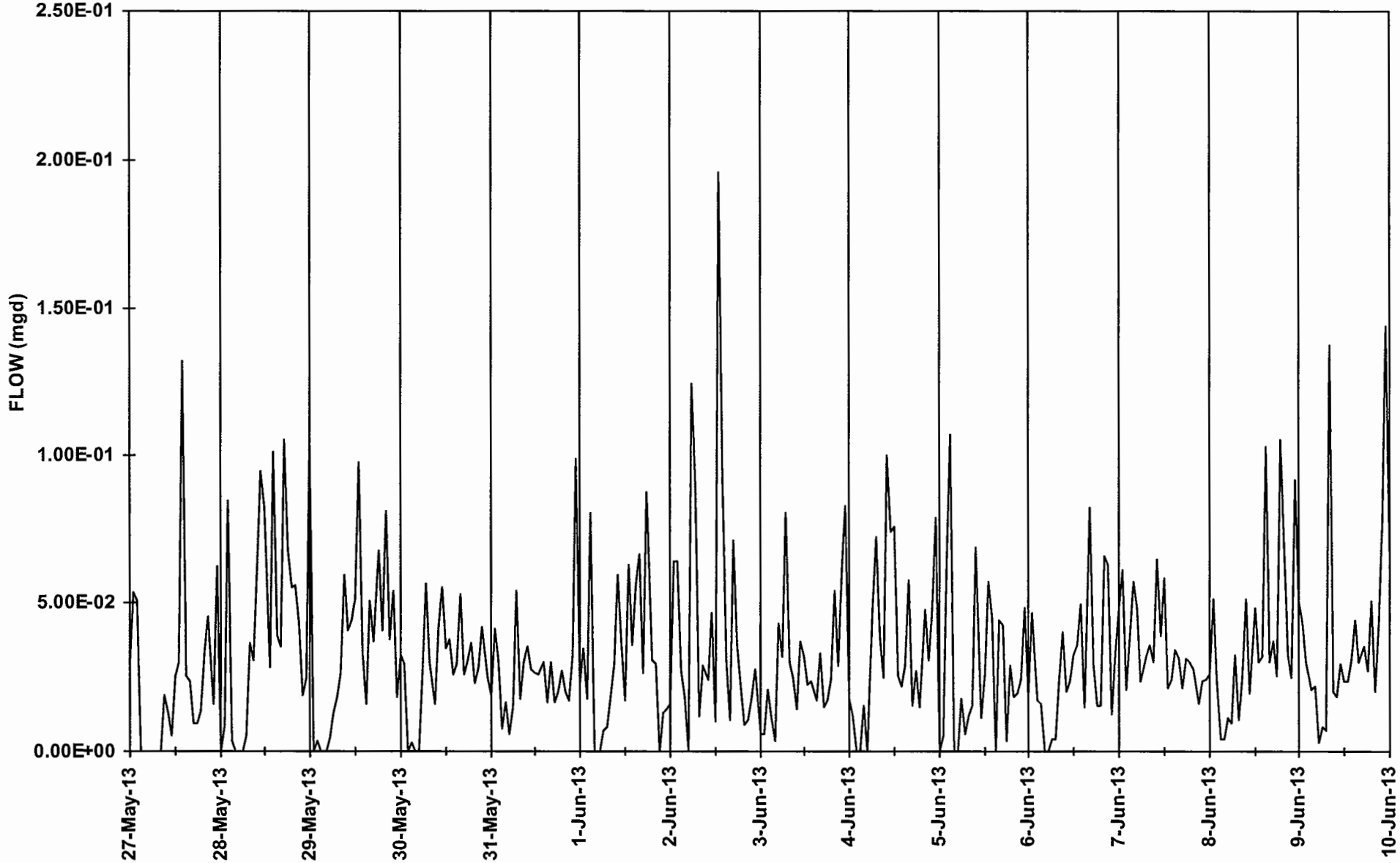
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



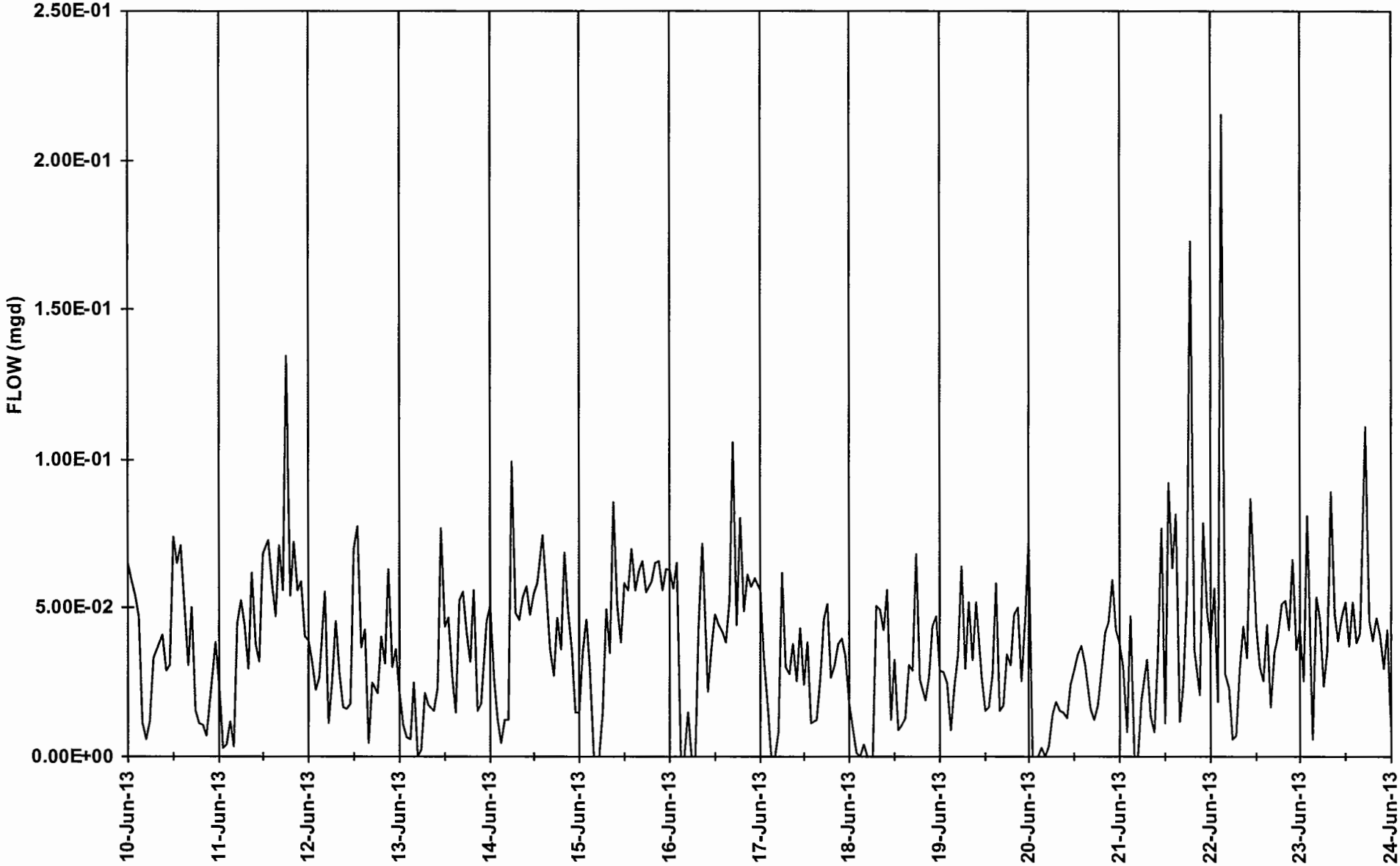
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



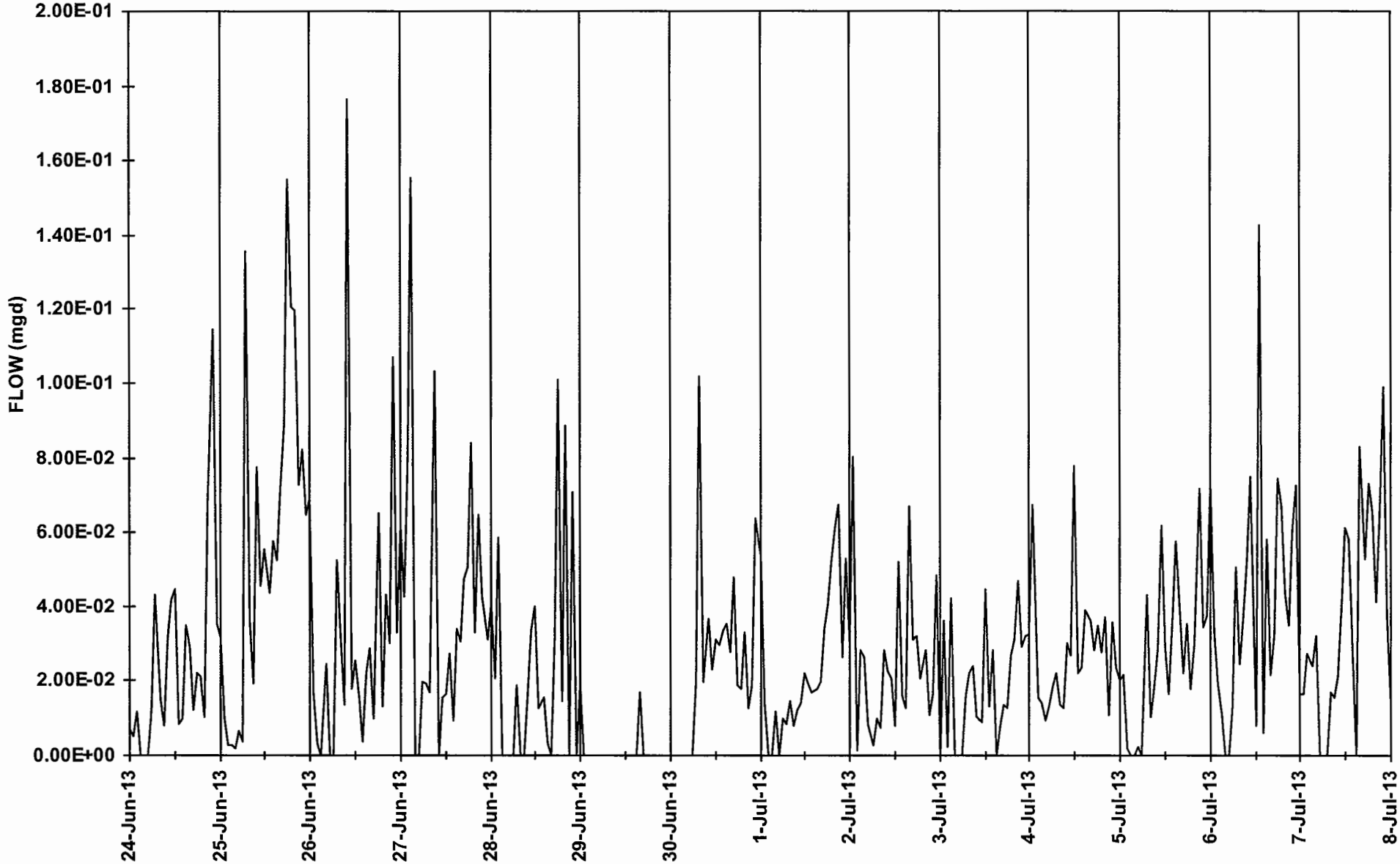
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



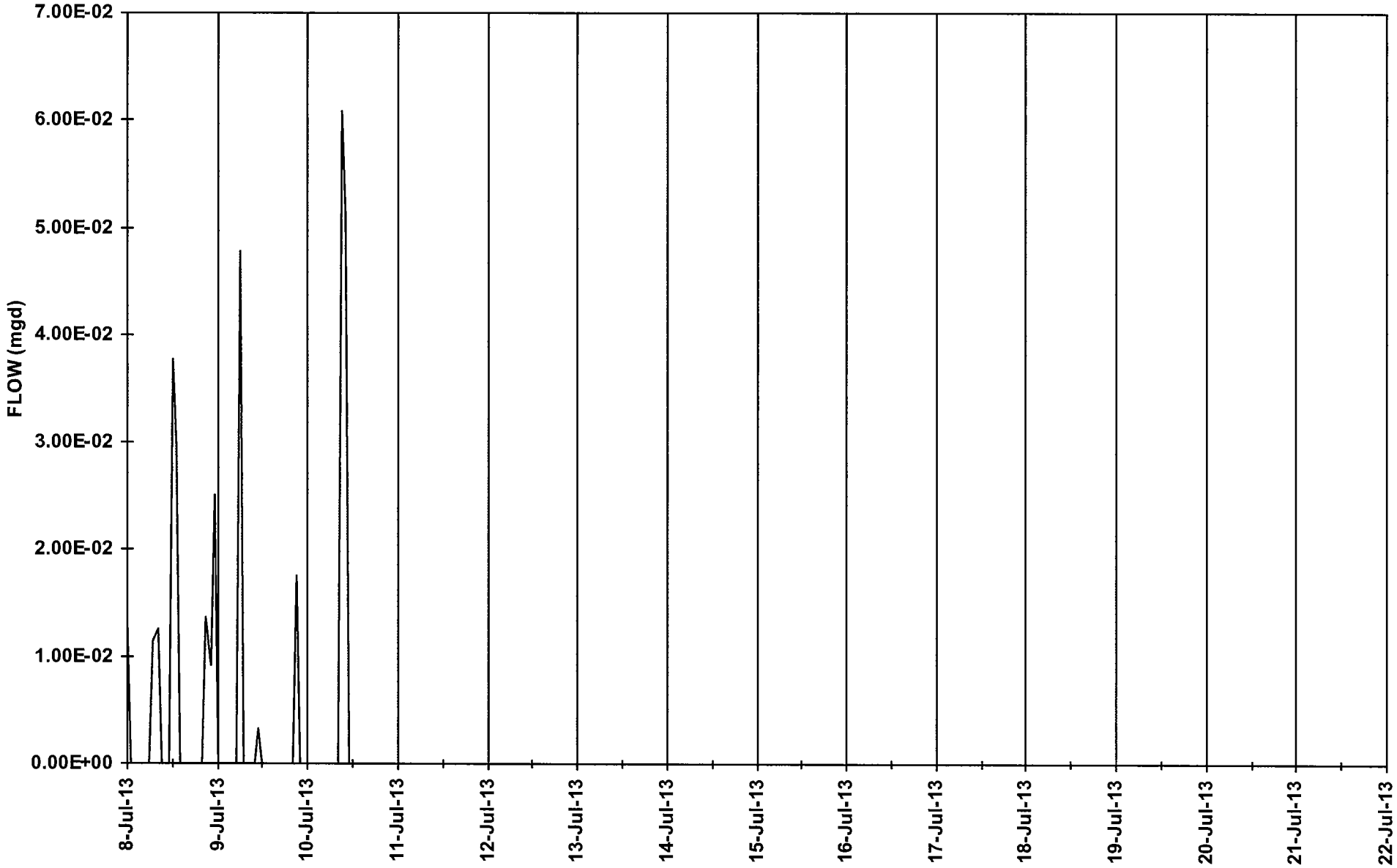
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

Flow vs Time (day)

Site:12275008 LAGUNA FM 008



Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1.25

Location: LAGUNA FM 008
Site ID: 12275008
Serial#: WK5

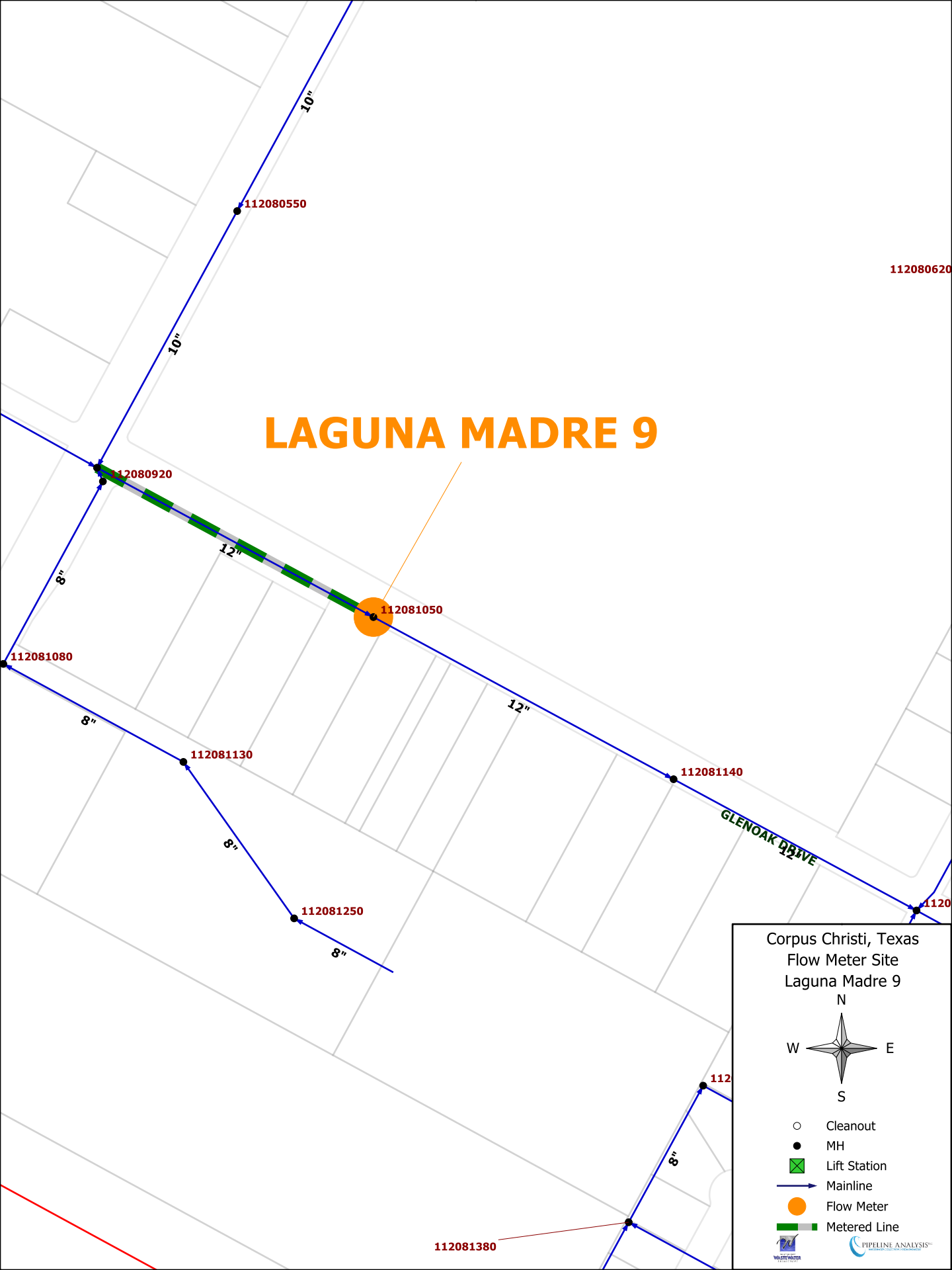
Laguna FM009

Laguna Meter Site 009

11275LAGUNAFM009A021.jpg

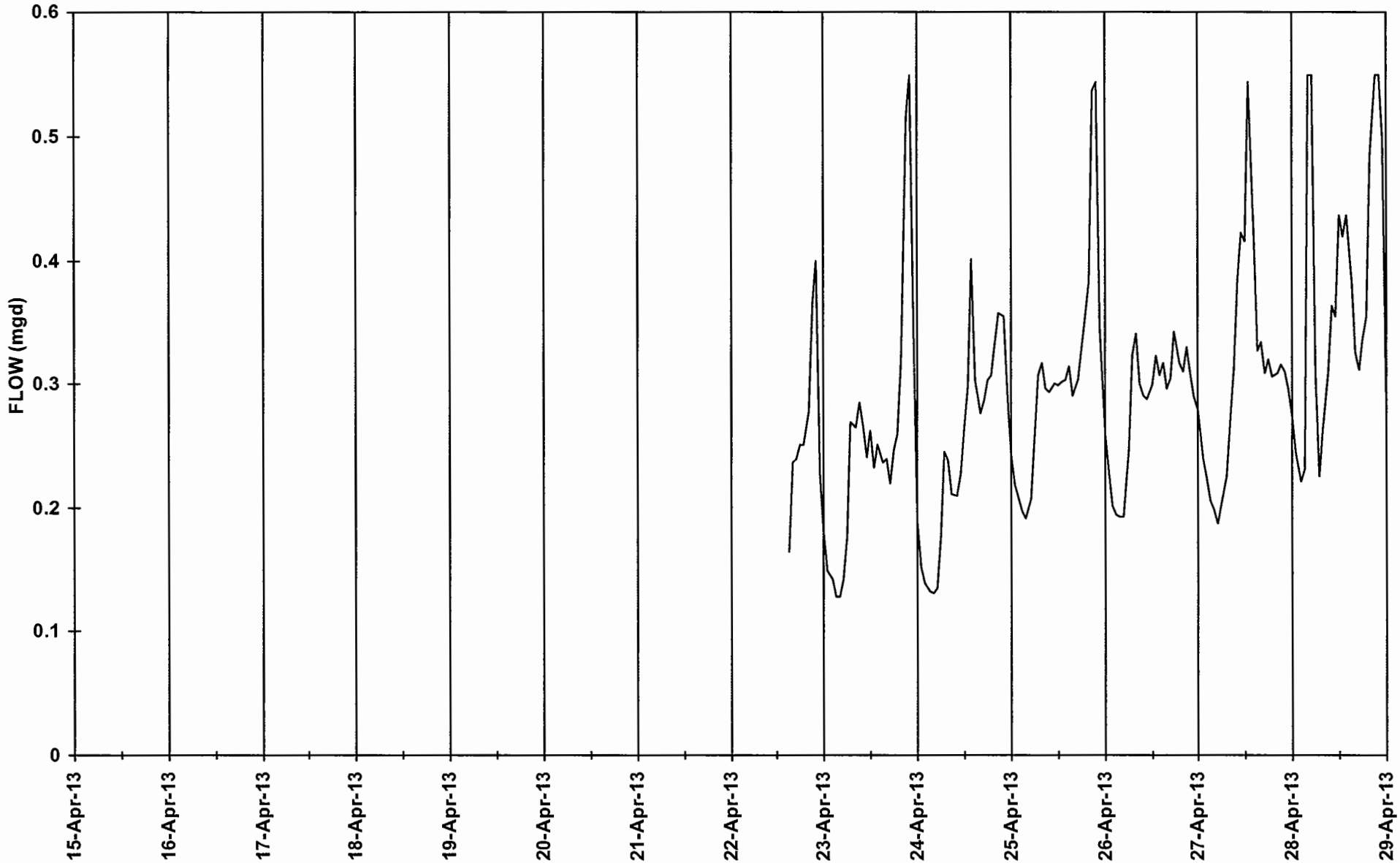
11275LAGUNAFM009I022.jpg

11275LAGUNAFM009P023.jpg


LAGUNA MADRE 9
10"
10"
112080550
112080620
112080920
12"
8"
112081050
112081080
8"
12"
112081130
112081140
GLENOAK DRIVE
12"
8"
112081250
8"
8"
112081380
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 9
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



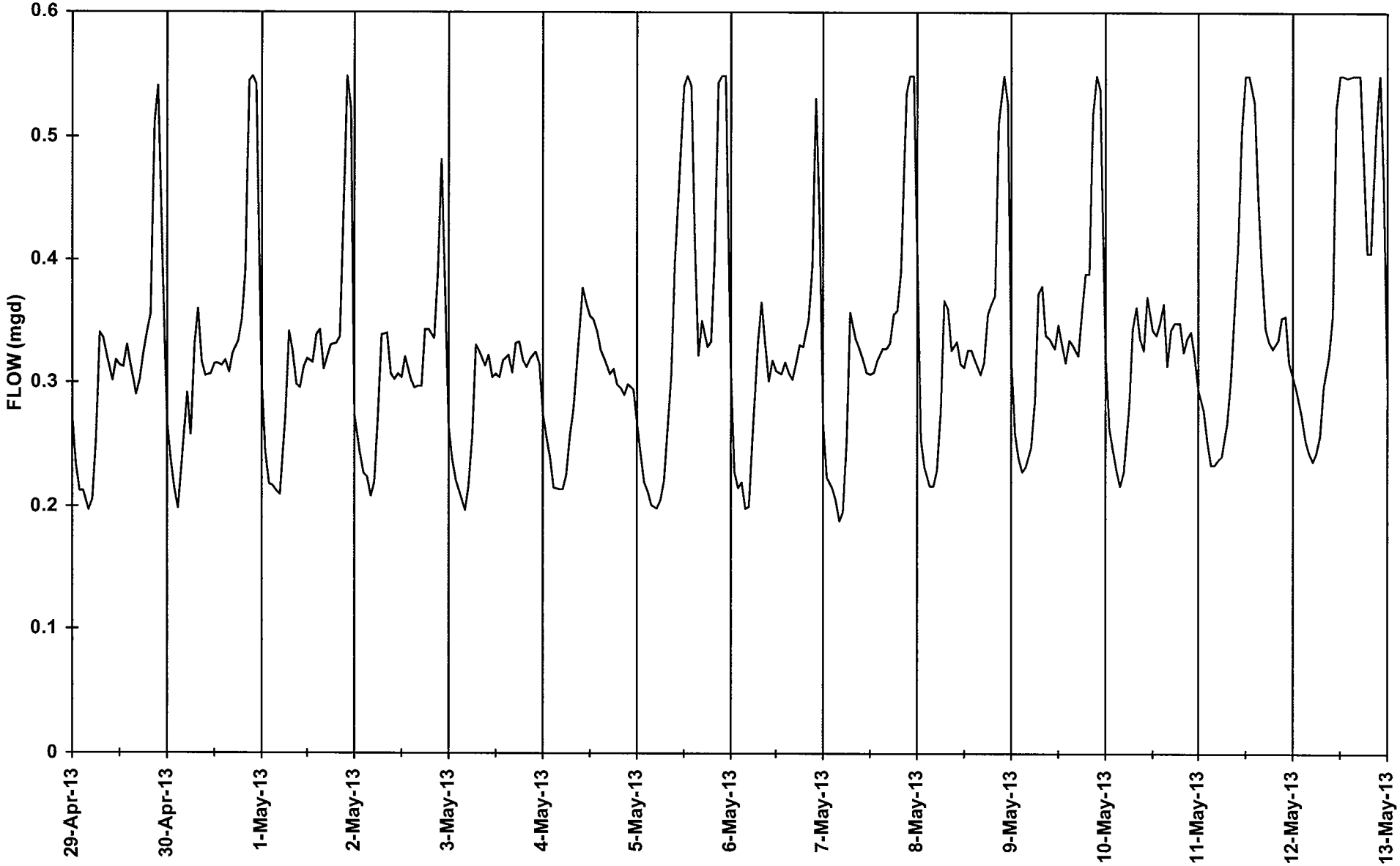
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



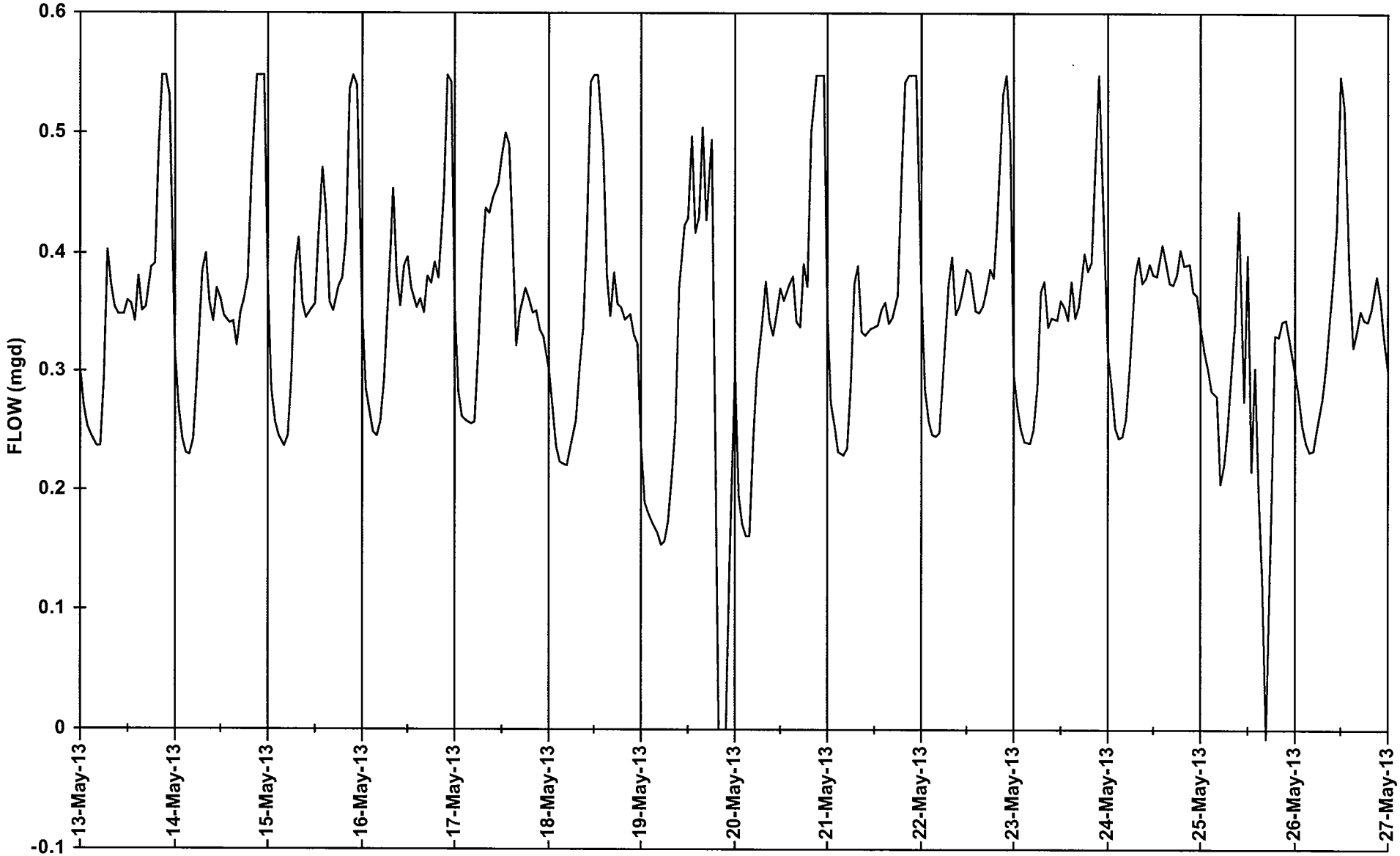
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



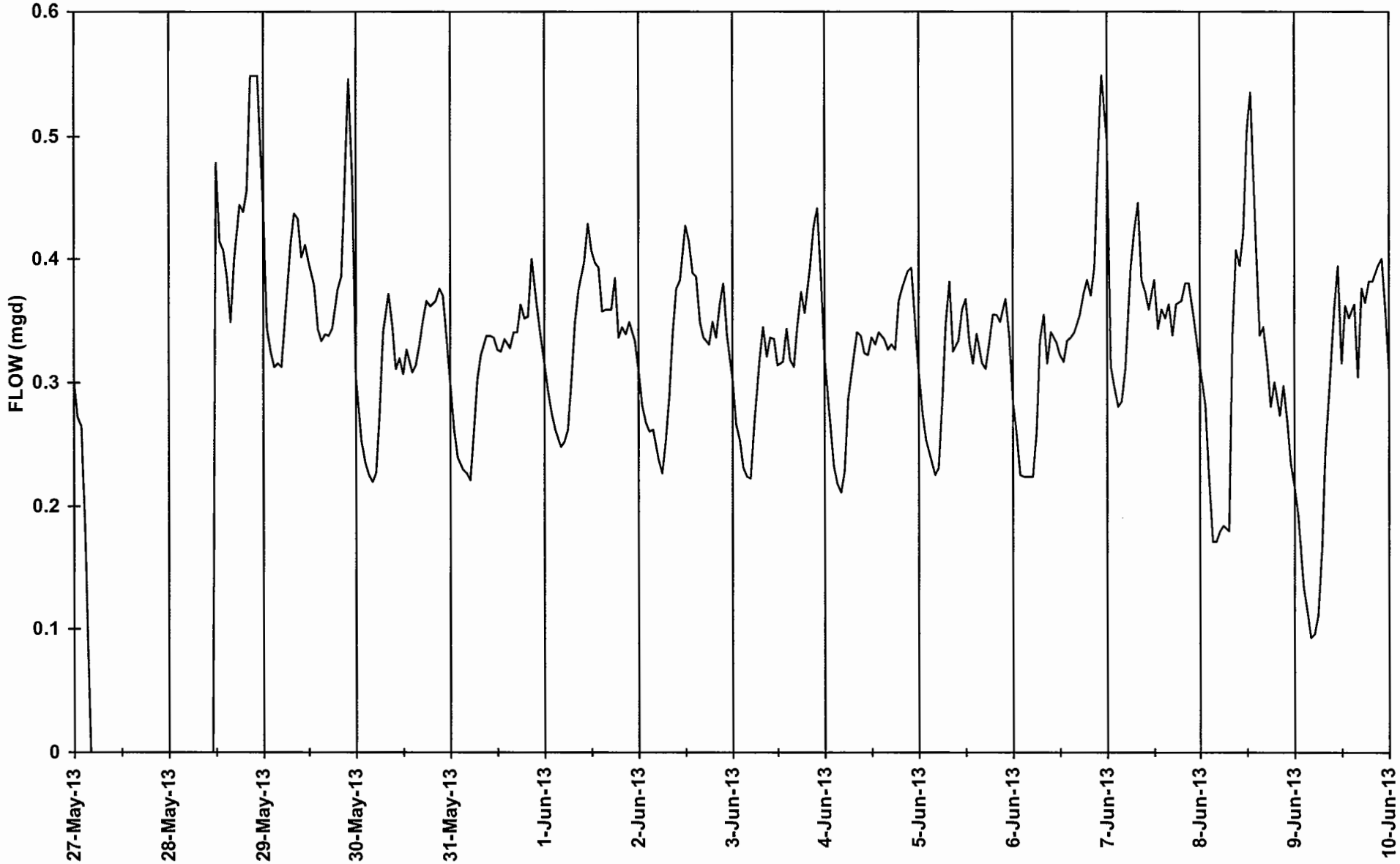
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



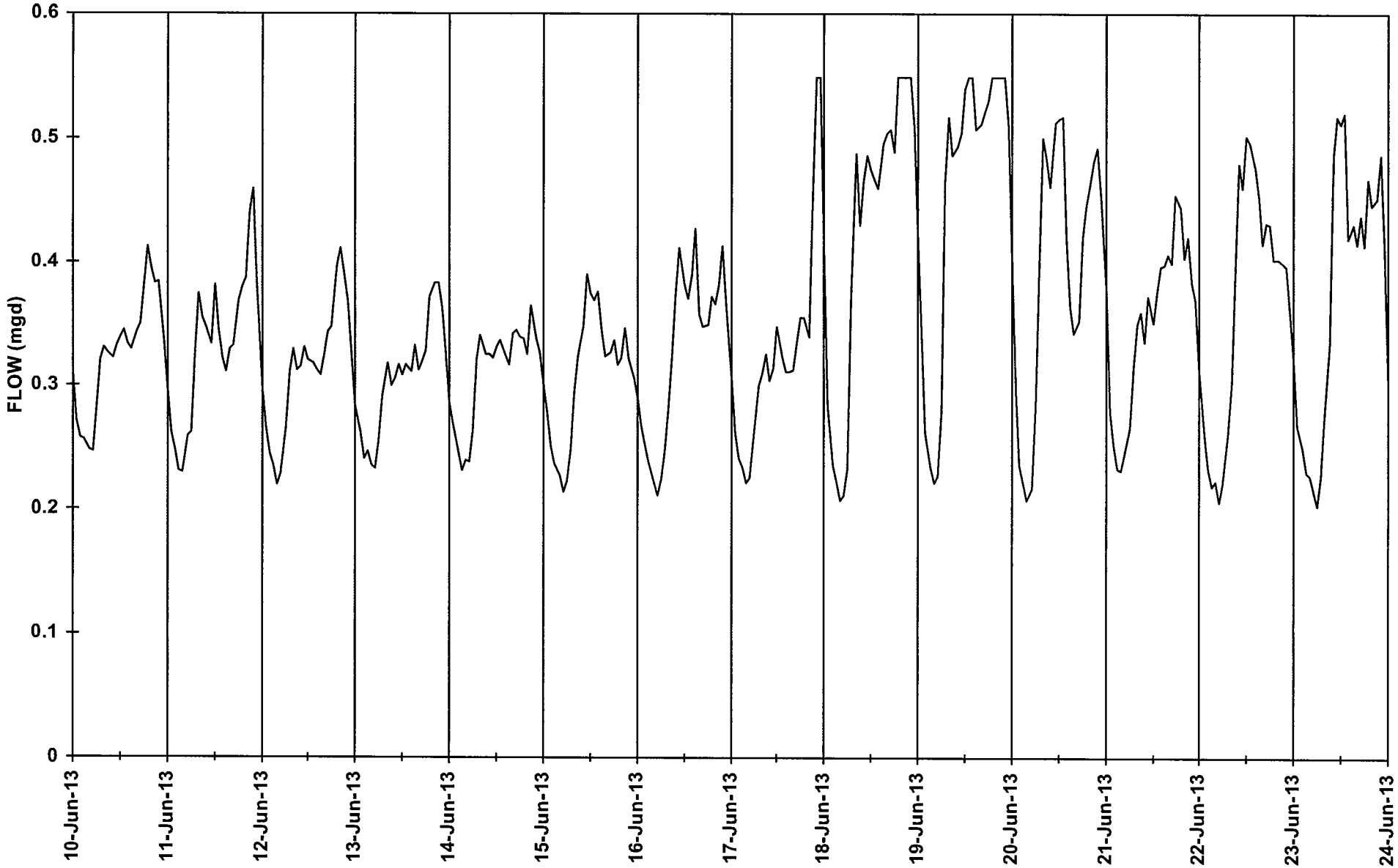
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



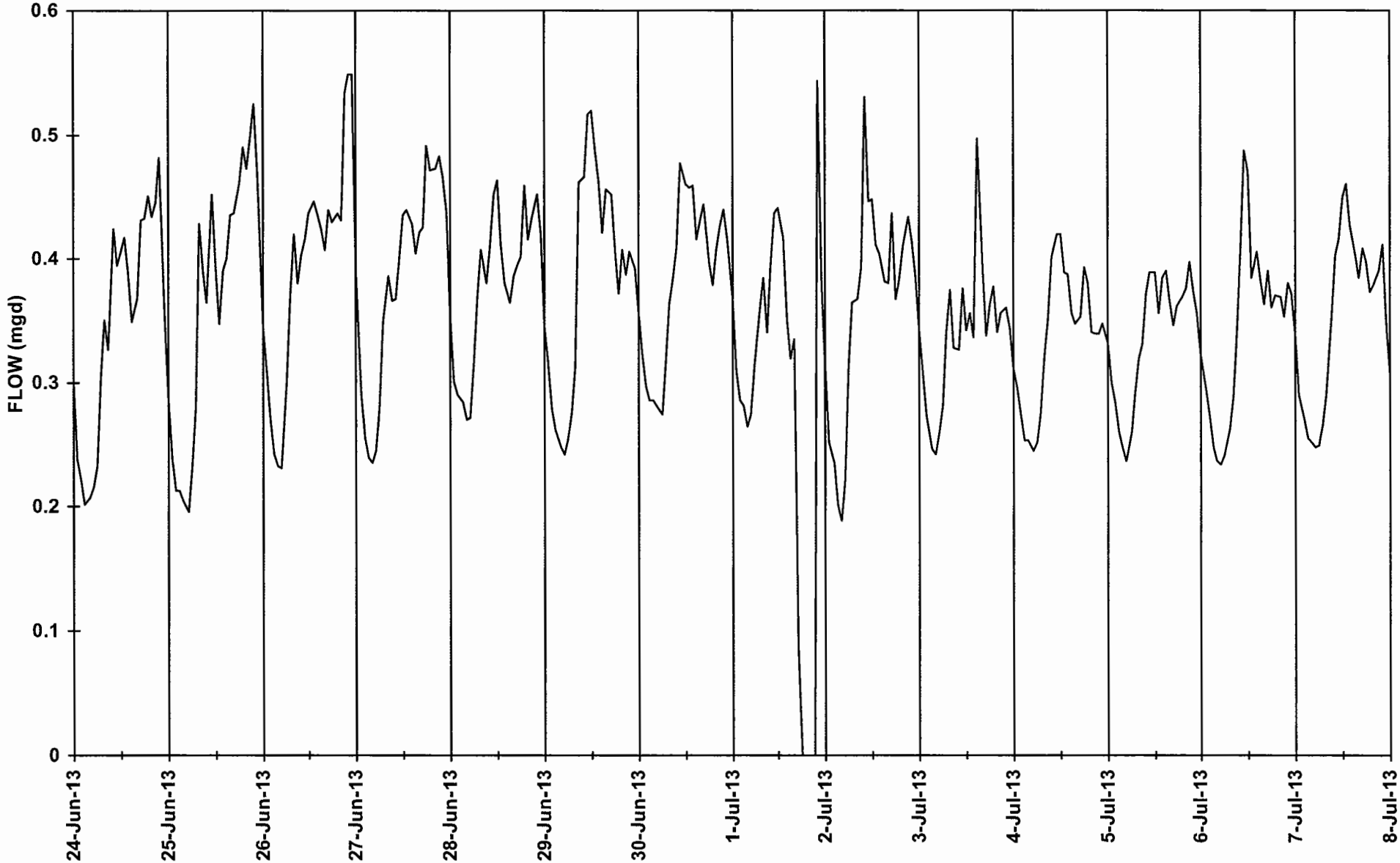
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



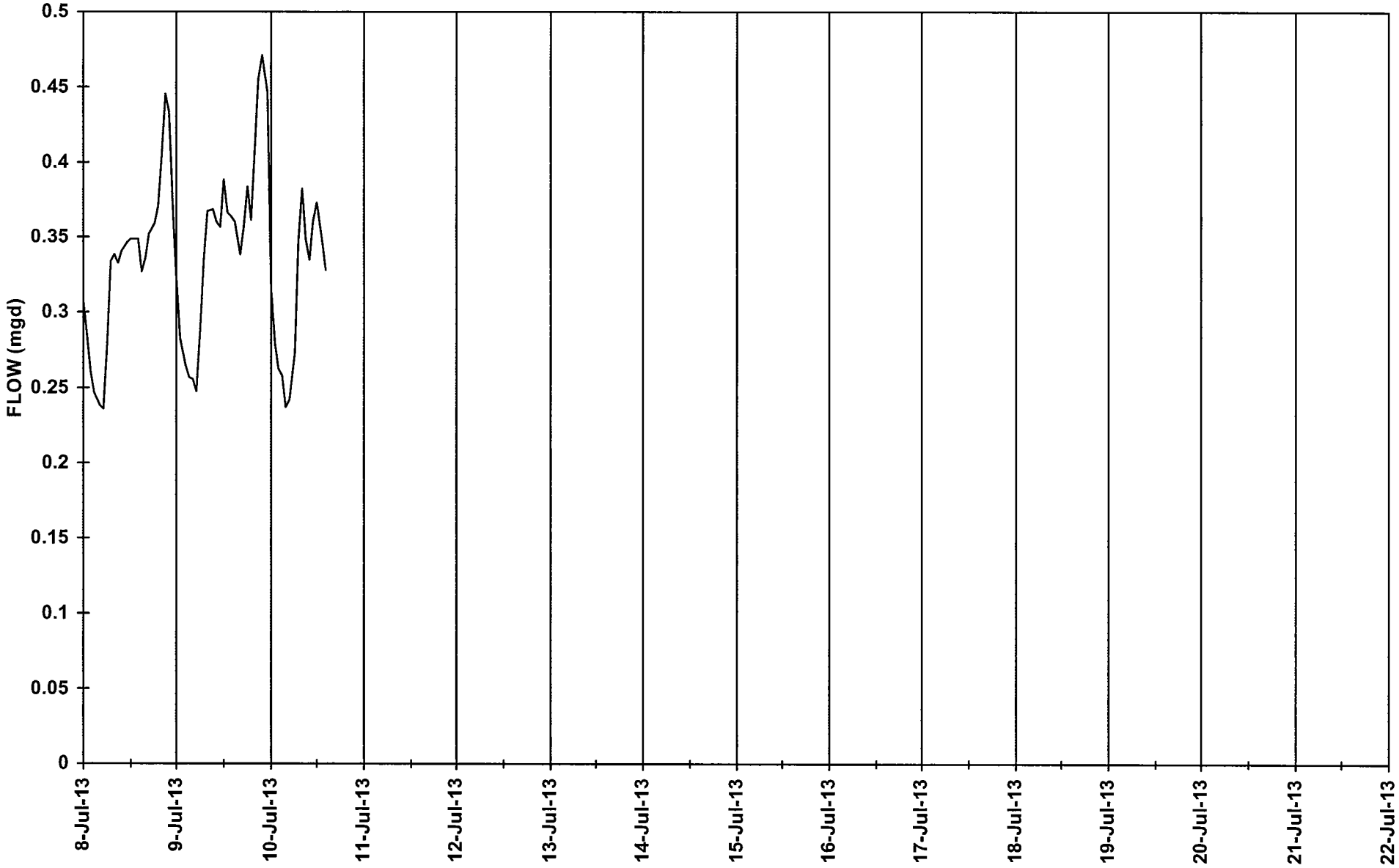
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

Flow vs Time (day)

Site:12275009 LAGUNA FM 009



Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 09
Site ID: 12275009
Serial#: VGU

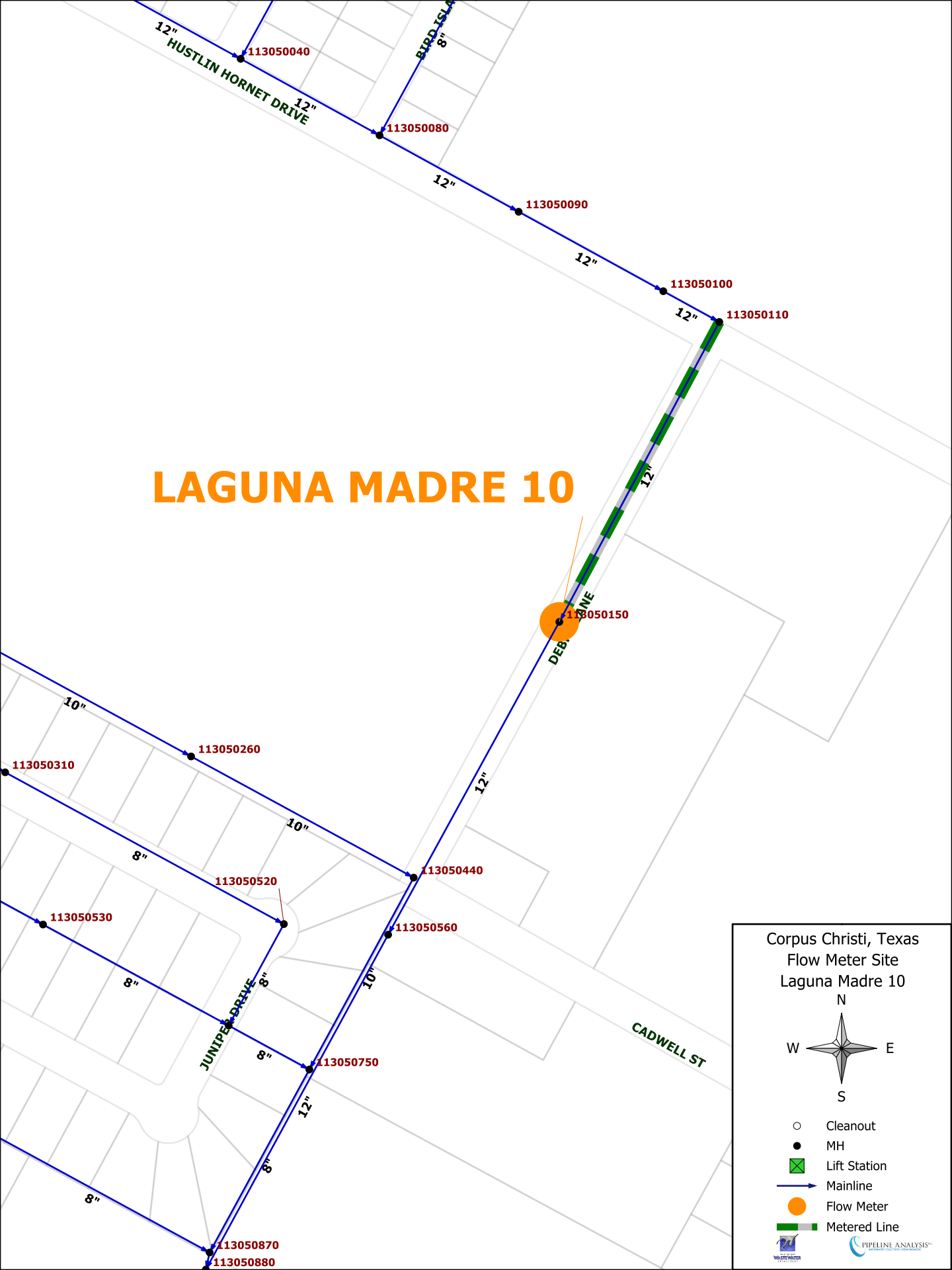
Laguna FM010

Laguna Meter Site 010

11275LAGUNAFM010A001.jpg

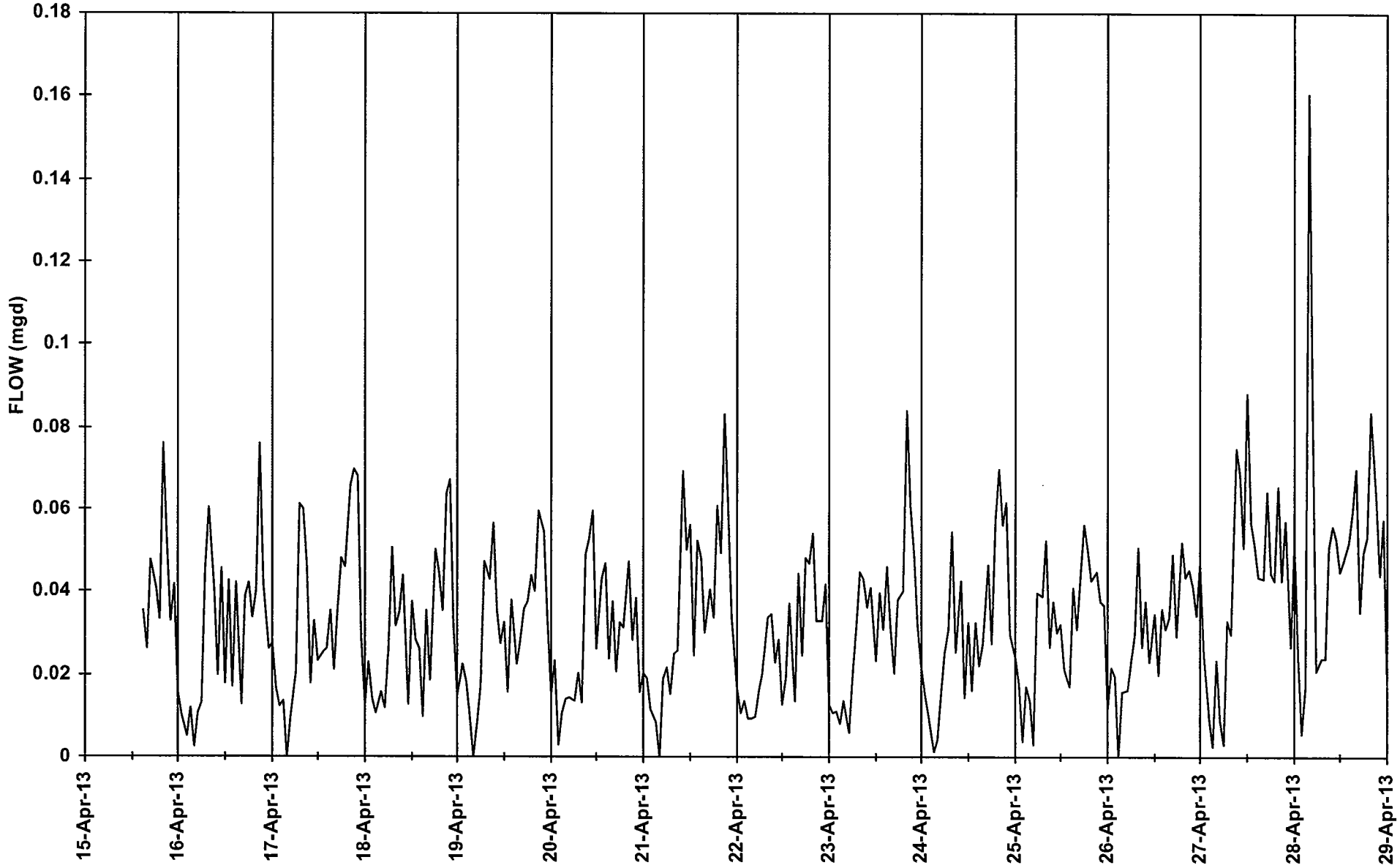
11275LAGUNAFM010I002.jpg

11275LAGUNAFM010P003.jpg


LAGUNA MADRE 10
HUSTLIN HORNET DRIVE
BIRD ISLA
DEB
JUNIPER DRIVE
CADWELL ST
113050040
113050080
113050090
113050100
113050110
113050150
113050260
113050310
113050440
113050520
113050530
113050560
113050750
113050870
113050880
12"
8"
10"
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 10
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



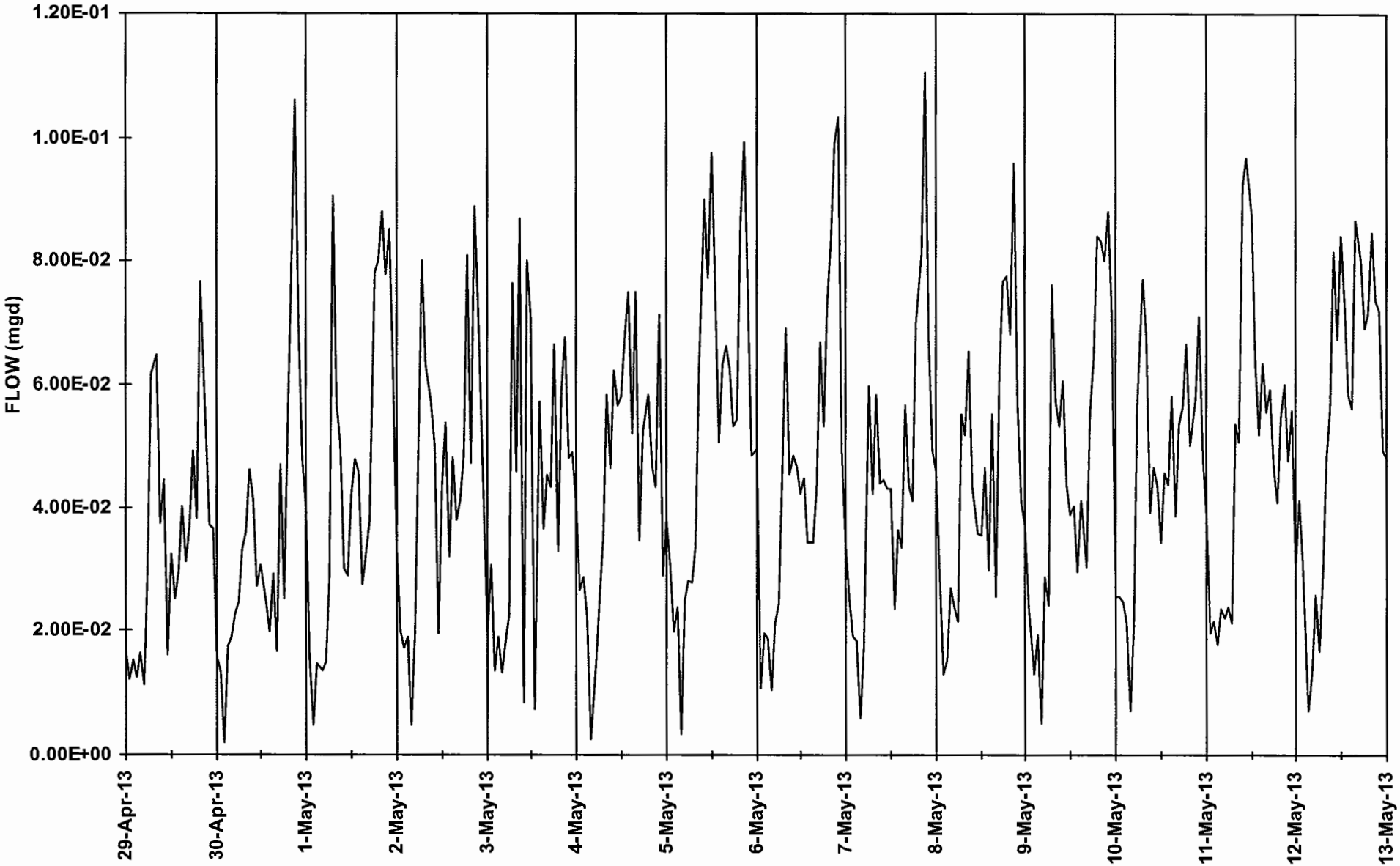
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



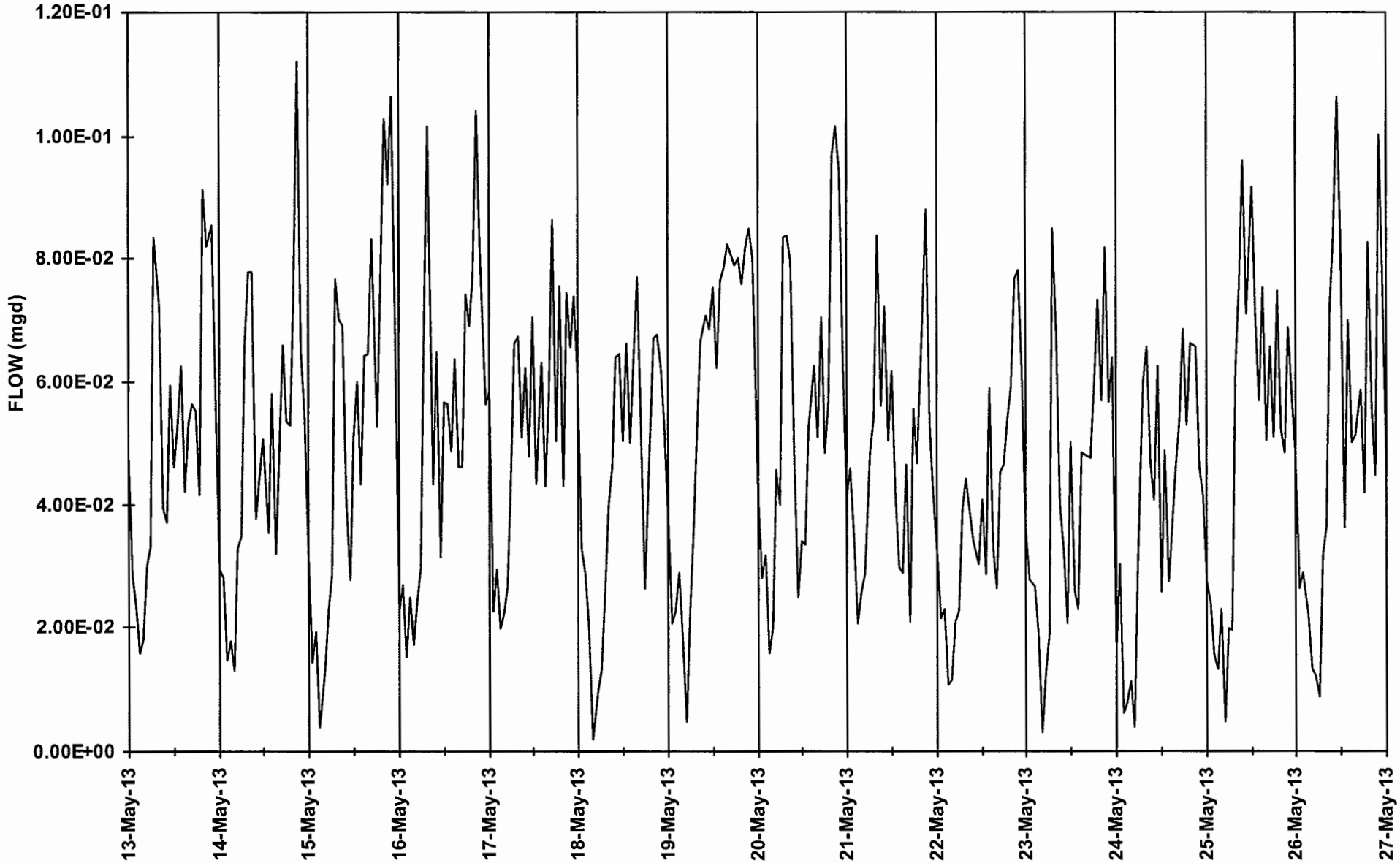
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



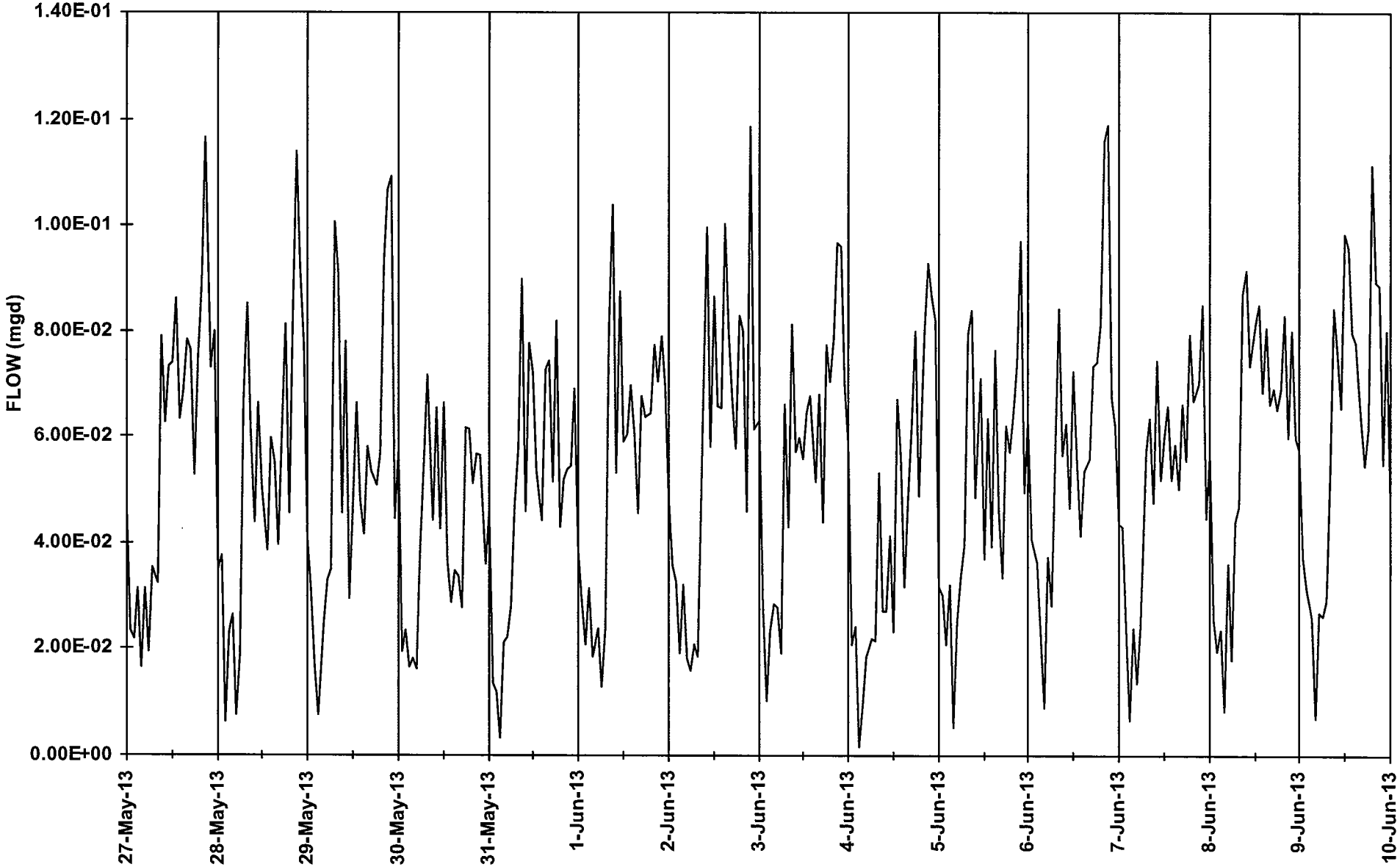
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



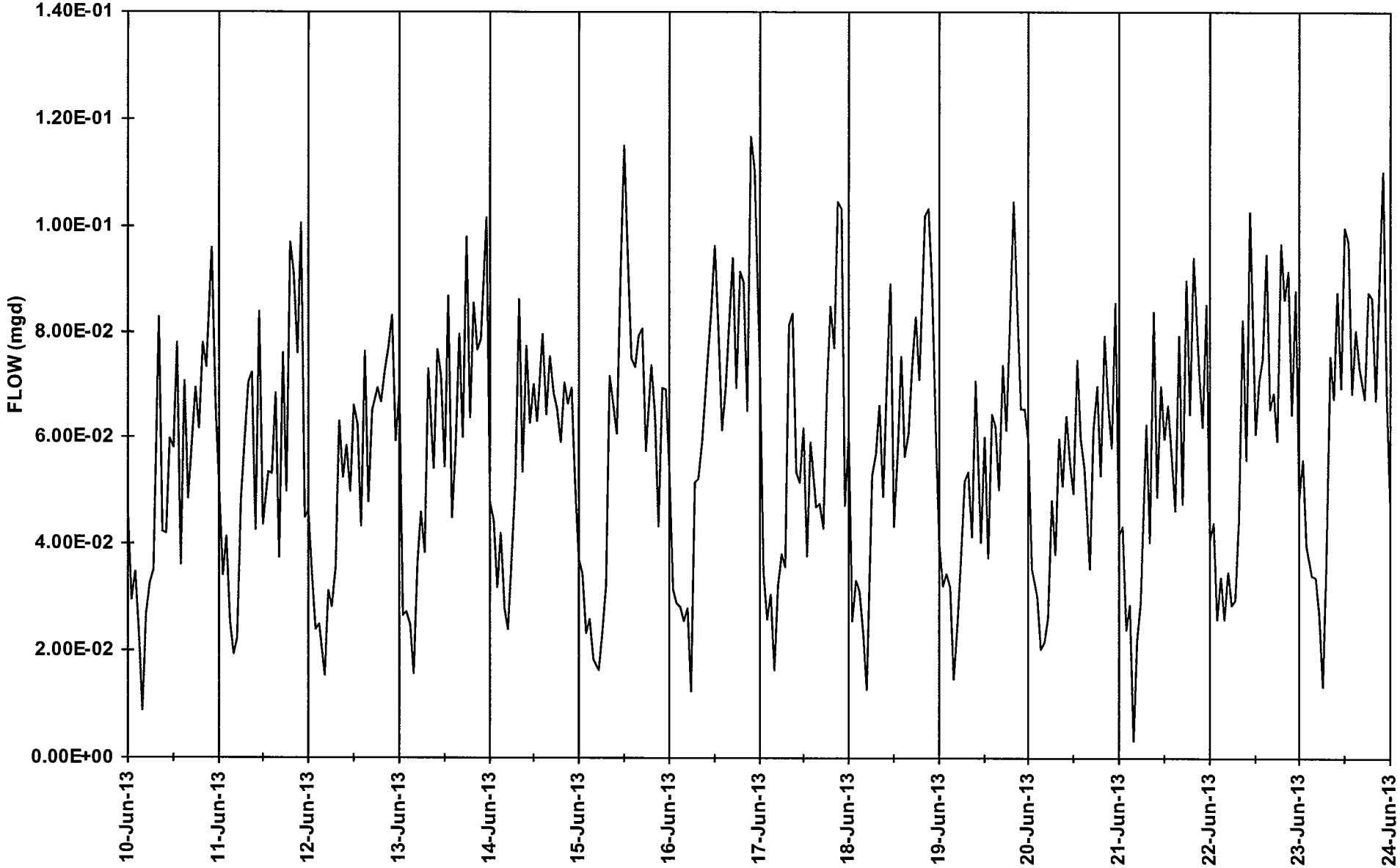
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



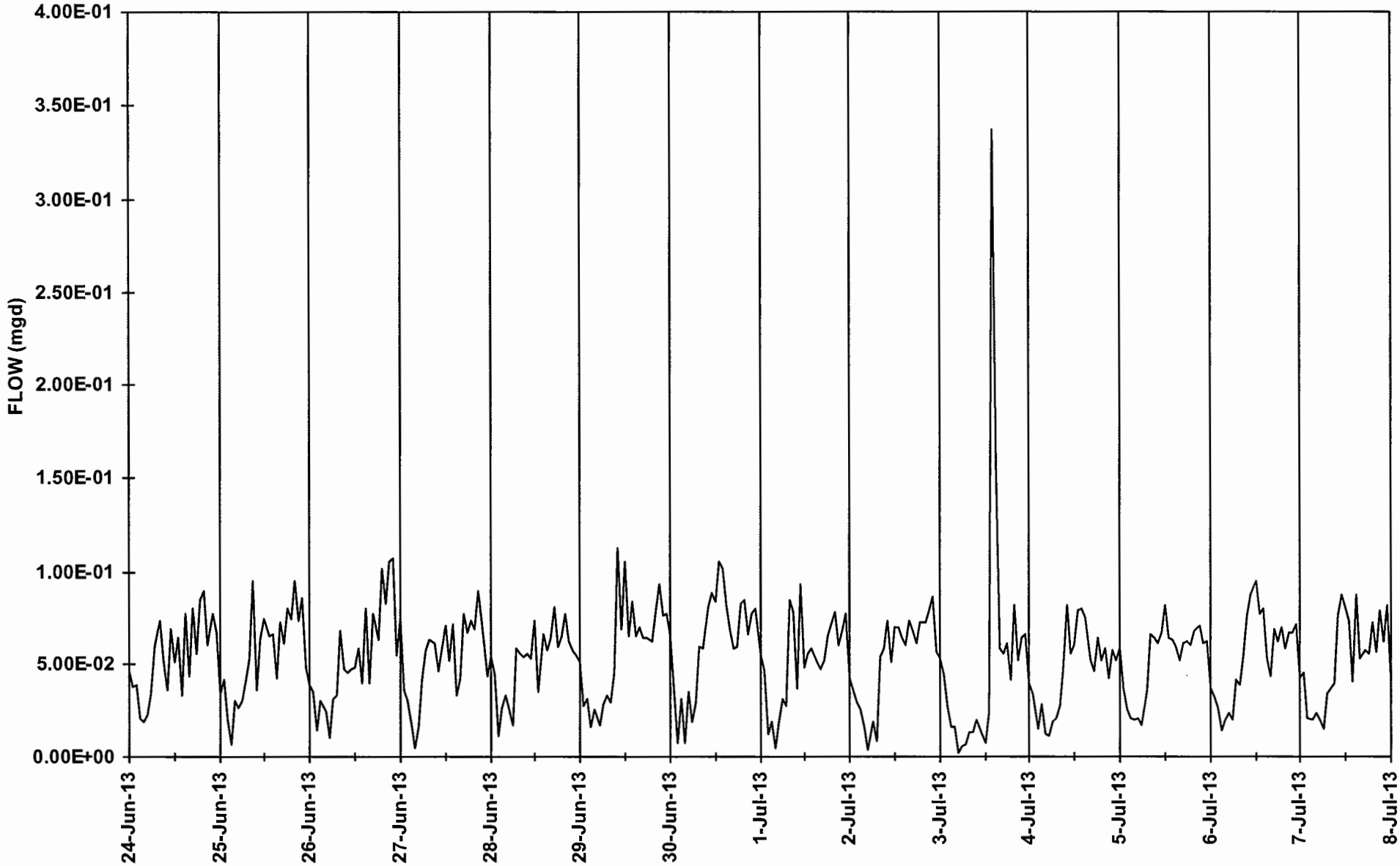
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



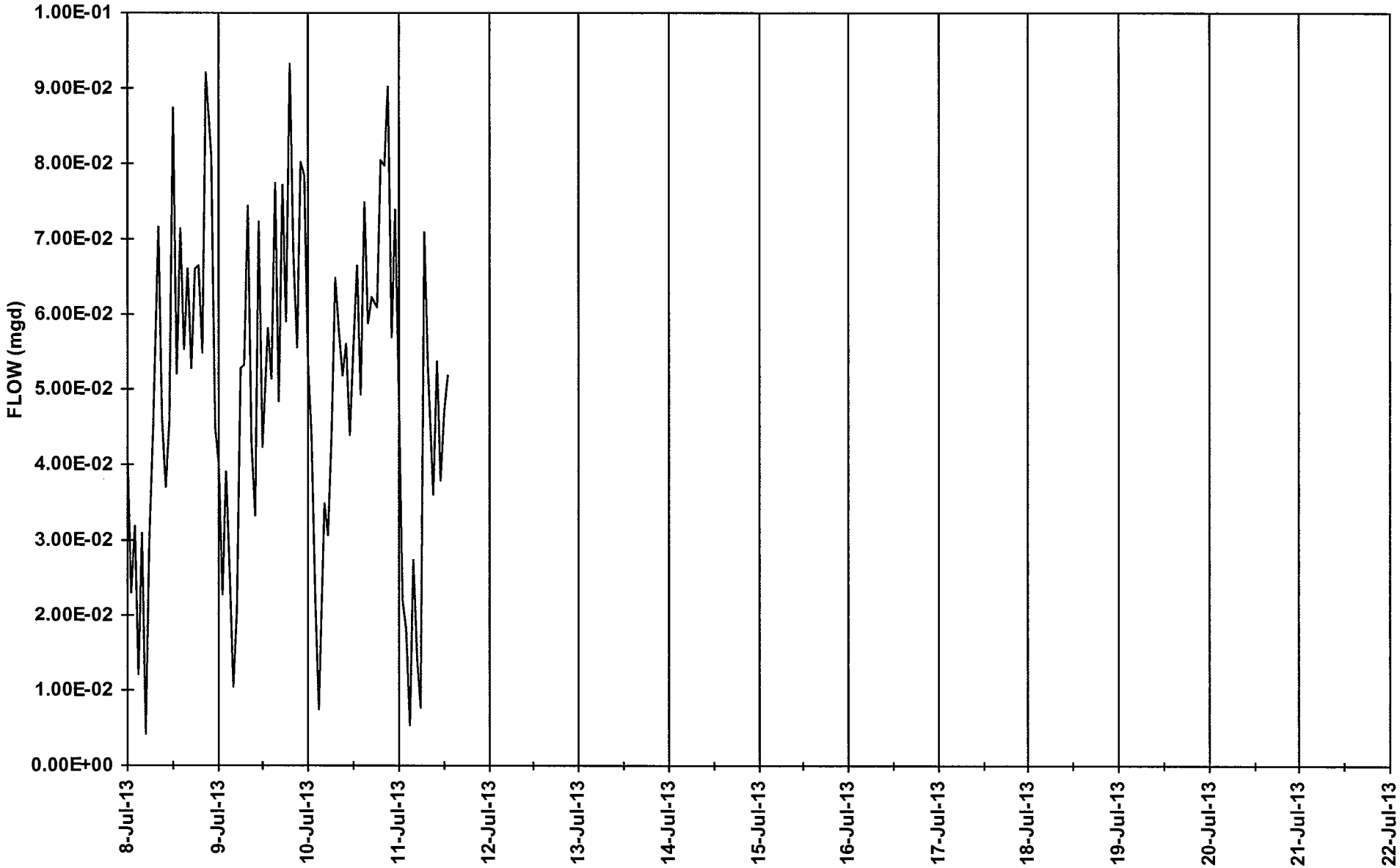
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

Flow vs Time (day)

Site:12275010 LAGUNA FM 010



Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM 010
Site ID: 12275010
Serial#: VG5

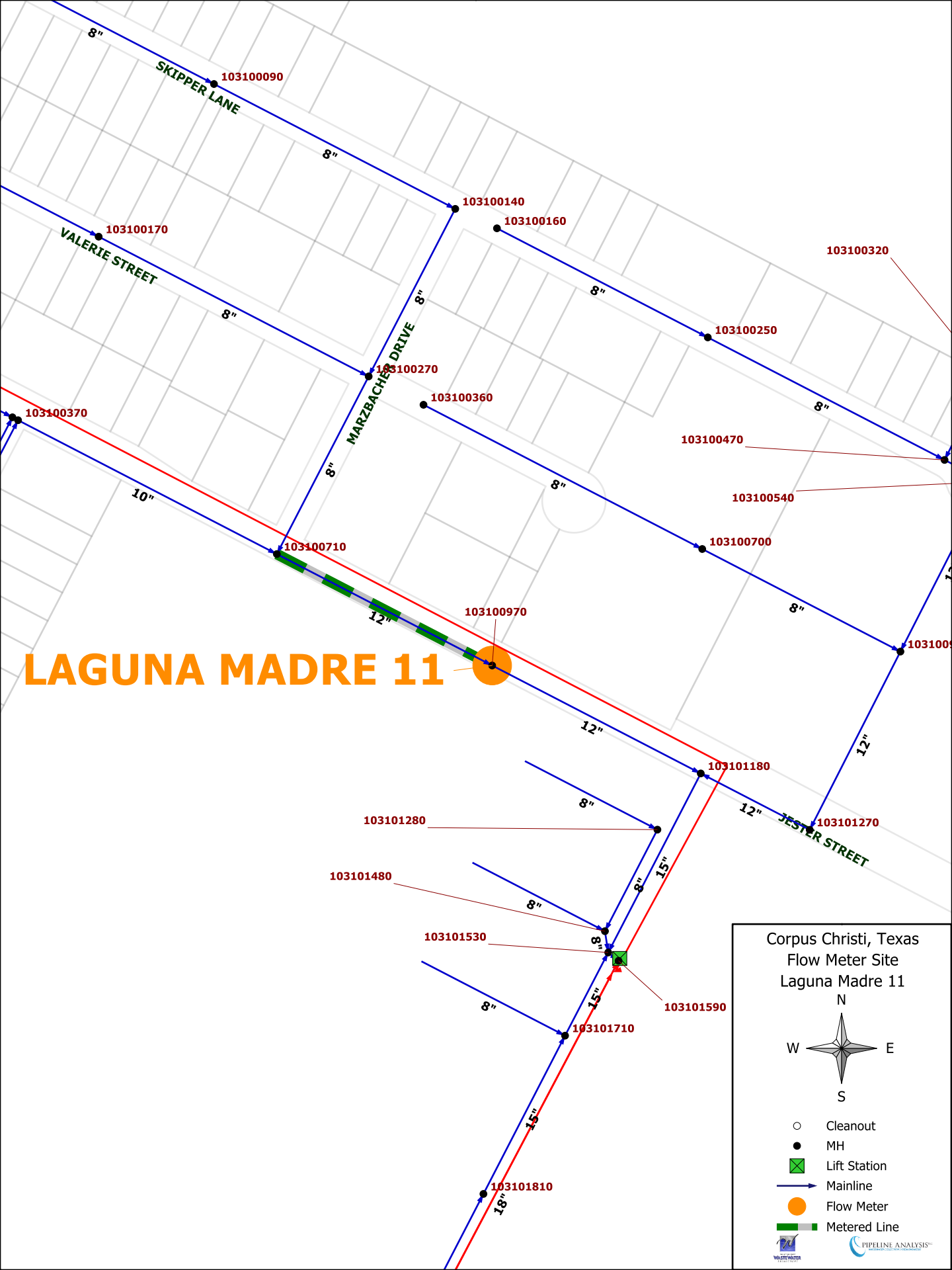
Laguna FM011

Laguna Meter Site 011

11275LAGUNAFM011A013.jpg

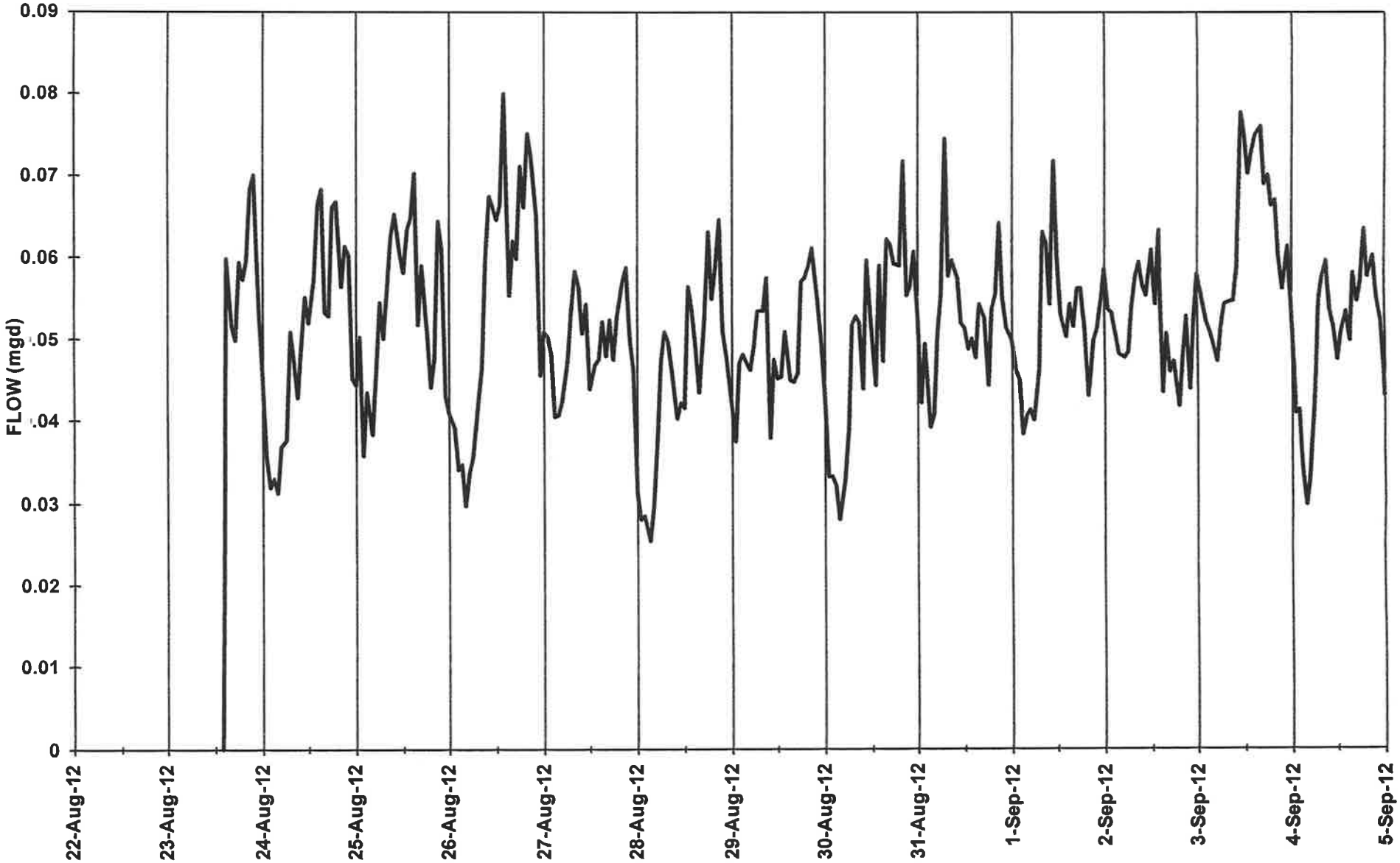
11275LAGUNAFM011I014.jpg

11275LAGUNAFM011P015.jpg


SKIPPER LANE
VALERIE STREET
MARZBACHER DRIVE
JESTER STREET
LAGUNA MADRE 11
103100090
103100140
103100160
103100170
103100250
103100270
103100320
103100360
103100370
103100470
103100540
103100700
103100710
103100970
103101180
103101270
103101280
103101480
103101530
103101590
103101710
103101810
8"
10"
12"
15"
18"
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 11
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



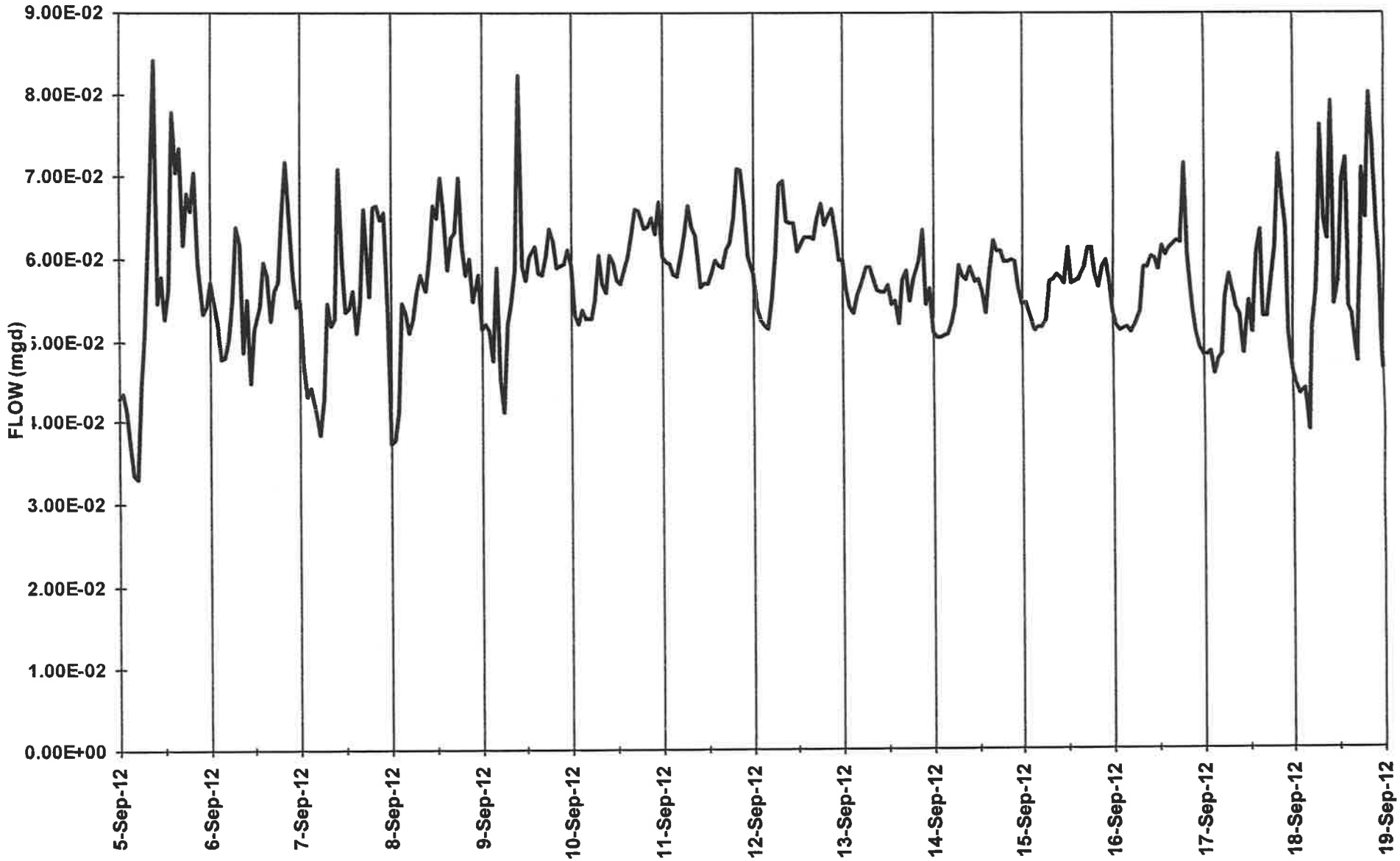
Daterange: 08/22/12-09/05/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



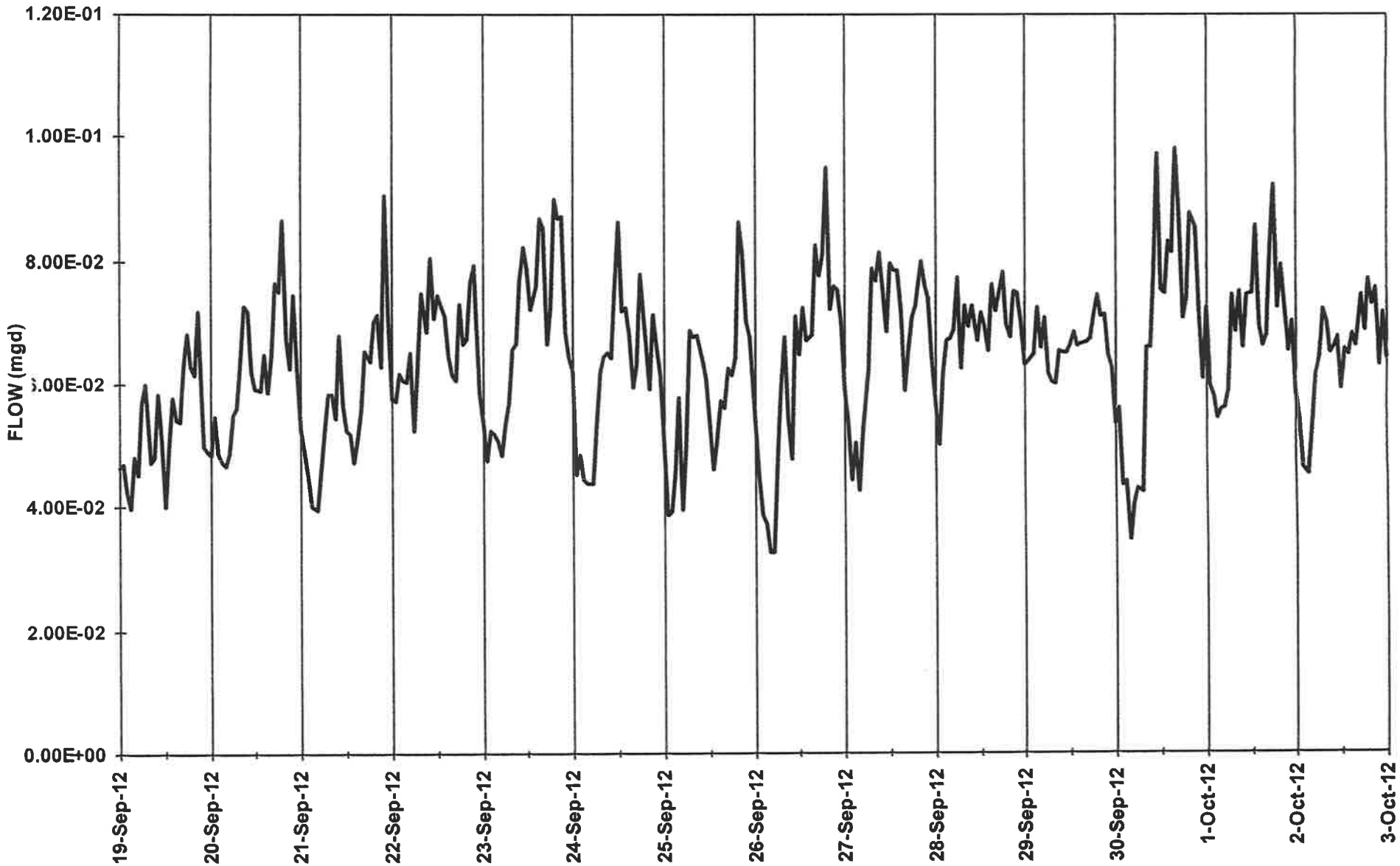
Daterange: 09/05/12-09/19/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



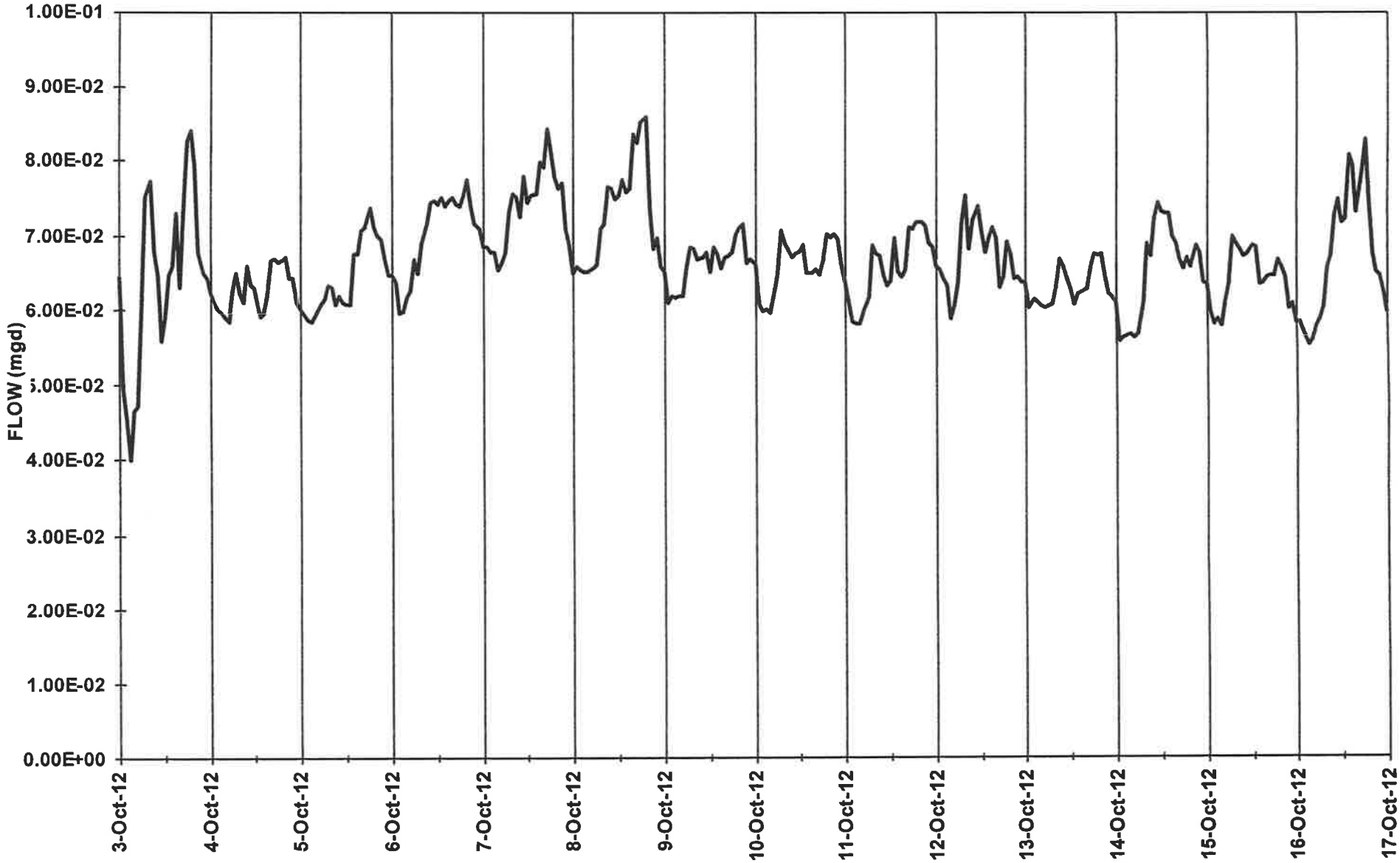
Daterange: 09/19/12-10/03/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



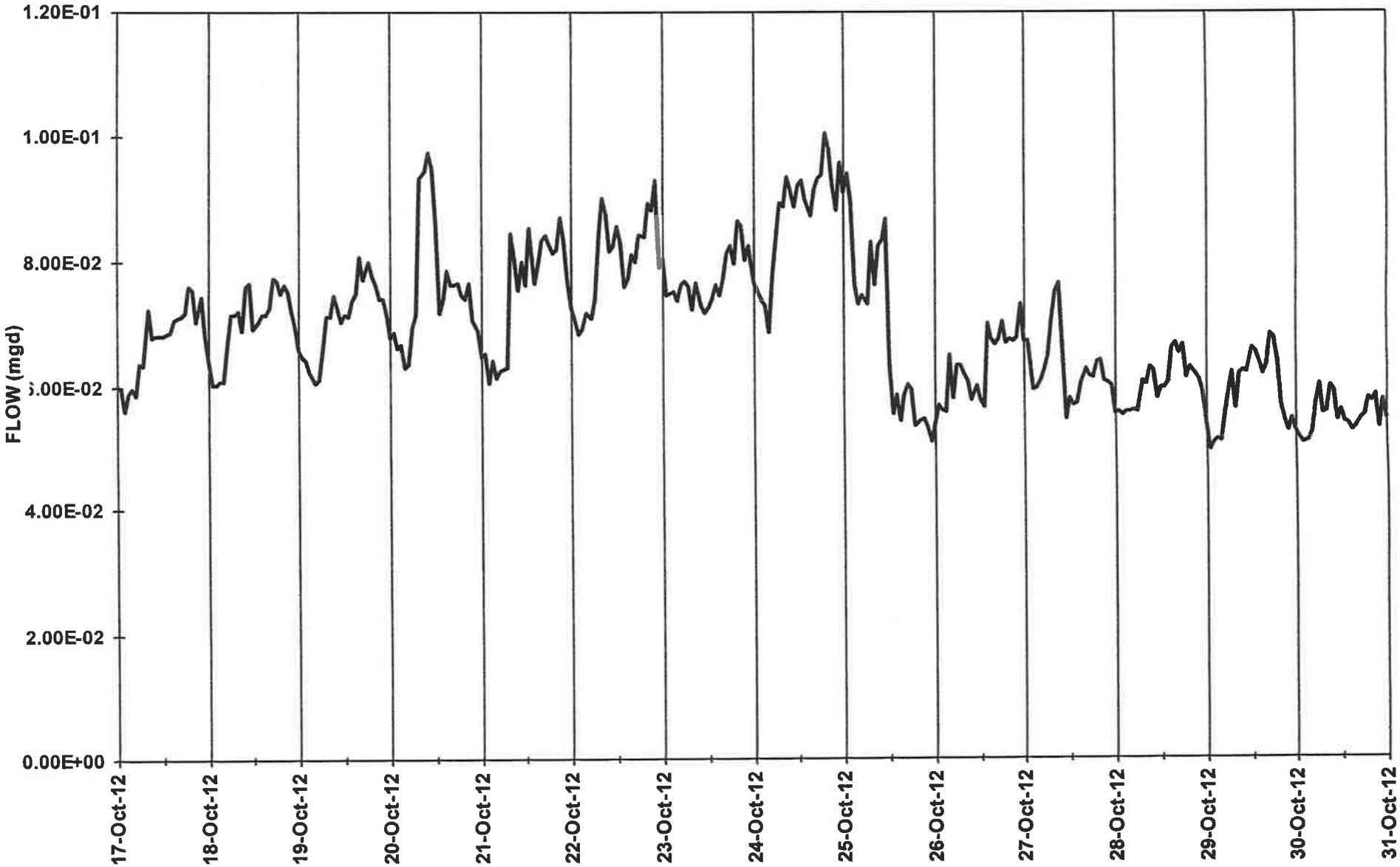
Daterange: 10/03/12-10/17/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



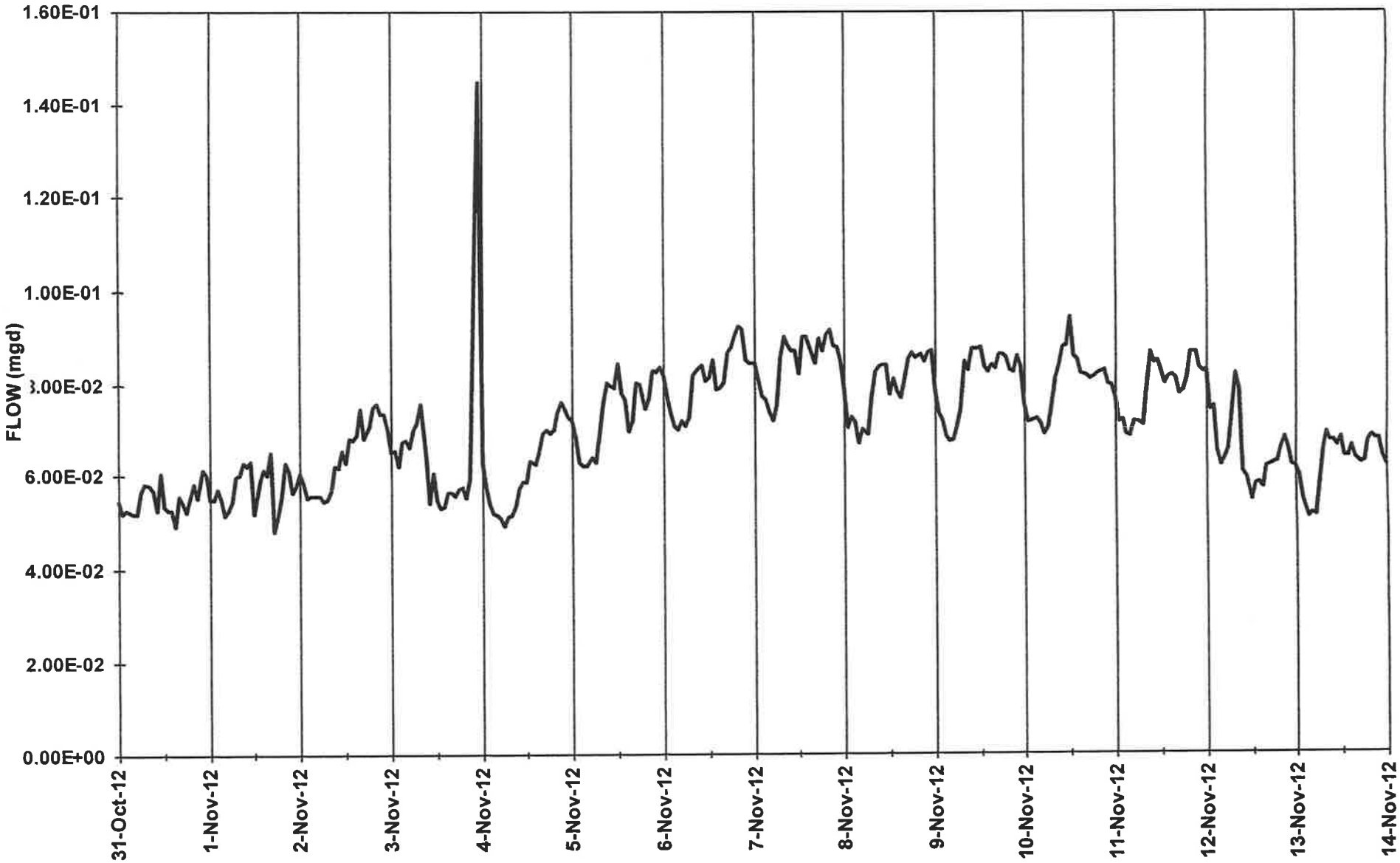
Daterange: 10/17/12-10/31/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



