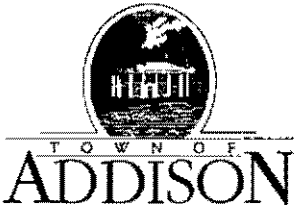


2005 TRINITY RIVER AUTHORITY 13-1E
METER - HI FLOW

Dec

Addison 50!



OFFICE OF THE CITY MANAGER

50 YEARS OF FUN!

(972) 450-7000 • FAX (972) 450-7043

Post Office Box 9010 Addison, Texas 75001-9010

5300 Belt Line Road

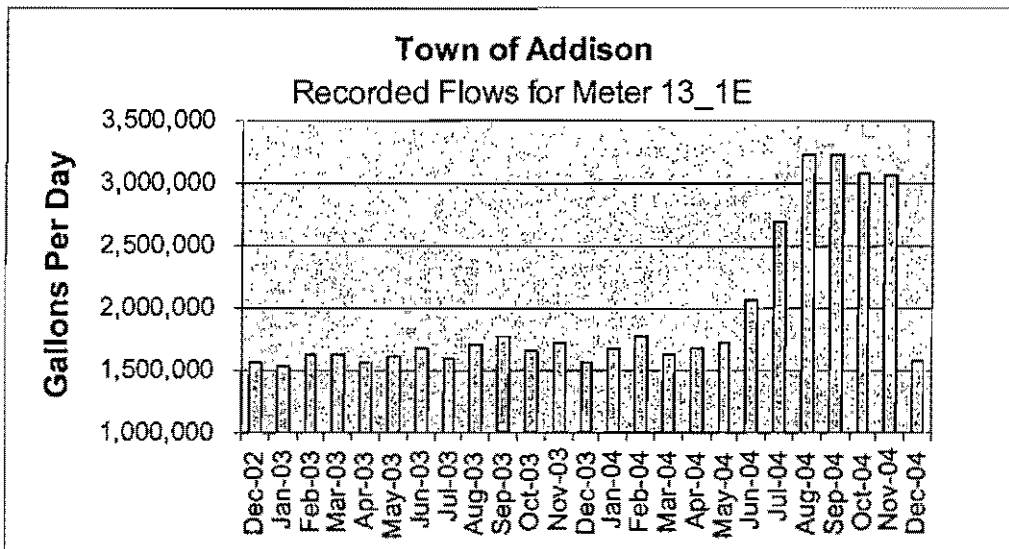
February 22, 2005

Mr. Warren N. Brewer
Regional Manager, North Region
Trinity River Authority of Texas
P.O. Box 240
Arlington, TX 76004-0240

Dear Mr. Brewer:

I am writing you to ask for your assistance in resolving an issue Addison has with the flow recorded by one of the meters measuring wastewater effluent going into the TRA system. The following are the circumstances, as I understand them.

1. Our primary meter located on Marsh Lane and identified by TRA as 13_1E had through 2003 and much of 2004 relatively consistent flows as represented by the chart below:



2. In July 2004, the meter began registering flows 20% to 30% greater than had ever been recorded before. Your technicians contacted our staff and told them the meter was giving a suspect reading and they would "average" the readings until such time the meter could be calibrated. I do not know how this "average" was calculated, but at 3.2 million gallons a day, it was almost double the true average of flows from December 2002 through May 2004.
3. The meter was apparently calibrated twice in October. The meter continued to record

4. High flows until late November when flows returned to normal.
5. From July 2004 through November 2004, our utility crews conducted extensive inspection of wastewater lines and manholes and were unable to detect any additional wastewater flow that would explain the higher meter readings.
6. The TRA meter immediately downstream of the Addison meter was not properly functioning during the period in question and therefore cannot be used to validate the additional flows recorded by the Addison meter.

I am very concerned with this issue. First, the high meter readings may increase the Town's payment to TRA by at least \$175,000 and that is before any surcharge penalty that may be levied by TRA. These additional charges would significantly impact our Utility Fund and could cause us to raise wastewater rates to our customers. Second, Addison has taken extensive efforts to reduce our flow into the TRA system. Over the past four years we have sliplined over 14,000 linear feet of sewer line to reduce inflow and infiltration into the system. It would be unfortunate that this investment in our lines could be frustrated by aberrant meter readings.

I believe there is sufficient doubt regarding the accuracy of the readings to warrant a thorough review by TRA and Addison. I would like to arrange to meet with you and your staff to discuss this issue and resolve the matter prior to the annual "settle up" which will occur later this year and impact all member cities.

I look forward to hearing from you and arranging a meeting at your earliest convenience. Please call me direct at 972-450-7028.

Sincerely,

A handwritten signature in black ink, appearing to read "Ron Whitehead". The signature is written in a cursive, flowing style.