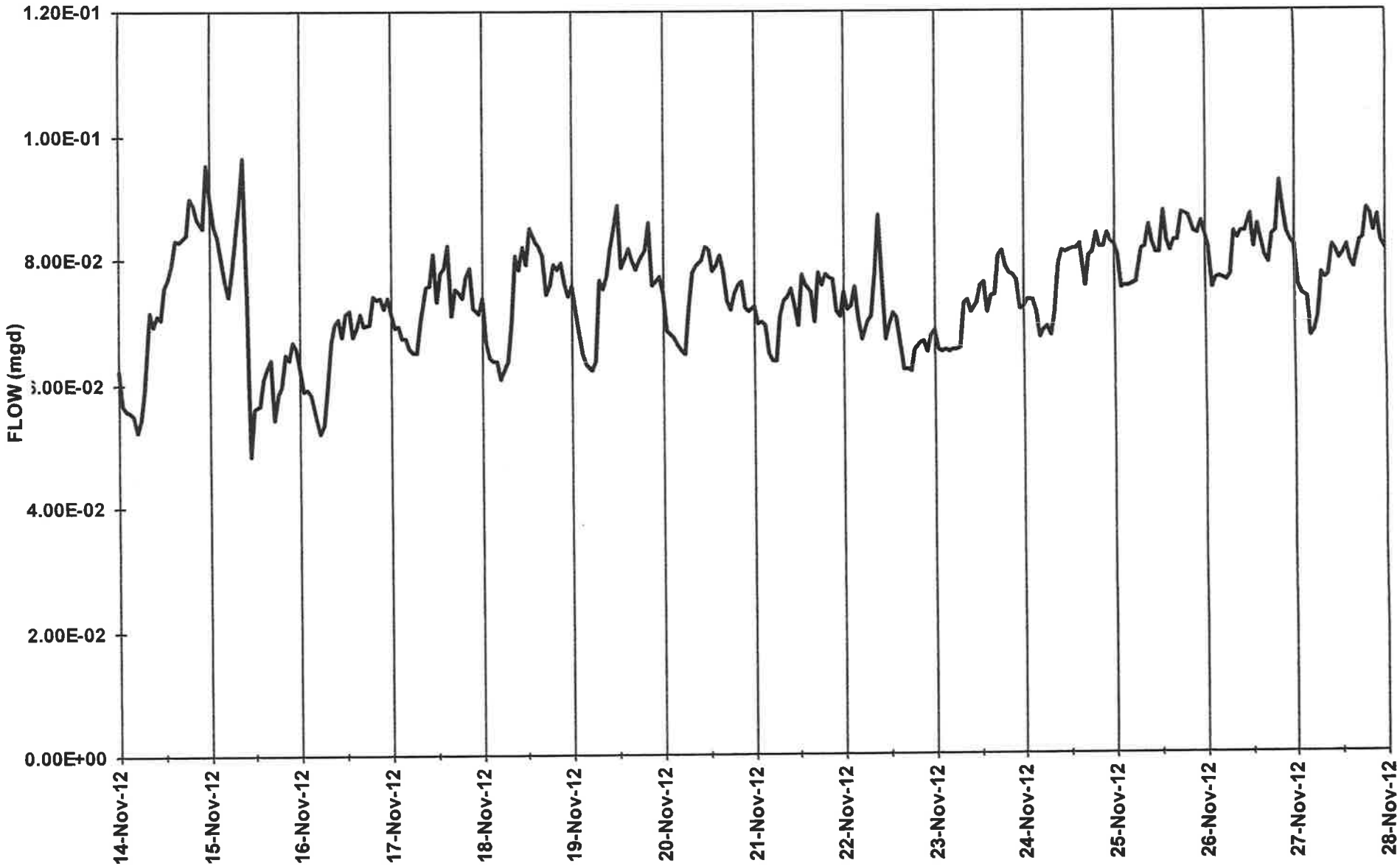
Daterange: 10/31/12-11/14/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



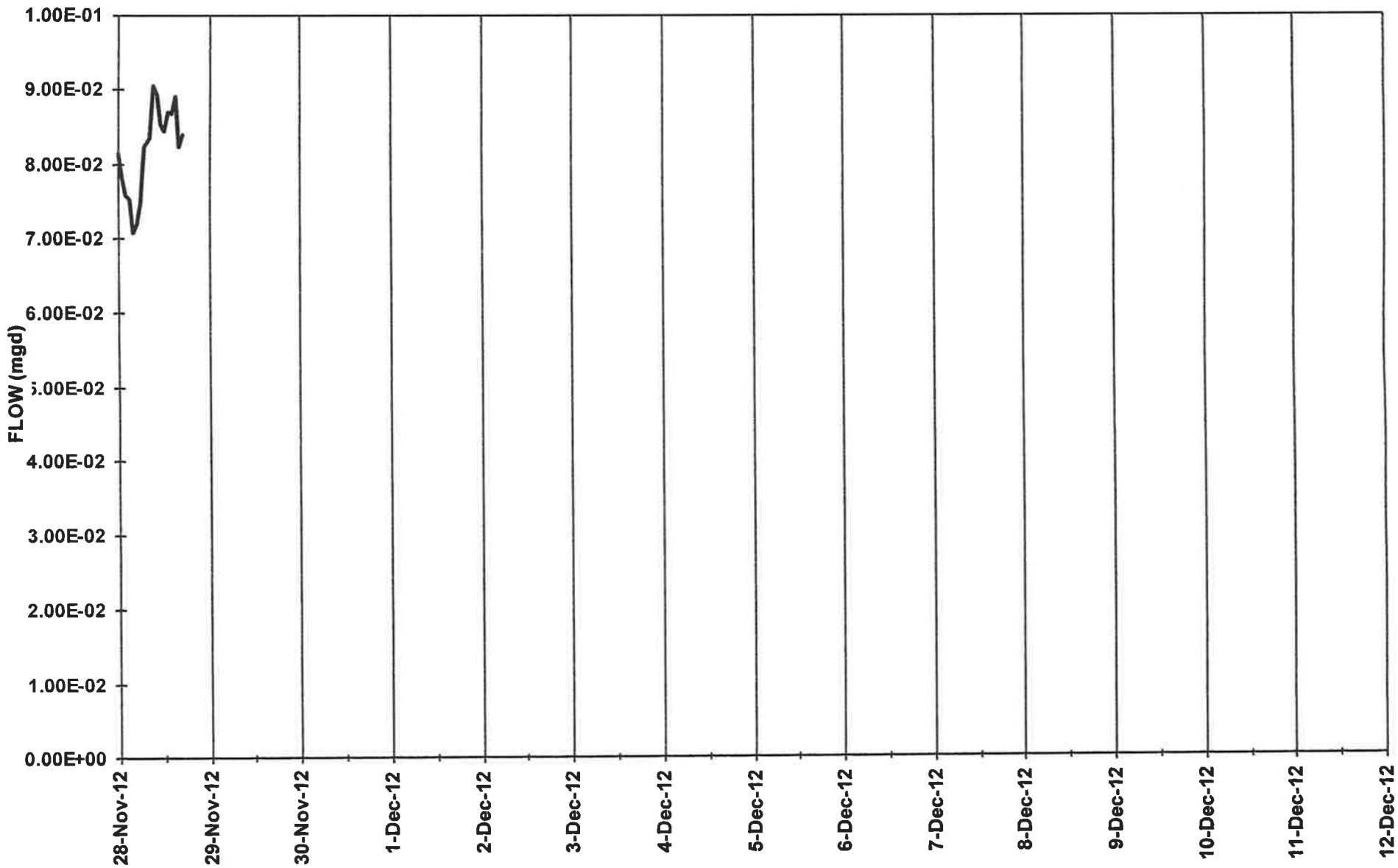
Daterange: 11/14/12-11/28/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

Flow vs Time (week)

Site:11275011 LAGUNA FM 011



Daterange: 11/28/12-12/12/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 1

Location: LAGUNA FM SITE 011
Site ID: 11275011
Serial#: VG7

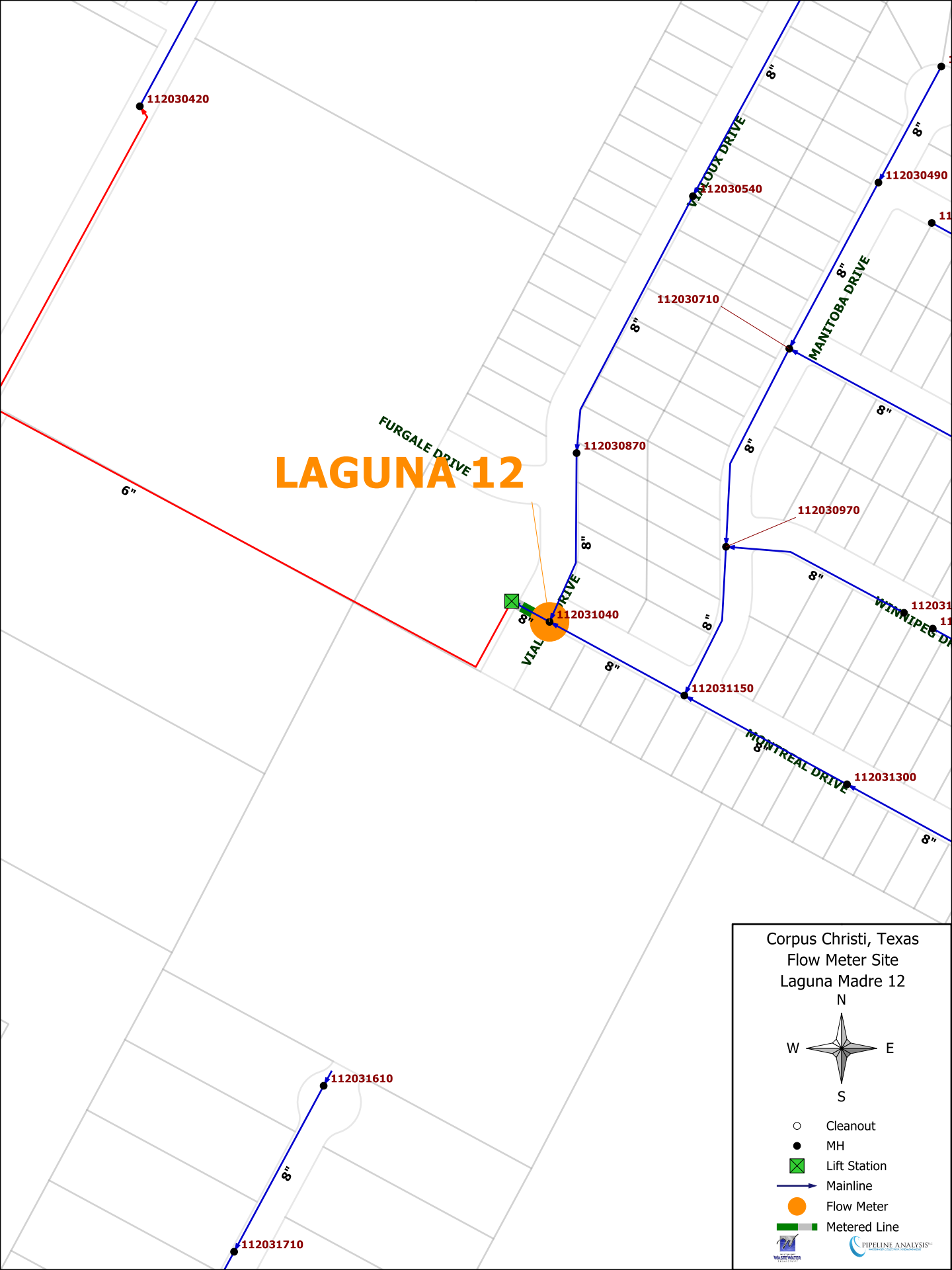
Laguna FM012

Laguna Meter Site 012

11275LAGUNAFM012A001.jpg

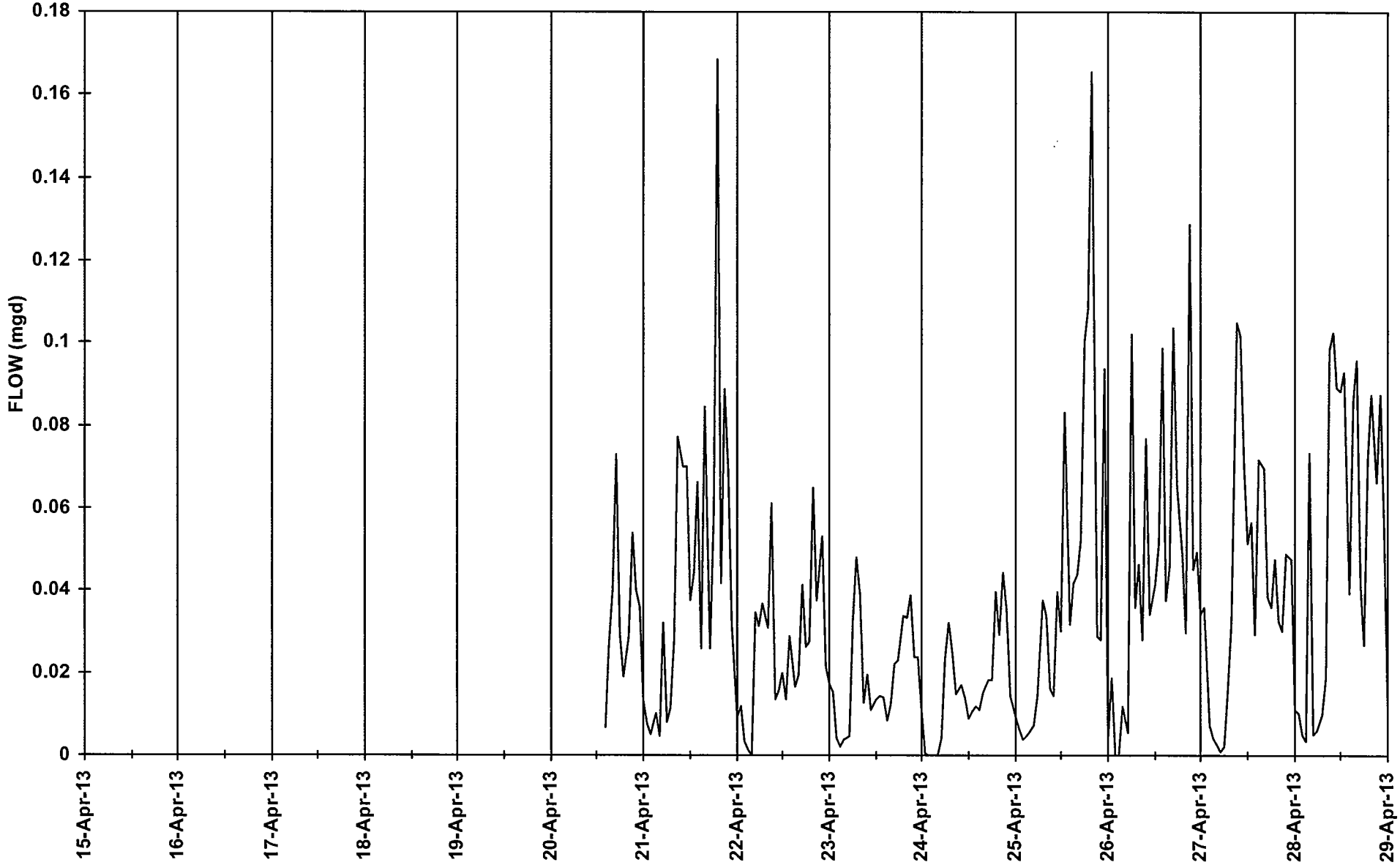
11275LAGUNAFM012I002.jpg

11275LAGUNAFM012P003.jpg


LAGUNA 12
112030420
112030540
112030490
112030710
112030870
112030970
112031040
112031150
112031300
112031610
112031710
VALOUX DRIVE
MANITOBA DRIVE
FURGALE DRIVE
WINNIPEG DR
MONTREAL DRIVE
8"
6"
Corpus Christi, Texas
Flow Meter Site
Laguna Madre 12
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



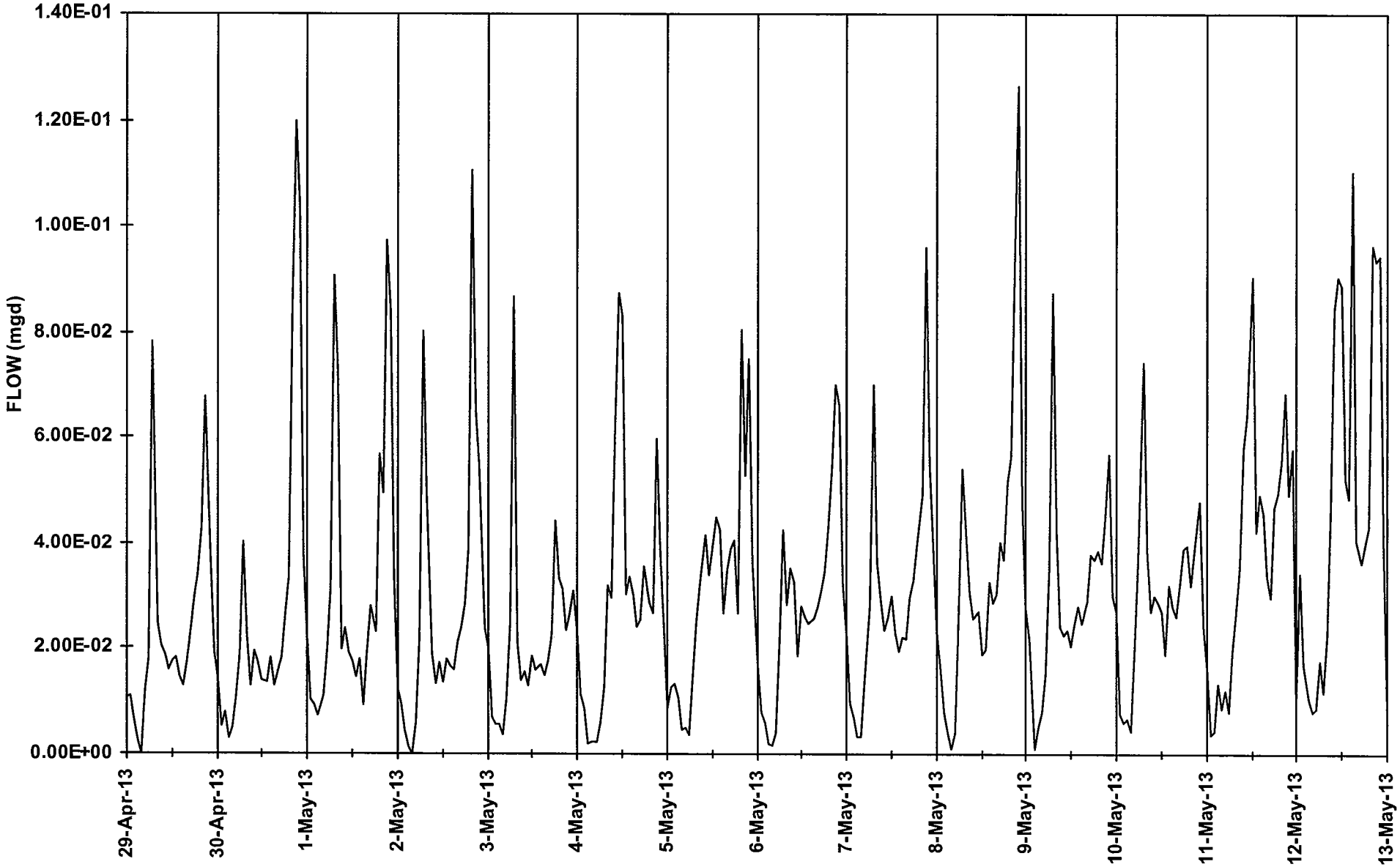
Daterange: 04/15/13 00:00-04/29/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



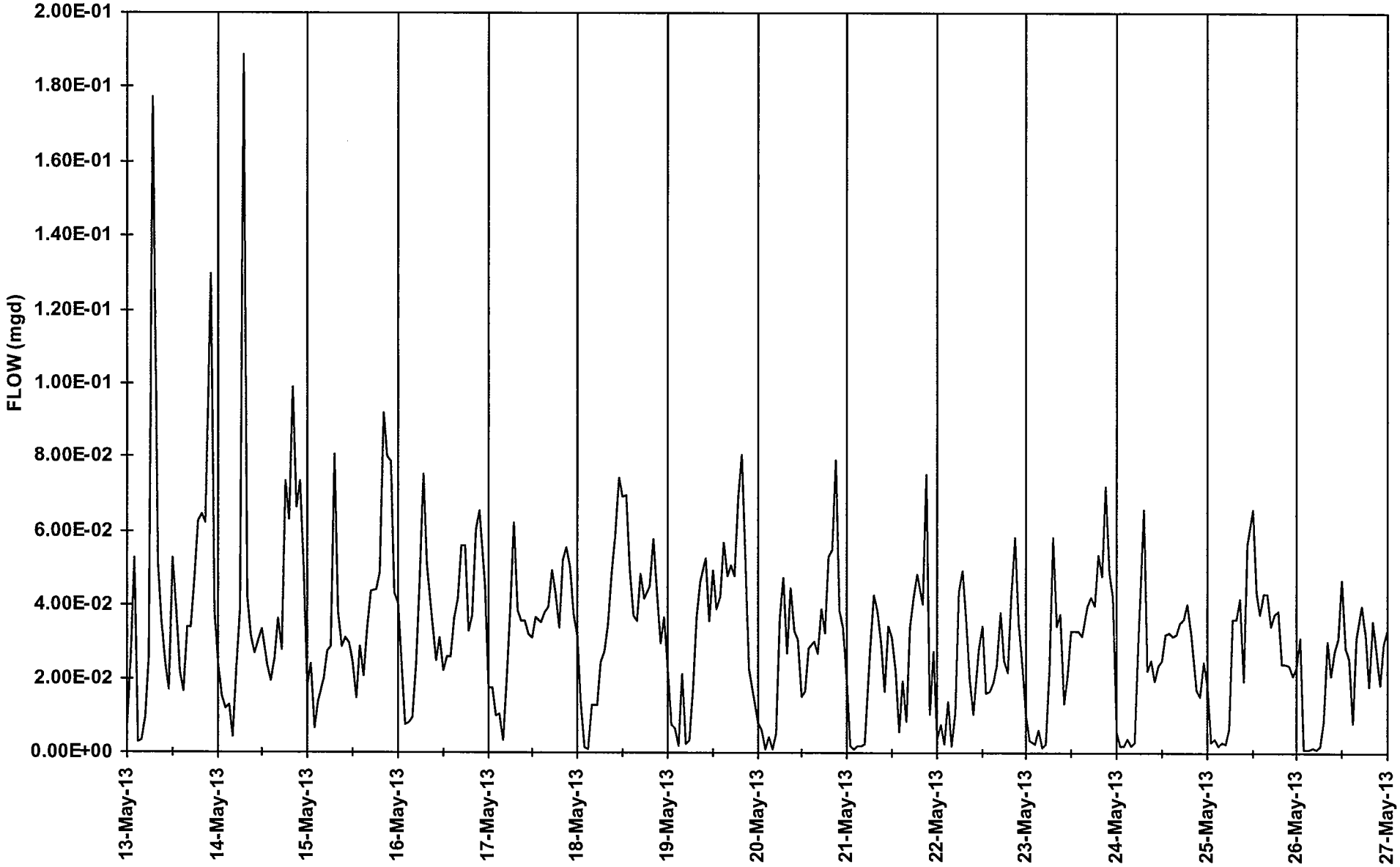
Daterange: 04/29/13 00:00-05/13/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



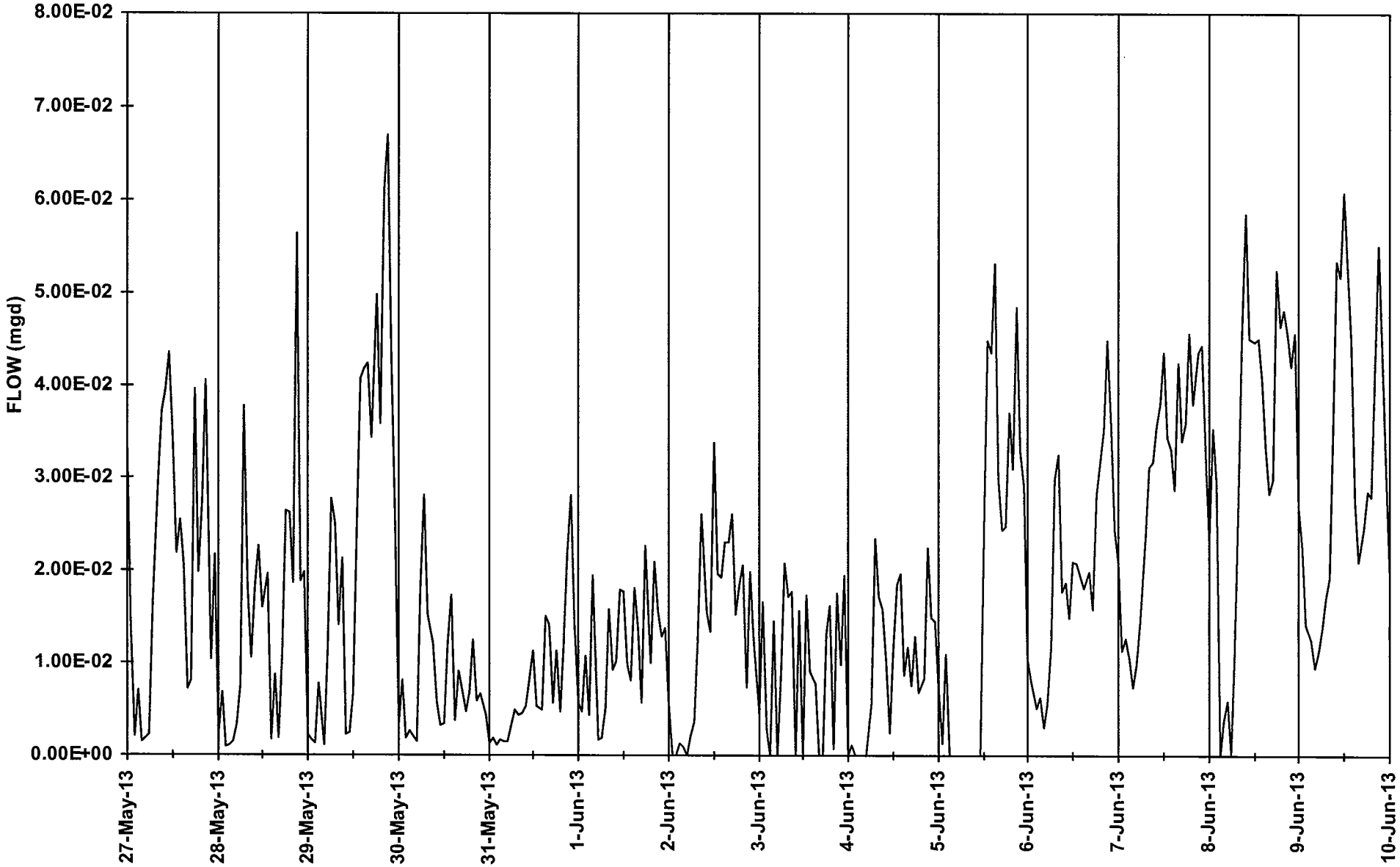
Daterange: 05/13/13 00:00-05/27/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



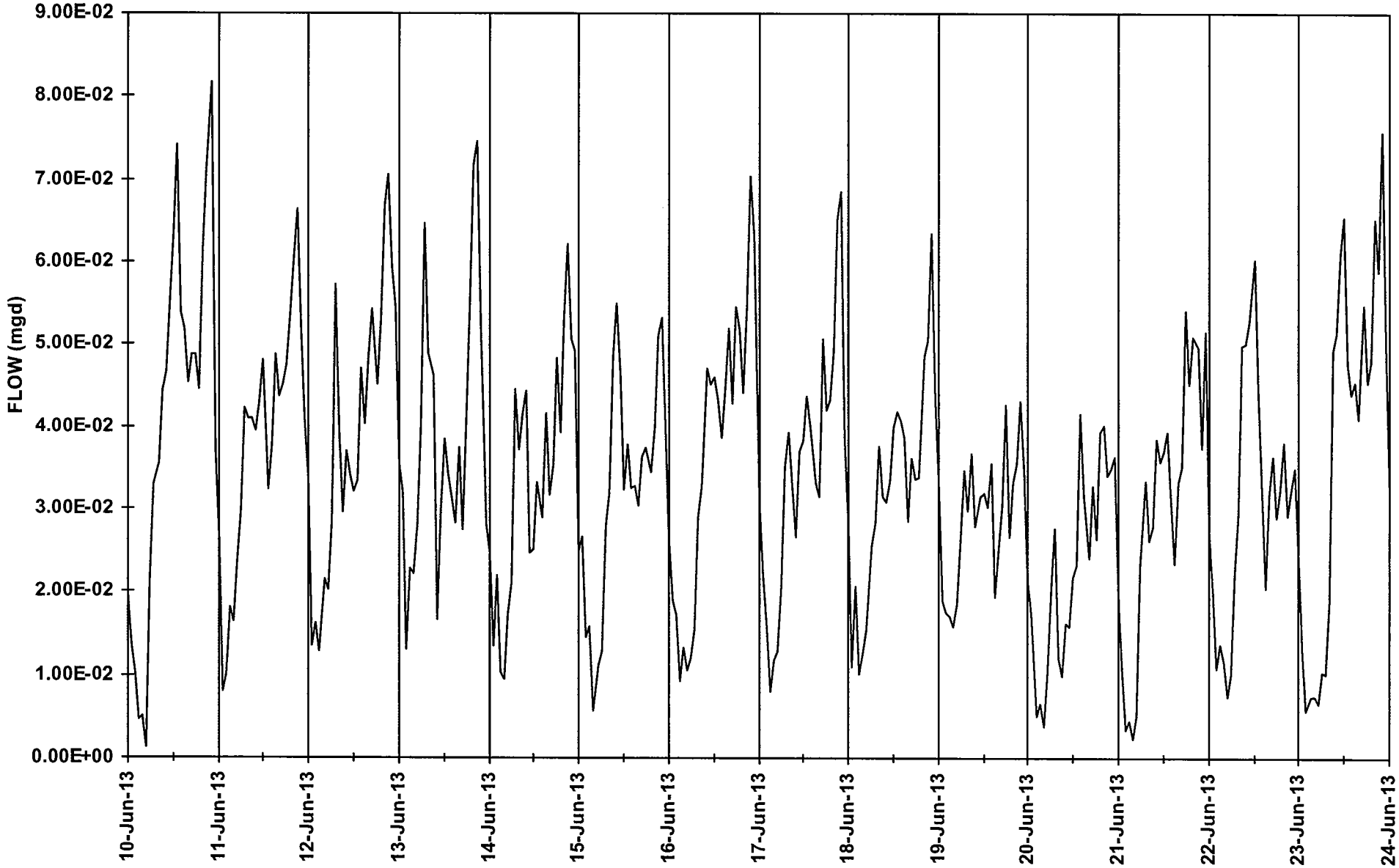
Daterange: 05/27/13 00:00-06/10/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



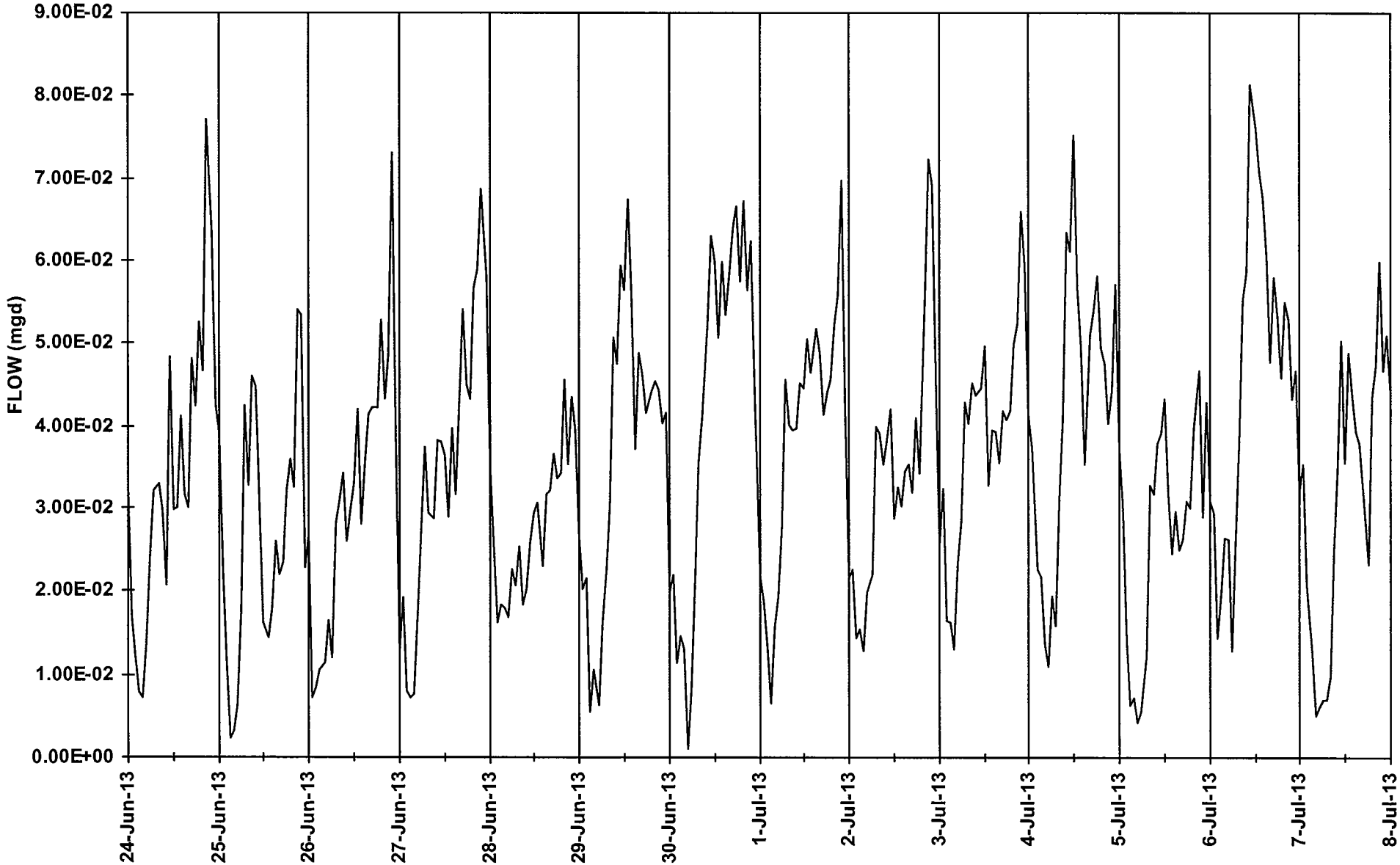
Daterange: 06/10/13 00:00-06/24/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



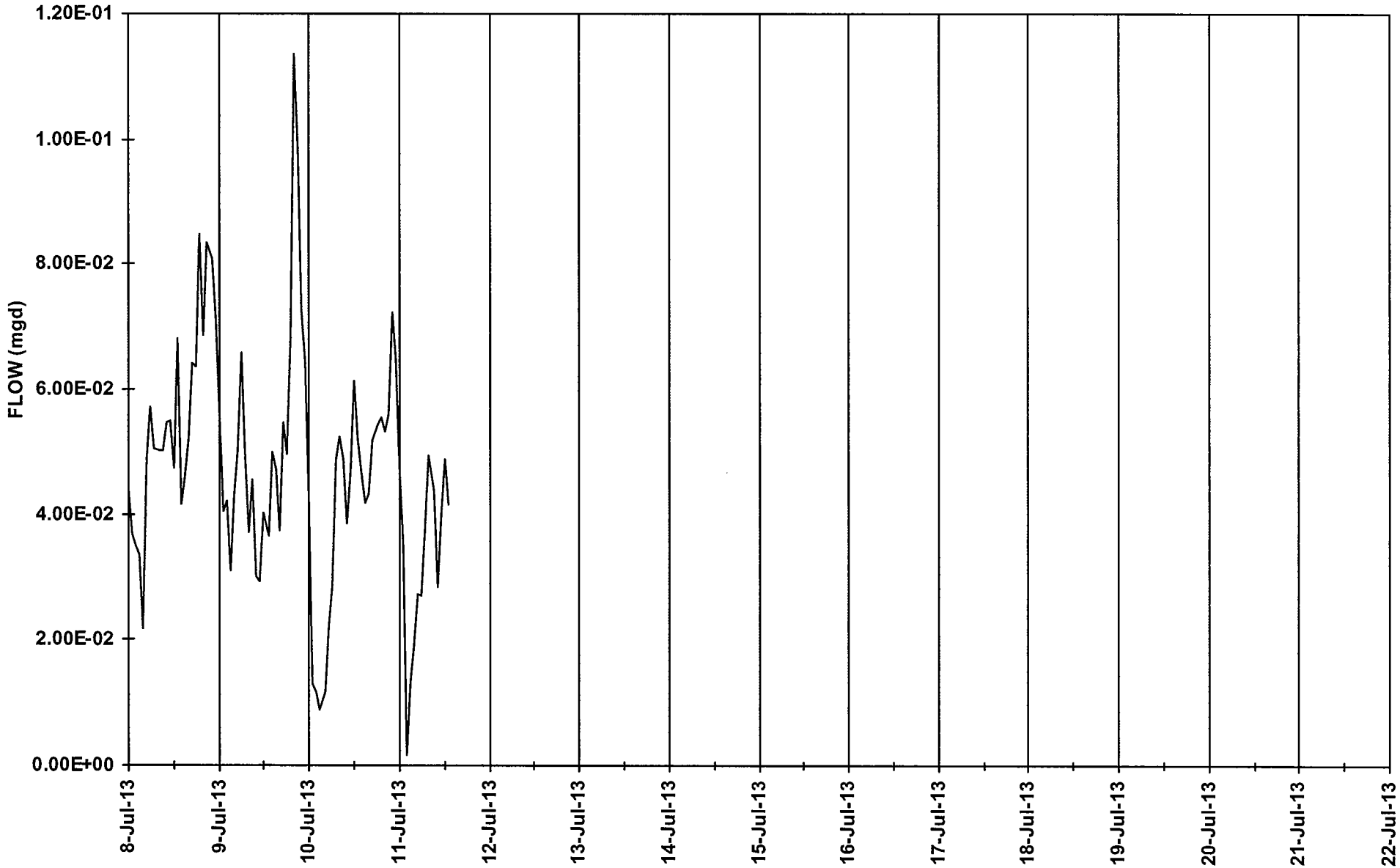
Daterange: 06/24/13 00:00-07/08/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

Flow vs Time (day)

Site:12275012 LAGUNA FM 012A



Daterange: 07/08/13 00:00-07/22/13 00:00
Territory: TERRITORY 5/7/2013 11:37:07 AM
Region: LEVEL2 SYSTEM DEFINED 5/7/2013 11:37:07 AM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.666666686534882

Location: LAGUNA FM 012A
Site ID: 12275012
Serial#: WLH

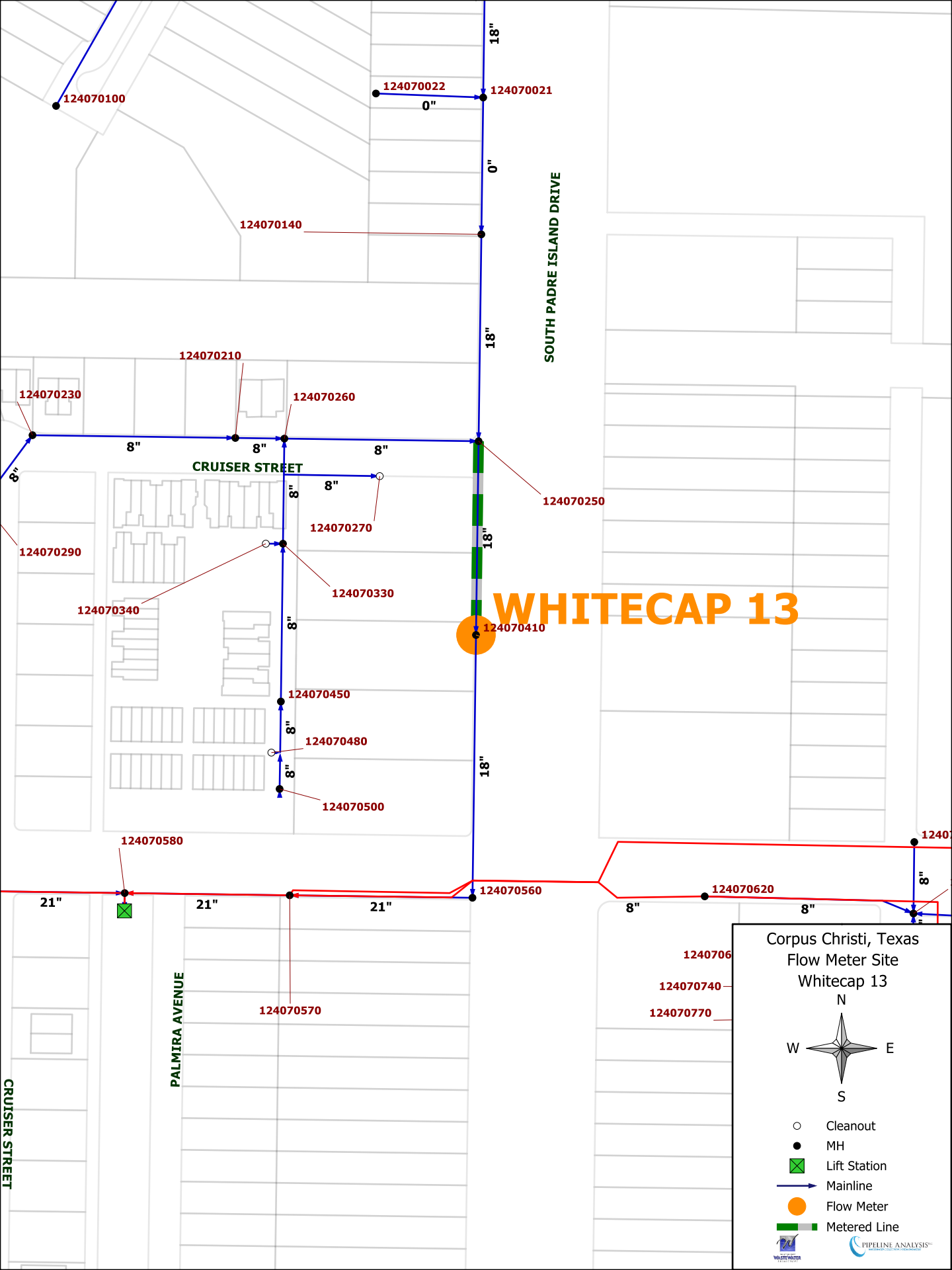
Whitecap FM013

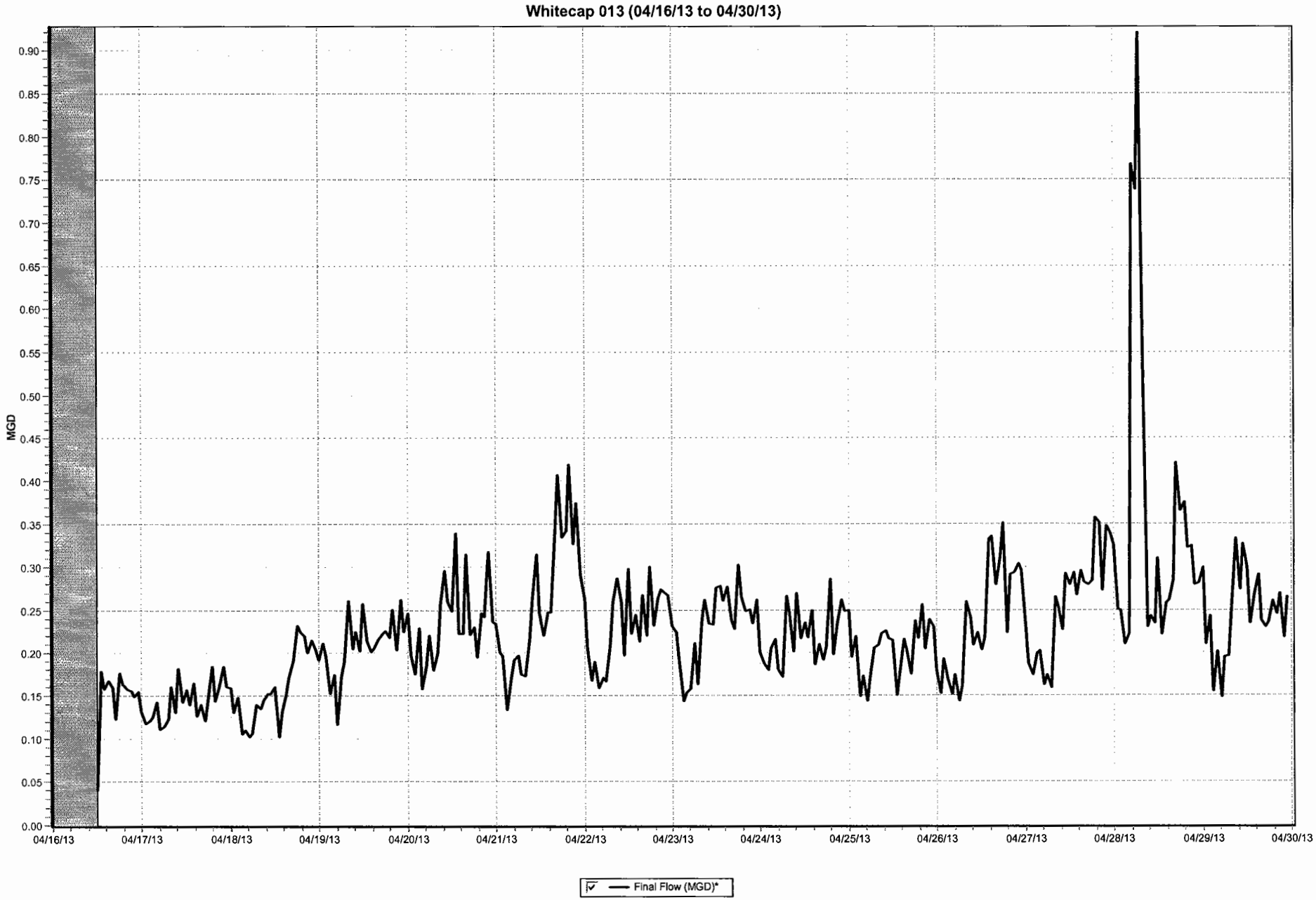
Whitecap Meter Site 013

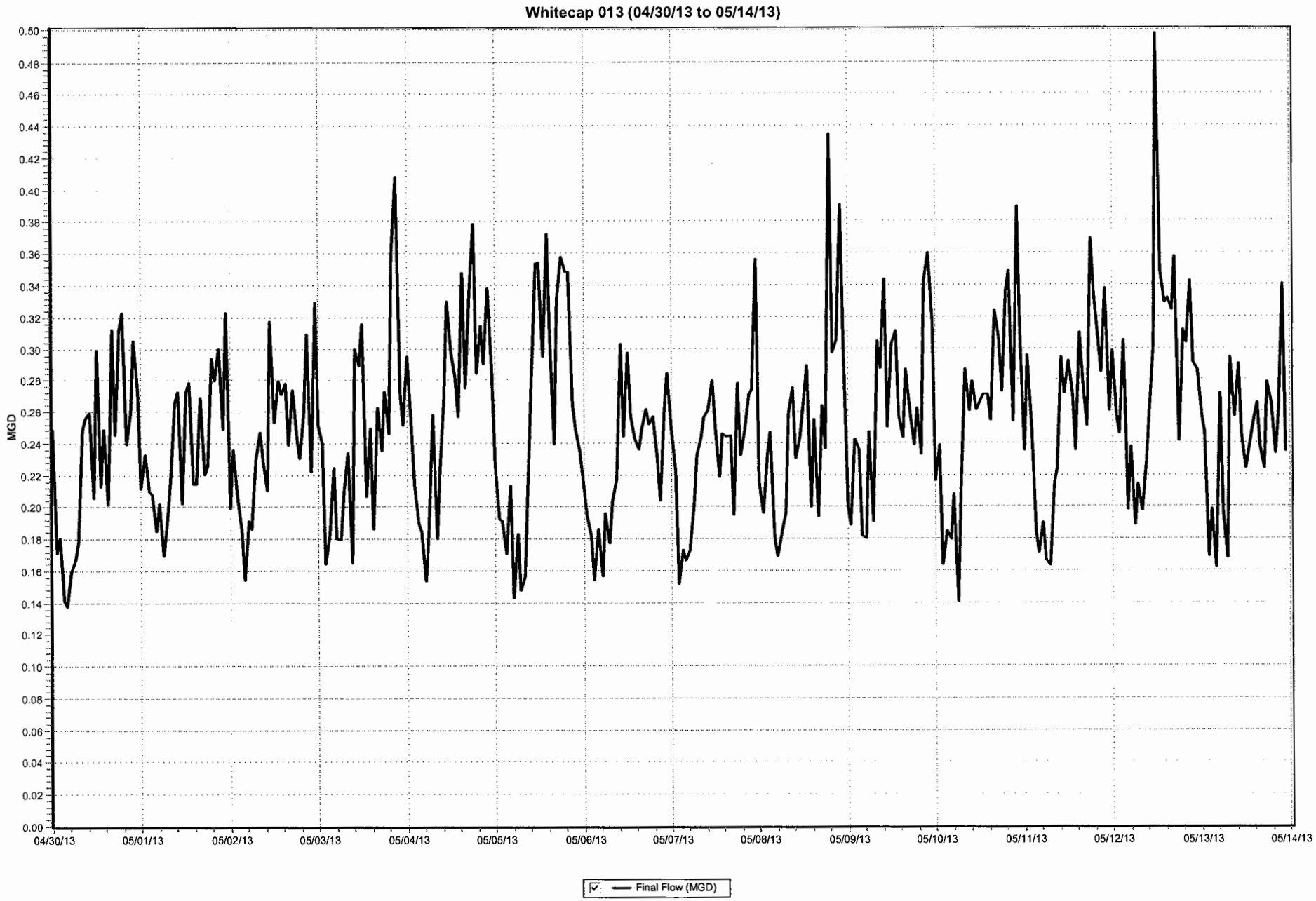
11275WHITECAPFM013A019.jpg

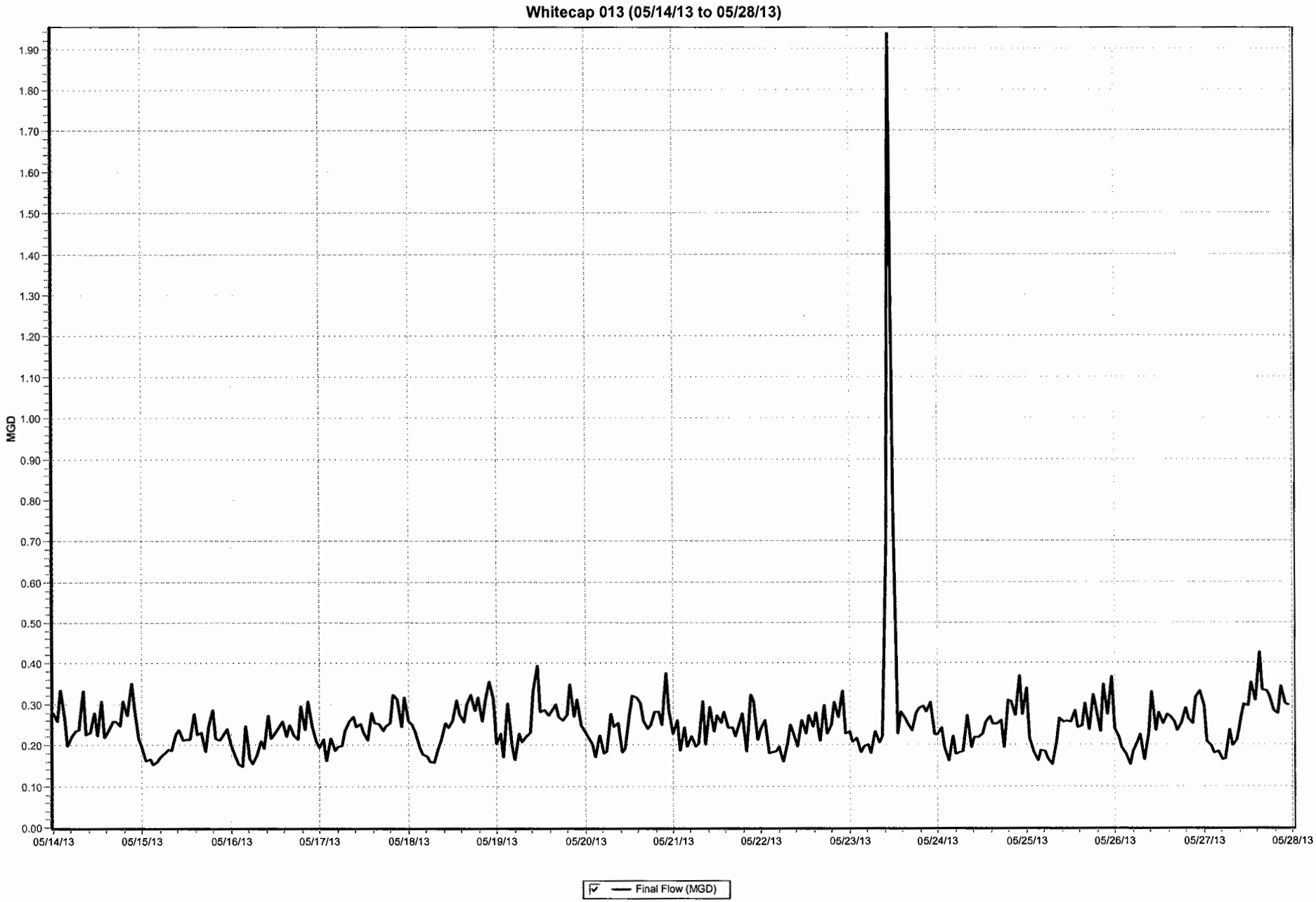
11275WHITECAPFM013I020.jpg

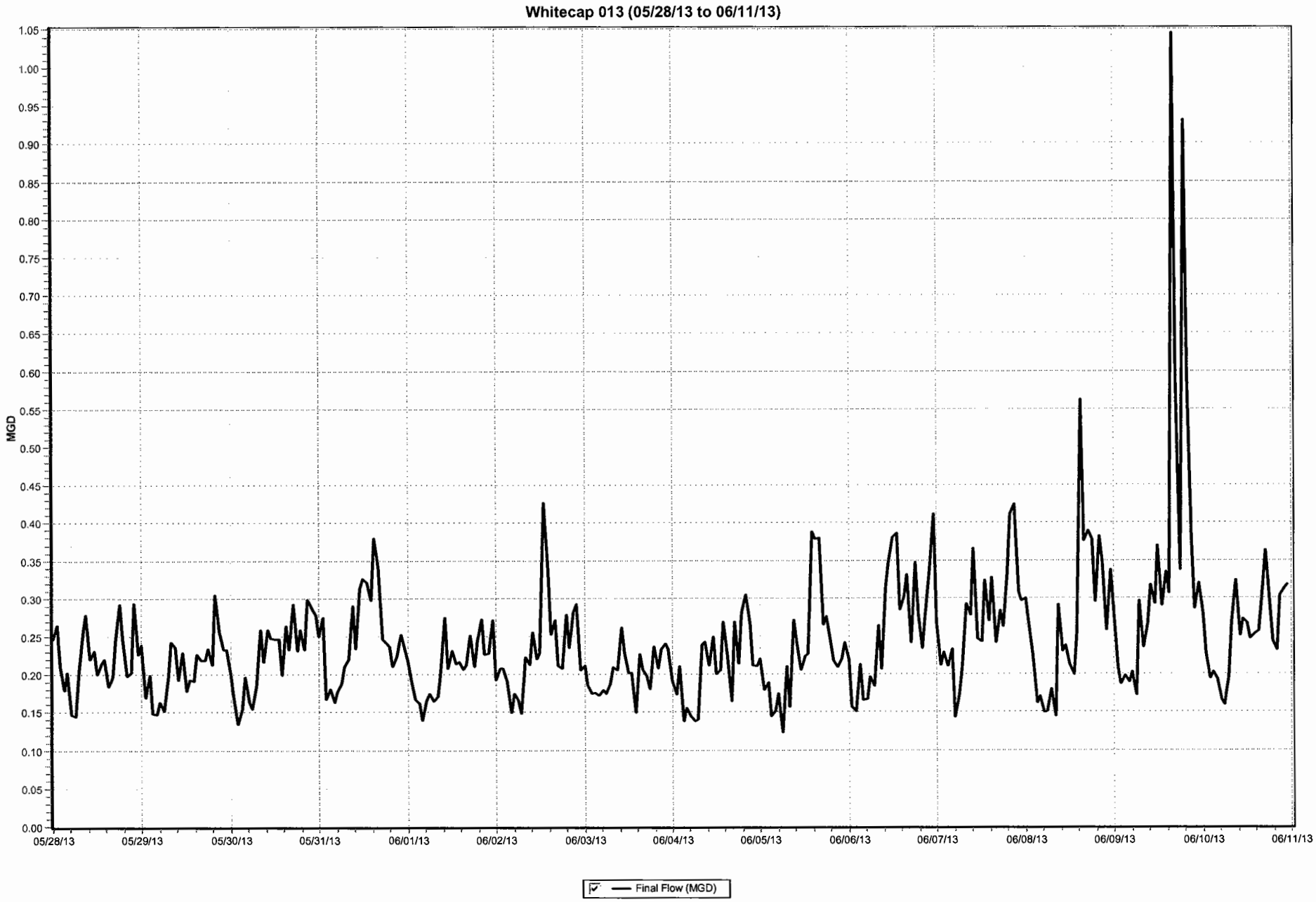
11275WHITECAPFM013P021.jpg

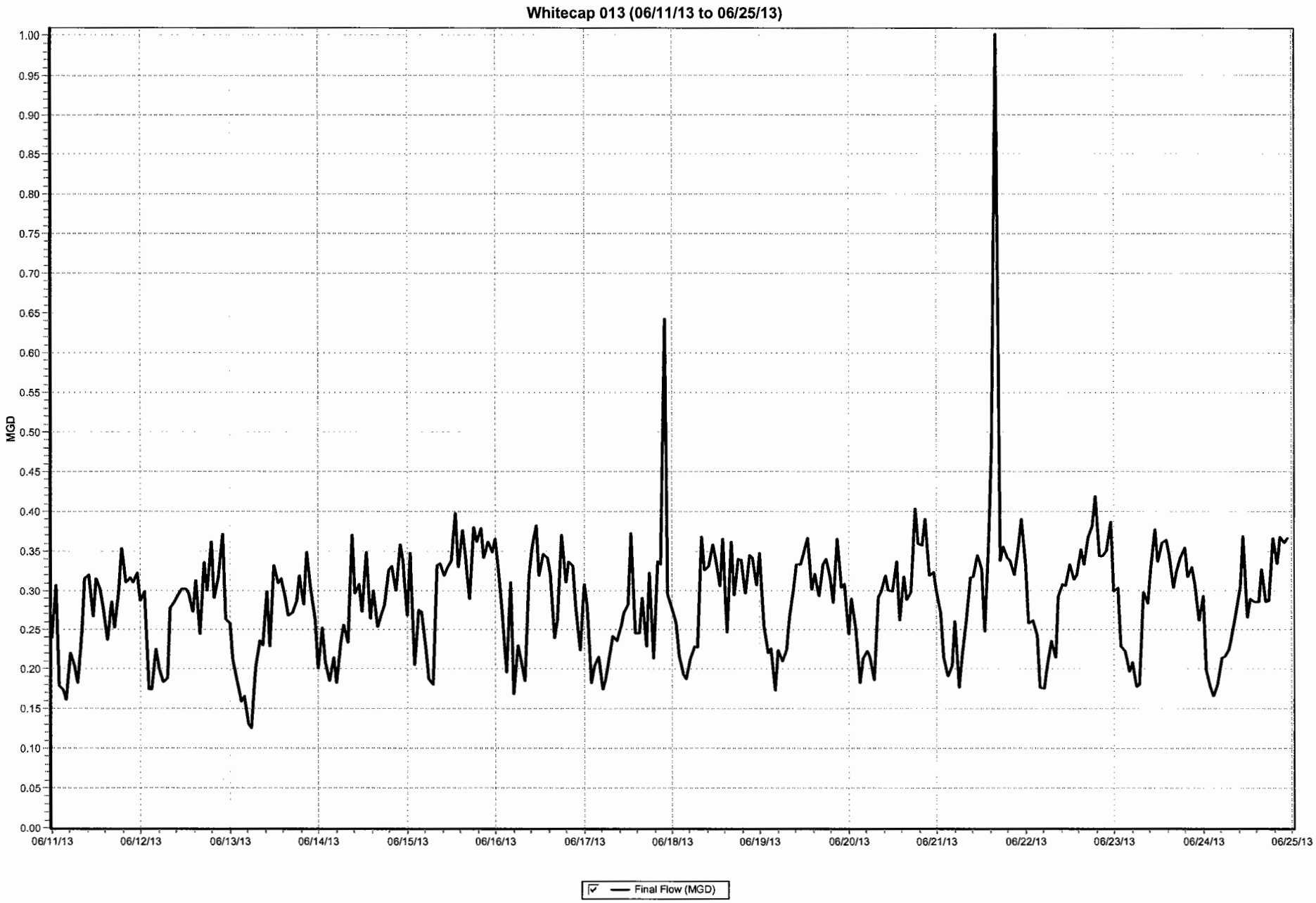

124070100
124070022
124070021
18"
0"
0"
124070140
SOUTH PADRE ISLAND DRIVE
18"
124070210
124070230
124070260
8"
8"
8"
CRUISER STREET
8"
8"
8"
124070270
124070250
124070290
18"
124070330
124070340
WHITECAP 13
124070410
8"
124070450
8"
124070480
8"
124070500
18"
124070580
124070560
124070620
21"
21"
21"
8"
8"
8"
124070570
PALMIRA AVENUE
CRUISER STREET
124070740
124070770
Corpus Christi, Texas
Flow Meter Site
Whitecap 13
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

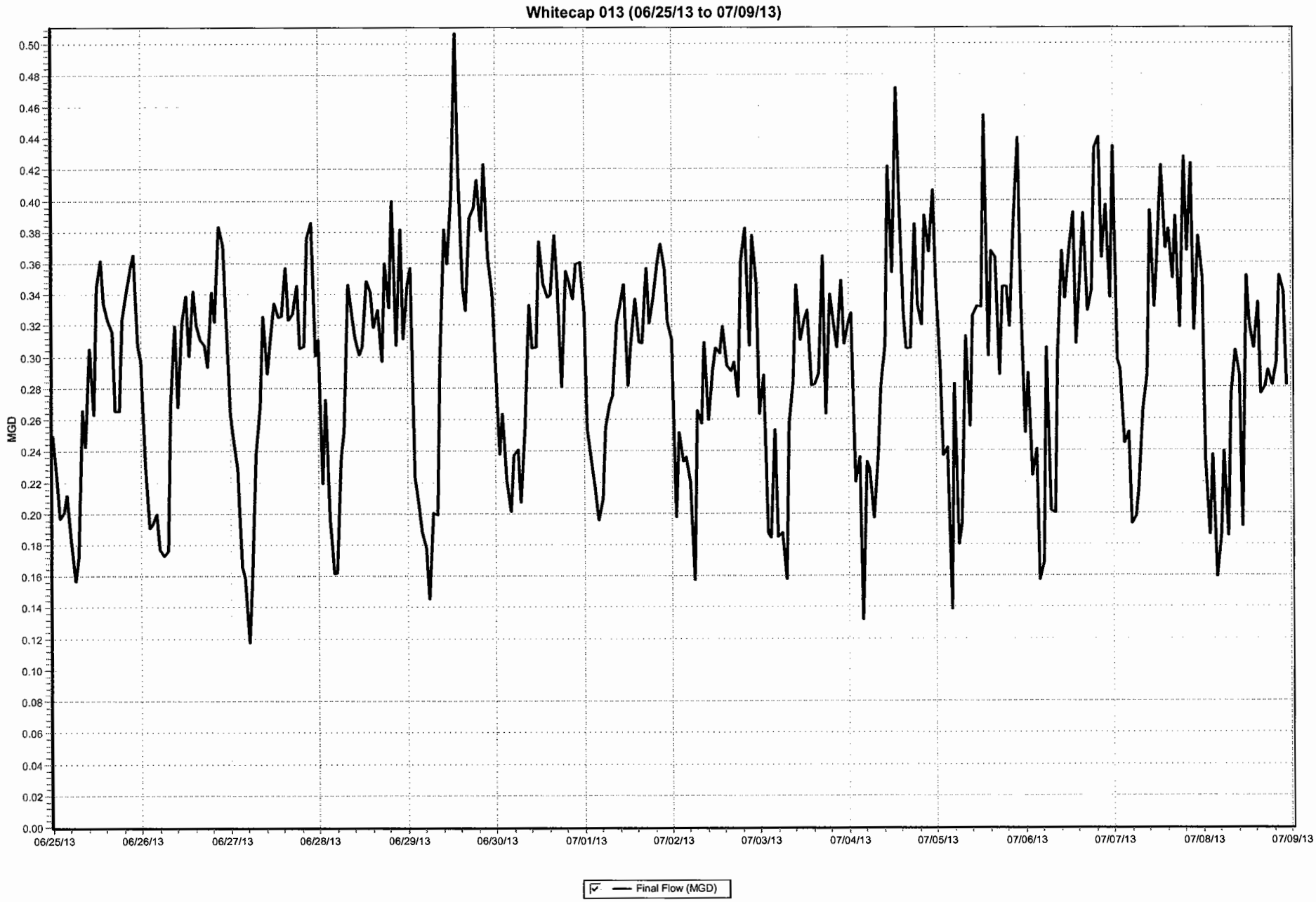

Whitecap 013 (04/16/13 to 04/30/13)
MGD
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

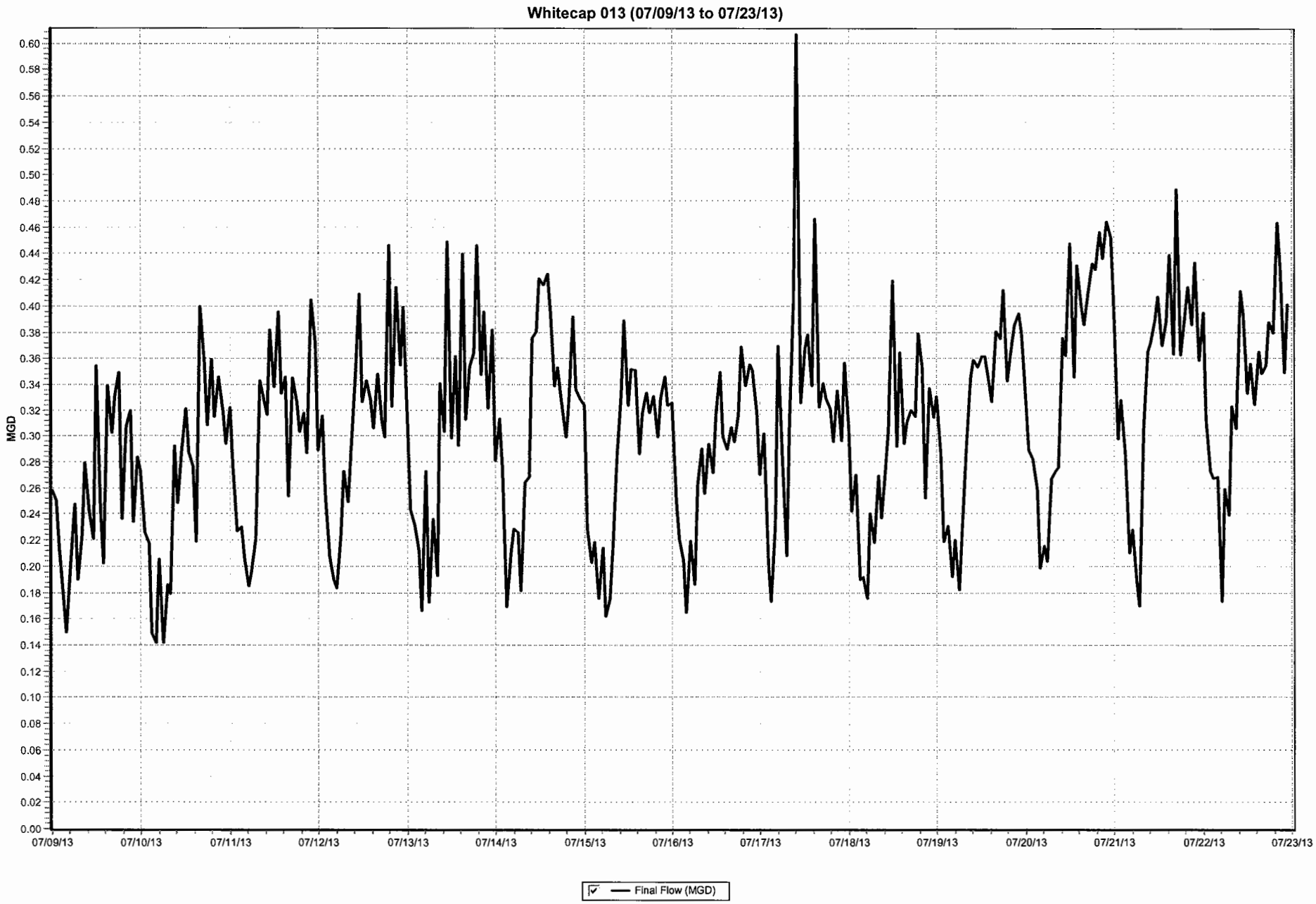

Whitecap 013 (04/30/13 to 05/14/13)
MGD
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Whitecap 013 (05/14/13 to 05/28/13)
MGD
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

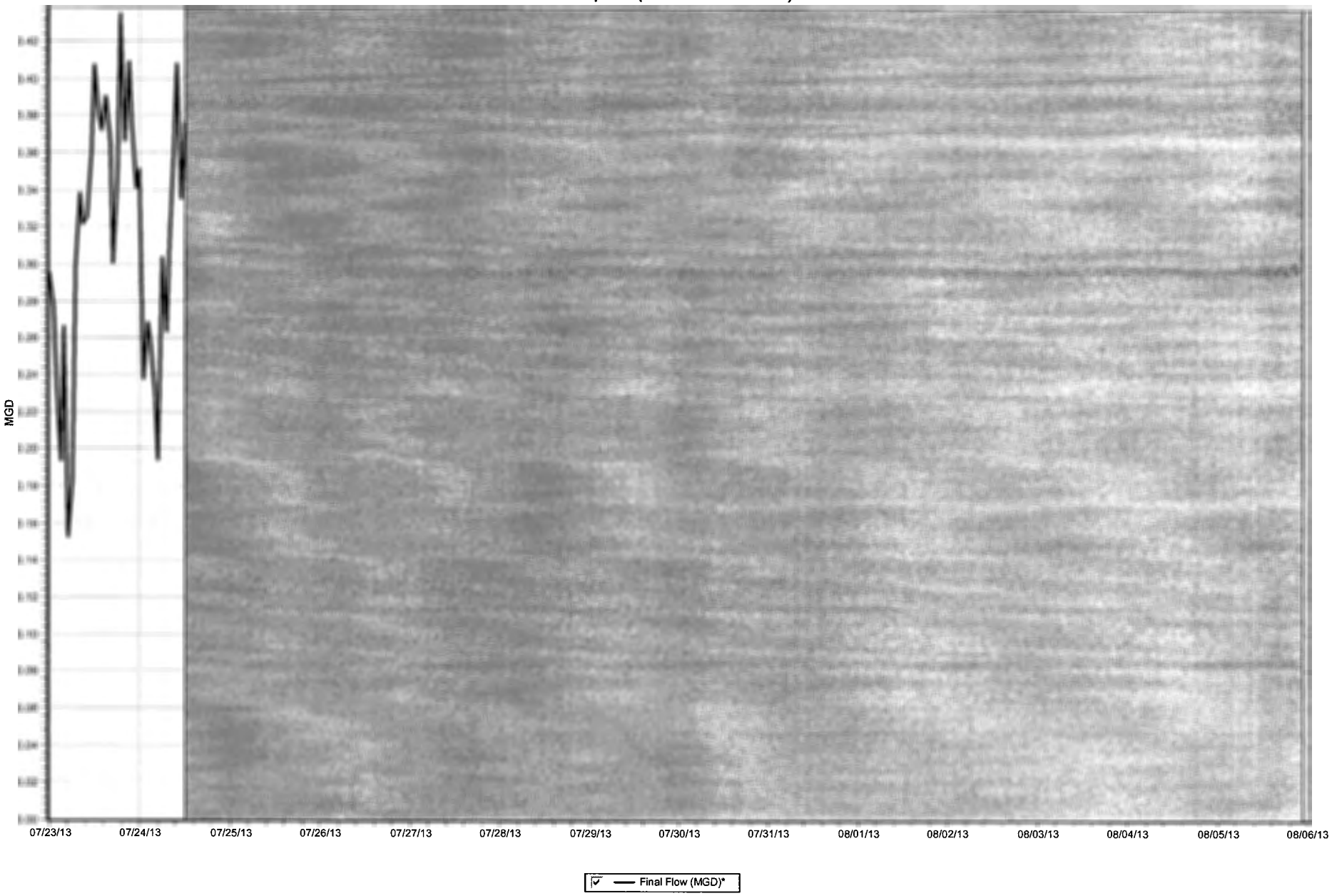

Whitecap 013 (05/28/13 to 06/11/13)
MGD
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 013 (06/11/13 to 06/25/13)
MGD
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 013 (06/25/13 to 07/09/13)
MGD
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 013 (07/09/13 to 07/23/13)
MGD
0.60
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Whitecap 013 (07/23/13 to 08/06/13)



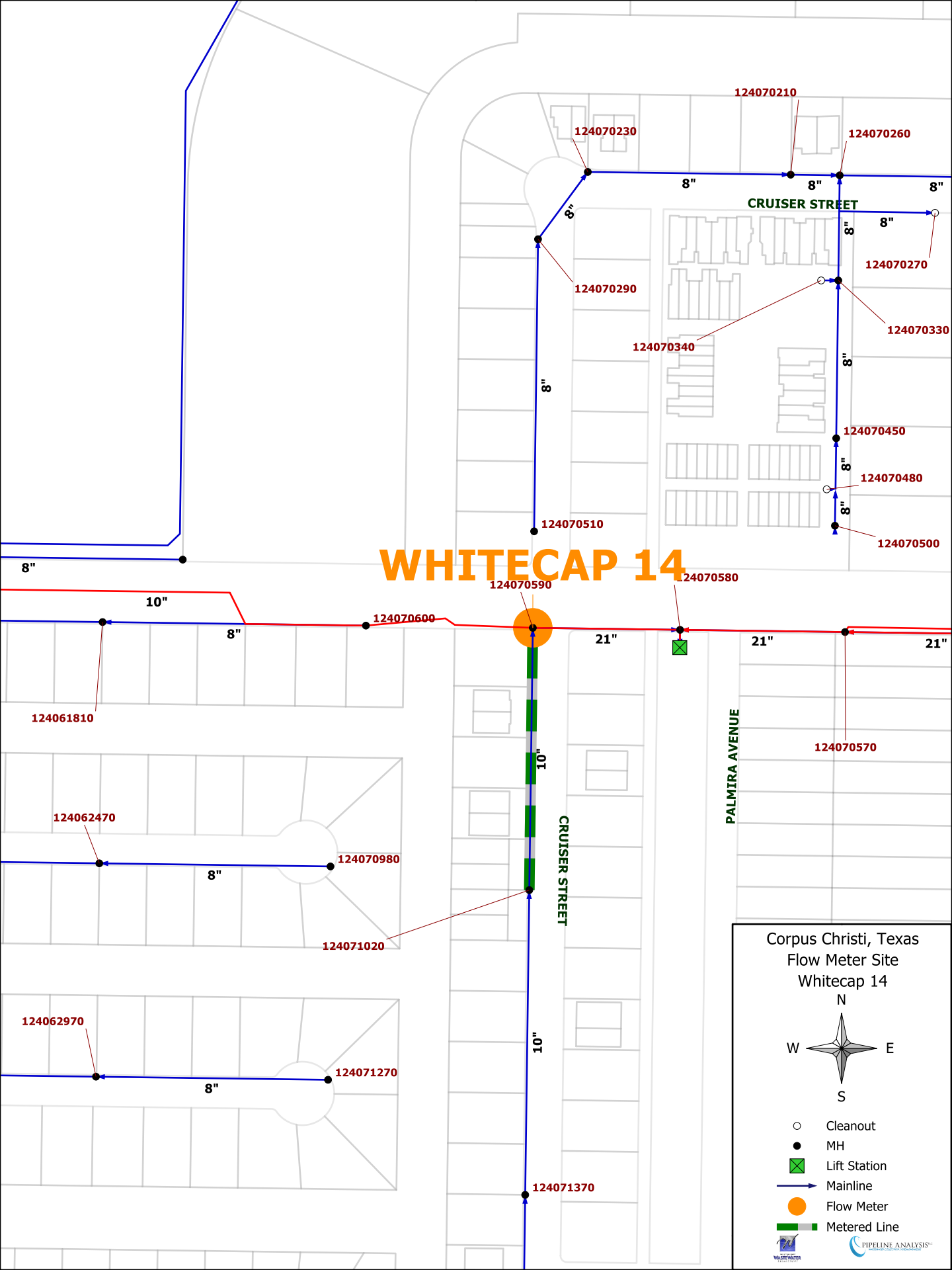
Whitecap FM014

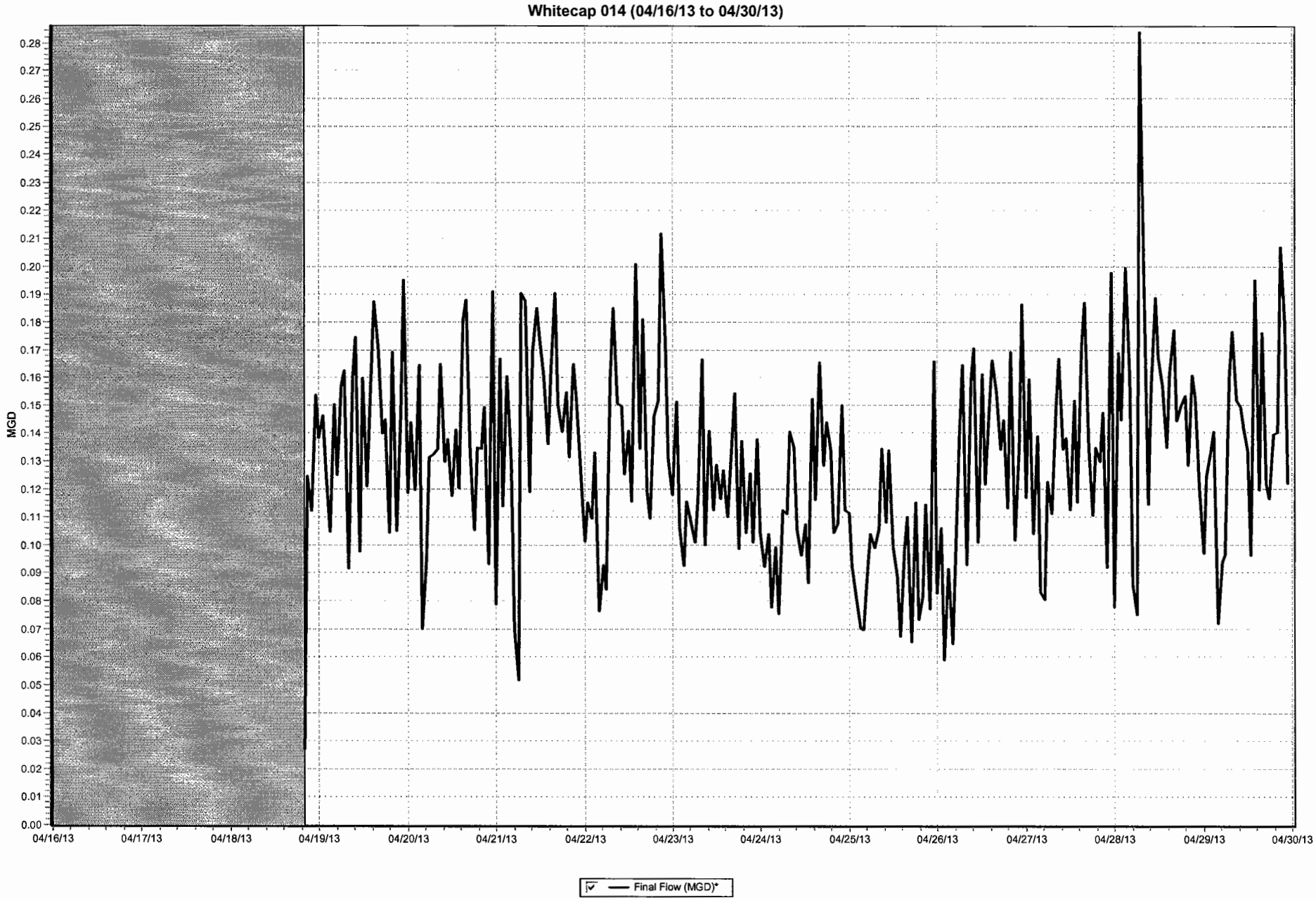
Whitecap Meter Site 014

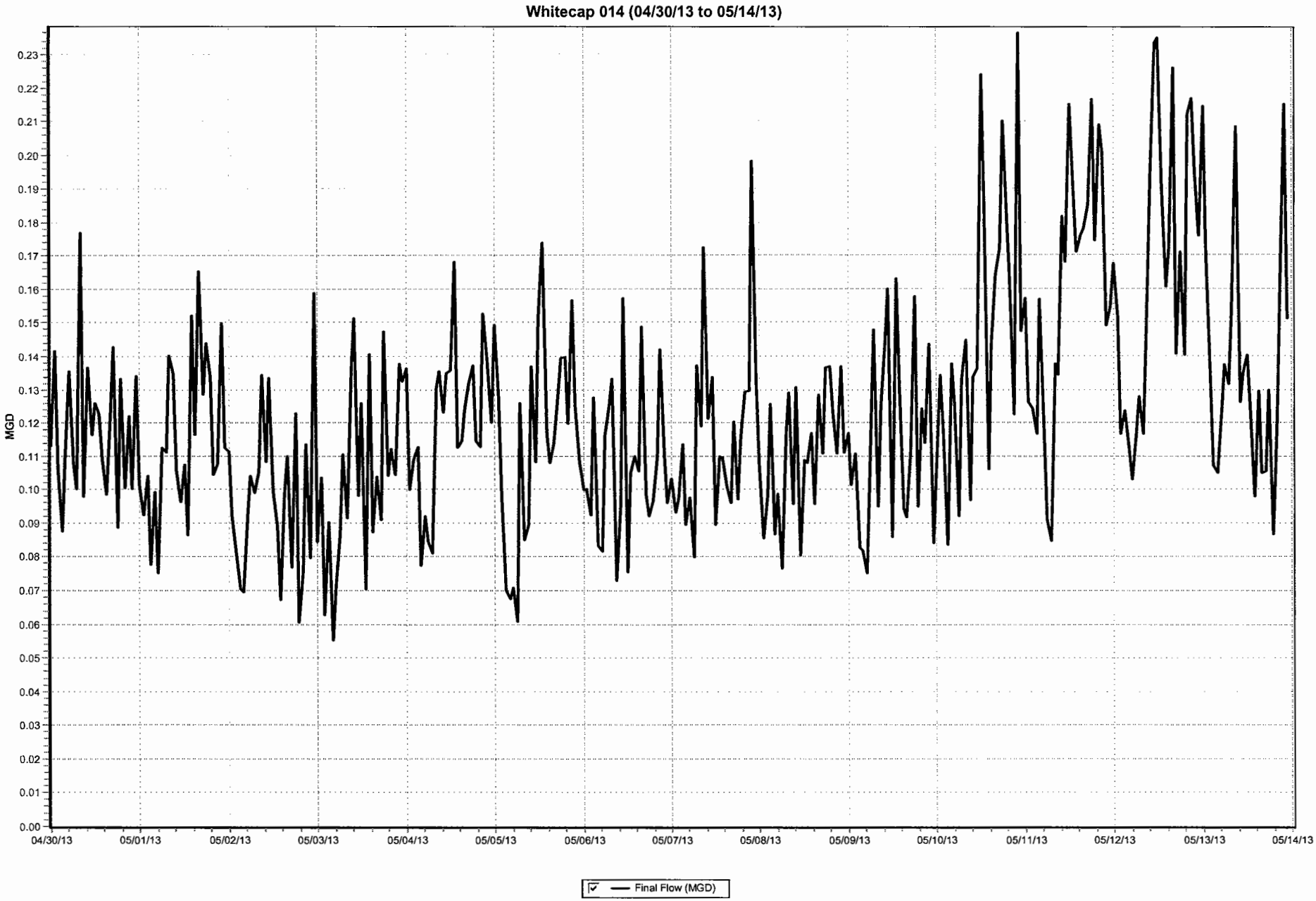
11275WHITECAPFM014A022.jpg

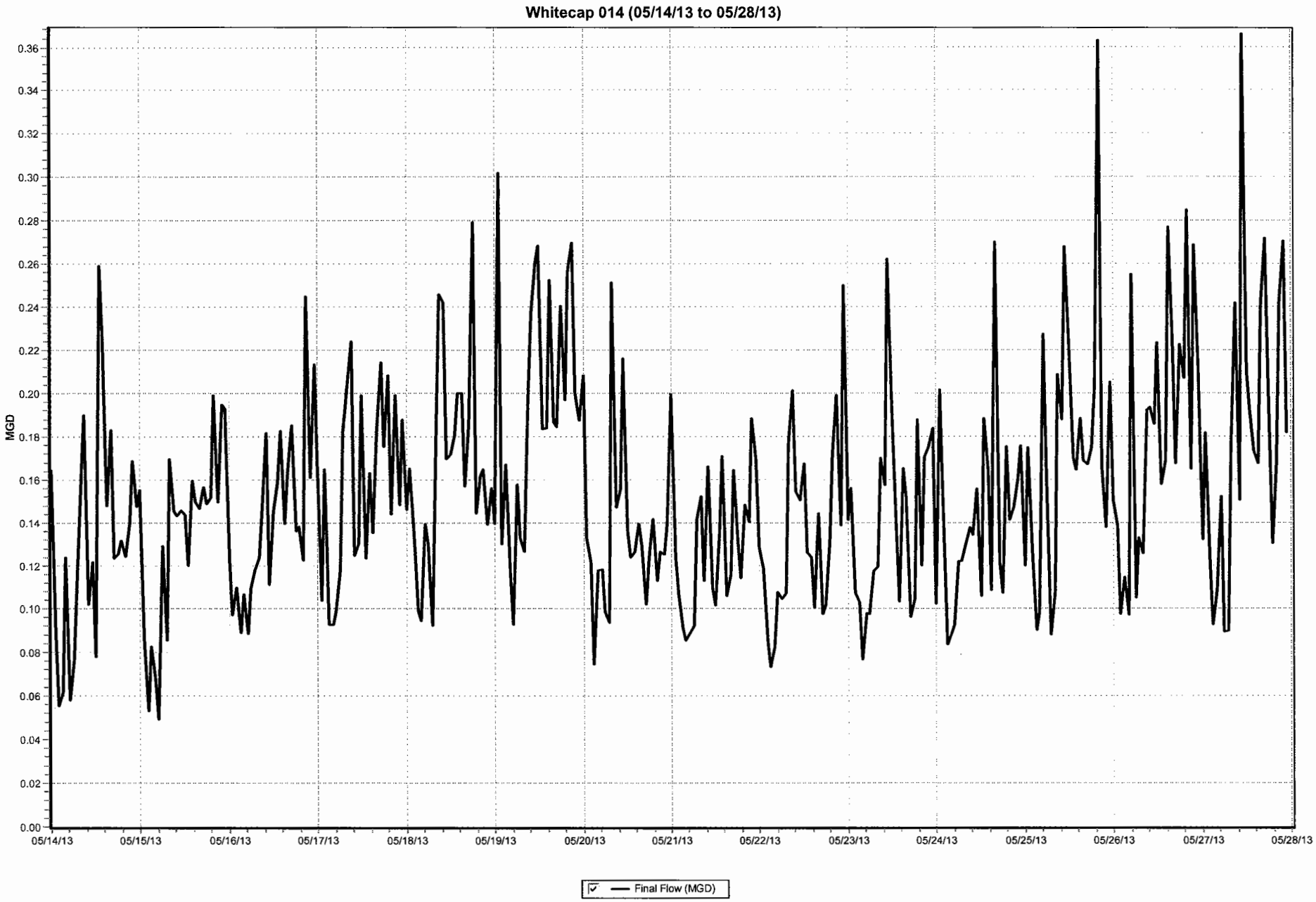
11275WHITECAPFM014I023.jpg

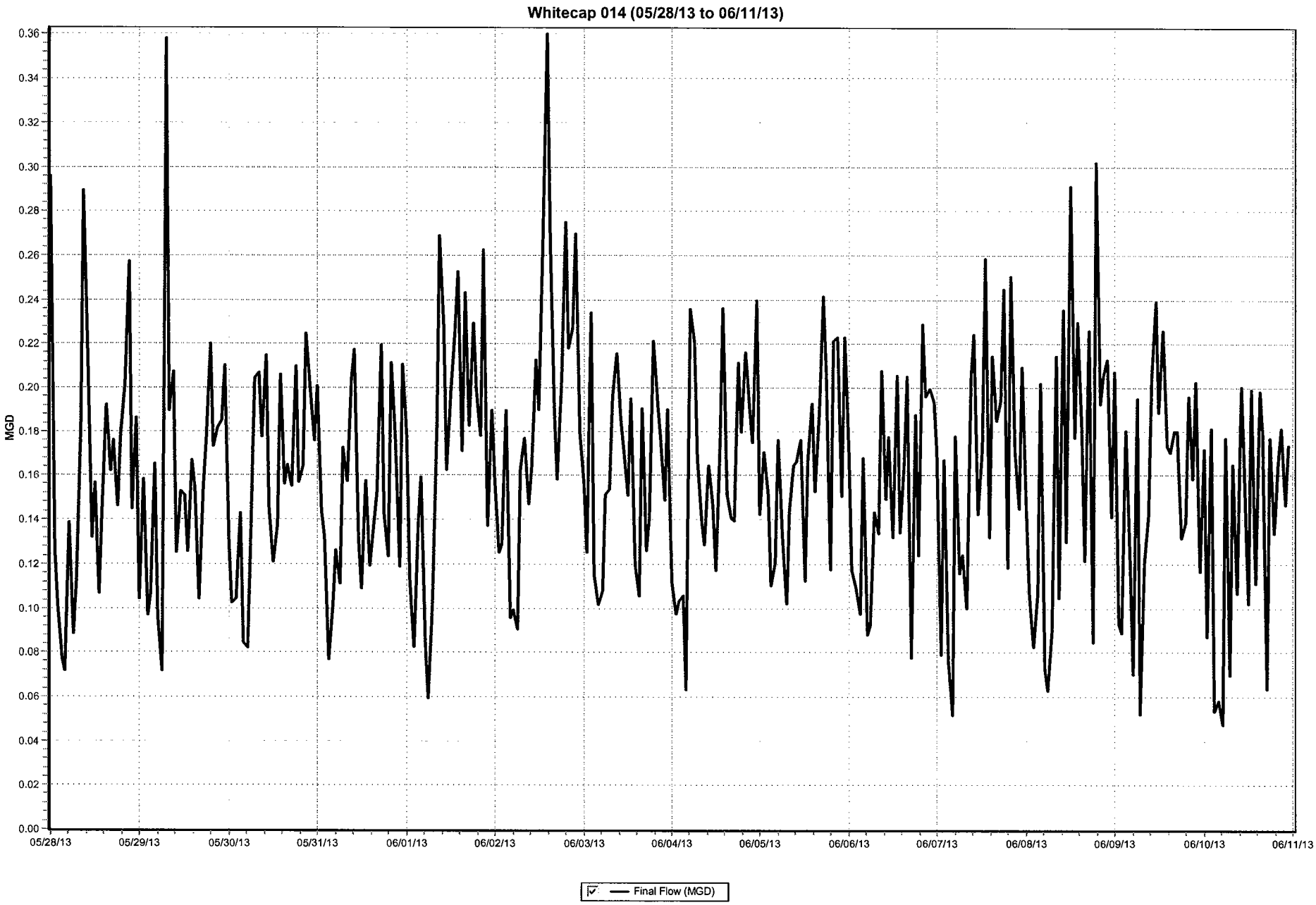
11275WHITECAPFM014P024.jpg

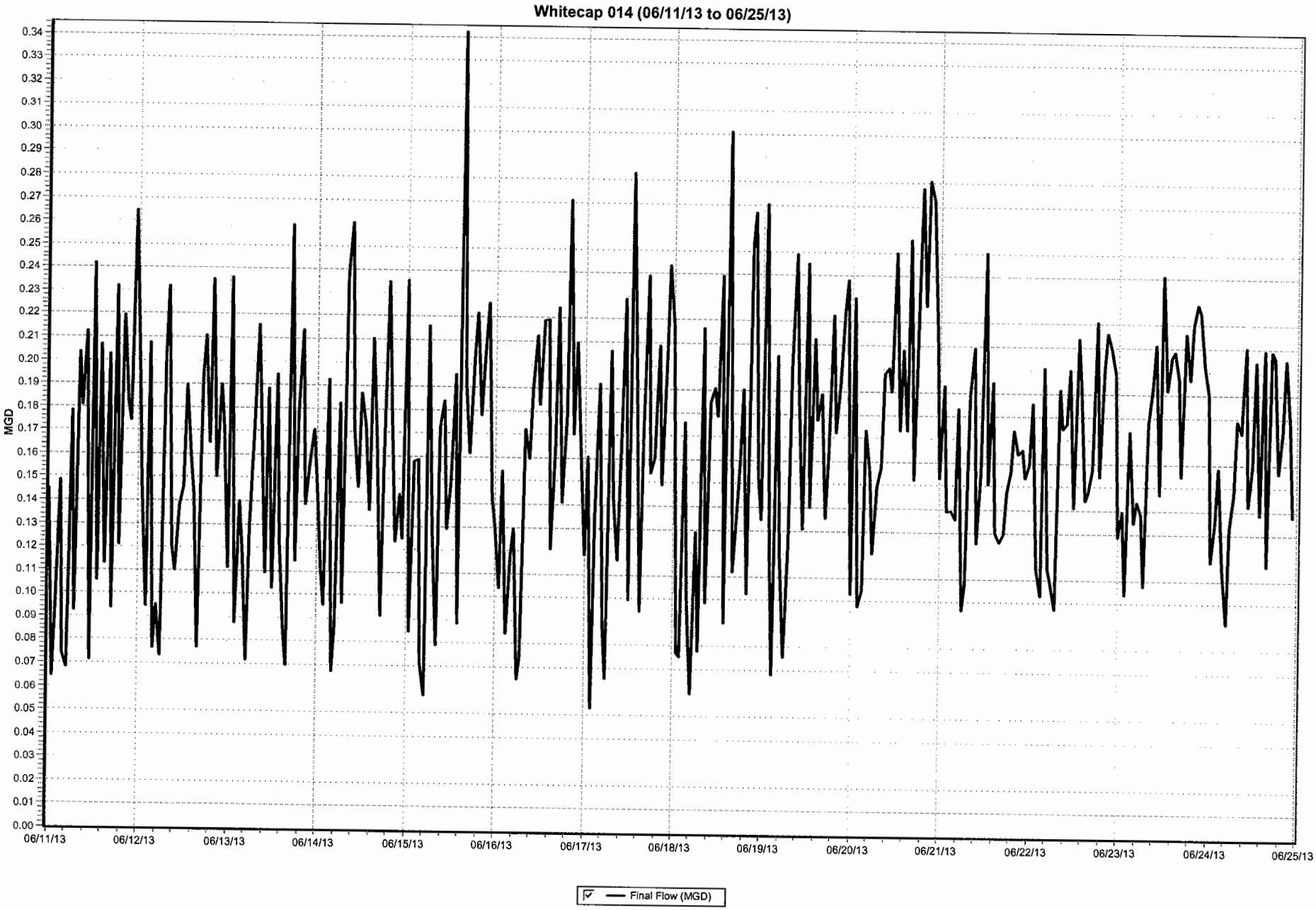

124070210
124070230
124070260
8"
8"
8"
CRUISER STREET
8"
8"
8"
124070270
124070290
124070330
124070340
8"
8"
124070450
8"
124070480
8"
124070510
124070500
8"
WHITECAP 14
124070590
124070580
10"
124070600
8"
21"
21"
21"
124061810
124070570
PALMIRA AVENUE
10"
124062470
124070980
8"
CRUISER STREET
124071020
124062970
124071270
8"
10"
124071370
Corpus Christi, Texas
Flow Meter Site
Whitecap 14
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

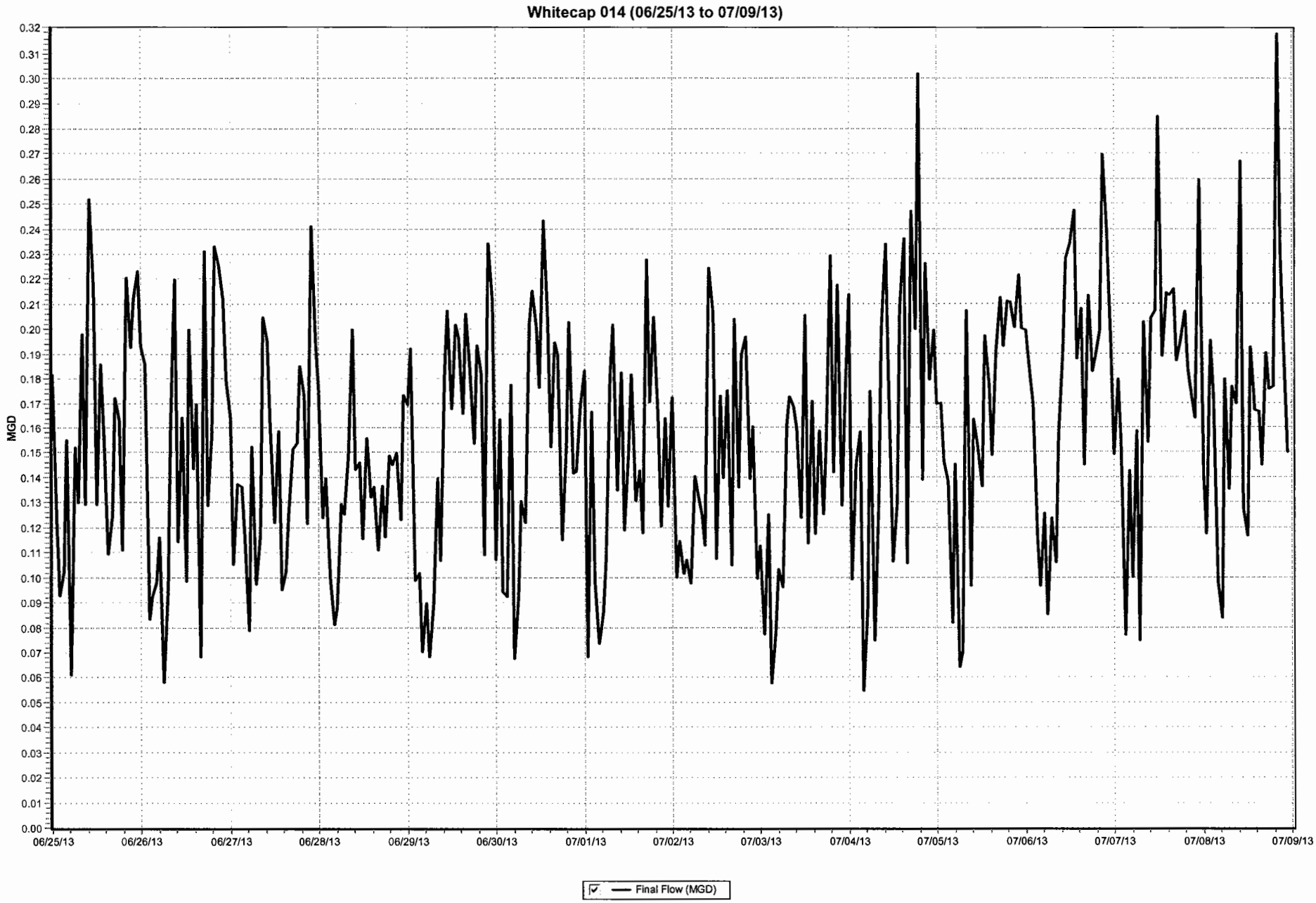

Whitecap 014 (04/16/13 to 04/30/13)
MGD
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

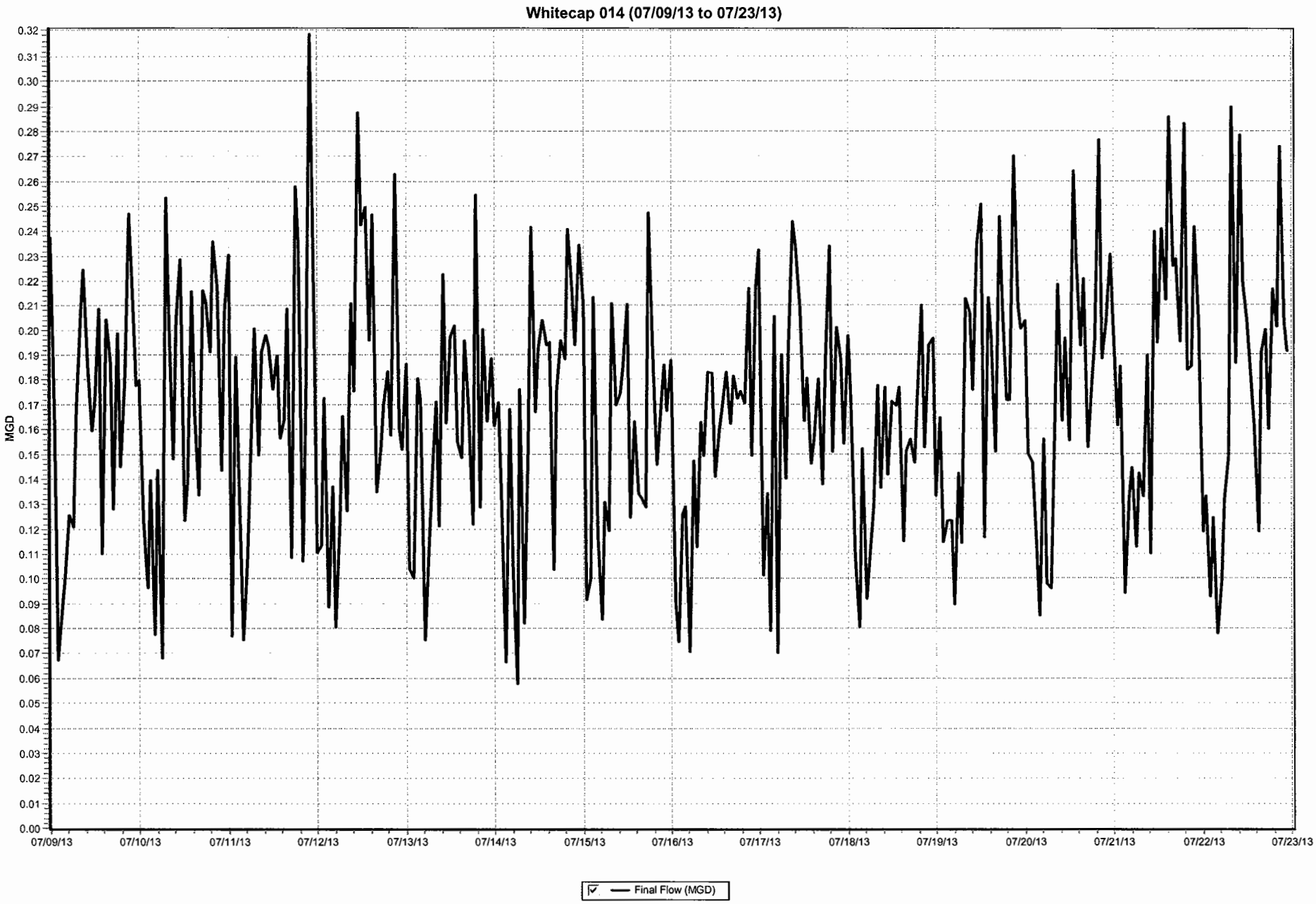

Whitecap 014 (04/30/13 to 05/14/13)
MGD
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Whitecap 014 (05/14/13 to 05/28/13)
MGD
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

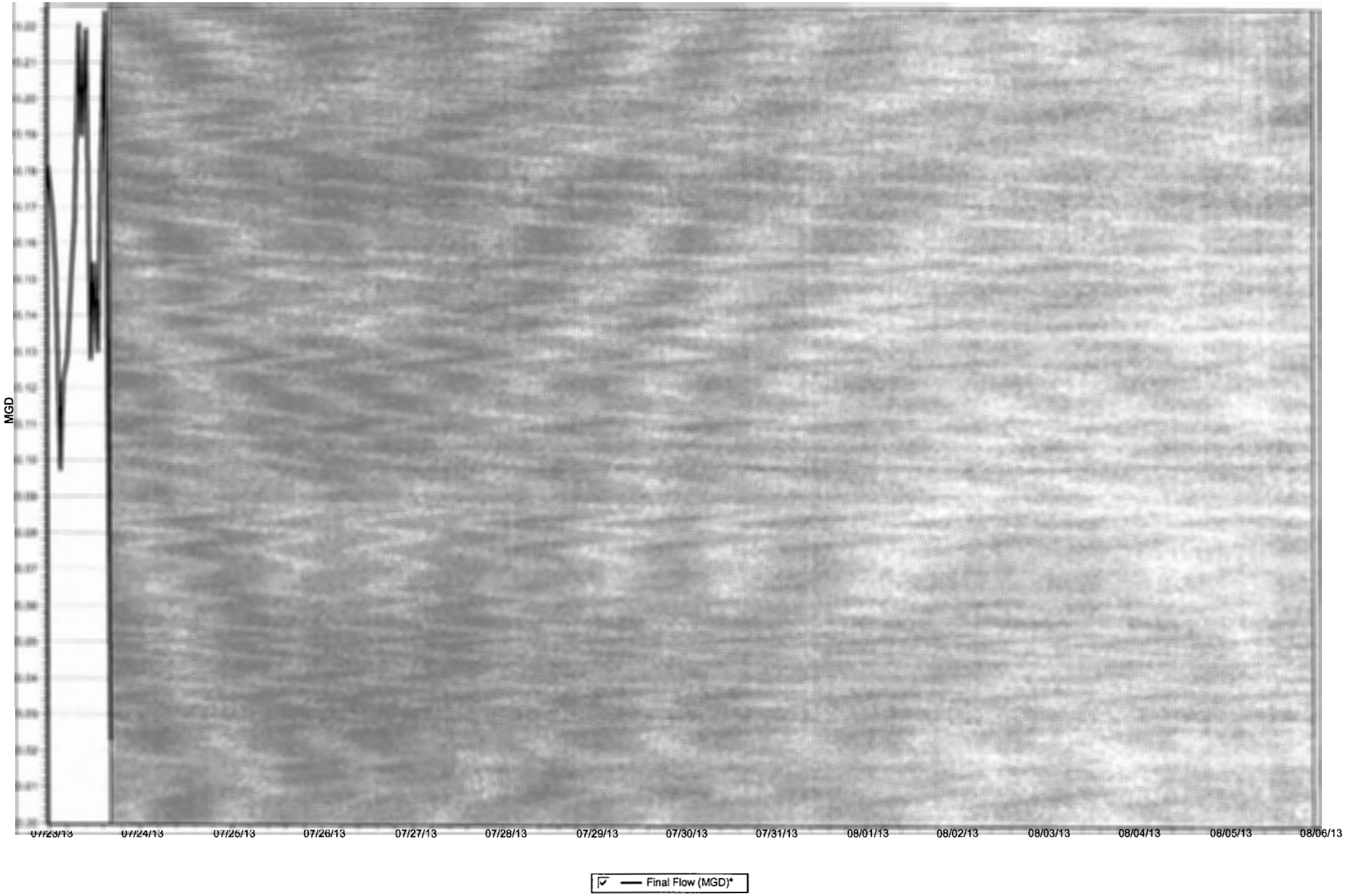

Whitecap 014 (05/28/13 to 06/11/13)
MGD
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 014 (06/11/13 to 06/25/13)
MGD
0.34
0.33
0.32
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 014 (06/25/13 to 07/09/13)
MGD
0.32
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 014 (07/09/13 to 07/23/13)
MGD
0.32
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Whitecap 014 (07/23/13 to 08/06/13)



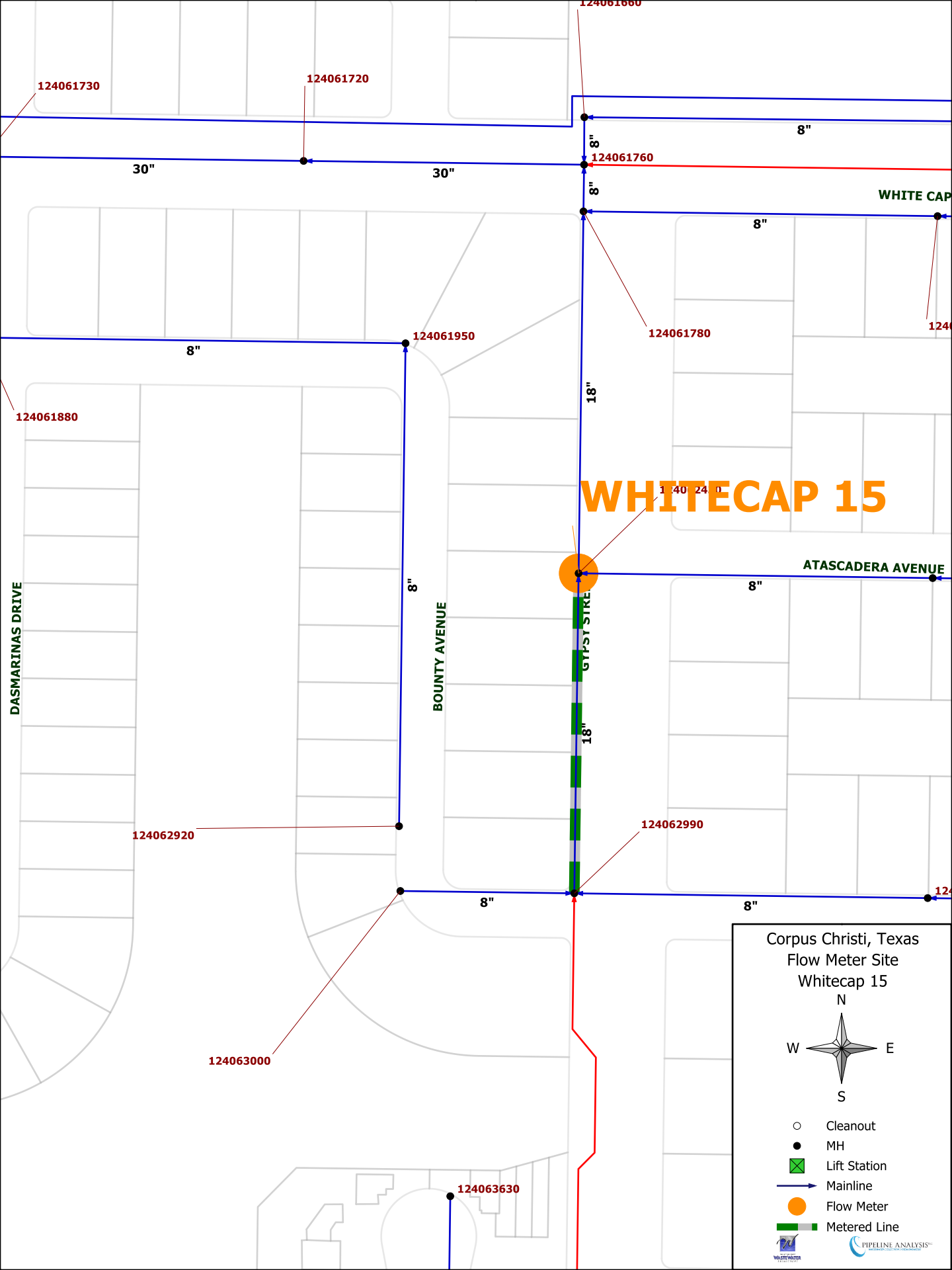
Whitecap FM015

Whitecap Meter Site 015

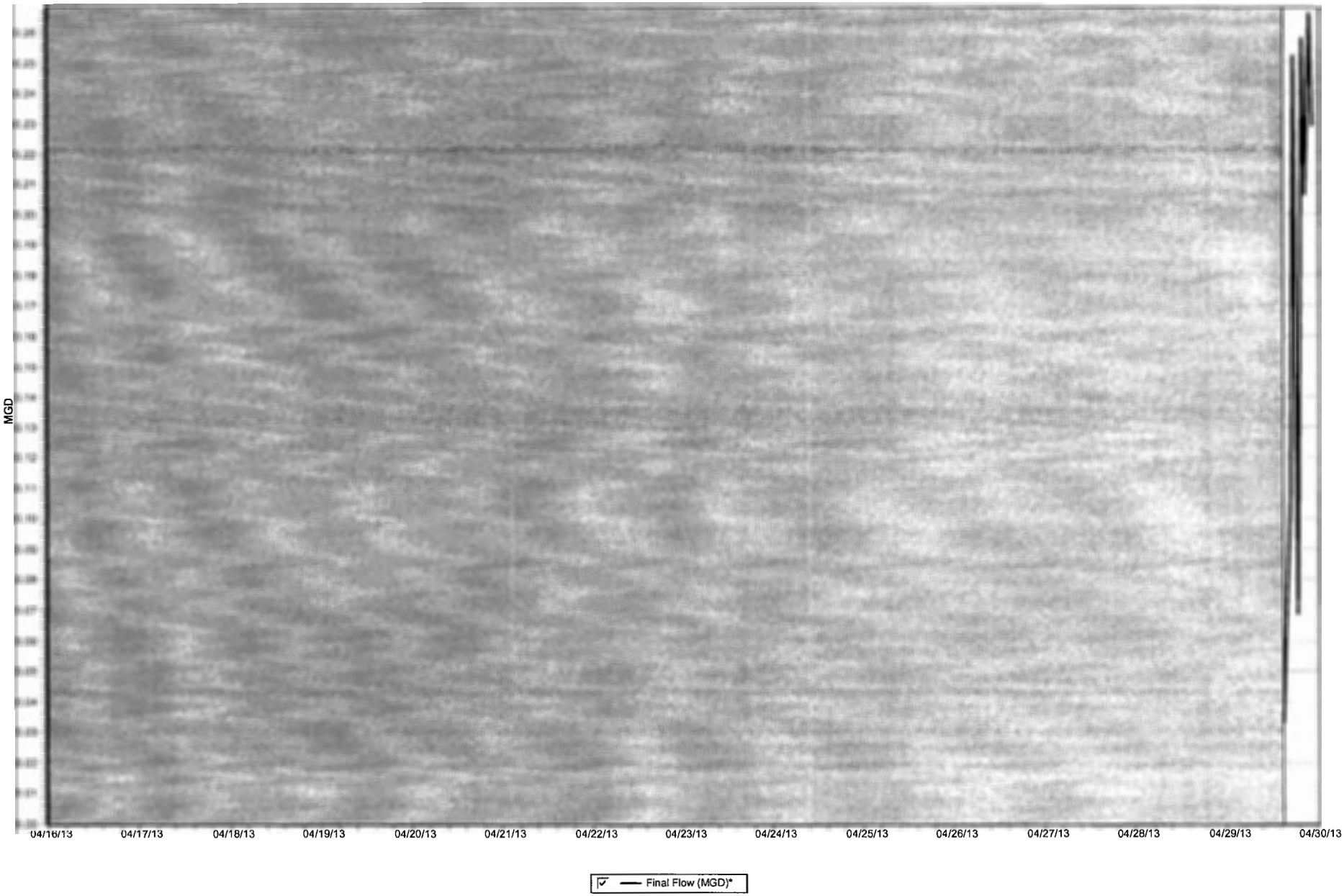
11275WHITECAPFM015A025.jpg

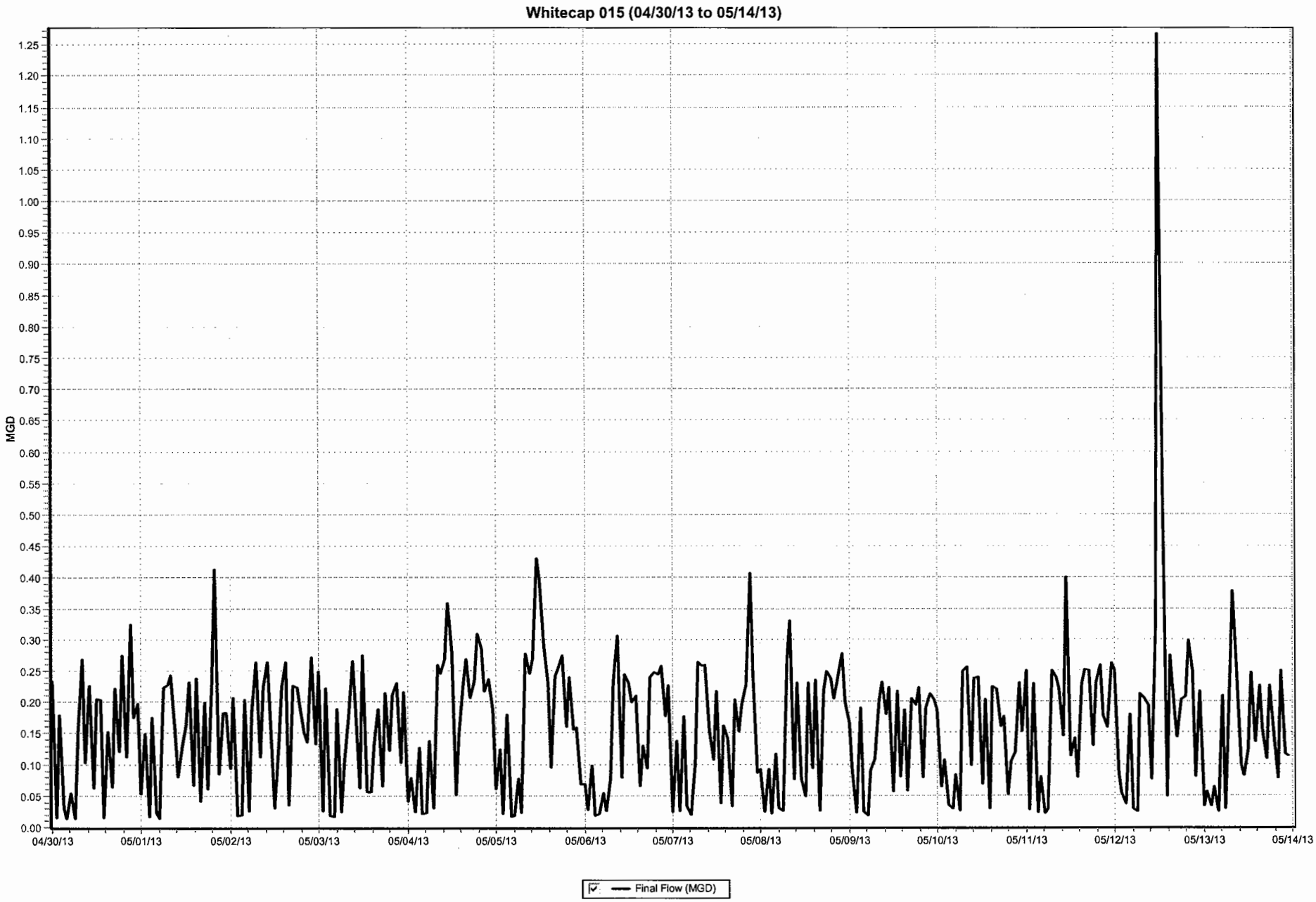
11275WHITECAPFM015I026.jpg

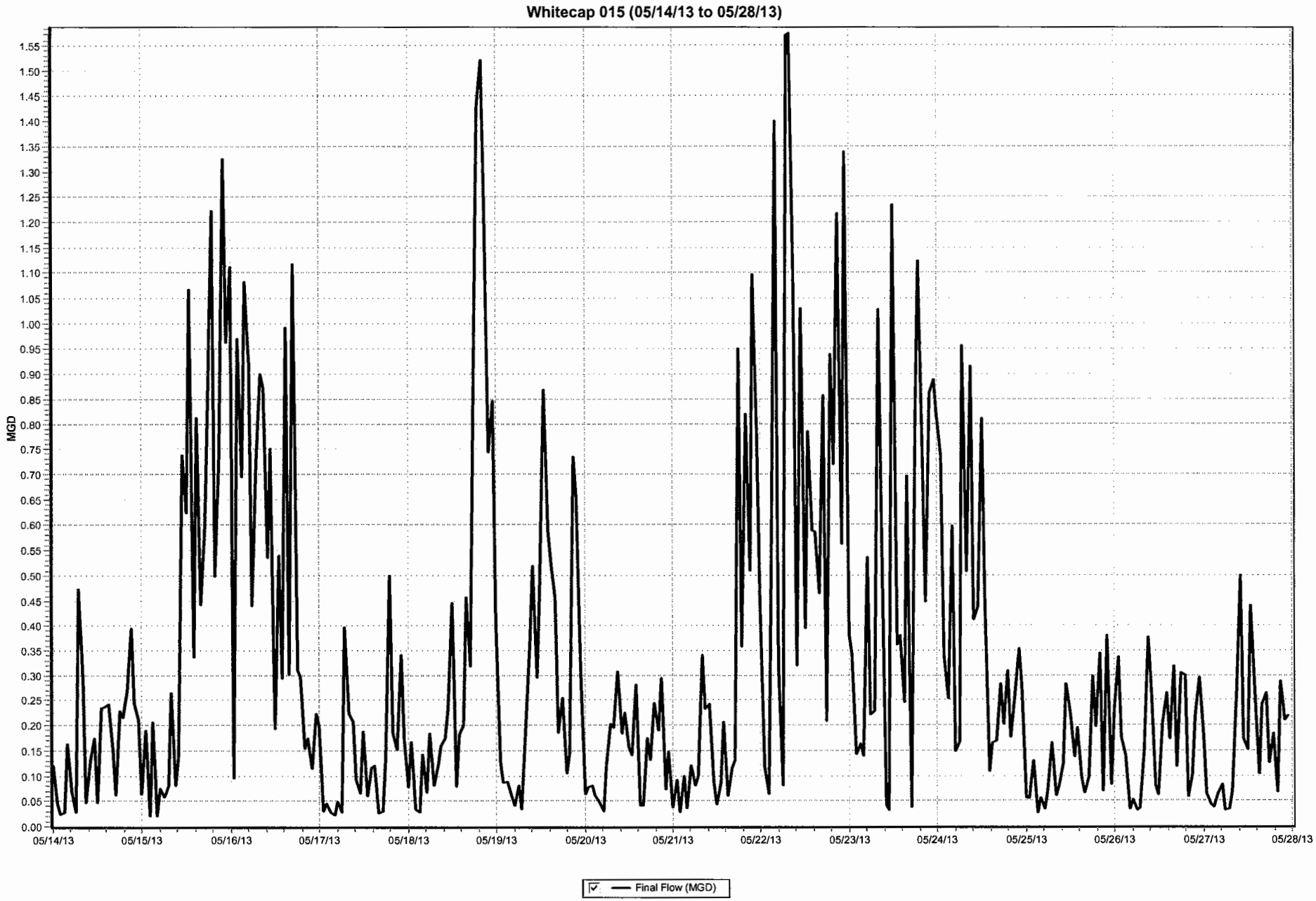
11275WHITECAPFM015P027.jpg

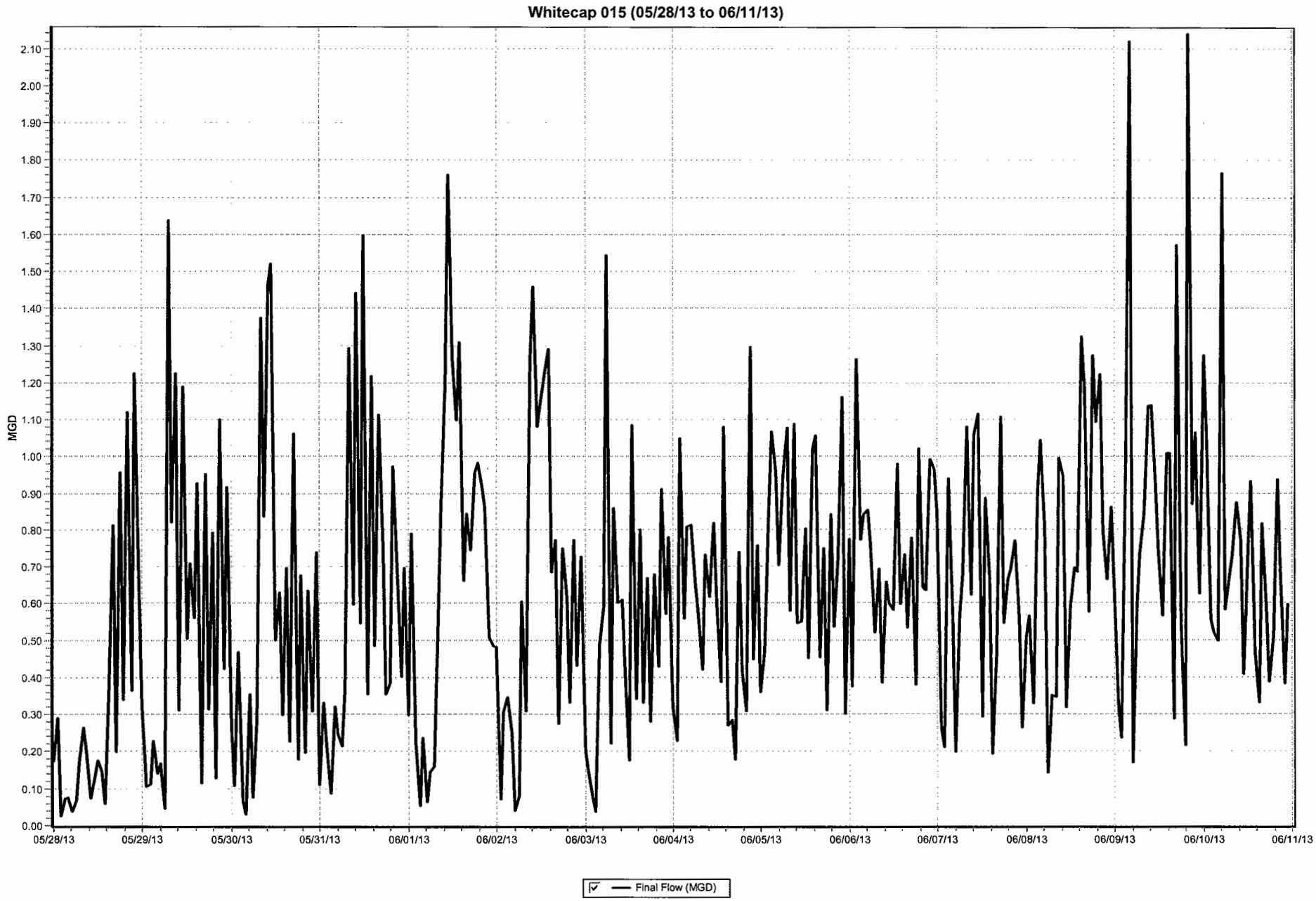

124061660
124061730
124061720
8"
8"
30"
30"
124061760
8"
WHITE CAP
8"
124061780
124061950
8"
18"
124061880
WHITECAP 15
ATASCADERA AVENUE
8"
DASMARINAS DRIVE
8"
BOUNTY AVENUE
18"
124062920
124062990
8"
8"
124063000
124063630
Corpus Christi, Texas
Flow Meter Site
Whitecap 15
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

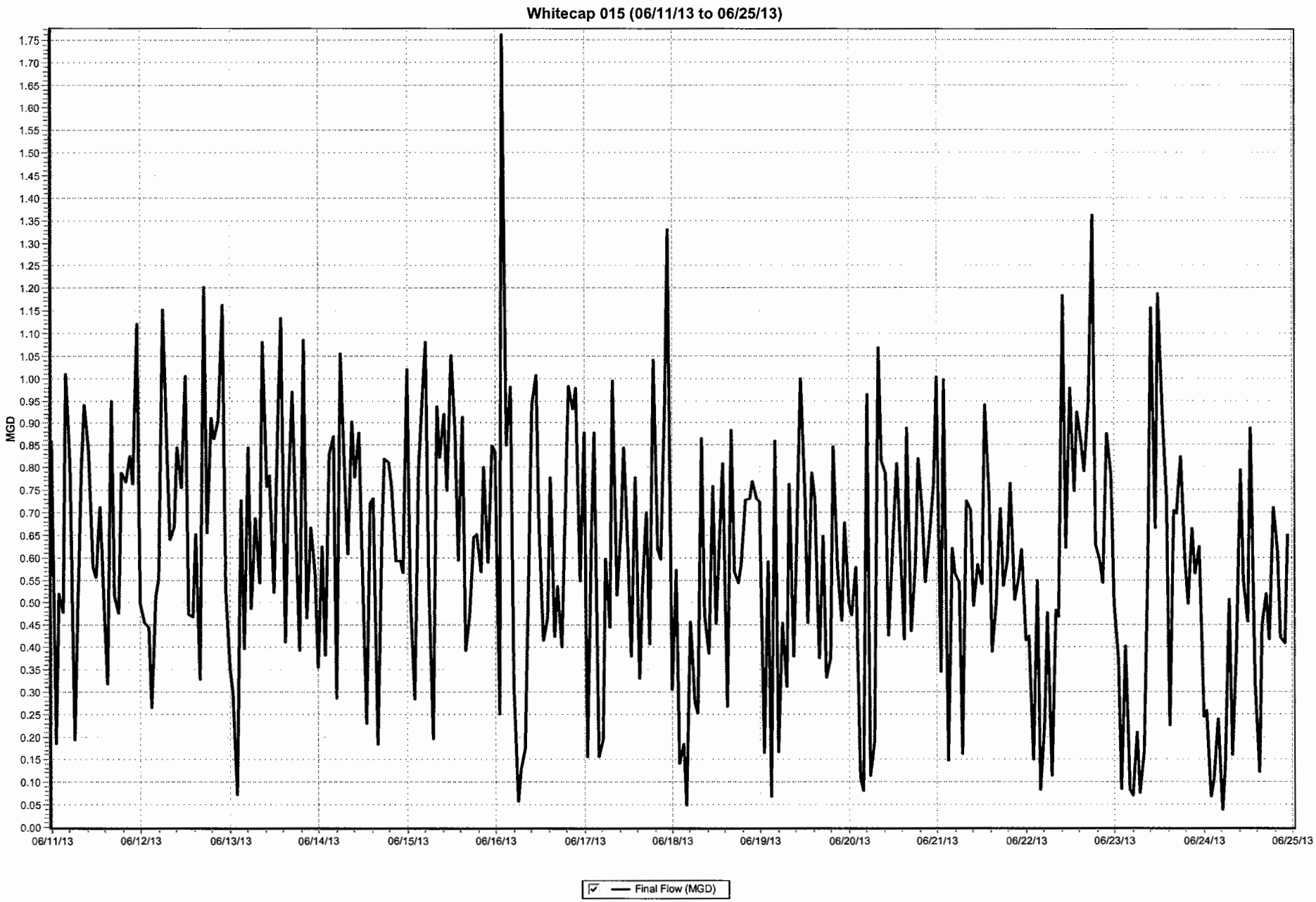
Whitecap 015 (04/16/13 to 04/30/13)

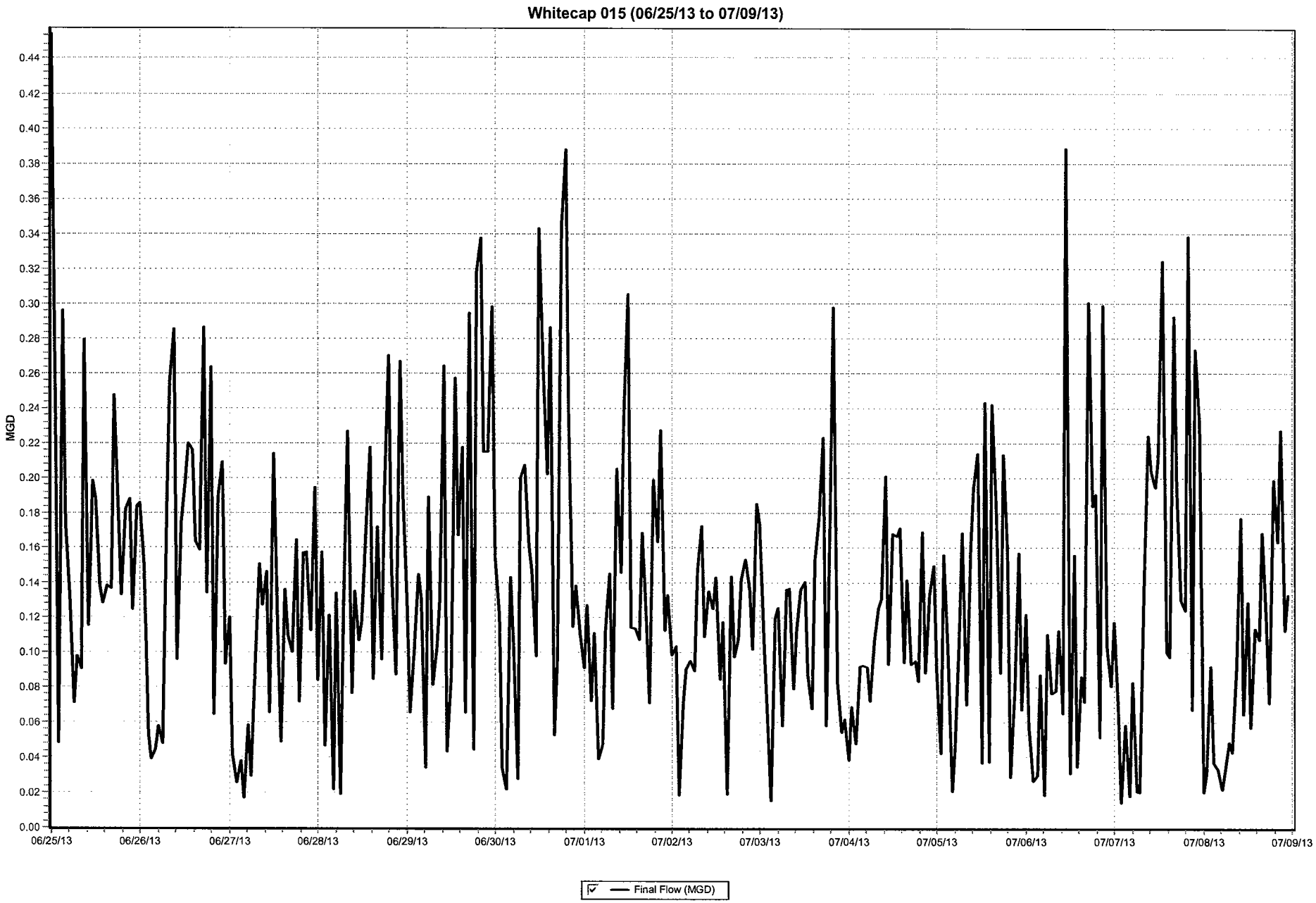


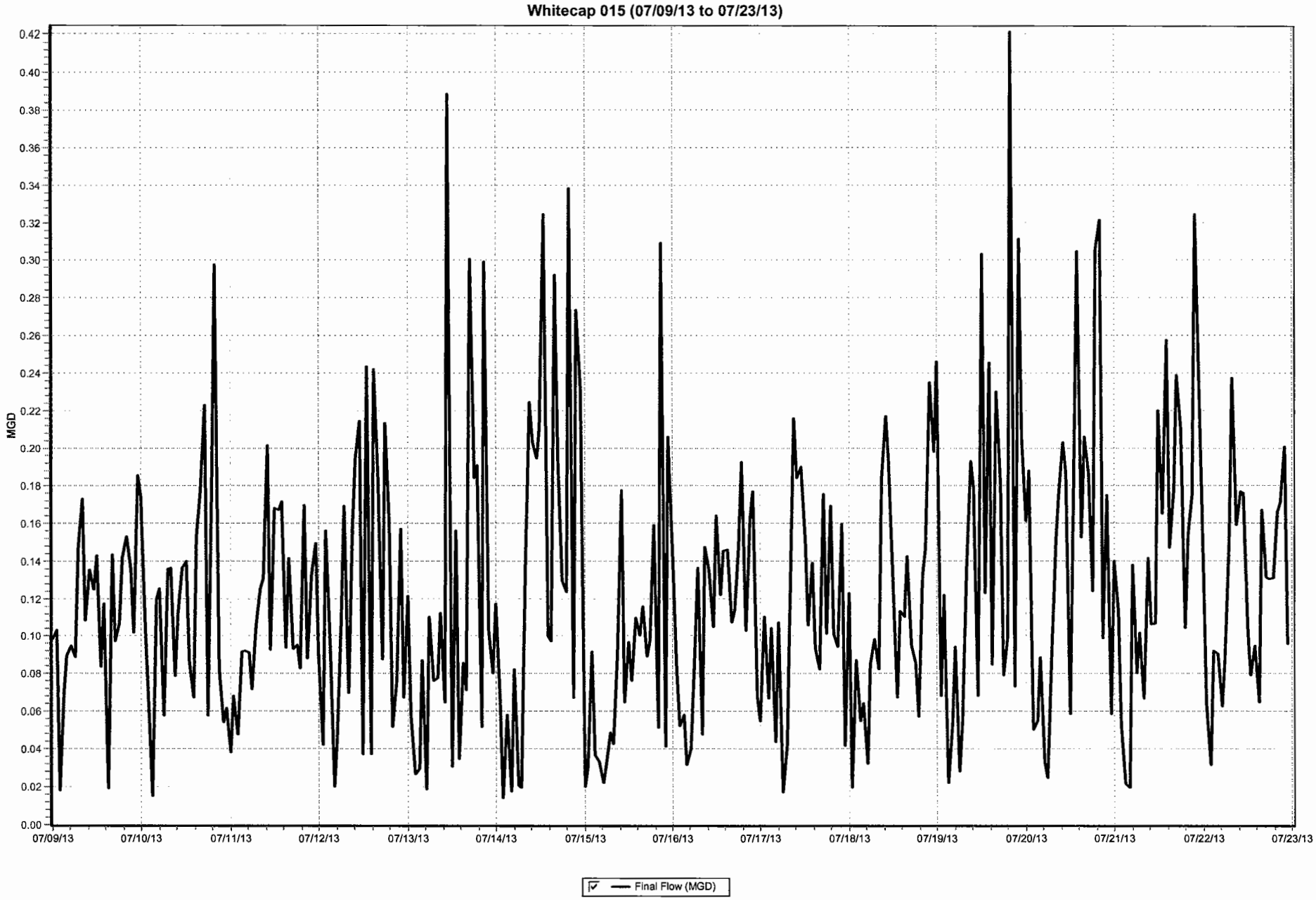

Whitecap 015 (04/30/13 to 05/14/13)
MGD
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Whitecap 015 (05/14/13 to 05/28/13)
MGD
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

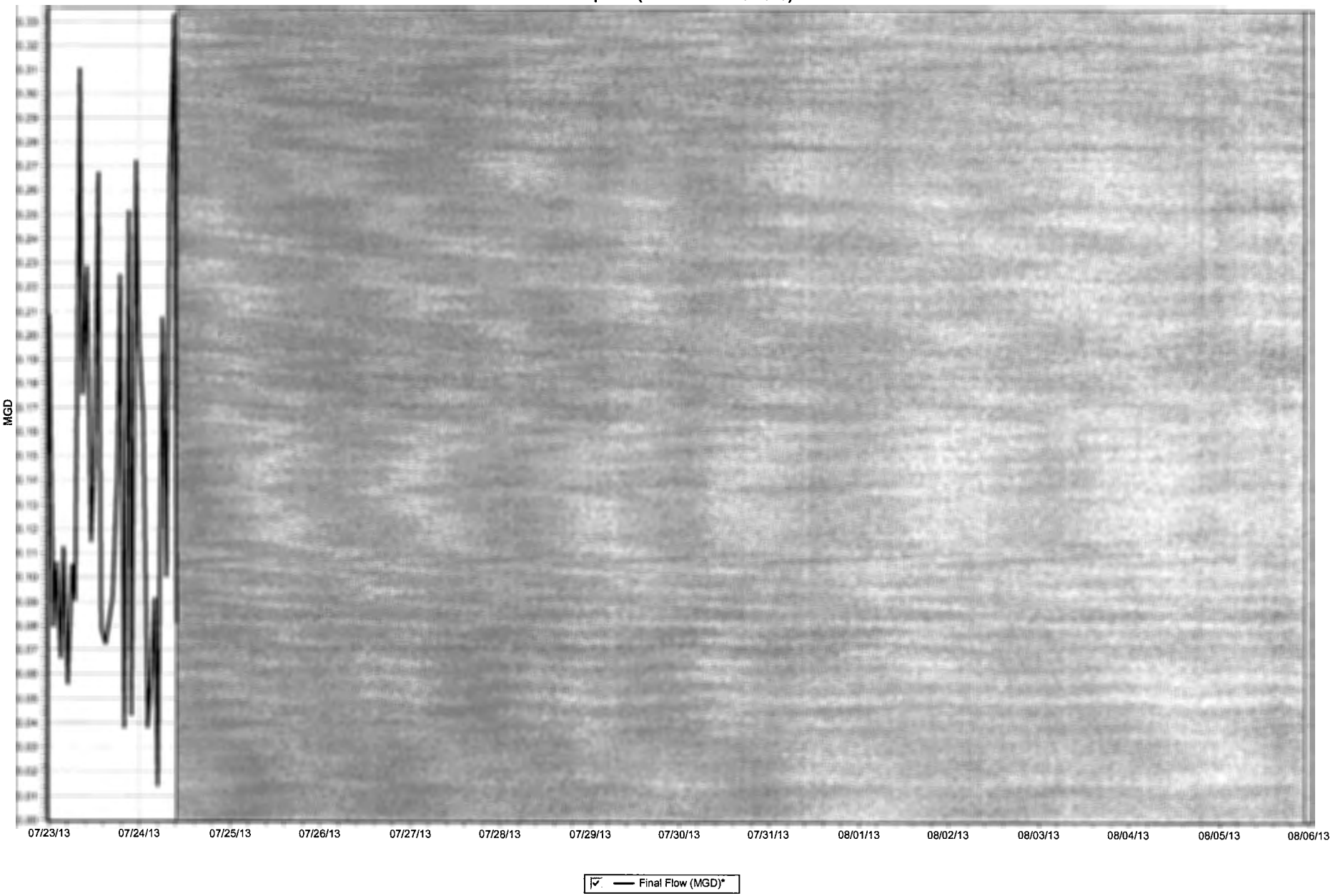

Whitecap 015 (05/28/13 to 06/11/13)
MGD
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 015 (06/11/13 to 06/25/13)
MGD
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 015 (06/25/13 to 07/09/13)
MGD
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 015 (07/09/13 to 07/23/13)
MGD
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Whitecap 015 (07/23/13 to 08/06/13)



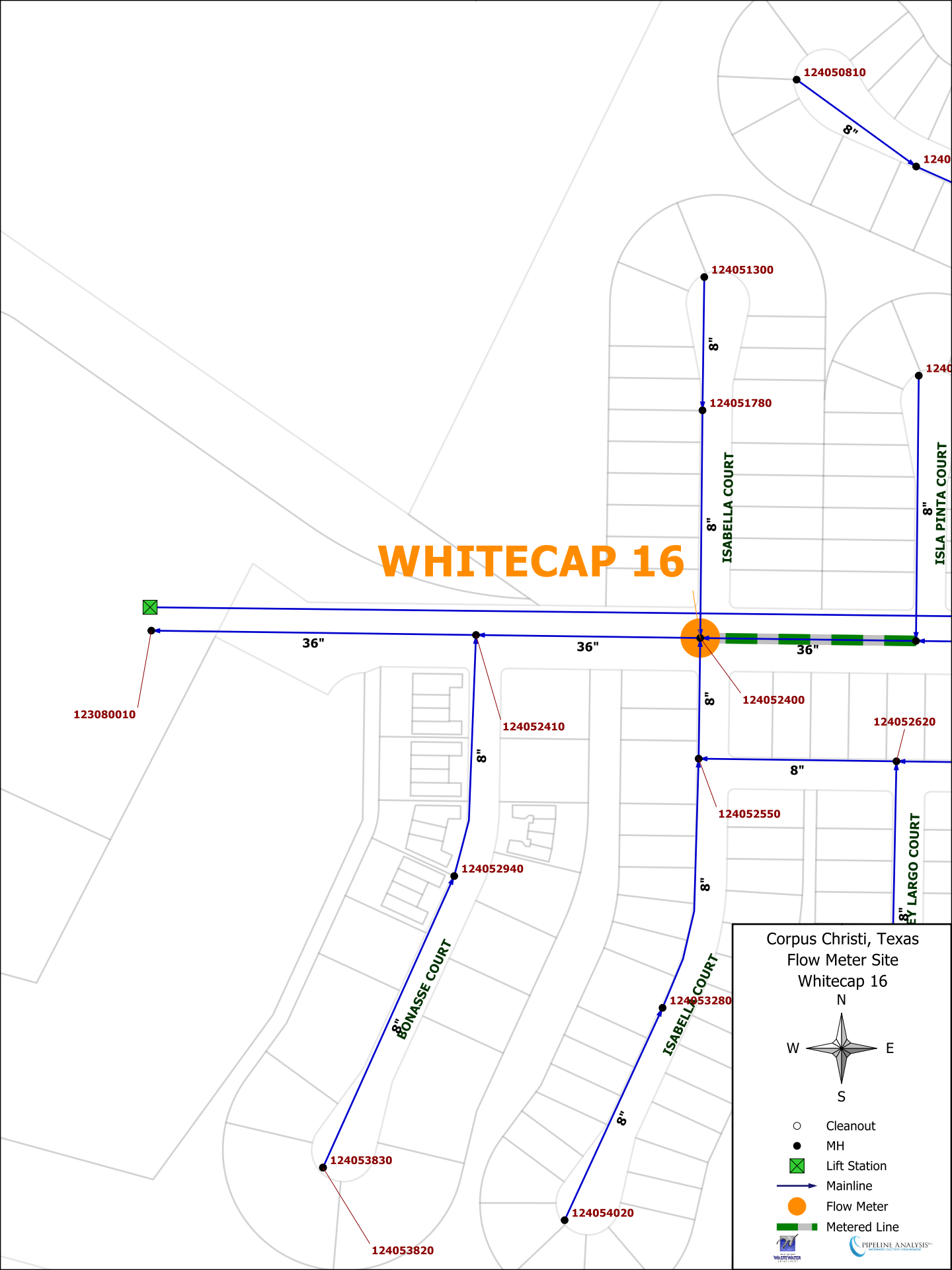
Whitecap FM016

Whitecap Meter Site 016

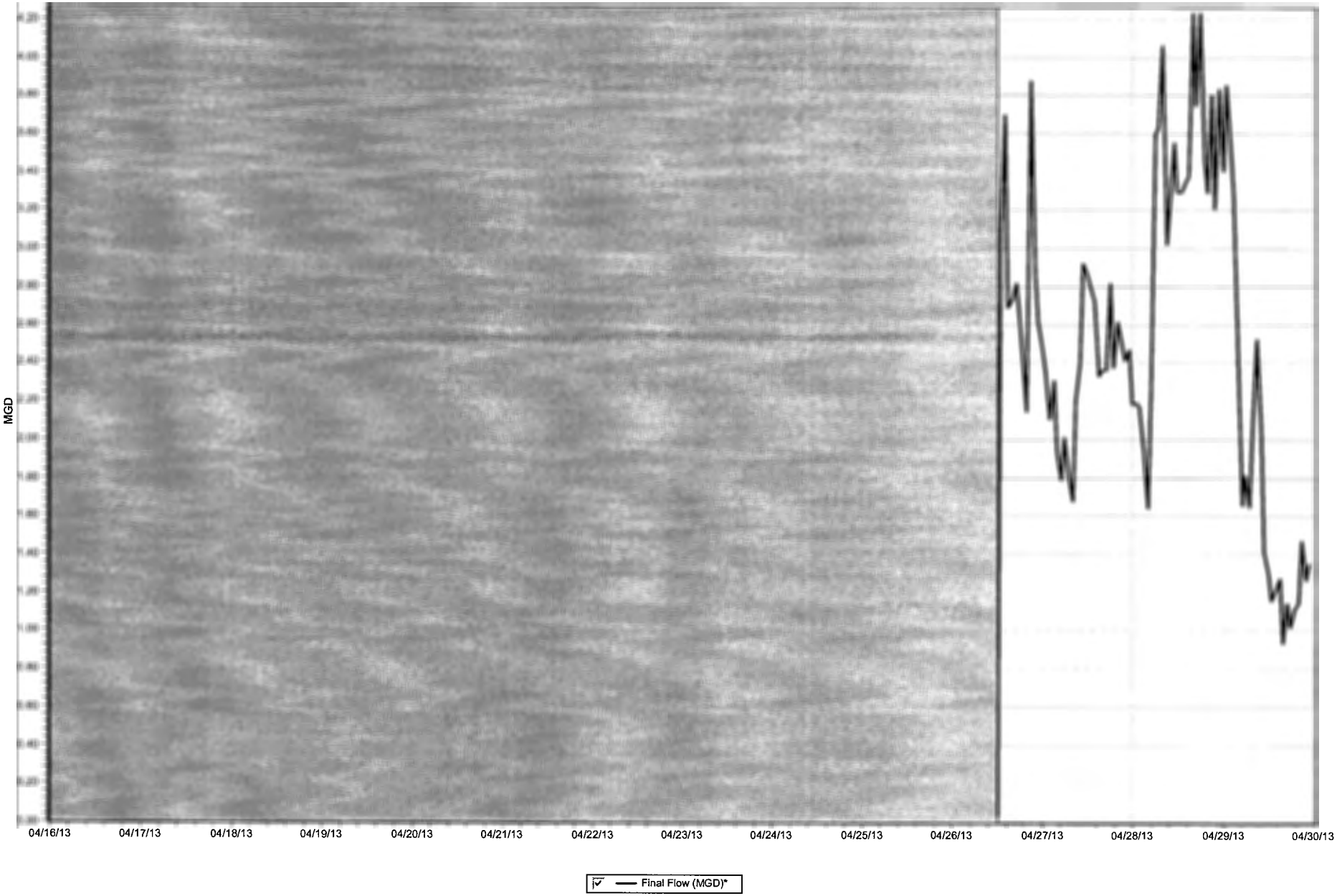
11275WHITECAPFM016A028.jpg

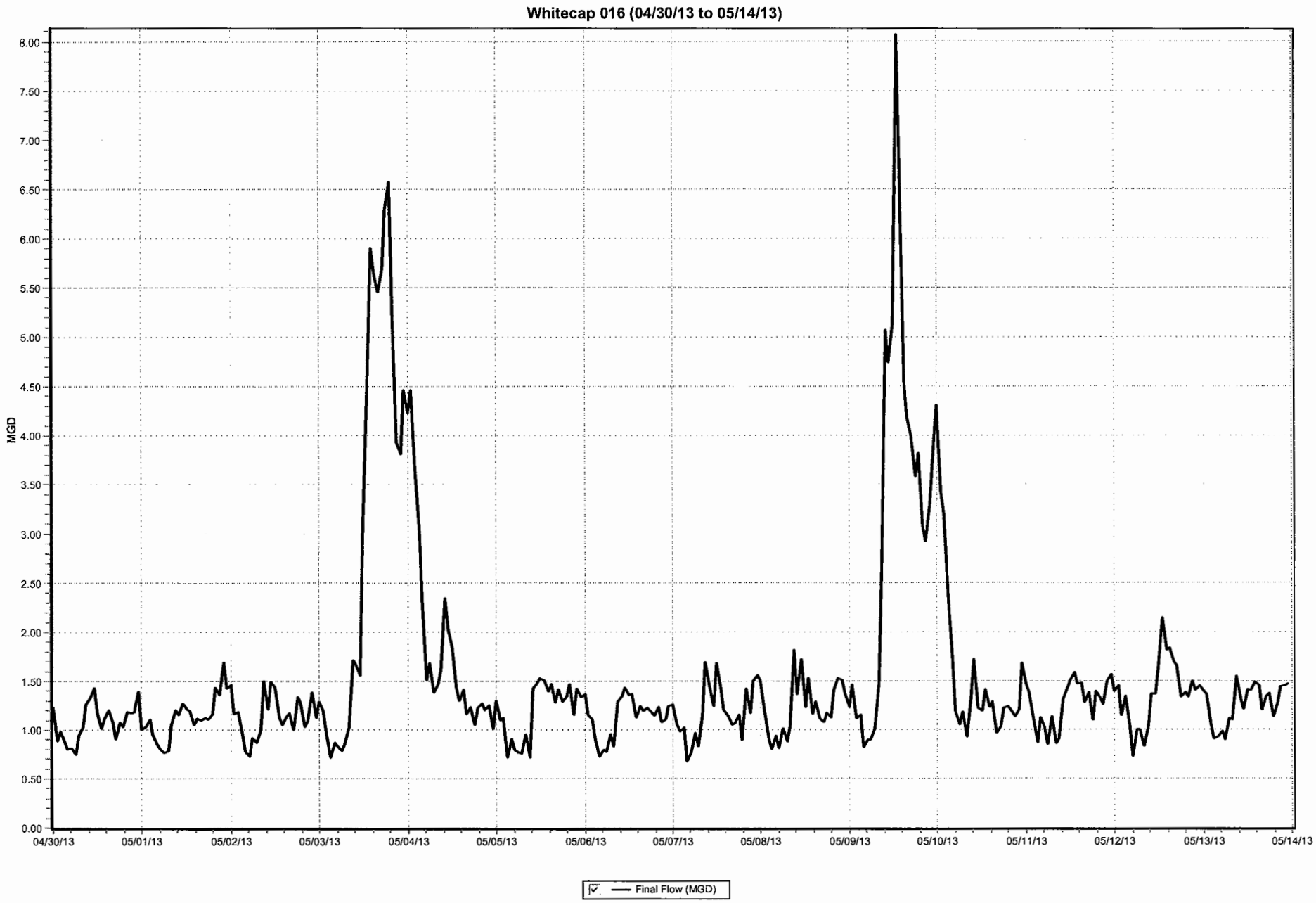
11275WHITECAPFM016I029.jpg

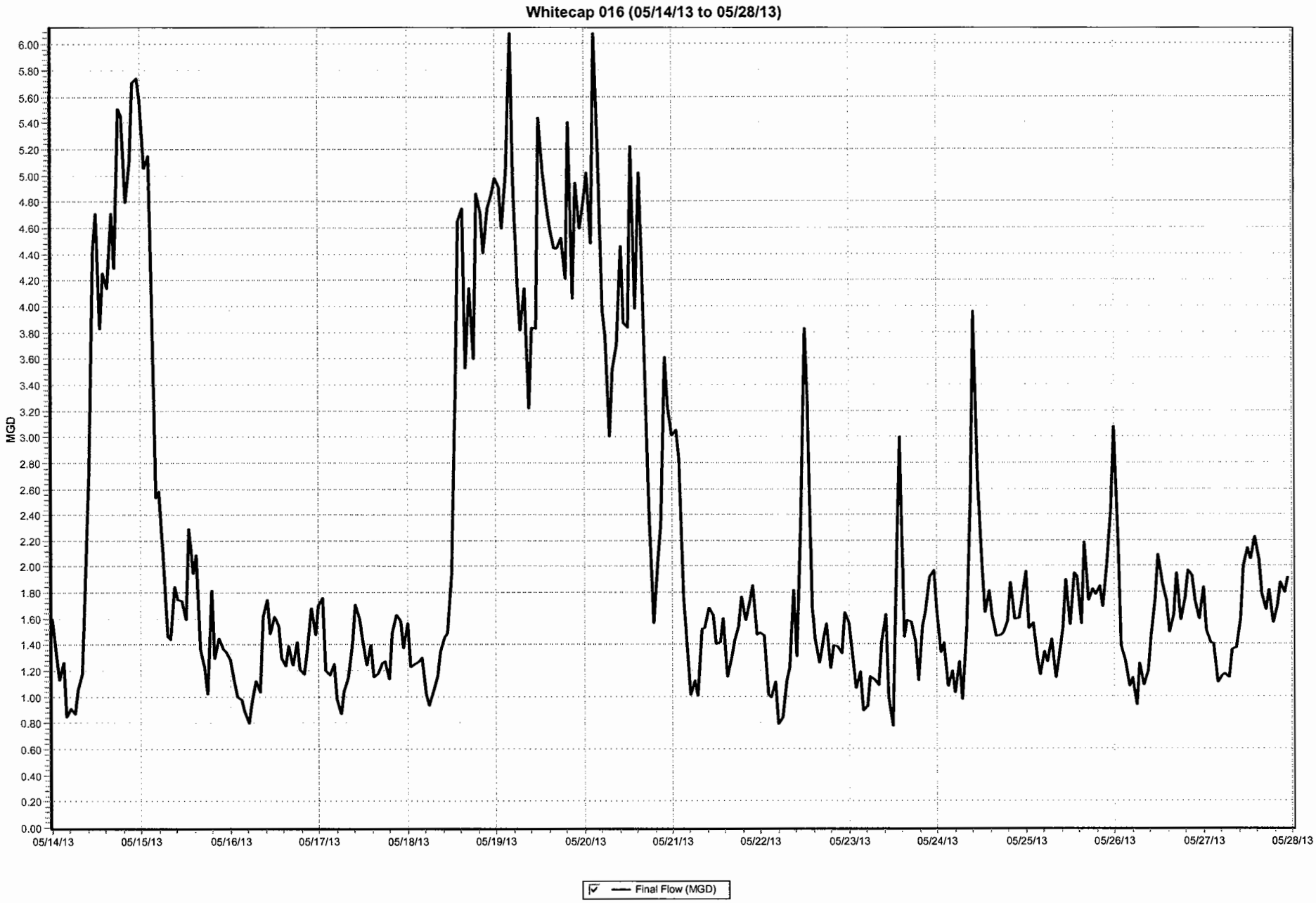
11275WHITECAPFM016P030.jpg

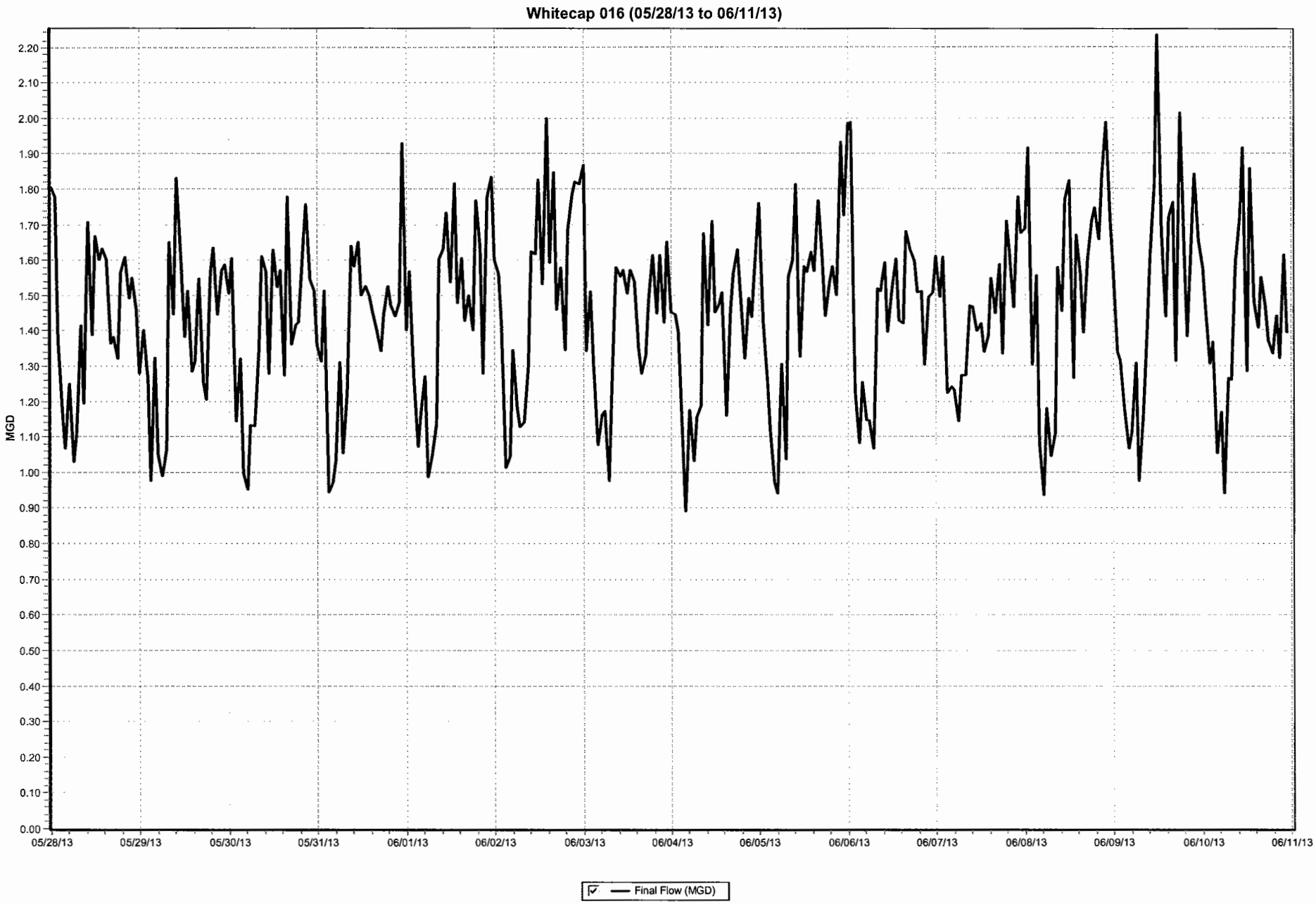

WHITECAP 16
124050810
8"
1240
124051300
8"
124051780
8"
ISABELLA COURT
1240
8"
ISLA PINTA COURT
36"
36"
36"
123080010
124052410
124052400
8"
124052620
8"
124052550
124052940
8"
8"
BONASSE COURT
124053280
ISABELLA COURT
8"
124053830
124054020
124053820
Corpus Christi, Texas
Flow Meter Site
Whitecap 16
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

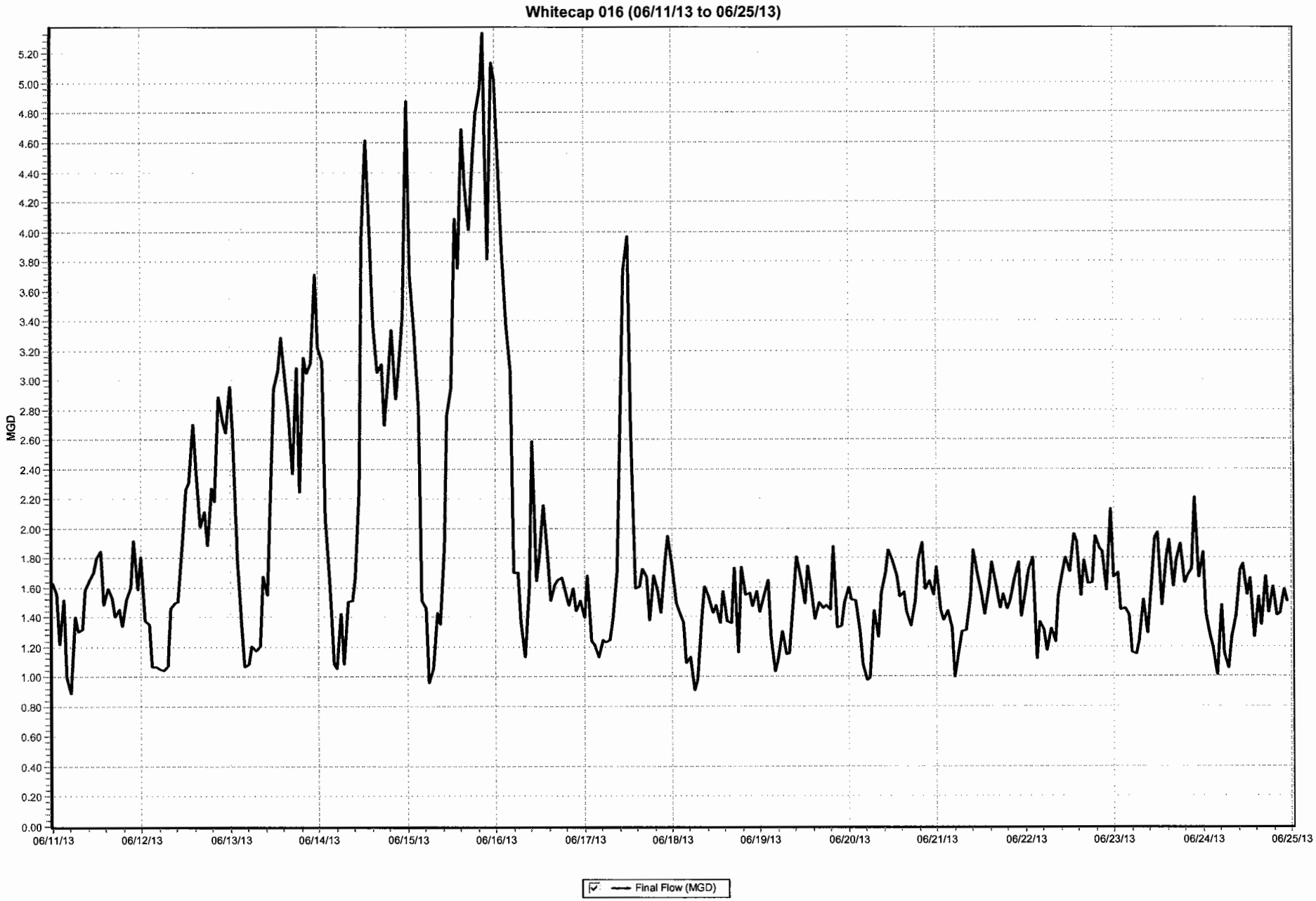
Whitecap 016 (04/16/13 to 04/30/13)

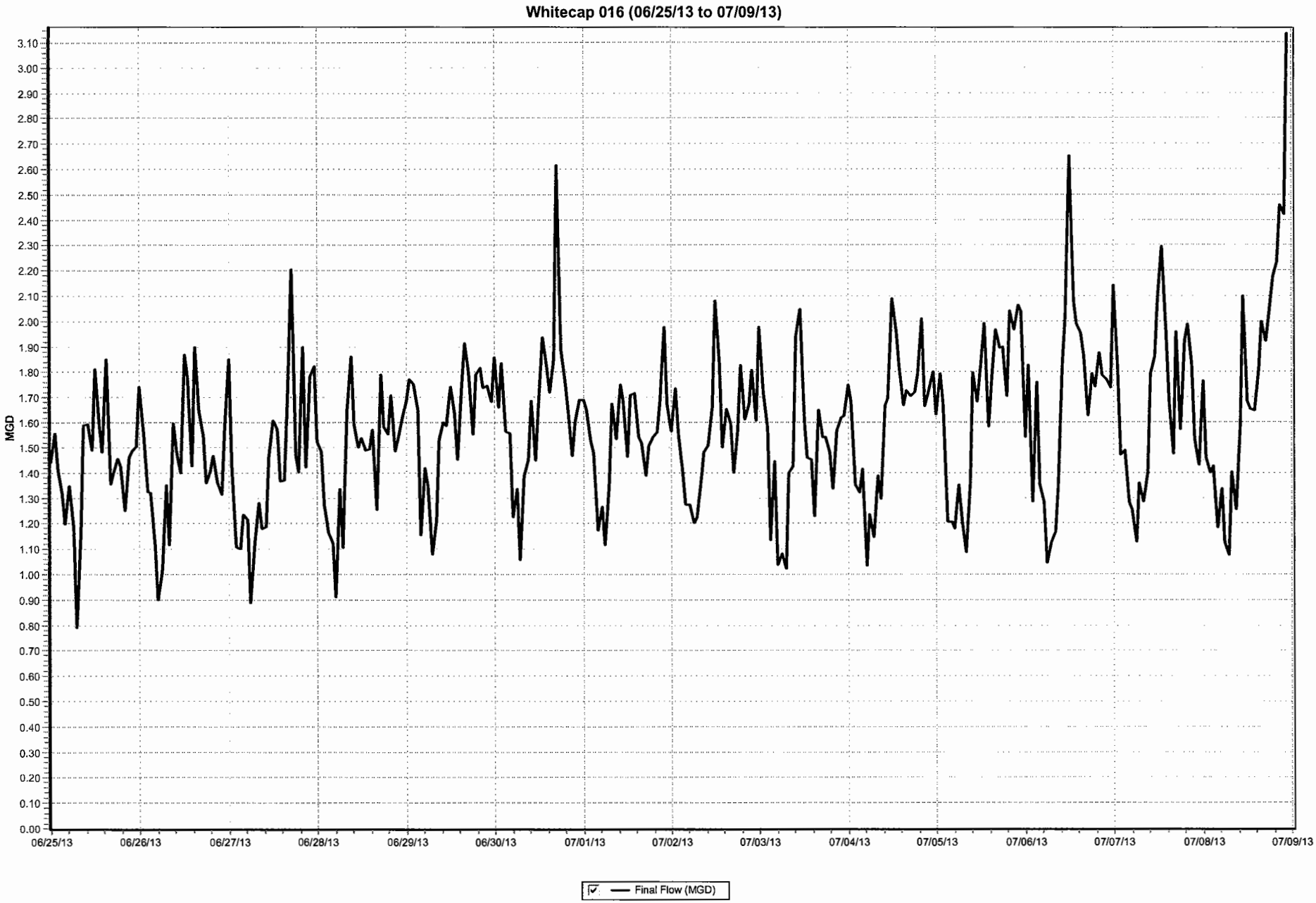


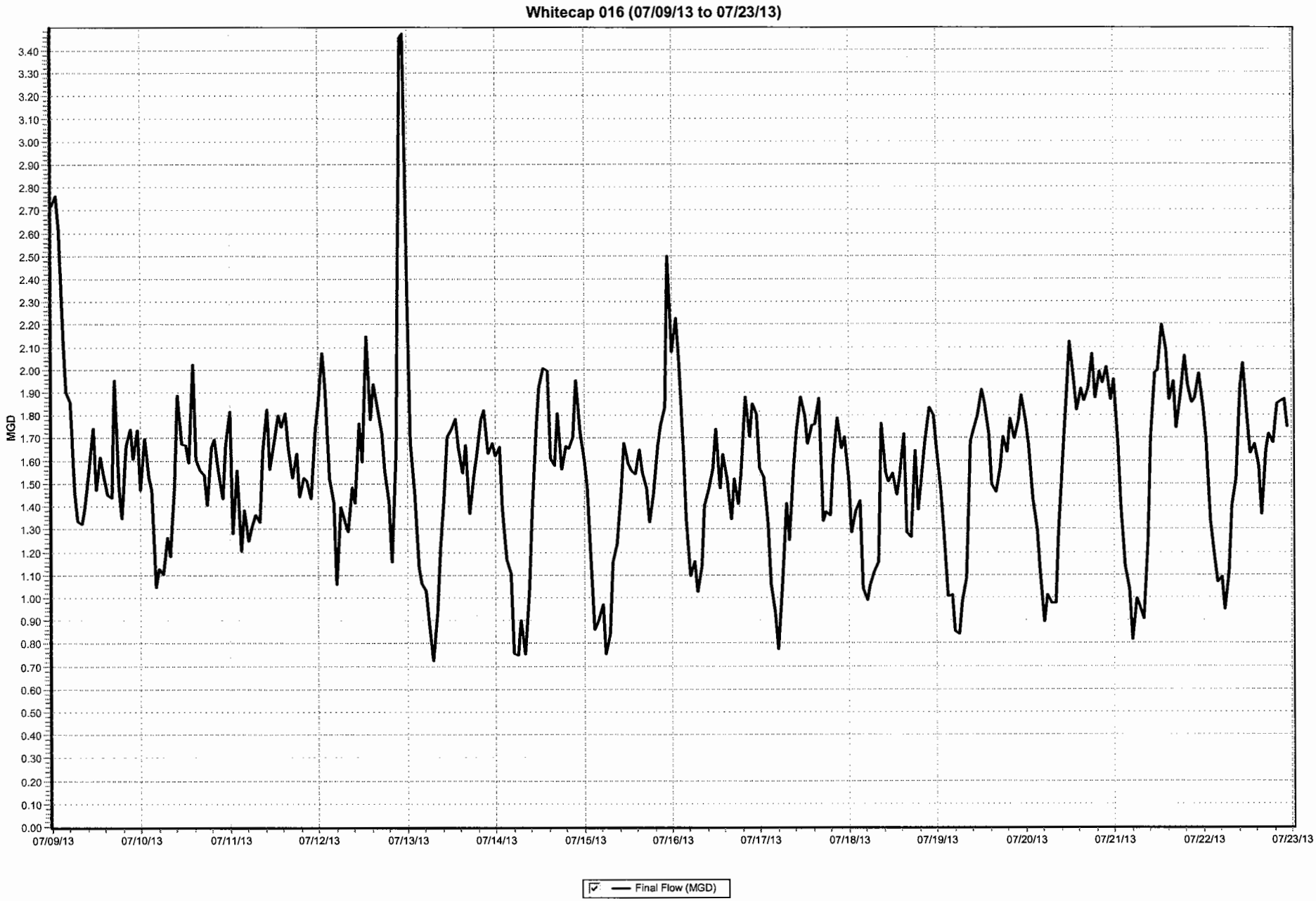

Whitecap 016 (04/30/13 to 05/14/13)
MGD
8.00
7.50
7.00
6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)

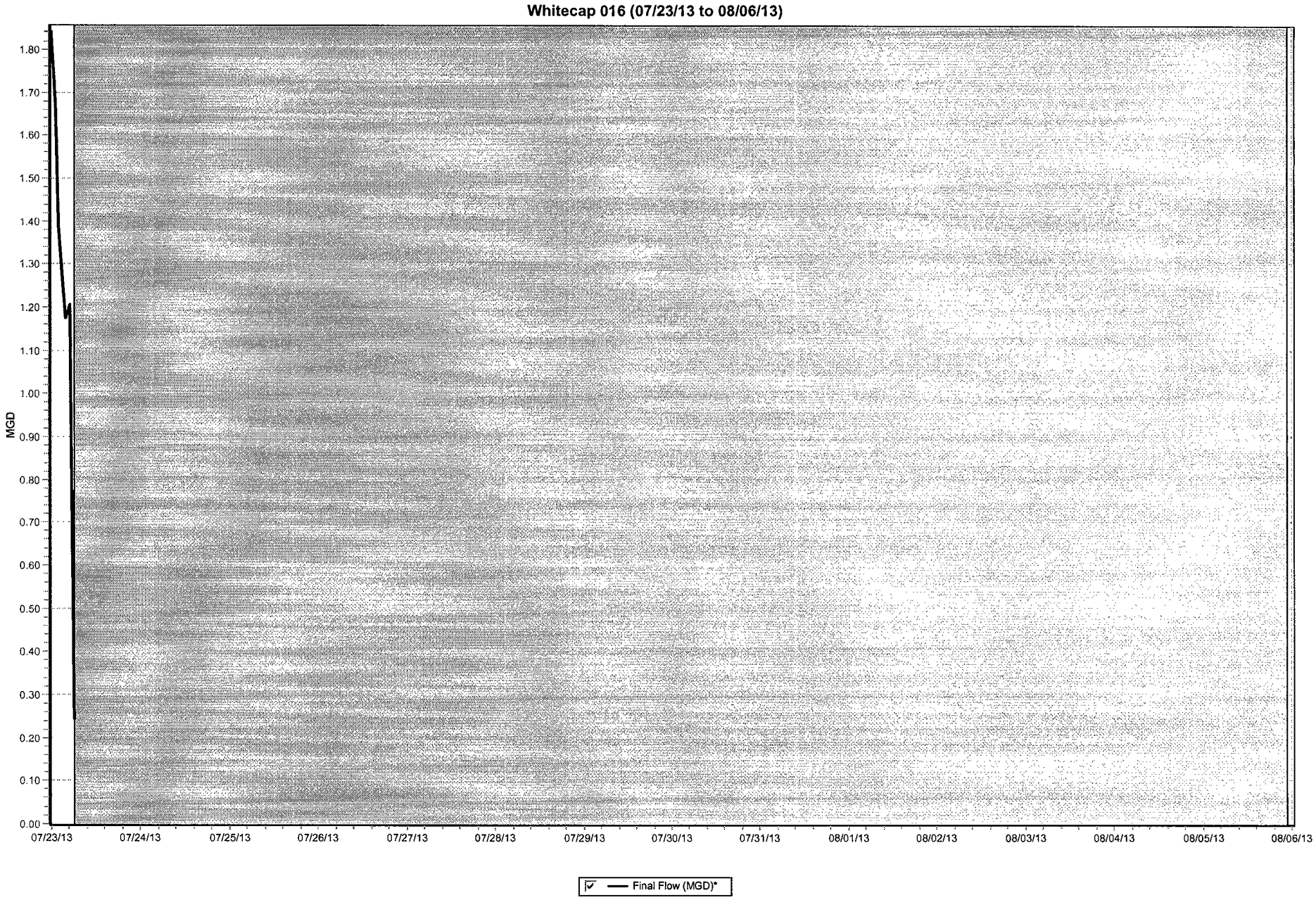

Whitecap 016 (05/14/13 to 05/28/13)
MGD
6.00
5.80
5.60
5.40
5.20
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)


Whitecap 016 (05/28/13 to 06/11/13)
MGD
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 016 (06/11/13 to 06/25/13)
MGD
5.20
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 016 (06/25/13 to 07/09/13)
MGD
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 016 (07/09/13 to 07/23/13)
MGD
3.40
3.30
3.20
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)


Whitecap 016 (07/23/13 to 08/06/13)
MGD
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
07/23/13
07/24/13
07/25/13
07/26/13
07/27/13
07/28/13
07/29/13
07/30/13
07/31/13
08/01/13
08/02/13
08/03/13
08/04/13
08/05/13
08/06/13
Final Flow (MGD)*

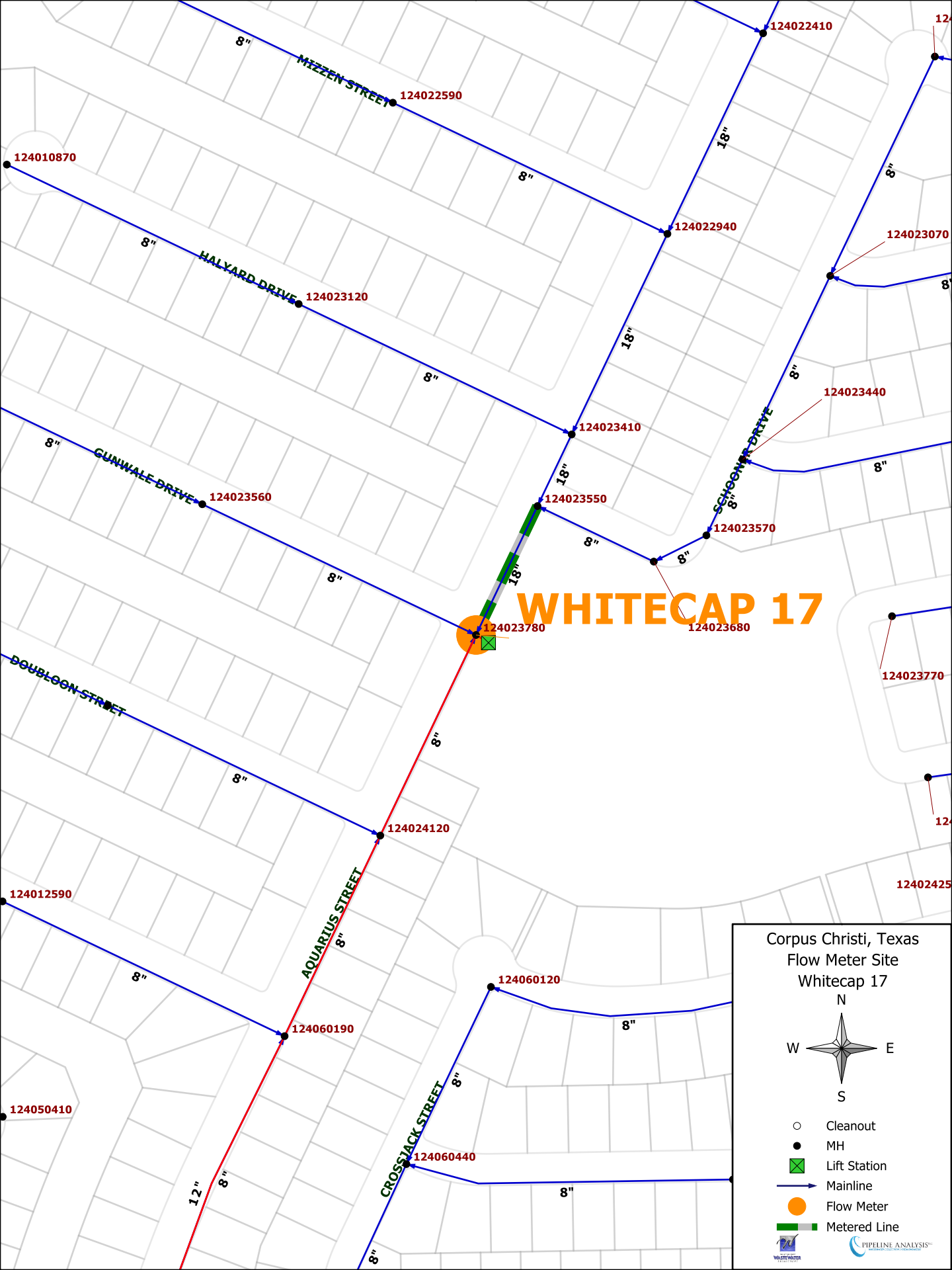
Whitecap FM017

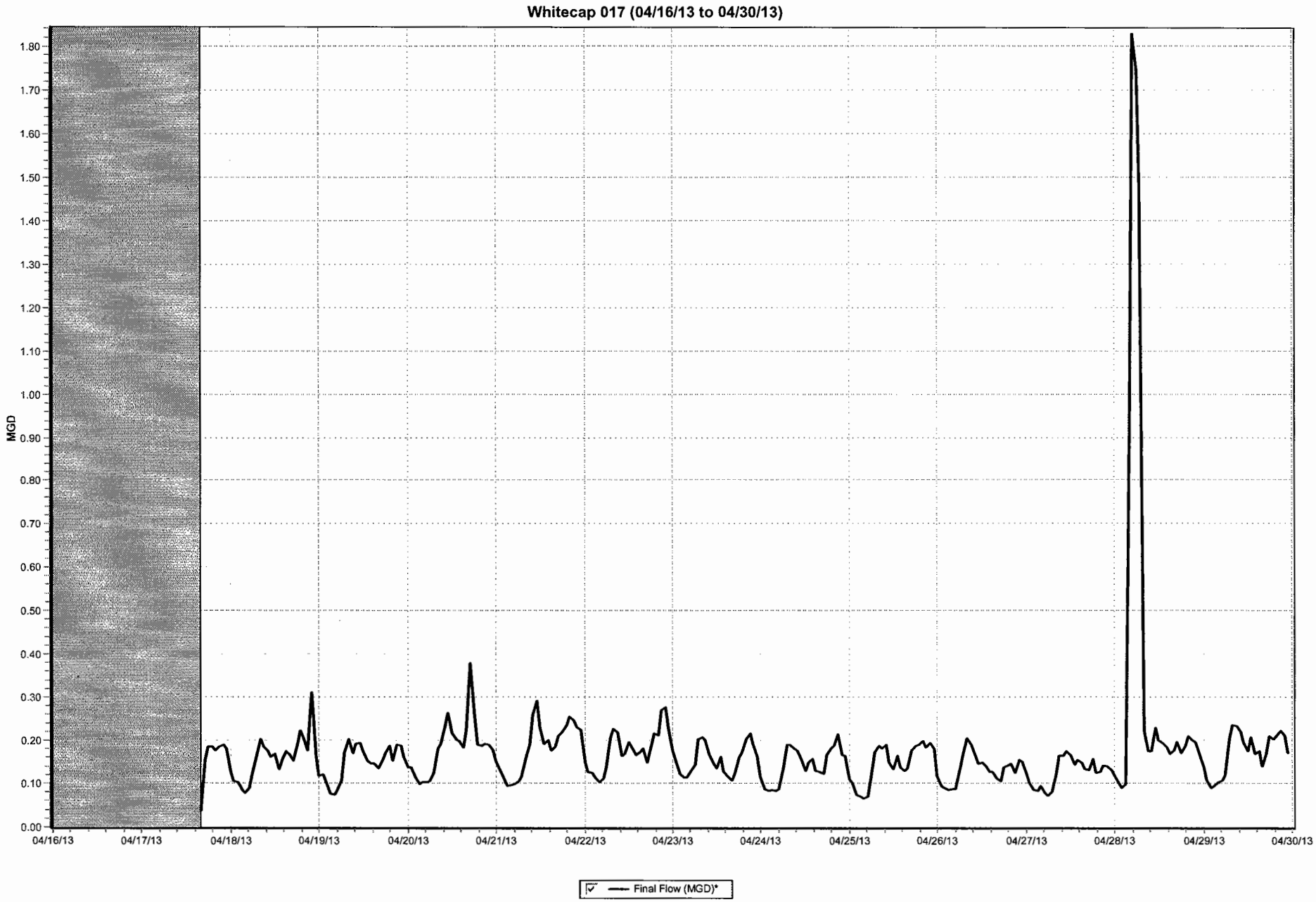
Whitecap Meter Site 017

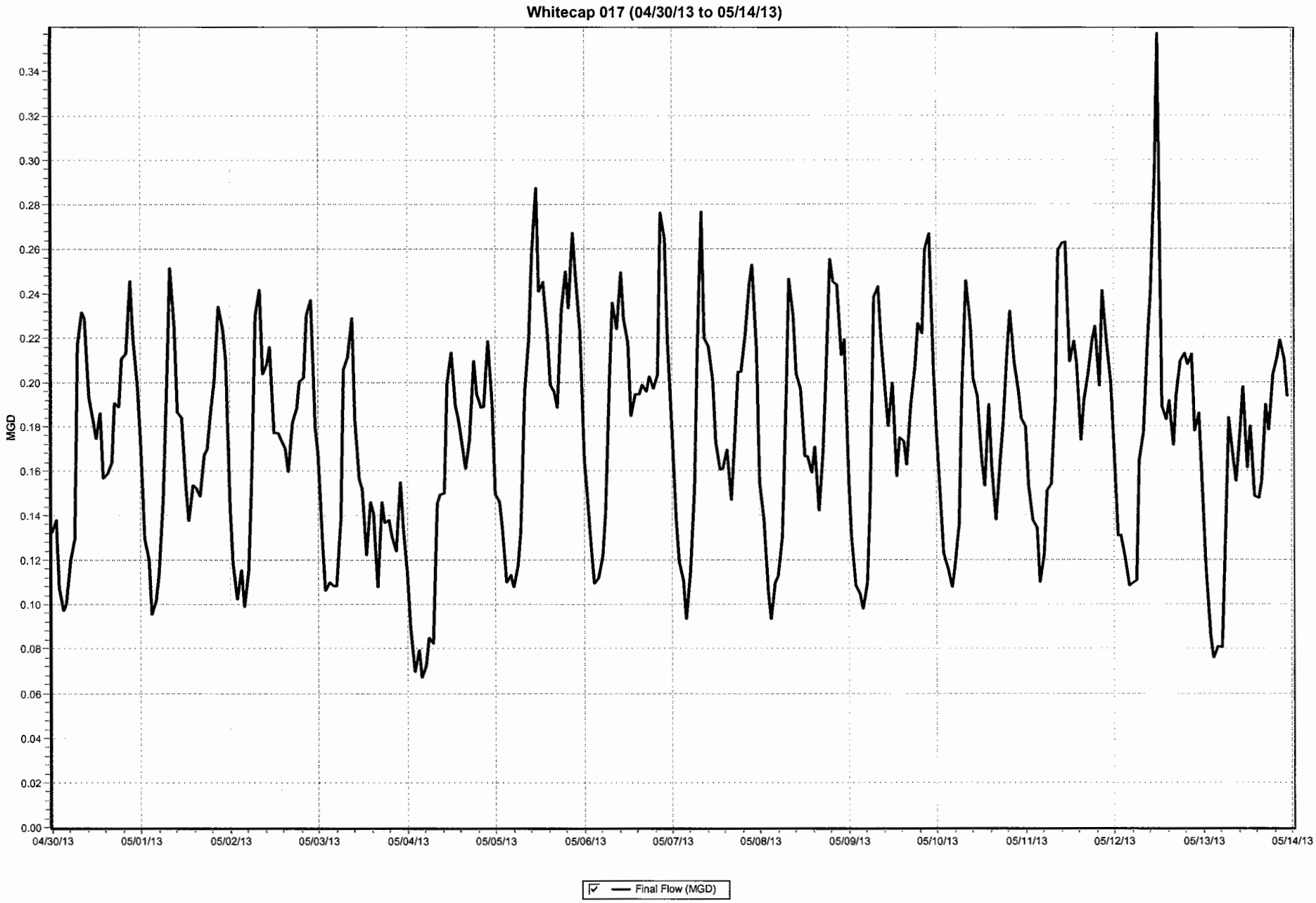
11275WHITECAPFM017A031.jpg

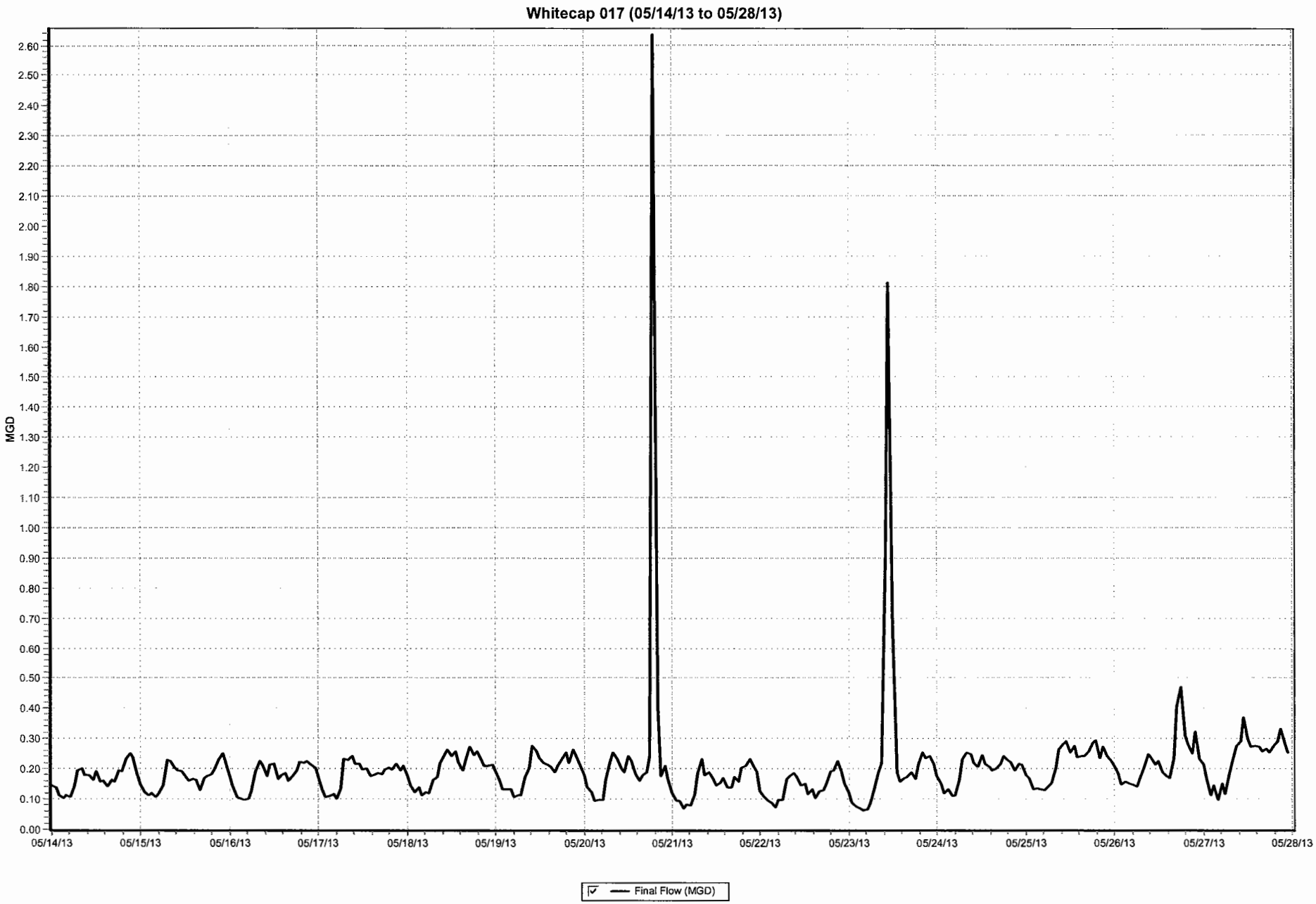
11275WHITECAPFM017I032.jpg

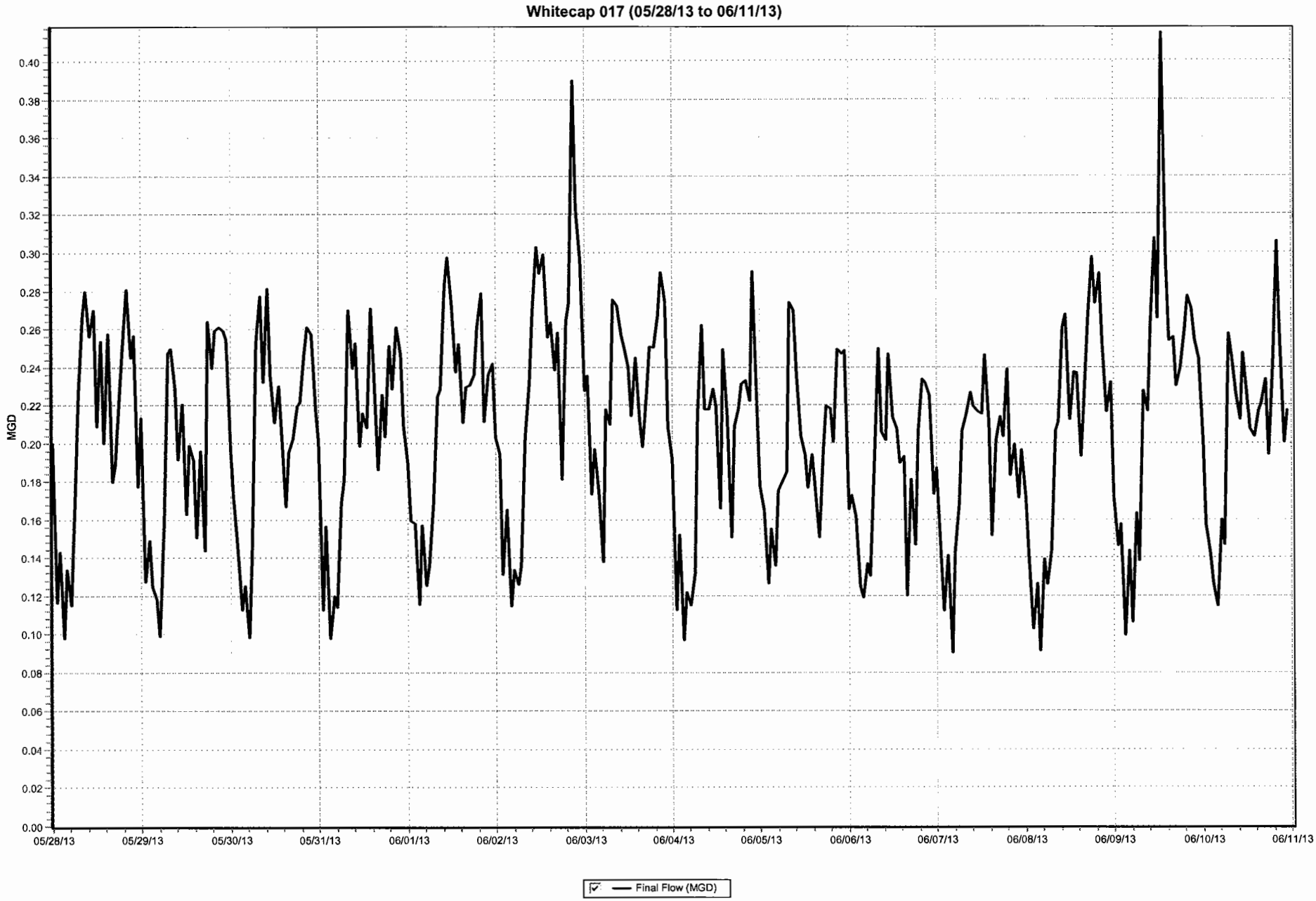
11275WHITECAPFM017P033.jpg

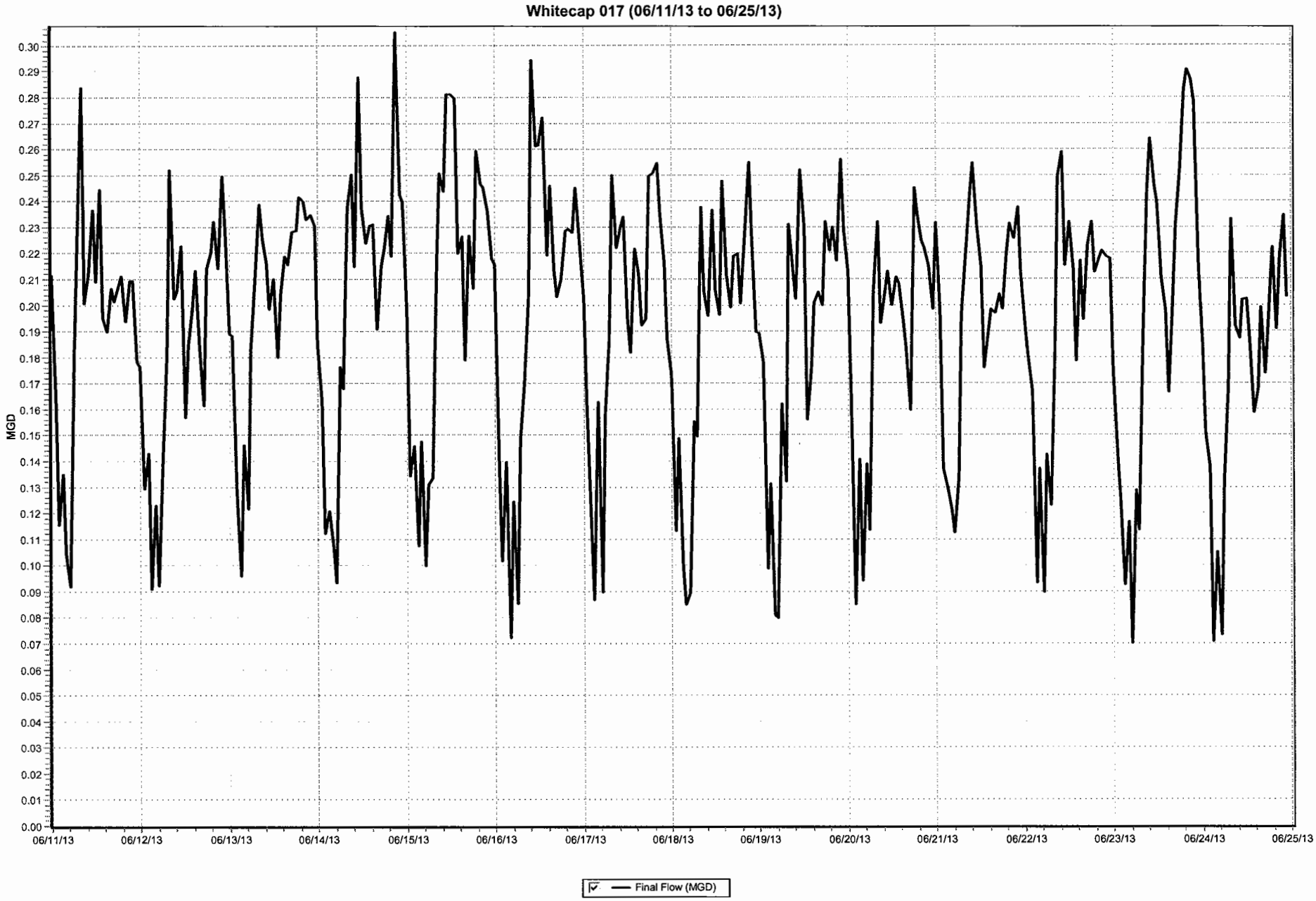

WHITECAP 17
MIZZEN STREET
HALYARD DRIVE
GUNWALE DRIVE
SCHOONER DRIVE
DOUBLOON STREET
AQUARIUS STREET
CROSSJACK STREET
124022410
124022590
124010870
124022940
124023070
124023120
124023410
124023440
124023560
124023550
124023570
124023680
124023780
124023770
124024120
124012590
124060120
124060190
124050410
124060440
8"
18"
12"
Corpus Christi, Texas
Flow Meter Site
Whitecap 17
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