Ron Whitehead
City Manager

To Randy
from Jim Preece

My Comments
7065

704
December Flow
1,586,000 gal per day
you could
show that
here

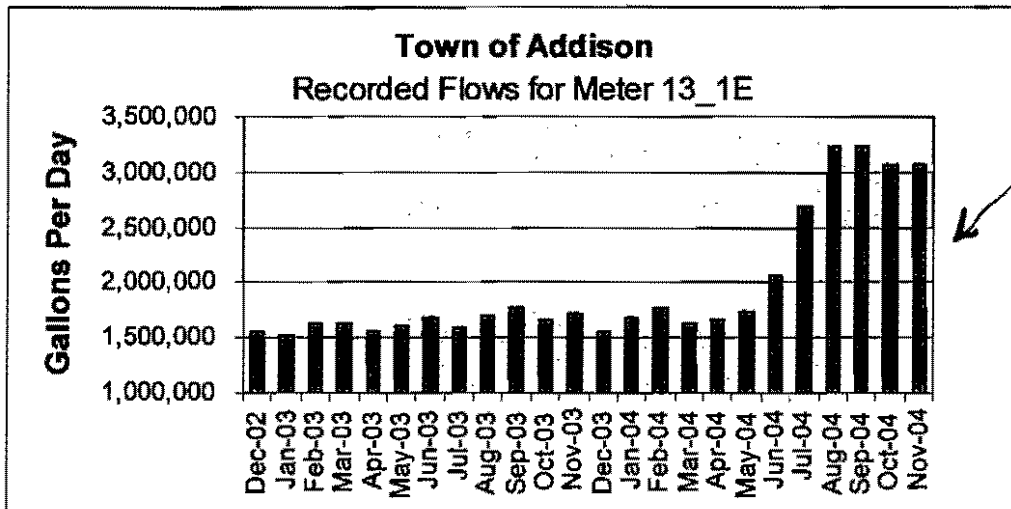
February 10, 2005

Warren N. Brewer
Regional Manager, North Region
Trinity River Authority of Texas
P.O. Box 240
Arlington, TX 76004-0240

Dear Mr. Brewer:

I am writing you to ask for your assistance in resolving an issue Addison has with the flow recorded by one of the meters measuring wastewater effluent going into the TRA system. The following are the circumstances, as I understand them.

1. ^{our} ~~of~~ primary meter located on Marsh Lane and identified by TRA as 13_1E had through 2003 and much of 2004 relatively consistent flows as represented by the chart below:



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3. The meter was apparently calibrated twice in October. The meter continued to record high flows until late November when flows returned to normal.
4. From July 2004 through November 2004, our utility crews conducted extensive inspection of wastewater lines and manholes and were unable to detect any additional wastewater flow that would explain the higher meter readings.

5. The TRA meter immediately downstream of the Addison meter was not properly functioning during the period in question and therefore cannot be used to validate the additional flows recorded by the Addison meter.

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I believe there is sufficient doubt regarding the accuracy of the readings to warrant a thorough review by TRA and Addison. I would like to arrange to meet with you and your staff to discuss this issue and resolve the matter prior to the annual "settle up" which will occur later this year and impact all member cities.

I look forward to hearing from you and arranging a meeting at your earliest convenience.

Sincerely,

Ron Whitehead

6000 linear feet in 13_1E "drainage basin"
8,400 ~~5,700~~ linear feet in 13_2E "drainage basin"

**13_1E Marsh Ln. Metering Station
Daily Wastewater Total Water Daily Average Usage**

	January	February	March	April	May	June	July	August	September	October	November	December
WW 2003	1,488,000	1,697,000	1,815,000	1,565,000	1,631,000	1,702,000	1,595,000	1,686,000	1,782,000	1,634,000	1,721,000	1,555,000
Water 2003	4,004,000	3,697,000	4,159,000	4,924,000	5,693,000	6,025,000	7,363,000	8,173,000	6,404,000	6,131,000	4,776,000	4,190,000
Rainfall	0.17	2.69	0.64	1.92	3.46	3.02	0.24	2.71	5.94	0.87	3.74	1.16
WW 2004	1,683,000	1,808,000	1,667,000	1,649,000	1,762,000	2,103,000	2,741,000	3,601,000	3,675,000	3,120,000	3,083,000	1,586,000
Water 2004	3,749,000	4,628,000	3,613,000	4,867,000	5,128,000	5,873,000	5,515,000	6,968,000	6,558,000	6,525,000	5,047,000	3,467,000
Rainfall	3.44	3.98	1.03	2.52	2.15	9.13	3.28	1.68	1.42	4.07	5.58	0.85

From our reading
of the TRA Meter
12/1/04 and 1/1/05

Randy - This is a spread-
sheet Jerry worked up that
correlates 13-1E flows with
total water use for the Town
and Rainfall. FYI
Jim

Jim Pierce

From: Randy Moravec
Sent: Monday, February 07, 2005 11:27 AM
To: Jim Pierce
Cc: Chris Terry; Ron Whitehead; Lea Dunn
Subject: TRA Information

Jim,
In regards to the flow issue with TRA, I have the following questions that I would like your responses:

- 1) Who takes the readings from the Marsh Lane / Brookhaven meter?
- 2) At what time of the month are the readings usually taken?
- 3) Are Addison representatives present when the readings are taken?
- 4) When was the additional flow first noticed by Addison employees or first brought to the Town's attention? It appears that the additional flow began occurring sometime in July, 2004. By the way, please send me copies of TRA's metering Station Summaries for all months between January, 2001 and February, 2004. Also please provide me the statements for November and December, 2004.
- 5) I noticed that September's reading showed total flow of 96,792 compared with 100,019 the previous month; a 3.2% difference. Yet the Flow MGD of 3.2264 for September was exactly the amount reported in August. Is MGD measured by the meter, or is this a calculated number?
- 6) You had indicated in today's meeting that TRA does not test for SS or BOD at the station, yet the contract we have with TRA clearly indicates that TRA will perform periodic testing at the meter station. I would like to know whether tests were administered during the period of July 2004 through November 2004. If you don't have this information, don't ask TRA for it until we have sent Ron's letter.
- 7) I would like to know the maximum flow our main leading into the meter can accommodate. How does the 3.224 MGD compare to this maximum?
- 8) When we end up working with TRA staff, I would like to get from them a map that shows all downstream metering locations and obtain from them the Metering Station Summaries from those locations.

That's all I have for now. If you have any questions concerning this request for information, please let me know.

THANKS!!!

Randy

Answers:

1. Readings are taken by TRA personnel every seven days. They get a total flow for the 7 days and divide by 7 to get a daily flow. They also have a data logger that collects a reading every 5 minutes and it can be adjusted to show hourly flow, daily flow and weekly flow. Data logger is battery powered.
2. See 1, above
3. No.
4. We first met with them in late July at their notification. The ultrasonic level sensor was tilted somehow and was giving a suspect reading.

4. (continued) at that time they said they would average out the flow. Flow was too high at that time to do a calibration. We assumed the meter was wrong and "let it go". The next time they calibrated the meter was Oct. '04. At this time, they determined that a high flow was truly coming thru the meter. (We have copies of their calibration work sheets).

Flow records ~~for~~^{from} Dec '02 on attached. Statements for Sept and Oct are the latest I have (attached) You were copied on these.

5. They arbitrarily "lopped" off our peak flow and that is why you see the same numbers. See attached chart.

6. O.K. We do not think they have ever tested for BOD & SS.

7. Max flow with the 24" pipe upstream of the meter flowing full = 11.5 mgd.
3.22 is 28% of 11.5

Jim
2-8-05

Jim Pierce

From: Chris Terry
Sent: Wednesday, February 02, 2005 1:44 PM
To: Jim Pierce
Subject: FW: Trinity River Authority High Flows

Jim -
FYI,
Let's discuss this further at our Friday, 1:30 weekly meeting.
Chris

-----Original Message-----

From: Randy Moravec
Sent: Wednesday, February 02, 2005 1:43 PM
To: Ron Whitehead
Cc: Lea Dunn; Chris Terry
Subject: FW: Trinity River Authority High Flows

Ron,
It appears TRA is assuming its usual intransigent character (just ask Steve in Irving!) on this matter. I understand we will be discussing the issue Monday morning at 10:15. As I've noted before, this would be a huge impact to the Utility fund and could cause us to increase utility rates next year instead of 2007. At \$170k, or more if they decide to apply a surcharge penalty, I believe this is worth us going to the mat and involving attorneys if it gets to that point.

Randy

-----Original Message-----

From: Randy Moravec
Sent: Tuesday, February 01, 2005 3:09 PM
To: Jim Pierce
Cc: Chris Terry
Subject: RE: Trinity River Authority High Flows

Jim,
If Farmer Branch's meter was not working, then how are they being charged? Also, could you please give me the date in which we first noted the higher volume and the date when the flow subsided to normal levels. Finally, please provide for me a map showing the drainage area to this meter and the location of the meter.

THANKS!!!

Randy

-----Original Message-----

From: Jim Pierce
Sent: Tuesday, February 01, 2005 2:48 PM
To: Chris Terry; Randy Moravec
Cc: Jerry Davis
Subject: Trinity River Authority High Flows

Jerry Davis and I met with Mark Orbeck and David DuPuy of TRA on 1/27/05 to discuss the high sewage flows that were recorded through TRA meter 13_1E. TRA did have a problem with a leaning sensor on this meter but it was corrected, and after correction, had little effect on the flow situation. TRA described their metering system and method of calibrating their meters. They showed us flow data. Bottom line is they convinced us that there really was high sewage flows that went through that meter. However, the flow could not be verified going through the downstream Farmers Branch meter as it was not working at the time. Flows have now returned to normal.