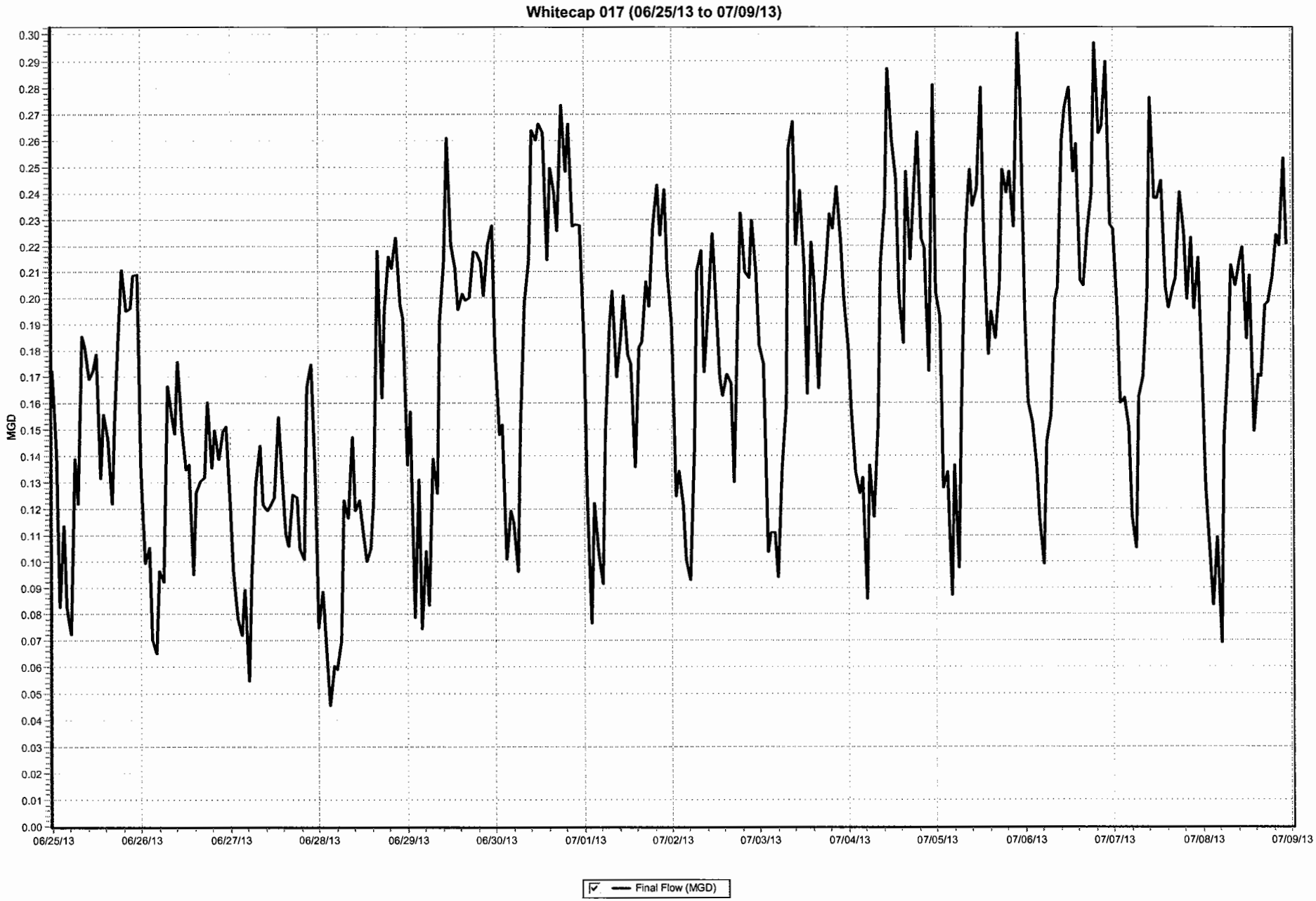

Whitecap 017 (04/16/13 to 04/30/13)
MGD
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

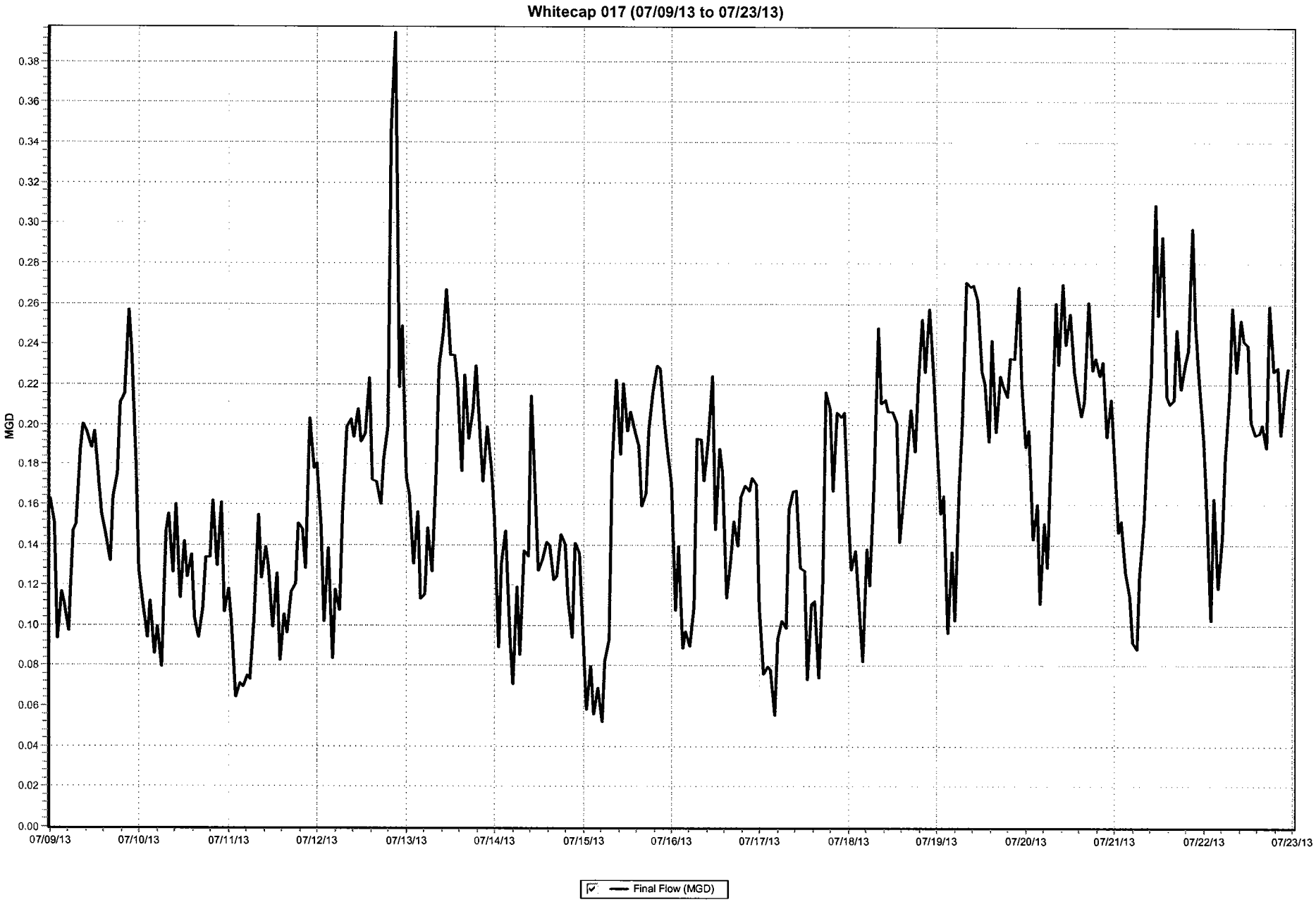

Whitecap 017 (04/30/13 to 05/14/13)
MGD
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Whitecap 017 (05/14/13 to 05/28/13)
MGD
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

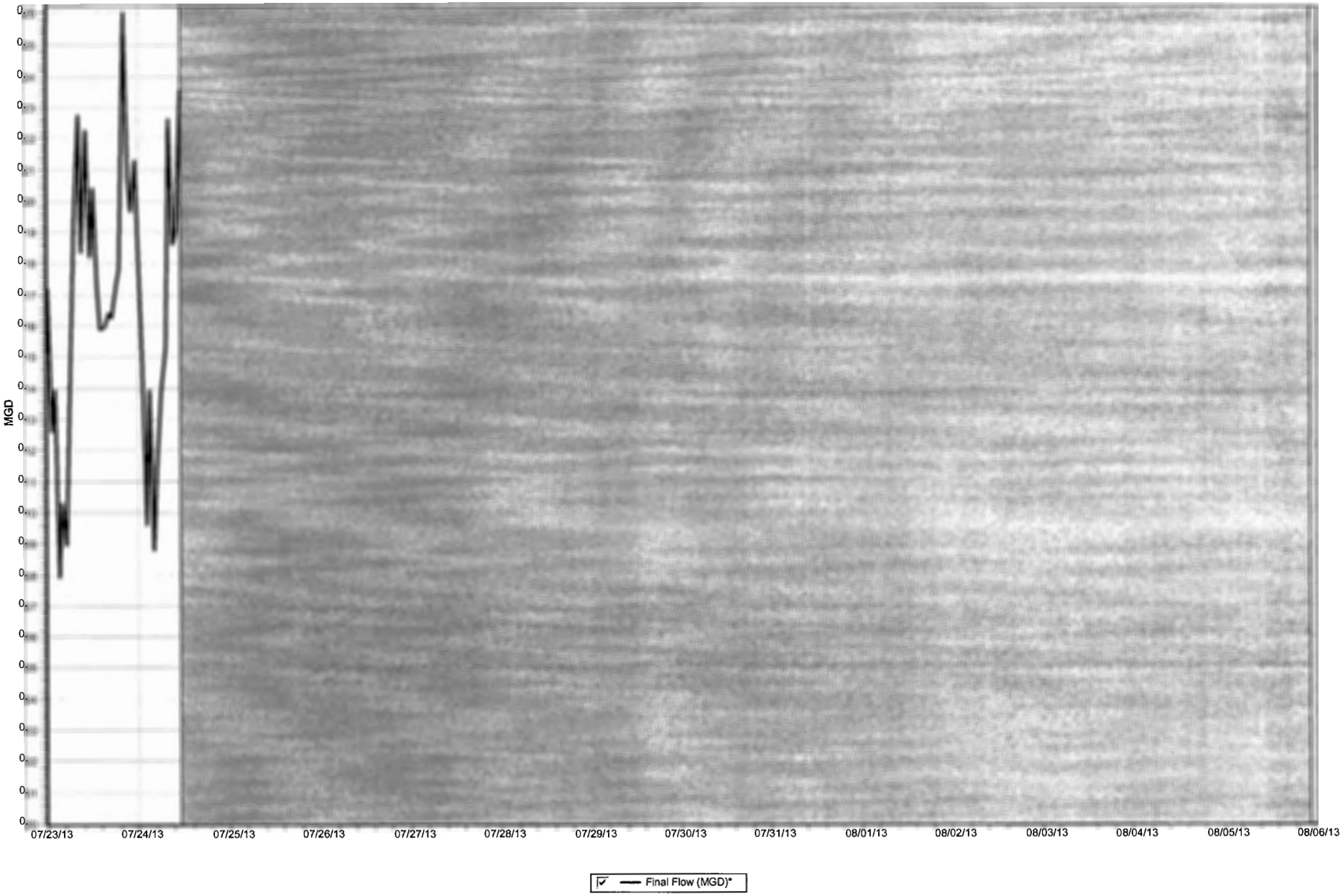

Whitecap 017 (05/28/13 to 06/11/13)
MGD
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 017 (06/11/13 to 06/25/13)
MGD
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 017 (06/25/13 to 07/09/13)
MGD
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 017 (07/09/13 to 07/23/13)
MGD
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

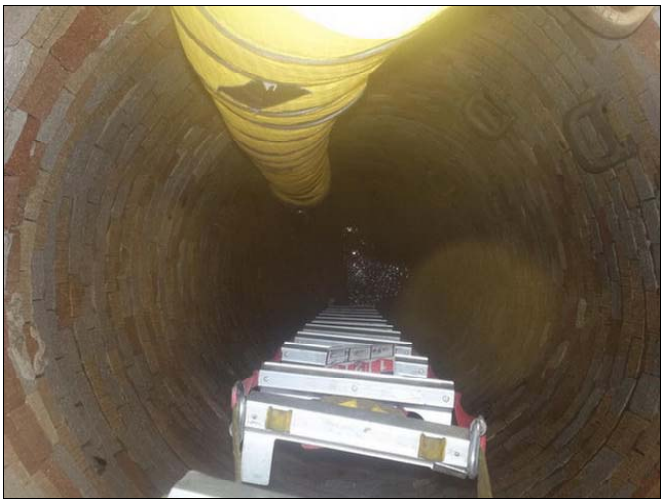
Whitecap 017 (07/23/13 to 08/06/13)



Whitecap FM018

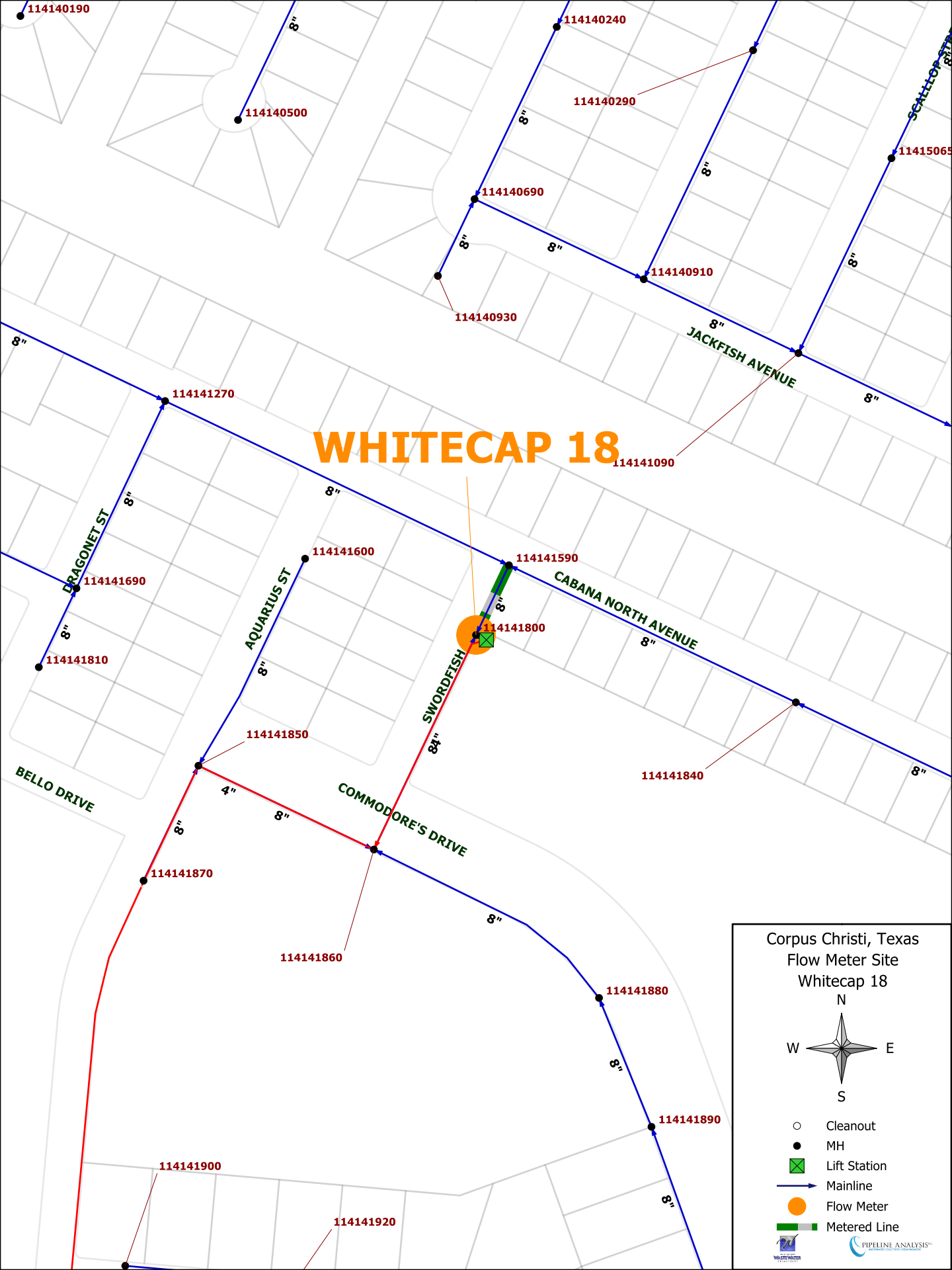
Whitecap Meter Site 018

11275WHITECAPFM018A034.jpg



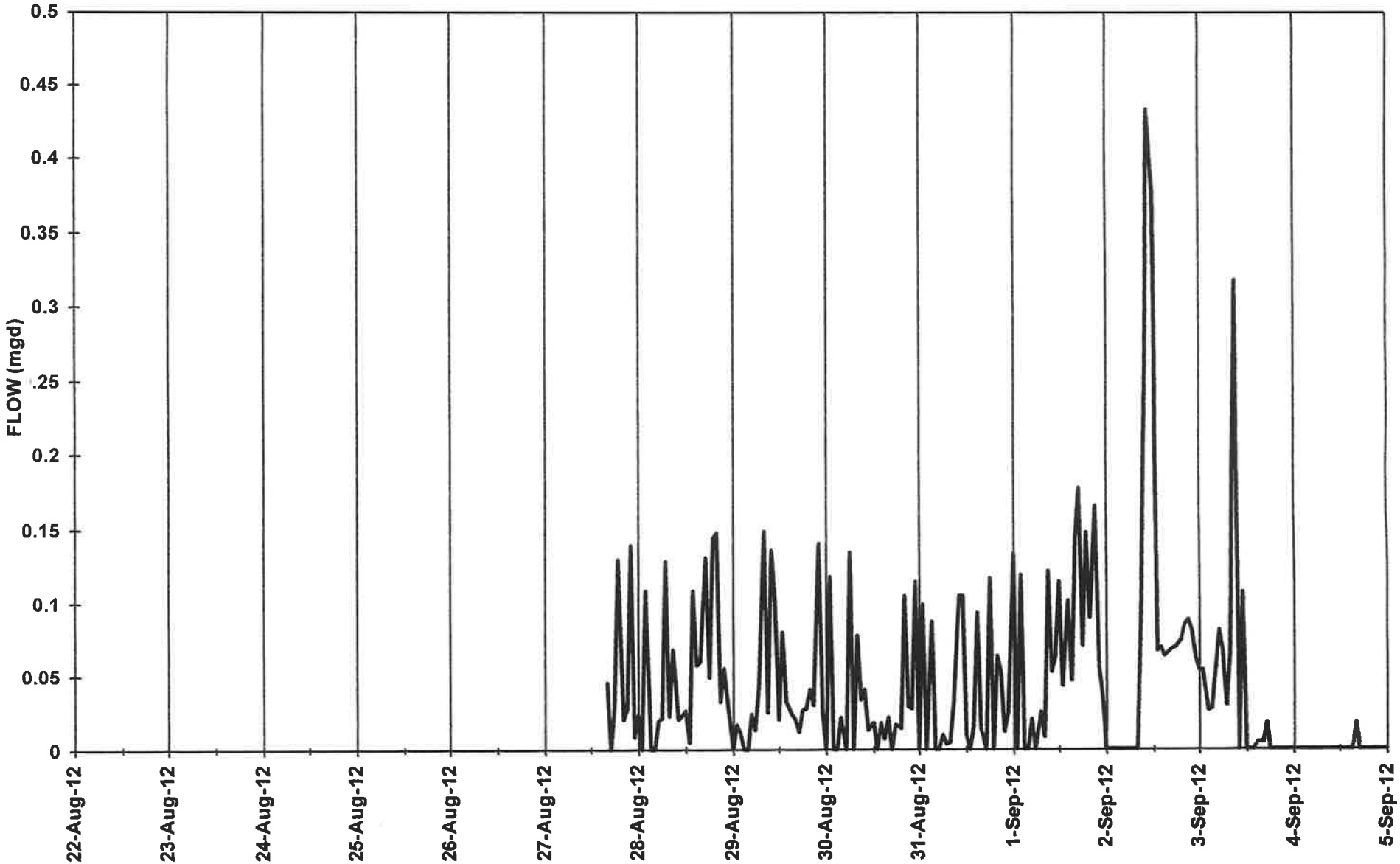
11275WHITECAPFM018I035.jpg

11275WHITECAPFM018P036.jpg


WHITECAP 18
114140190
114140500
114140240
114140290
114140690
114140930
114140910
114141090
114141270
114141690
114141810
114141600
114141590
114141800
114141850
114141840
114141870
114141860
114141880
114141890
114141900
114141920
114150650
JACKFISH AVENUE
CABANA NORTH AVENUE
DRAGONET ST
AQUARIUS ST
SWORDFISH
COMMODORE'S DRIVE
BELLO DRIVE
SCALLOP ST
8"
84"
4"
Corpus Christi, Texas
Flow Meter Site
Whitecap 18
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



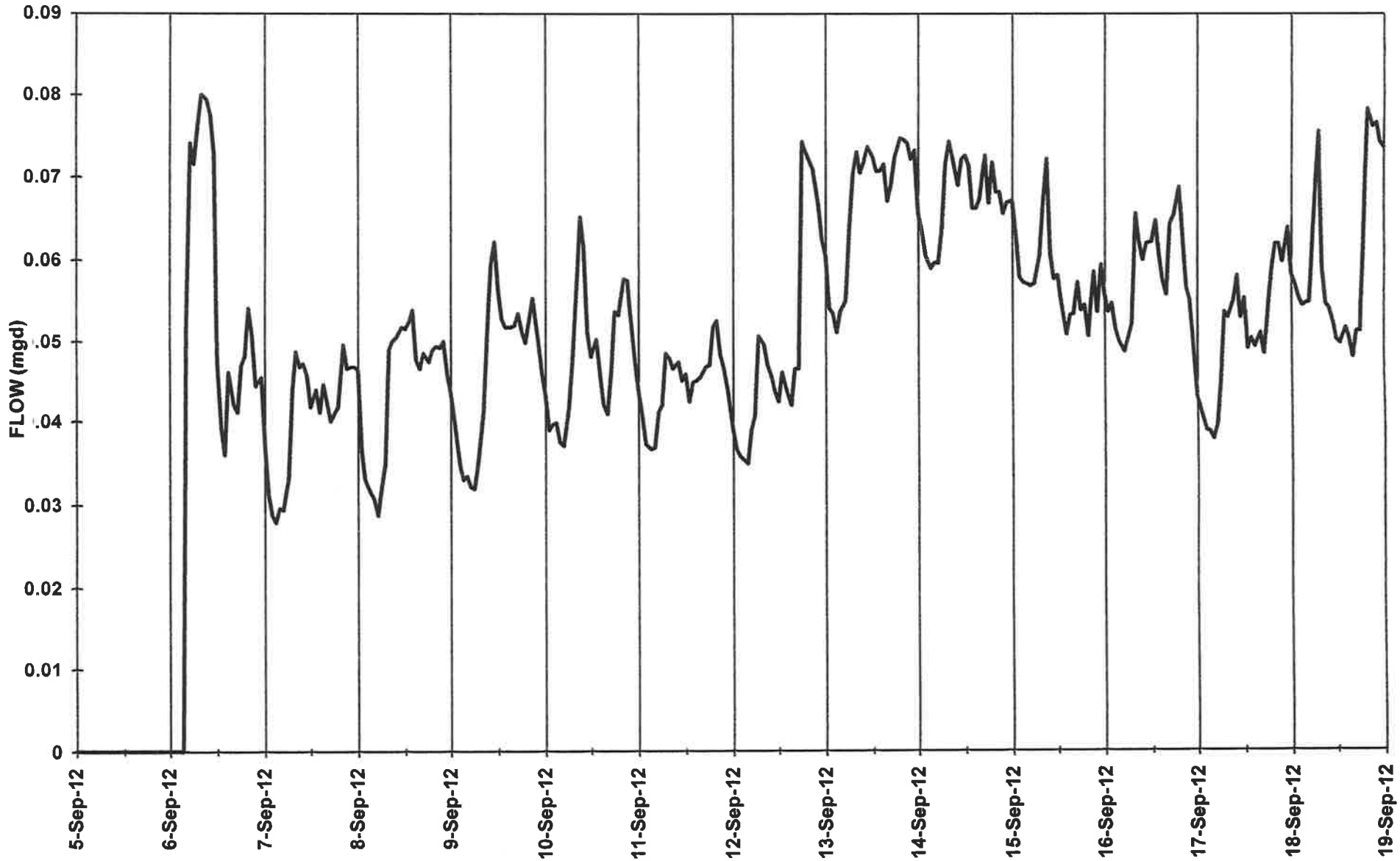
Daterange: 08/22/12-09/05/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



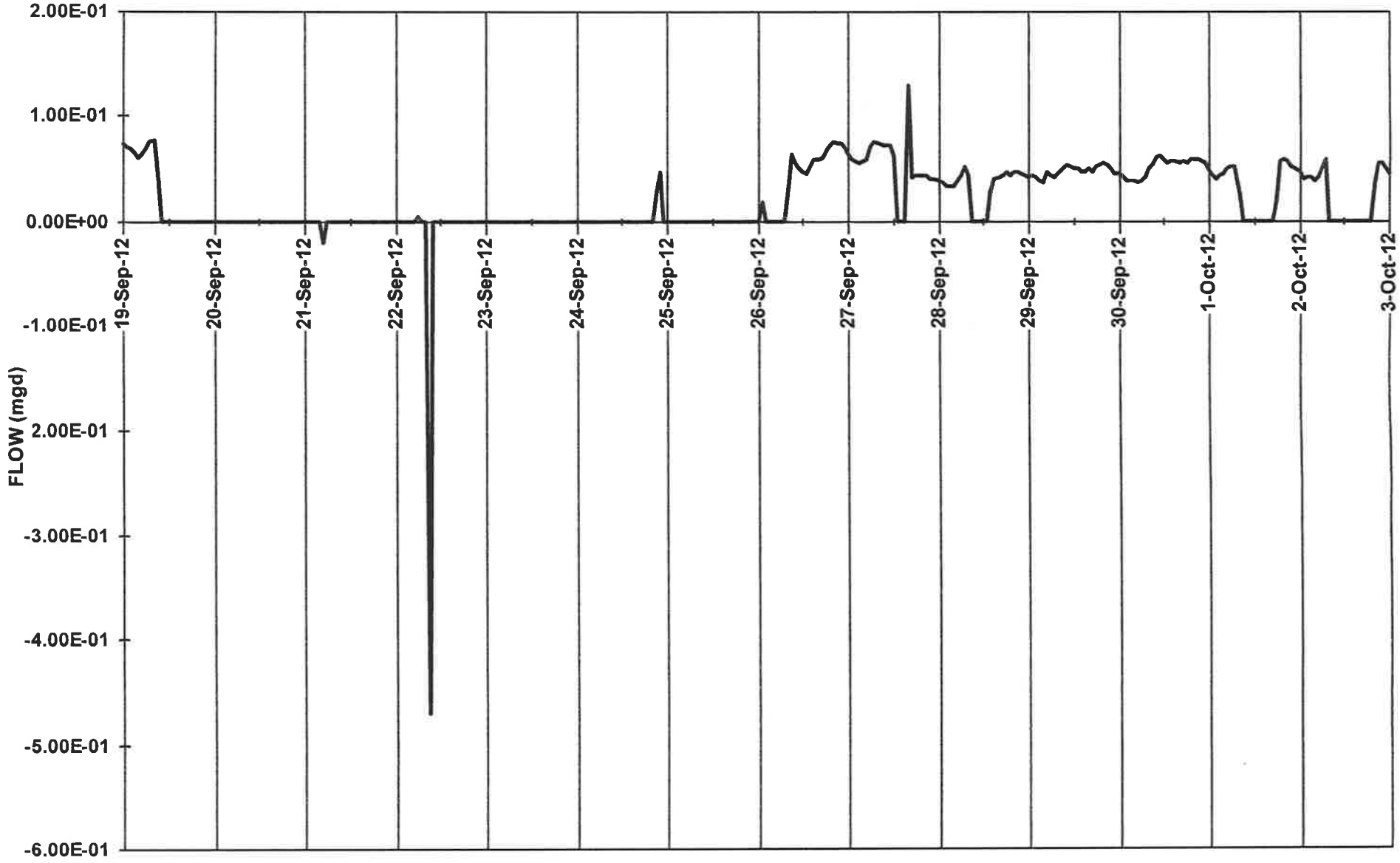
Daterange: 09/05/12-09/19/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



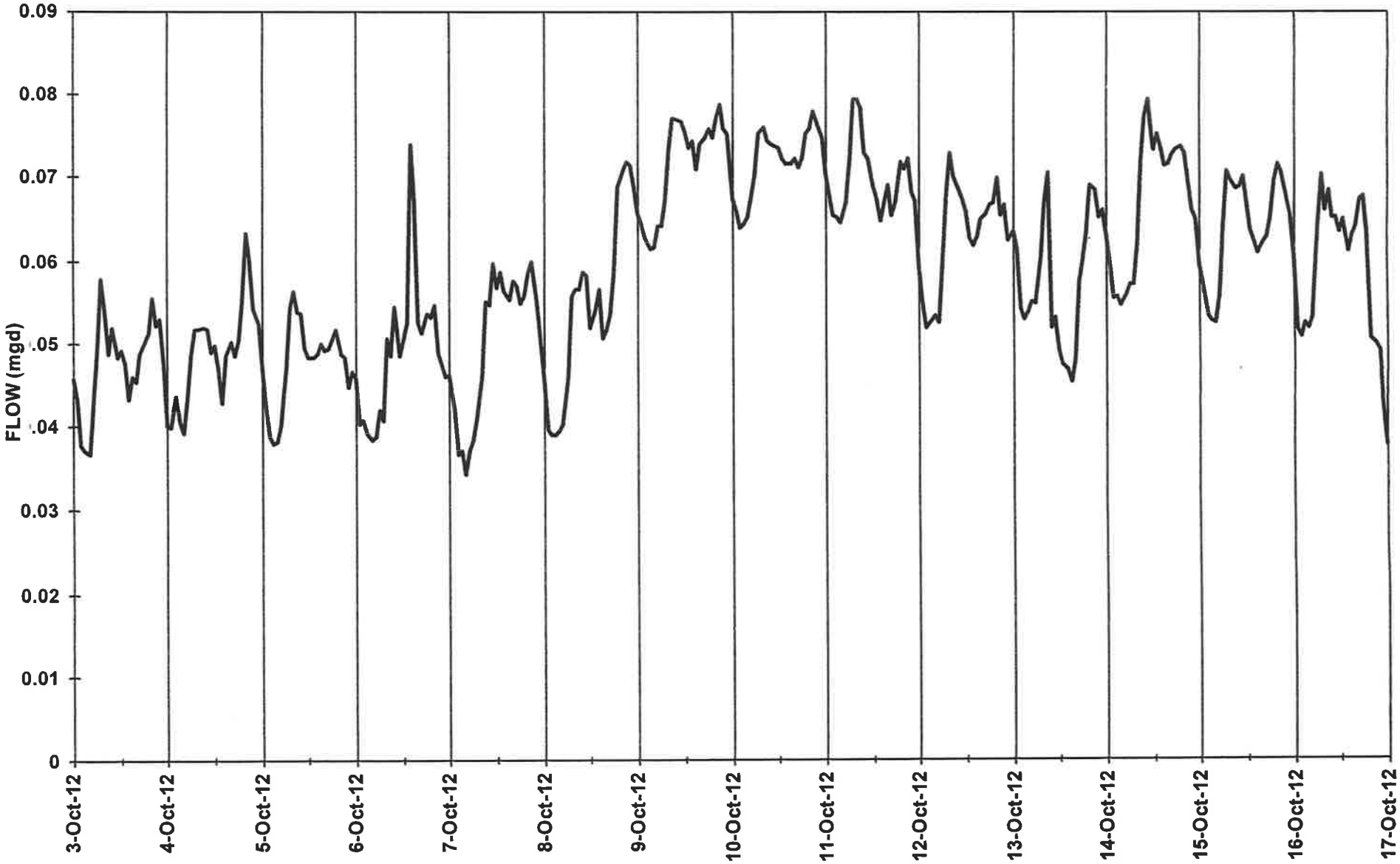
Daterange: 09/19/12-10/03/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



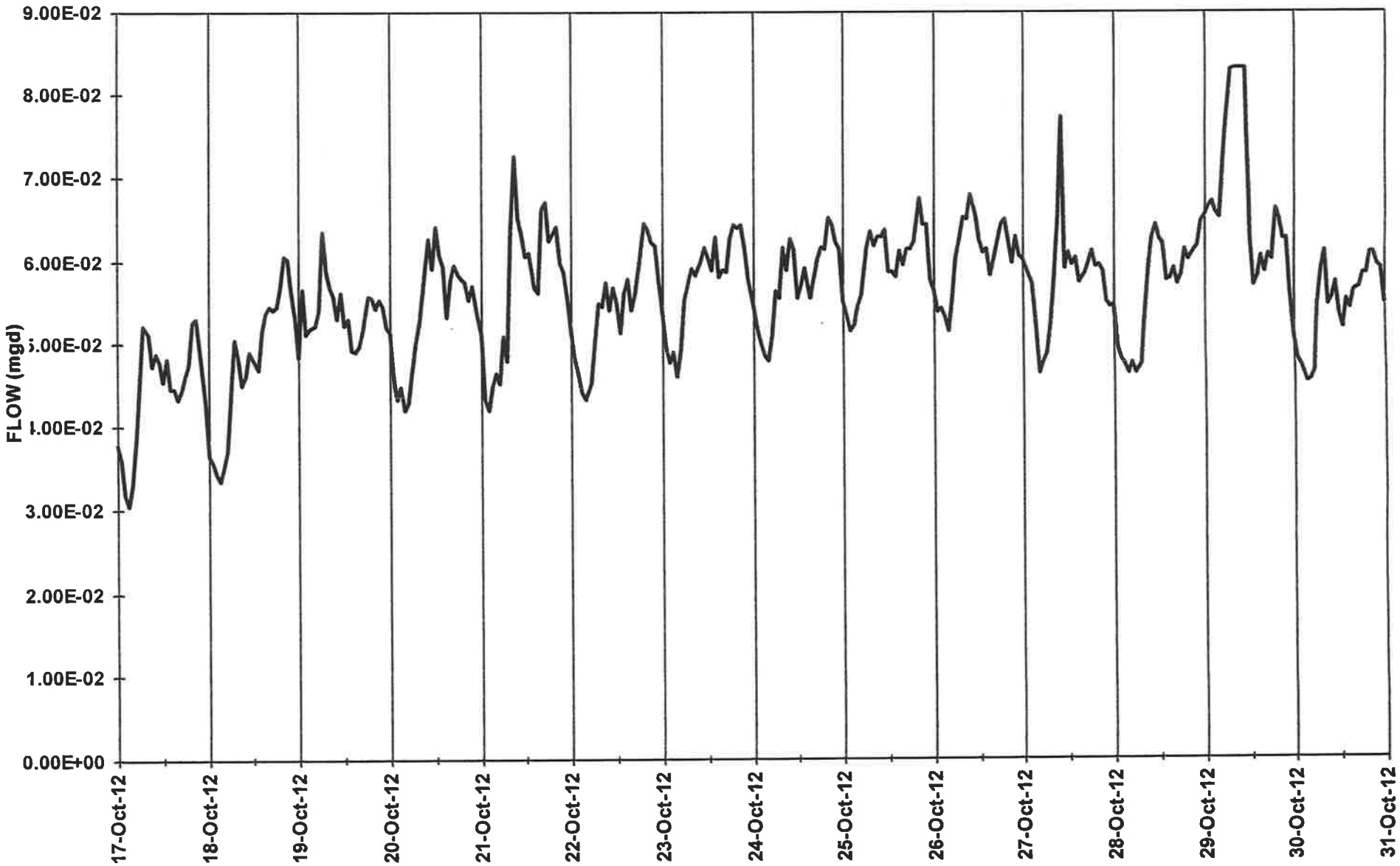
Daterange: 10/03/12-10/17/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



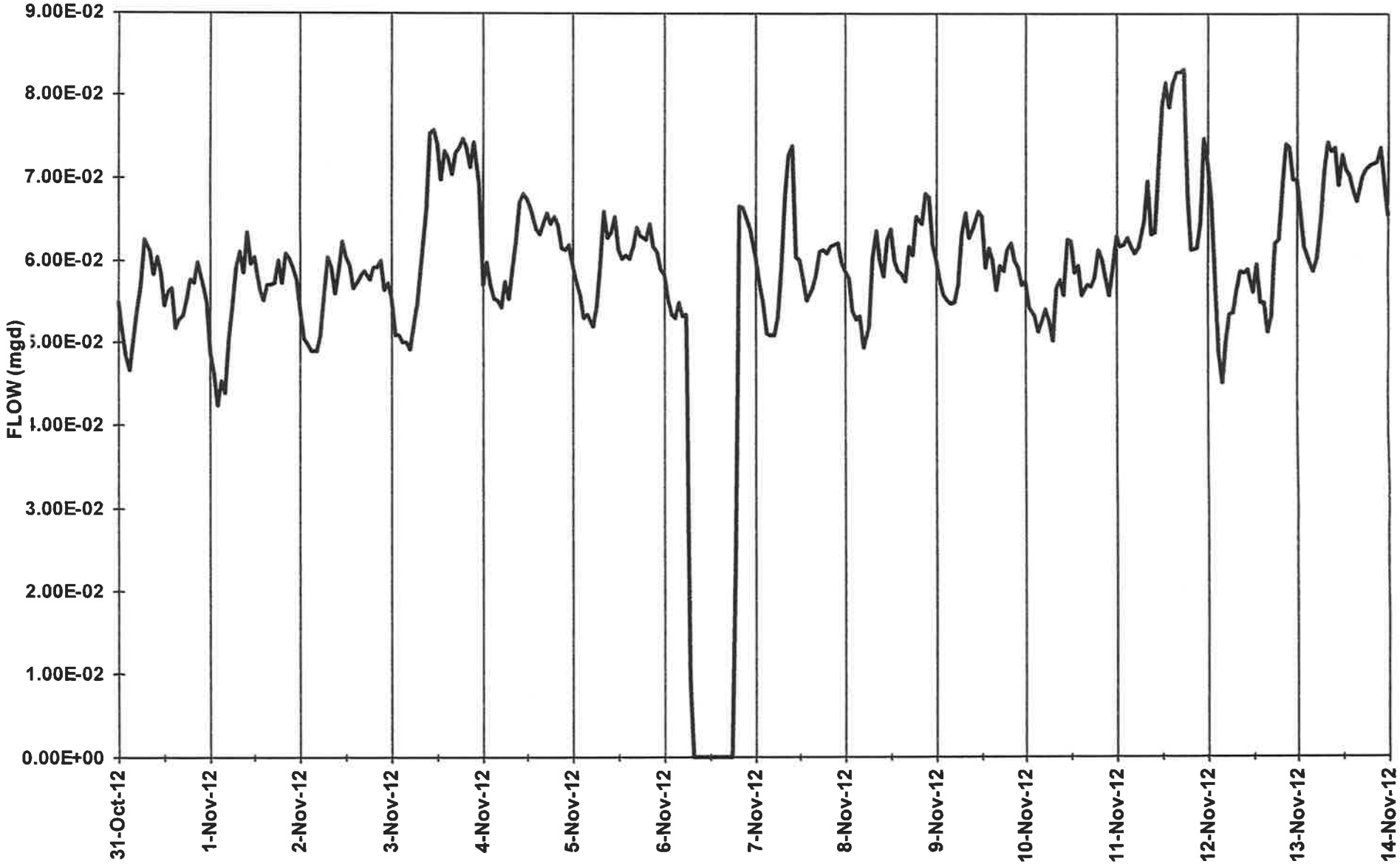
Daterange: 10/17/12-10/31/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



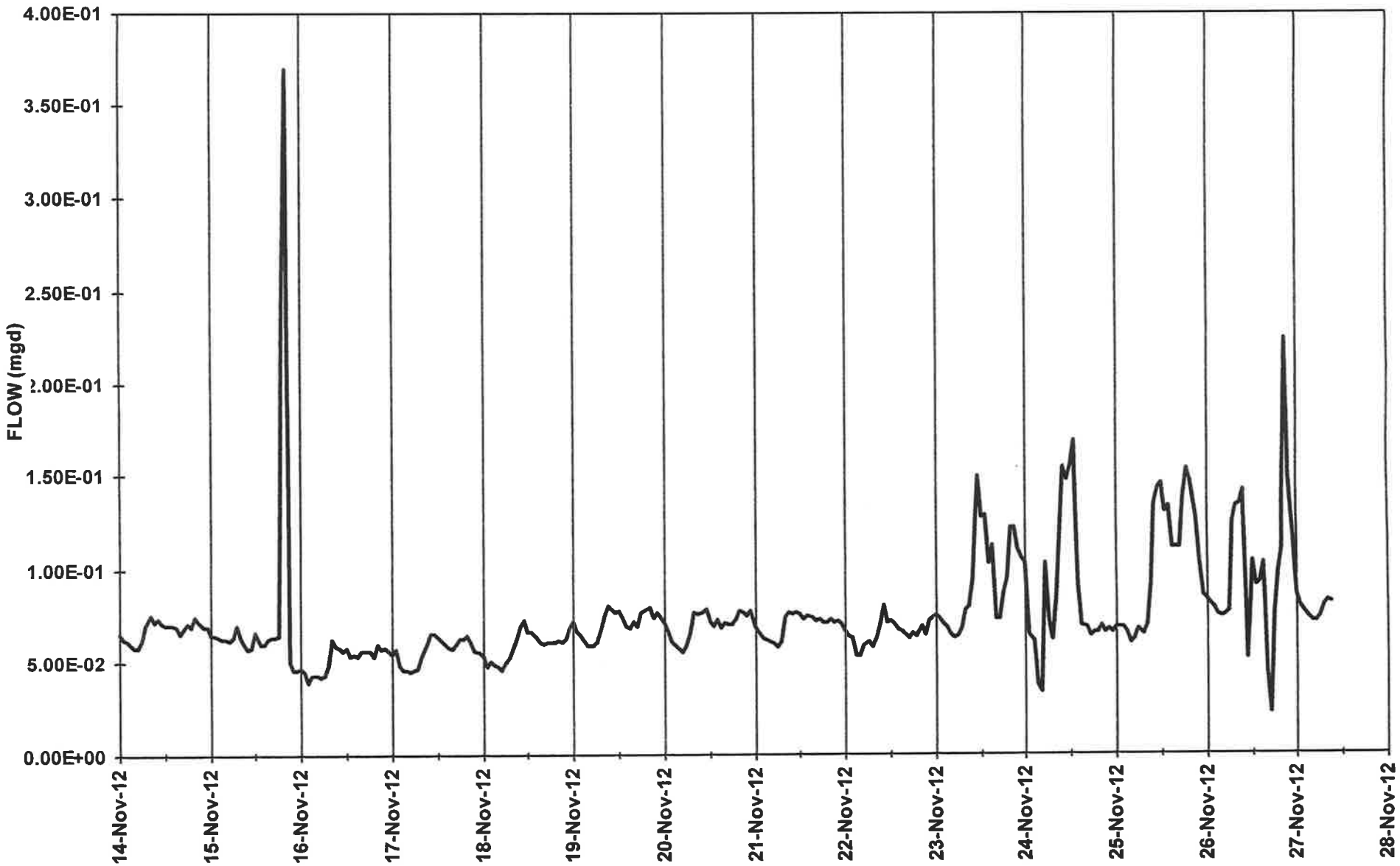
Daterange: 10/31/12-11/14/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

Flow vs Time (week)

Site:11275018 WHITECAP FM 018



Daterange: 11/14/12-11/28/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 0.66667

Location: WHITECAP FM 018
Site ID: 11275018
Serial#: VGY

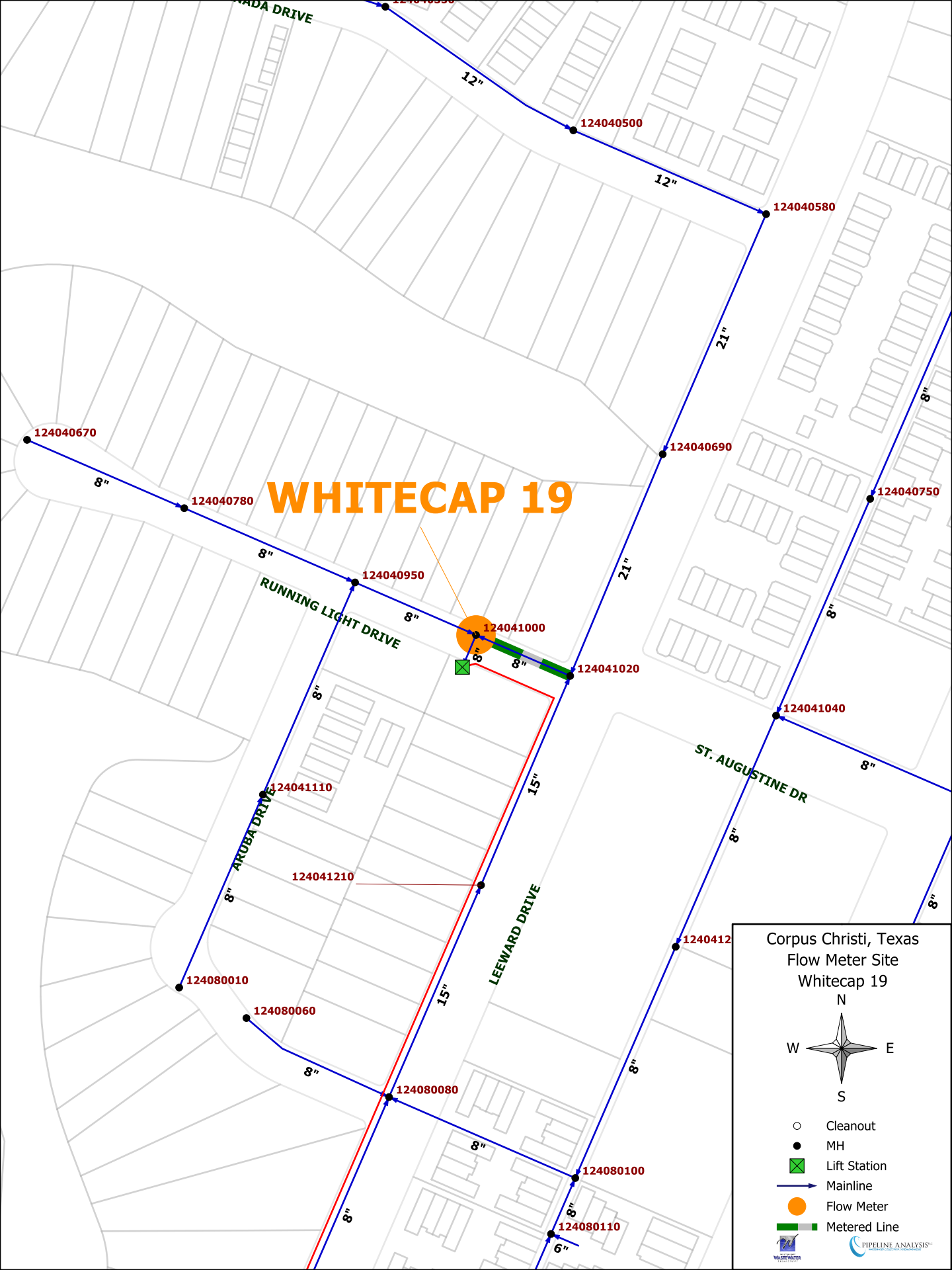
Whitecap FM019

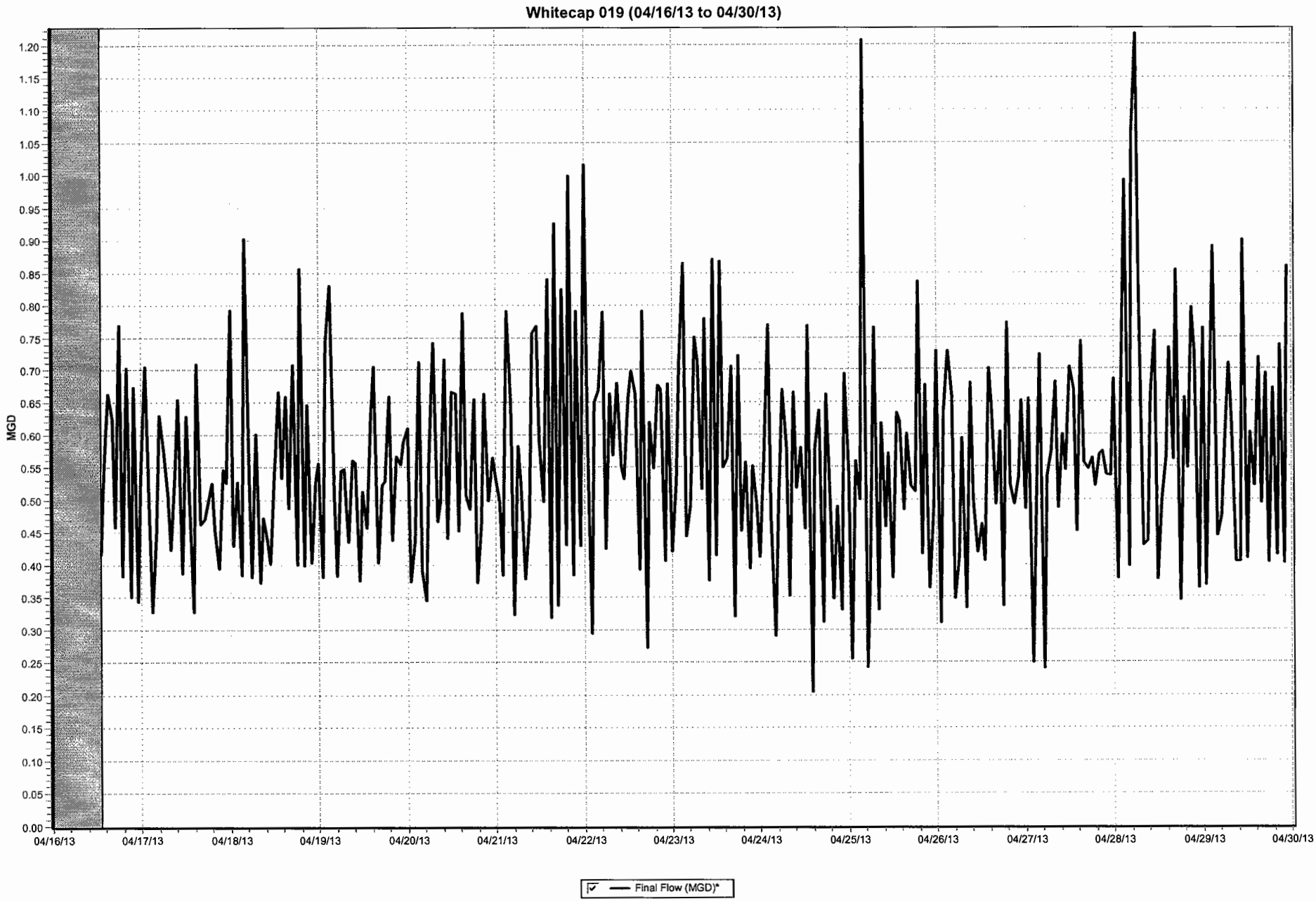
Whitecap Meter Site 019

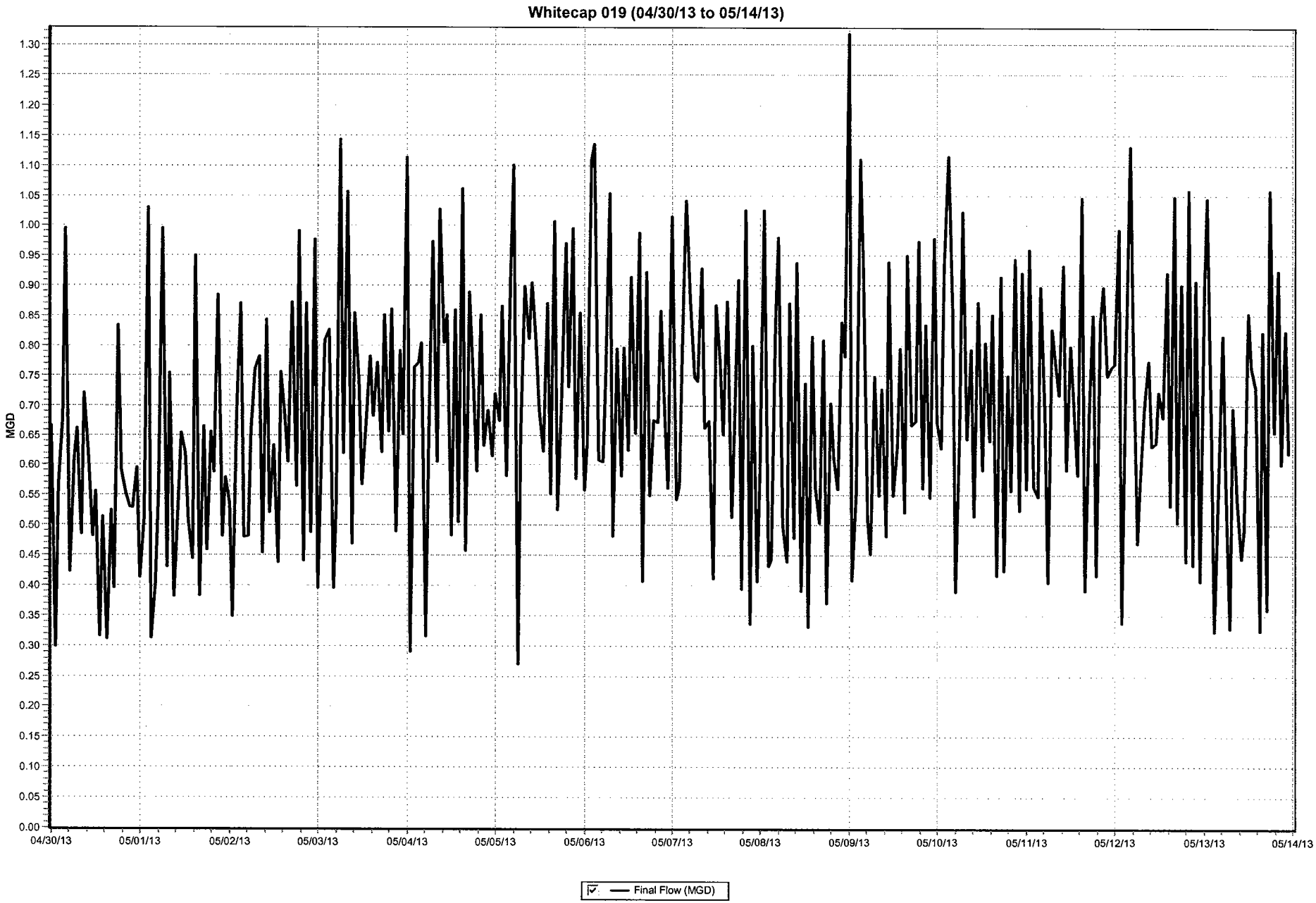
11275WHITECAPFM019A037.jpg

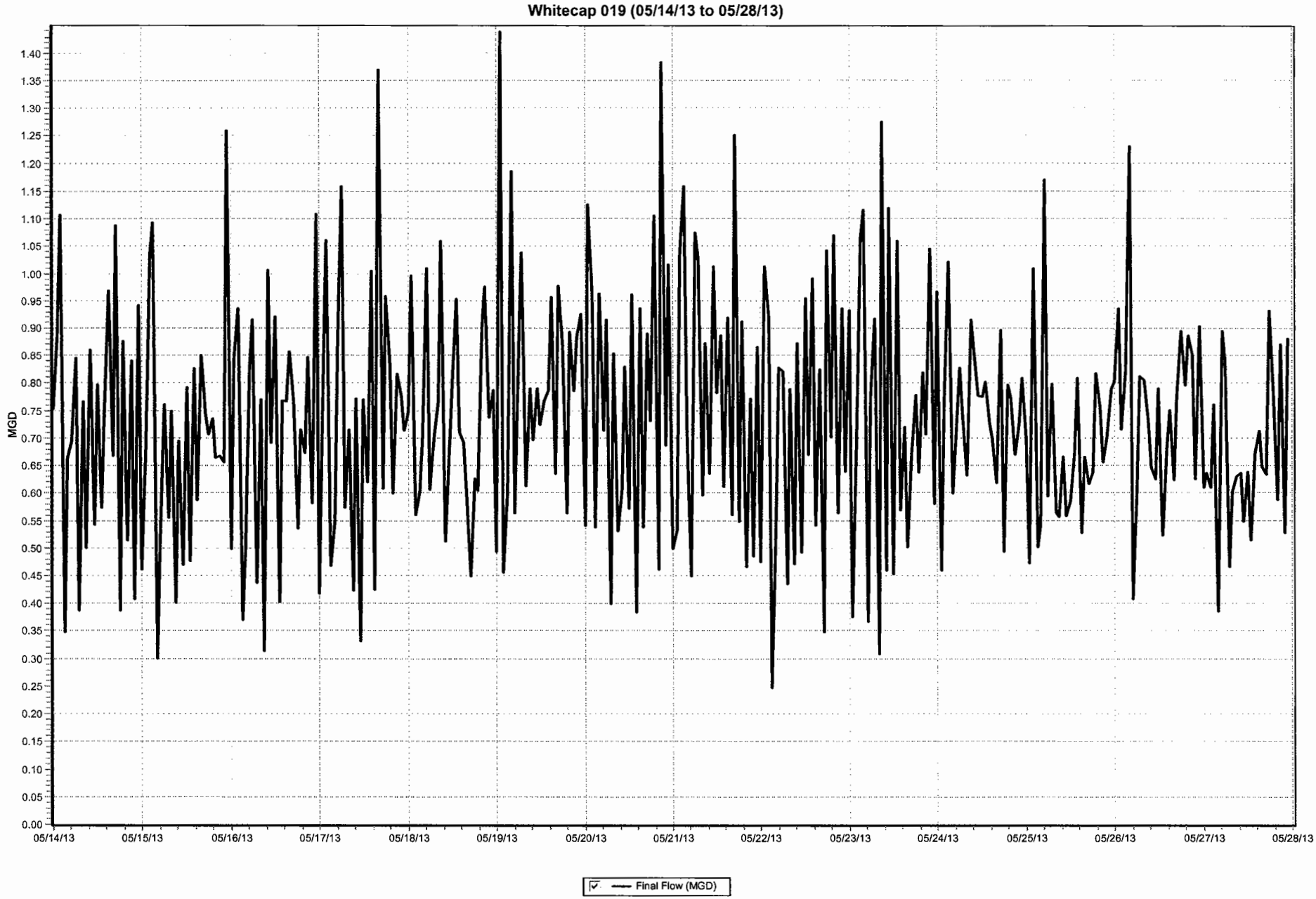
11275WHITECAPFM019I038.jpg

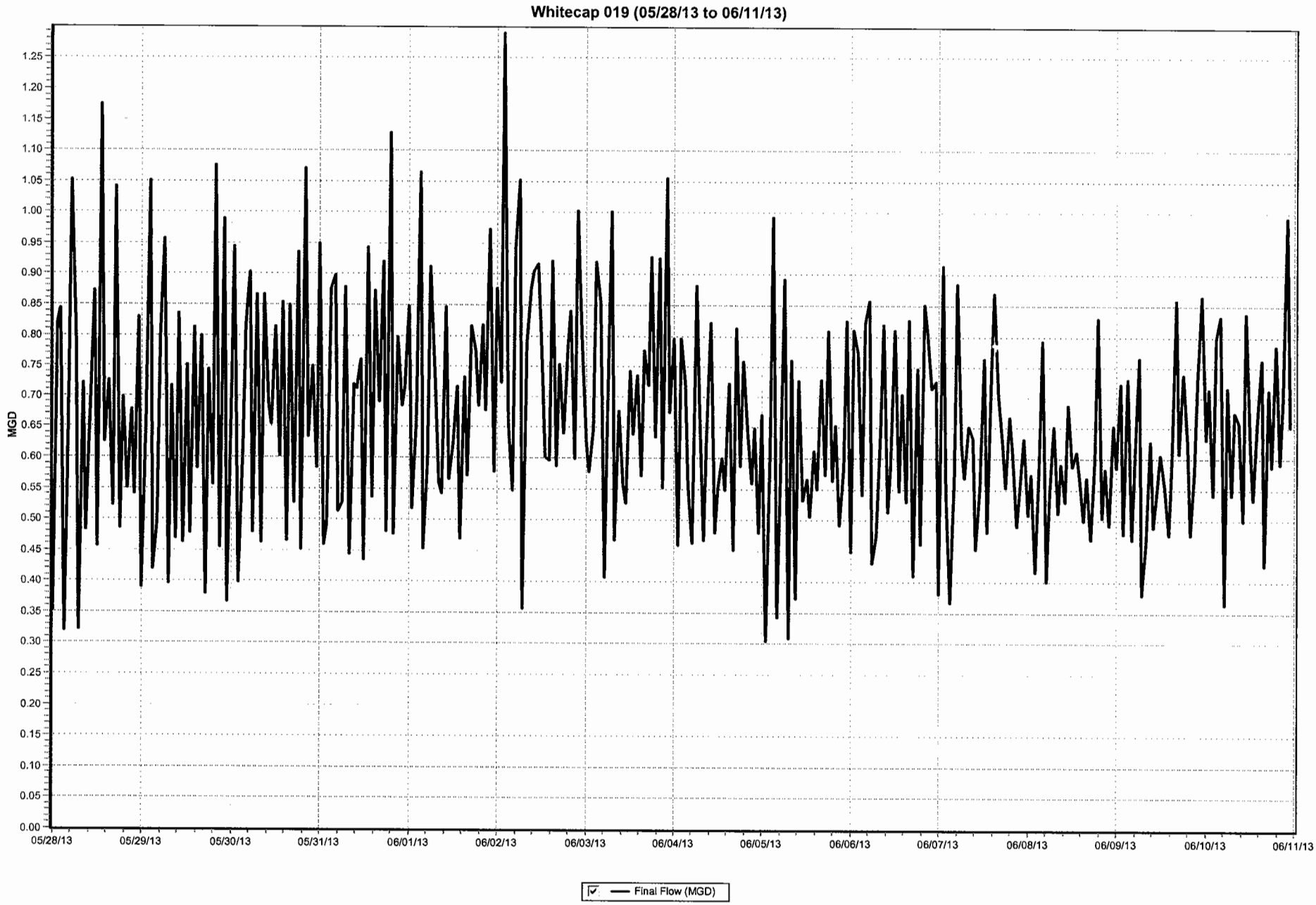
11275WHITECAPFM019P039.jpg

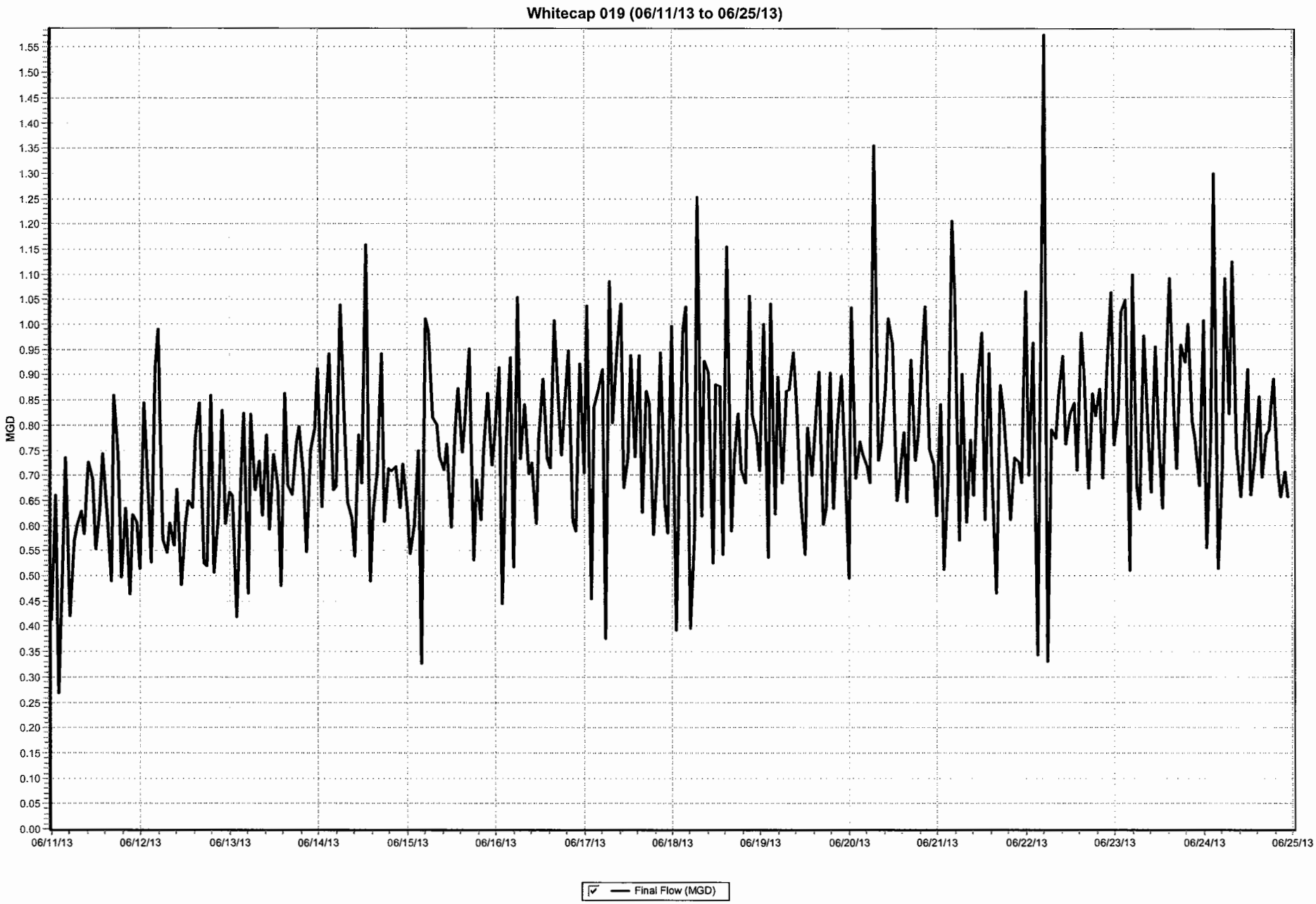

WHITECAP 19
ARUBA DRIVE
RUNNING LIGHT DRIVE
LEEWARD DRIVE
ST. AUGUSTINE DR
124040500
124040580
124040670
124040690
124040750
124040780
124040950
124041000
124041020
124041040
124041110
124041210
124080010
124080060
124080080
124080100
124080110
12"
21"
15"
8"
6"
Corpus Christi, Texas
Flow Meter Site
Whitecap 19
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

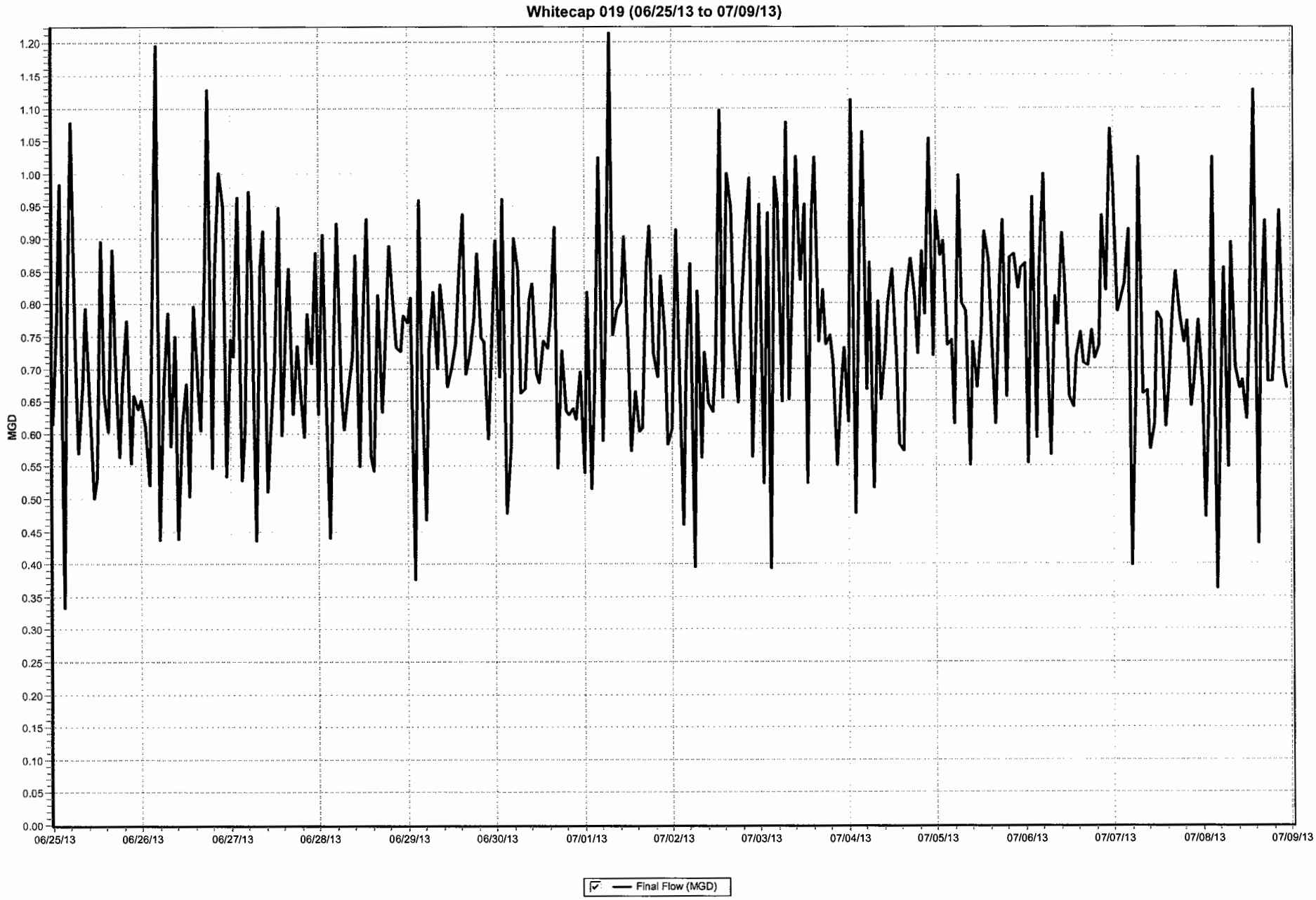

Whitecap 019 (04/16/13 to 04/30/13)
MGD
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

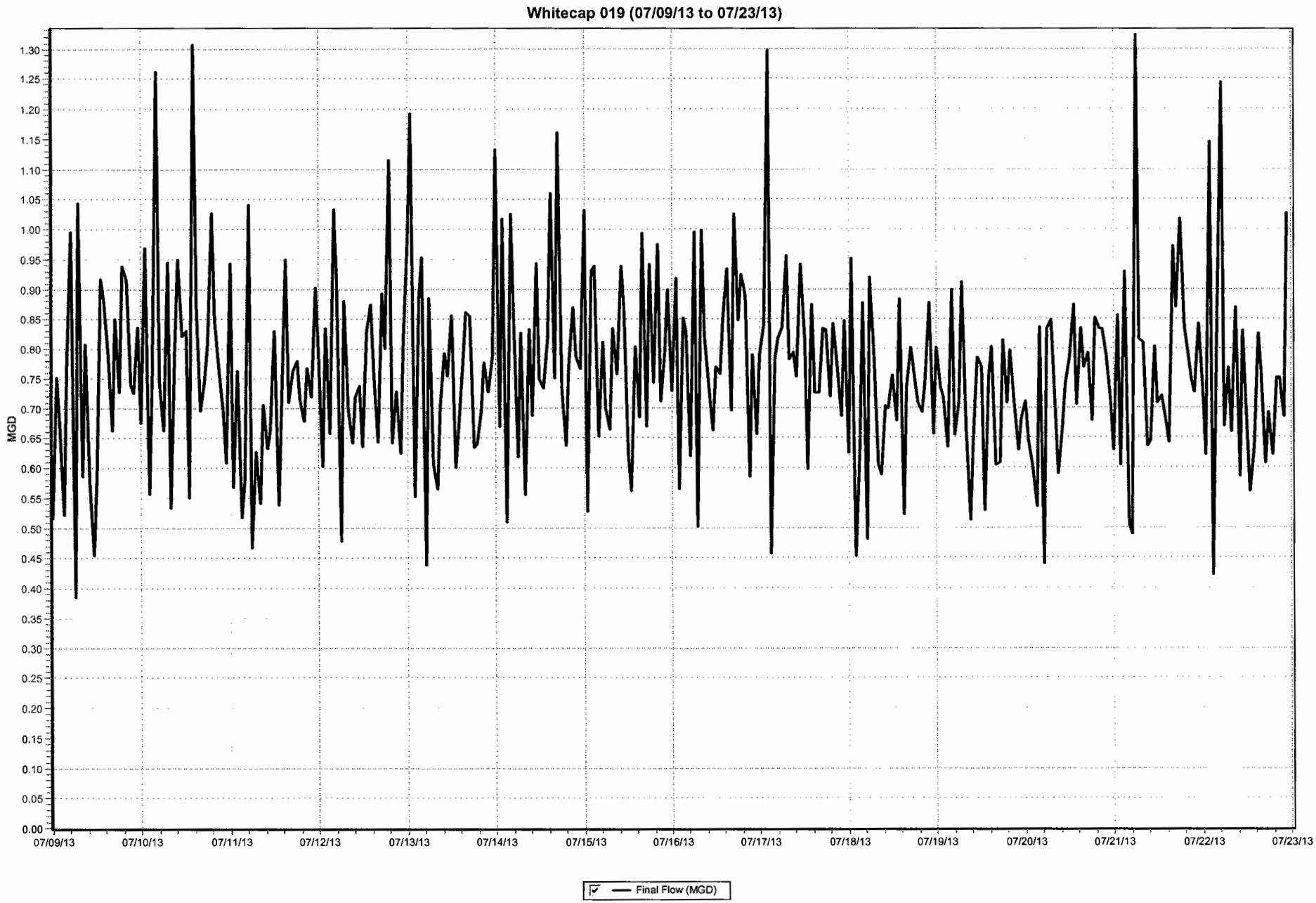

Whitecap 019 (04/30/13 to 05/14/13)
MGD
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Whitecap 019 (05/14/13 to 05/28/13)
MGD
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

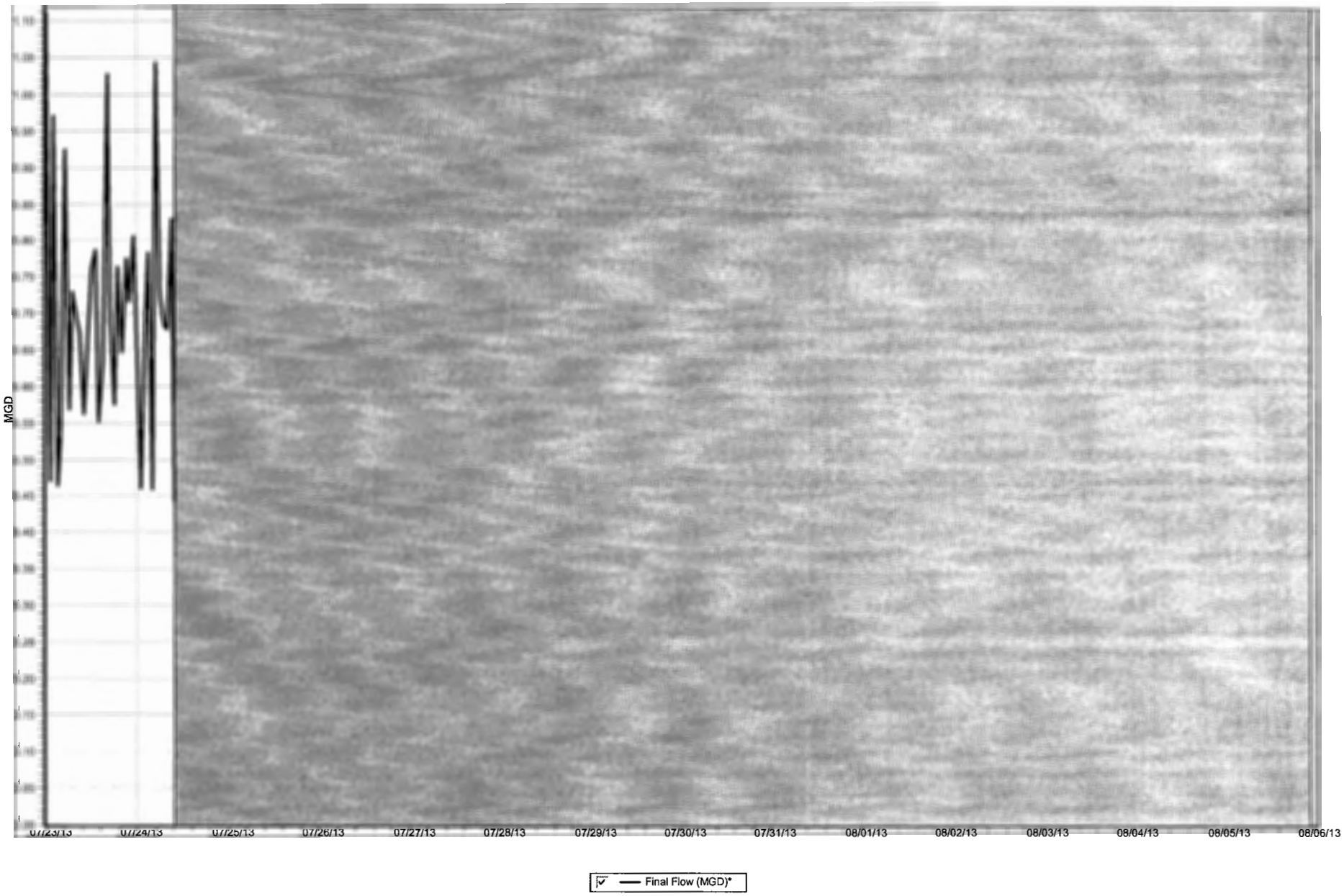

Whitecap 019 (05/28/13 to 06/11/13)
MGD
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 019 (06/11/13 to 06/25/13)
MGD
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 019 (06/25/13 to 07/09/13)
MGD
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 019 (07/09/13 to 07/23/13)
MGD
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Whitecap 019 (07/23/13 to 08/06/13)



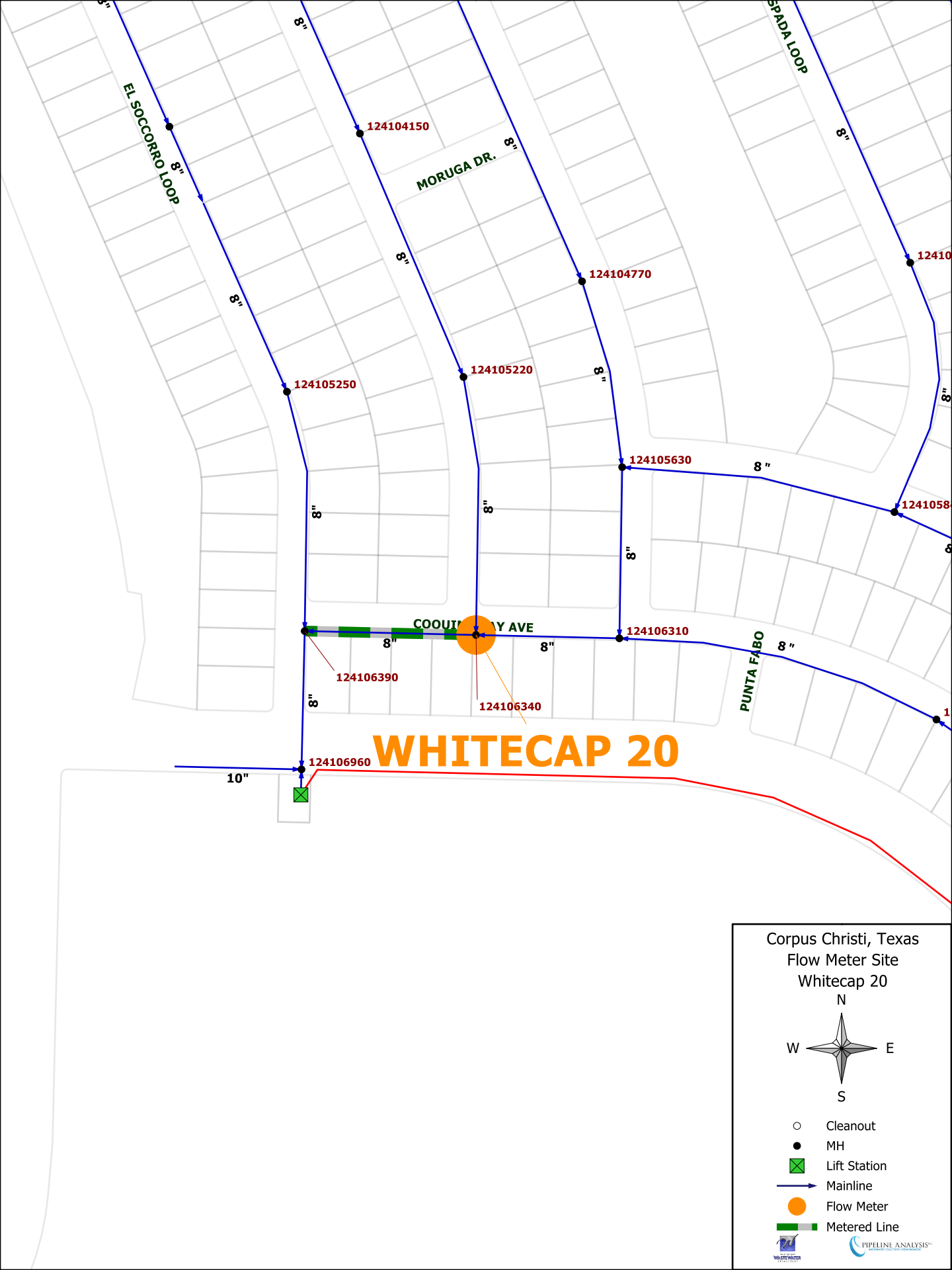
Whitecap FM020

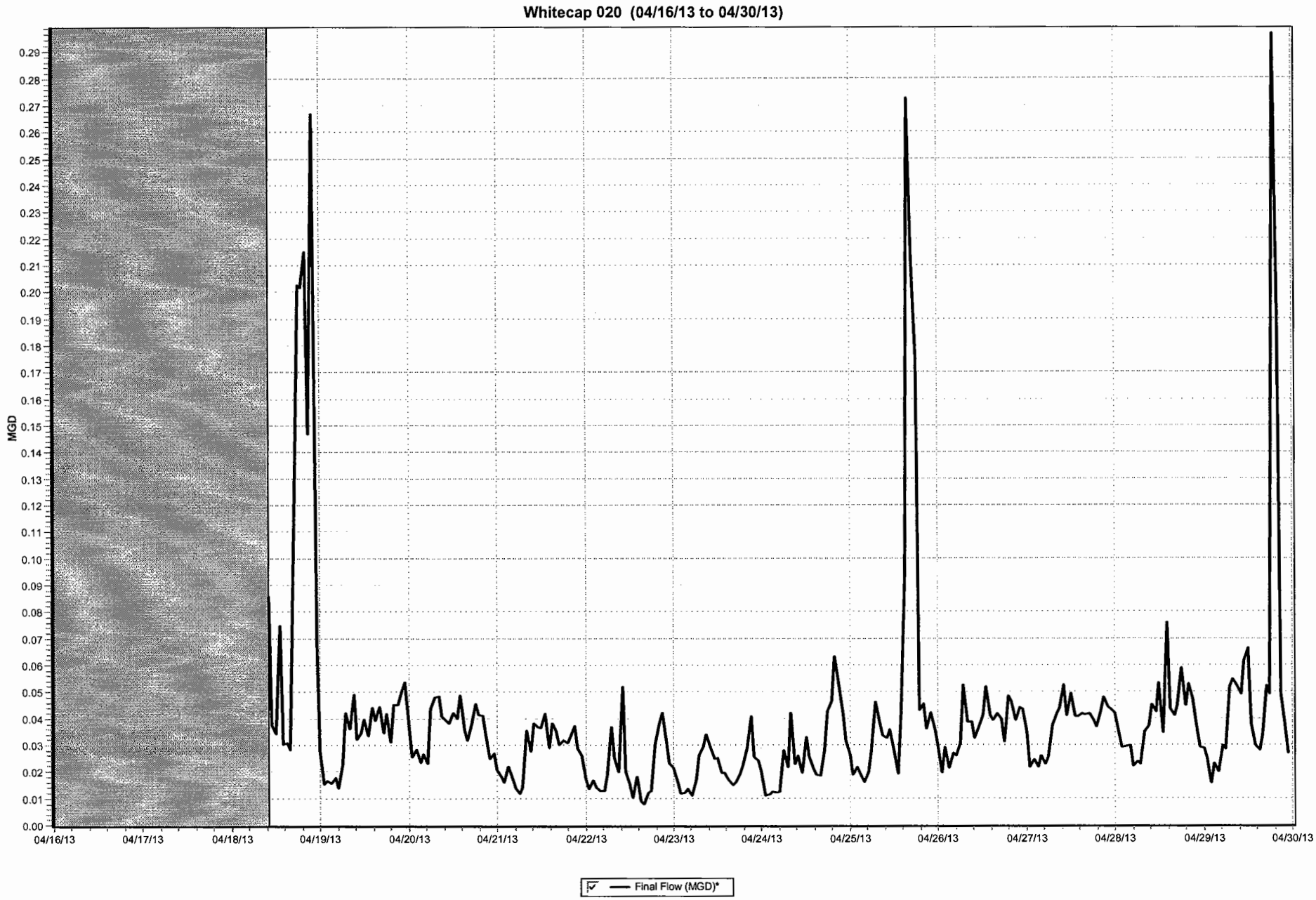
Whitecap Meter Site 020

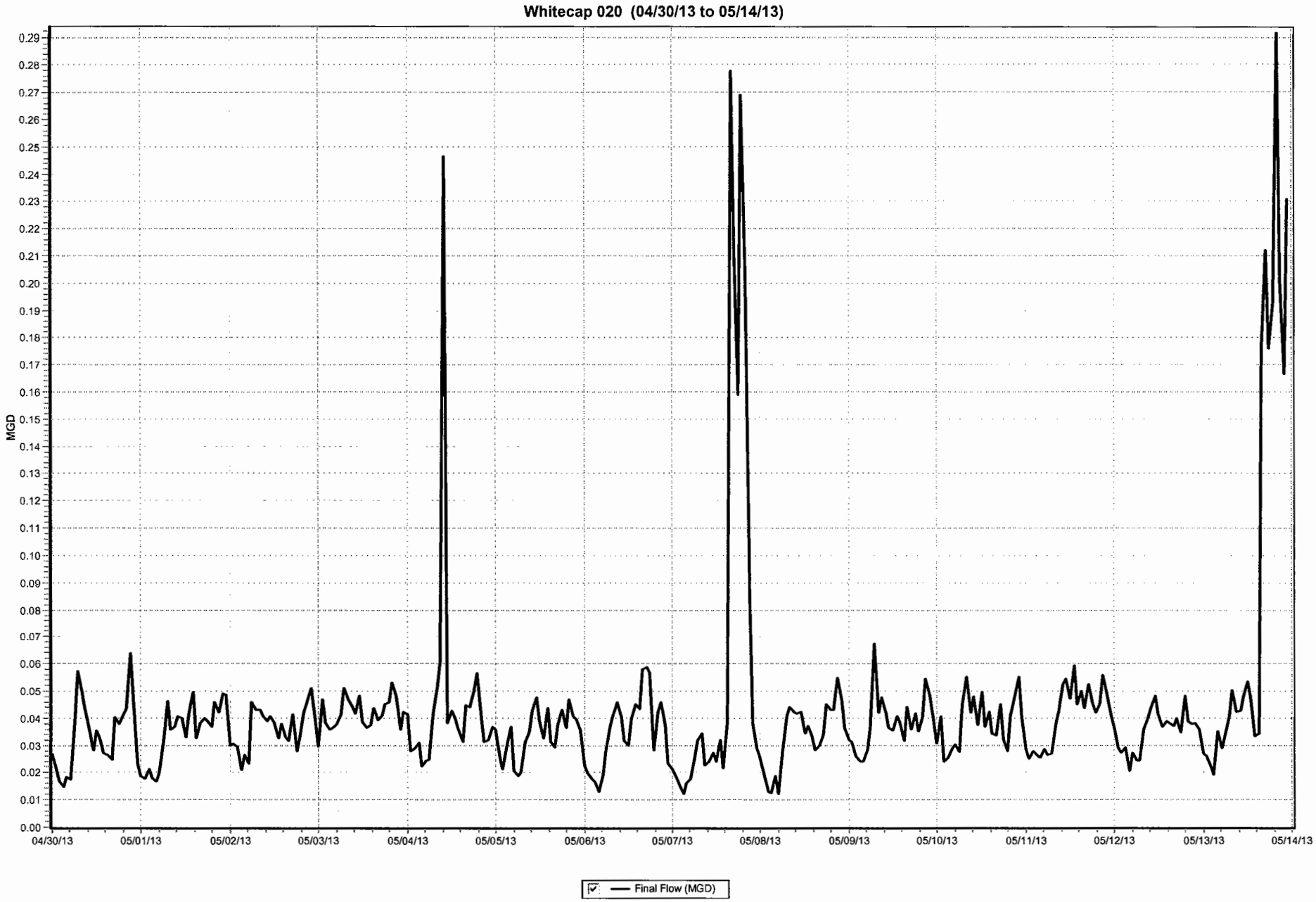
11275WHITECAPFM020A052.jpg

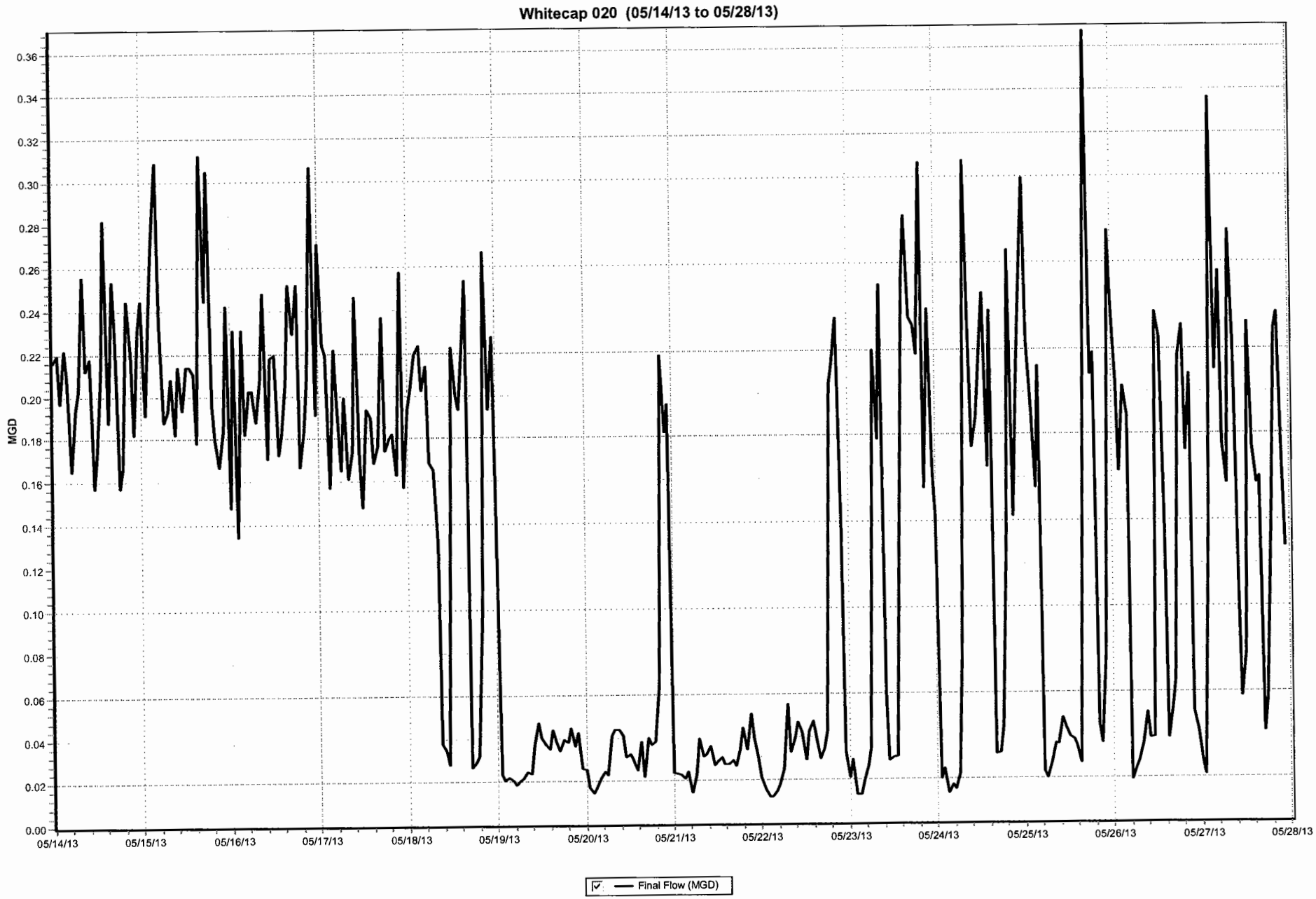
11275WHITECAPFM020I053.jpg

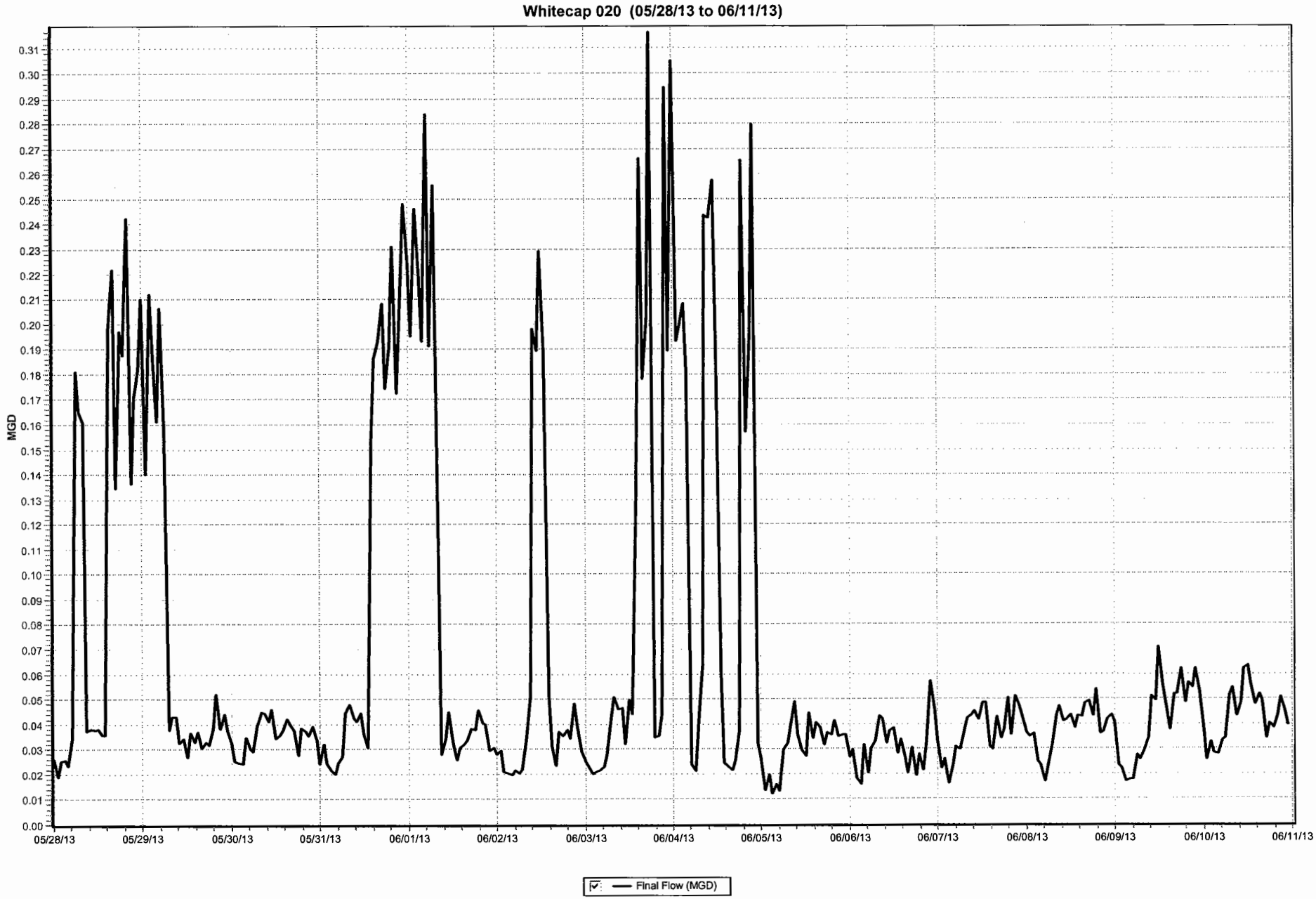
11275WHITECAPFM020P054.jpg

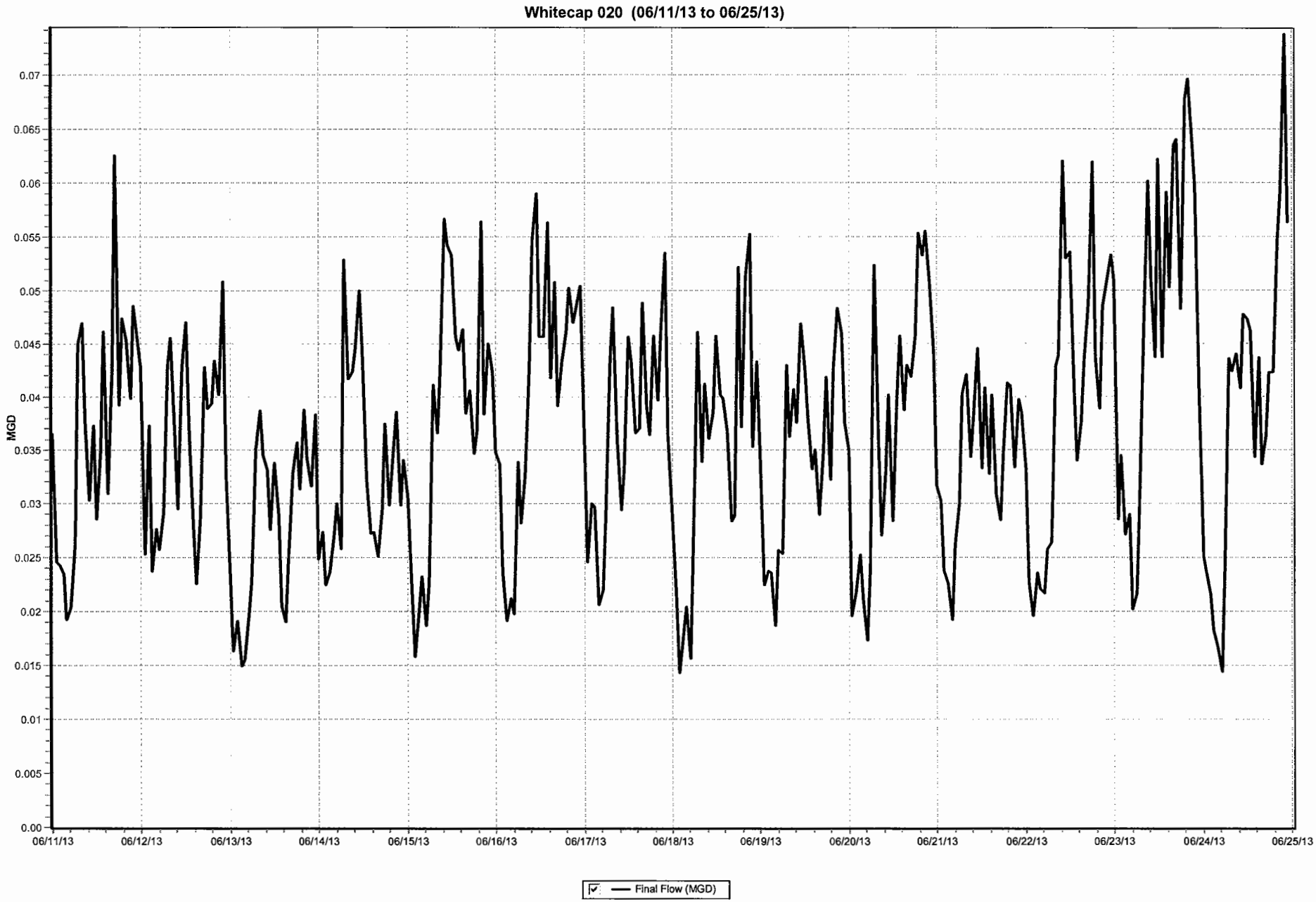

EL SOCCORRO LOOP
MORUGA DR.
SPADA LOOP
PUNTA FABO
124104150
124104770
124105250
124105220
124105630
124106310
124106390
124106340
124106960
WHITECAP 20
8"
10"
Corpus Christi, Texas
Flow Meter Site
Whitecap 20
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

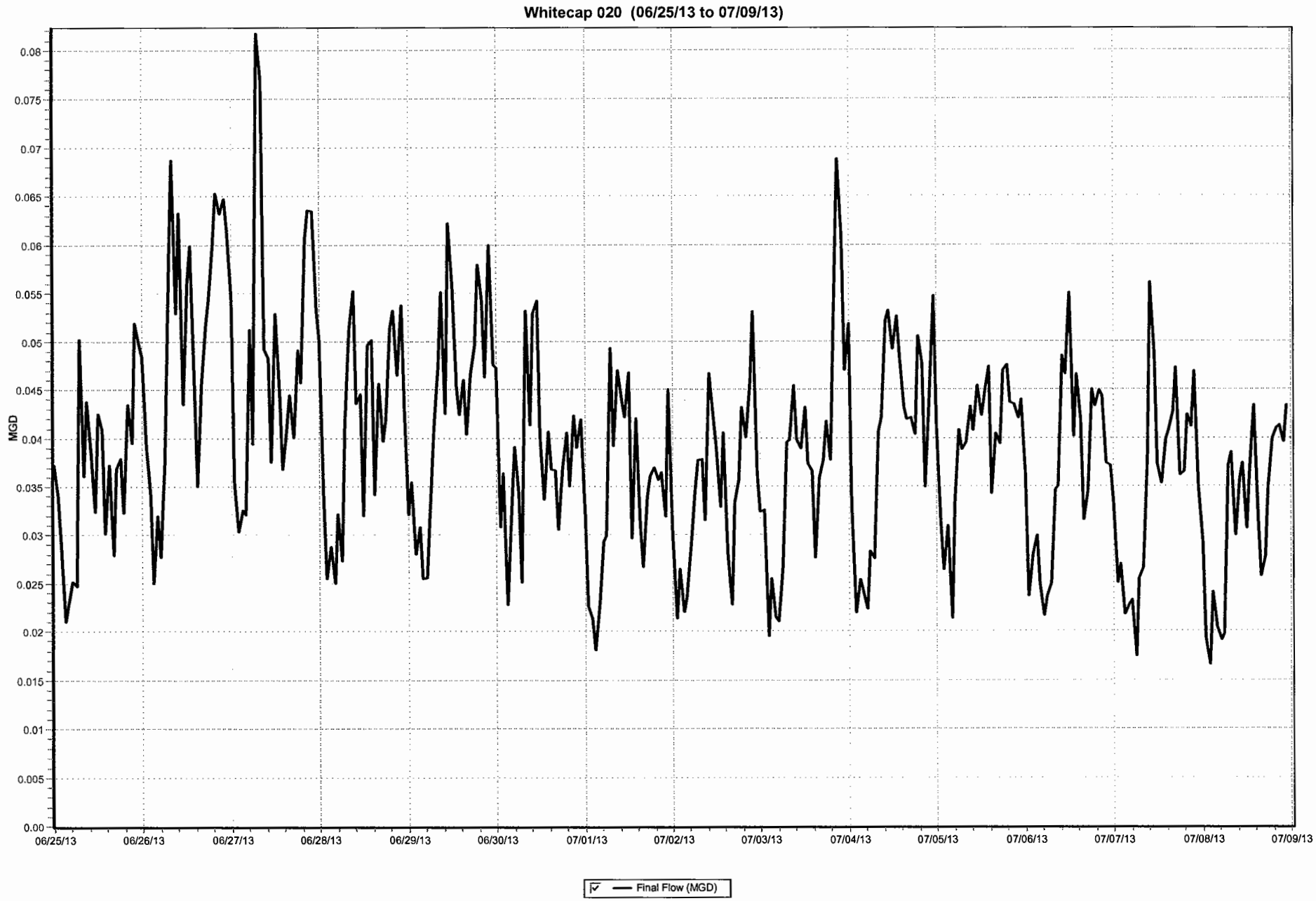

Whitecap 020 (04/16/13 to 04/30/13)
MGD
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

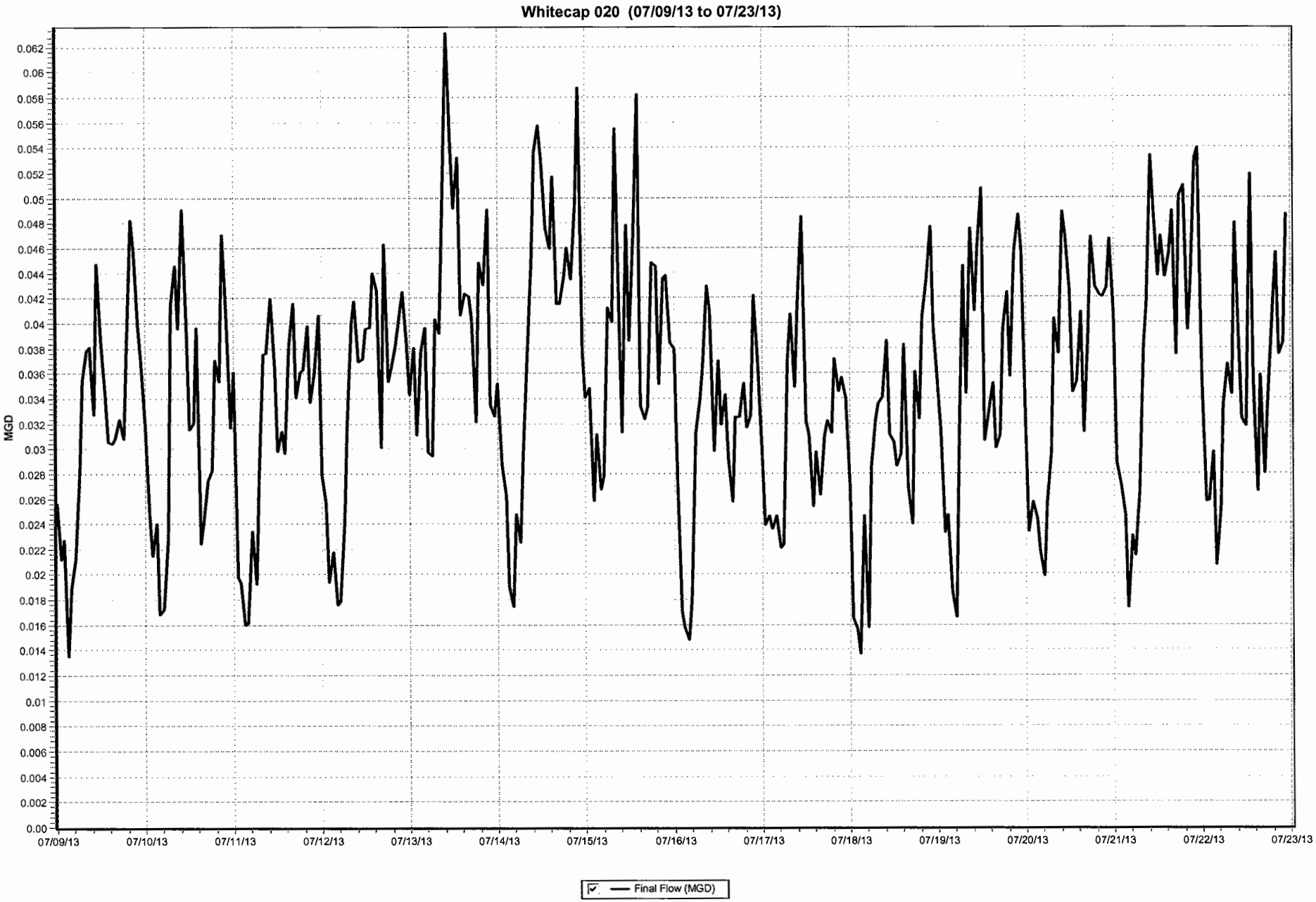

Whitecap 020 (04/30/13 to 05/14/13)
MGD
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Whitecap 020 (05/14/13 to 05/28/13)
MGD
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

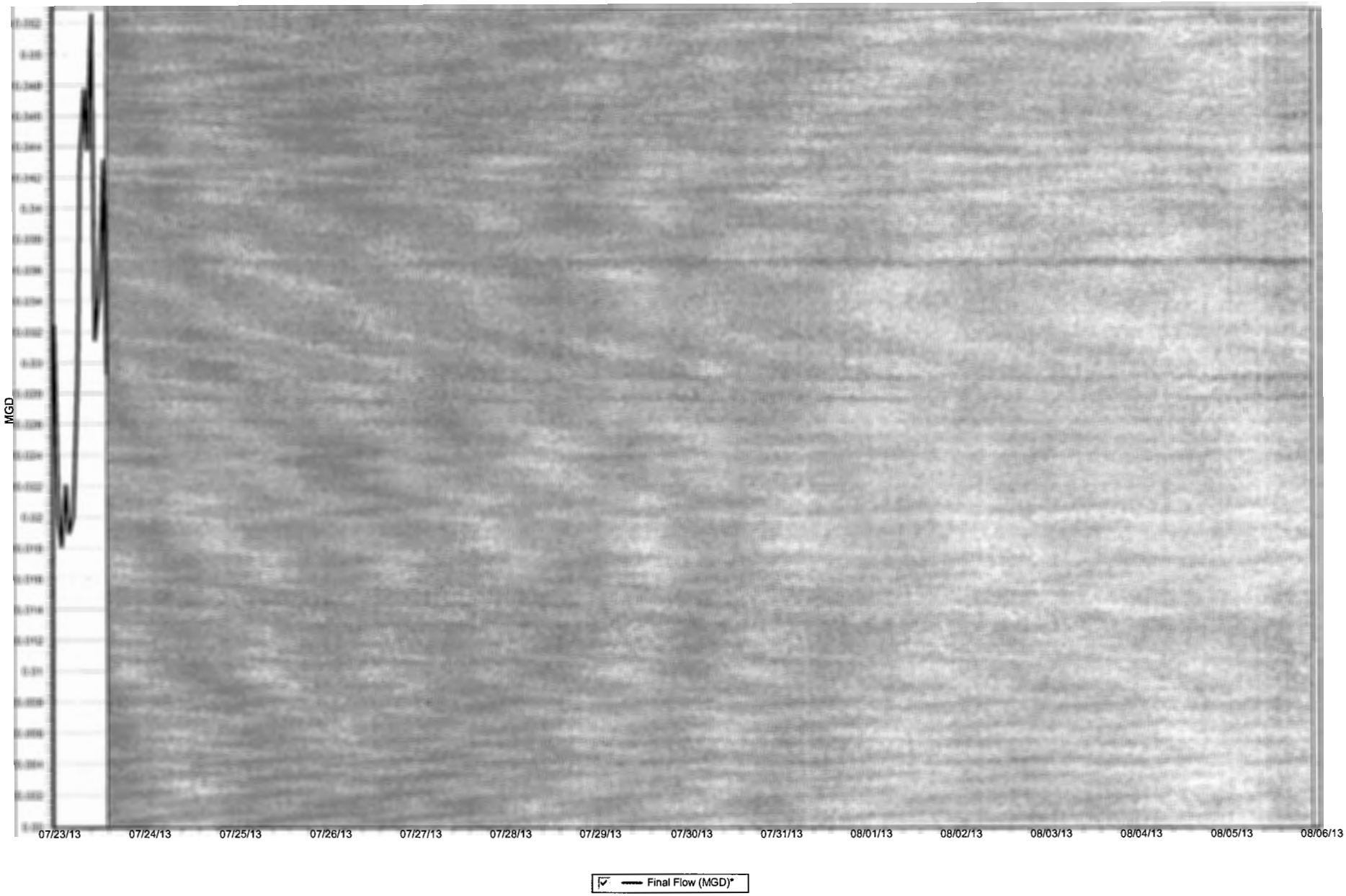

Whitecap 020 (05/28/13 to 06/11/13)
MGD
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Whitecap 020 (06/11/13 to 06/25/13)
MGD
0.07
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Whitecap 020 (06/25/13 to 07/09/13)
MGD
0.08
0.075
0.07
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Whitecap 020 (07/09/13 to 07/23/13)
MGD
0.062
0.06
0.058
0.056
0.054
0.052
0.05
0.048
0.046
0.044
0.042
0.04
0.038
0.036
0.034
0.032
0.03
0.028
0.026
0.024
0.022
0.02
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Whitecap 020 (07/23/13 to 08/06/13)



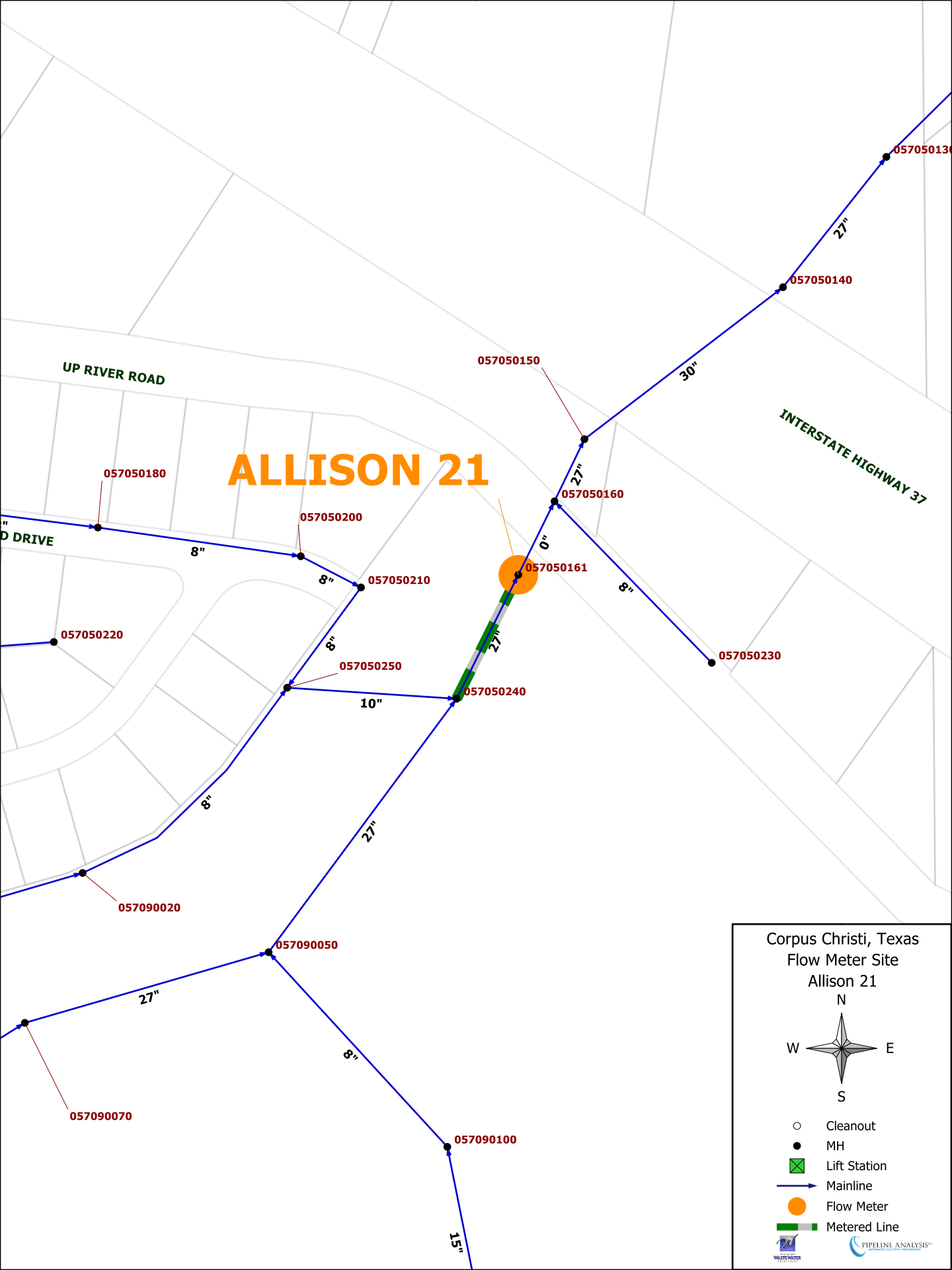
Allison FM021

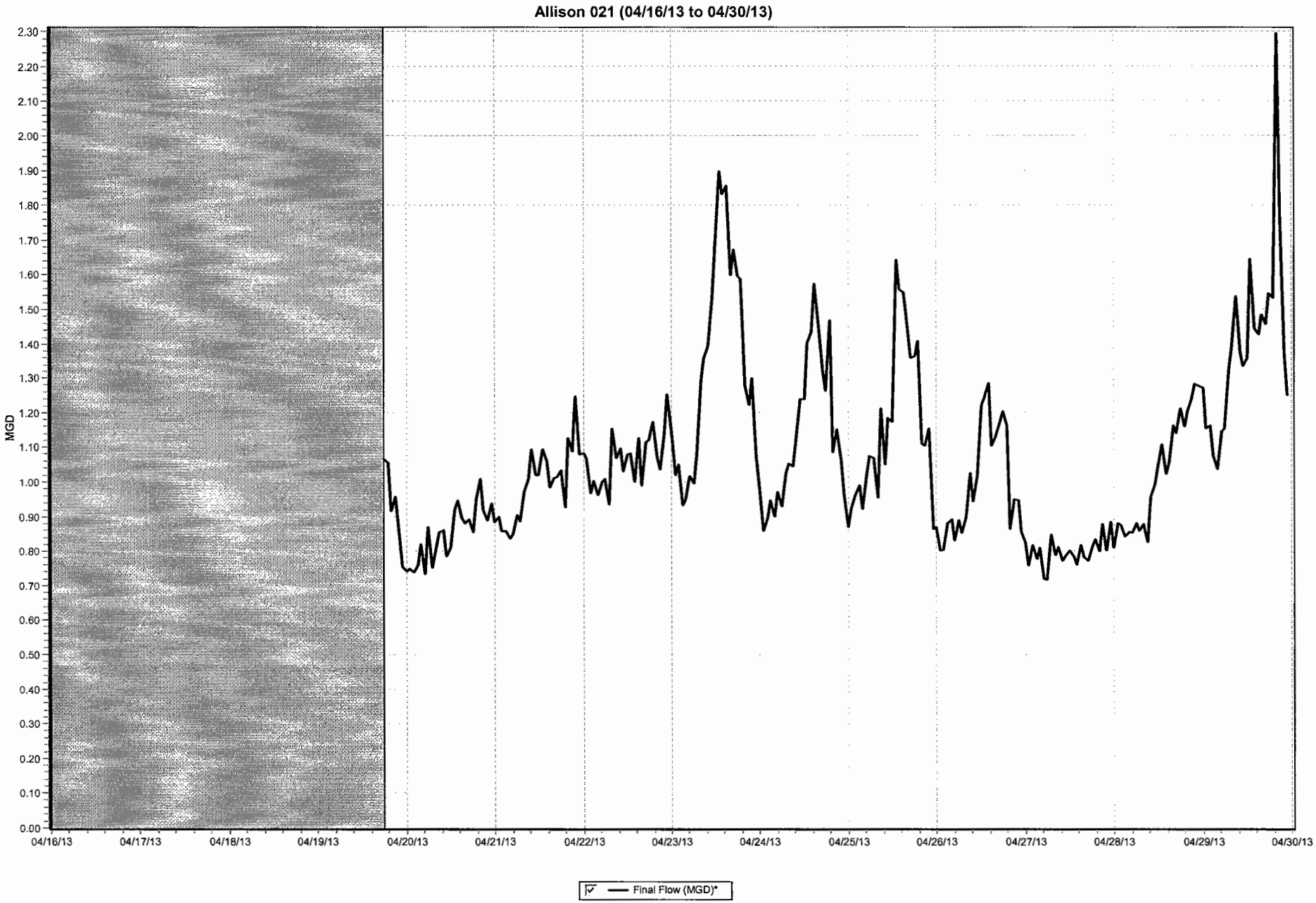
Allison Meter Site 021

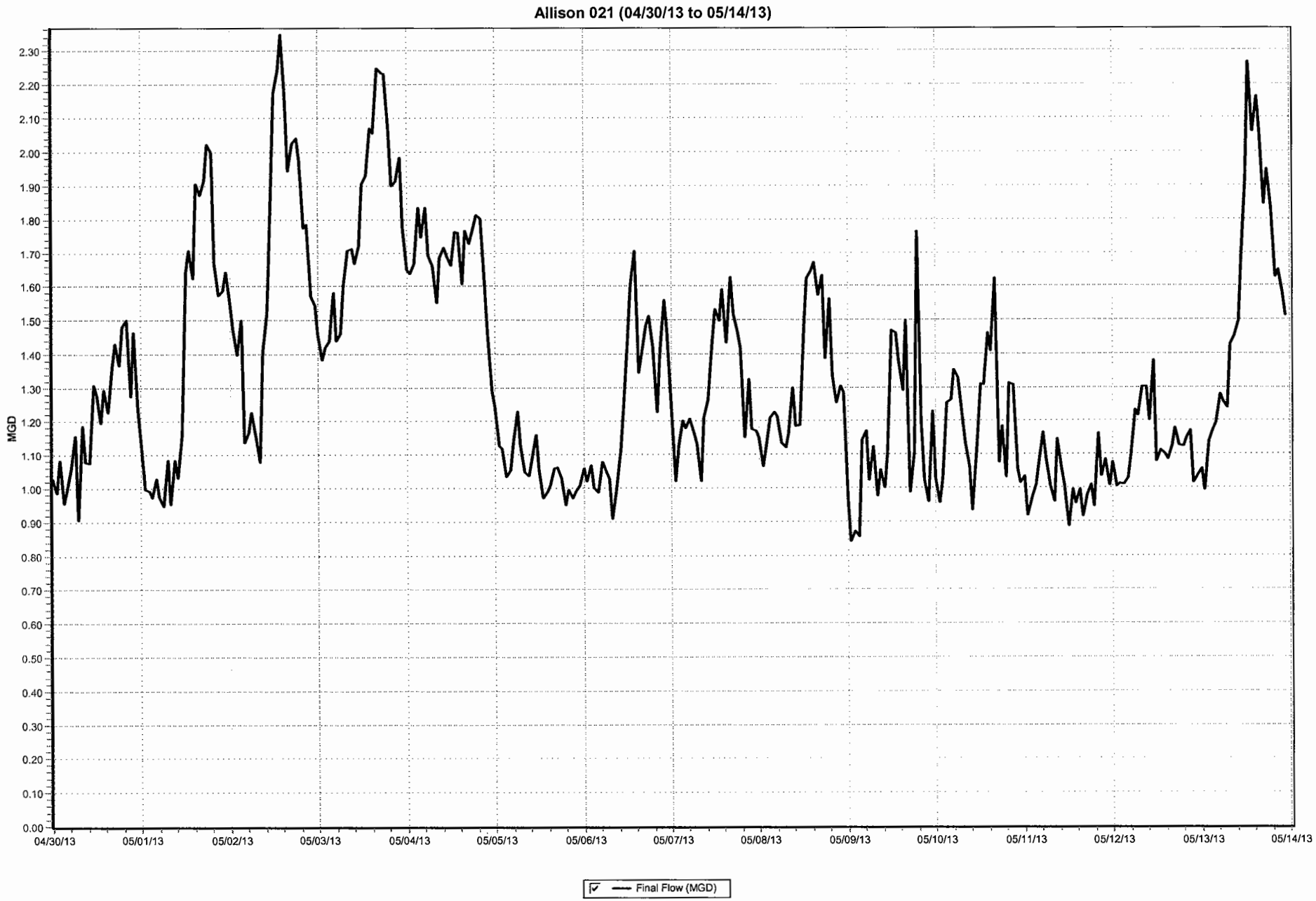
11275ALLISONFM021A055.JPG

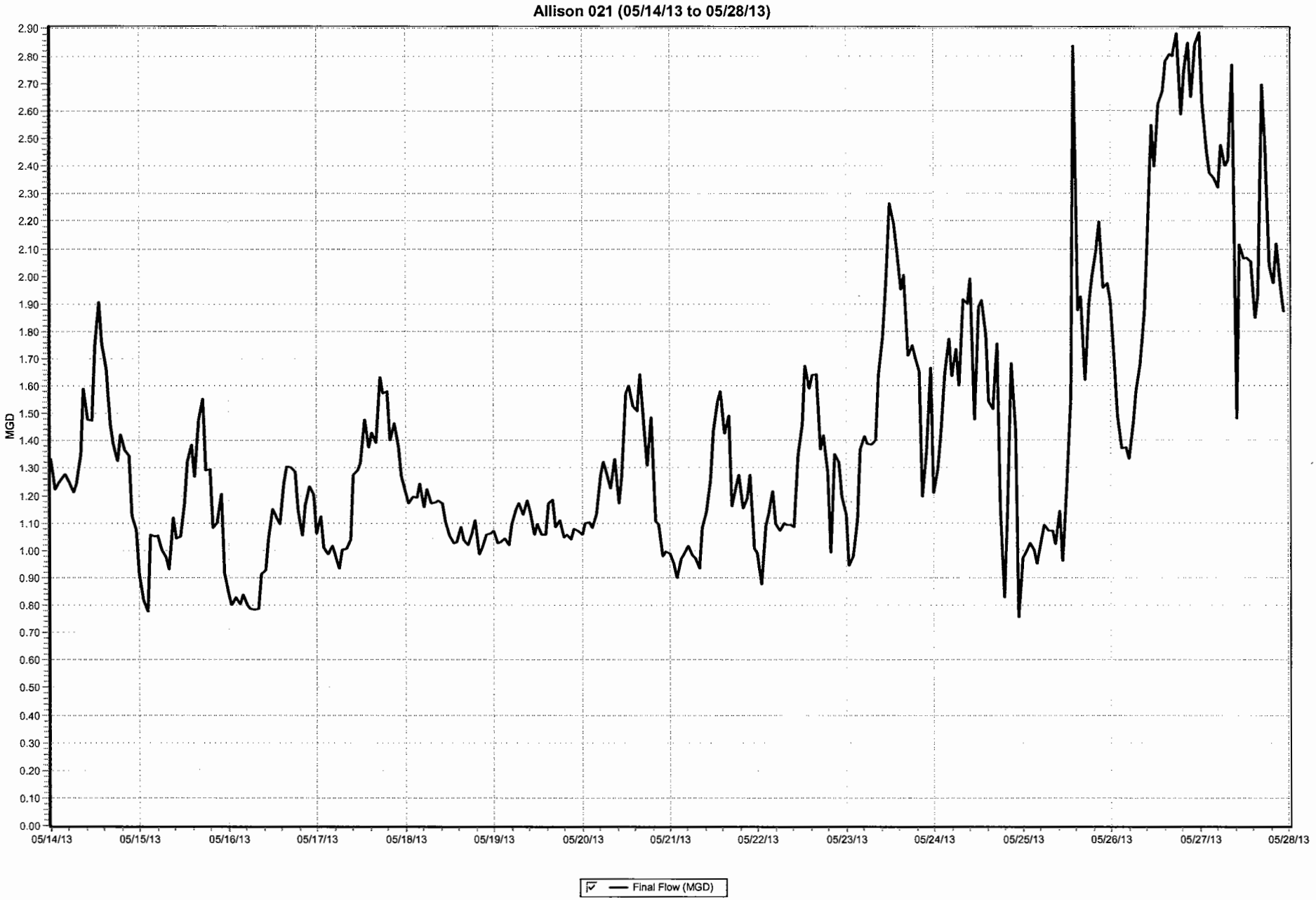
11275ALLISONFM021I056.jpg

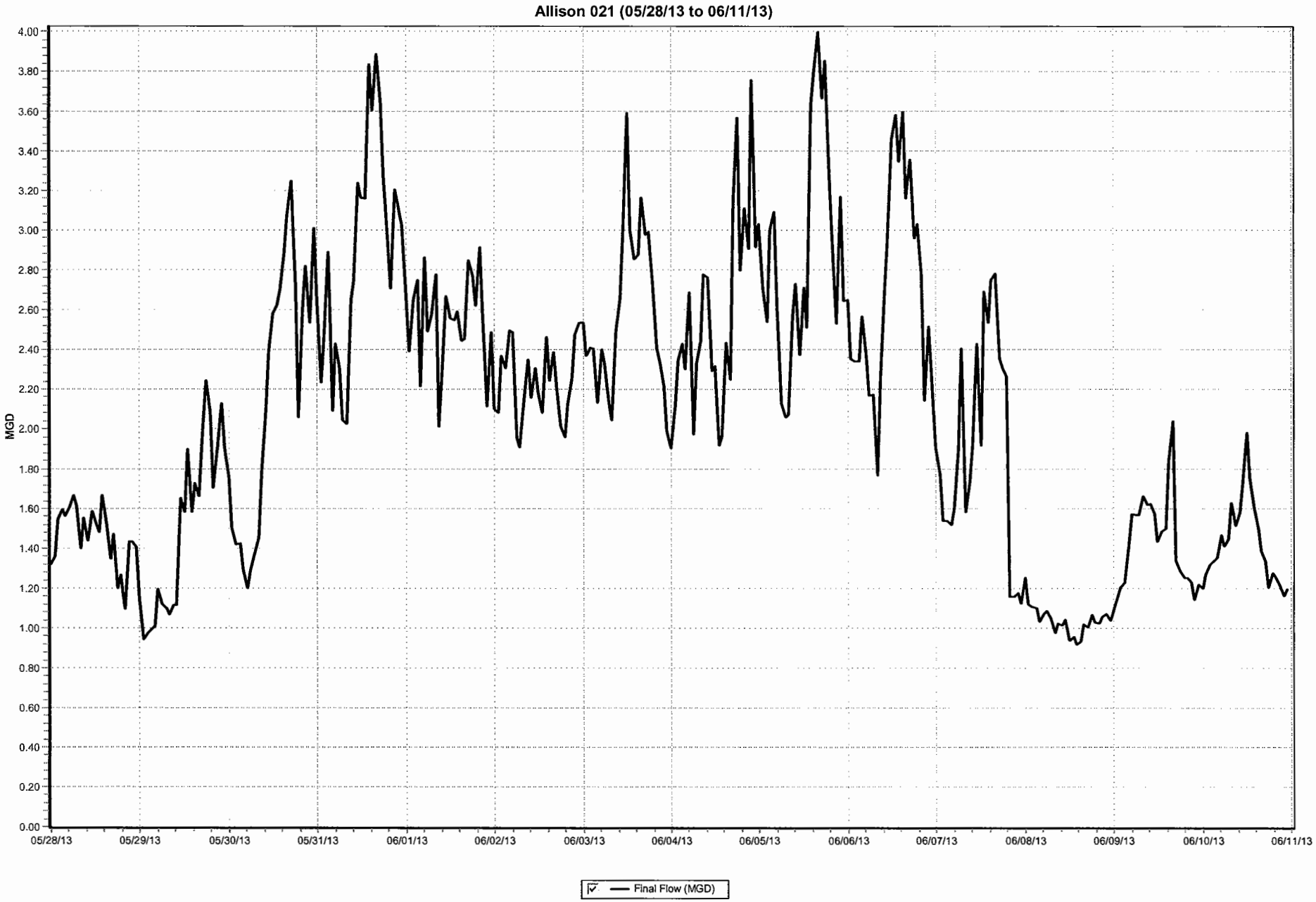
11275ALLISONFM021P057.jpg

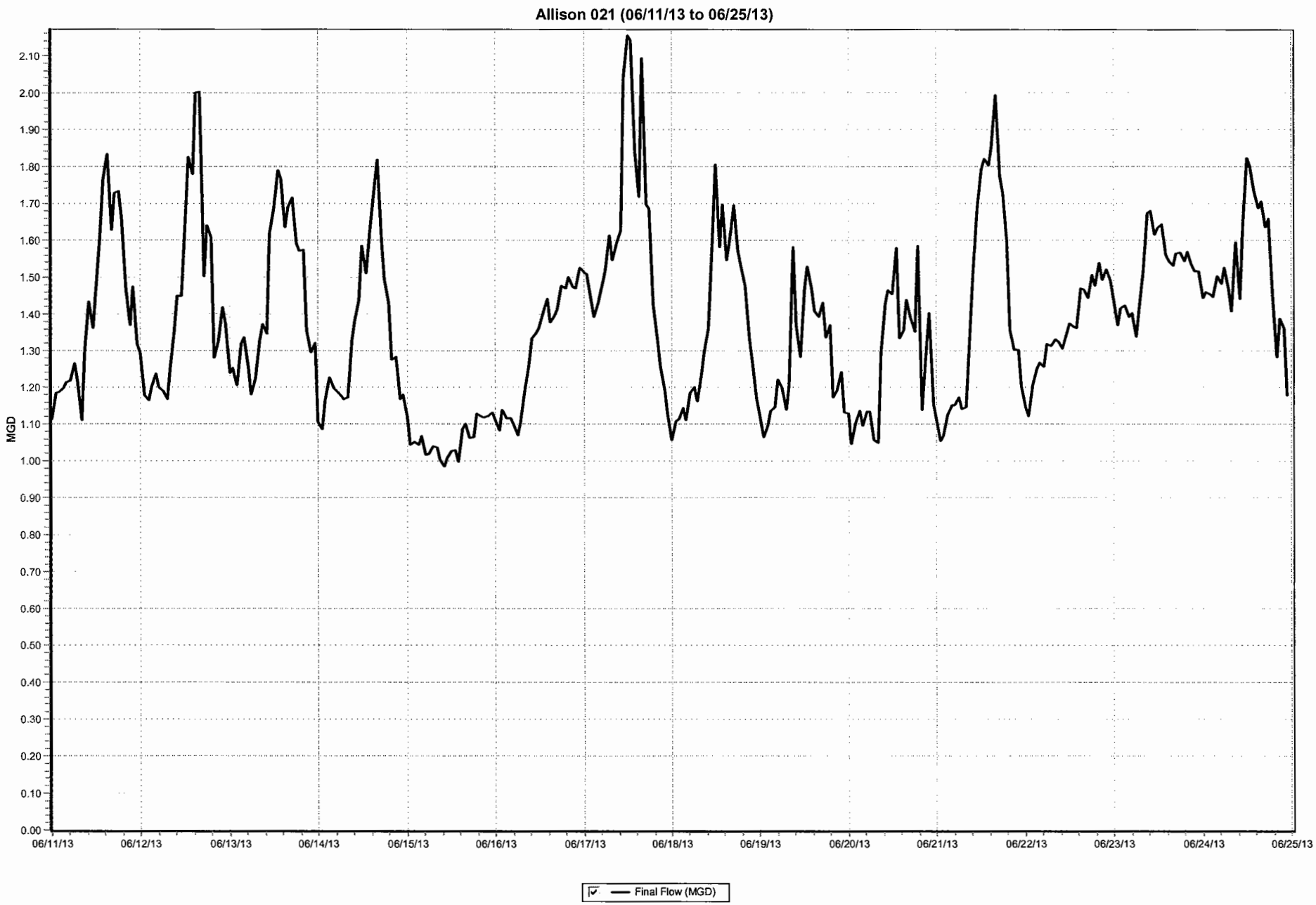

ALLISON 21
UP RIVER ROAD
INTERSTATE HIGHWAY 37
D DRIVE
057050130
057050140
057050150
057050160
057050161
057050180
057050200
057050210
057050220
057050230
057050240
057050250
057090020
057090050
057090070
057090100
27"
30"
0"
8"
10"
15"
Corpus Christi, Texas
Flow Meter Site
Allison 21
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

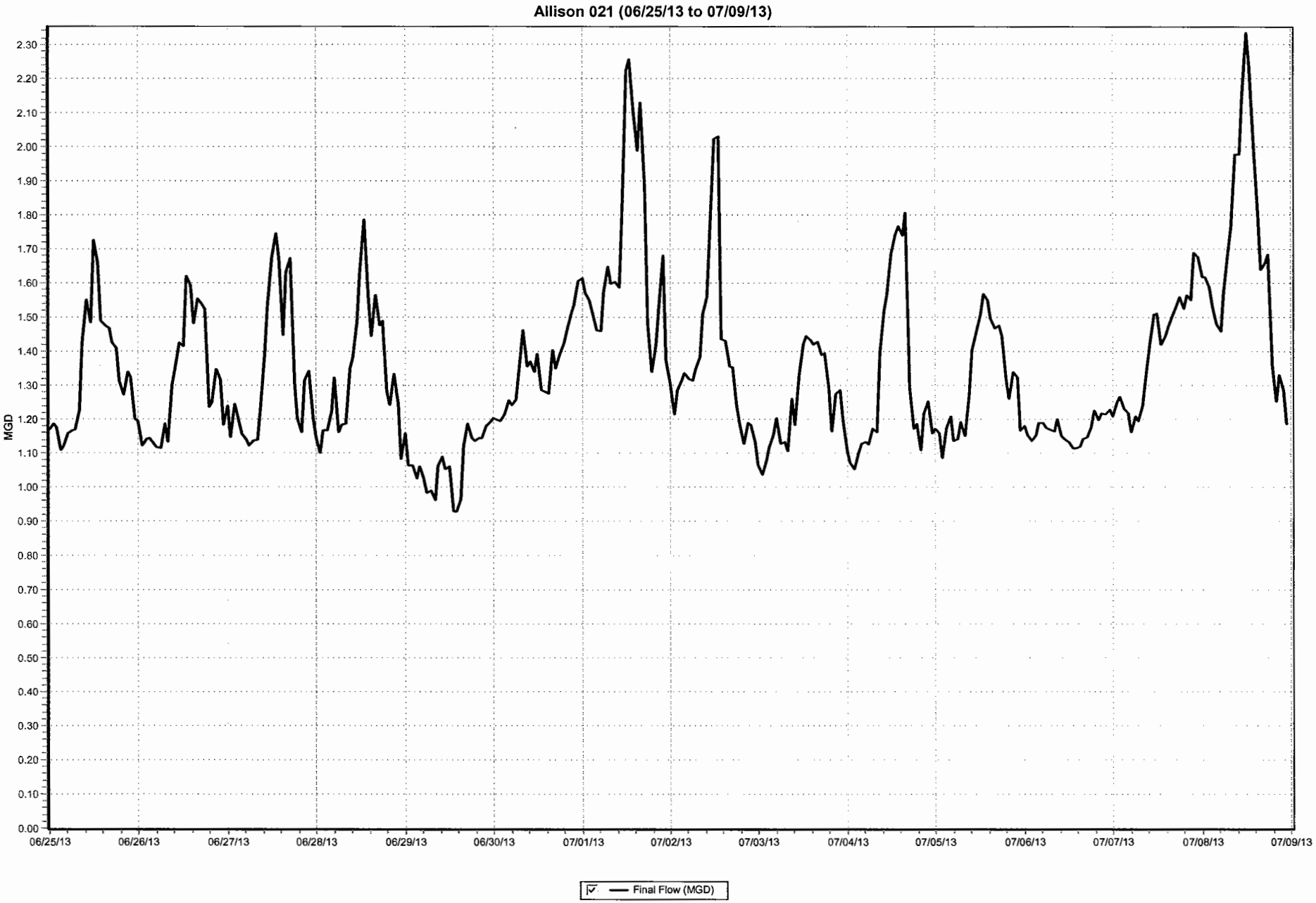

Allison 021 (04/16/13 to 04/30/13)
MGD
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

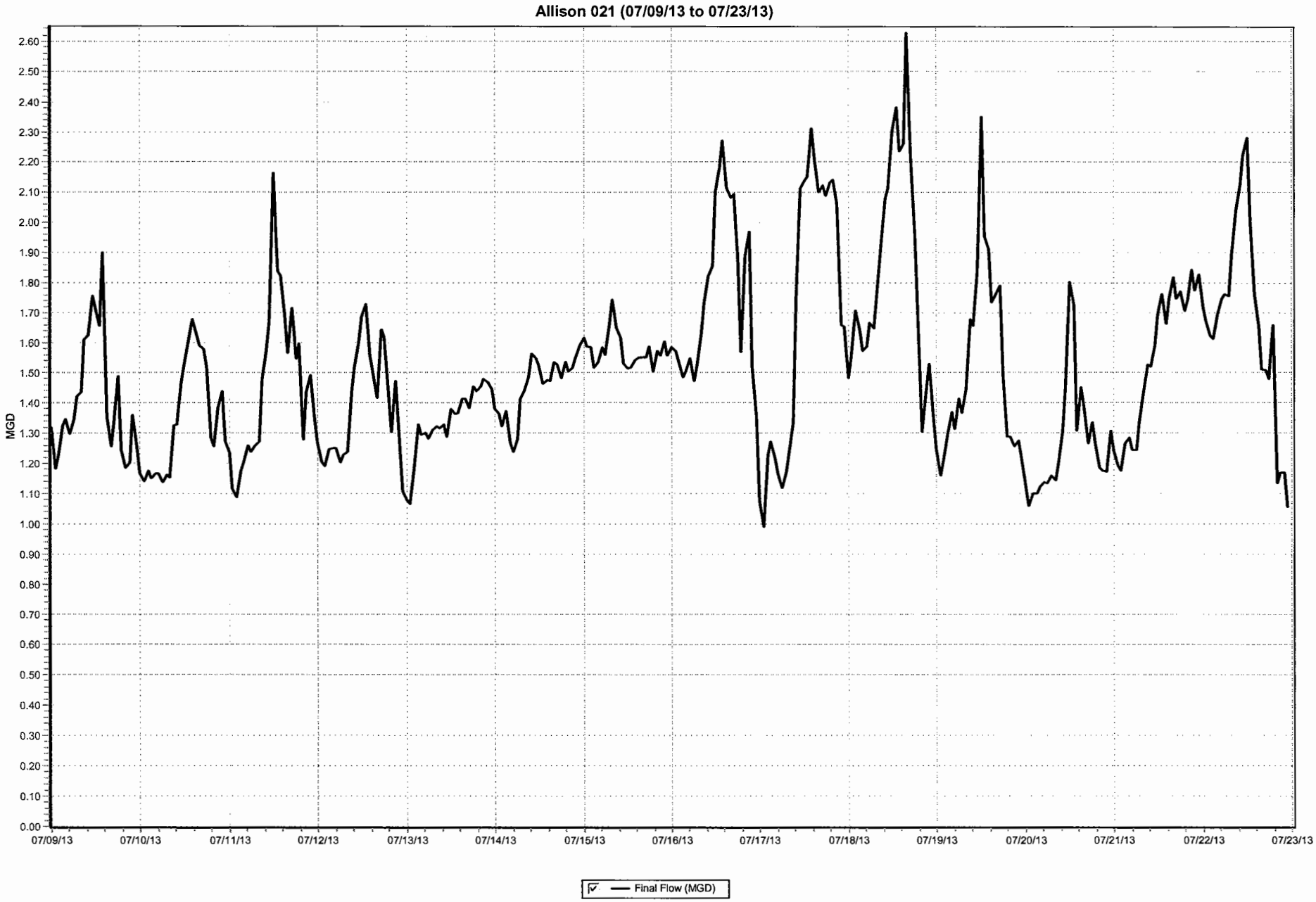

Allison 021 (04/30/13 to 05/14/13)
MGD
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 021 (05/14/13 to 05/28/13)
MGD
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

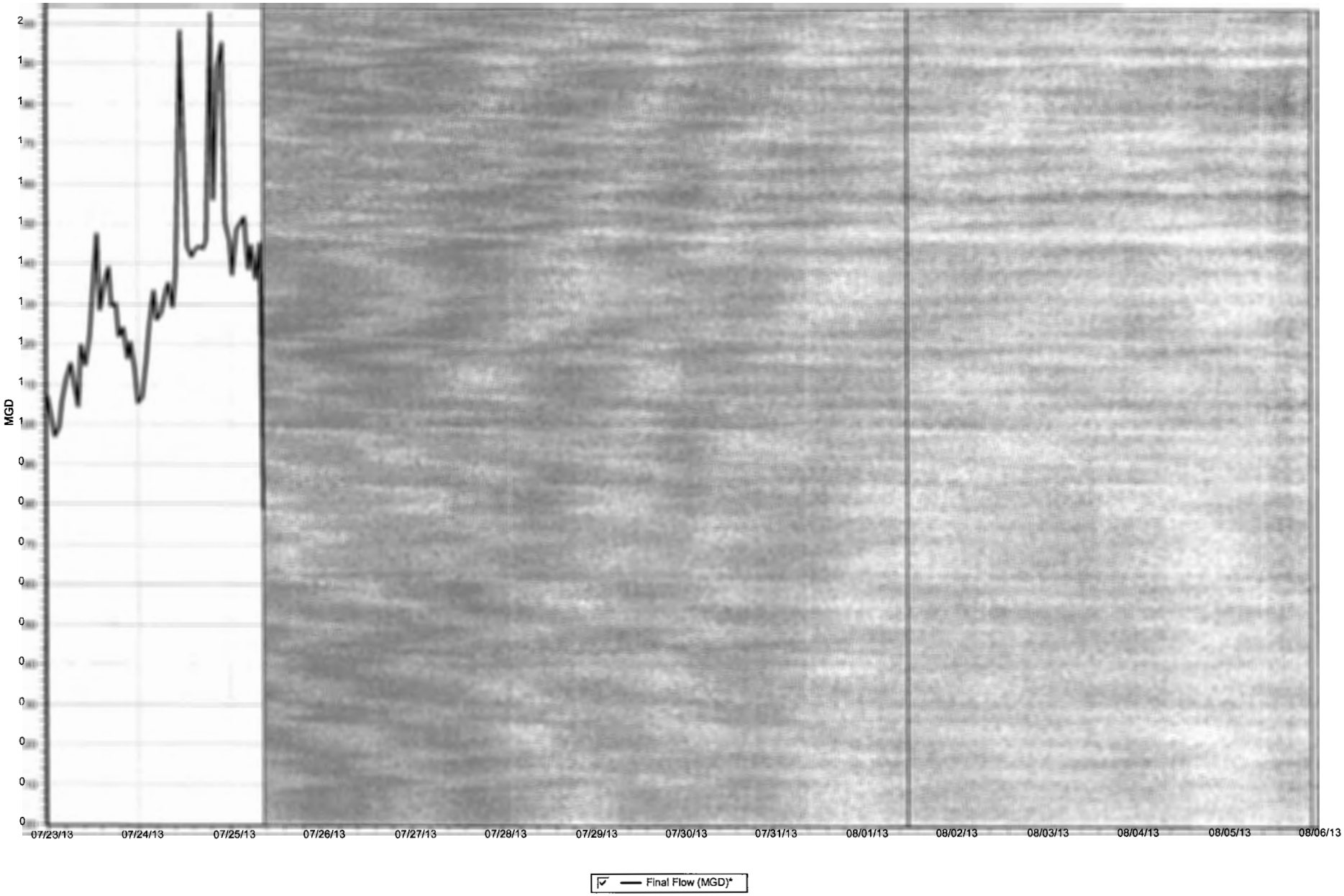

Allison 021 (05/28/13 to 06/11/13)
MGD
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 021 (06/11/13 to 06/25/13)
MGD
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 021 (06/25/13 to 07/09/13)
MGD
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 021 (07/09/13 to 07/23/13)
MGD
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 021 (07/23/13 to 08/06/13)



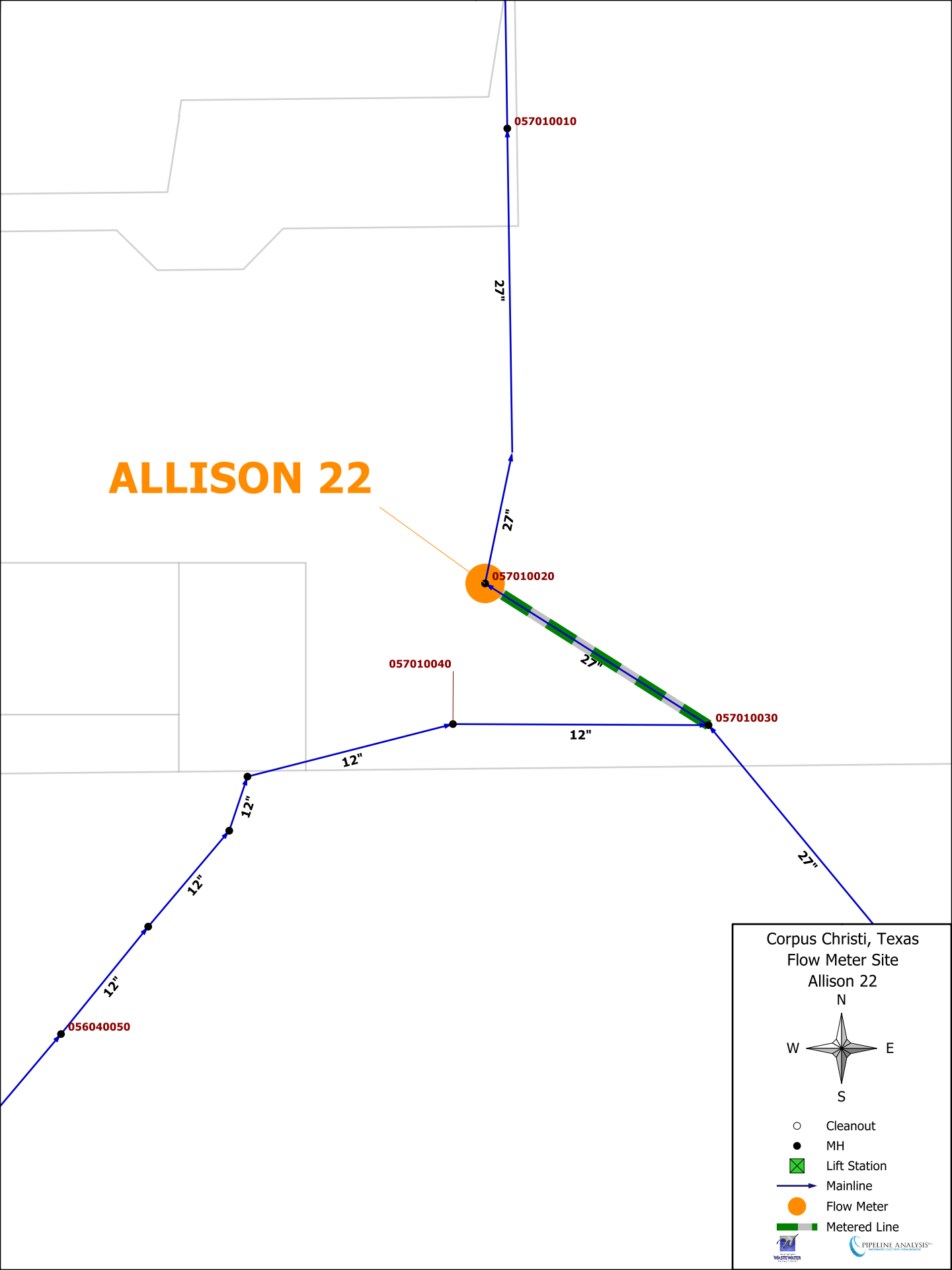
Allison FM022

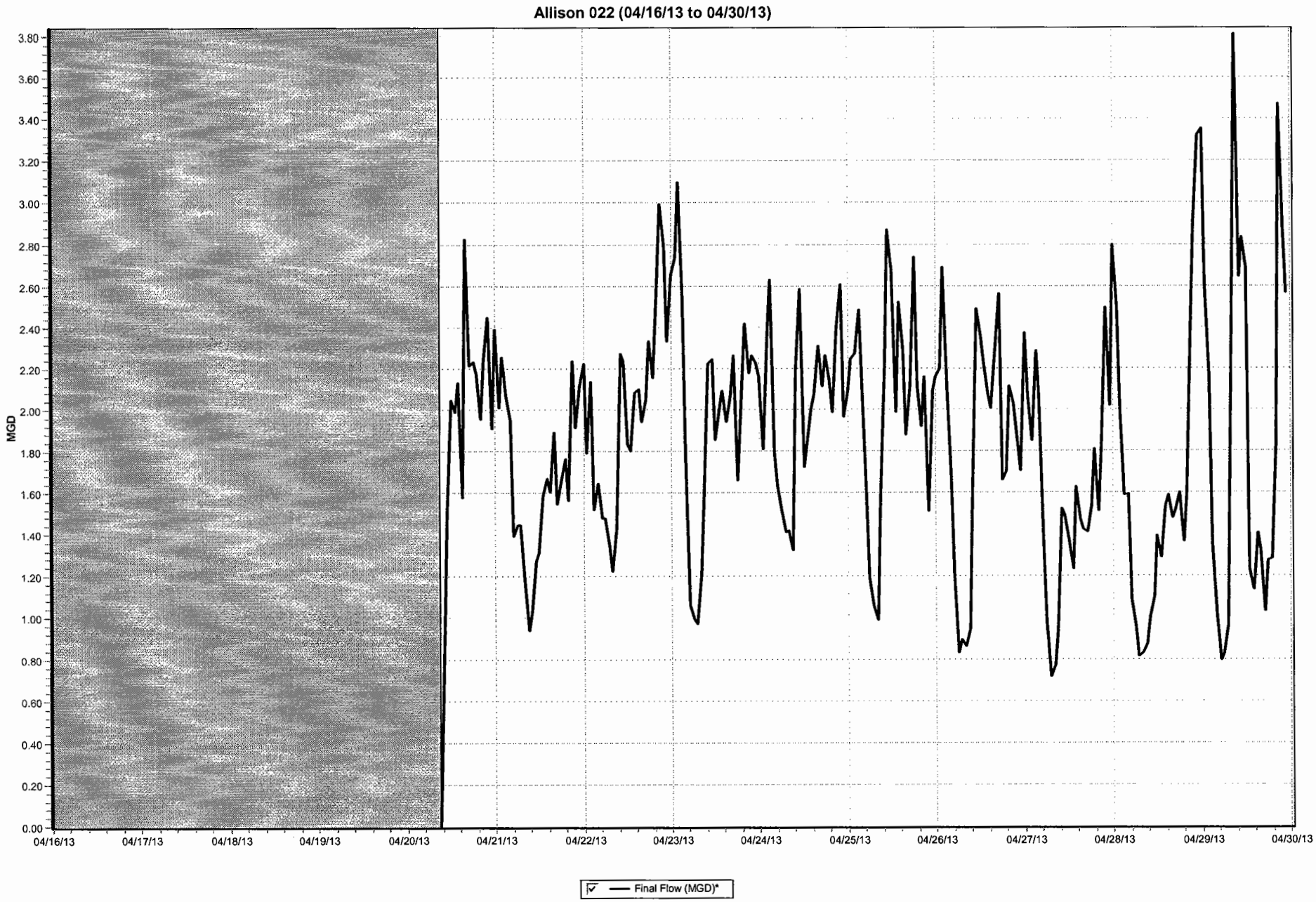
Allison Meter Site 022

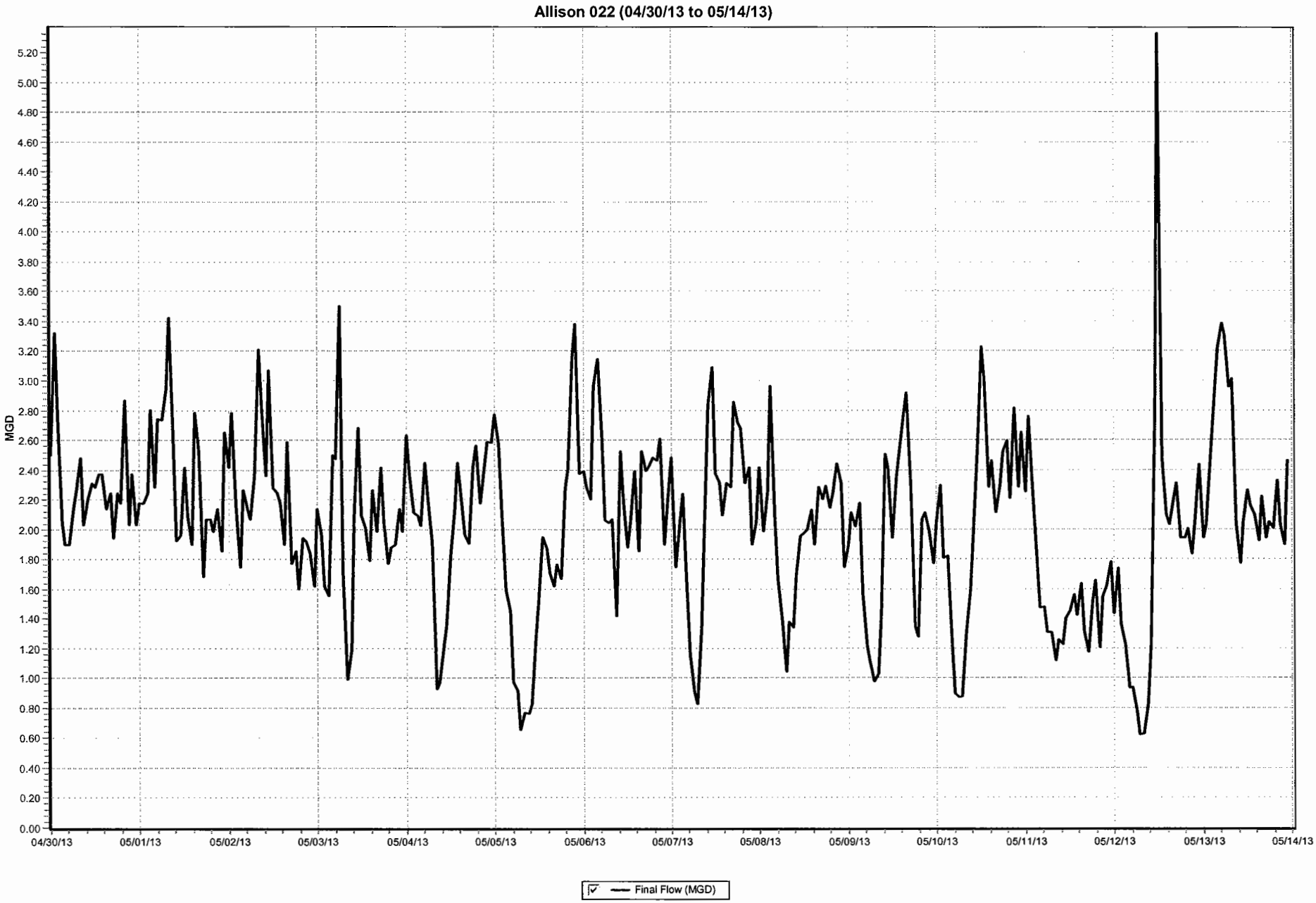
11275ALLISONFM022A015.jpg

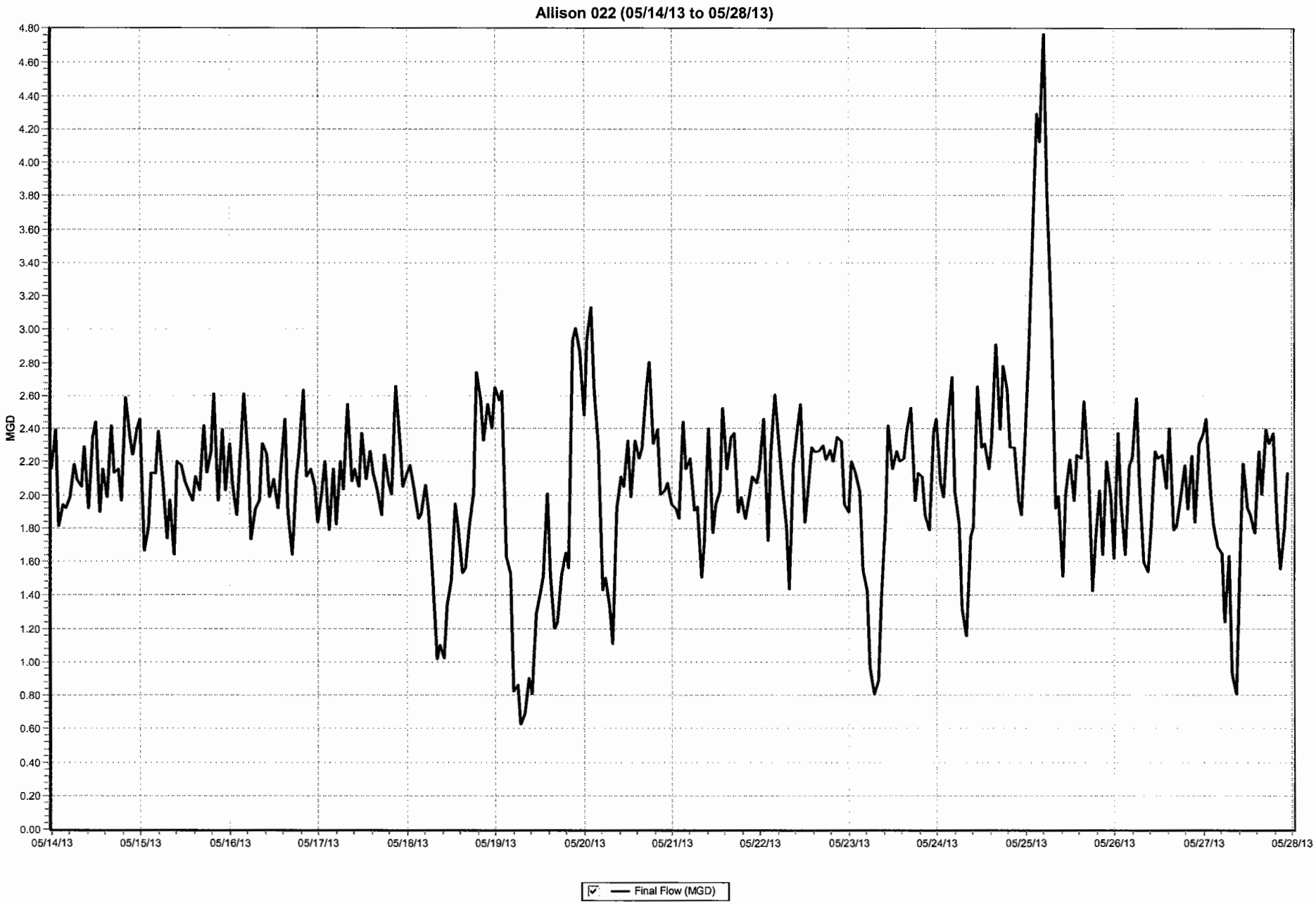
11275ALLISONFM022I016.jpg

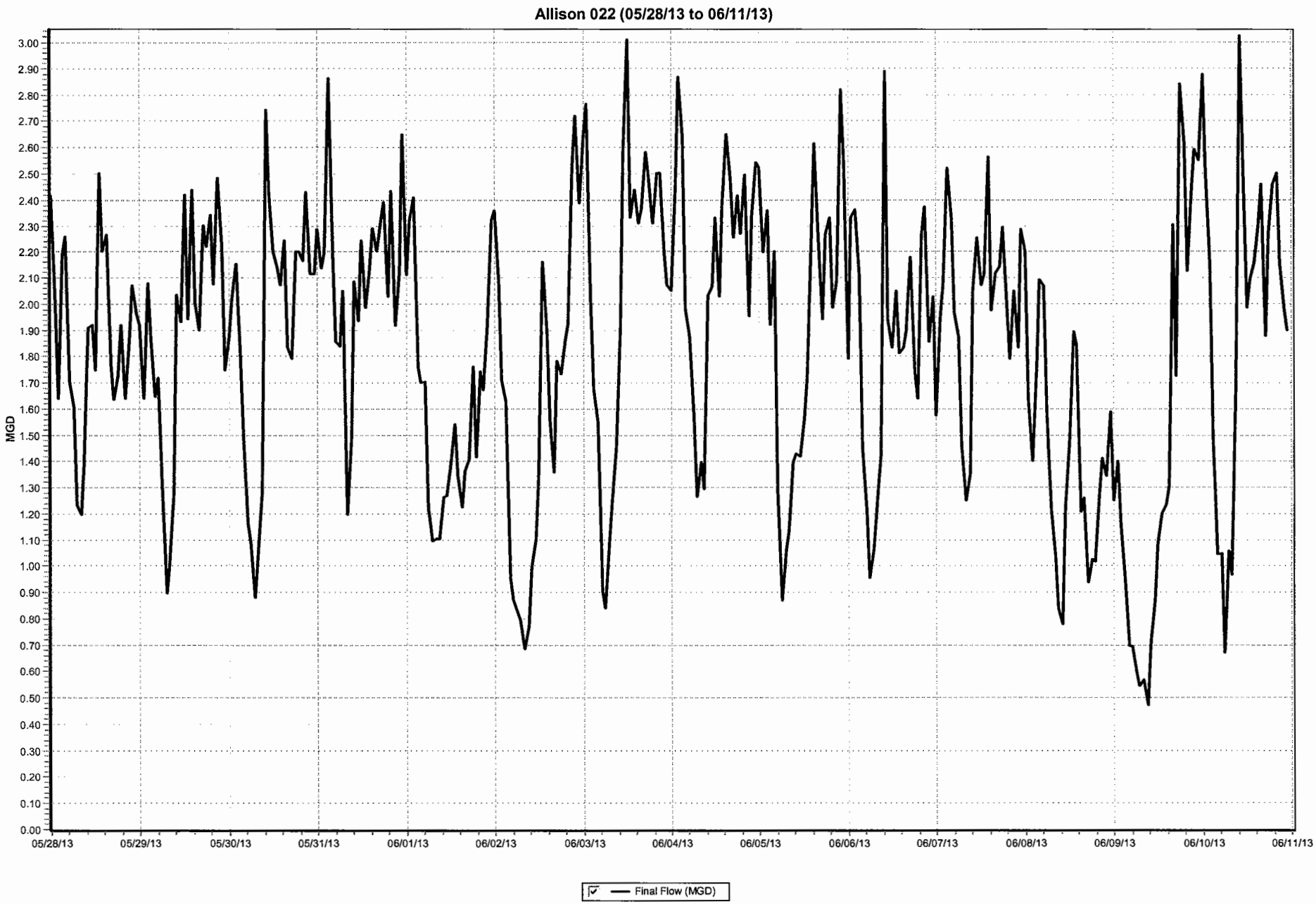
11275ALLISONFM022P017.jpg

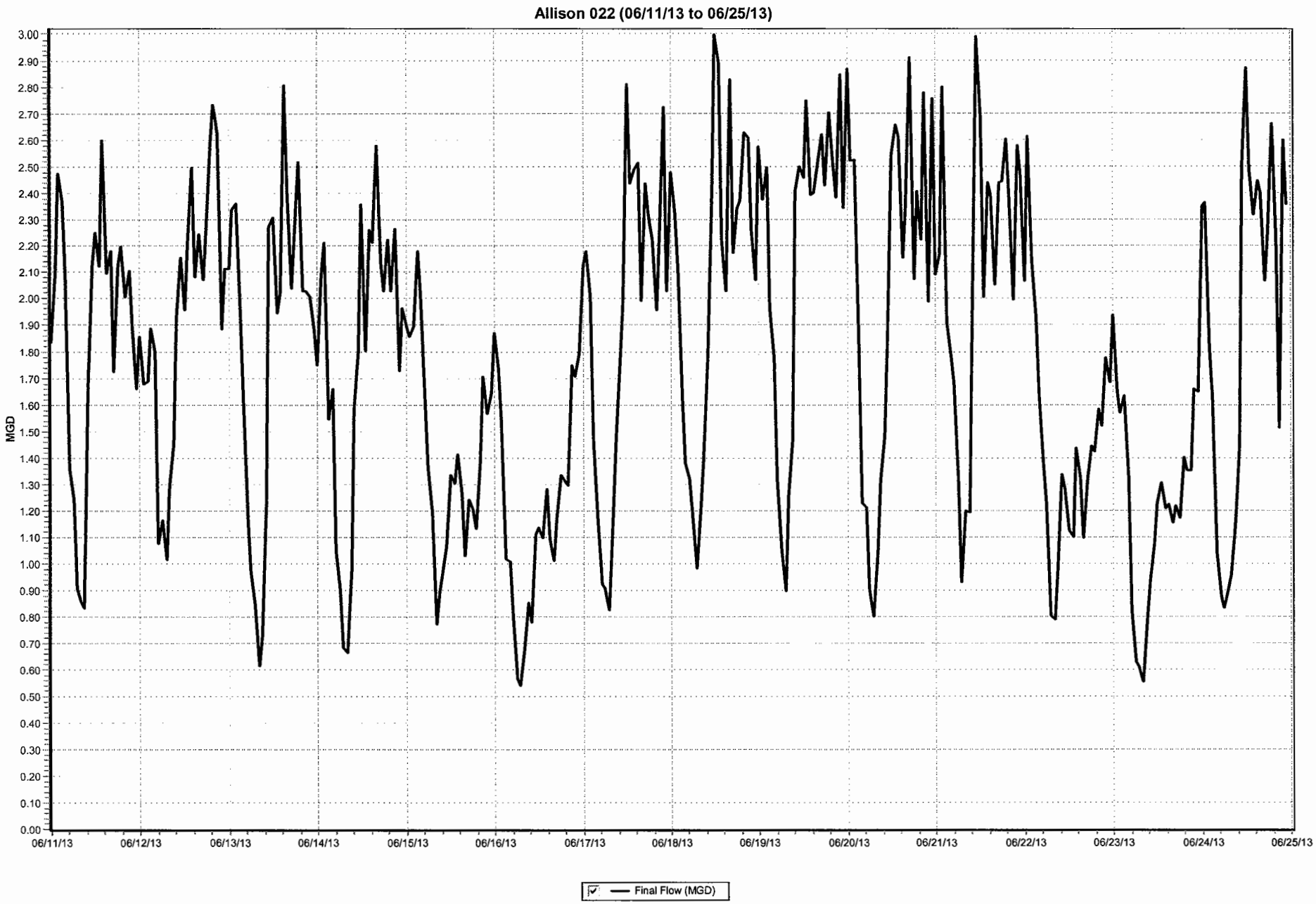

057010010
27"
ALLISON 22
27"
057010020
27"
057010040
057010030
12"
12"
12"
12"
12"
27"
056040050
Corpus Christi, Texas
Flow Meter Site
Allison 22
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

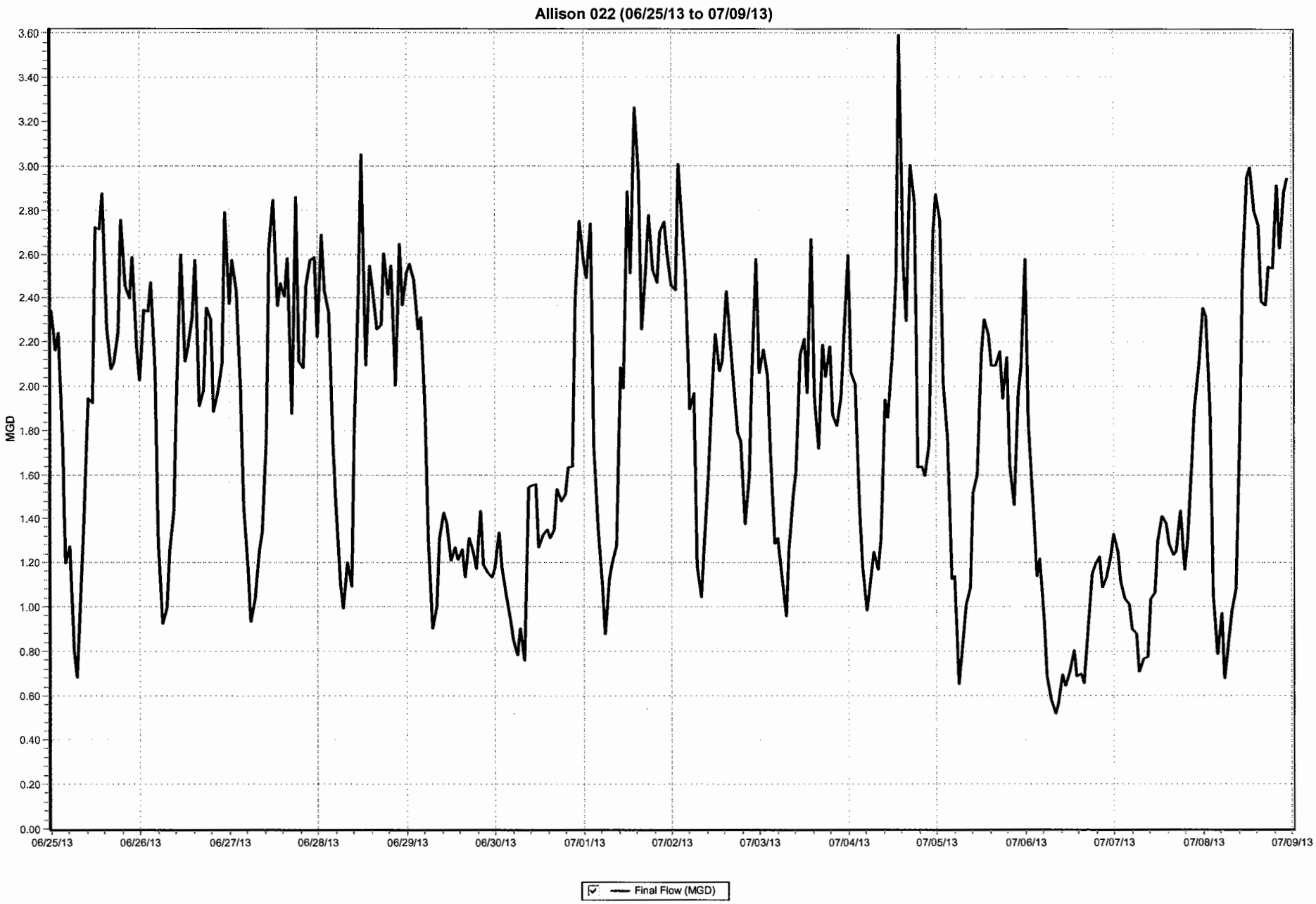

Allison 022 (04/16/13 to 04/30/13)
MGD
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

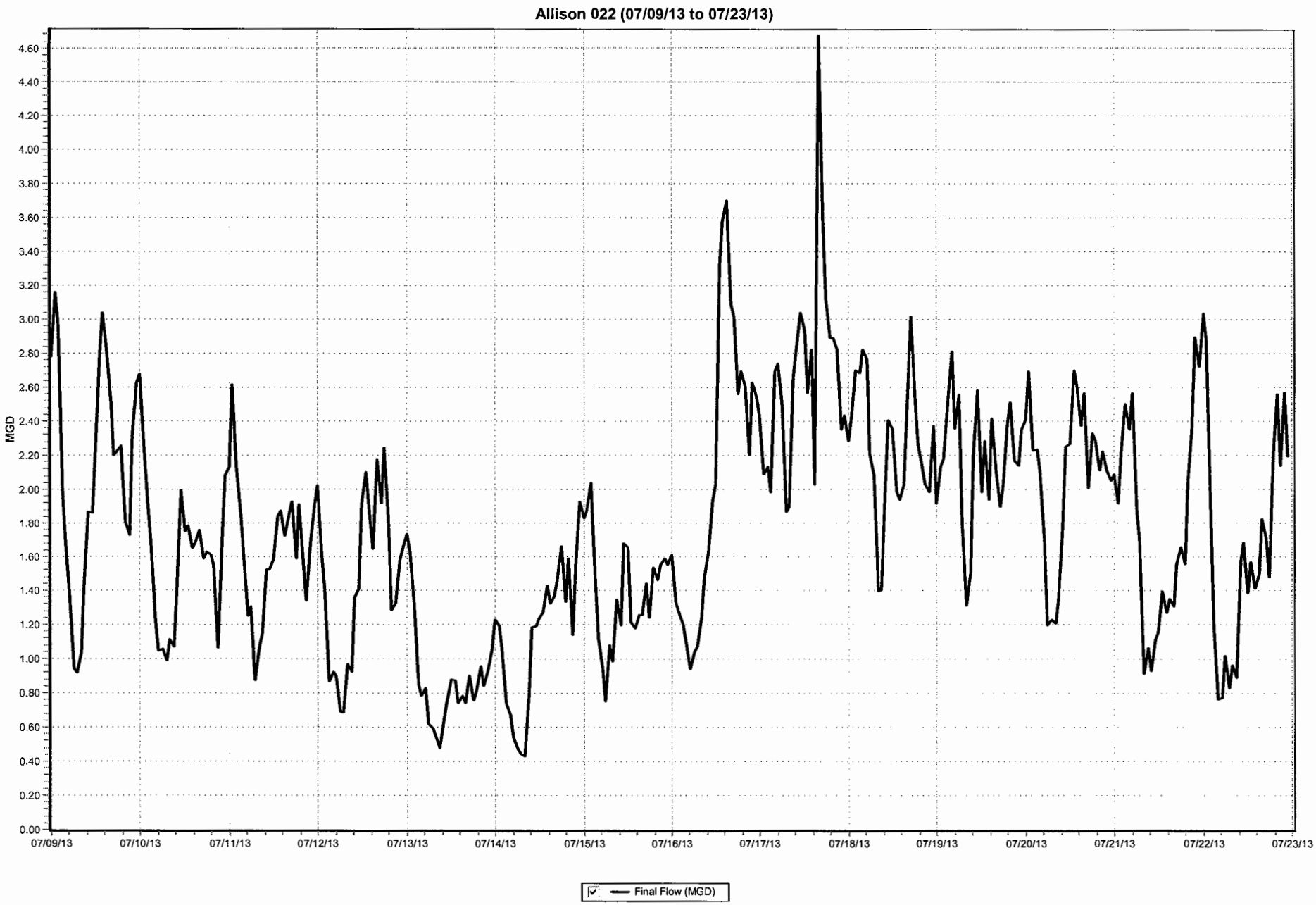

Allison 022 (04/30/13 to 05/14/13)
MGD
5.20
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 022 (05/14/13 to 05/28/13)
MGD
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

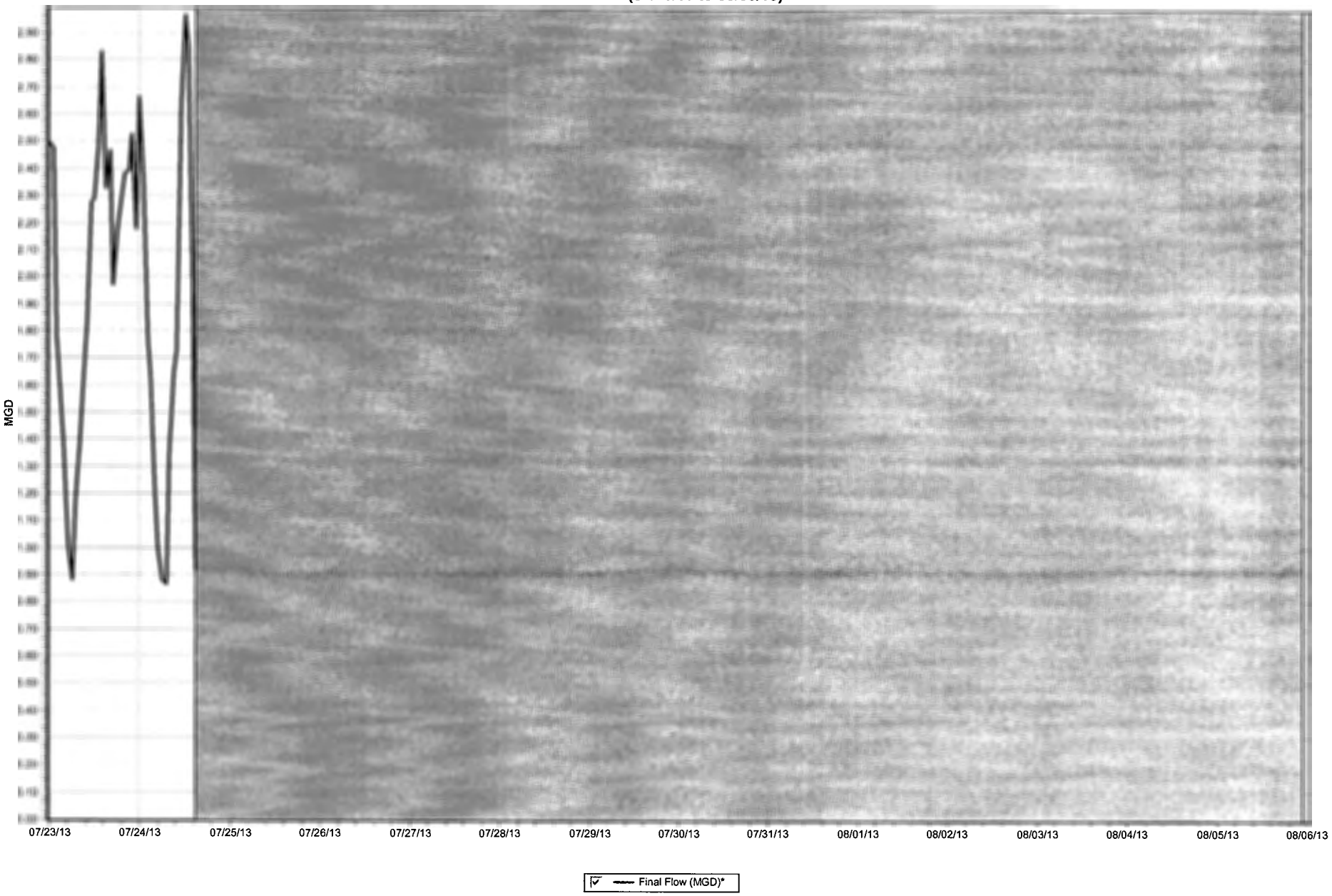

Allison 022 (05/28/13 to 06/11/13)
MGD
3.00
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 022 (06/11/13 to 06/25/13)
MGD
3.00
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 022 (06/25/13 to 07/09/13)
MGD
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 022 (07/09/13 to 07/23/13)
MGD
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 022 (07/23/13 to 08/06/13)



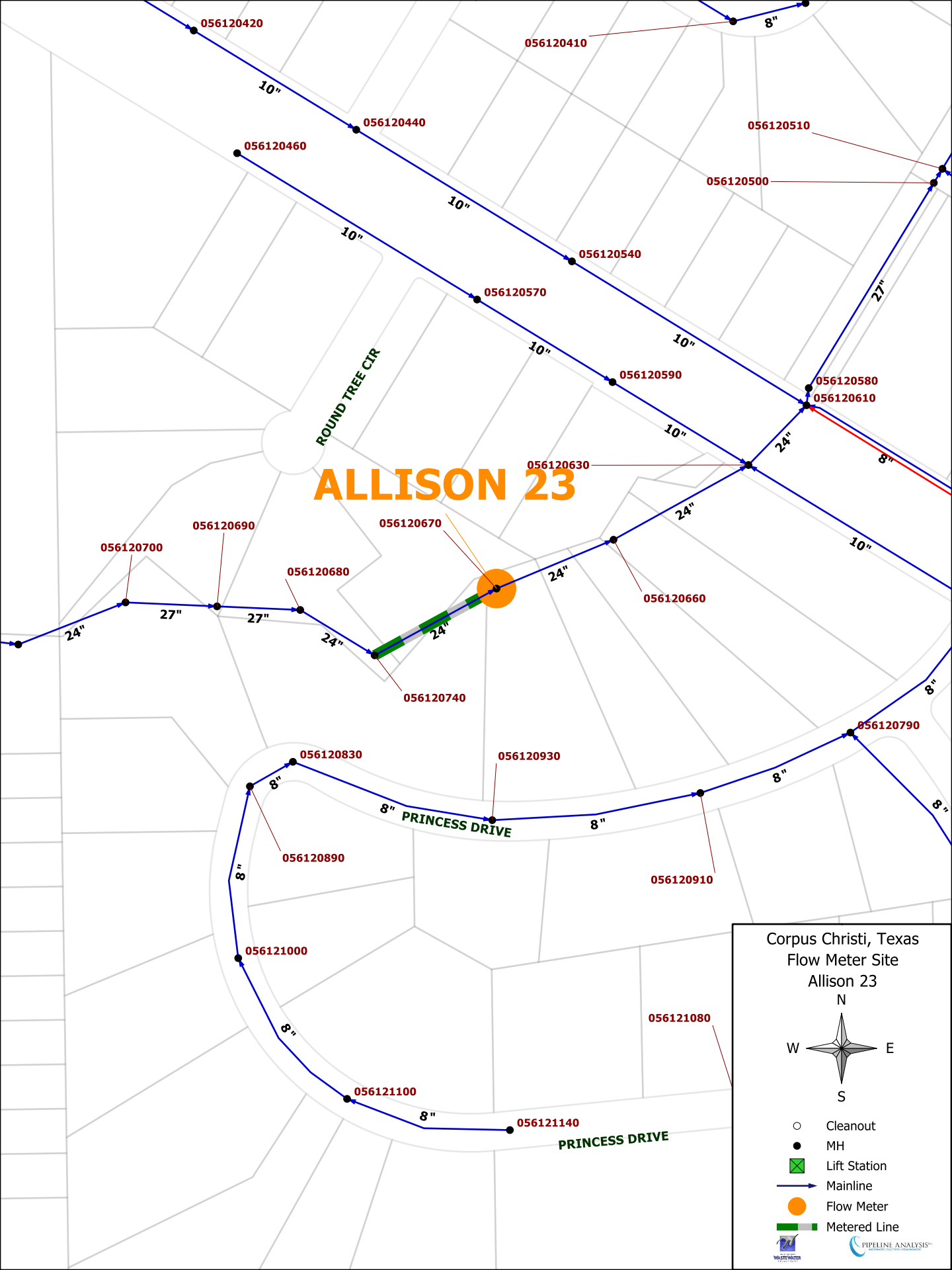
Allison FM023

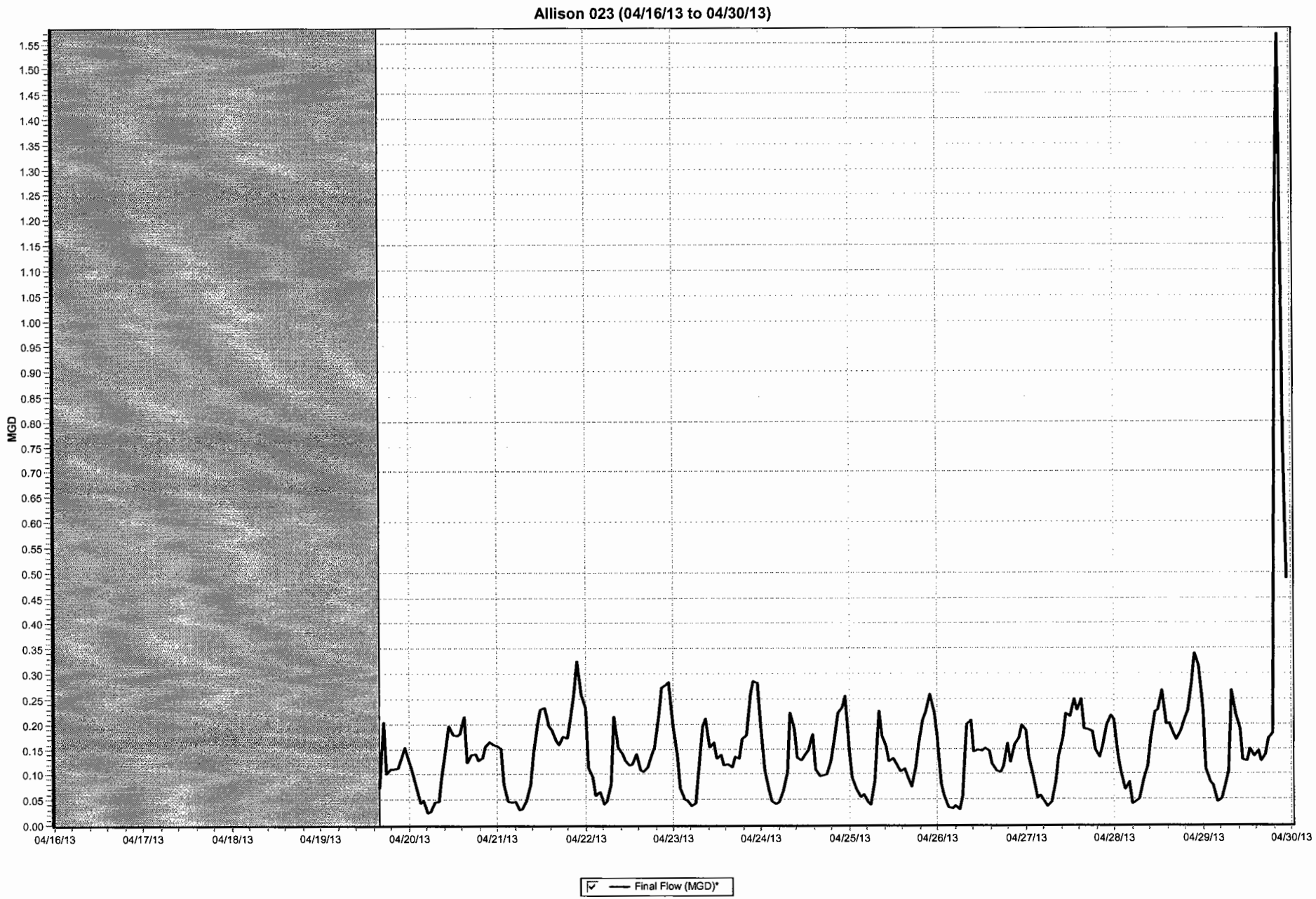
Allison Meter Site 023

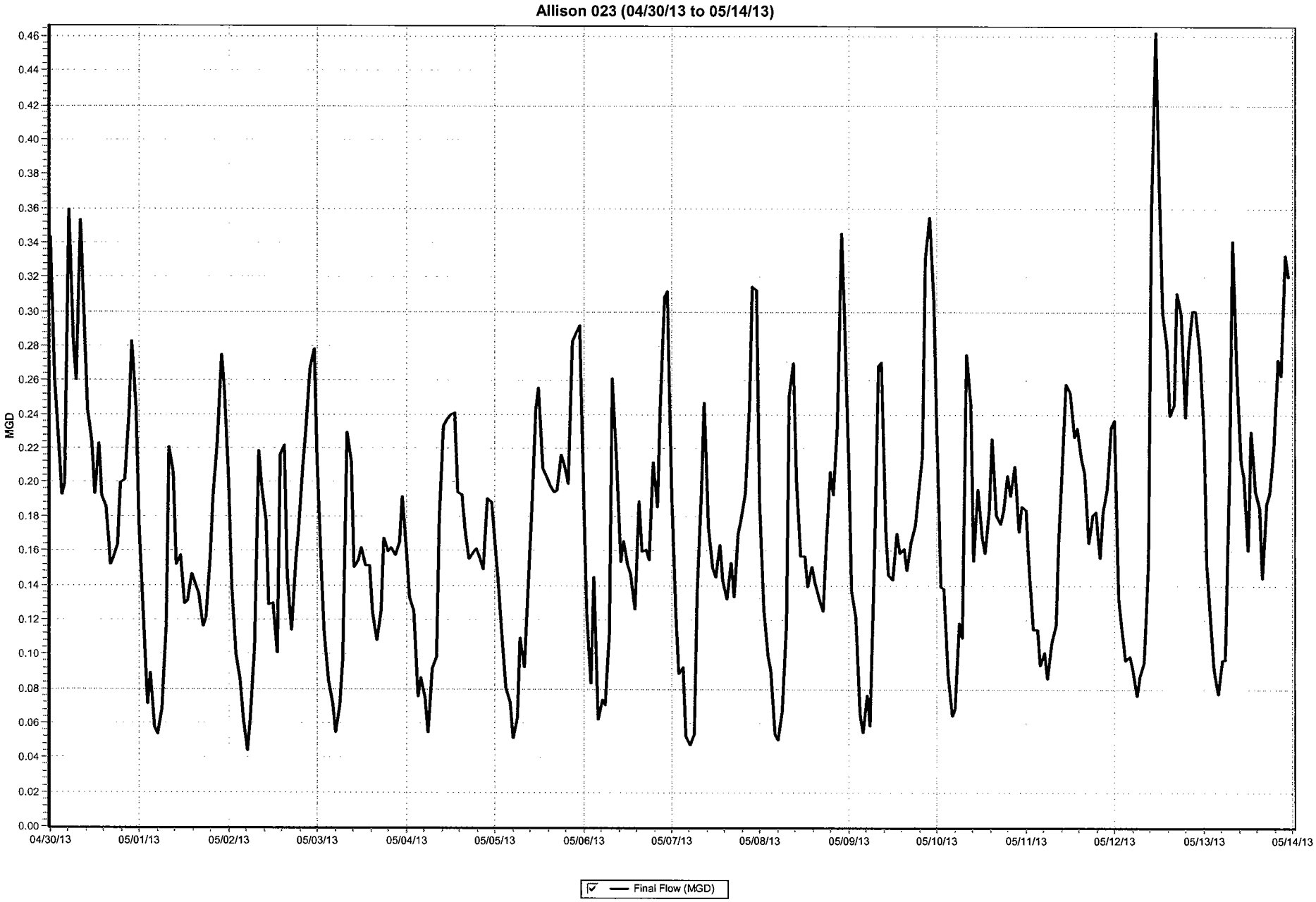
11275ALLISONFM023A046.jpg

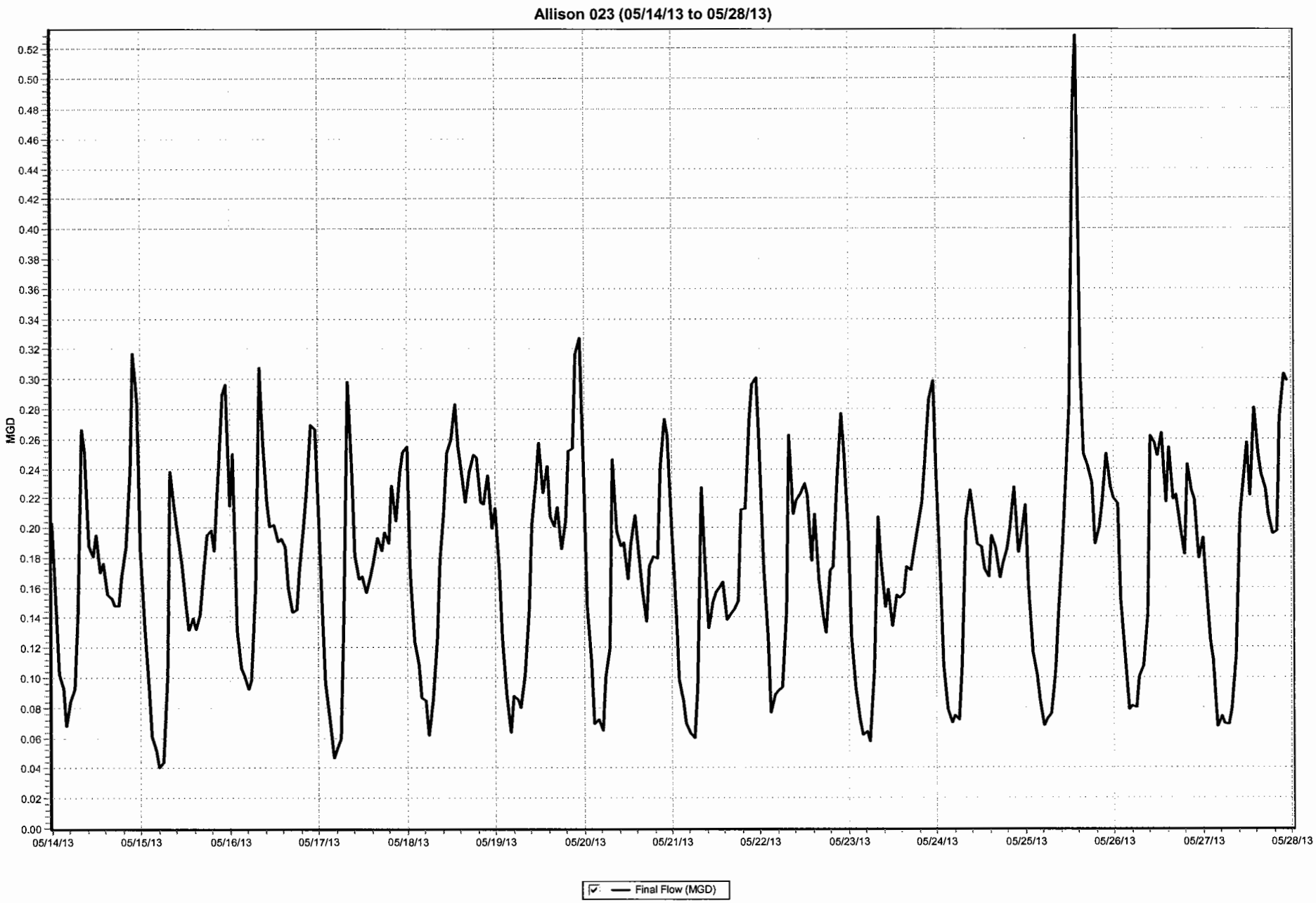
11275ALLISONFM023I047.jpg

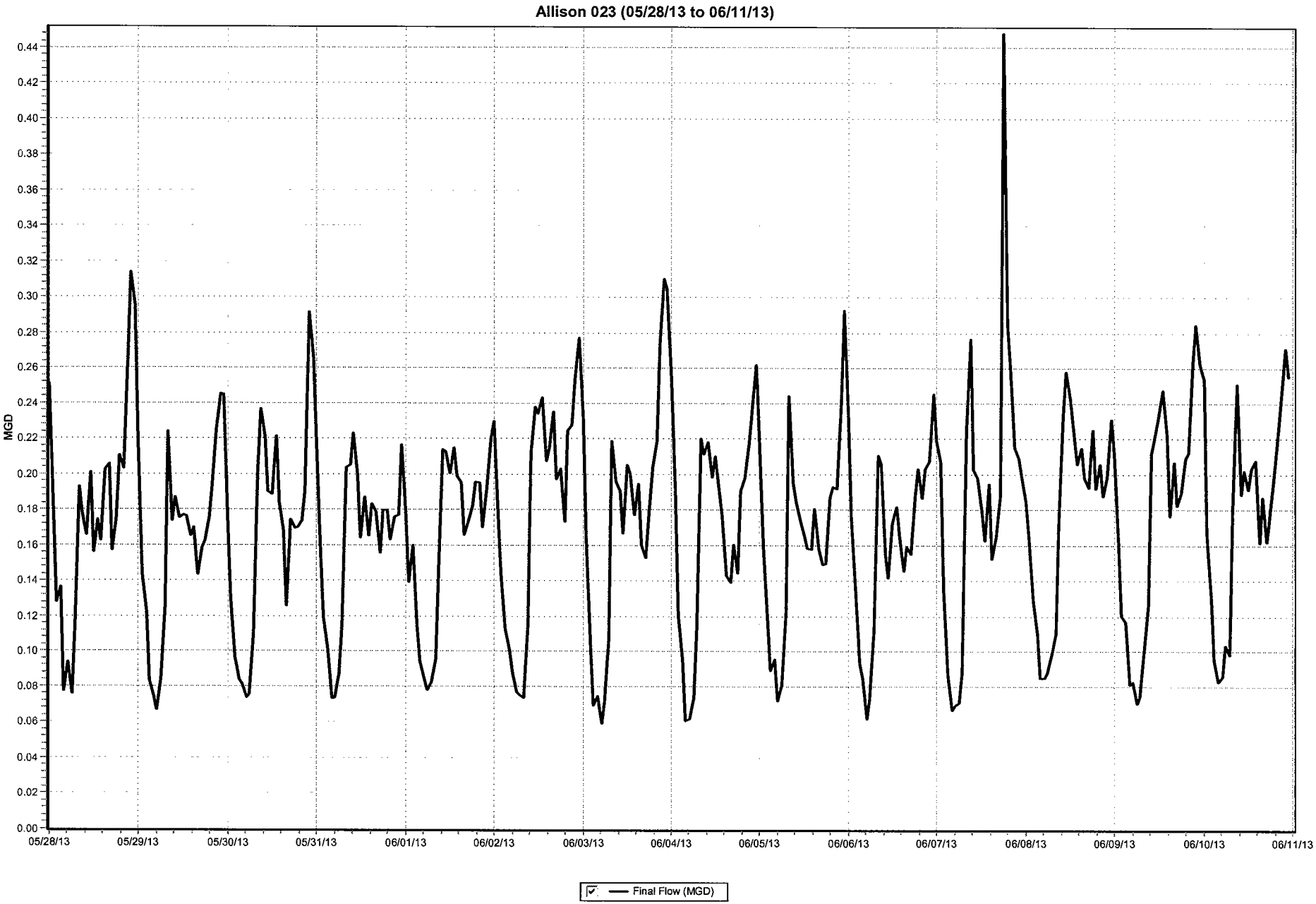
11275ALLISONFM023P048.jpg

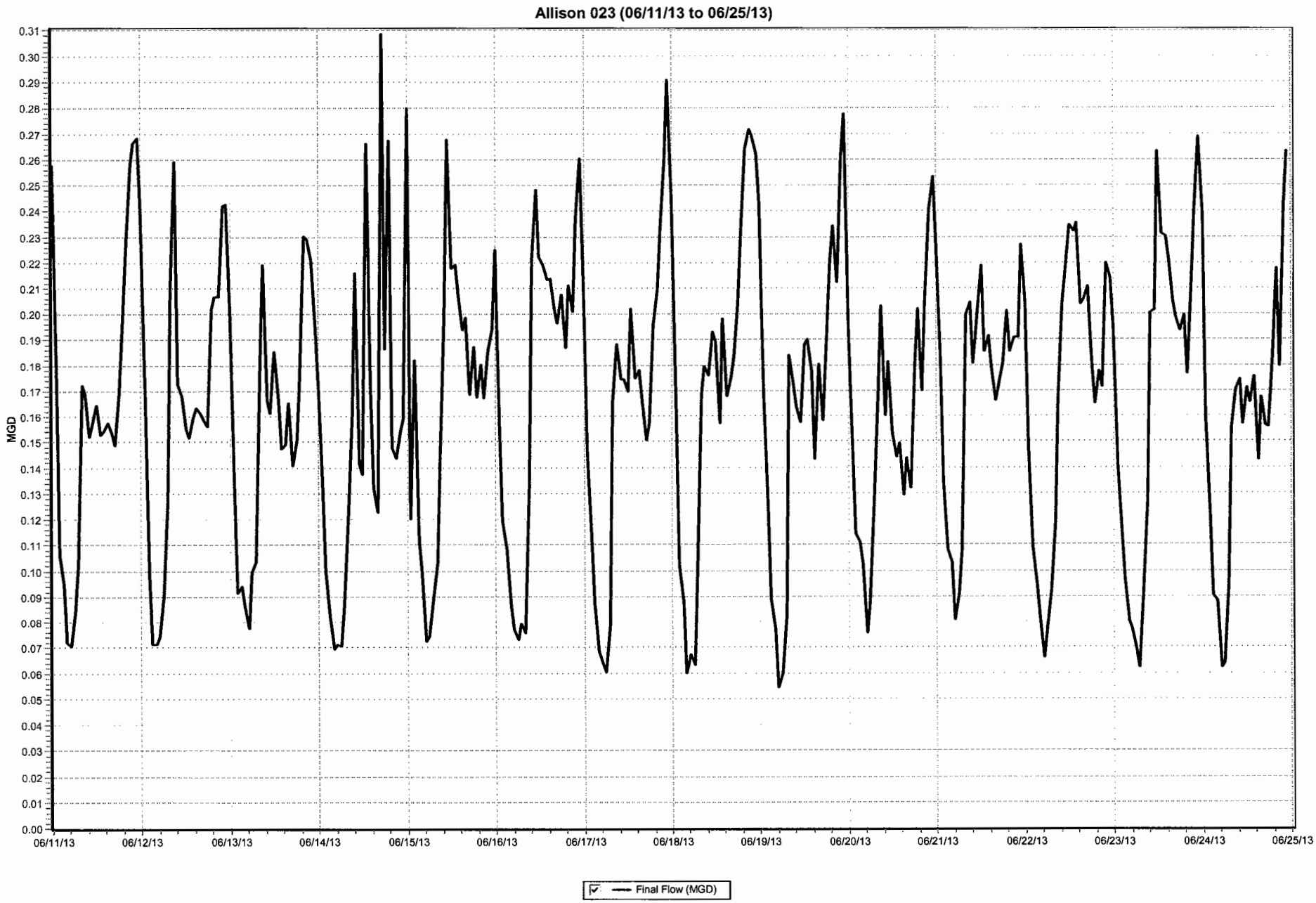

ALLISON 23
056120420
056120410
056120440
056120460
056120510
056120500
056120540
056120570
056120590
056120580
056120610
056120630
056120660
056120670
056120680
056120690
056120700
056120740
056120790
056120830
056120890
056120930
056120910
056121000
056121080
056121100
056121140
10"
8"
27"
24"
ROUND TREE CIR
PRINCESS DRIVE
PRINCESS DRIVE
Corpus Christi, Texas
Flow Meter Site
Allison 23
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