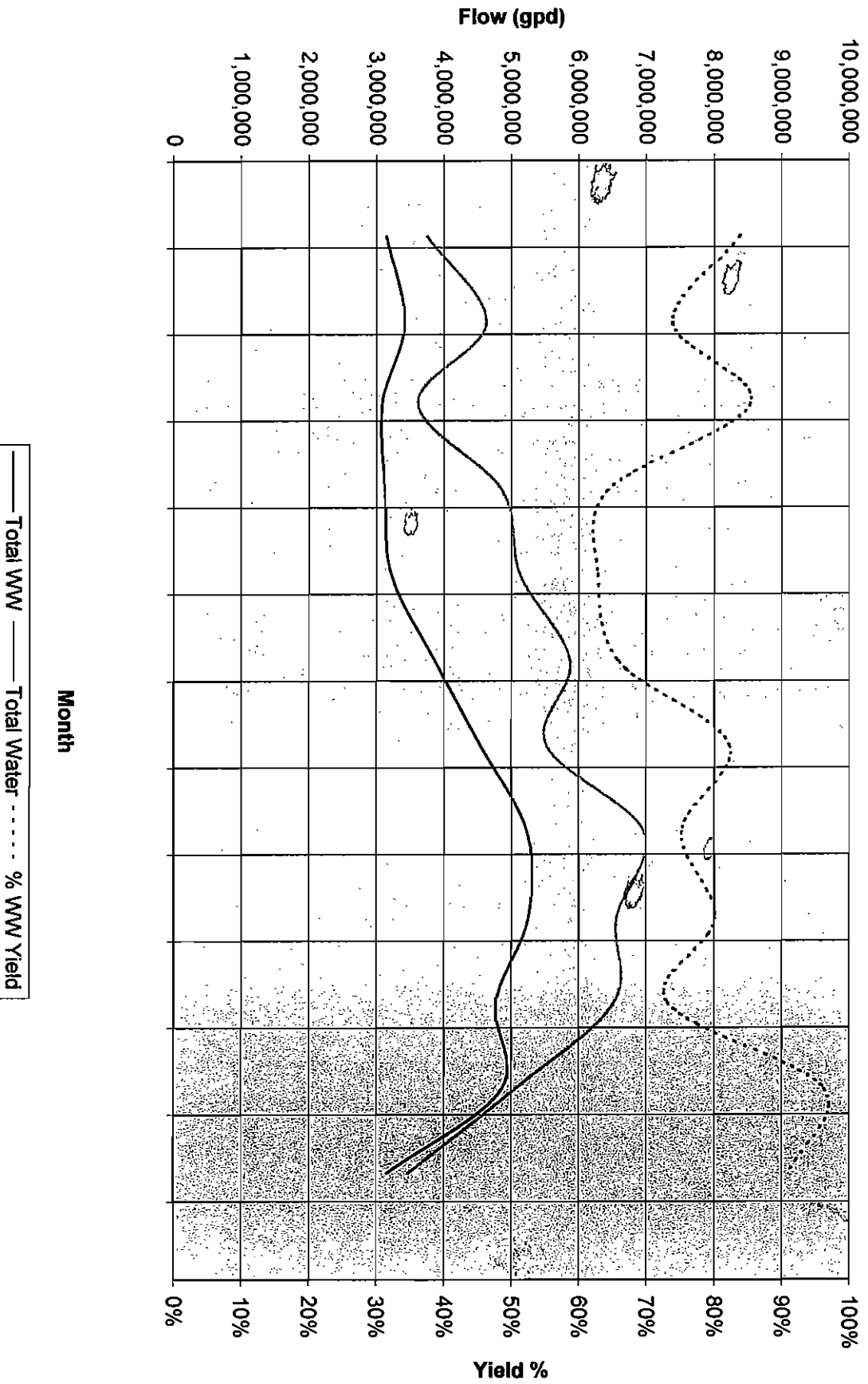
We explained that we did not have the money in the budget for the increased flows and that we needed some kind of forgiveness. They stated that we would hear from Bill Cyrus or Patty Cleveland with regard to that.

Today I received a call from Bill Cyrus. He wants to look at our water metering records for some correlation to the