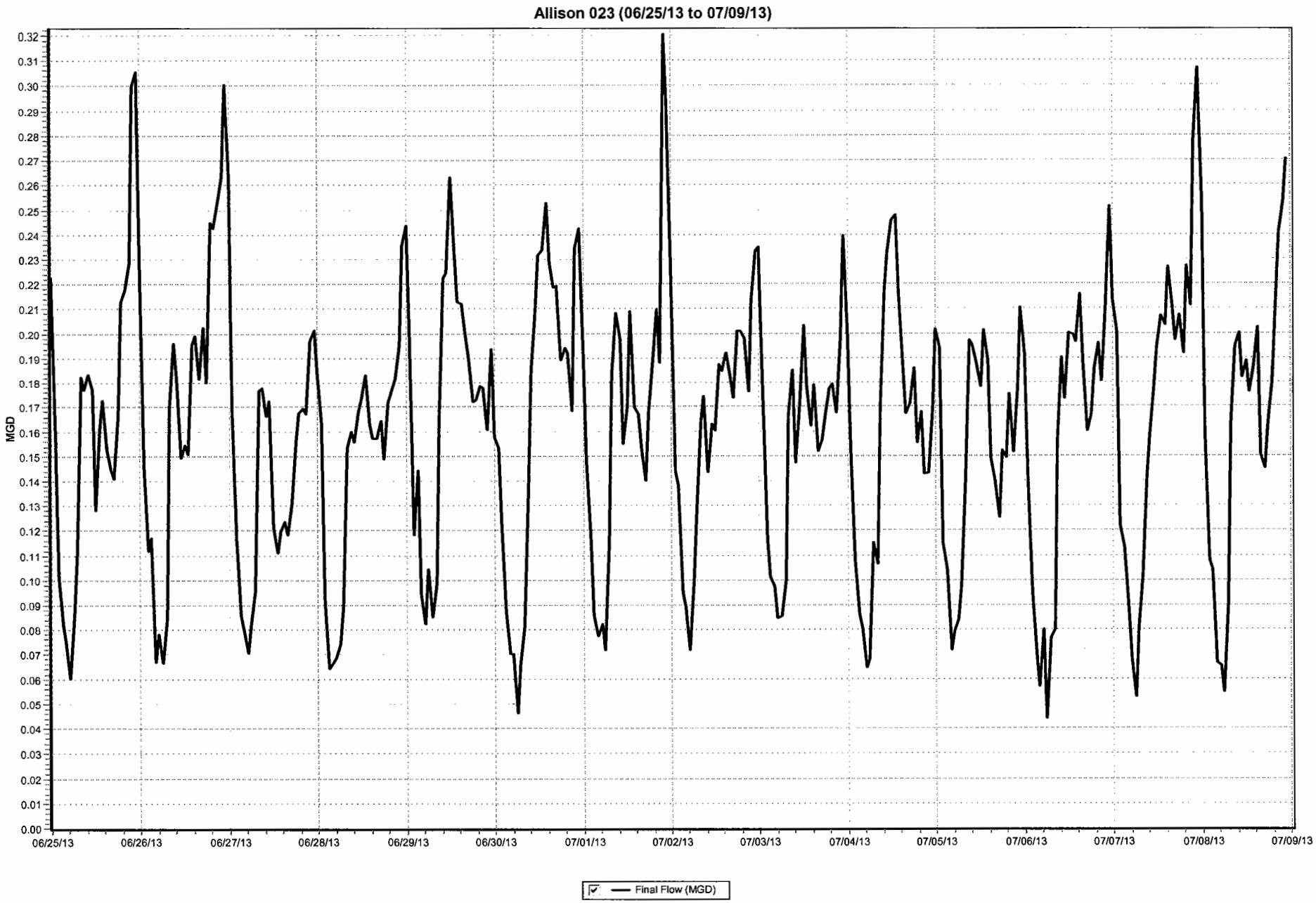

Allison 023 (04/16/13 to 04/30/13)
MGD
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

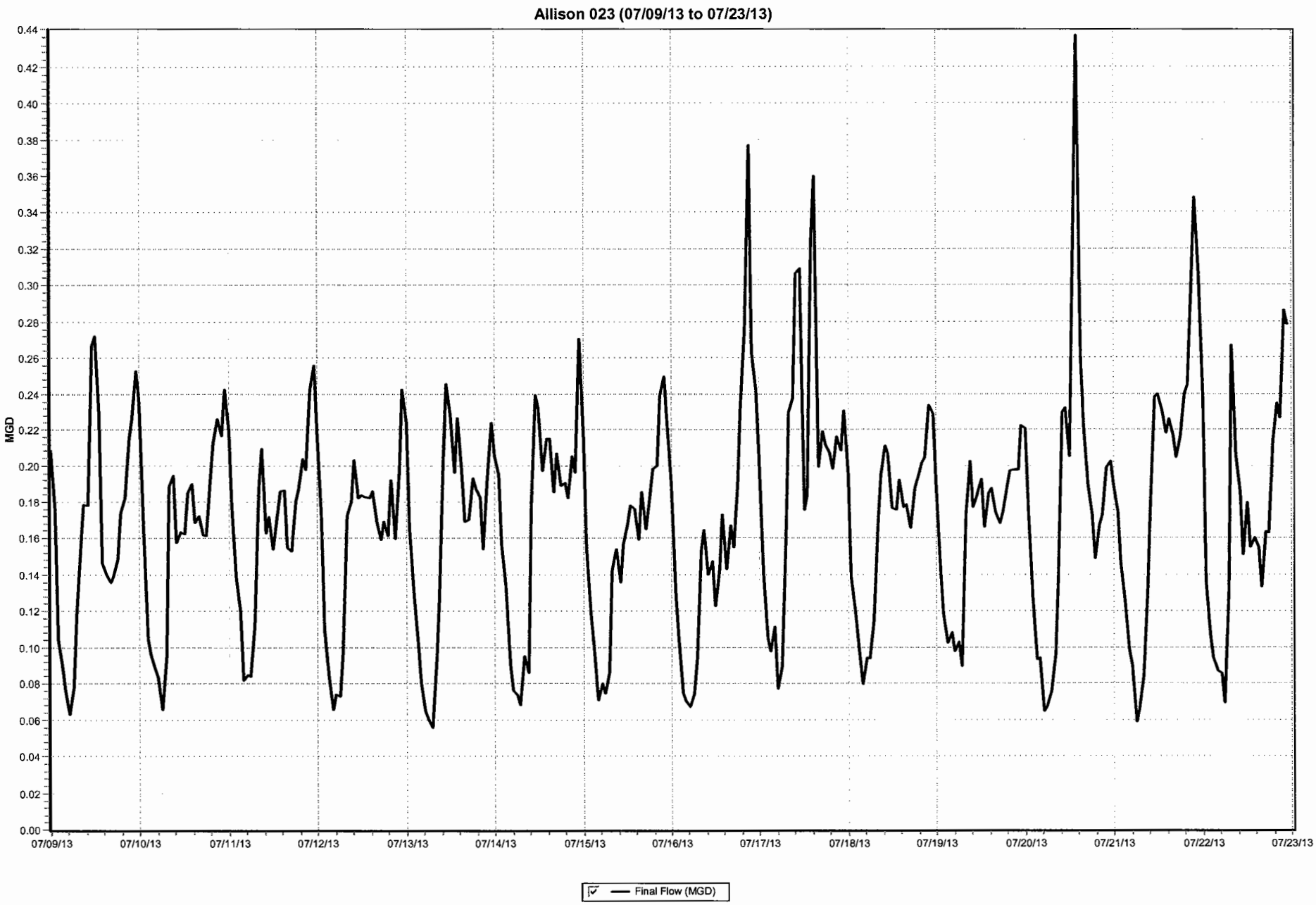

Allison 023 (04/30/13 to 05/14/13)
MGD
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 023 (05/14/13 to 05/28/13)
MGD
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

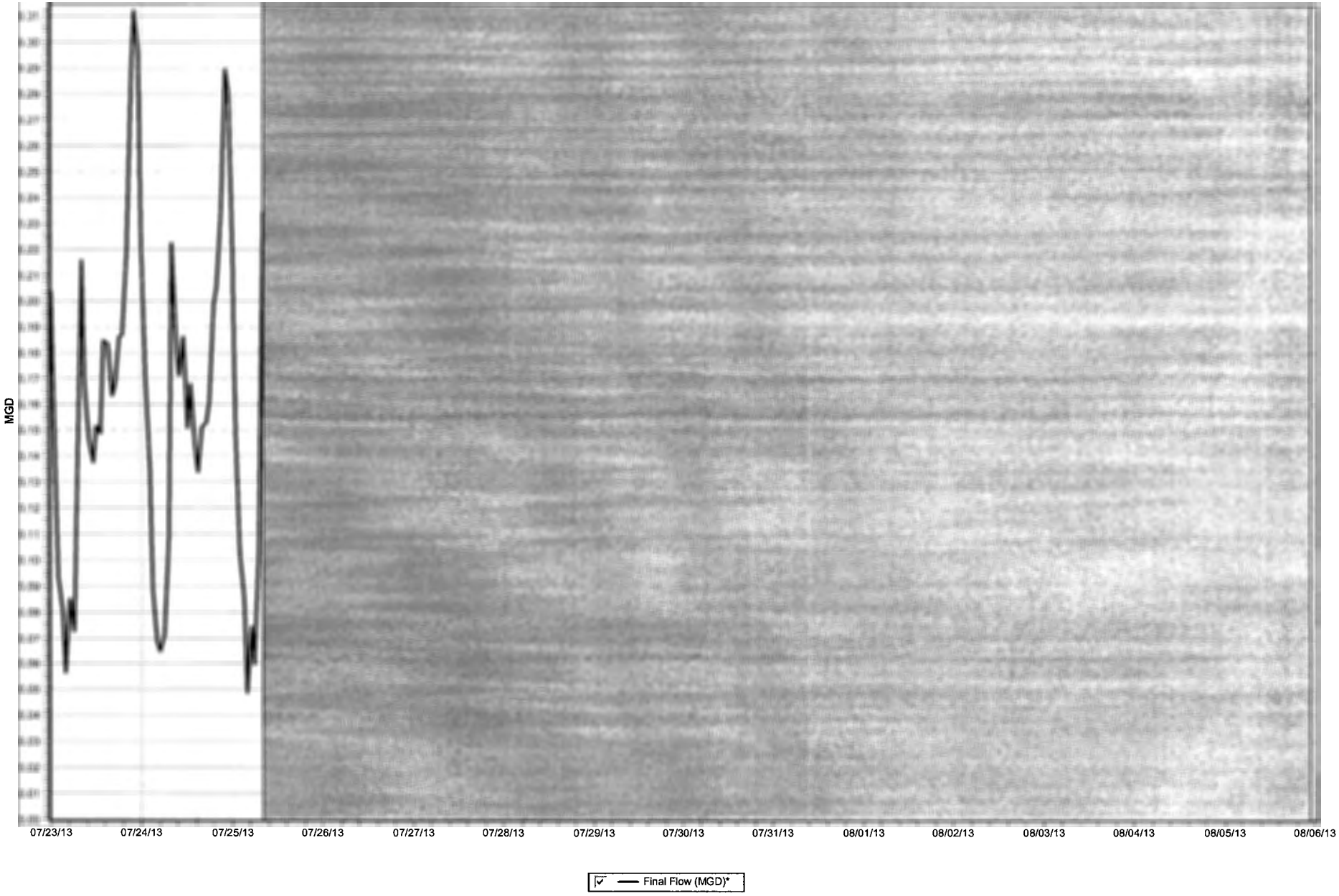

Allison 023 (05/28/13 to 06/11/13)
MGD
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 023 (06/11/13 to 06/25/13)
MGD
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 023 (06/25/13 to 07/09/13)
MGD
0.32
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 023 (07/09/13 to 07/23/13)
MGD
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 023 (07/23/13 to 08/06/13)



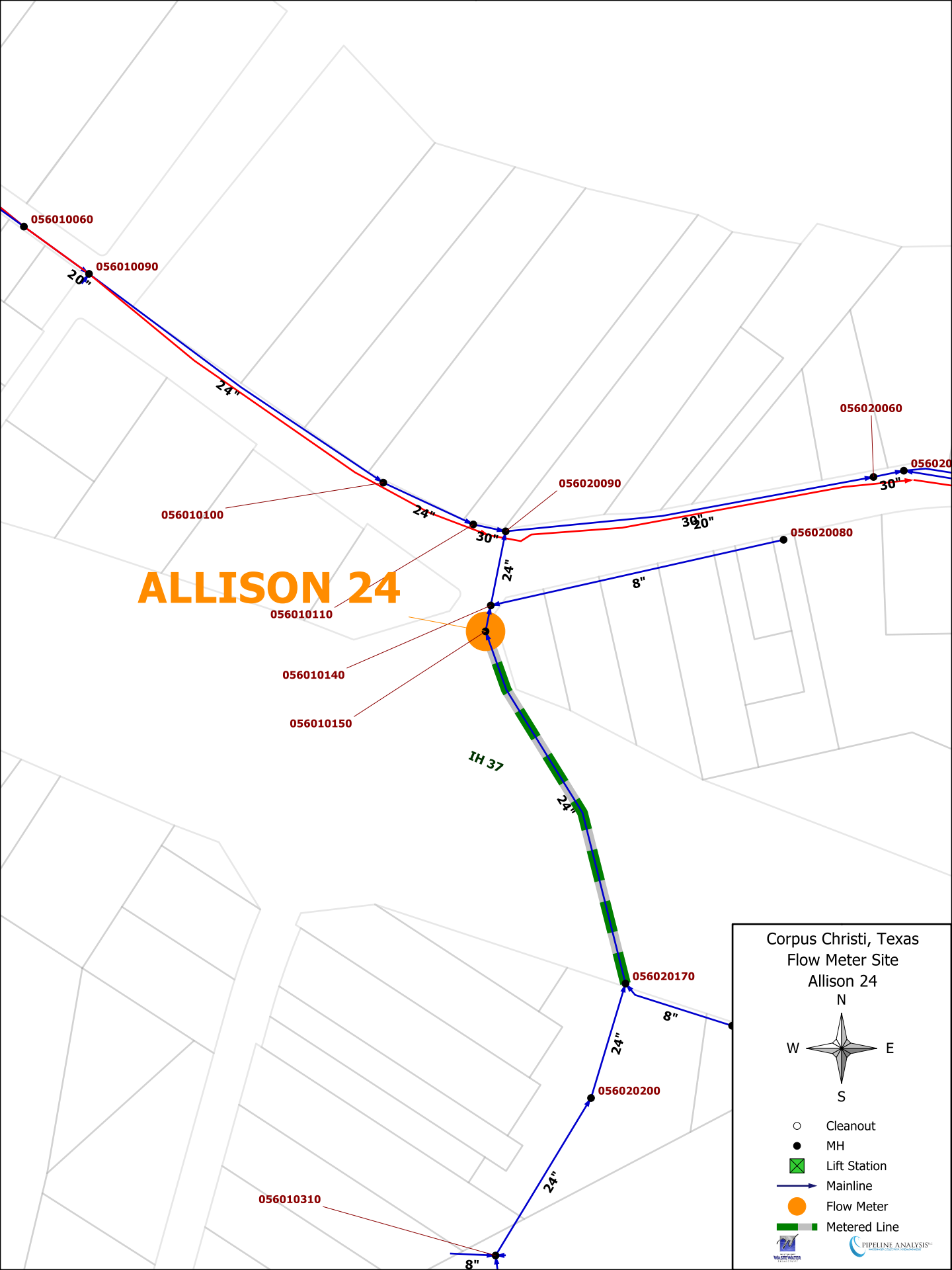
Allison FM024

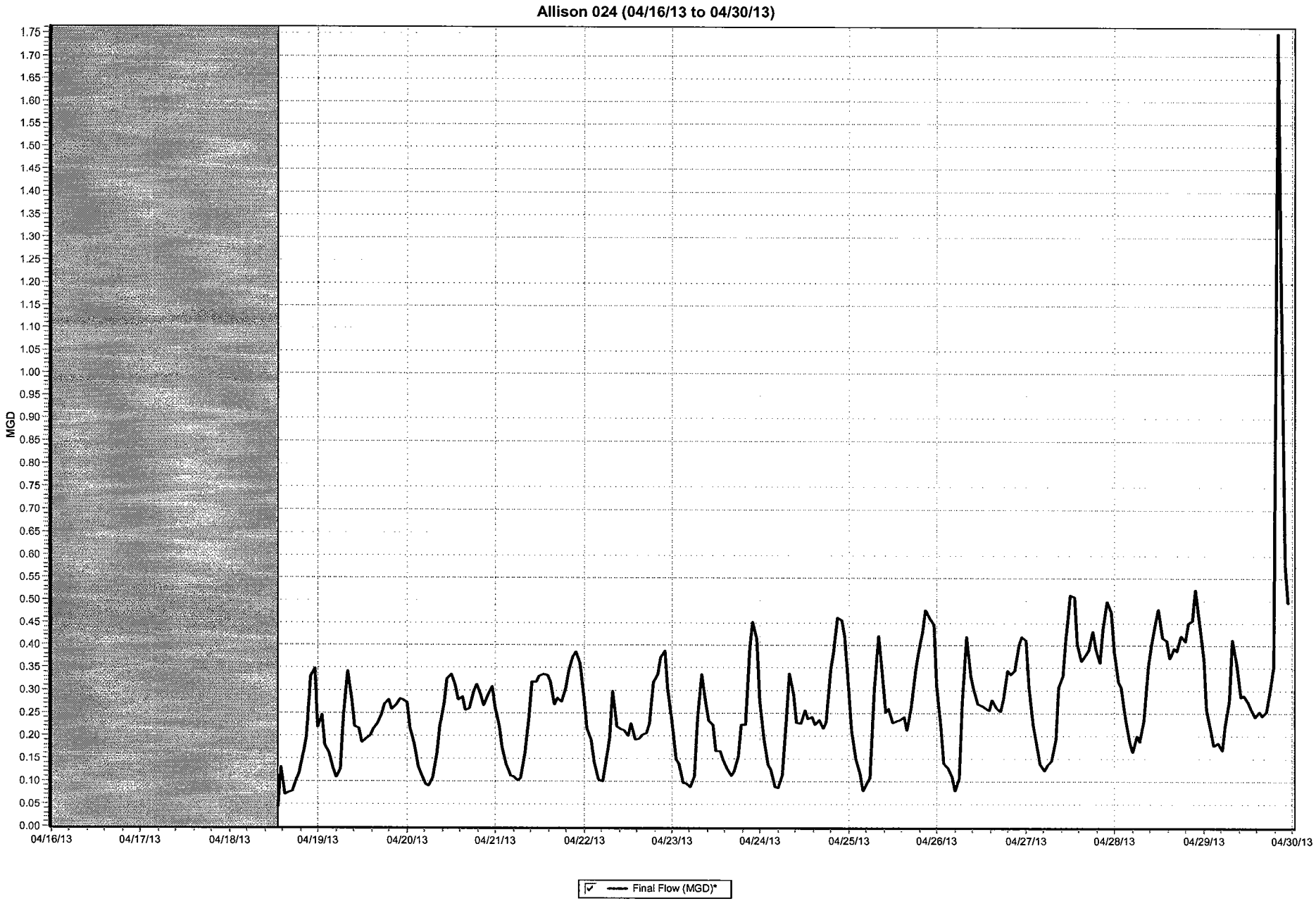
Allison Meter Site 024

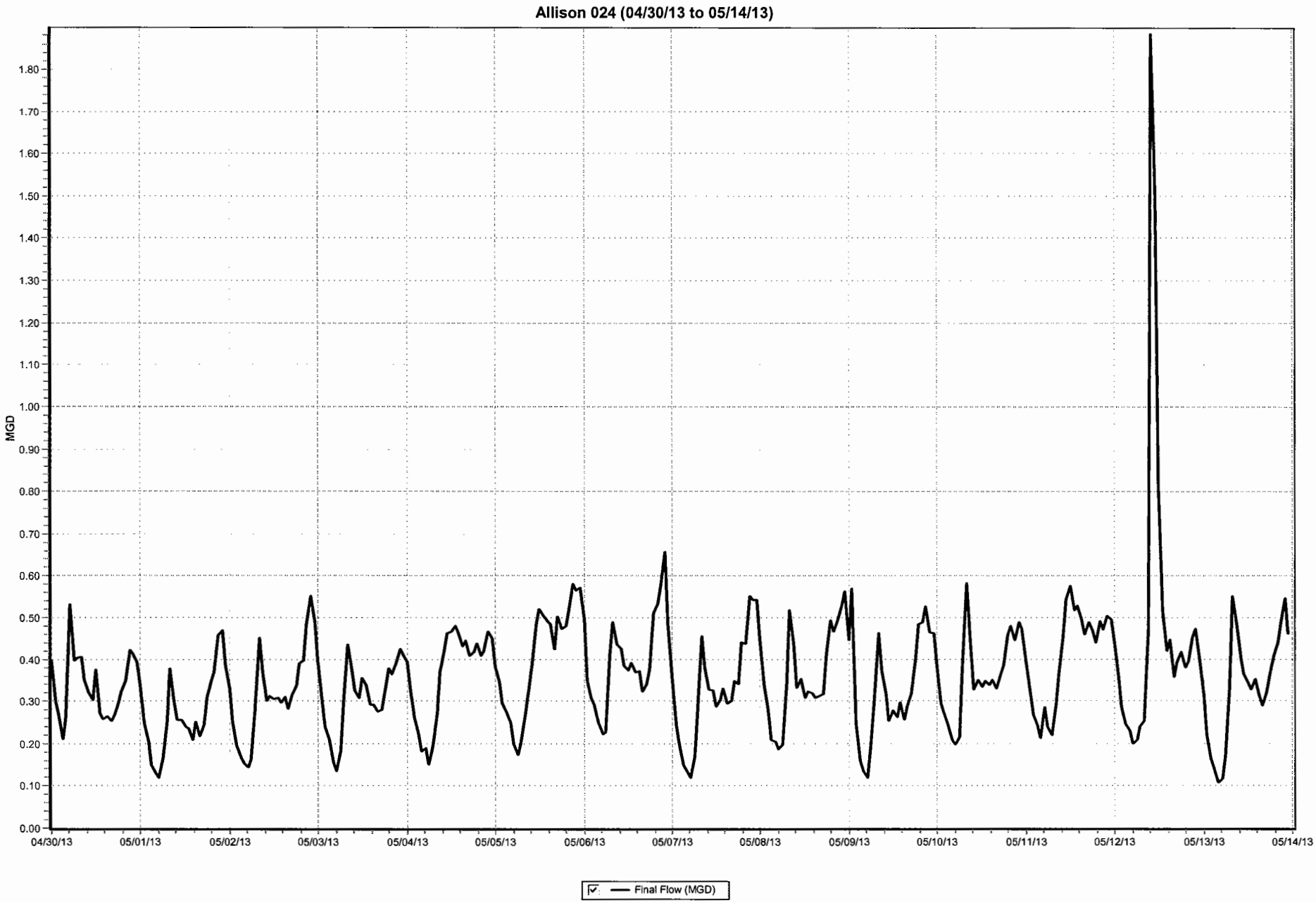
11275ALLISONFM024A049.jpg

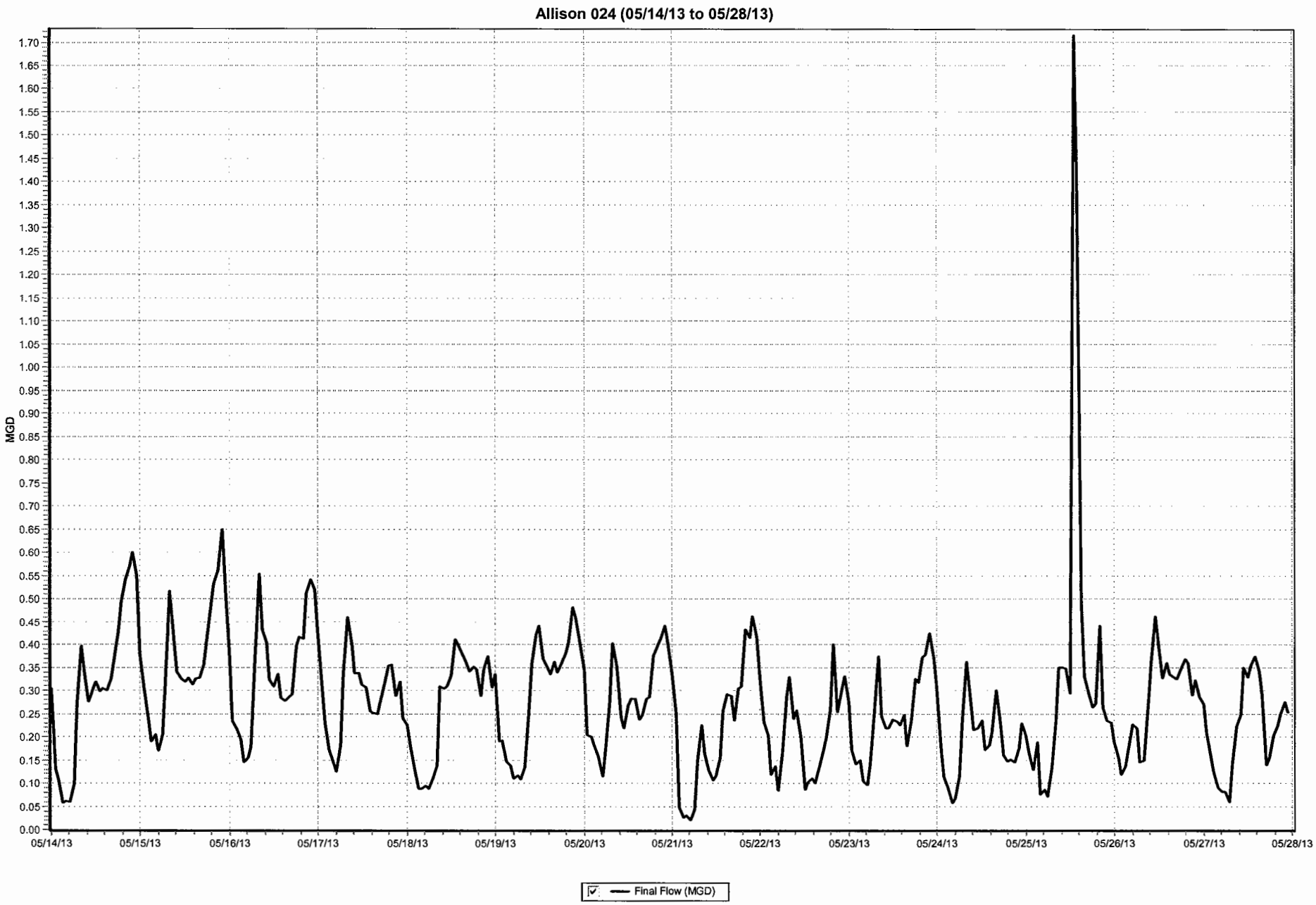
11275ALLISONFM024I050.jpg

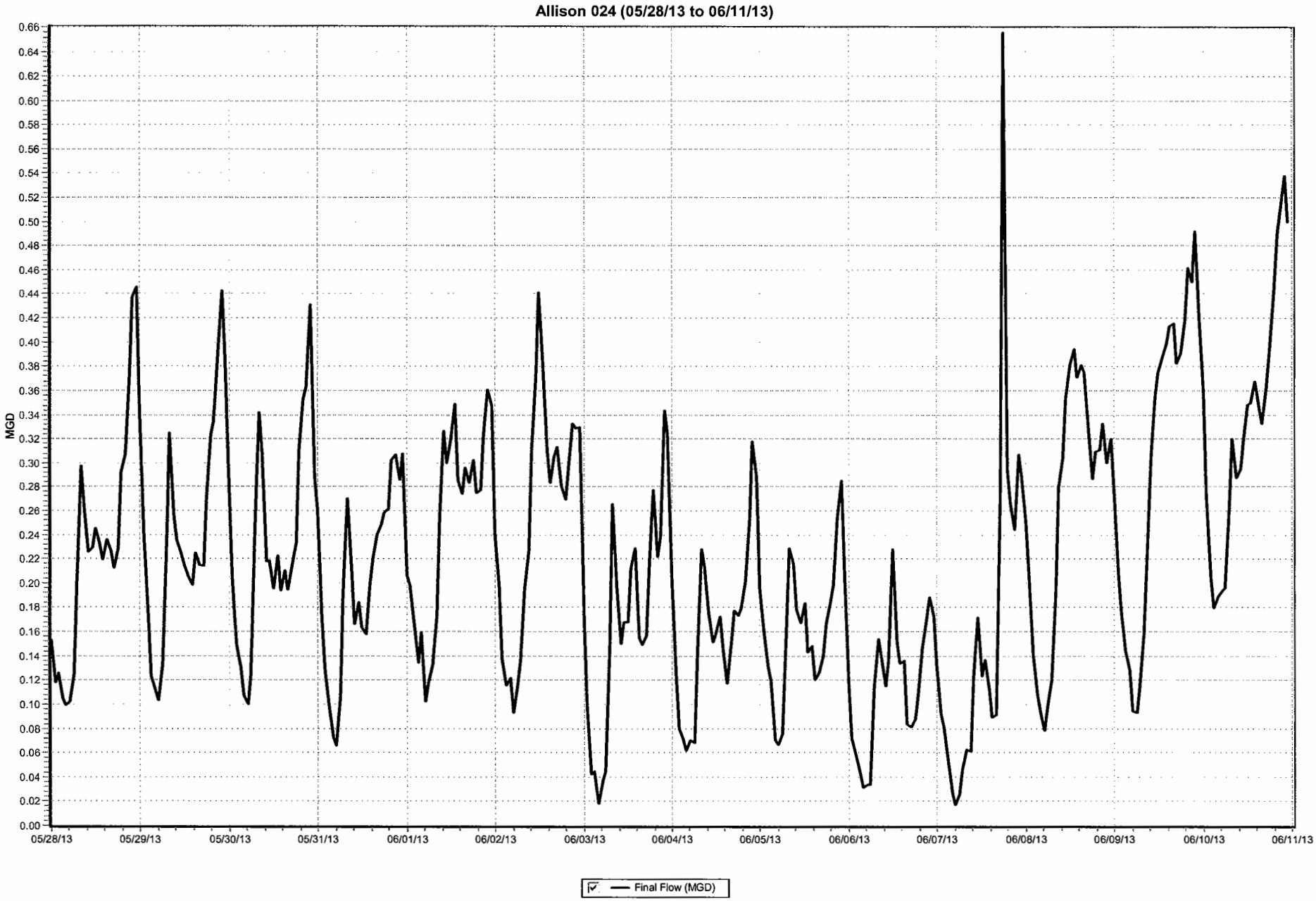
11275ALLISONFM024P051.jpg

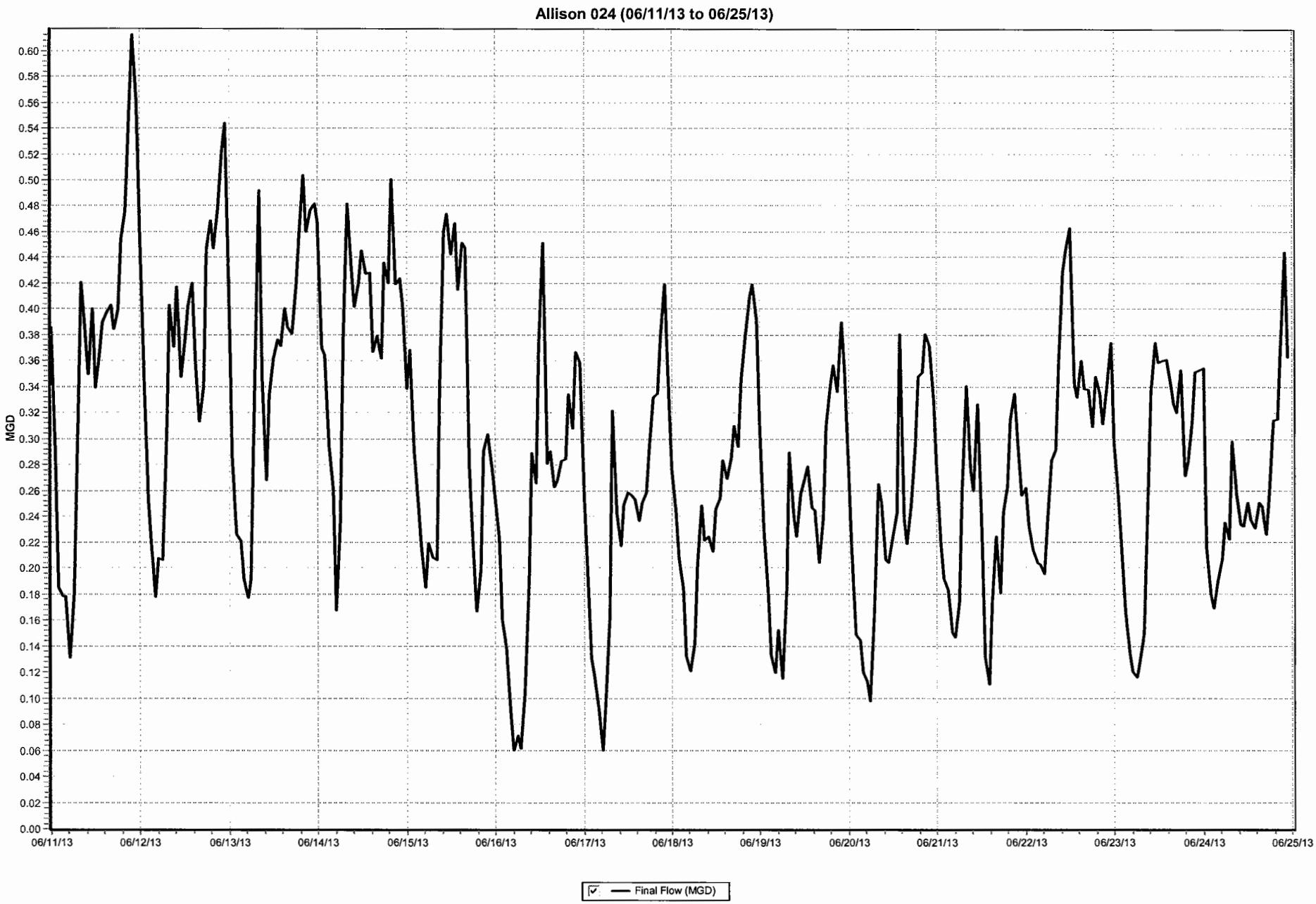

056010060
056010090
20"
24"
056010100
24"
30"
056020090
30"
20"
056020060
056020
30"
056020080
8"
24"
ALLISON 24
056010110
056010140
056010150
IH 37
24"
056020170
8"
24"
056020200
24"
056010310
8"
Corpus Christi, Texas
Flow Meter Site
Allison 24
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

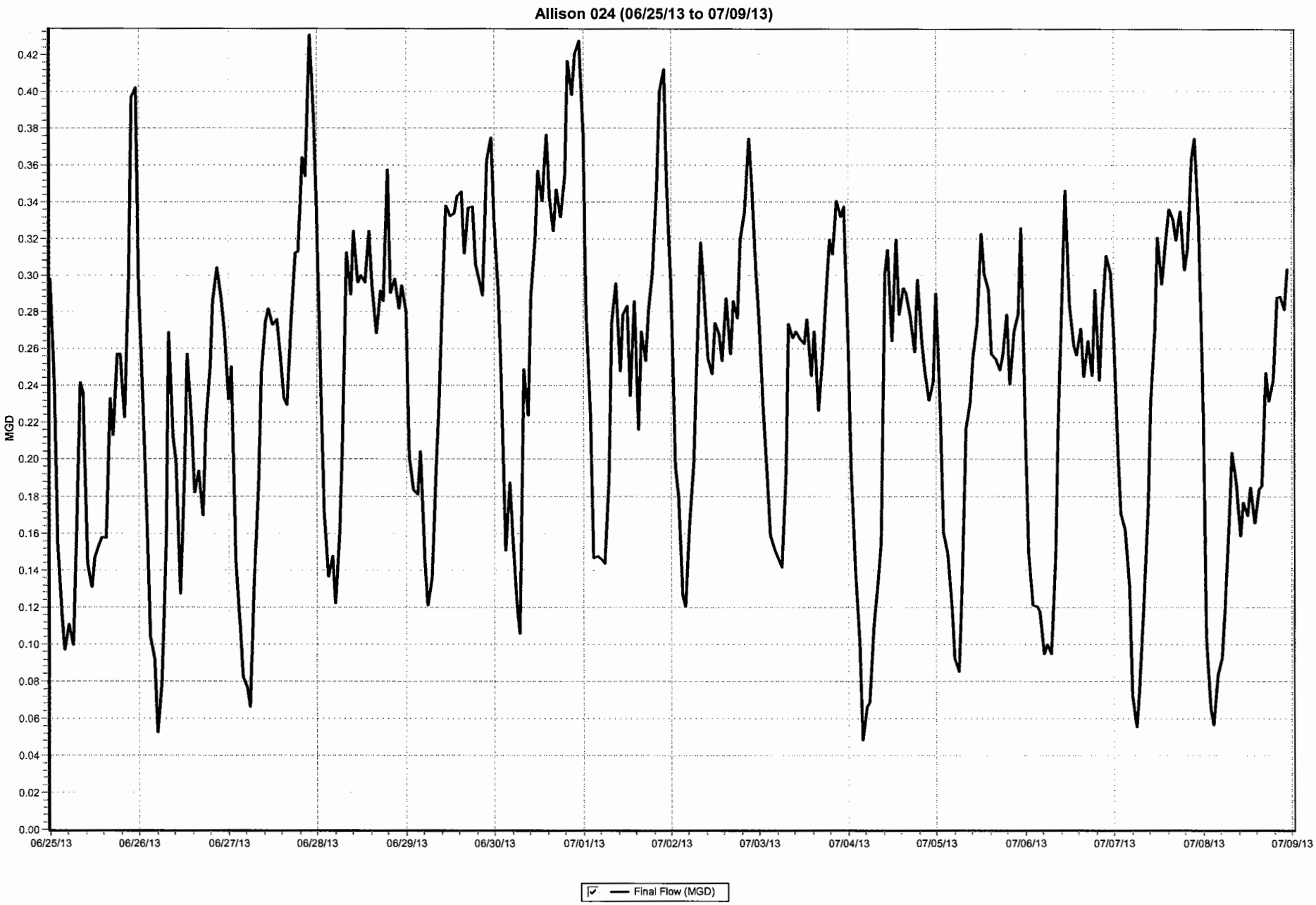

Allison 024 (04/16/13 to 04/30/13)
MGD
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

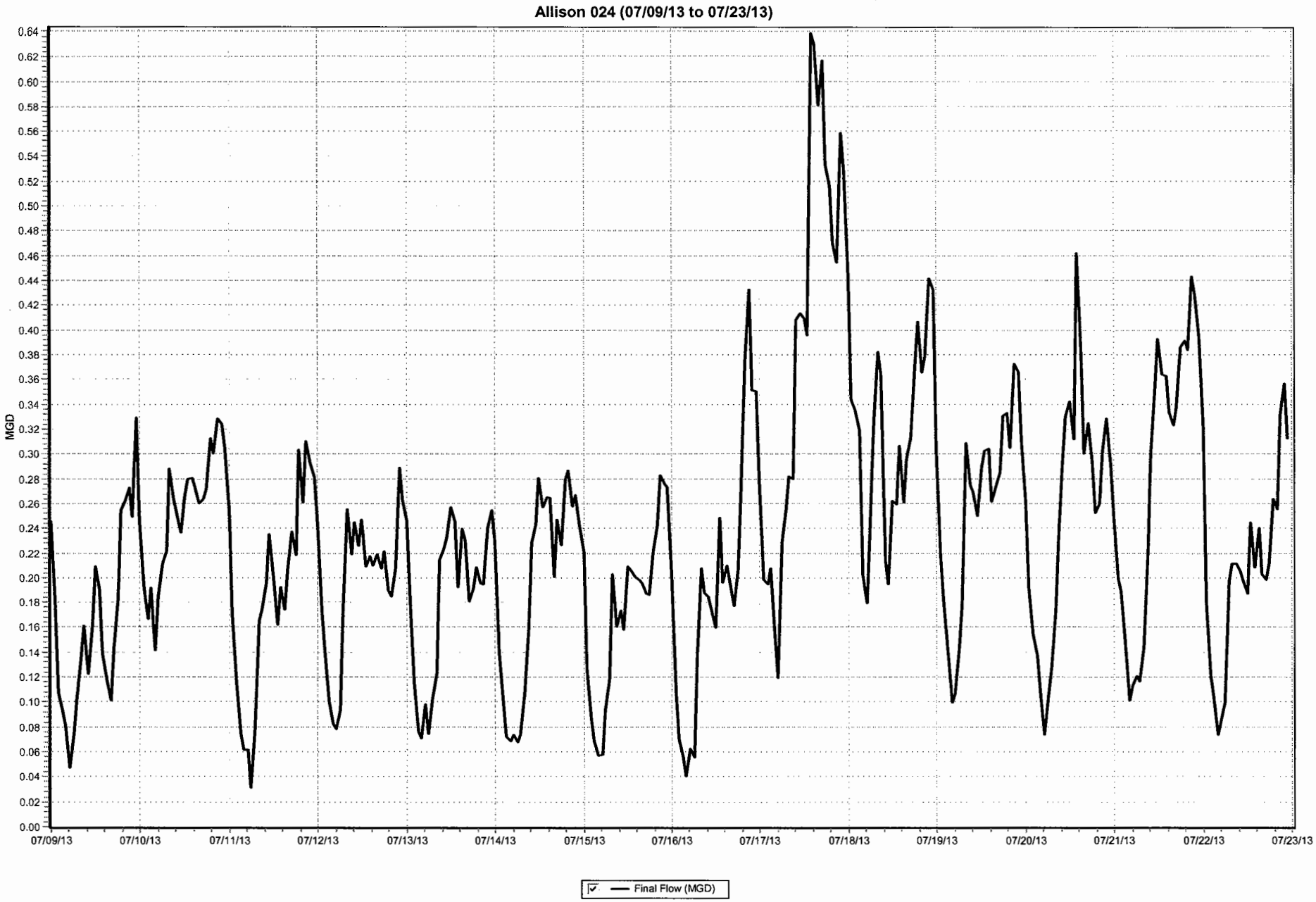

Allison 024 (04/30/13 to 05/14/13)
MGD
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 024 (05/14/13 to 05/28/13)
MGD
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

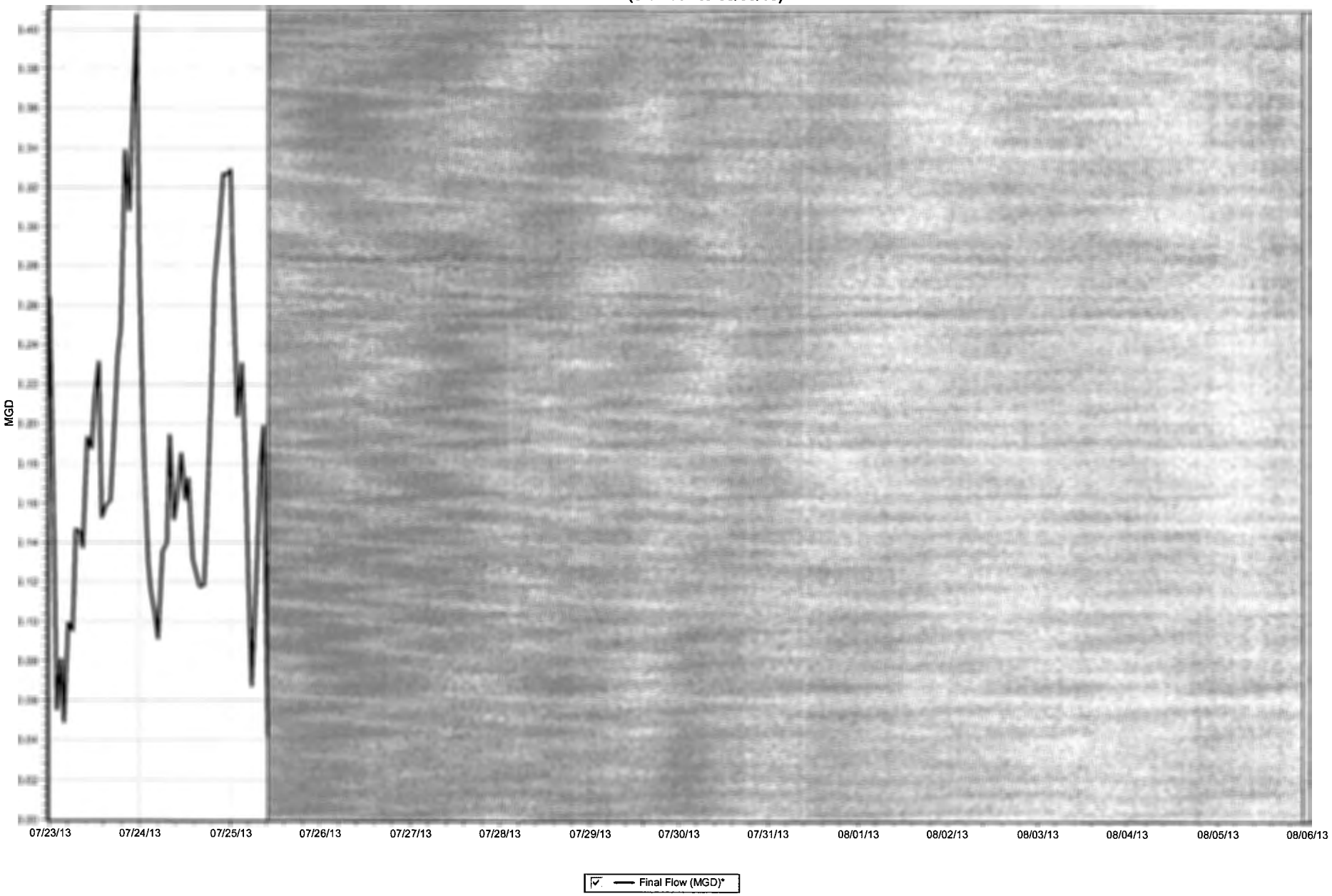

Allison 024 (05/28/13 to 06/11/13)
MGD
0.66
0.64
0.62
0.60
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 024 (06/11/13 to 06/25/13)
MGD
0.60
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 024 (06/25/13 to 07/09/13)
MGD
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 024 (07/09/13 to 07/23/13)
MGD
0.64
0.62
0.60
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 024 (07/23/13 to 08/06/13)



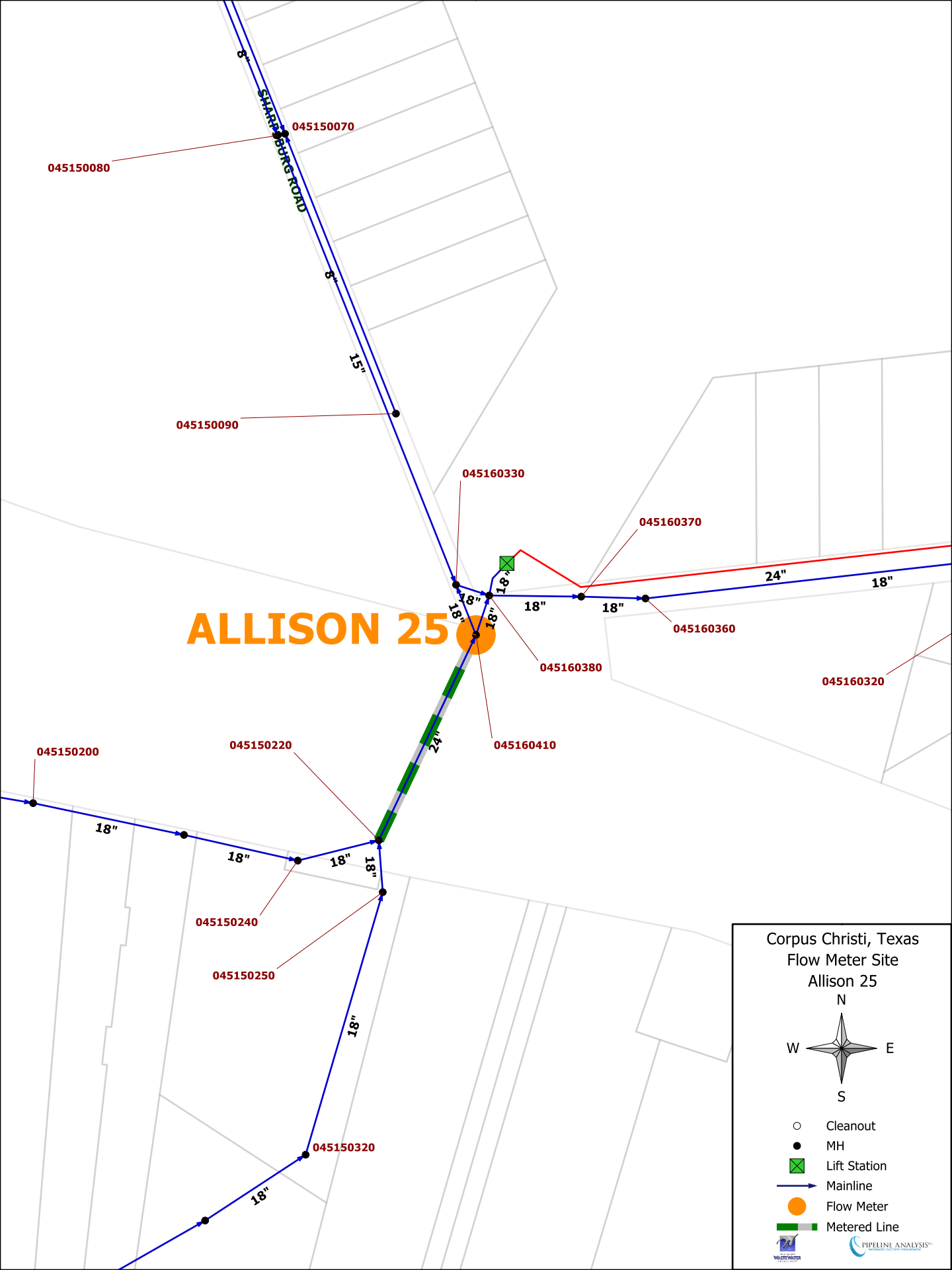
Allison FM025

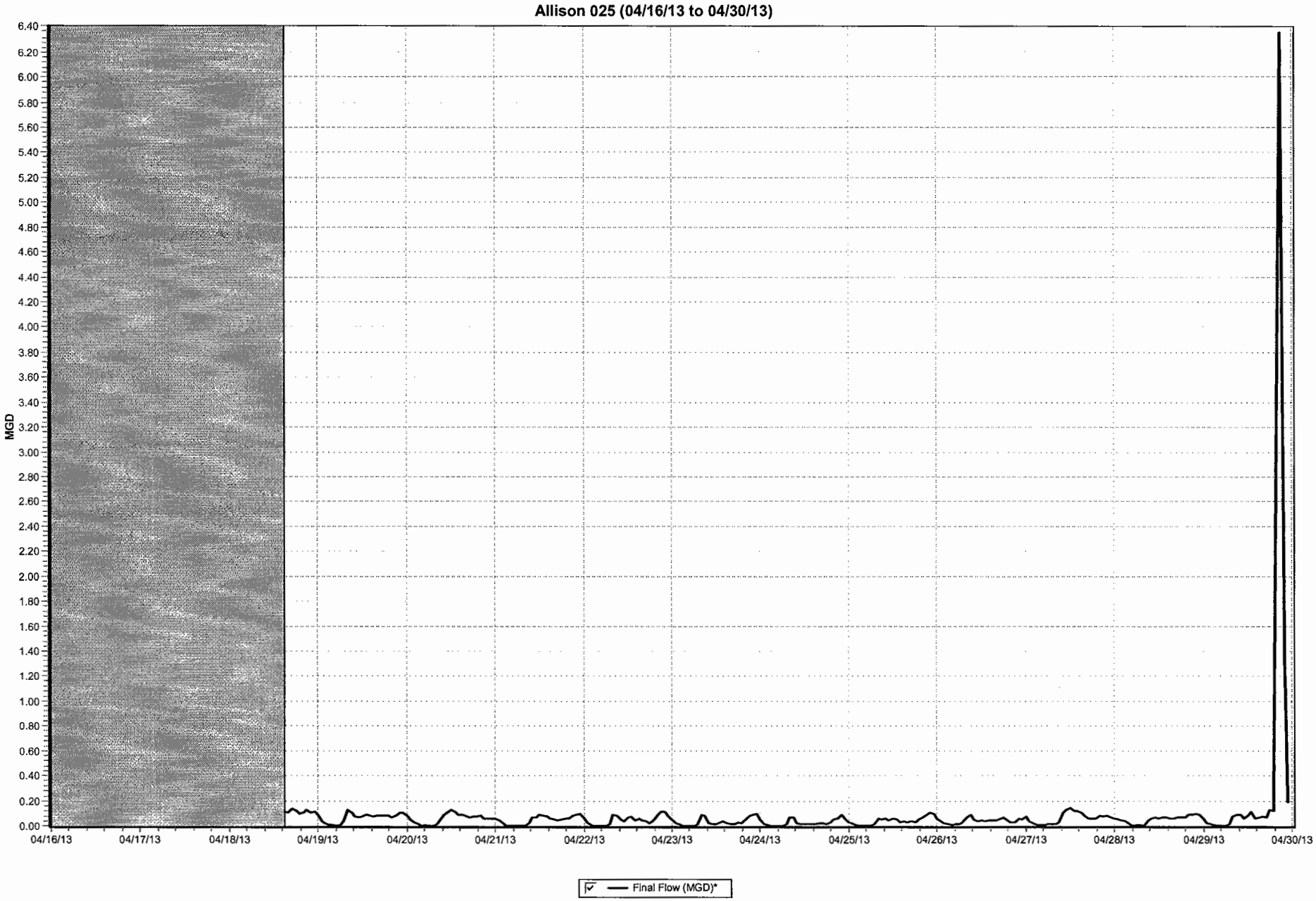
Allison Meter Site 025

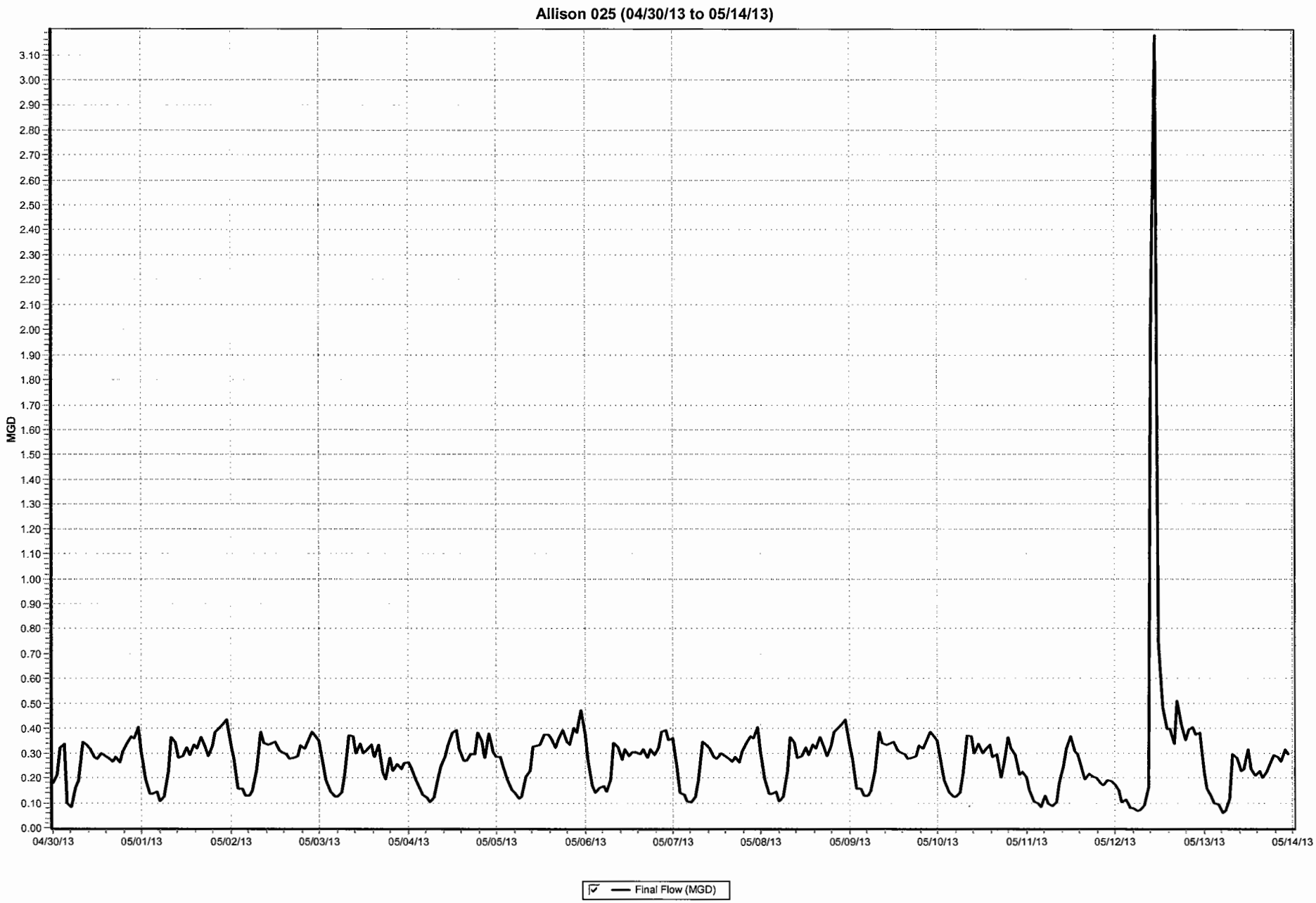
11275ALLISONFM025A043.jpg

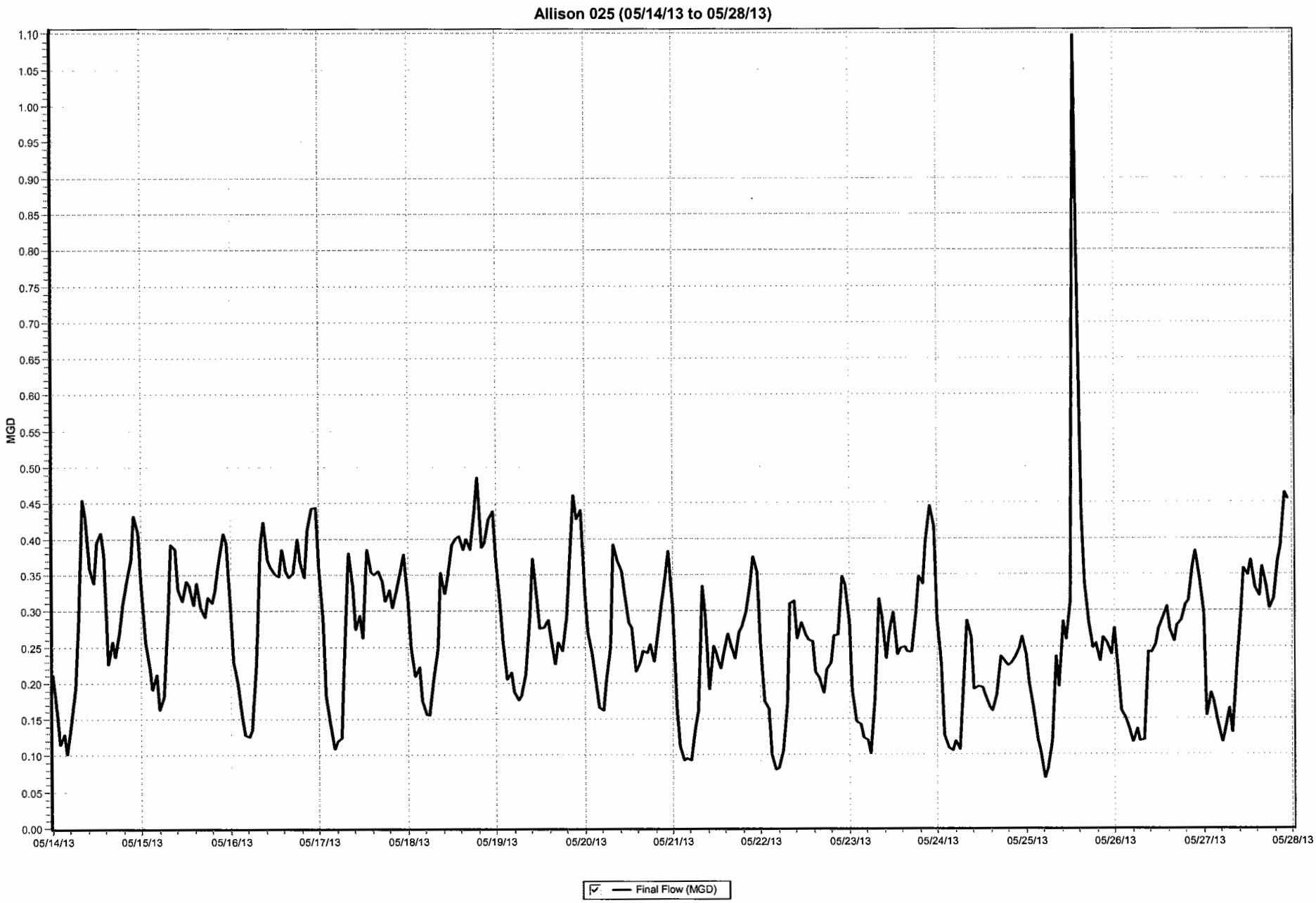
11275ALLISONFM025I044.jpg

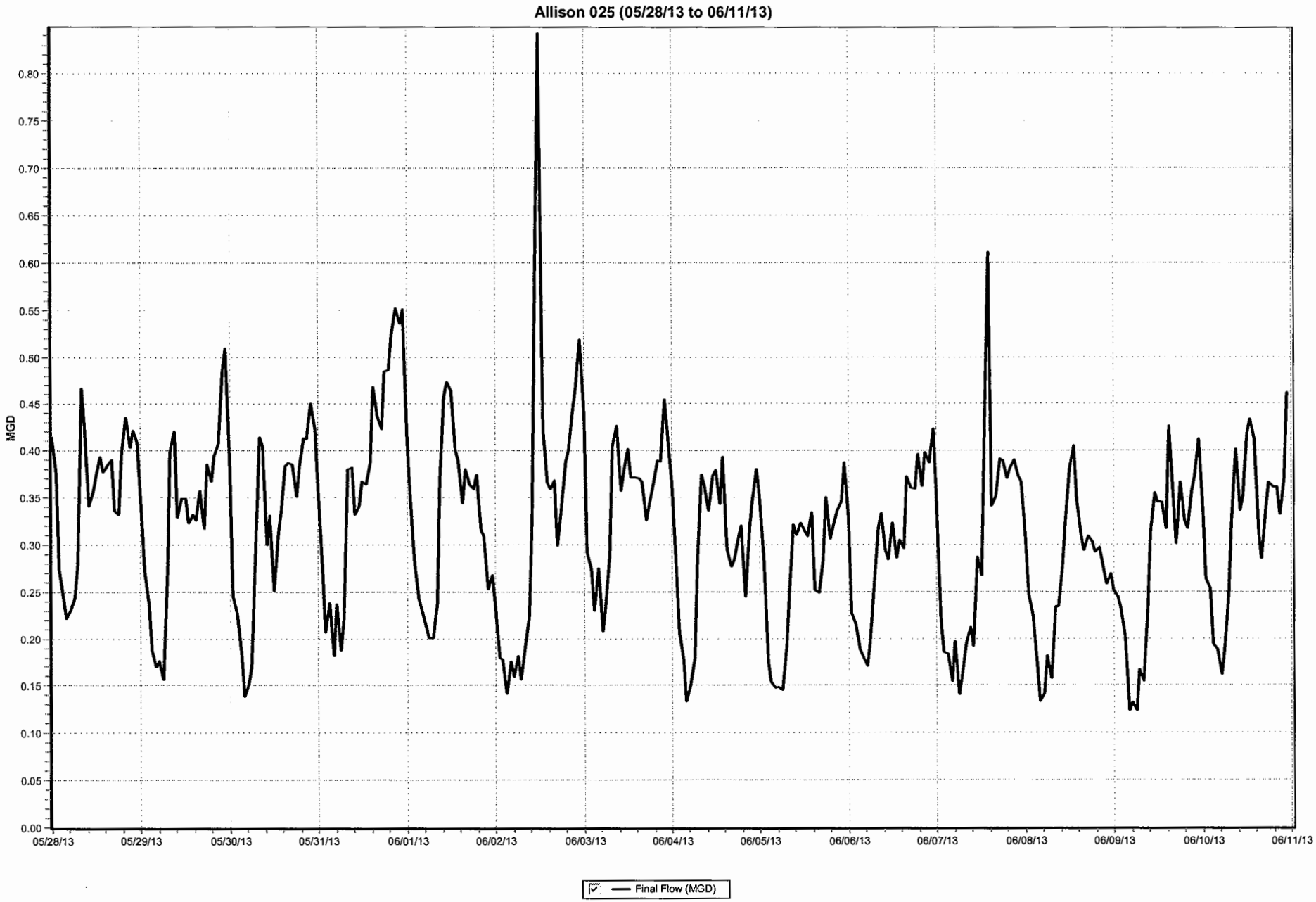
11275ALLISONFM025P045.jpg

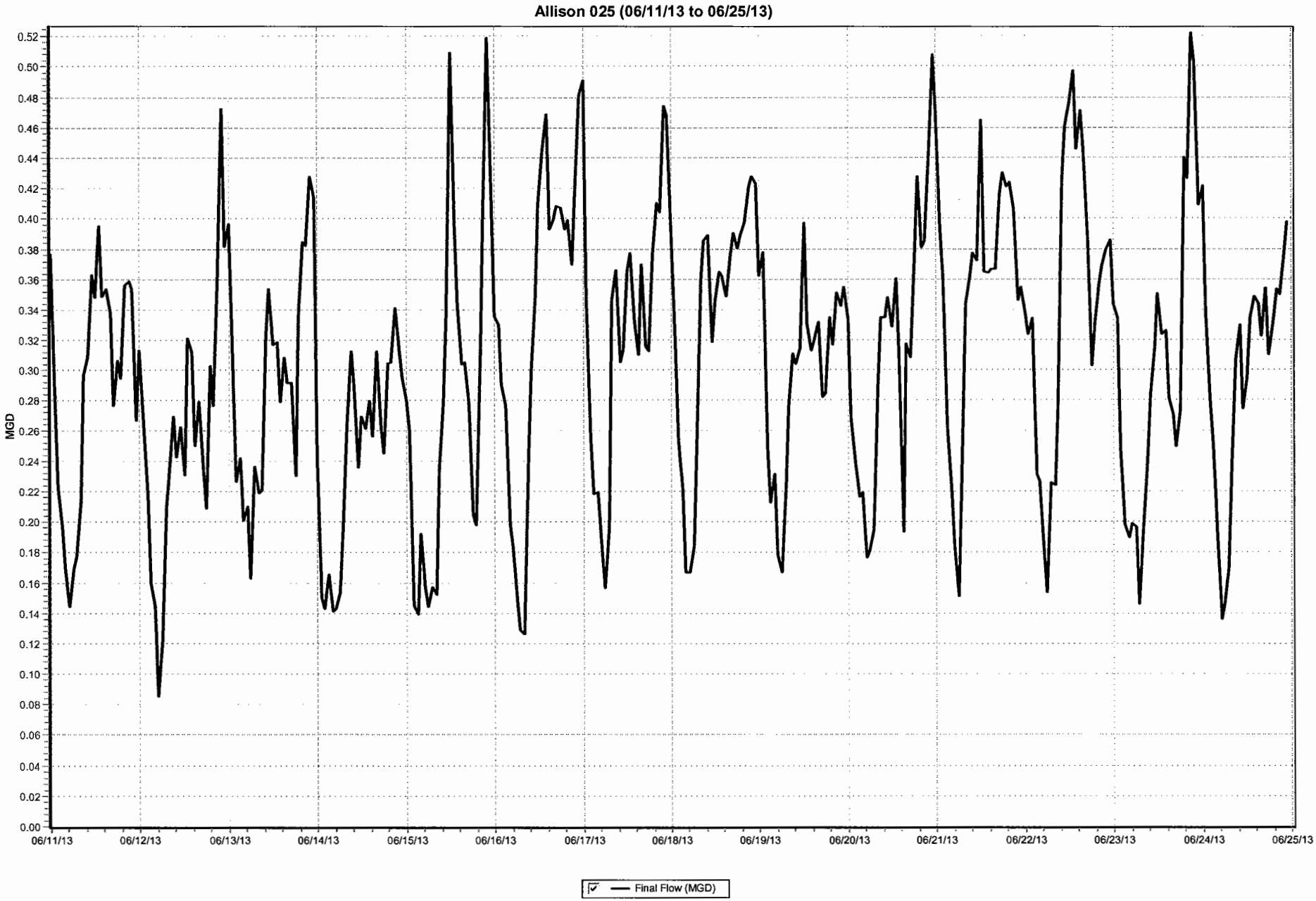

ALLISON 25
SHARPSBURG ROAD
8"
8"
15"
045150070
045150080
045150090
045160330
045160370
045160360
045160380
045160320
045160410
045150200
045150220
045150240
045150250
045150320
18"
24"
Corpus Christi, Texas
Flow Meter Site
Allison 25
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

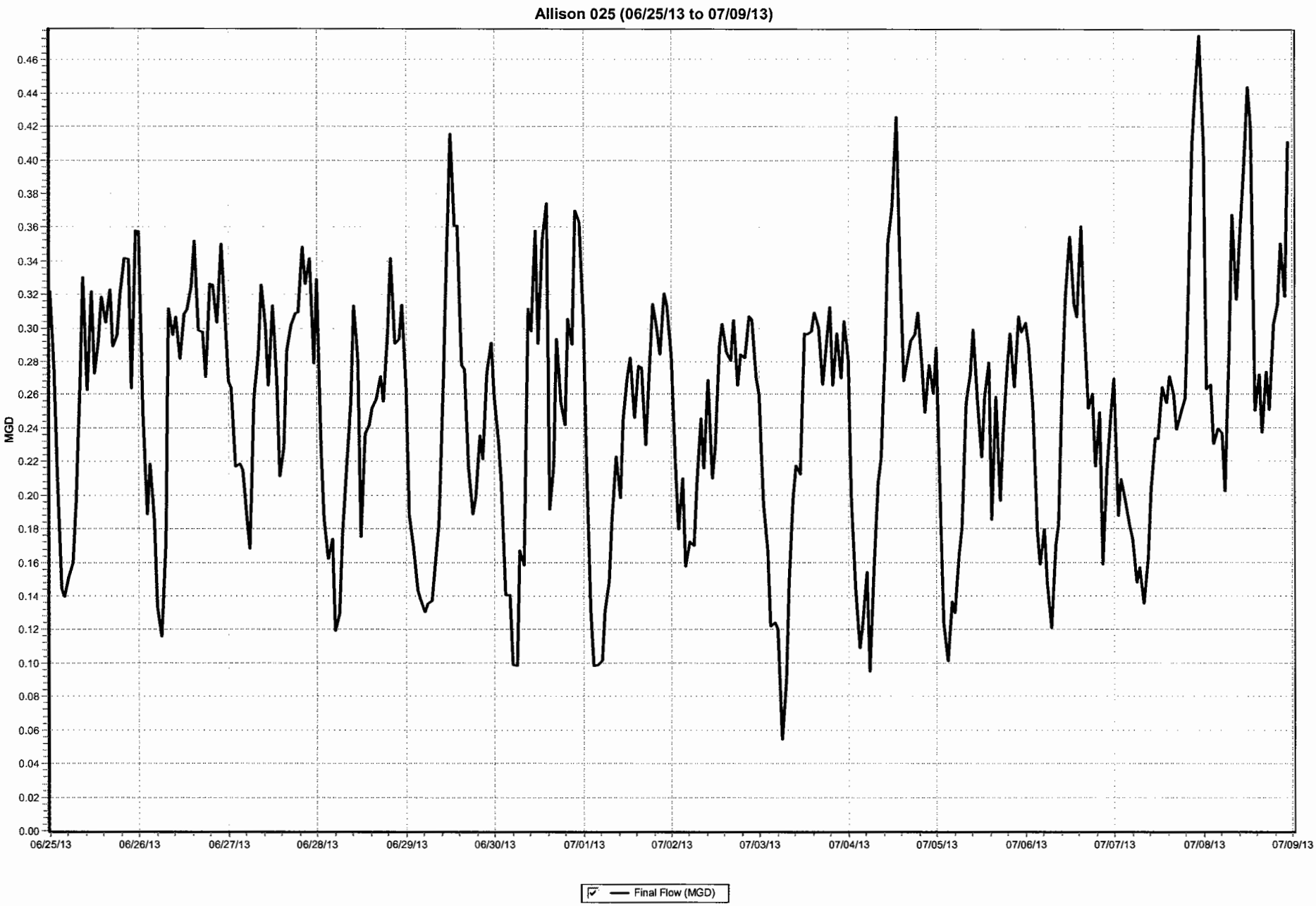

Allison 025 (04/16/13 to 04/30/13)
MGD
6.40
6.20
6.00
5.80
5.60
5.40
5.20
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

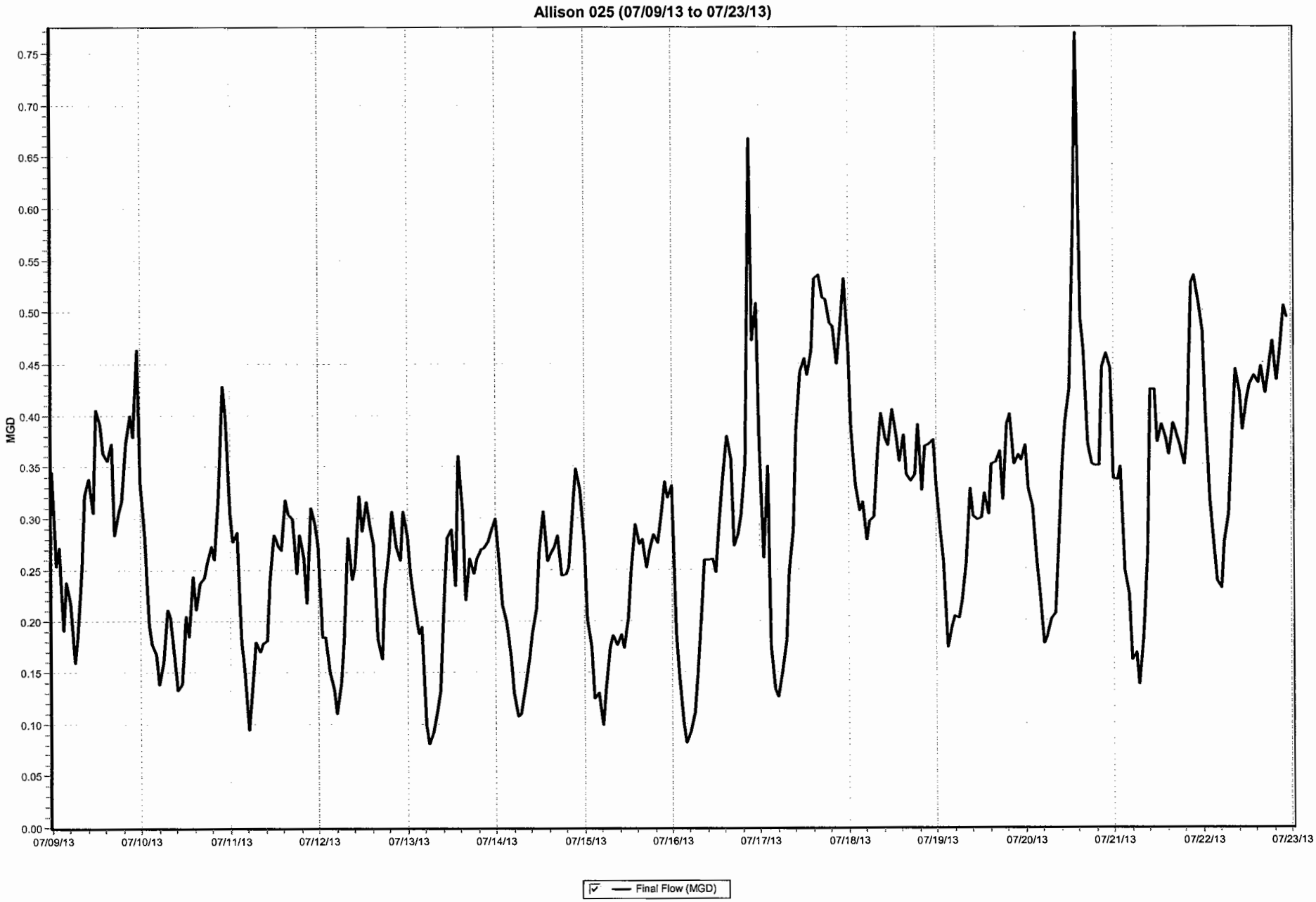

Allison 025 (04/30/13 to 05/14/13)
MGD
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 025 (05/14/13 to 05/28/13)
MGD
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

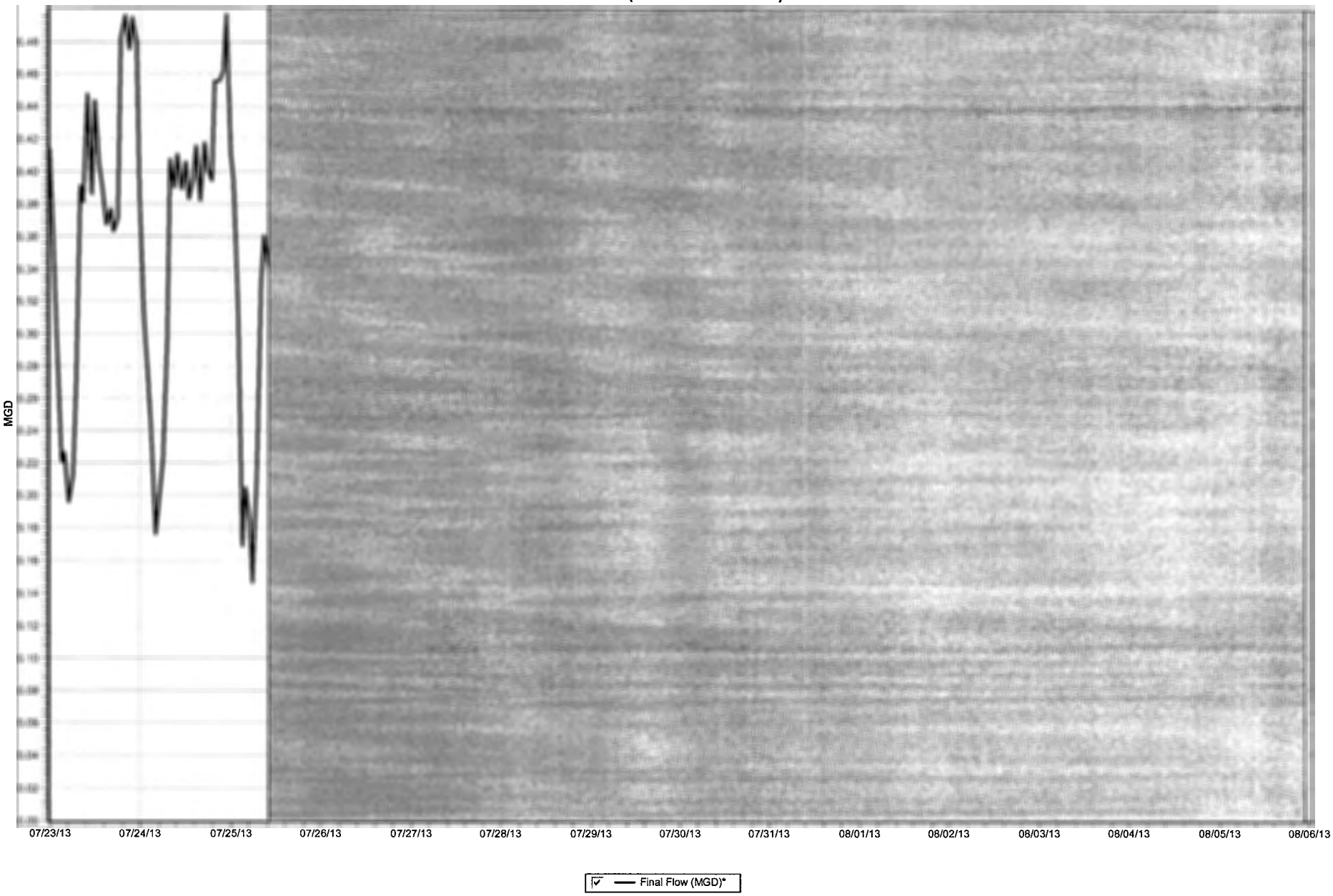

Allison 025 (05/28/13 to 06/11/13)
MGD
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 025 (06/11/13 to 06/25/13)
MGD
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 025 (06/25/13 to 07/09/13)
MGD
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 025 (07/09/13 to 07/23/13)
MGD
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 025 (07/23/13 to 08/06/13)



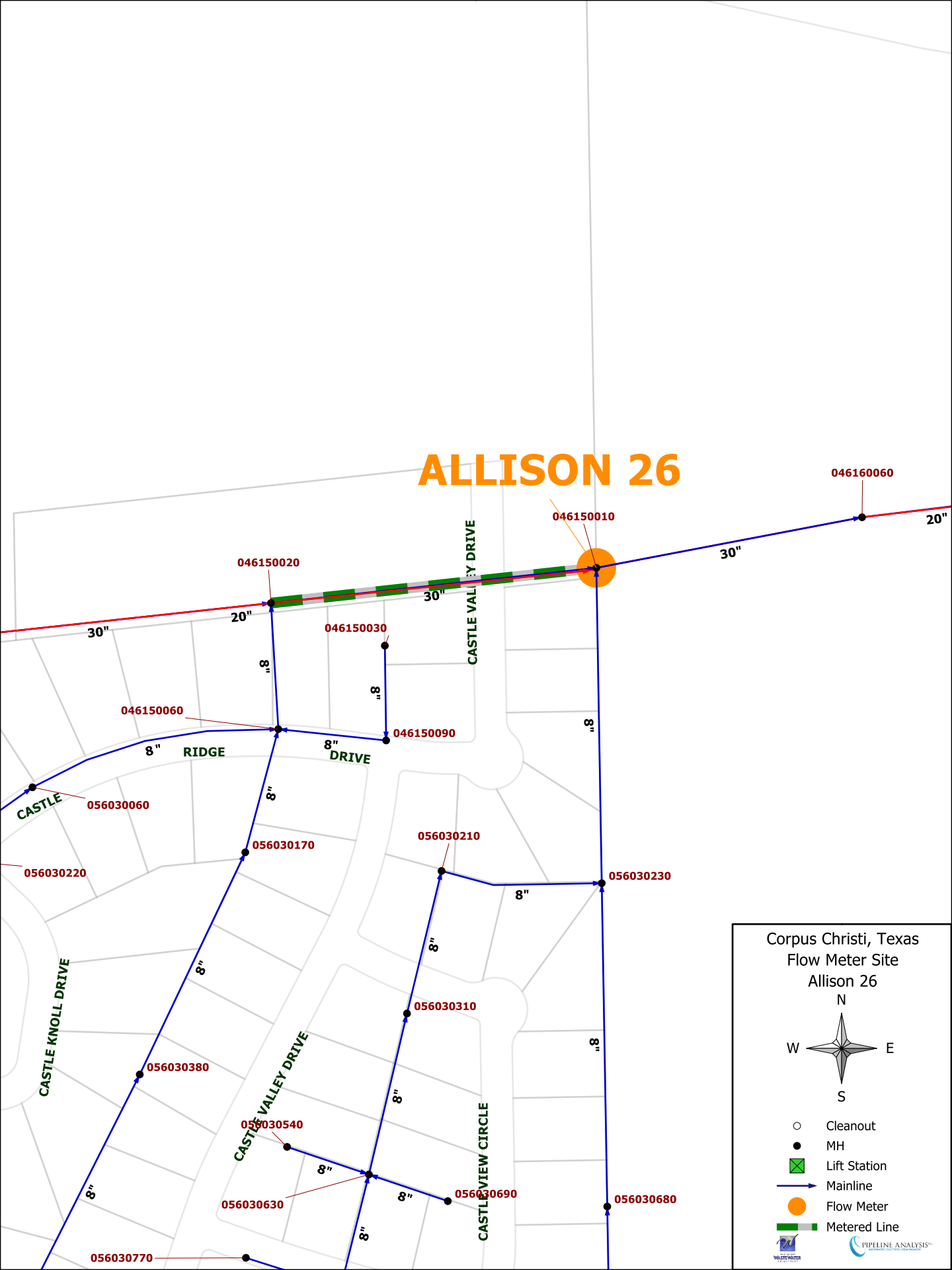
Allison FM026

Allison Meter Site 026

11275ALLISONFM026A058.jpg

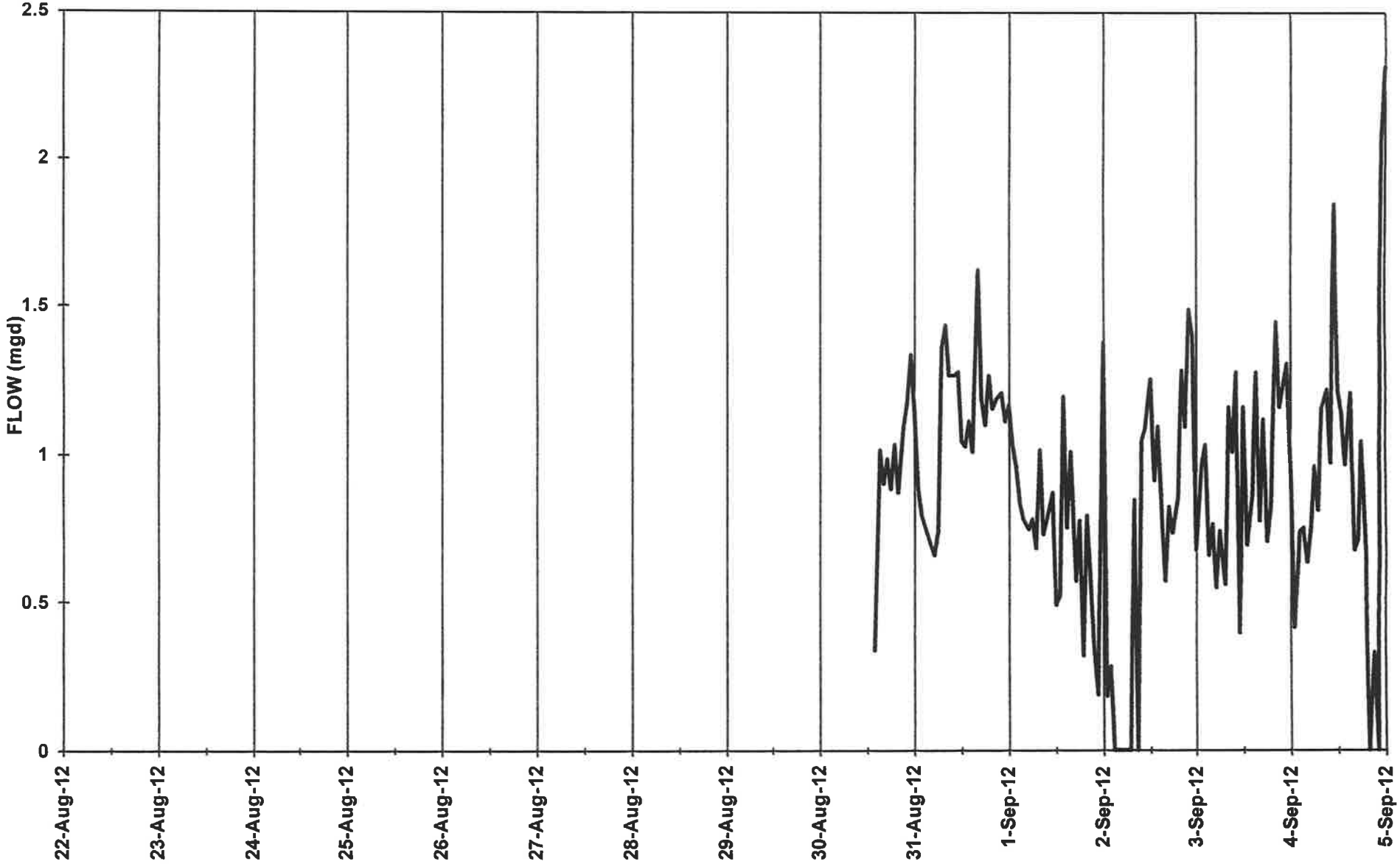
11275ALLISONFM026I059.jpg

11275ALLISONFM026P060.jpg


ALLISON 26
046160060
046150010
046150020
046150030
046150060
046150090
056030060
056030170
056030210
056030220
056030230
056030310
056030380
056030540
056030630
056030680
056030690
056030770
CASTLE VALLEY DRIVE
CASTLE RIDGE DRIVE
CASTLE KNOLL DRIVE
CASTLE VIEW CIRCLE
30"
20"
8"
Corpus Christi, Texas
Flow Meter Site
Allison 26
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line

Flow vs Time (week)

Site:11275026 ALLISON FM 026



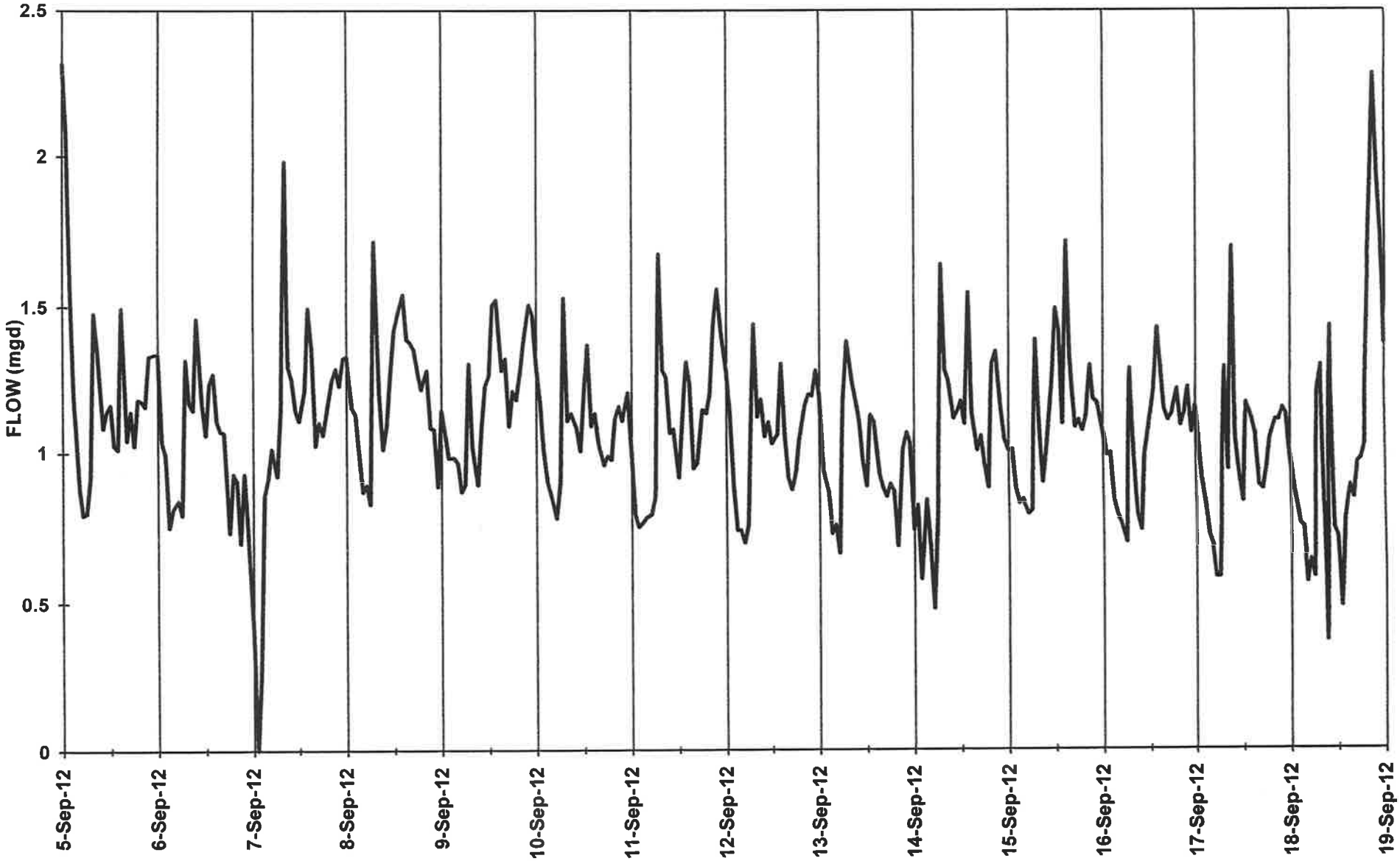
Daterange: 08/22/12-09/05/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



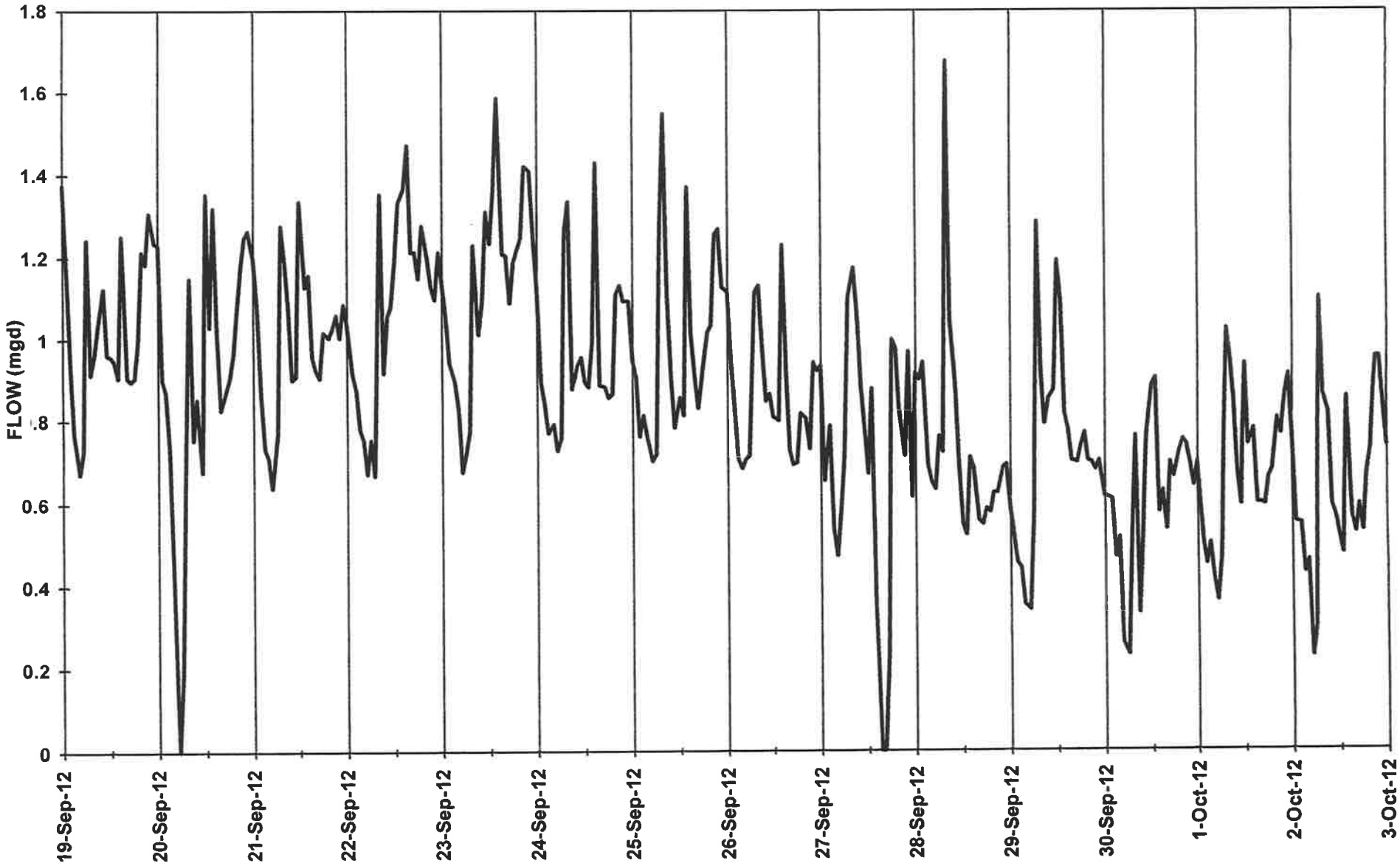
Daterange: 09/05/12-09/19/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



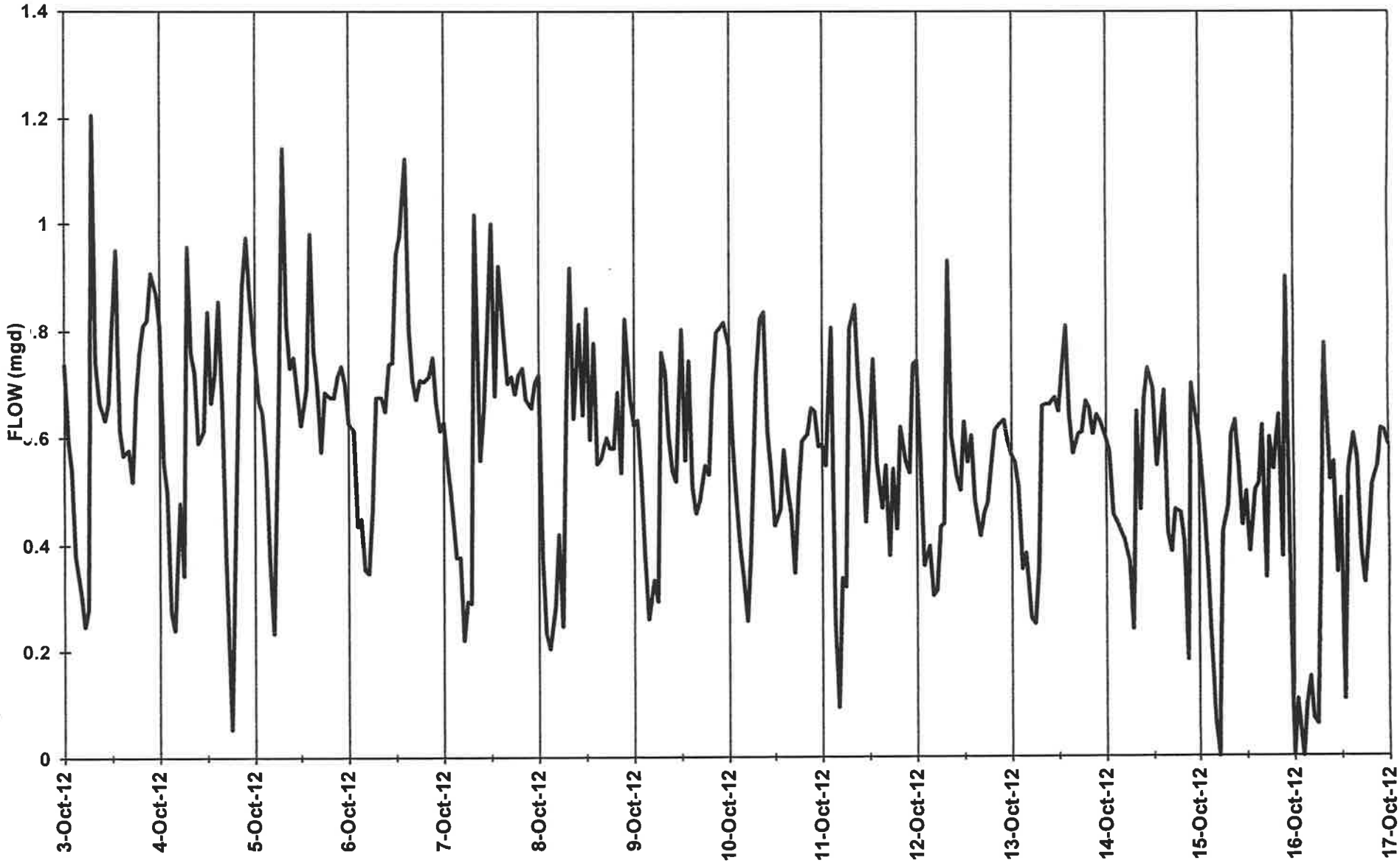
Daterange: 09/19/12-10/03/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