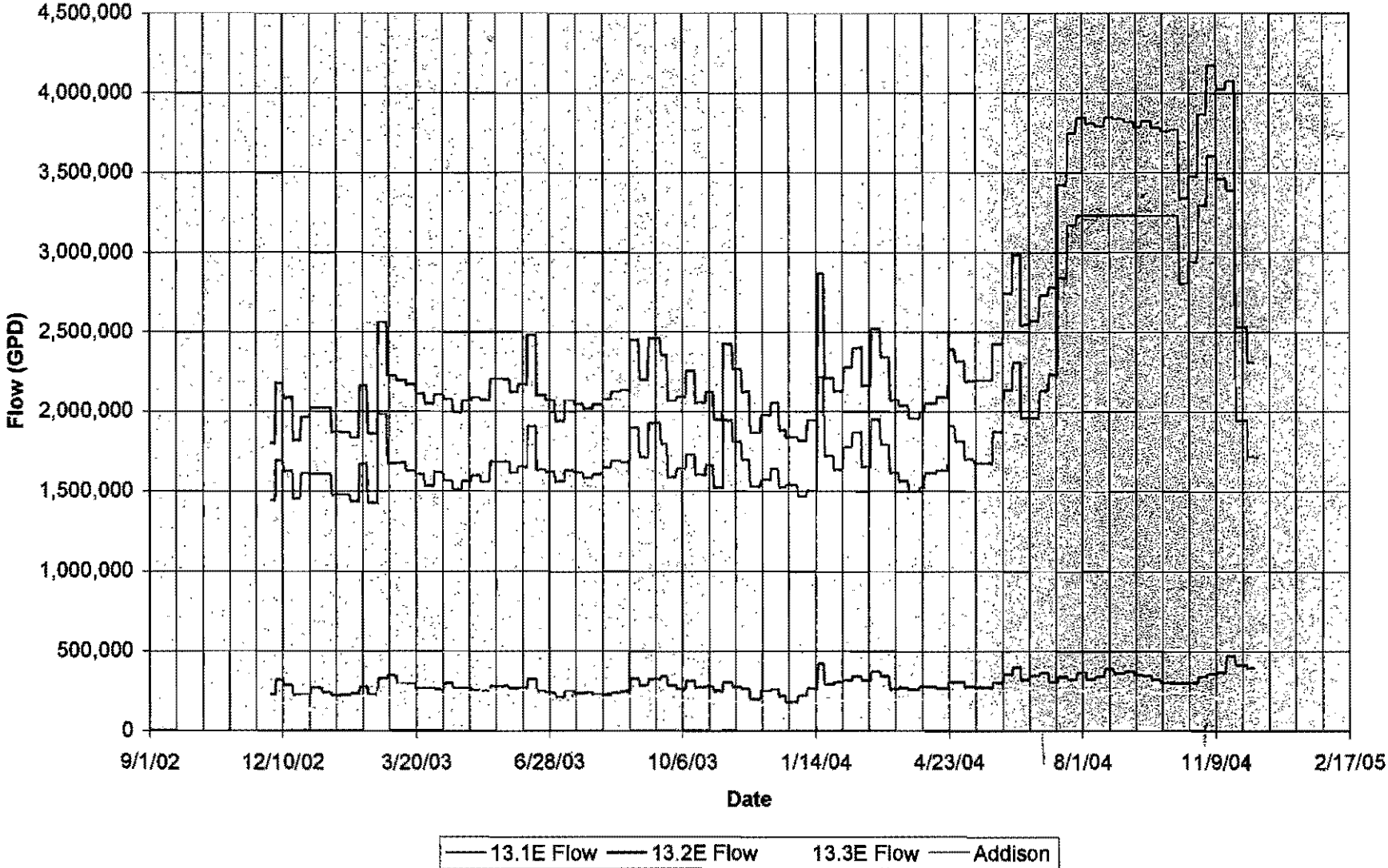
high flows. I referred him to Jerry Davis for the data. Disturbingly, Bill Cyrus mentioned that our billing is subject to a surcharge penalty meaning that not only would we have to pay for the flow through the meter, but also an additional penalty for the high peak flow. We will need to meet with Bill Cyrus after he looks at our data.

Jim Pierce, P.E.
Interim Public Works Director
Town of Addison
P.O. Box 9010
Addison, TX 75001-9010
972-450-2879

Addison WW Yield 2004



Addison Flows FY 2003 & 2004



MeterArchiv

Date	13.1E Flow	13.2E Flow	13.3E Flow	Addison
12/1/02	1,439,813	224,738	134,550	1,799,101
12/2/02	1,439,813	224,738	134,550	1,799,101
12/3/02	1,439,813	224,738	134,550	1,799,101
12/4/02	1,439,813	224,738	134,550	1,799,101
12/5/02	1,686,683	314,783	172,183	2,173,649
12/6/02	1,686,683	314,783	172,183	2,173,649
12/7/02	1,686,683	314,783	172,183	2,173,649
12/8/02	1,686,683	314,783	172,183	2,173,649
12/9/02	1,686,683	314,783	172,183	2,173,649
12/10/02	1,686,683	314,783	172,183	2,173,649
12/11/02	1,622,843	284,843	177,286	2,084,972
12/12/02	1,622,843	284,843	177,286	2,084,972
12/13/02	1,622,843	284,843	177,286	2,084,972
12/14/02	1,622,843	284,843	177,286	2,084,972
12/15/02	1,622,843	284,843	177,286	2,084,972
12/16/02	1,622,843	284,843	177,286	2,084,972
12/17/02	1,622,843	284,843	177,286	2,084,972
12/18/02	1,450,033	226,350	140,850	1,817,233
12/19/02	1,450,033	226,350	140,850	1,817,233
12/20/02	1,450,033	226,350	140,850	1,817,233
12/21/02	1,450,033	226,350	140,850	1,817,233
12/22/02	1,450,033	226,350	140,850	1,817,233
12/23/02	1,450,033	226,350	140,850	1,817,233
12/24/02	1,607,657	230,829	124,243	1,962,729
12/25/02	1,607,657	230,829	124,243	1,962,729
12/26/02	1,607,657	230,829	124,243	1,962,729
12/27/02	1,607,657	230,829	124,243	1,962,729
12/28/02	1,607,657	230,829	124,243	1,962,729
12/29/02	1,607,657	230,829	124,243	1,962,729
12/30/02	1,607,657	230,829	124,243	1,962,729
12/31/02	1,604,331	266,089	150,556	2,020,976
1/1/03	1,604,331	266,089	150,556	2,020,976
1/2/03	1,604,331	266,089	150,556	2,020,976
1/3/03	1,604,331	266,089	150,556	2,020,976
1/4/03	1,604,331	266,089	150,556	2,020,976
1/5/03	1,604,331	266,089	150,556	2,020,976
1/6/03	1,604,331	266,089	150,556	2,020,976
1/7/03	1,604,331	266,089	150,556	2,020,976
1/8/03	1,604,331	266,089	150,556	2,020,976
1/9/03	1,604,331	236,929	179,700	2,020,960
1/10/03	1,604,331	236,929	179,700	2,020,960
1/11/03	1,604,331	236,929	179,700	2,020,960
1/12/03	1,604,331	236,929	179,700	2,020,960
1/13/03	1,604,331	236,929	179,700	2,020,960
1/14/03	1,604,331	236,929	179,700	2,020,960
1/15/03	1,604,331	236,929	179,700	2,020,960
1/16/03	1,476,014	217,700	178,071	1,871,785
1/17/03	1,476,014	217,700	178,071	1,871,785
1/18/03	1,476,014	217,700	178,071	1,871,785
1/19/03	1,476,014	217,700	178,071	1,871,785
1/20/03	1,476,014	217,700	178,071	1,871,785