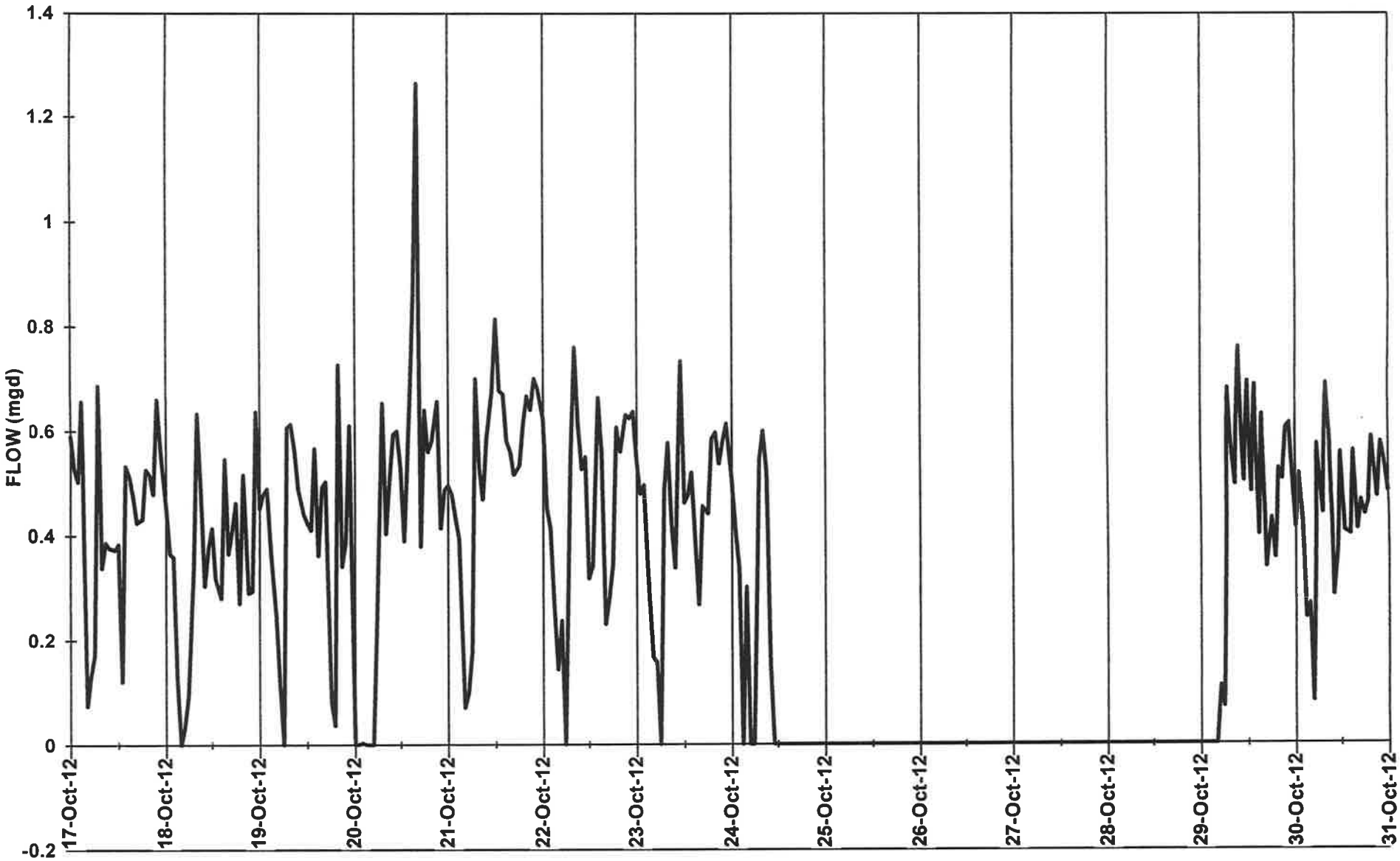
Daterange: 10/03/12-10/17/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



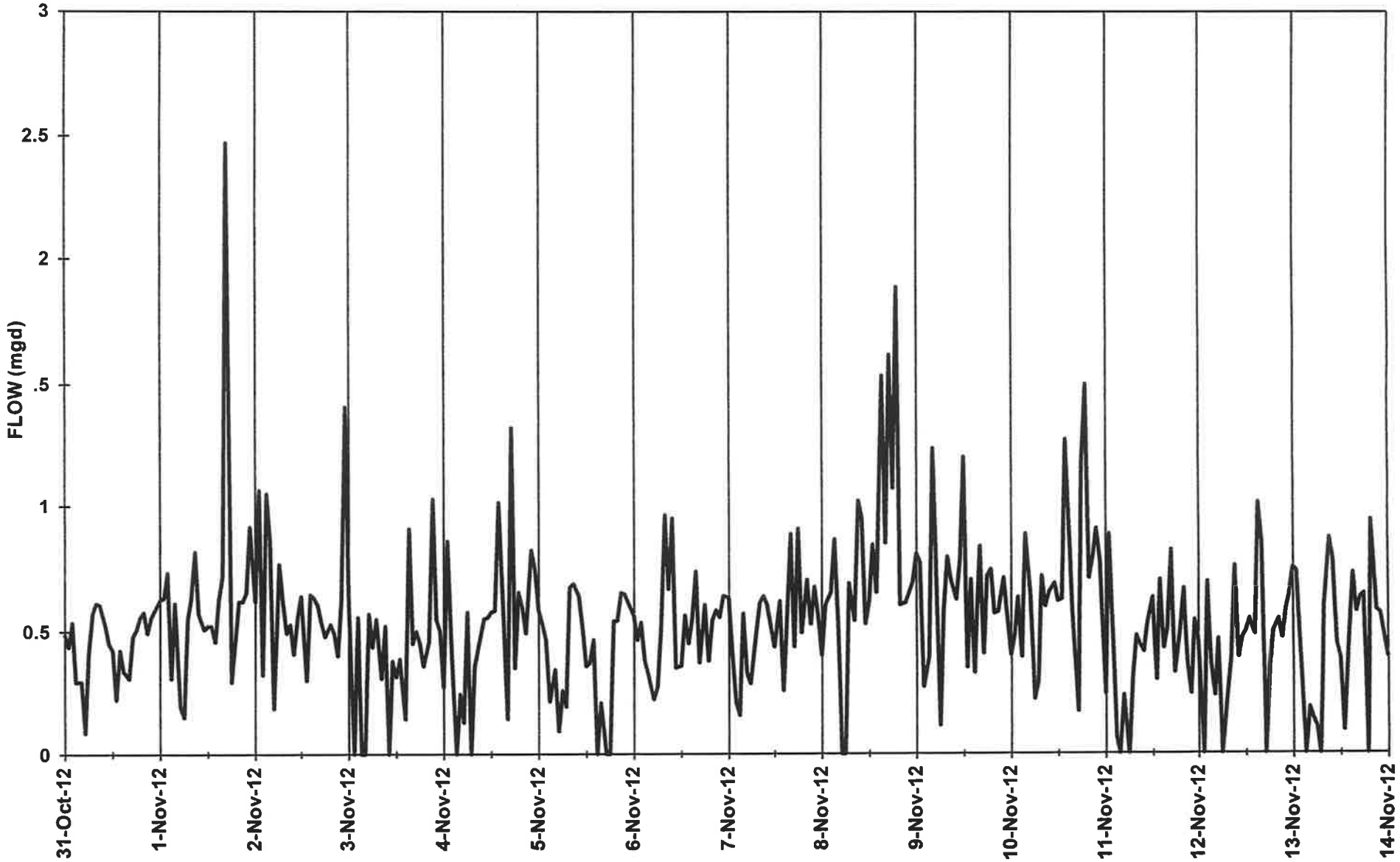
Daterange: 10/17/12-10/31/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



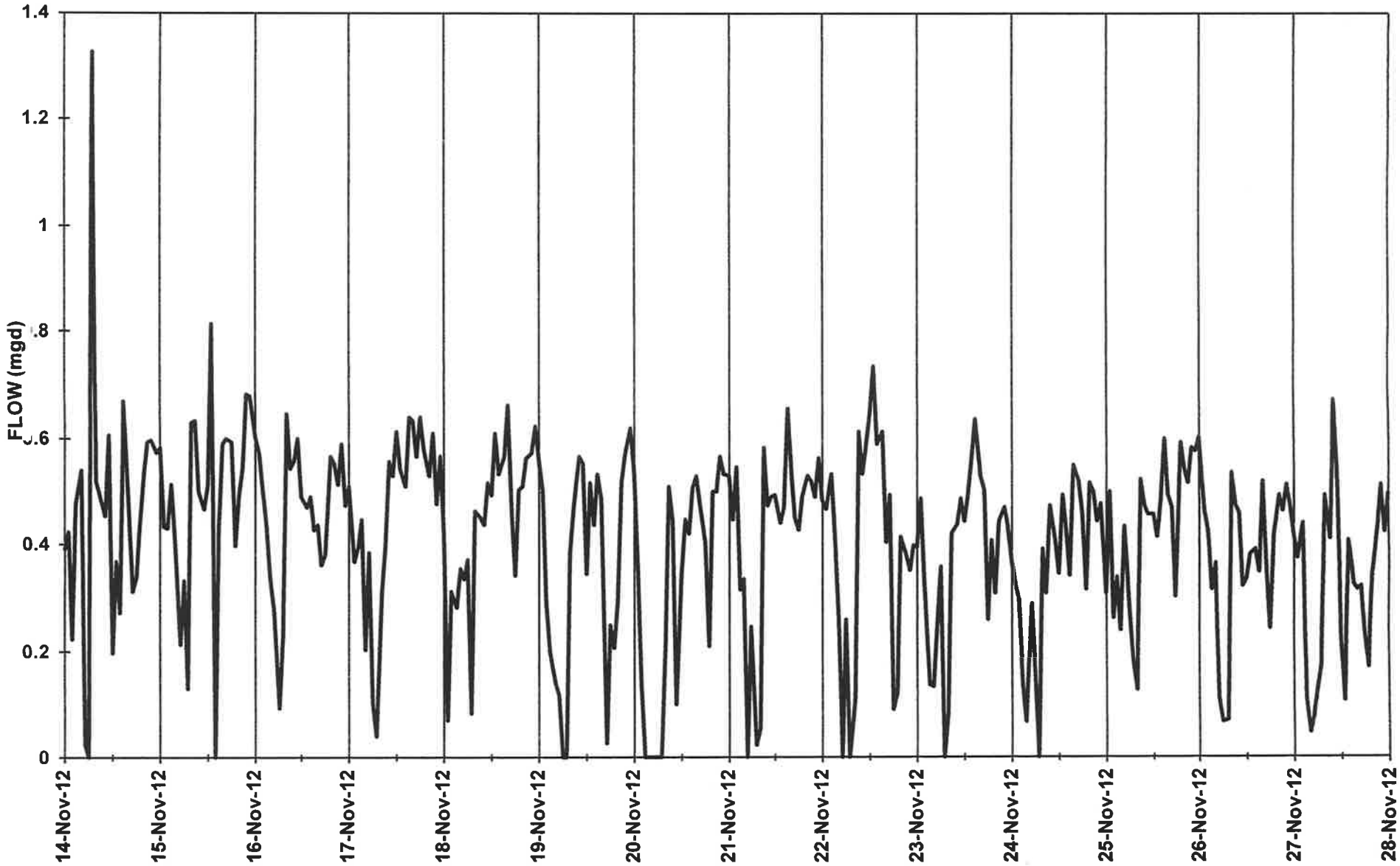
Daterange: 10/31/12-11/14/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



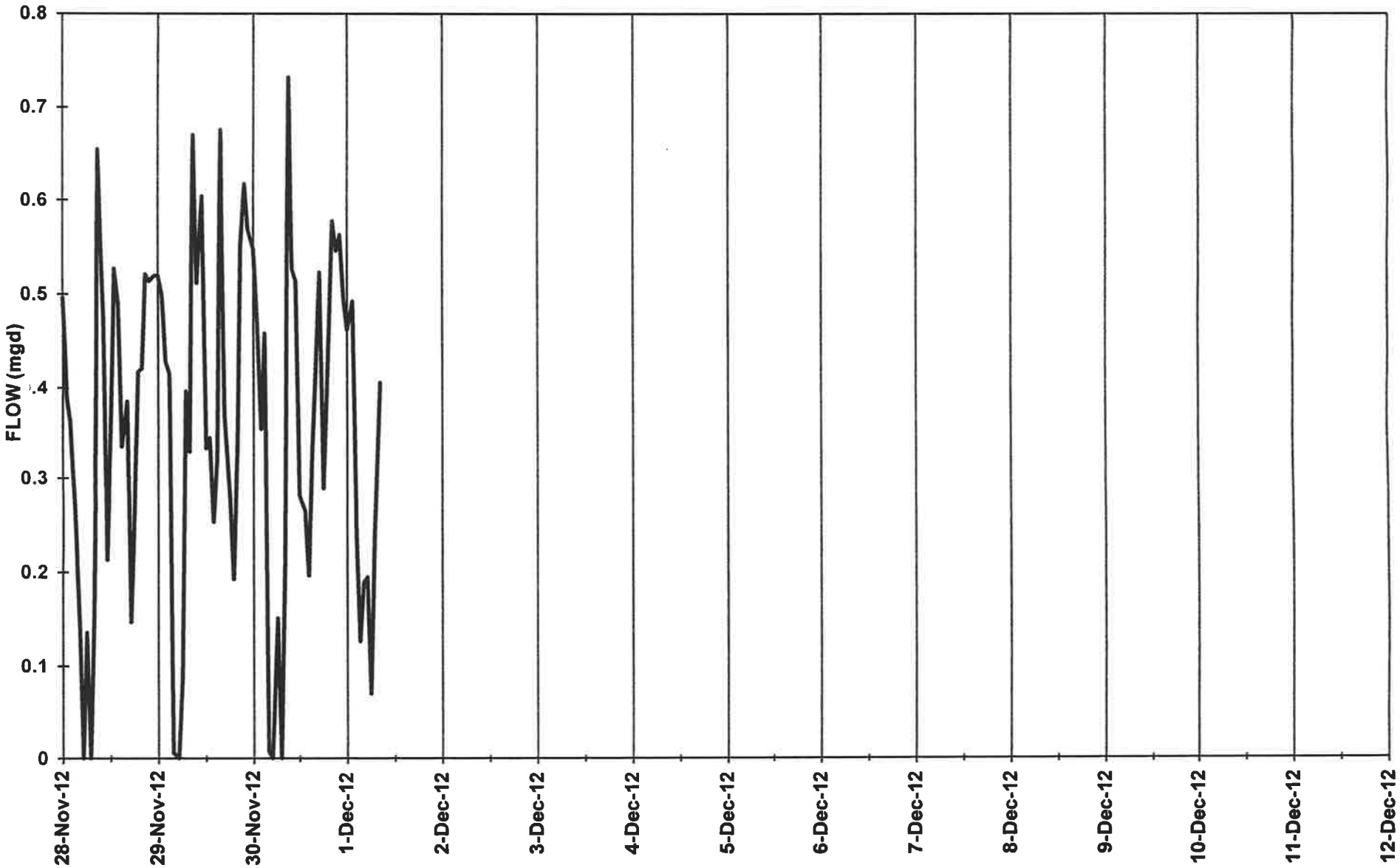
Daterange: 11/14/12-11/28/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

Flow vs Time (week)

Site:11275026 ALLISON FM 026



Daterange: 11/28/12-12/12/12
Territory: TERRITORY 9/12/2012 3:33:09 PM
Region: LEVEL2 SYSTEM DEFINED 9/12/2012 3:33:09 PM

Primary Device: Area Velocity
Shape: Round Pipe
Diameter(ft): 2.5

Location: ALLISON FM 026
Site ID: 11275026
Serial#: VGZ

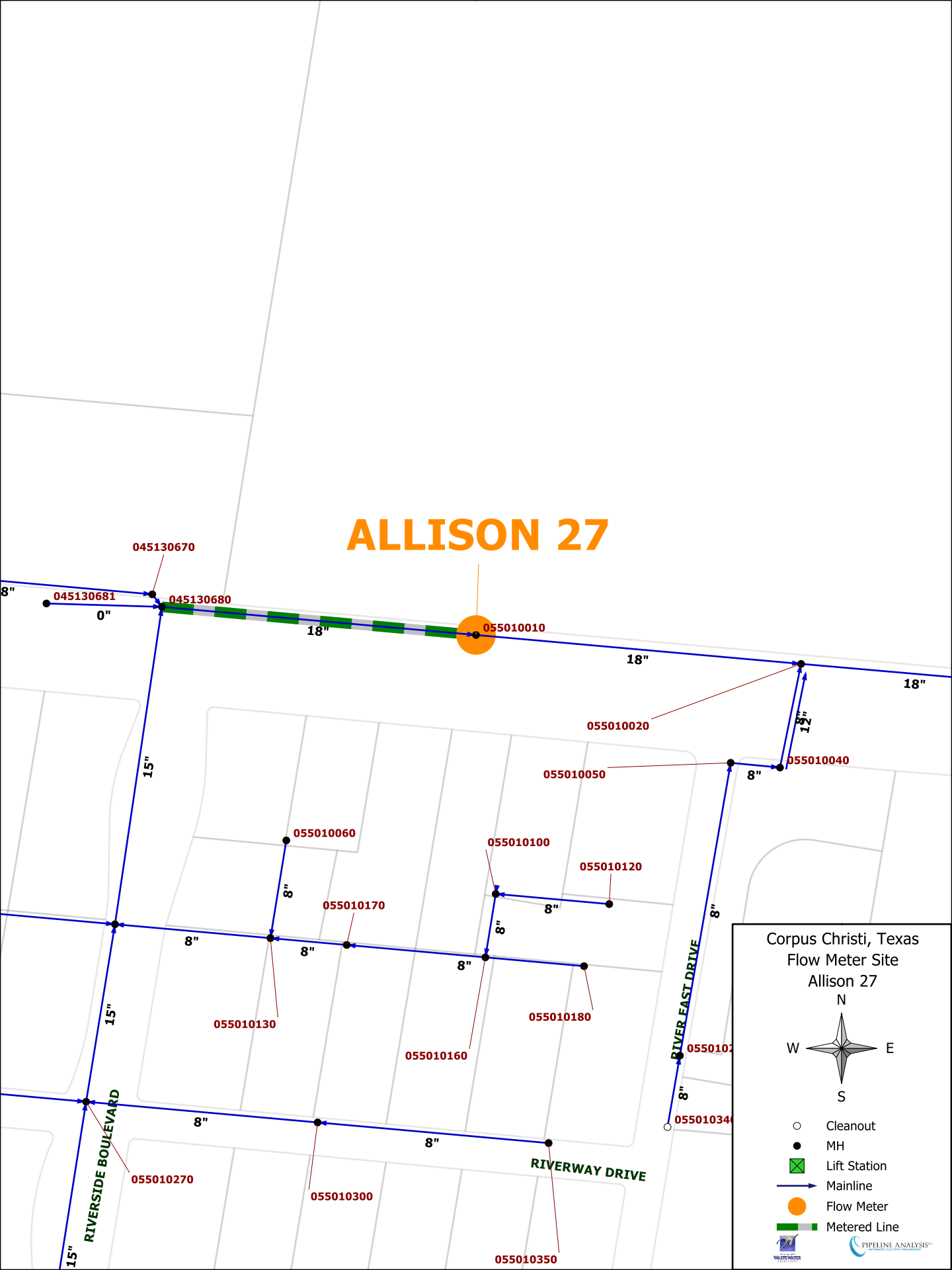
Allison FM027

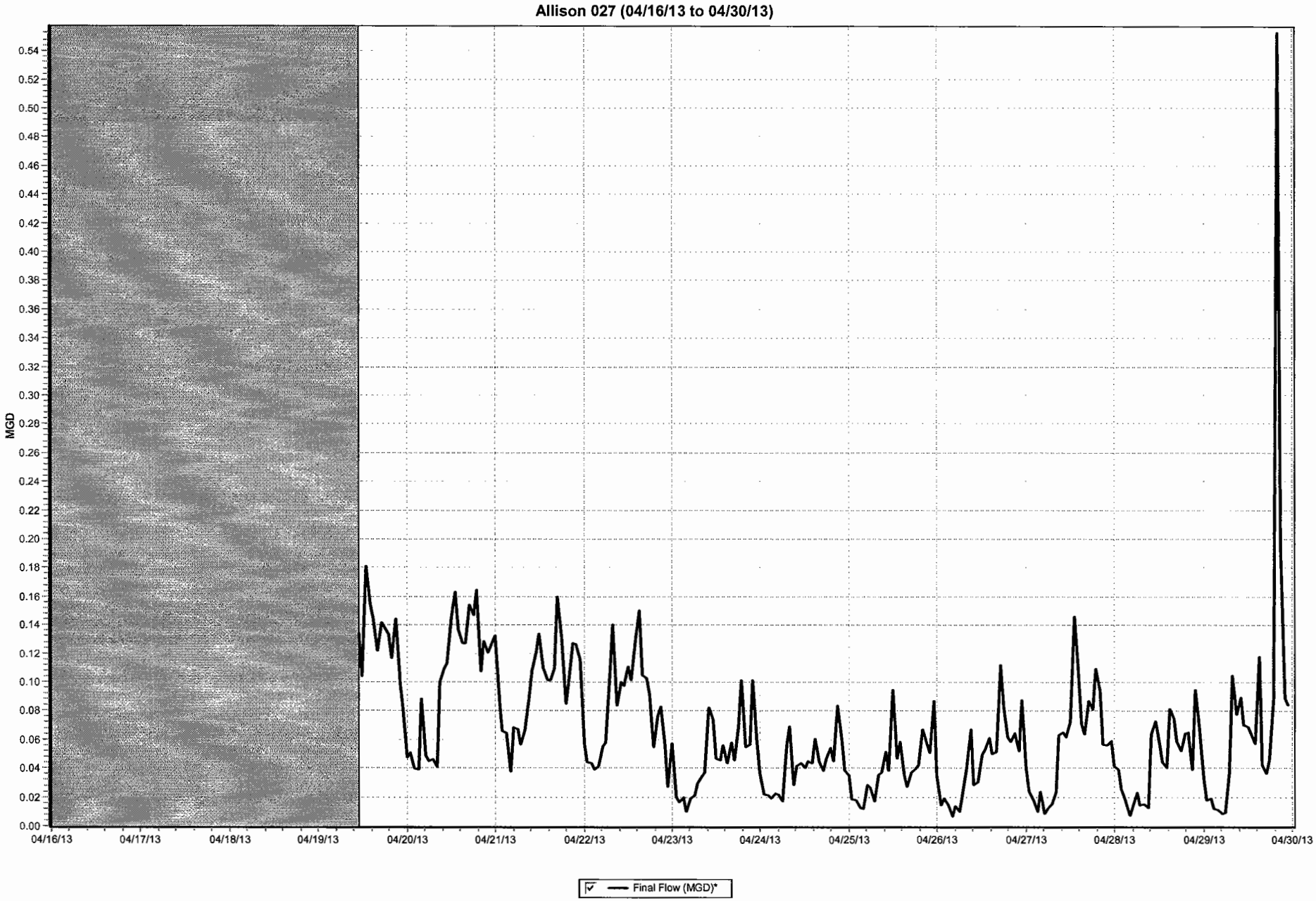
Allison Meter Site 027

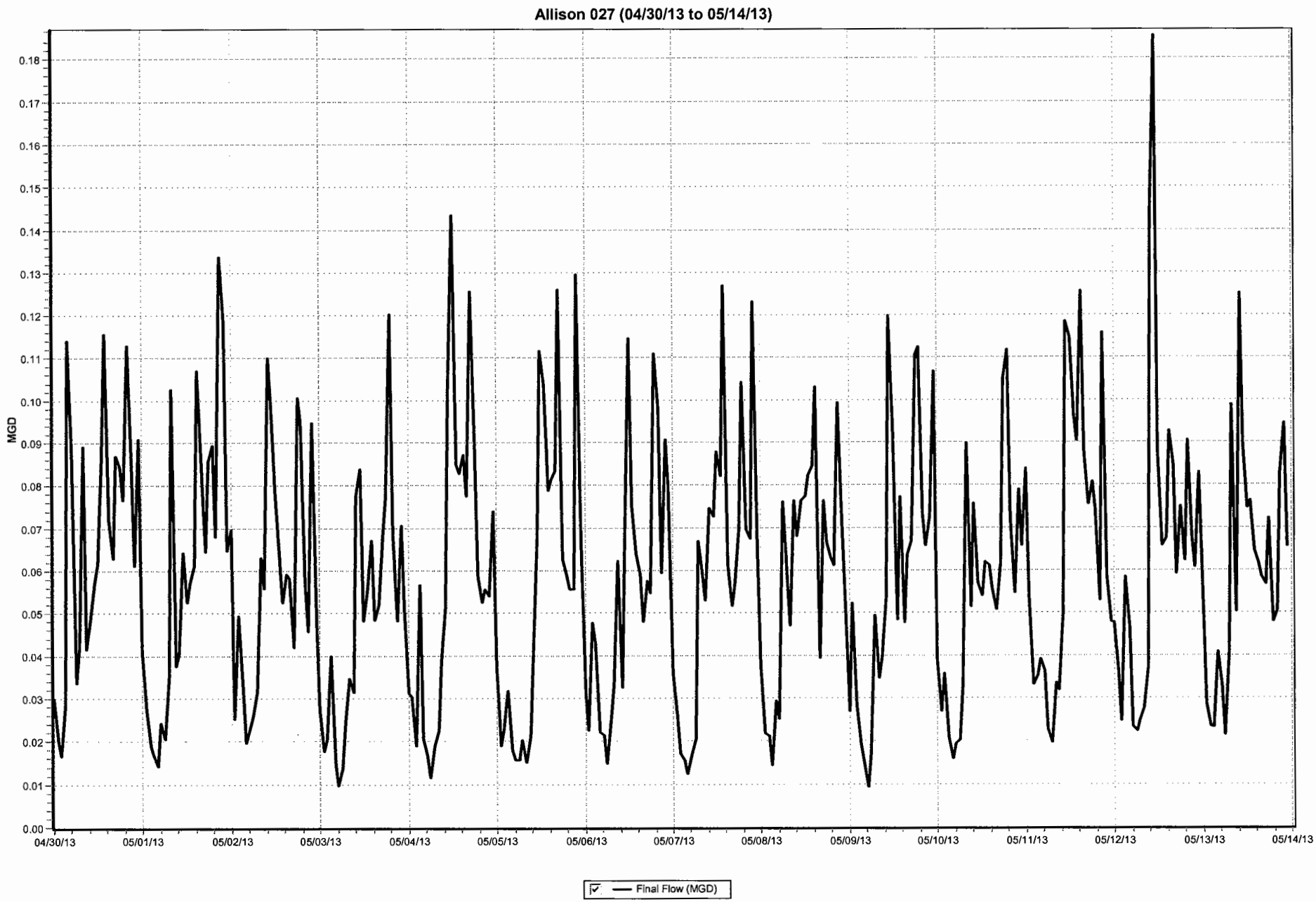
11275ALLISONFM027A061.jpg

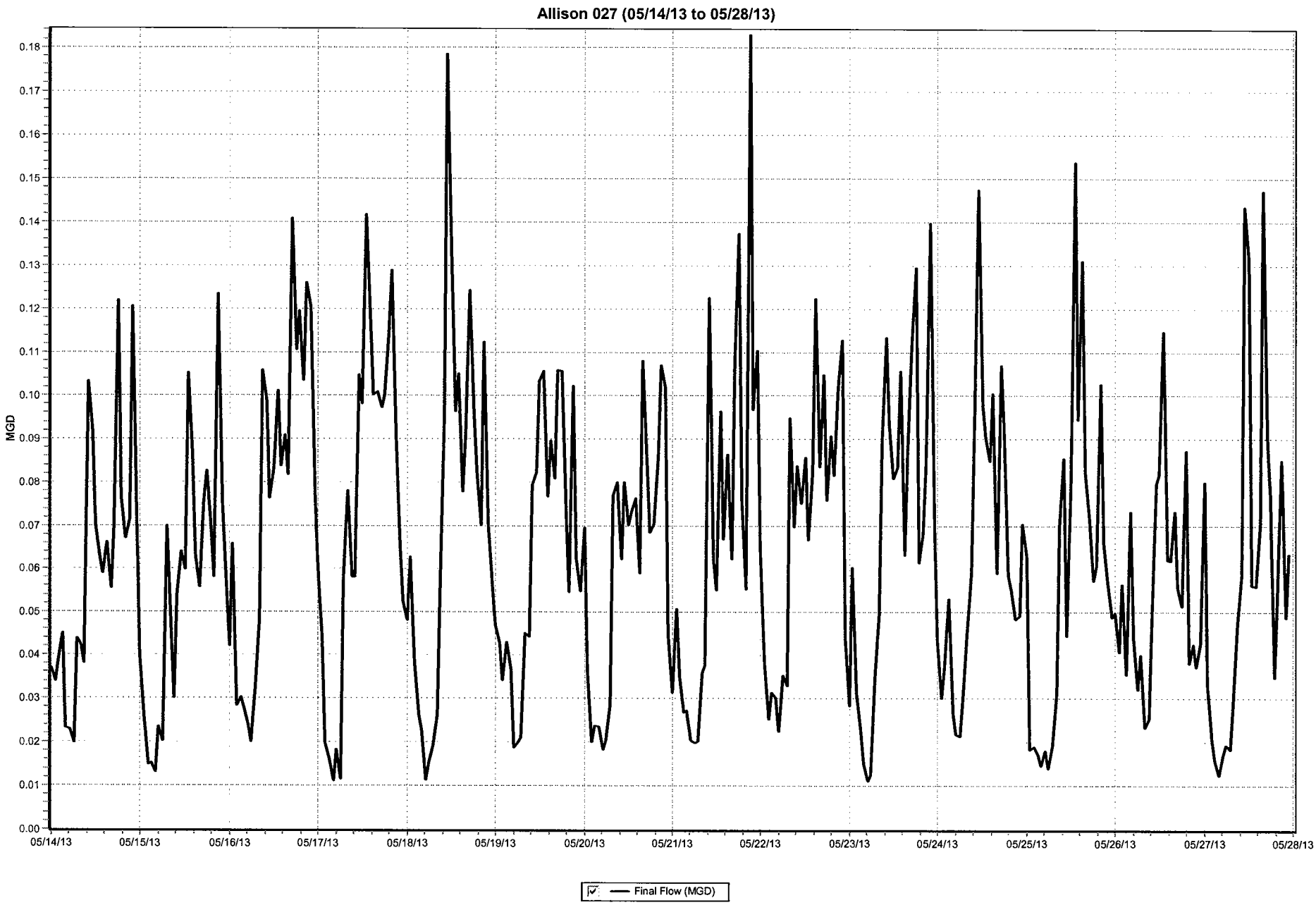
11275ALLISONFM027I062.jpg

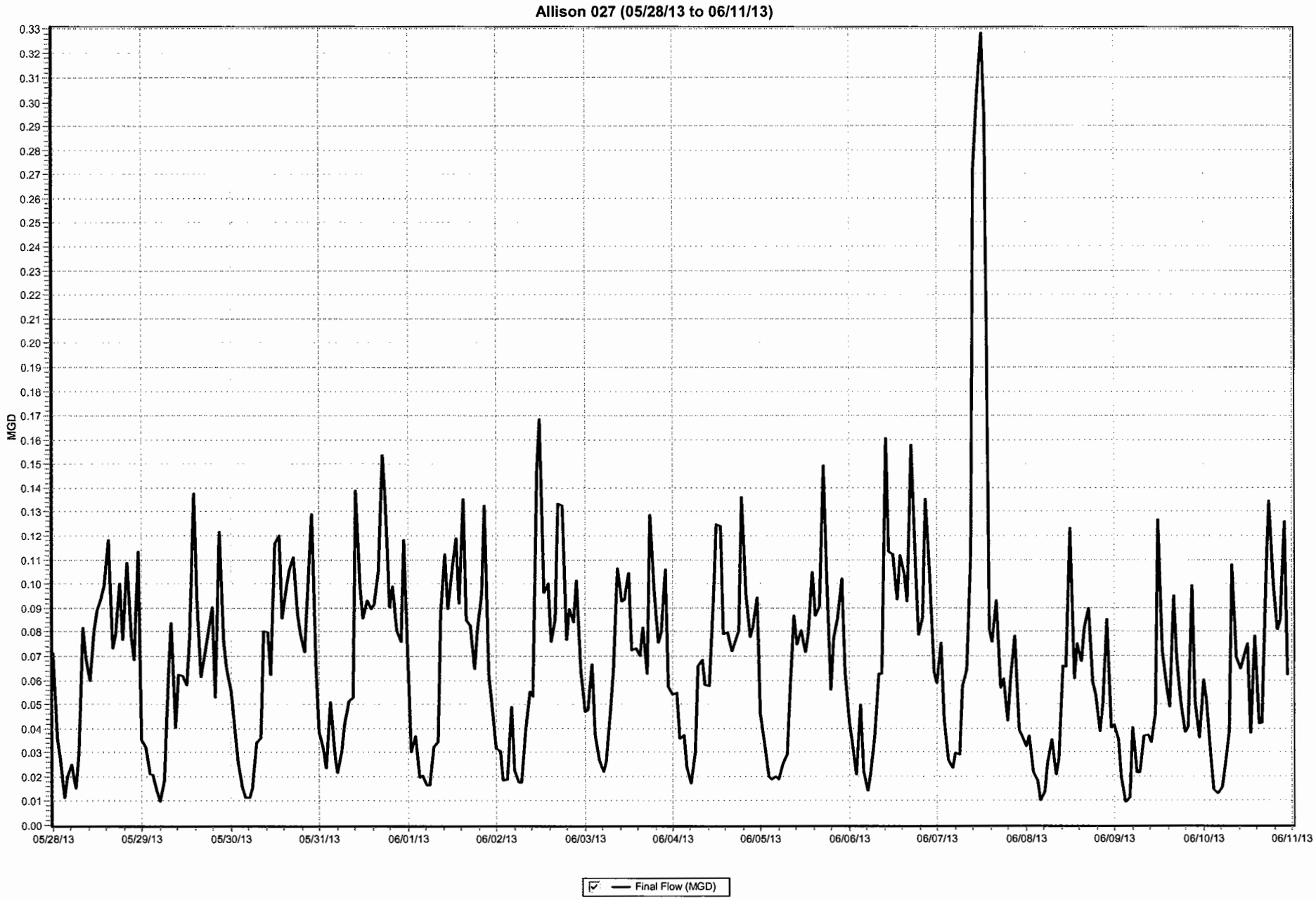
11275ALLISONFM027P063.jpg

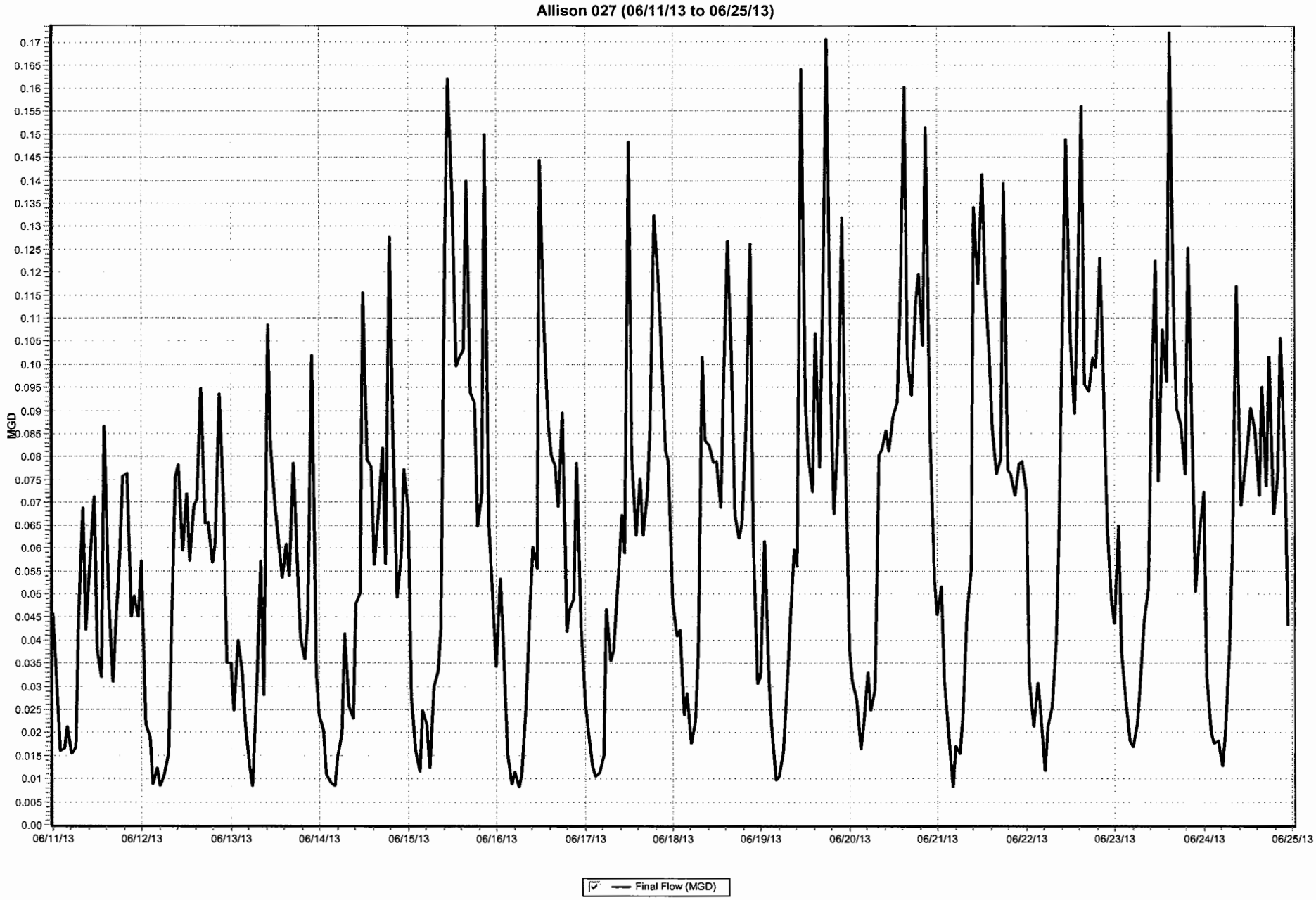

ALLISON 27
045130670
045130681
045130680
055010010
055010020
055010040
055010050
055010060
055010100
055010120
055010130
055010160
055010170
055010180
055010270
055010300
055010350
RIVERSIDE BOULEVARD
RIVERWAY DRIVE
RIVER EAST DRIVE
18"
15"
12"
8"
0"
Corpus Christi, Texas
Flow Meter Site
Allison 27
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

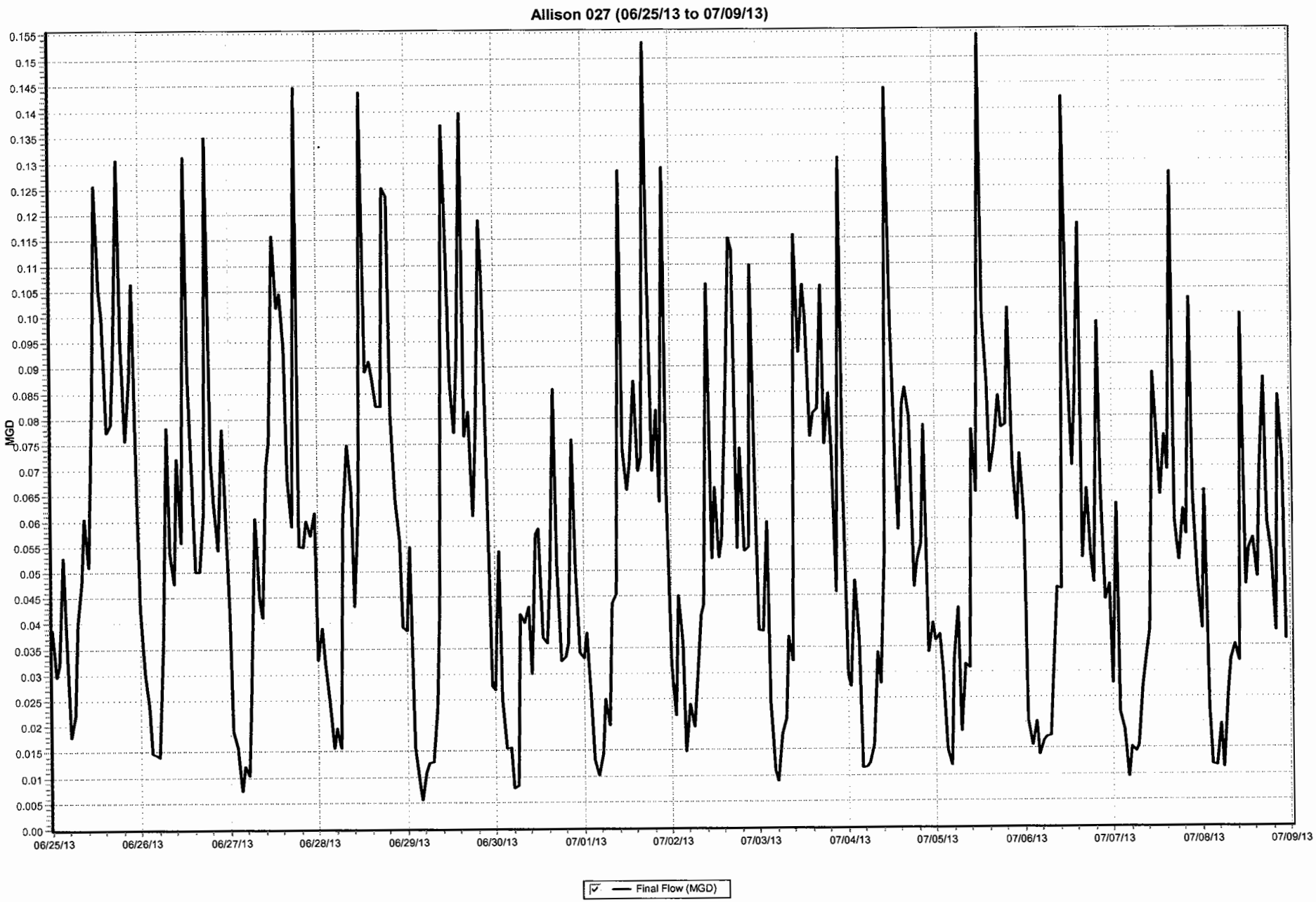

Allison 027 (04/16/13 to 04/30/13)
MGD
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

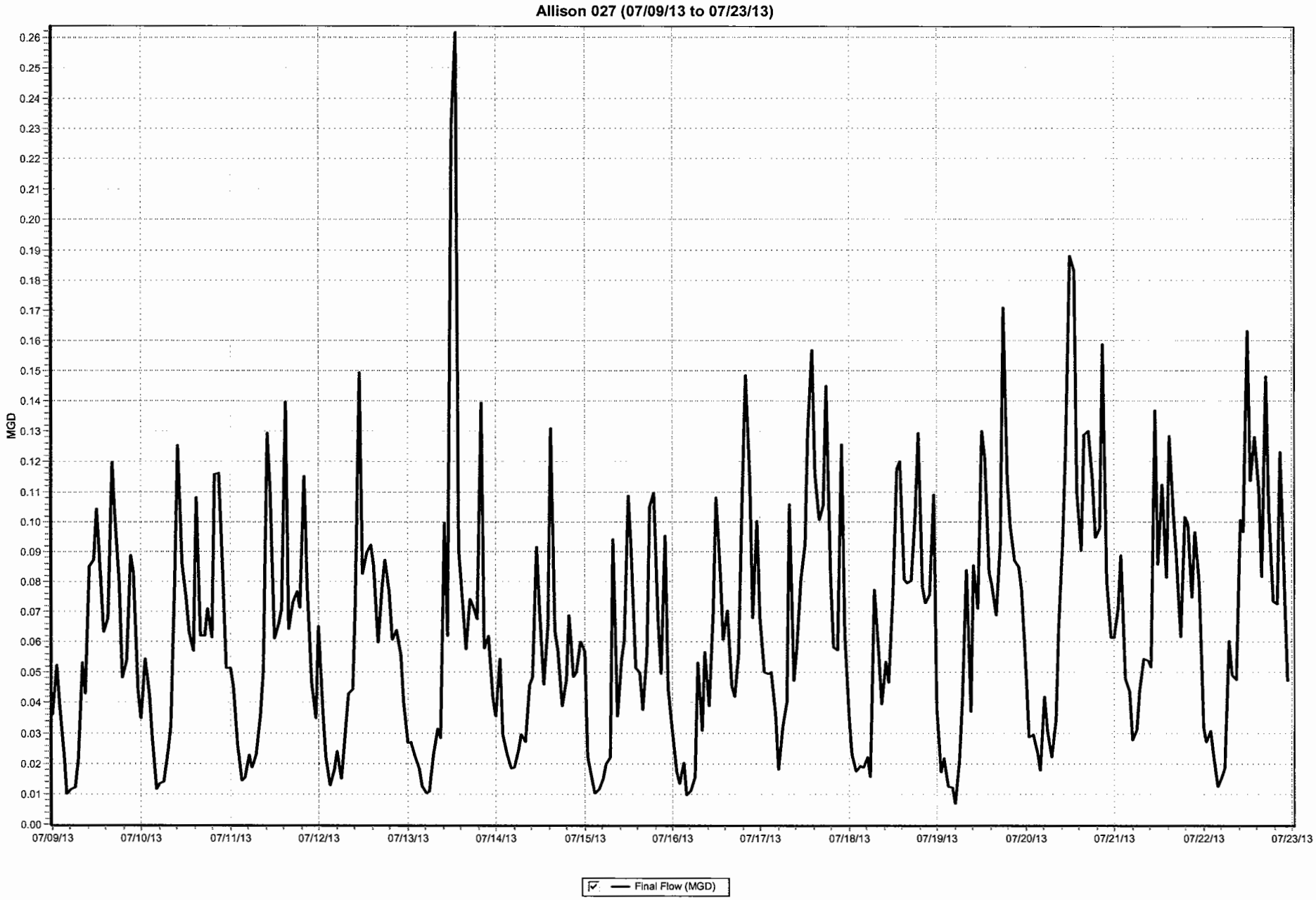

Allison 027 (04/30/13 to 05/14/13)
MGD
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 027 (05/14/13 to 05/28/13)
MGD
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

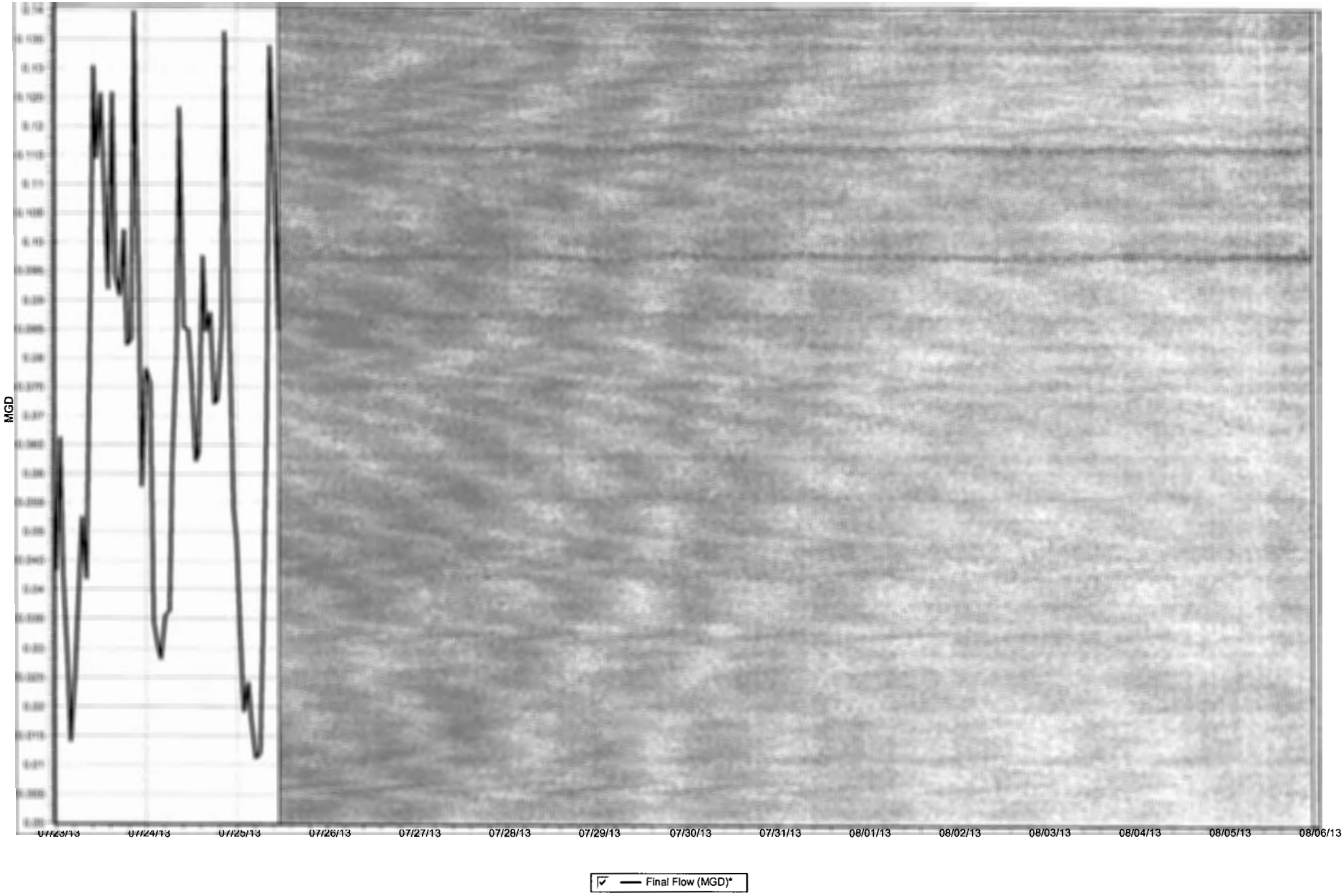

Allison 027 (05/28/13 to 06/11/13)
MGD
0.33
0.32
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 027 (06/11/13 to 06/25/13)
MGD
0.17
0.165
0.16
0.155
0.15
0.145
0.14
0.135
0.13
0.125
0.12
0.115
0.11
0.105
0.10
0.095
0.09
0.085
0.08
0.075
0.07
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 027 (06/25/13 to 07/09/13)
MGD
0.155
0.15
0.145
0.14
0.135
0.13
0.125
0.12
0.115
0.11
0.105
0.10
0.095
0.09
0.085
0.08
0.075
0.07
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 027 (07/09/13 to 07/23/13)
MGD
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 027 (07/23/13 to 08/06/13)



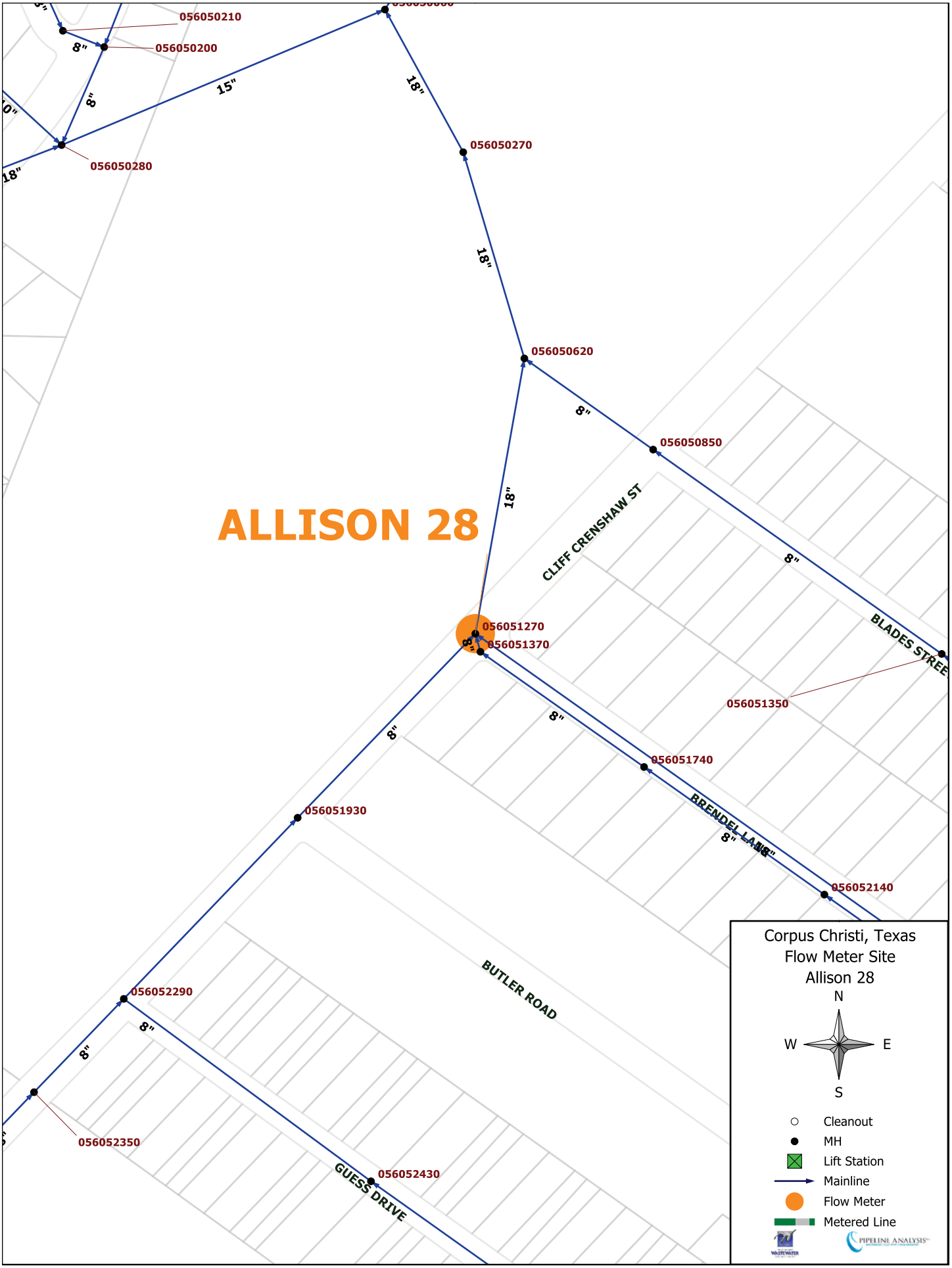
Allison FM028

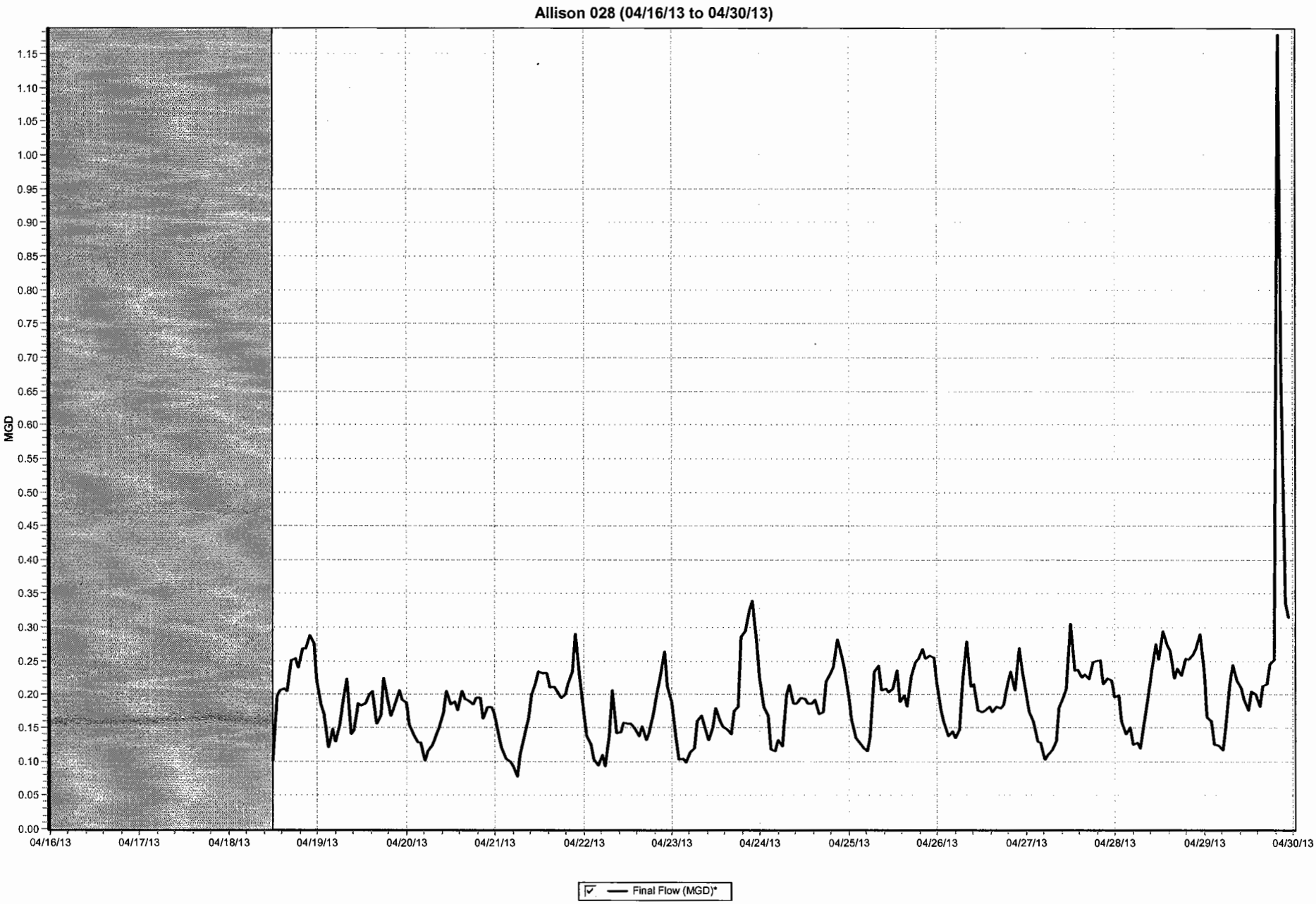
Allison Meter Site 028

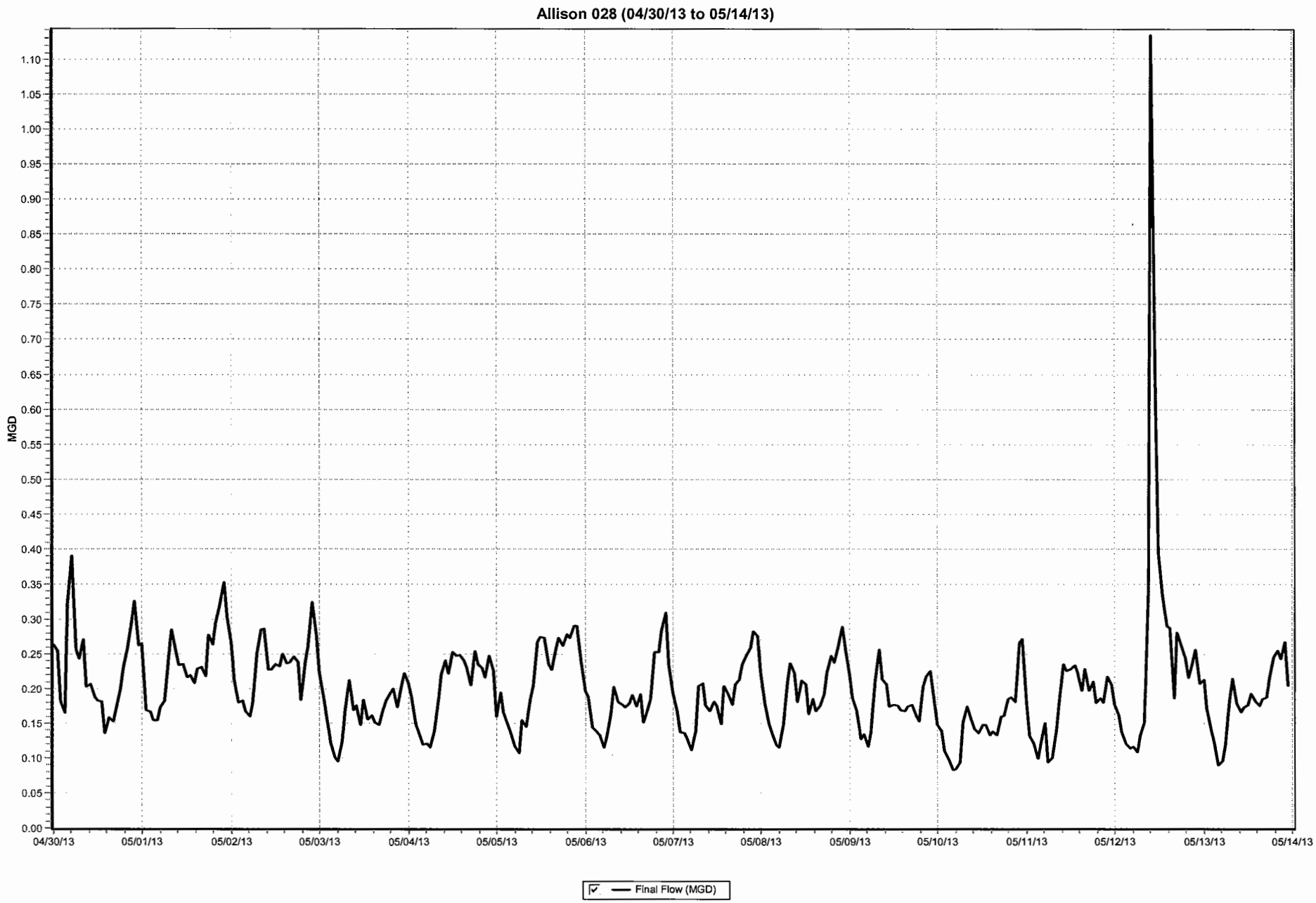
11275ALLISONFM028A064.jpg

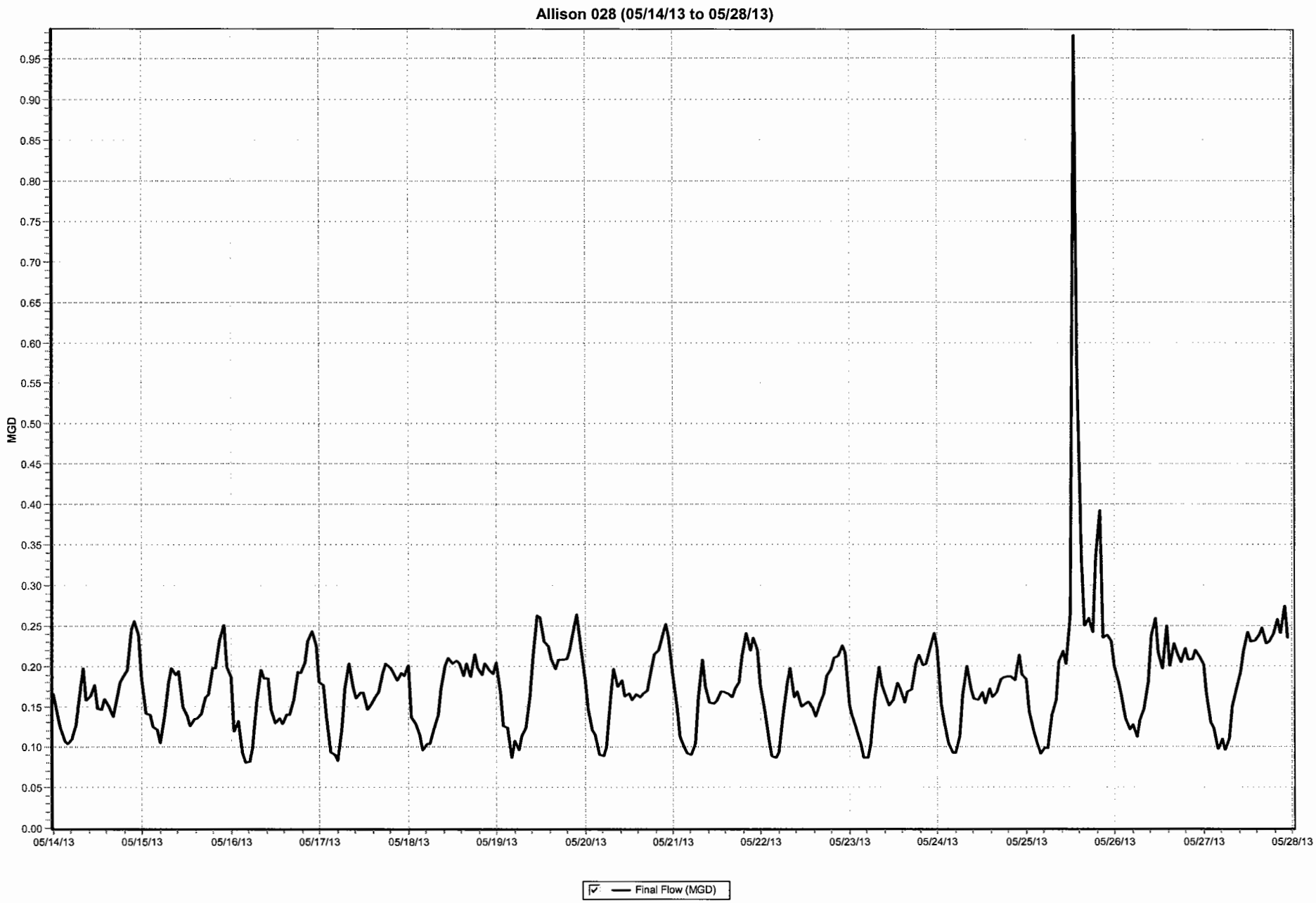
11275ALLISONFM028I065.jpg

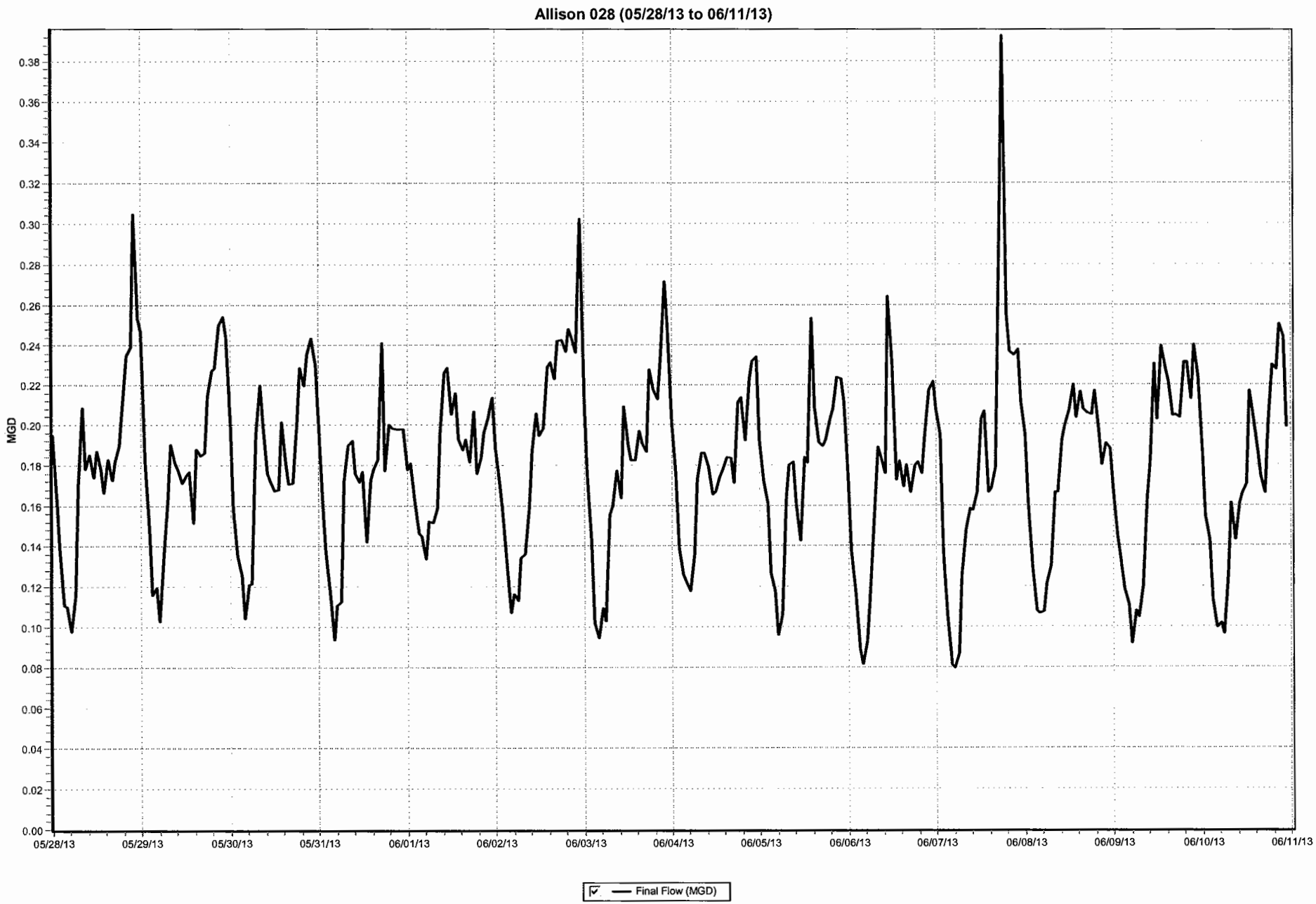
11275ALLISONFM028P066.jpg

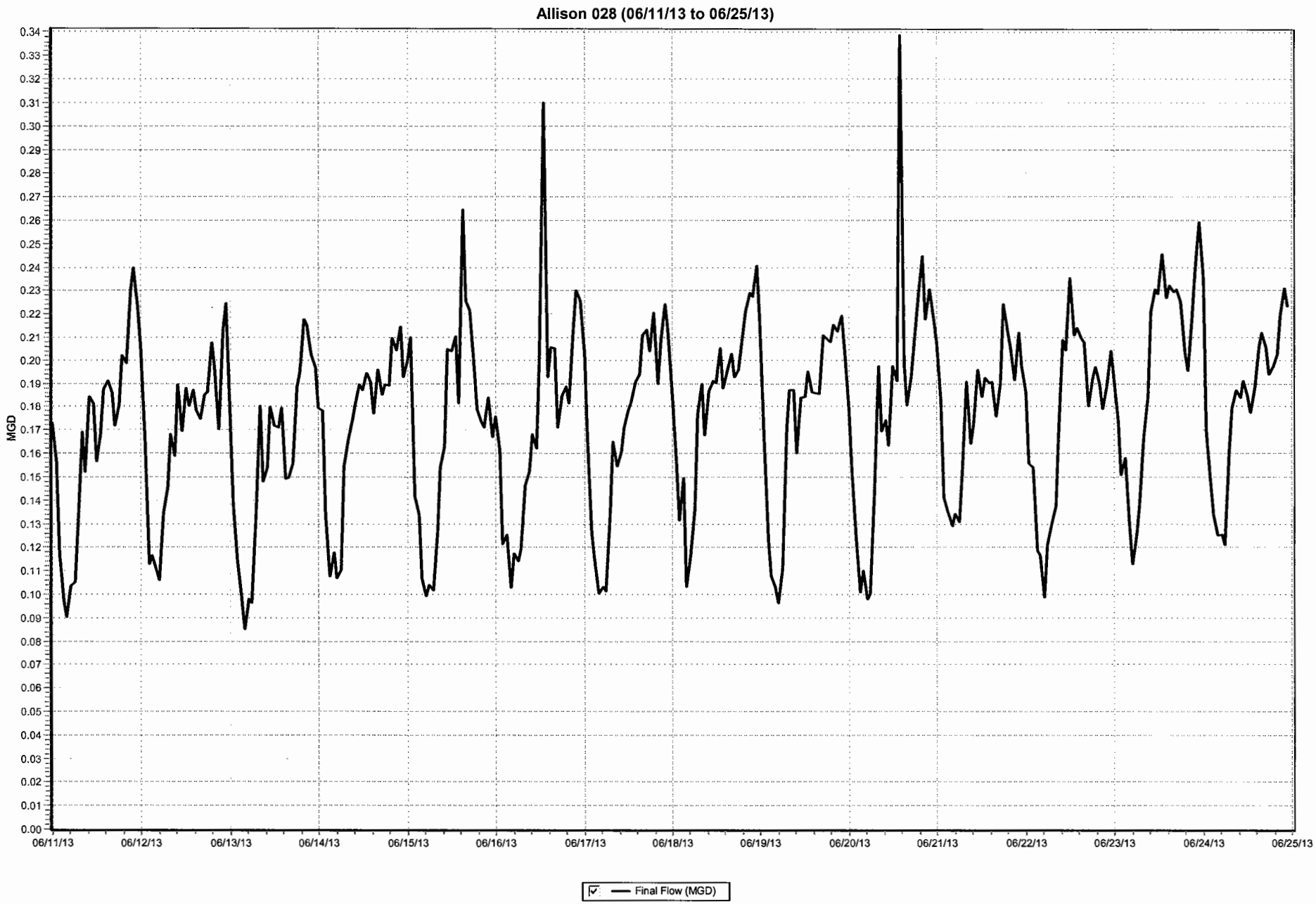

ALLISON 28
056050210
056050200
056050280
056050270
056050620
056050850
056051270
056051370
056051350
056051740
056051930
056052140
056052290
056052350
056052430
8"
15"
18"
CLIFF CRENSHAW ST
BLADES STREET
BRENDEL LANE
BUTLER ROAD
GUESS DRIVE
Corpus Christi, Texas
Flow Meter Site
Allison 28
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Flow Meter
Metered Line
PIPELINE ANALYSIS

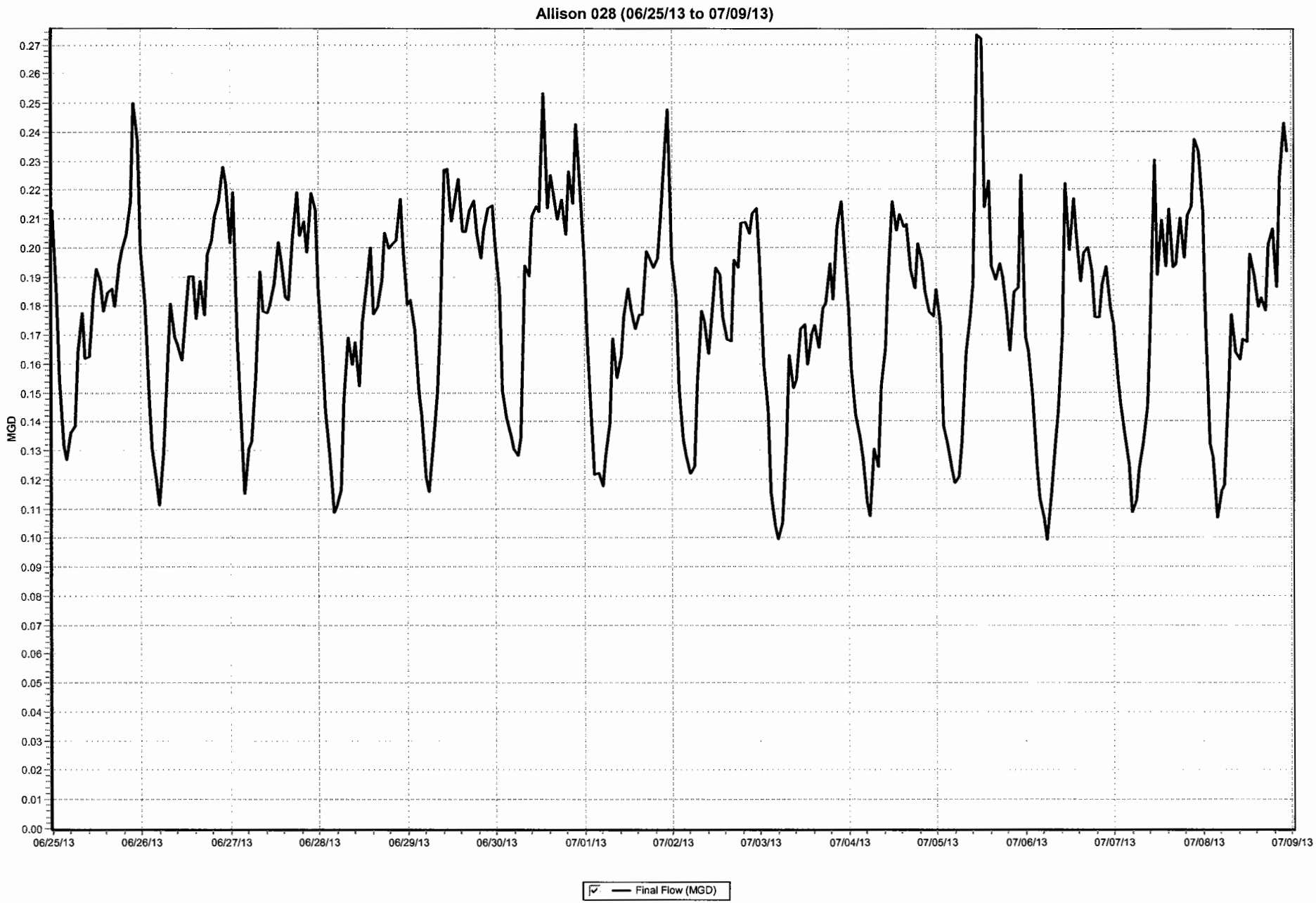

Allison 028 (04/16/13 to 04/30/13)
MGD
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/16/13
04/17/13
04/18/13
04/19/13
04/20/13
04/21/13
04/22/13
04/23/13
04/24/13
04/25/13
04/26/13
04/27/13
04/28/13
04/29/13
04/30/13
Final Flow (MGD)*

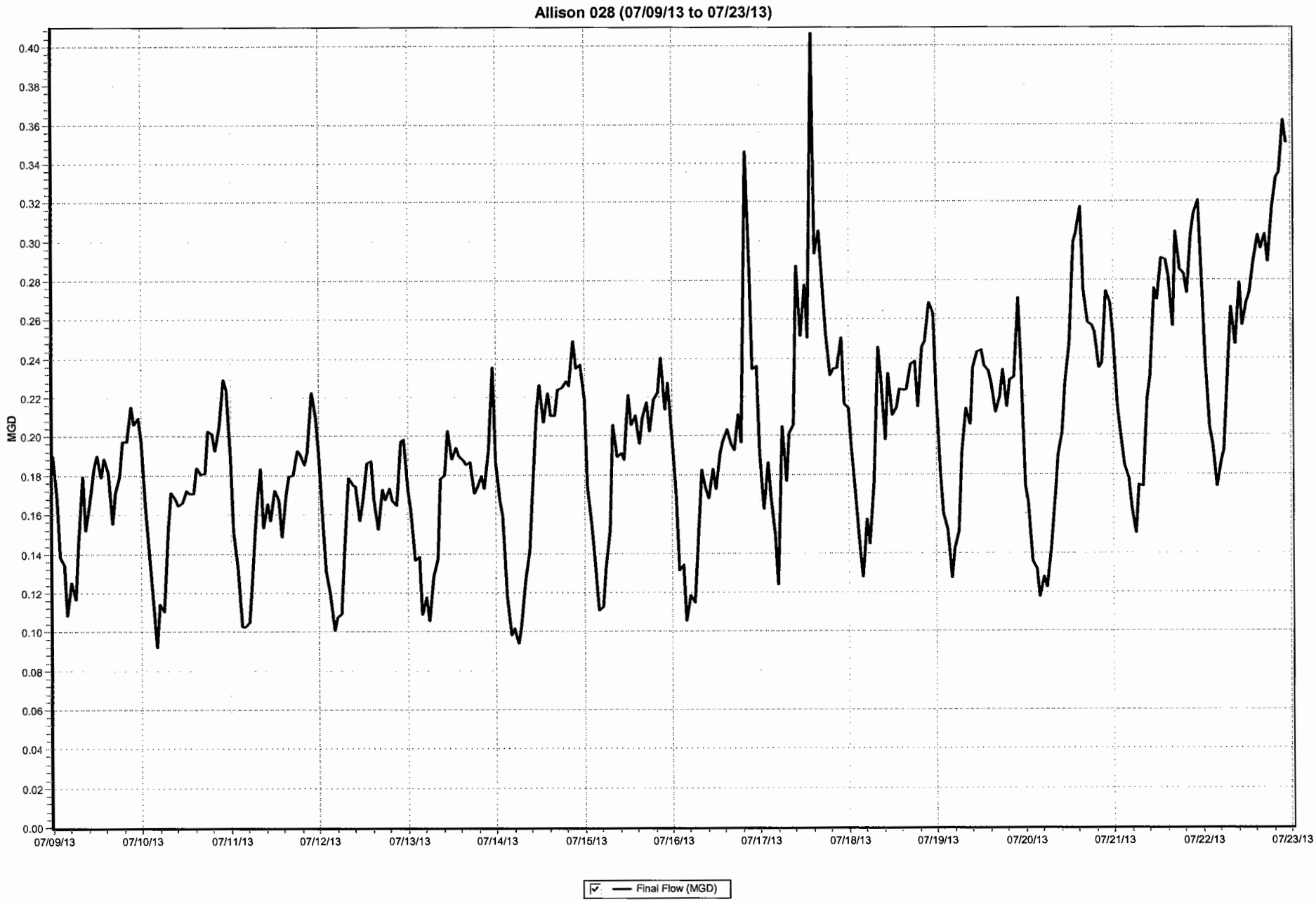

Allison 028 (04/30/13 to 05/14/13)
MGD
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
04/30/13
05/01/13
05/02/13
05/03/13
05/04/13
05/05/13
05/06/13
05/07/13
05/08/13
05/09/13
05/10/13
05/11/13
05/12/13
05/13/13
05/14/13
Final Flow (MGD)


Allison 028 (05/14/13 to 05/28/13)
MGD
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
05/14/13
05/15/13
05/16/13
05/17/13
05/18/13
05/19/13
05/20/13
05/21/13
05/22/13
05/23/13
05/24/13
05/25/13
05/26/13
05/27/13
05/28/13
Final Flow (MGD)

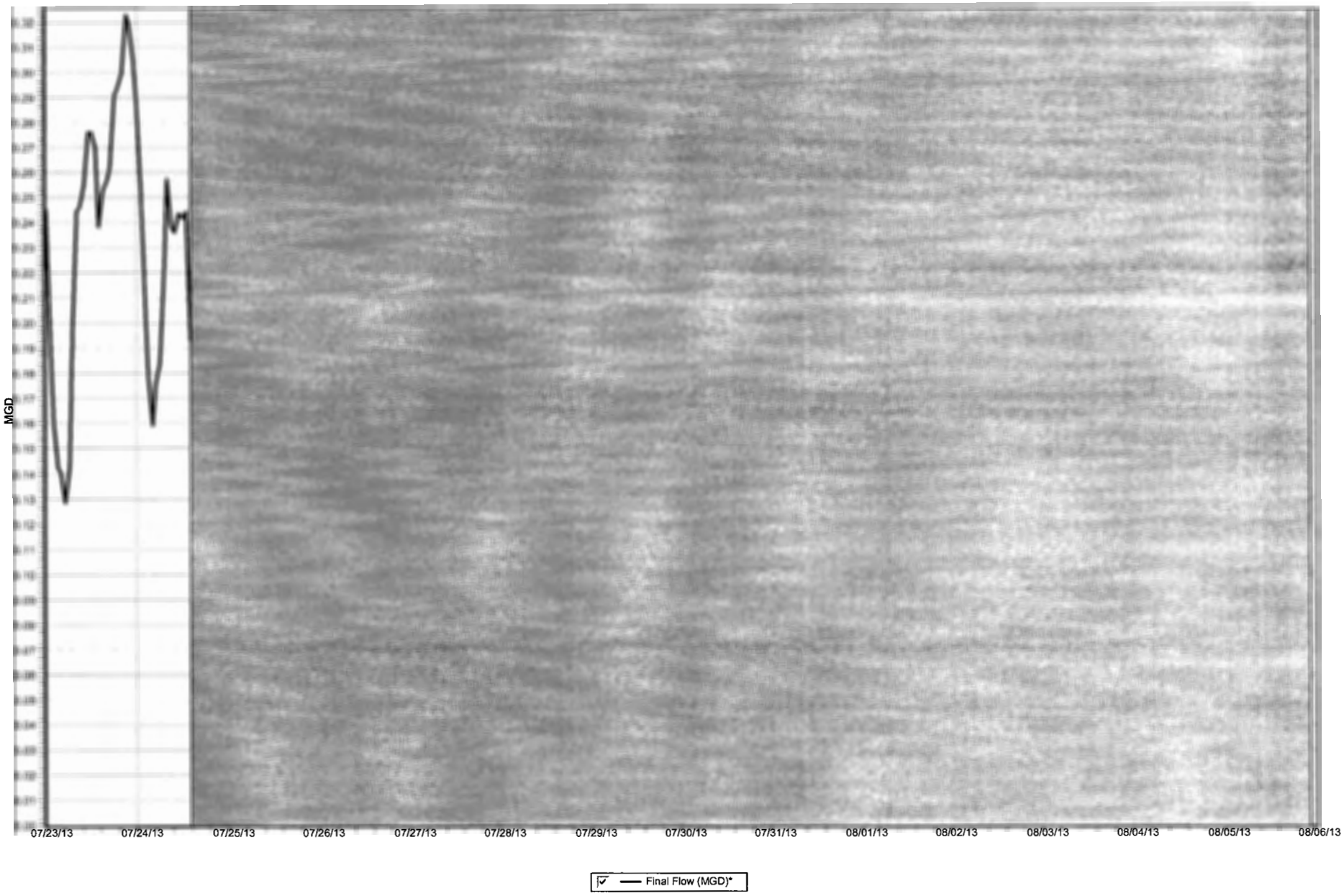

Allison 028 (05/28/13 to 06/11/13)
MGD
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
05/28/13
05/29/13
05/30/13
05/31/13
06/01/13
06/02/13
06/03/13
06/04/13
06/05/13
06/06/13
06/07/13
06/08/13
06/09/13
06/10/13
06/11/13
Final Flow (MGD)


Allison 028 (06/11/13 to 06/25/13)
MGD
0.34
0.33
0.32
0.31
0.30
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/11/13
06/12/13
06/13/13
06/14/13
06/15/13
06/16/13
06/17/13
06/18/13
06/19/13
06/20/13
06/21/13
06/22/13
06/23/13
06/24/13
06/25/13
Final Flow (MGD)


Allison 028 (06/25/13 to 07/09/13)
MGD
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
06/25/13
06/26/13
06/27/13
06/28/13
06/29/13
06/30/13
07/01/13
07/02/13
07/03/13
07/04/13
07/05/13
07/06/13
07/07/13
07/08/13
07/09/13
Final Flow (MGD)


Allison 028 (07/09/13 to 07/23/13)
MGD
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
07/09/13
07/10/13
07/11/13
07/12/13
07/13/13
07/14/13
07/15/13
07/16/13
07/17/13
07/18/13
07/19/13
07/20/13
07/21/13
07/22/13
07/23/13
Final Flow (MGD)

Allison 028 (07/23/13 to 08/06/13)



Rainfall Data

Rain Gauges

11275ALLISONRG009.JPG

11275ALLISONRG010.JPG

11275ALLISONRG011.JPG

Rain Gauges

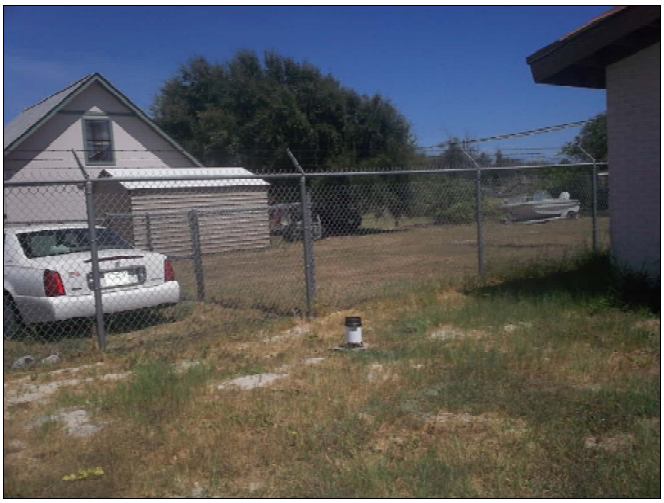
11275ALLISONRG012.JPG

11275LAGUNARG001.JPG

11275LAGUNARG002.JPG

Rain Gauges

11275LAGUNARG003.JPG



11275LAGUNARG004.JPG

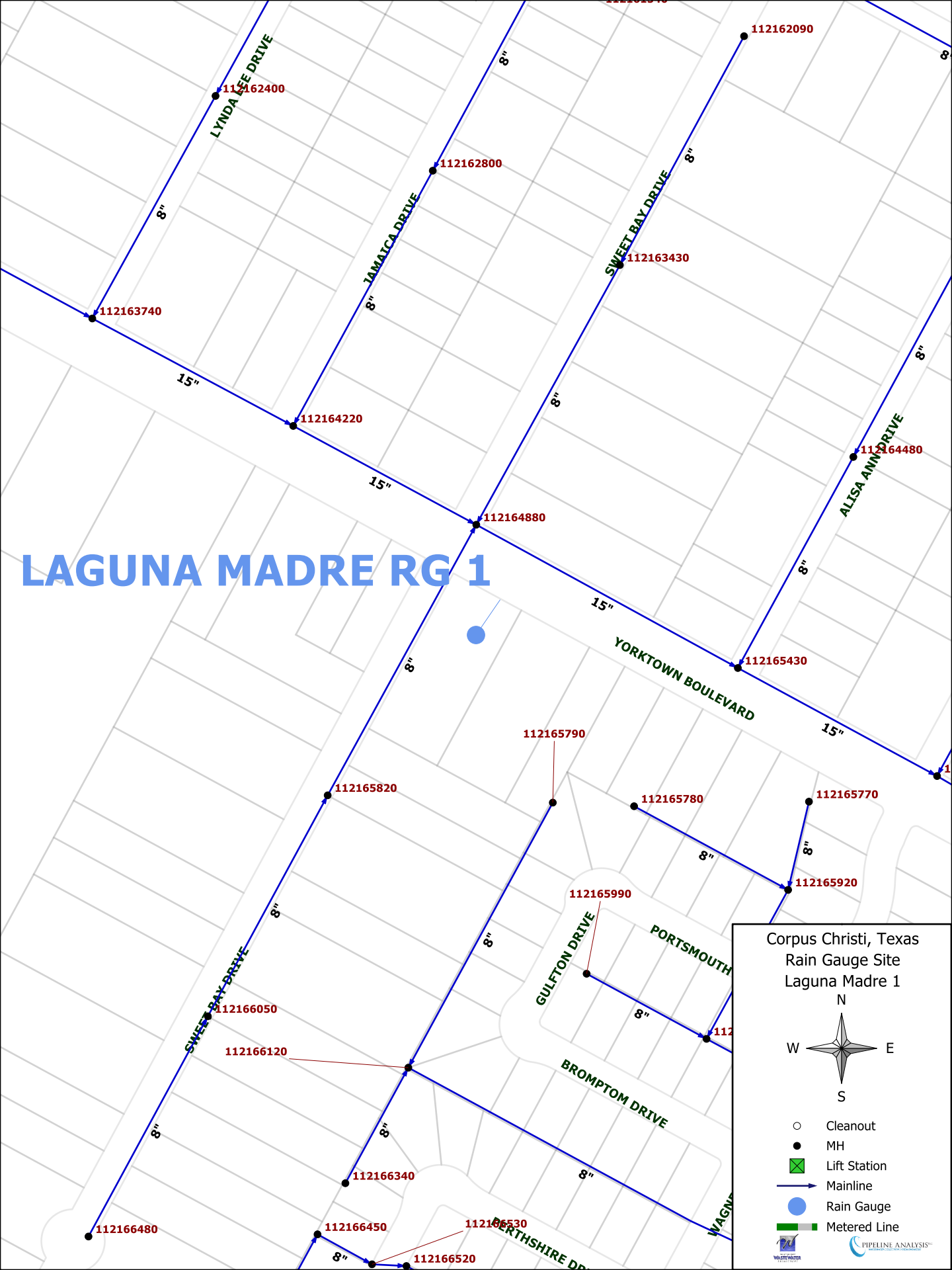
11275WHITECAPRG005.JPG

Rain Gauges

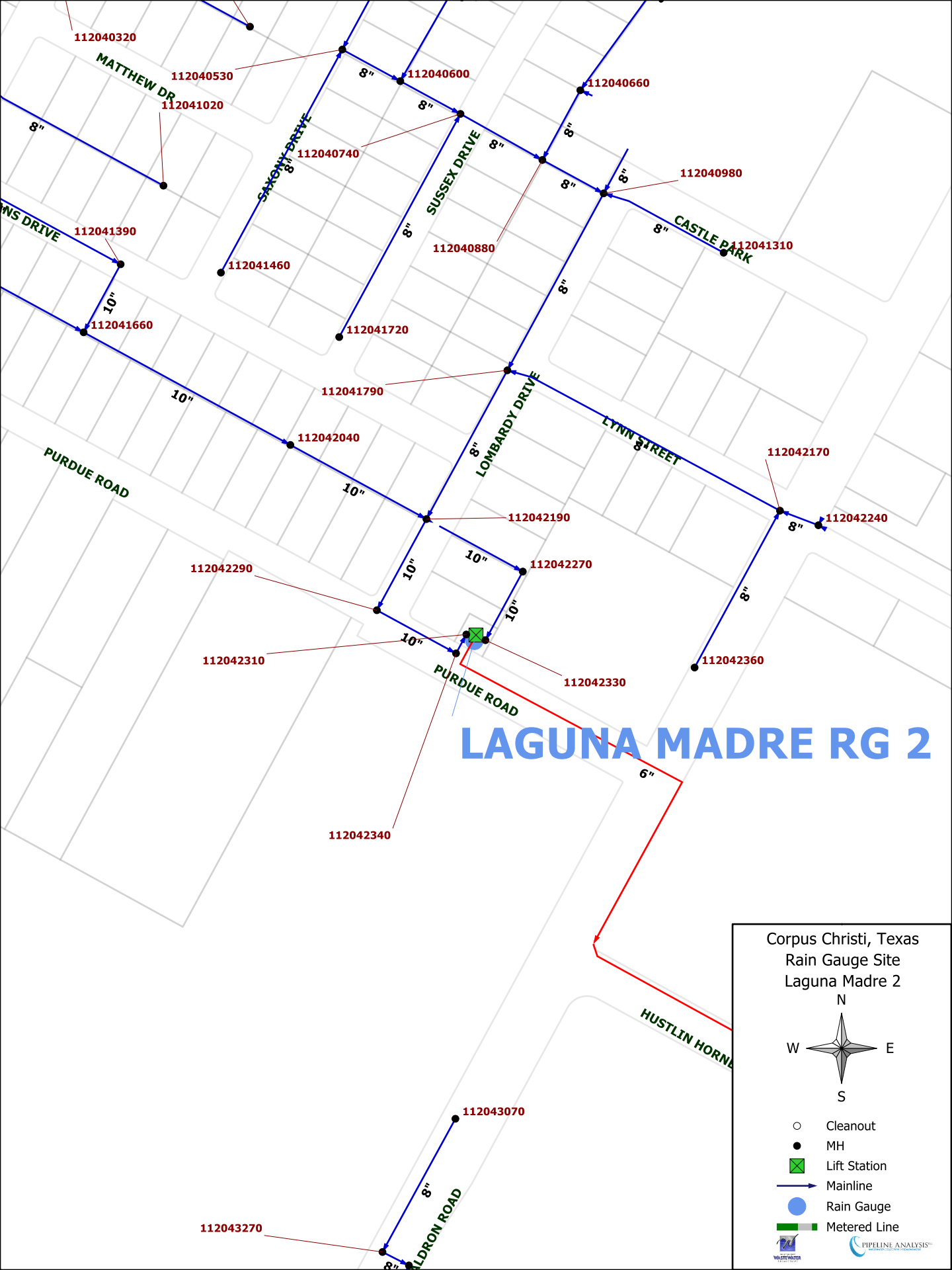
11275WHITECAPRG006.JPG

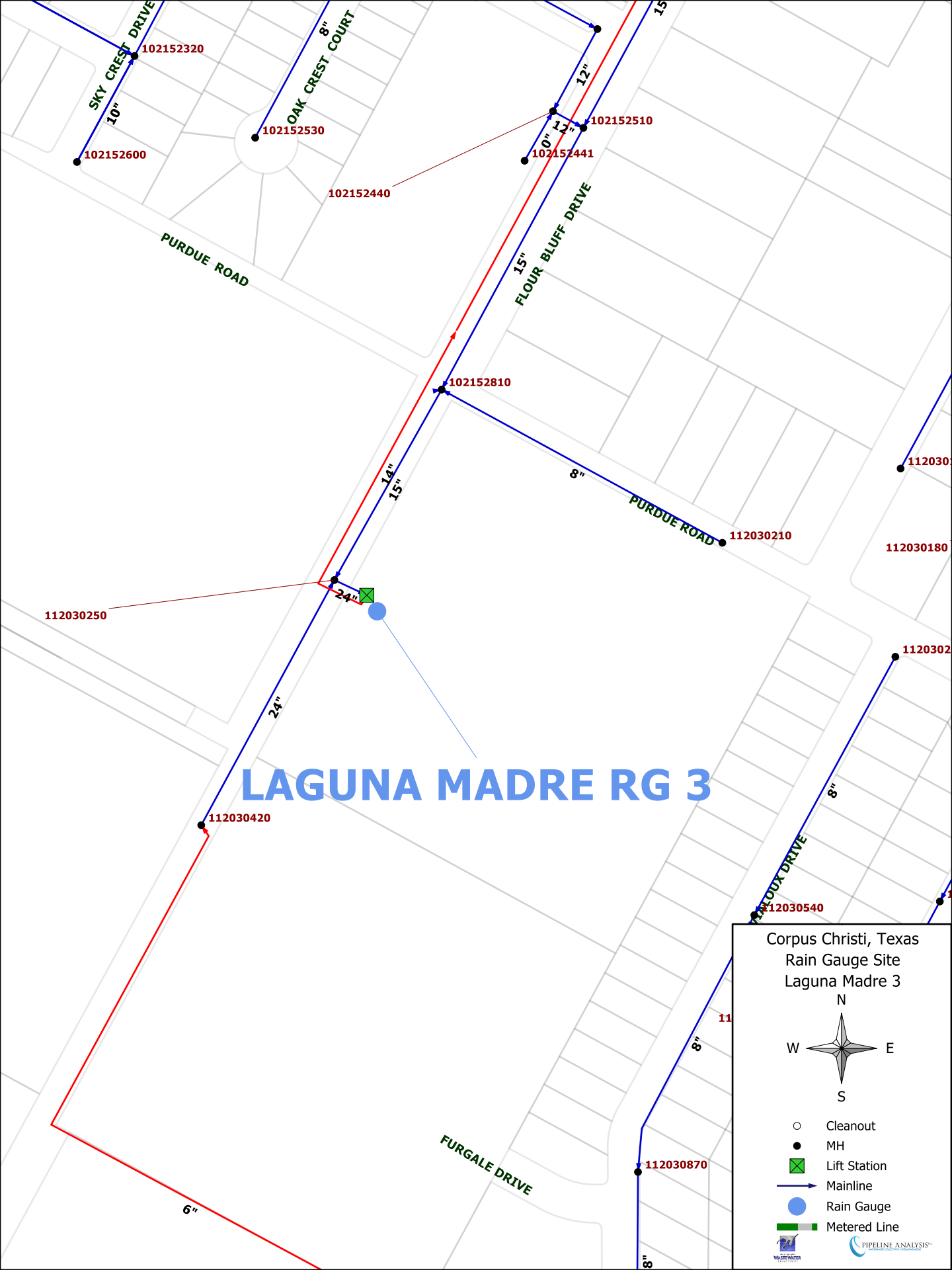
11275WHITECAPRG007.JPG

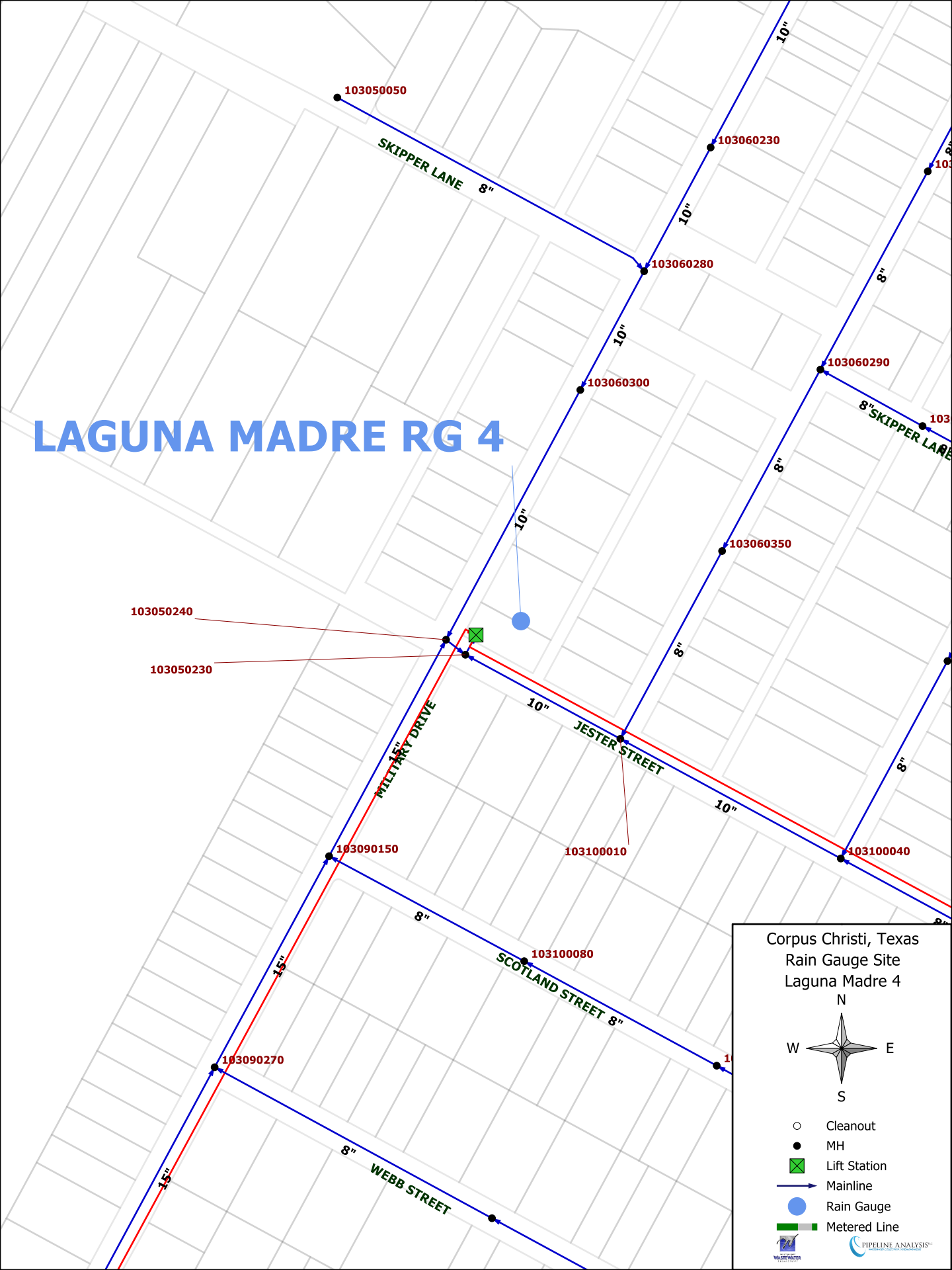
11275WHITECAPRG008.JPG

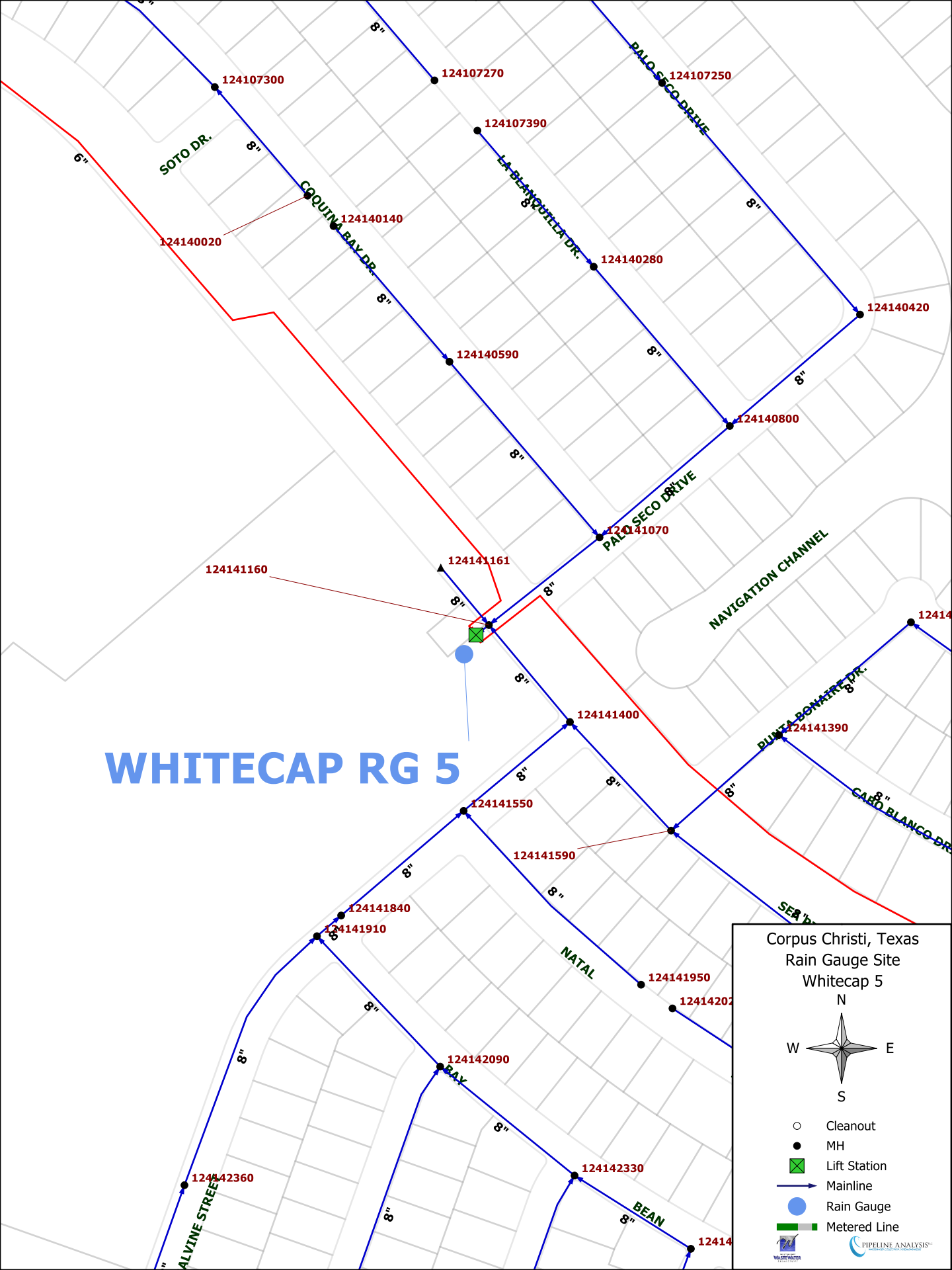


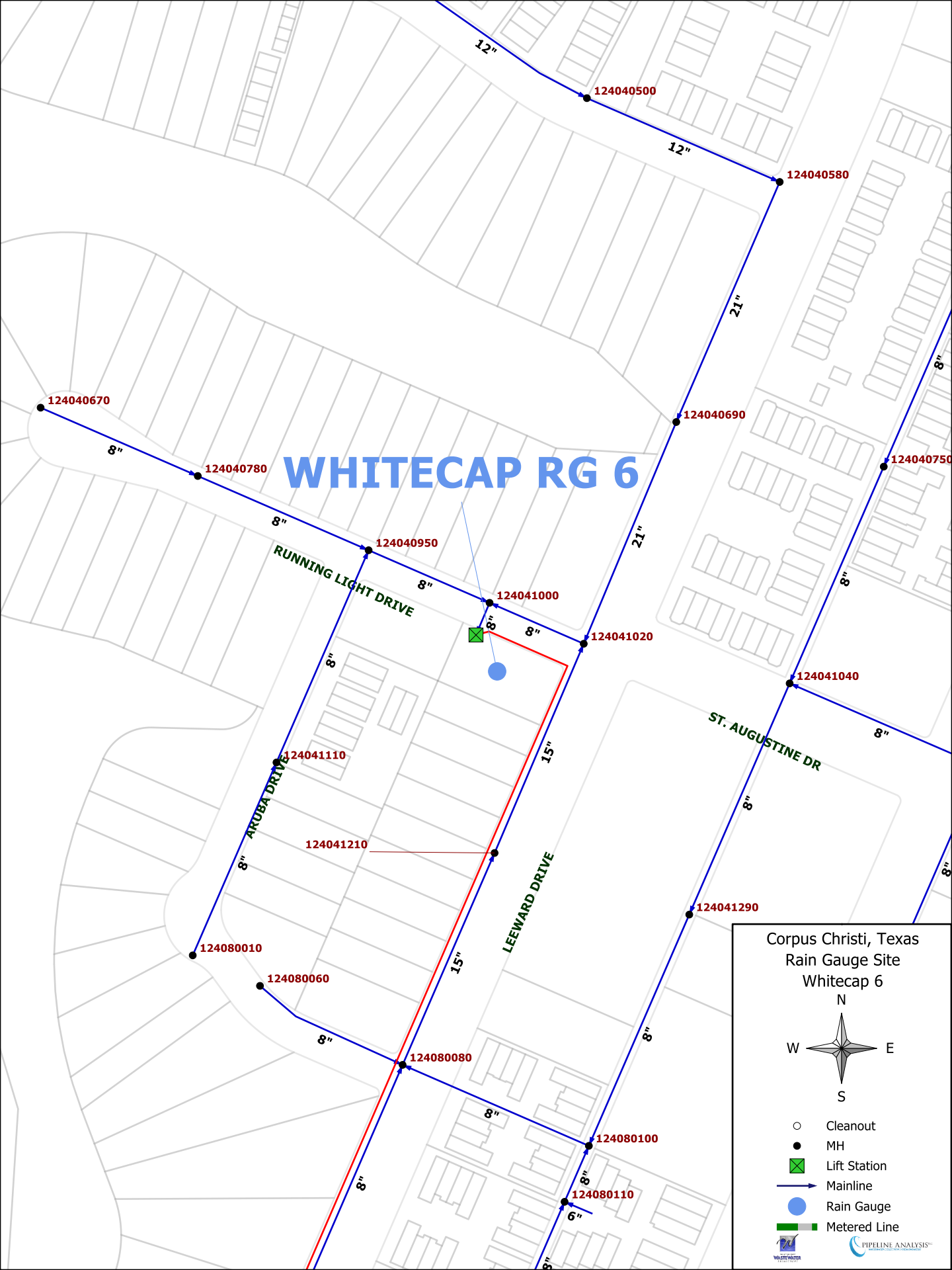
LAGUNA MADRE RG 1
LYNDA LEE DRIVE
JAMAICA DRIVE
SWEET BAY DRIVE
ALISA ANN DRIVE
YORKTOWN BOULEVARD
GULFTON DRIVE
PORTSMOUTH
BROMPTOM DRIVE
PERTHSHIRE DR
112162090
112162400
112162800
112163430
112163740
112164220
112164480
112164880
112165430
112165790
112165820
112165780
112165770
112165920
112165990
112166050
112166120
112166340
112166480
112166450
112166530
112166520
8"
15"
Corpus Christi, Texas
Rain Gauge Site
Laguna Madre 1
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line
PIPELINE ANALYSIS