MeterArchiv

1/21/03	1,476,014	217,700	178,071	1,871,785
1/22/03	1,476,014	217,700	178,071	1,871,785
1/23/03	1,476,214	222,543	166,214	1,864,971
1/24/03	1,476,214	222,543	166,214	1,864,971
1/25/03	1,476,214	222,543	166,214	1,864,971
1/26/03	1,476,214	222,543	166,214	1,864,971
1/27/03	1,476,214	222,543	166,214	1,864,971
1/28/03	1,476,214	222,543	166,214	1,864,971
1/29/03	1,476,214	222,543	166,214	1,864,971
1/30/03	1,433,229	231,557	167,586	1,832,372
1/31/03	1,433,229	231,557	167,586	1,832,372
2/1/03	1,433,229	231,557	167,586	1,832,372
2/2/03	1,433,229	231,557	167,586	1,832,372
2/3/03	1,433,229	231,557	167,586	1,832,372
2/4/03	1,433,229	231,557	167,586	1,832,372
2/5/03	1,433,229	231,557	167,586	1,832,372
2/6/03	1,667,250	273,617	216,017	2,156,884
2/7/03	1,667,250	273,617	216,017	2,156,884
2/8/03	1,667,250	273,617	216,017	2,156,884
2/9/03	1,667,250	273,617	216,017	2,156,884
2/10/03	1,667,250	273,617	216,017	2,156,884
2/11/03	1,667,250	273,617	216,017	2,156,884
2/12/03	1,422,575	224,900	211,888	1,859,363
2/13/03	1,422,575	224,900	211,888	1,859,363
2/14/03	1,422,575	224,900	211,888	1,859,363
2/15/03	1,422,575	224,900	211,888	1,859,363
2/16/03	1,422,575	224,900	211,888	1,859,363
2/17/03	1,422,575	224,900	211,888	1,859,363
2/18/03	1,422,575	224,900	211,888	1,859,363
2/19/03	1,422,575	224,900	211,888	1,859,363
2/20/03	1,981,157	326,000	253,386	2,560,543
2/21/03	1,981,157	326,000	253,386	2,560,543
2/22/03	1,981,157	326,000	253,386	2,560,543
2/23/03	1,981,157	326,000	253,386	2,560,543
2/24/03	1,981,157	326,000	253,386	2,560,543
2/25/03	1,981,157	326,000	253,386	2,560,543
2/26/03	1,981,157	326,000	253,386	2,560,543
2/27/03	1,673,365	343,586	205,986	2,222,937
2/28/03	1,673,365	343,586	205,986	2,222,937
3/1/03	1,673,365	343,586	205,986	2,222,937
3/2/03	1,673,365	343,586	205,986	2,222,937
3/3/03	1,673,365	343,586	205,986	2,222,937
3/4/03	1,673,365	343,586	205,986	2,222,937
3/5/03	1,673,365	343,586	205,986	2,222,937
3/6/03	1,676,128	301,957	214,257	2,192,342
3/7/03	1,676,128	301,957	214,257	2,192,342
3/8/03	1,676,128	301,957	214,257	2,192,342
3/9/03	1,676,128	301,957	214,257	2,192,342
3/10/03	1,676,128	301,957	214,257	2,192,342
3/11/03	1,676,128	301,957	214,257	2,192,342
3/12/03	1,676,128	301,957	214,257	2,192,342
3/13/03	1,627,729	296,643	244,986	2,169,358