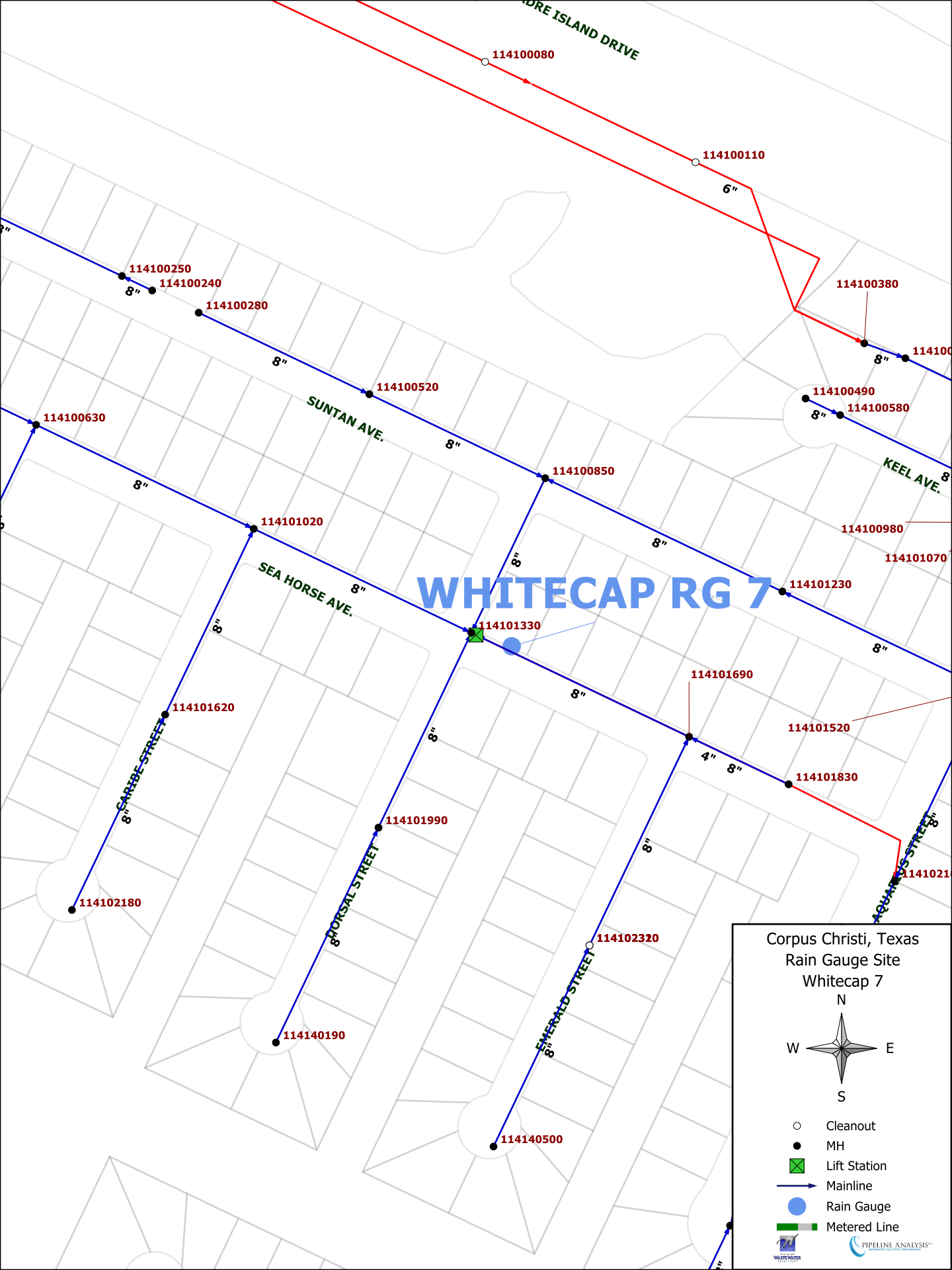

112040320
MATTHEW DR
112040530
112041020
8"
112040600
112040660
112040740
SAXONY DRIVE
SUSSEX DRIVE
112040980
CASTLE PARK
112041310
112040880
112041390
112041460
10"
112041660
112041720
112041790
LOMBARDY DRIVE
LYNN STREET
112042040
PURDUE ROAD
112042170
112042240
112042190
112042270
112042290
112042310
112042330
112042360
112042340
LAGUNA MADRE RG 2
6"
HUSTLIN HORNE
112043070
112043270
Corpus Christi, Texas
Rain Gauge Site
Laguna Madre 2
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line


LAGUNA MADRE RG 3
Corpus Christi, Texas
Rain Gauge Site
Laguna Madre 3
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line
SKY CREST DRIVE
OAK CREST COURT
PURDUE ROAD
FLOUR BLUFF DRIVE
FURGALE DRIVE
102152320
102152530
102152600
102152440
102152441
102152510
102152810
112030210
112030250
112030420
112030540
112030870
112030180
10"
8"
12"
15"
14"
24"
6"

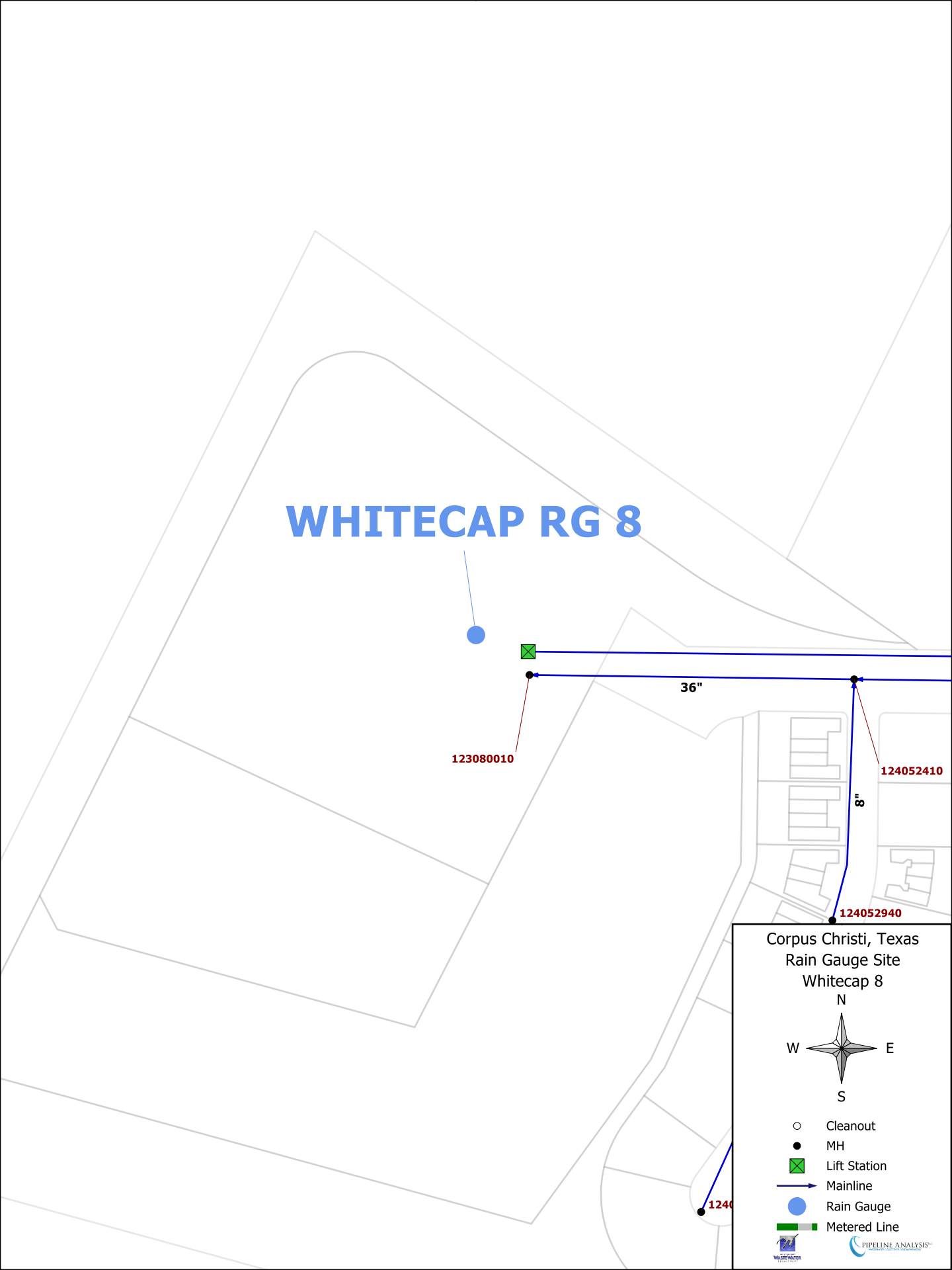

LAGUNA MADRE RG 4
103050050
SKIPPER LANE 8"
103060230
10"
103060280
10"
103060300
10"
10"
8"
103060290
8"SKIPPER LANE
8"
103060350
8"
103050240
103050230
10"
JESTER STREET
10"
MILITARY DRIVE
15"
103100010
103100040
8"
103090150
8"
103100080
SCOTLAND STREET 8"
15"
103090270
8" WEBB STREET
15"
Corpus Christi, Texas
Rain Gauge Site
Laguna Madre 4
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line


WHITECAP RG 5
Corpus Christi, Texas
Rain Gauge Site
Whitecap 5
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line
124107300
124107270
124107390
124107250
124140140
124140020
124140280
124140420
124140590
124140800
124141070
124141161
124141160
124141400
124141390
124141550
124141590
124141840
124141910
124141950
124142090
124142330
124142360
SOTO DR.
COQUINA BAY DR.
LA BLANQUILLA DR.
PALO SECO DRIVE
NAVIGATION CHANNEL
PUNTA BONAIRE DR.
CARO BLANCO DR.
NATAL
BEAN
ALVINE STREET
8"
6"

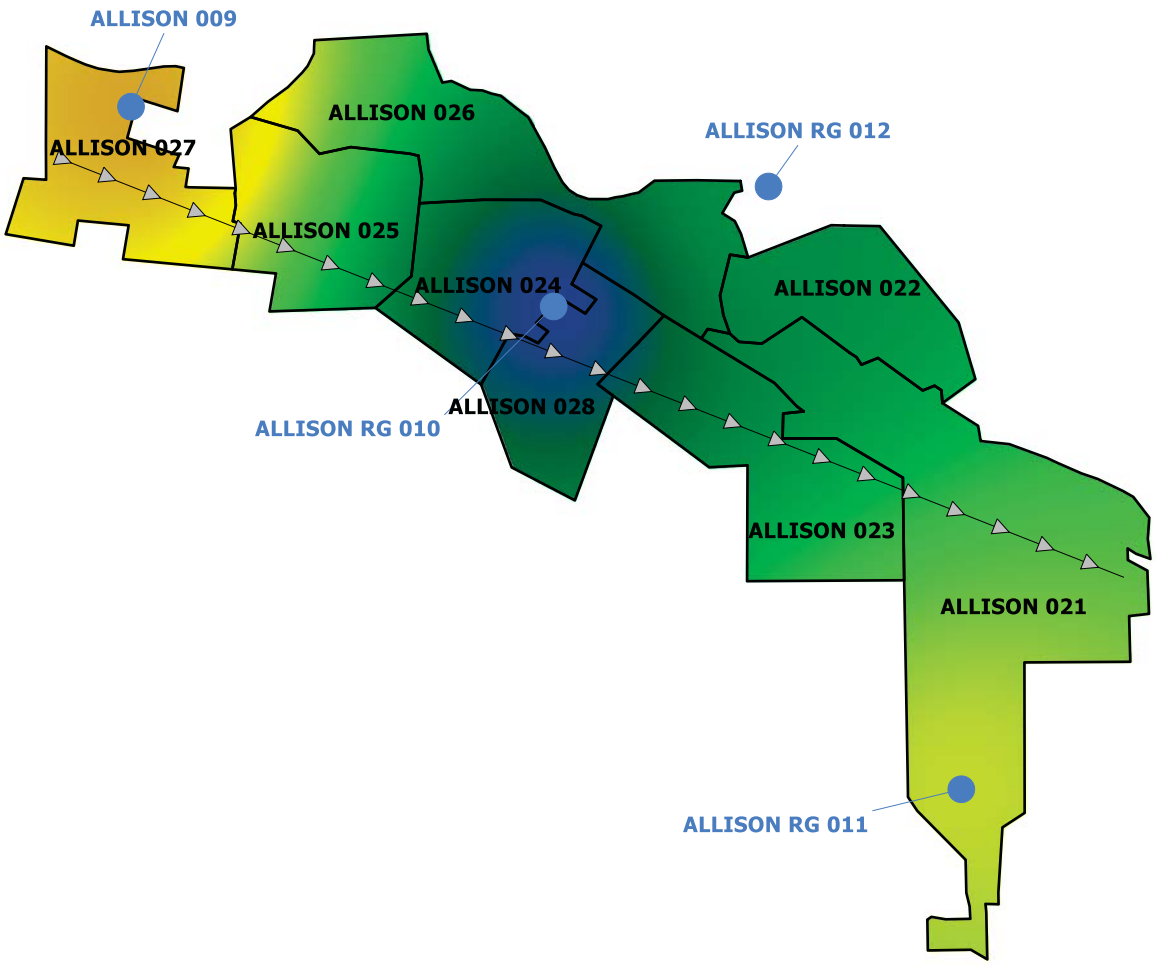

WHITECAP RG 6
124040500
124040580
124040670
124040780
124040690
124040750
124040950
124041000
124041020
124041040
124041110
124041210
124041290
124080010
124080060
124080080
124080100
124080110
12"
21"
8"
15"
6"
RUNNING LIGHT DRIVE
ARUBA DRIVE
LEEWARD DRIVE
ST. AUGUSTINE DR
Corpus Christi, Texas
Rain Gauge Site
Whitecap 6
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line
PIPELINE ANALYSIS

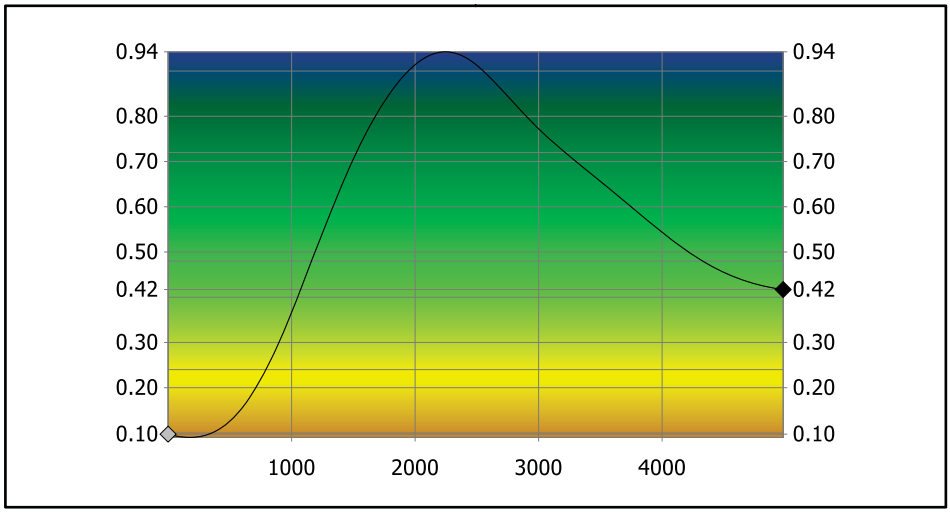


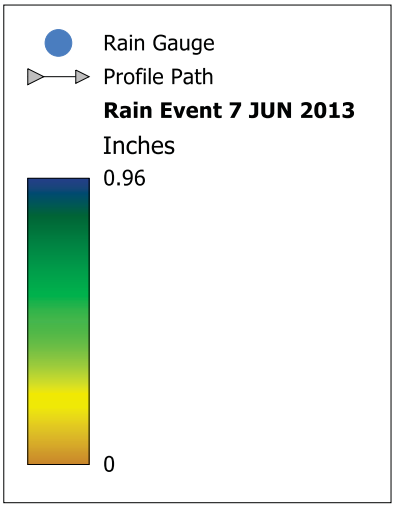
WHITECAP RG 7
ISLAND DRIVE
114100080
114100110
6"
114100380
114100250
114100240
8"
114100280
114100520
SUNTAN AVE.
114100490
114100580
KEEL AVE.
114100630
114100850
114101020
114100980
114101070
SEA HORSE AVE.
114101230
114101330
114101690
114101520
114101620
CARIBE STREET
4"
114101830
114101990
HORSAL STREET
114102180
114102320
EMERALD STREET
114140190
114140500
Corpus Christi, Texas
Rain Gauge Site
Whitecap 7
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line
PIPELINE ANALYSIS


WHITECAP RG 8
36"
123080010
124052410
8"
124052940
Corpus Christi, Texas
Rain Gauge Site
Whitecap 8
N
W
E
S
Cleanout
MH
Lift Station
Mainline
Rain Gauge
Metered Line

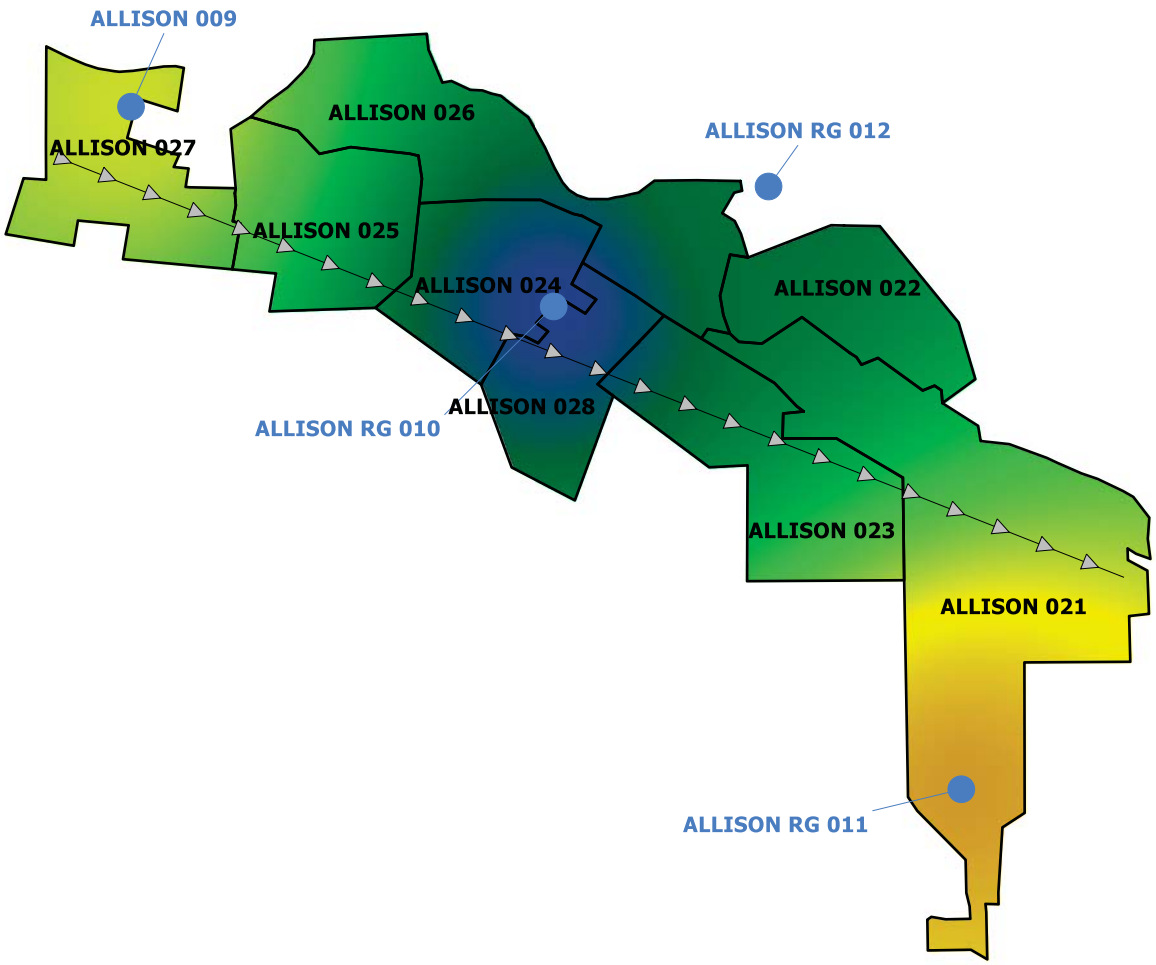
Corpus Christi, Texas
Allison Service Area

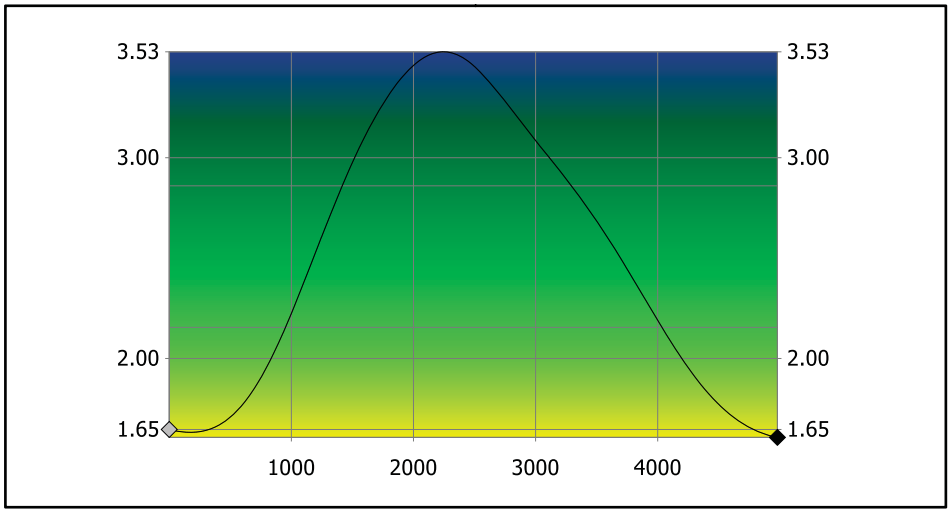


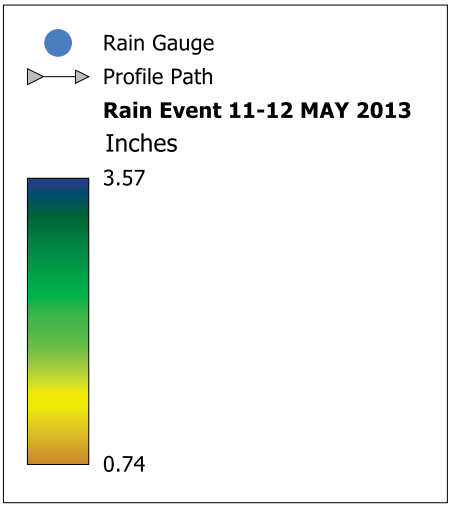




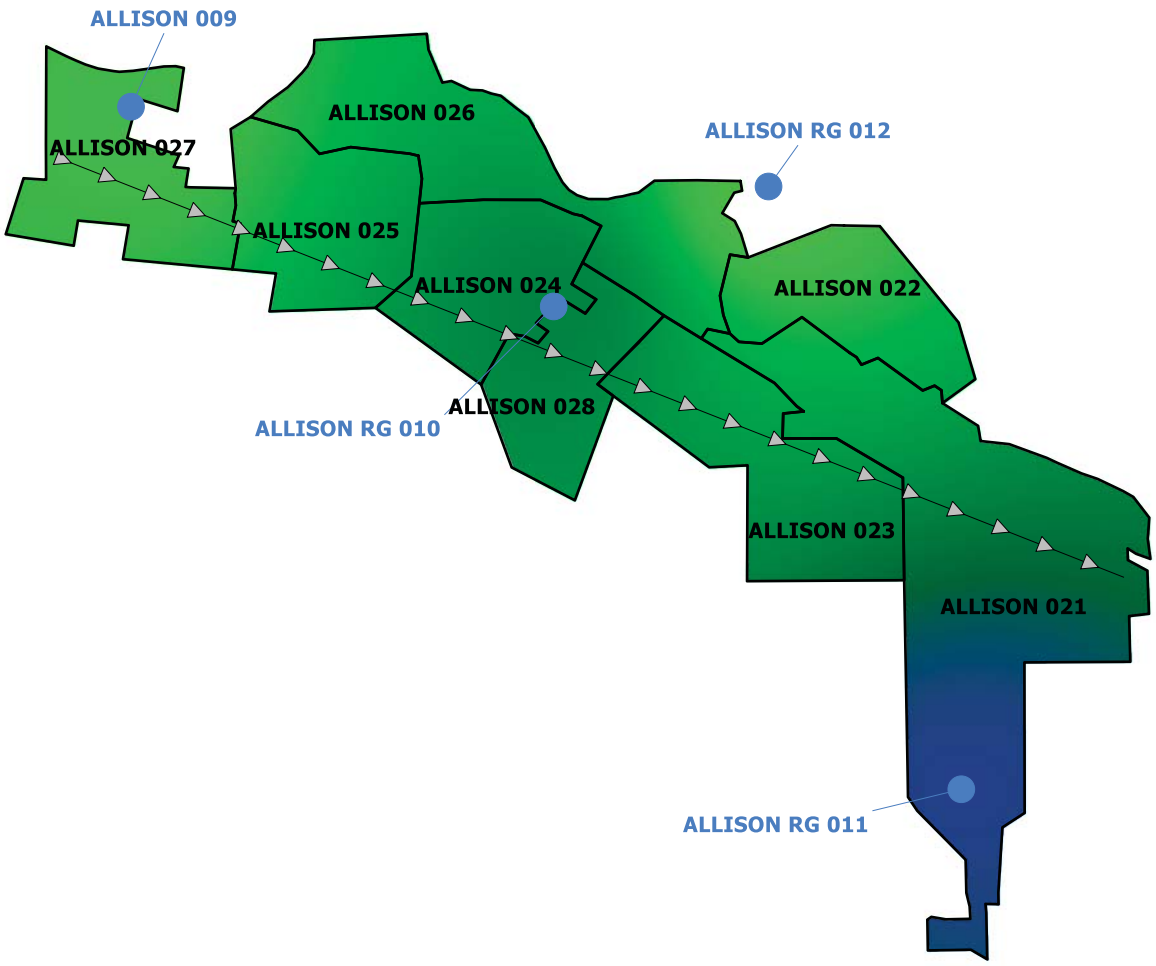
Corpus Christi, Texas
Allison Service Area

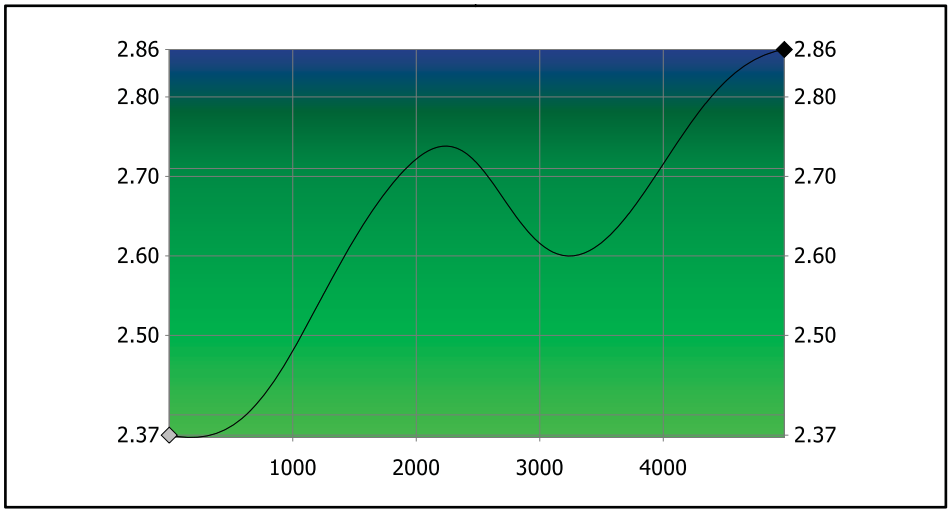


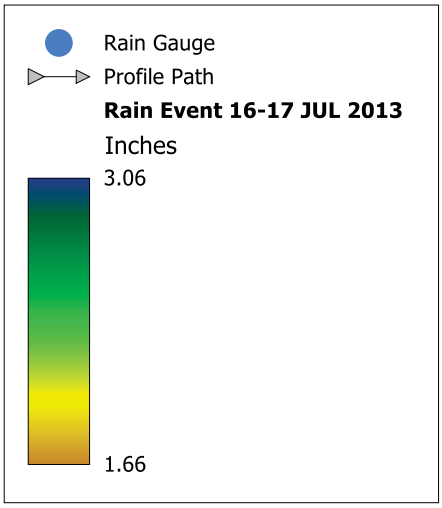




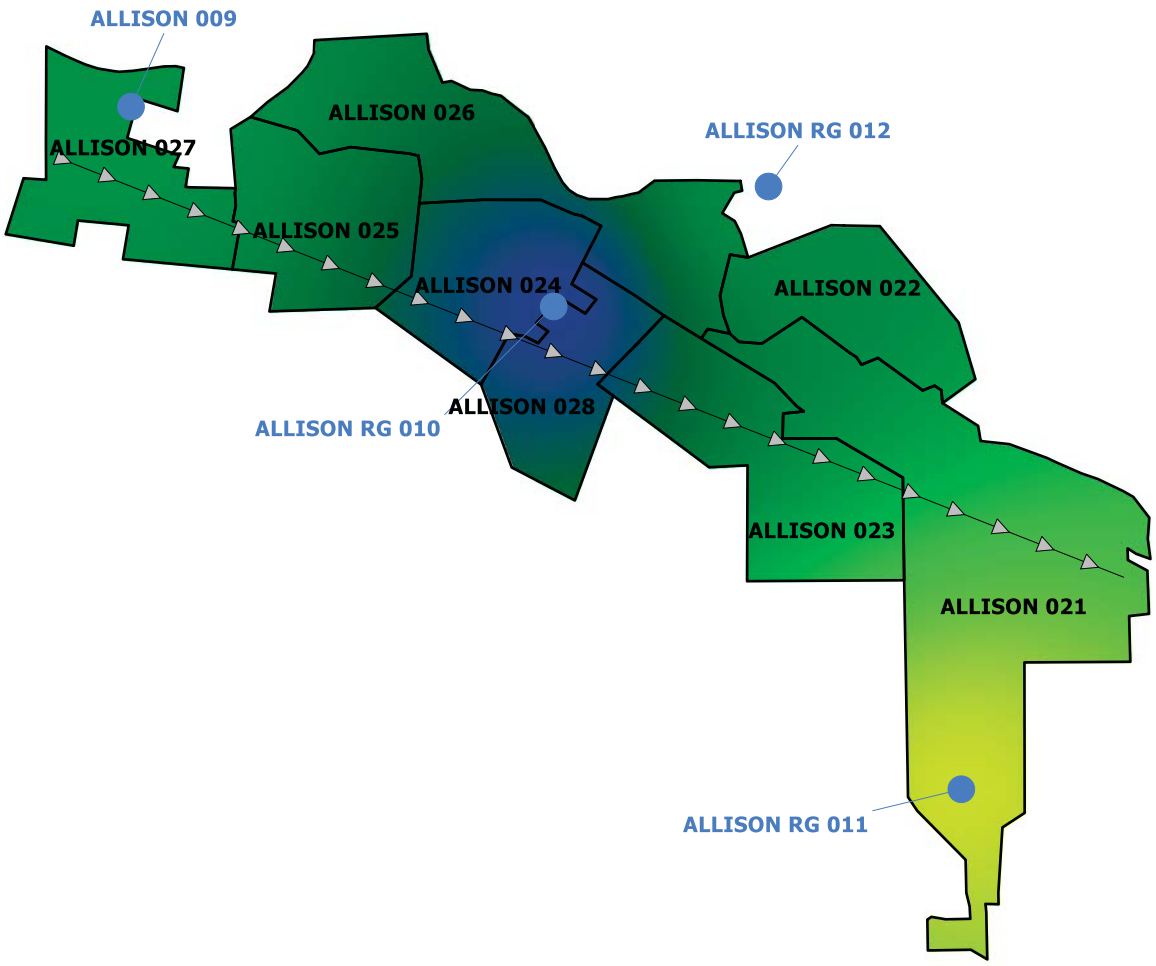
Corpus Christi, Texas
Allison Service Area

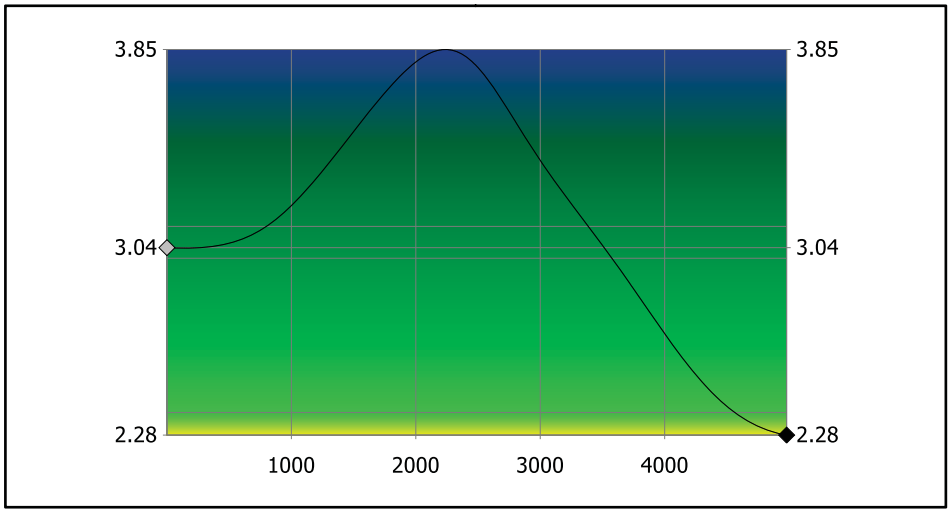


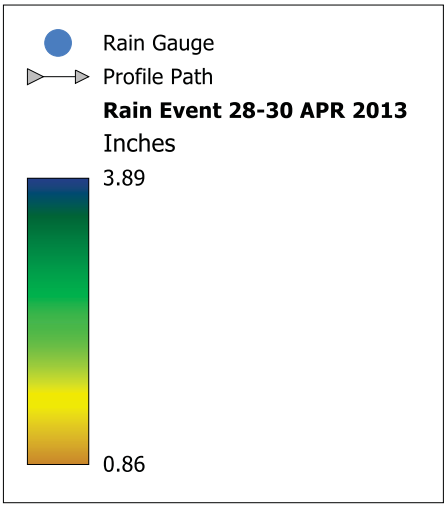




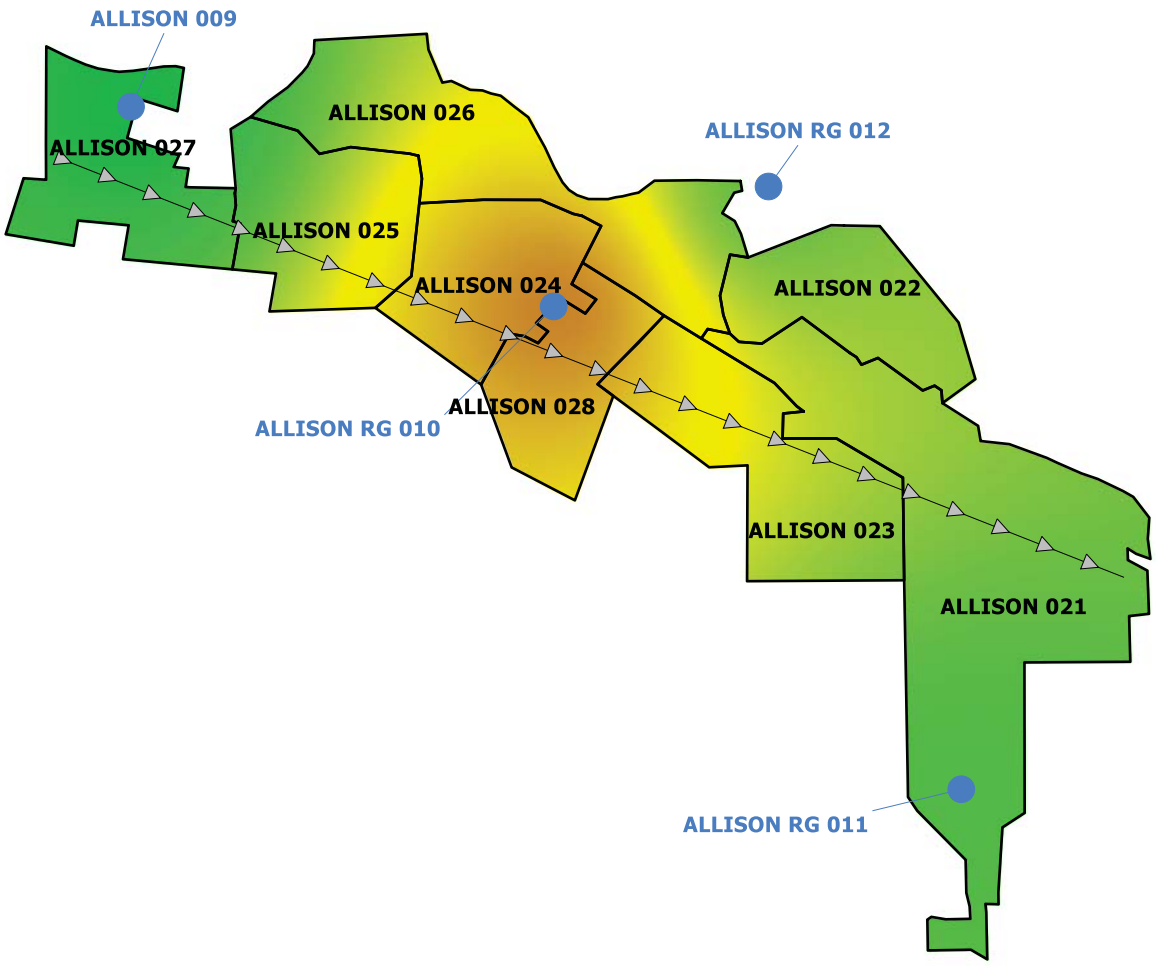
Corpus Christi, Texas
Allison Service Area

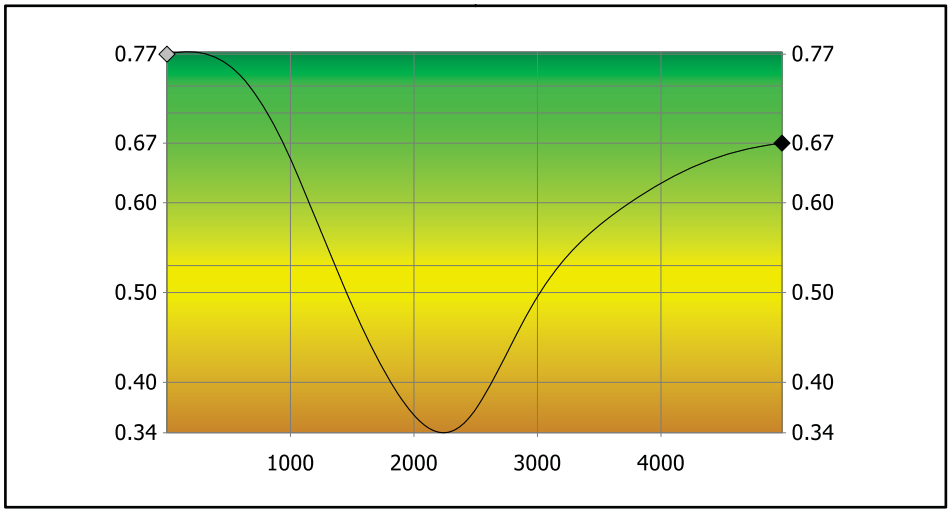


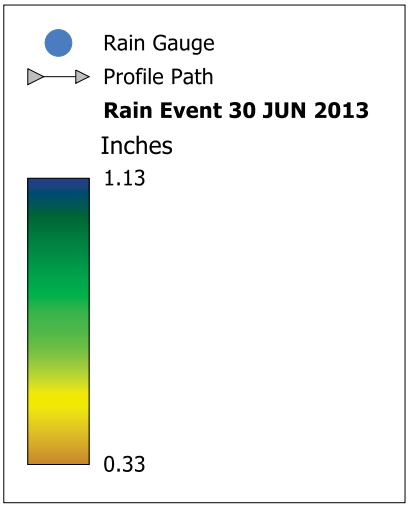




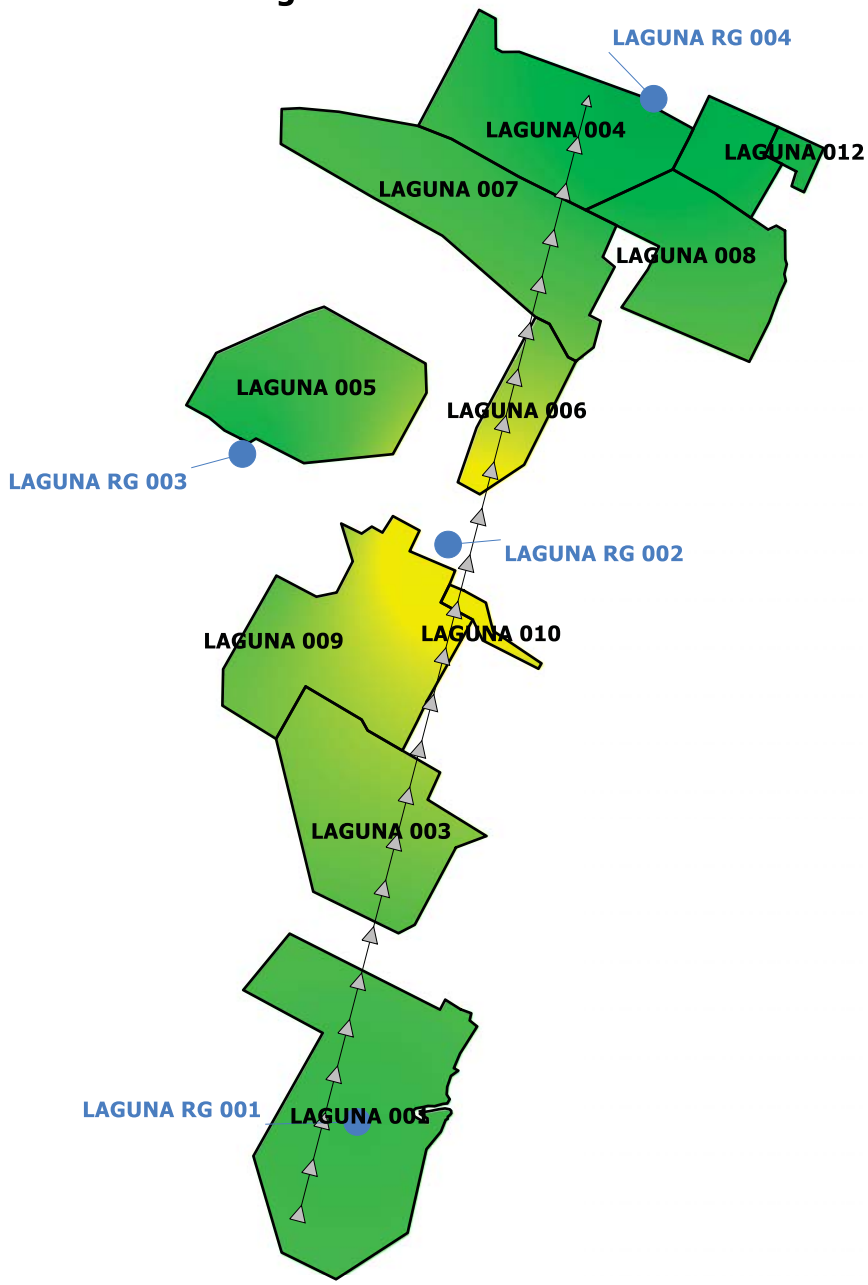
Corpus Christi, Texas
Allison Service Area

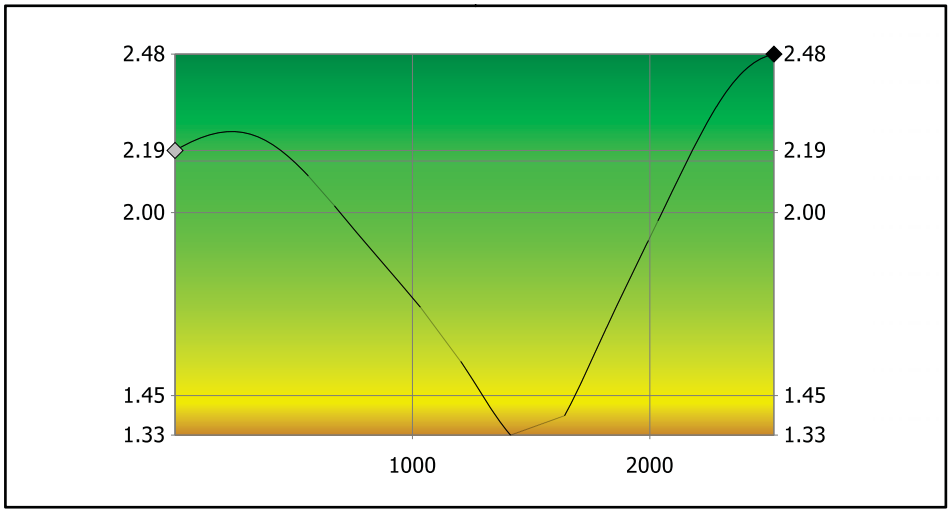


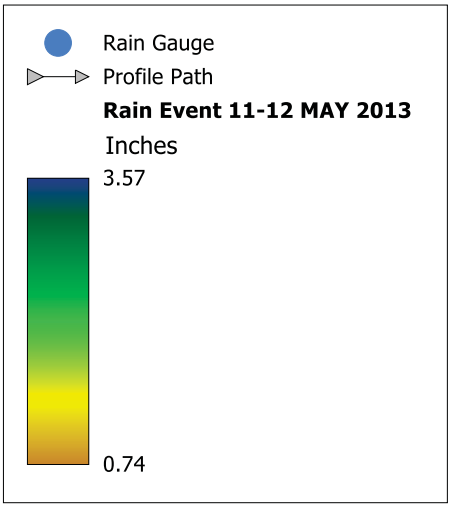




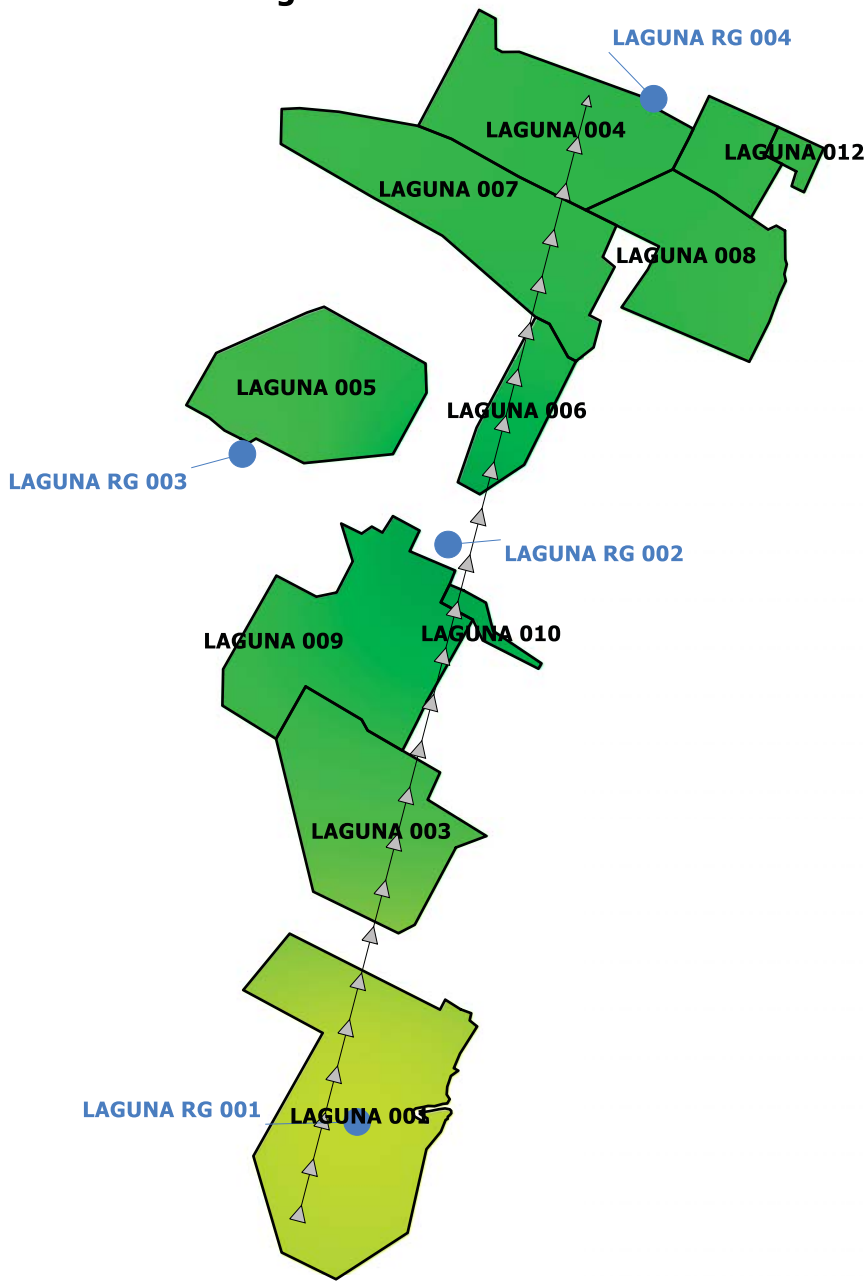
Corpus Christi, Texas
Laguna Service Area

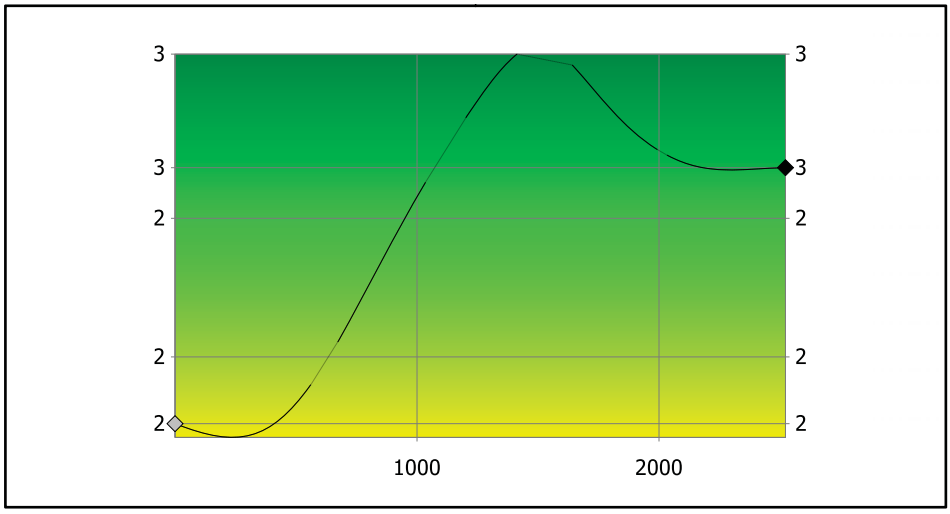


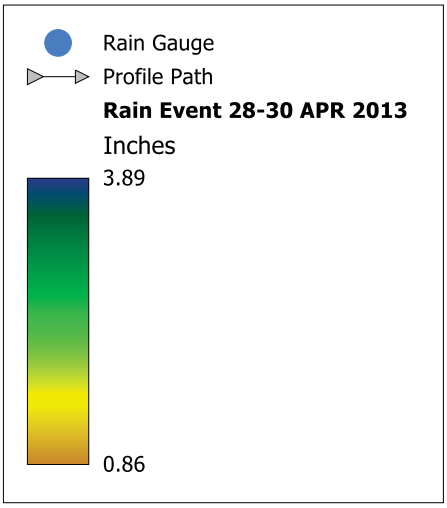




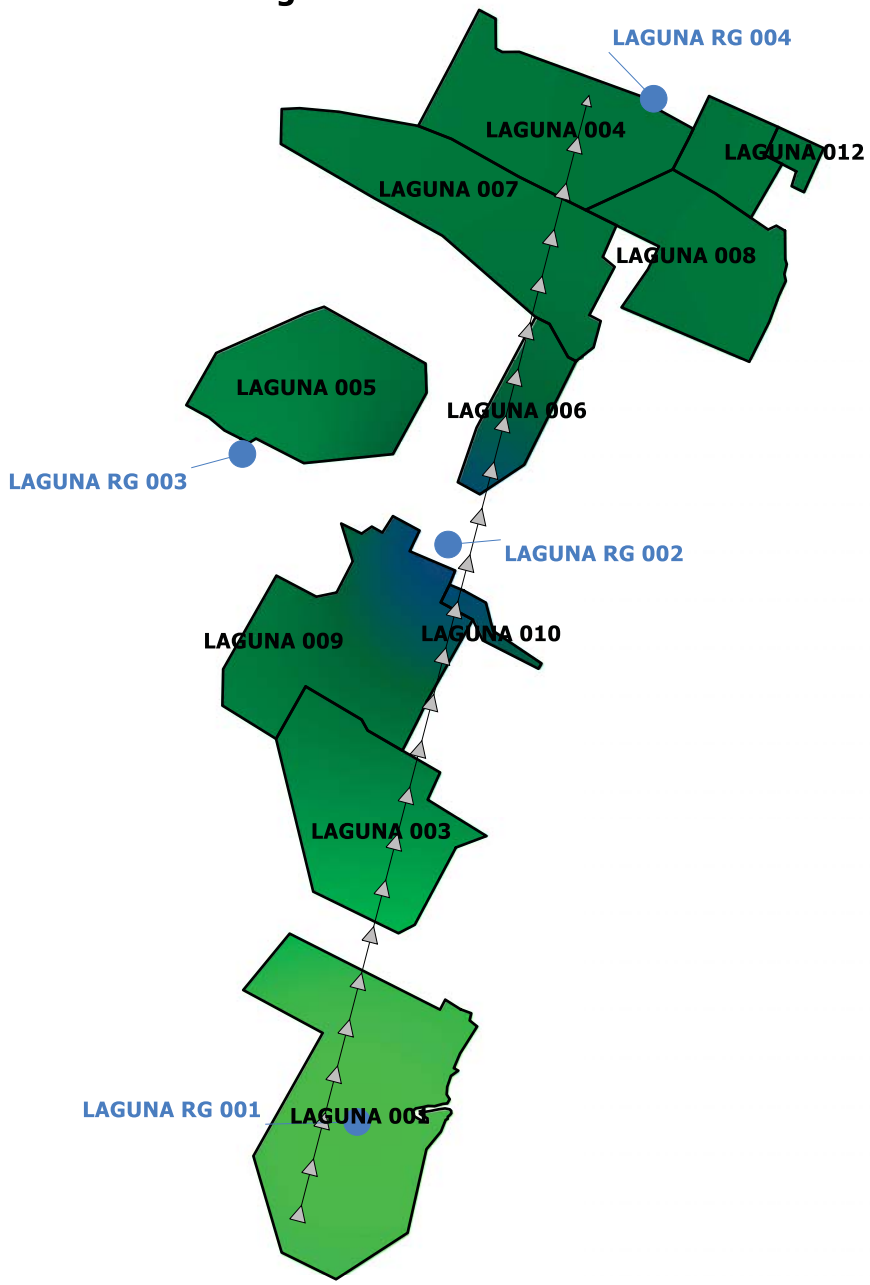
Corpus Christi, Texas
Laguna Service Area

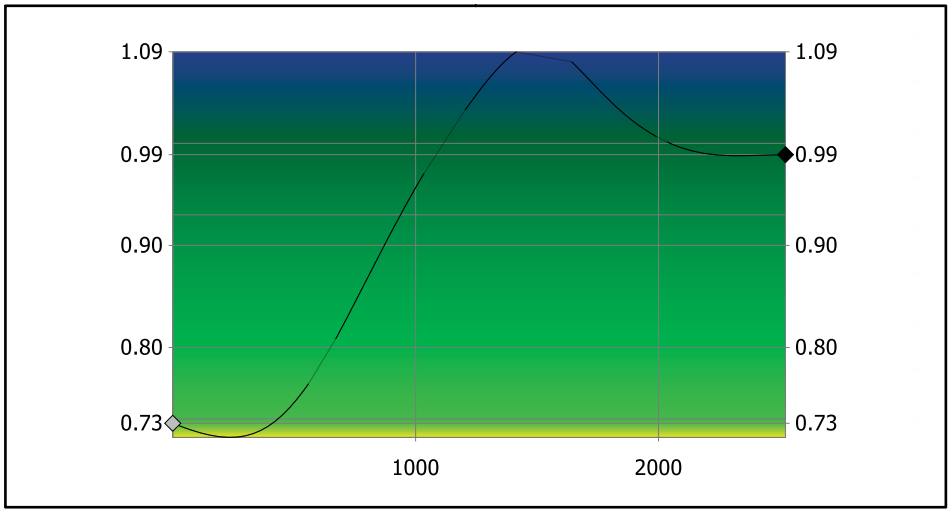


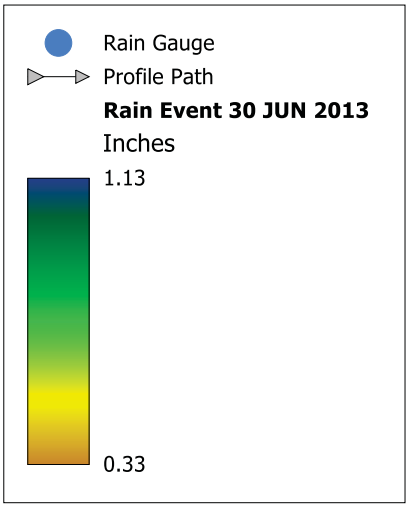




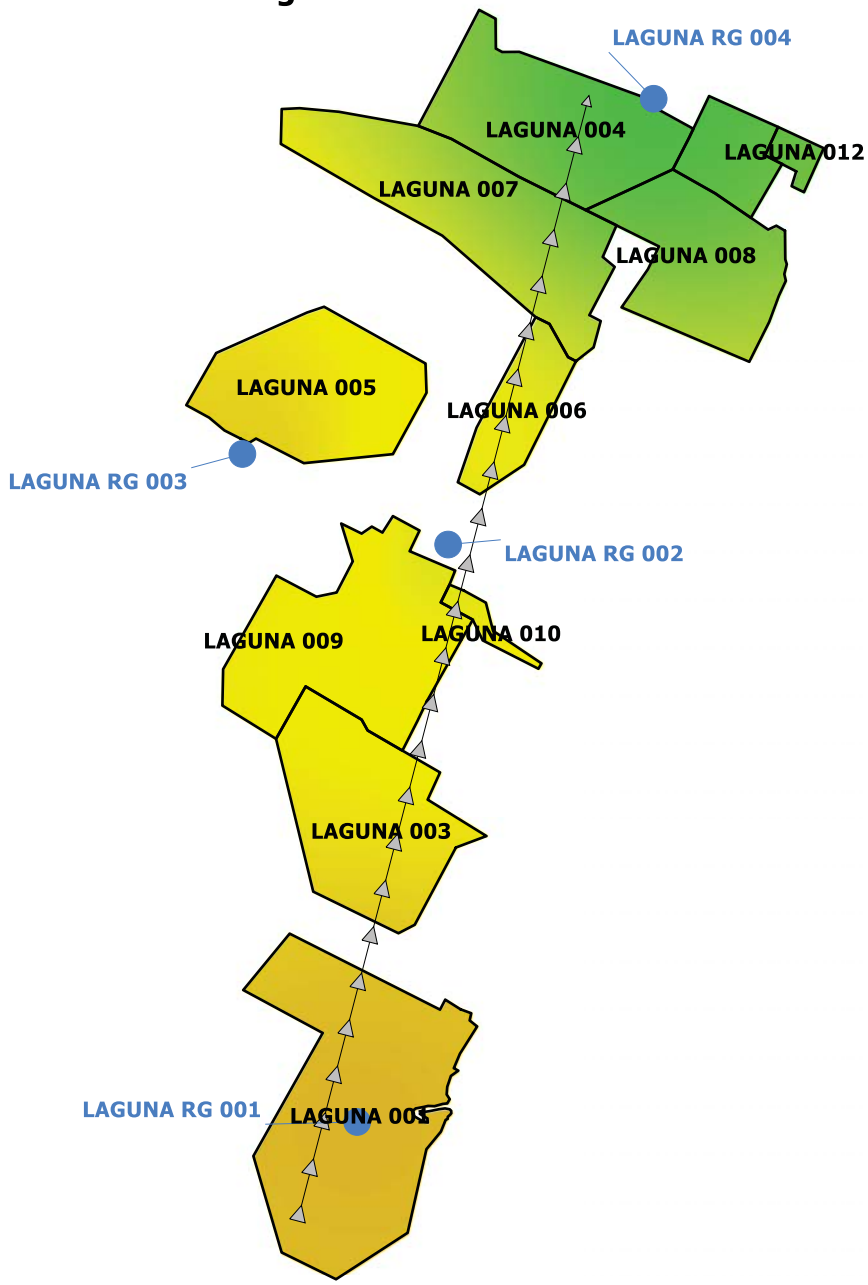
Corpus Christi, Texas
Laguna Service Area

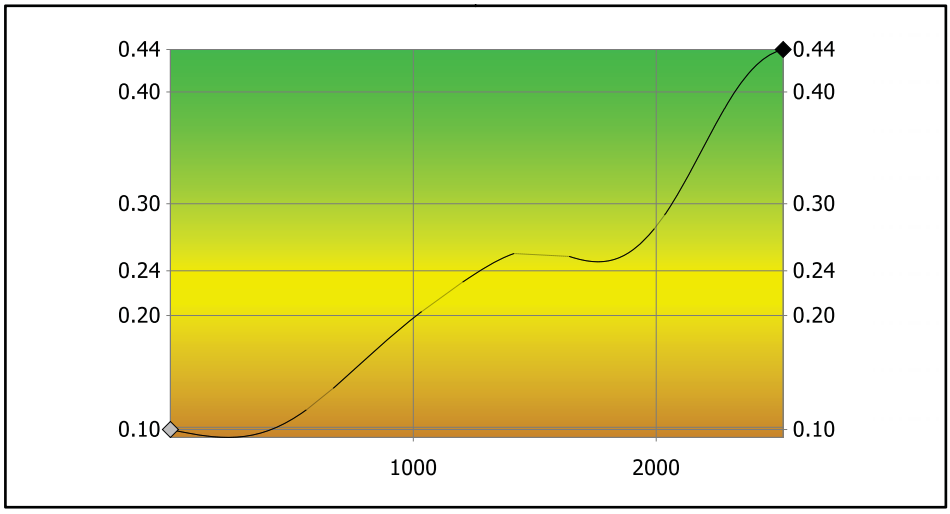


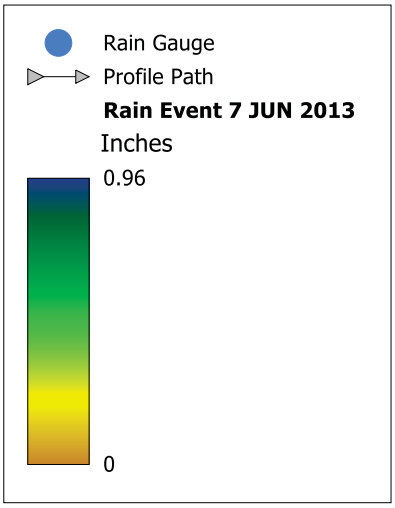




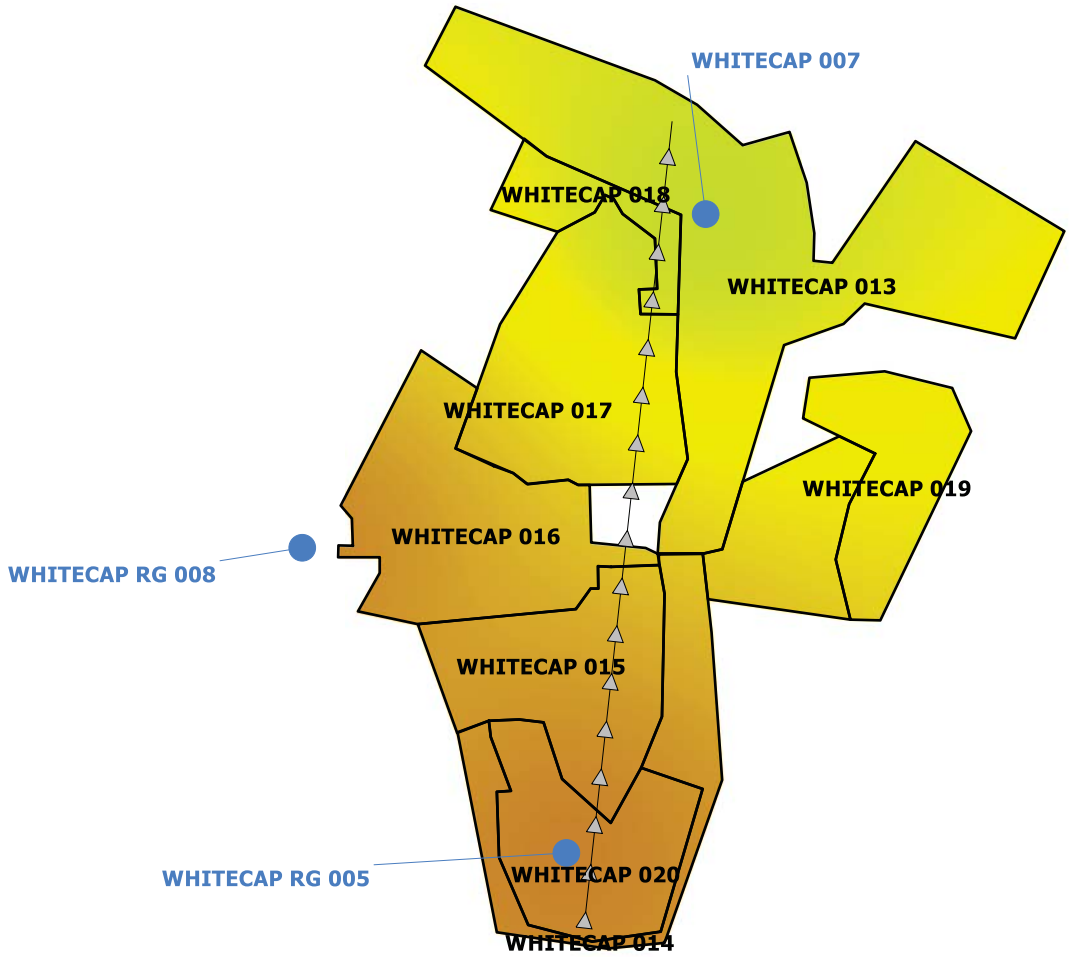
Corpus Christi, Texas
Laguna Service Area

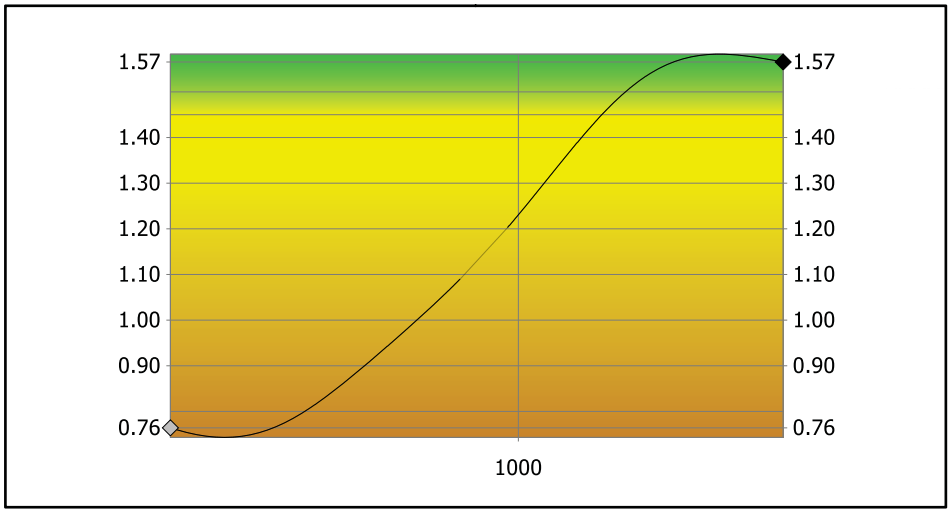


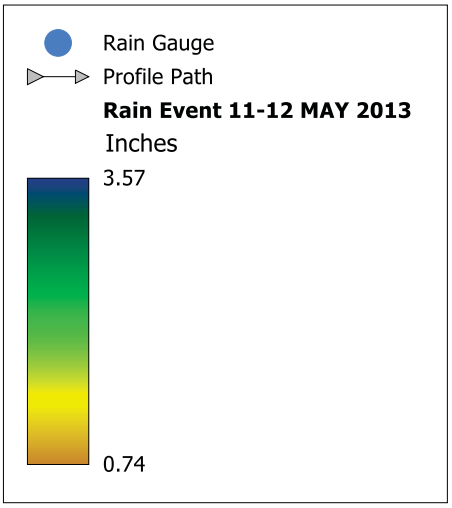




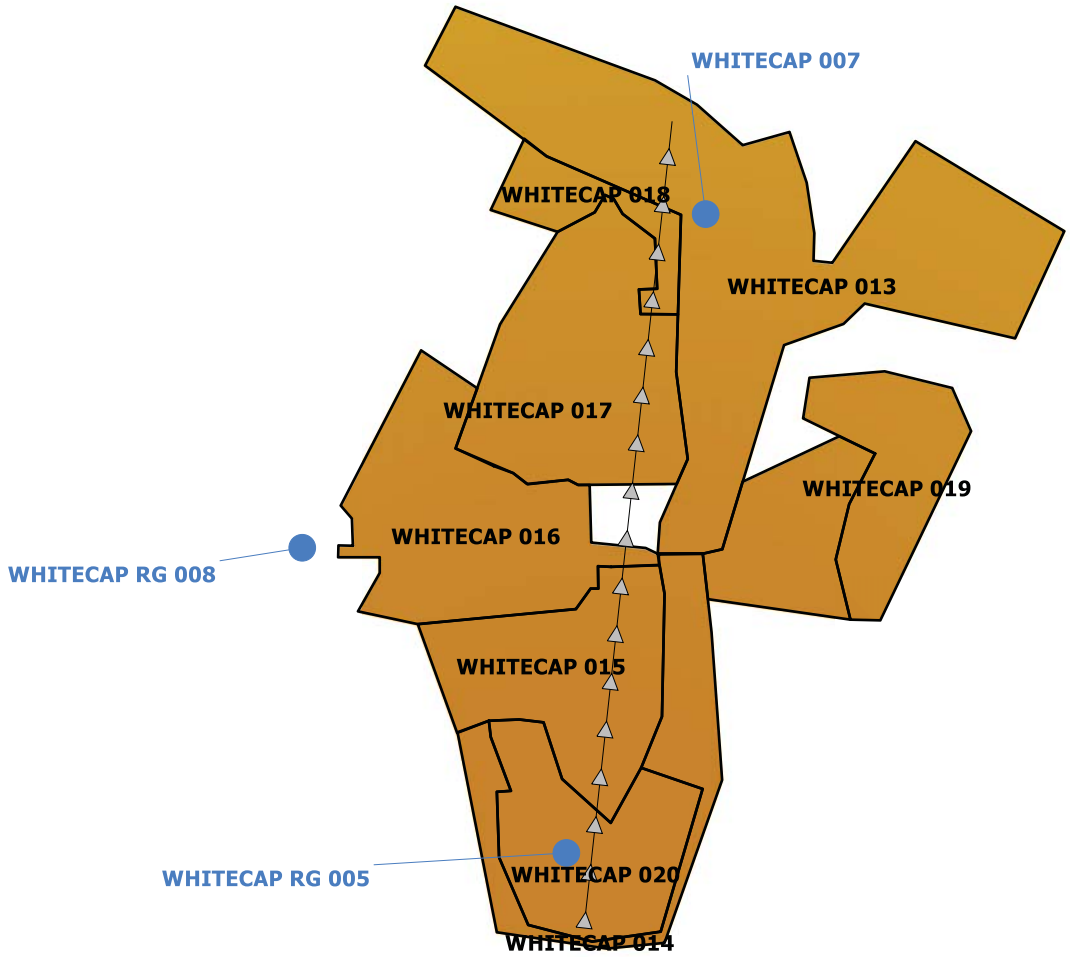
Corpus Christi, Texas
Whitecap Service Area

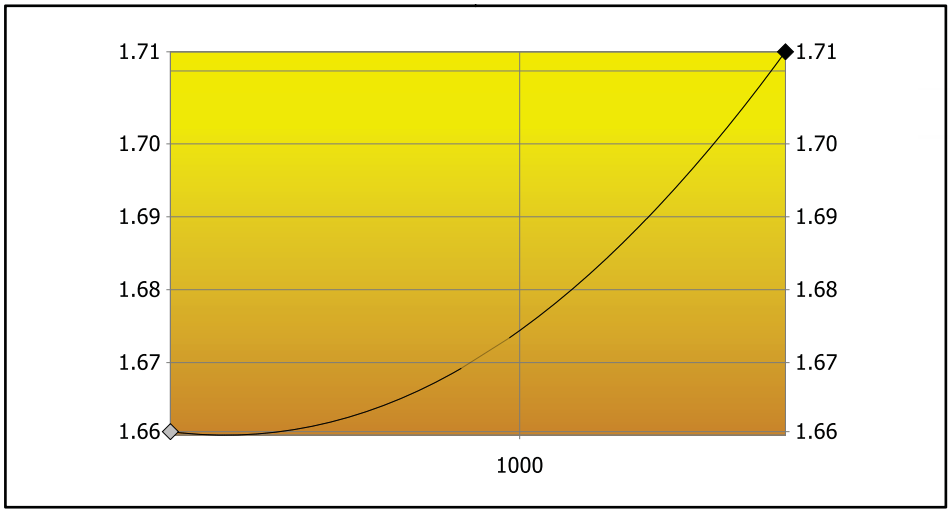


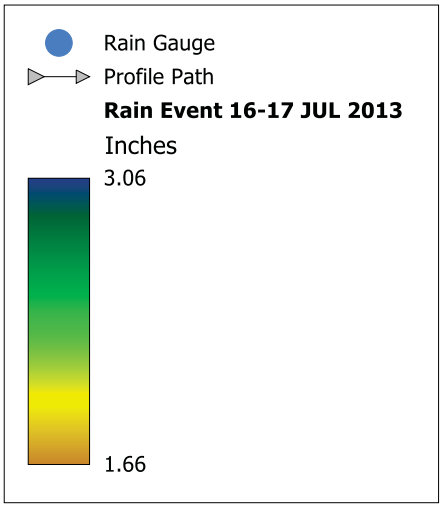




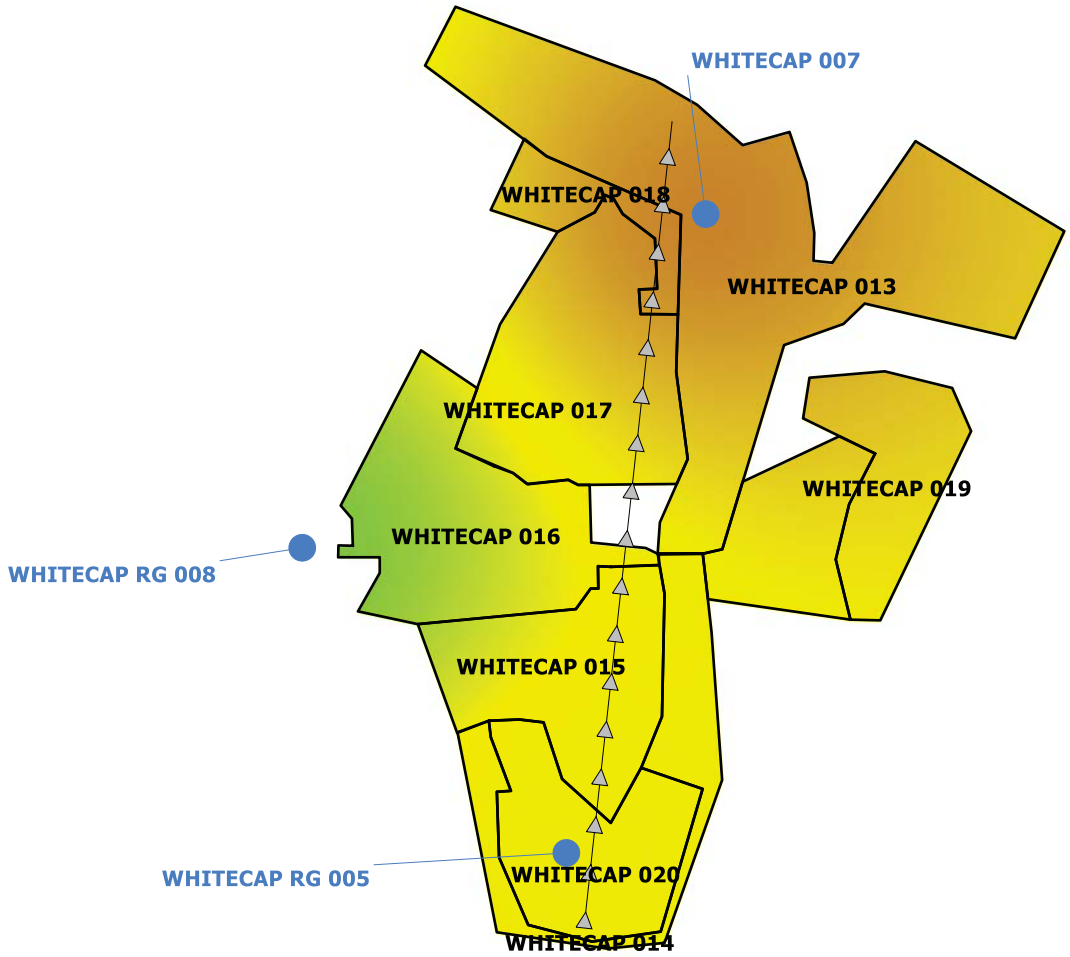
Corpus Christi, Texas
Whitecap Service Area

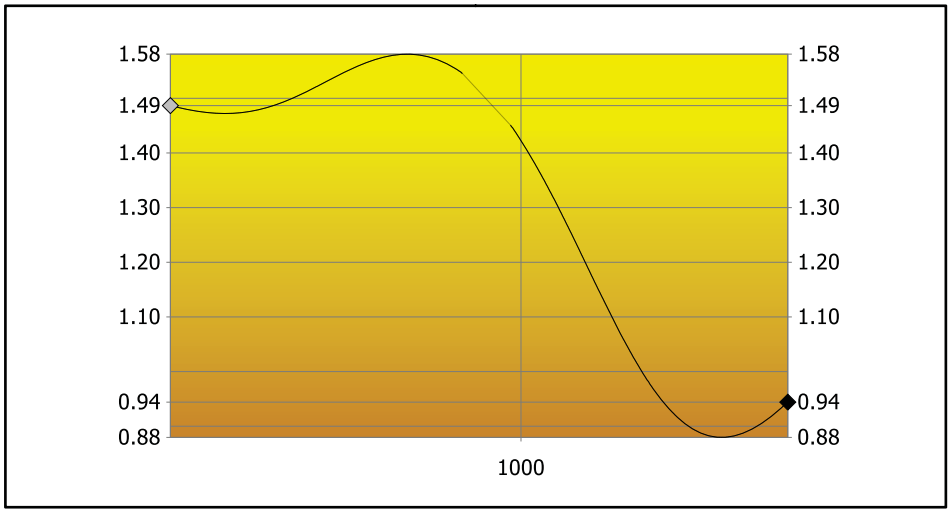


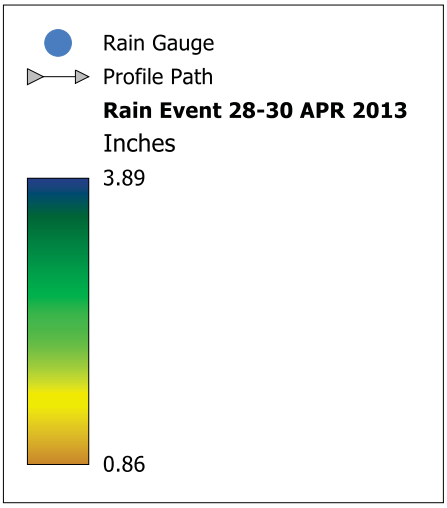




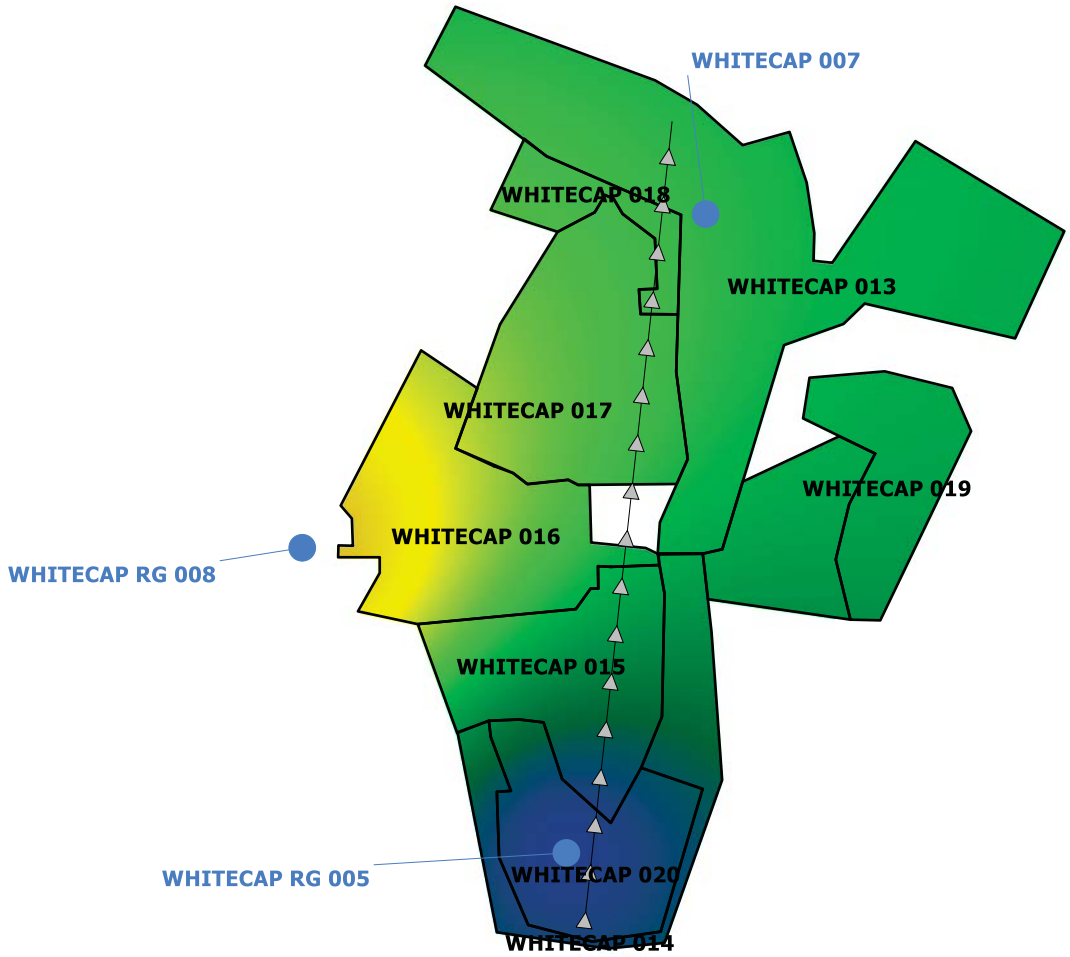
Corpus Christi, Texas
Whitecap Service Area

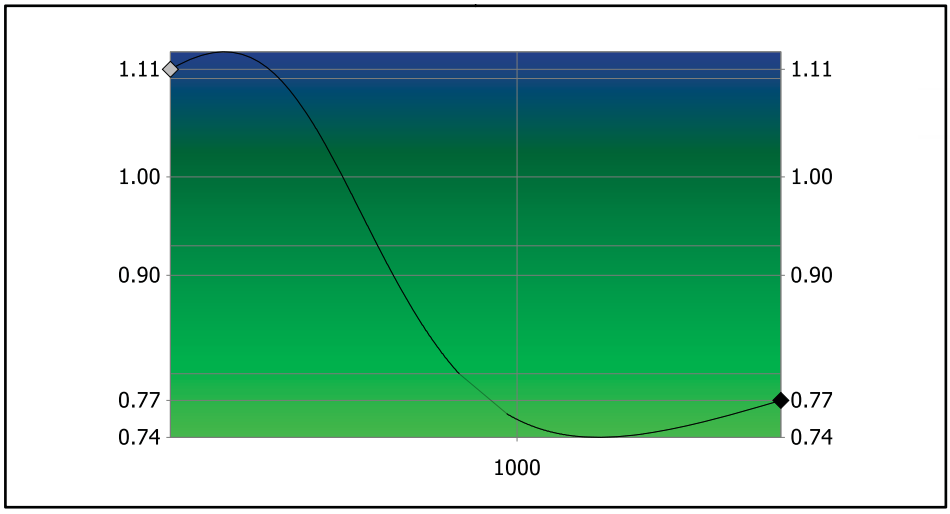


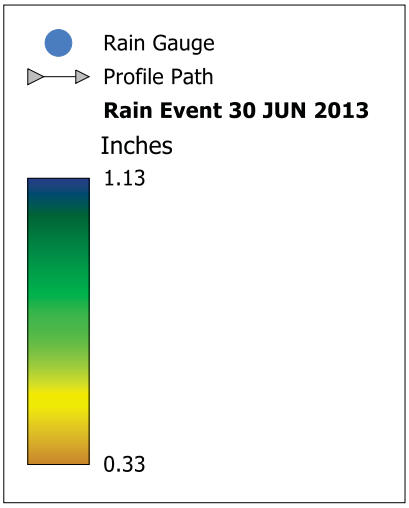
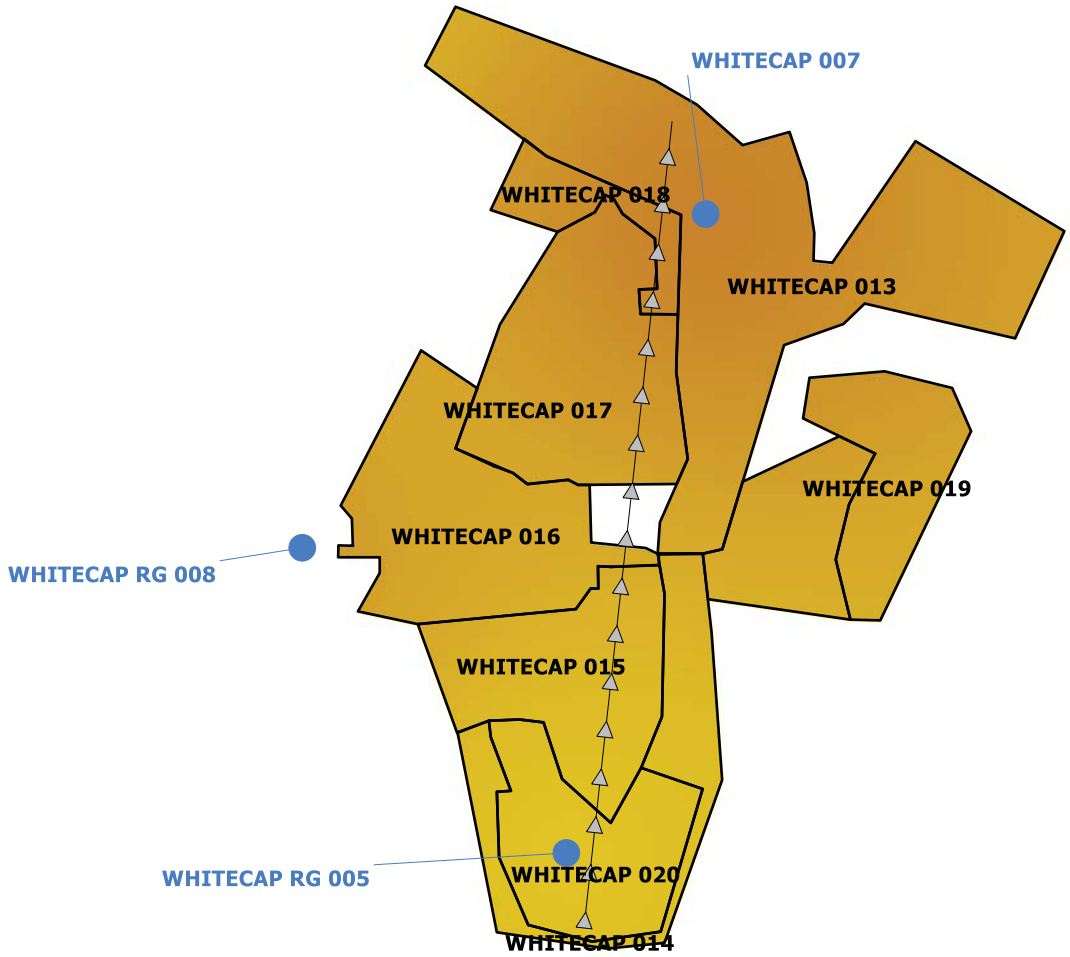
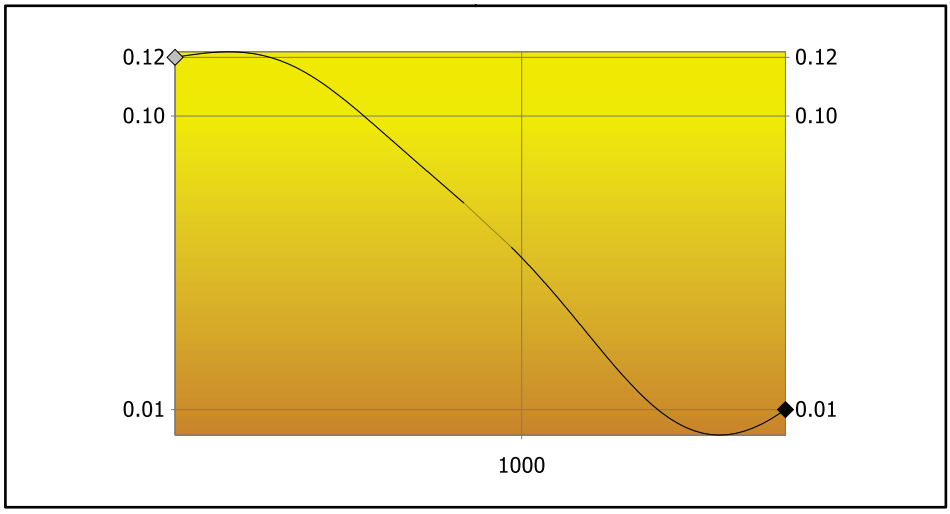
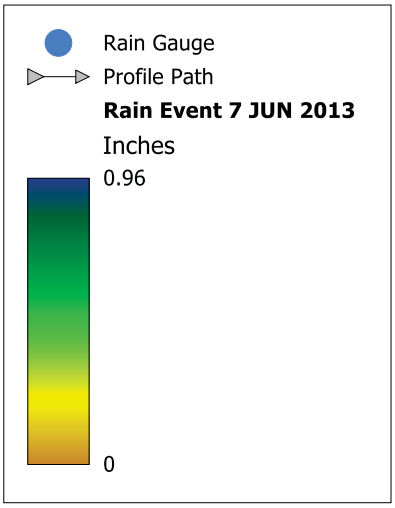




Corpus Christi, Texas
Whitecap Service Area







Corpus Christi, Texas
Whitecap Service Area