MeterArchive_Query1

3/14/03	1,627,729	296,643	244,986	2,169,358
3/15/03	1,627,729	296,643	244,986	2,169,358
3/16/03	1,627,729	296,643	244,986	2,169,358
3/17/03	1,627,729	296,643	244,986	2,169,358
3/18/03	1,627,729	296,643	244,986	2,169,358
3/19/03	1,627,729	296,643	244,986	2,169,358
3/20/03	1,603,229	265,429	242,771	2,111,429
3/21/03	1,603,229	265,429	242,771	2,111,429
3/22/03	1,603,229	265,429	242,771	2,111,429
3/23/03	1,603,229	265,429	242,771	2,111,429
3/24/03	1,603,229	265,429	242,771	2,111,429
3/25/03	1,603,229	265,429	242,771	2,111,429
3/26/03	1,603,229	265,429	242,771	2,111,429
3/27/03	1,534,129	260,114	253,386	2,047,629
3/28/03	1,534,129	260,114	253,386	2,047,629
3/29/03	1,534,129	260,114	253,386	2,047,629
3/30/03	1,534,129	260,114	253,386	2,047,629
3/31/03	1,534,129	260,114	253,386	2,047,629
4/1/03	1,534,129	260,114	253,386	2,047,629
4/2/03	1,534,129	260,114	253,386	2,047,629
4/3/03	1,615,700	258,600	227,843	2,102,143
4/4/03	1,615,700	258,600	227,843	2,102,143
4/5/03	1,615,700	258,600	227,843	2,102,143
4/6/03	1,615,700	258,600	227,843	2,102,143
4/7/03	1,615,700	258,600	227,843	2,102,143
4/8/03	1,615,700	258,600	227,843	2,102,143
4/9/03	1,615,700	258,600	227,843	2,102,143
4/10/03	1,561,300	296,500	215,800	2,073,600
4/11/03	1,561,300	296,500	215,800	2,073,600
4/12/03	1,561,300	296,500	215,800	2,073,600
4/13/03	1,561,300	296,500	215,800	2,073,600
4/14/03	1,561,300	296,500	215,800	2,073,600
4/15/03	1,561,300	296,500	215,800	2,073,600
4/16/03	1,561,300	296,500	215,800	2,073,600
4/17/03	1,508,614	267,771	216,143	1,992,528
4/18/03	1,508,614	267,771	216,143	1,992,528
4/19/03	1,508,614	267,771	216,143	1,992,528
4/20/03	1,508,614	267,771	216,143	1,992,528
4/21/03	1,508,614	267,771	216,143	1,992,528
4/22/03	1,508,614	267,771	216,143	1,992,528
4/23/03	1,508,614	267,771	216,143	1,992,528
4/24/03	1,562,129	265,257	239,000	2,066,386
4/25/03	1,562,129	265,257	239,000	2,066,386
4/26/03	1,562,129	265,257	239,000	2,066,386
4/27/03	1,562,129	265,257	239,000	2,066,386
4/28/03	1,562,129	265,257	239,000	2,066,386
4/29/03	1,562,129	265,257	239,000	2,066,386
4/30/03	1,562,129	265,257	239,000	2,066,386
5/1/03	1,595,100	249,071	240,229	2,084,400
5/2/03	1,595,100	249,071	240,229	2,084,400
5/3/03	1,595,100	249,071	240,229	2,084,400
5/4/03	1,595,100	249,071	240,229	2,084,400

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5/5/03	1,595,100	249,071	240,229	2,084,400
5/6/03	1,595,100	249,071	240,229	2,084,400
5/7/03	1,595,100	249,071	240,229	2,084,400
5/8/03	1,555,143	252,500	261,271	2,068,914
5/9/03	1,555,143	252,500	261,271	2,068,914
5/10/03	1,555,143	252,500	261,271	2,068,914
5/11/03	1,555,143	252,500	261,271	2,068,914
5/12/03	1,555,143	252,500	261,271	2,068,914
5/13/03	1,555,143	252,500	261,271	2,068,914
5/14/03	1,555,143	252,500	261,271	2,068,914
5/15/03	1,682,993	276,007	242,521	2,201,521
5/16/03	1,682,993	276,007	242,521	2,201,521
5/17/03	1,682,993	276,007	242,521	2,201,521
5/18/03	1,682,993	276,007	242,521	2,201,521
5/19/03	1,682,993	276,007	242,521	2,201,521
5/20/03	1,682,993	276,007	242,521	2,201,521
5/21/03	1,682,993	276,007	242,521	2,201,521
5/22/03	1,682,993	276,007	242,521	2,201,521
5/23/03	1,682,993	276,007	242,521	2,201,521
5/24/03	1,682,993	276,007	242,521	2,201,521
5/25/03	1,682,993	276,007	242,521	2,201,521
5/26/03	1,682,993	276,007	242,521	2,201,521
5/27/03	1,682,993	276,007	242,521	2,201,521
5/28/03	1,682,993	276,007	242,521	2,201,521
5/29/03	1,682,993	264,071	241,414	2,188,478
5/30/03	1,613,867	264,071	241,414	2,119,352
5/31/03	1,613,867	264,071	241,414	2,119,352
6/1/03	1,613,867	264,071	241,414	2,119,352
6/2/03	1,613,867	264,071	241,414	2,119,352
6/3/03	1,613,867	264,071	241,414	2,119,352
6/4/03	1,613,867	264,071	241,414	2,119,352
6/5/03	1,648,414	266,186	251,929	2,166,529
6/6/03	1,648,414	266,186	251,929	2,166,529
6/7/03	1,648,414	266,186	251,929	2,166,529
6/8/03	1,648,414	266,186	251,929	2,166,529
6/9/03	1,648,414	266,186	251,929	2,166,529
6/10/03	1,648,414	266,186	251,929	2,166,529
6/11/03	1,648,414	266,186	251,929	2,166,529
6/12/03	1,904,486	321,100	251,186	2,476,772
6/13/03	1,904,486	321,100	251,186	2,476,772
6/14/03	1,904,486	321,100	251,186	2,476,772
6/15/03	1,904,486	321,100	251,186	2,476,772
6/16/03	1,904,486	321,100	251,186	2,476,772
6/17/03	1,904,486	321,100	251,186	2,476,772
6/18/03	1,904,486	321,100	251,186	2,476,772
6/19/03	1,631,771	247,843	219,786	2,099,400
6/20/03	1,631,771	247,843	219,786	2,099,400
6/21/03	1,631,771	247,843	219,786	2,099,400
6/22/03	1,631,771	247,843	219,786	2,099,400
6/23/03	1,631,771	247,843	219,786	2,099,400
6/24/03	1,631,771	247,843	219,786	2,099,400
6/25/03	1,631,771	247,843	219,786	2,099,400

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6/26/03	1,617,129	239,971	212,386	2,069,486
6/27/03	1,617,129	239,971	212,386	2,069,486
6/28/03	1,617,129	239,971	212,386	2,069,486
6/29/03	1,617,129	239,971	212,386	2,069,486
6/30/03	1,617,129	239,971	212,386	2,069,486
7/1/03	1,617,129	239,971	212,386	2,069,486
7/2/03	1,617,129	239,971	212,386	2,069,486
7/3/03	1,557,714	208,057	172,600	1,938,371
7/4/03	1,557,714	208,057	172,600	1,938,371
7/5/03	1,557,714	208,057	172,600	1,938,371
7/6/03	1,557,714	208,057	172,600	1,938,371
7/7/03	1,557,714	208,057	172,600	1,938,371
7/8/03	1,557,714	208,057	172,600	1,938,371
7/9/03	1,557,714	208,057	172,600	1,938,371
7/10/03	1,625,886	247,586	198,986	2,072,458
7/11/03	1,625,886	247,586	198,986	2,072,458
7/12/03	1,625,886	247,586	198,986	2,072,458
7/13/03	1,625,886	247,586	198,986	2,072,458
7/14/03	1,625,886	247,586	198,986	2,072,458
7/15/03	1,625,886	247,586	198,986	2,072,458
7/16/03	1,625,886	247,586	198,986	2,072,458
7/17/03	1,612,500	233,143	201,314	2,046,957
7/18/03	1,612,500	233,143	201,314	2,046,957
7/19/03	1,612,500	233,143	201,314	2,046,957
7/20/03	1,612,500	233,143	201,314	2,046,957
7/21/03	1,612,500	233,143	201,314	2,046,957
7/22/03	1,612,500	233,143	201,314	2,046,957
7/23/03	1,612,500	233,143	201,314	2,046,957
7/24/03	1,581,557	236,971	198,757	2,017,285
7/25/03	1,581,557	236,971	198,757	2,017,285
7/26/03	1,581,557	236,971	198,757	2,017,285
7/27/03	1,581,557	236,971	198,757	2,017,285
7/28/03	1,581,557	236,971	198,757	2,017,285
7/29/03	1,581,557	236,971	198,757	2,017,285
7/30/03	1,581,557	236,971	198,757	2,017,285
7/31/03	1,603,143	223,157	215,629	2,041,929
8/1/03	1,603,143	223,157	215,629	2,041,929
8/2/03	1,603,143	223,157	215,629	2,041,929
8/3/03	1,603,143	223,157	215,629	2,041,929
8/4/03	1,603,143	223,157	215,629	2,041,929
8/5/03	1,603,143	223,157	215,629	2,041,929
8/6/03	1,603,143	223,157	215,629	2,041,929
8/7/03	1,647,357	226,057	201,771	2,075,185
8/8/03	1,647,357	226,057	201,771	2,075,185
8/9/03	1,647,357	226,057	201,771	2,075,185
8/10/03	1,647,357	226,057	201,771	2,075,185
8/11/03	1,647,357	226,057	201,771	2,075,185
8/12/03	1,647,357	226,057	201,771	2,075,185
8/13/03	1,647,357	226,057	201,771	2,075,185
8/14/03	1,687,429	235,200	201,014	2,123,643
8/15/03	1,687,429	235,200	201,014	2,123,643
8/16/03	1,687,429	235,200	201,014	2,123,643

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8/17/03	1,687,429	235,200	201,014	2,123,643
8/18/03	1,687,429	235,200	201,014	2,123,643
8/19/03	1,687,429	235,200	201,014	2,123,643
8/20/03	1,687,429	235,200	201,014	2,123,643
8/21/03	1,677,829	244,457	208,700	2,130,986
8/22/03	1,677,829	244,457	208,700	2,130,986
8/23/03	1,677,829	244,457	208,700	2,130,986
8/24/03	1,677,829	244,457	208,700	2,130,986
8/25/03	1,677,829	244,457	208,700	2,130,986
8/26/03	1,677,829	244,457	208,700	2,130,986
8/27/03	1,677,829	244,457	208,700	2,130,986
8/28/03	1,895,543	326,943	223,643	2,446,129
8/29/03	1,895,543	326,943	223,643	2,446,129
8/30/03	1,895,543	326,943	223,643	2,446,129
8/31/03	1,895,543	326,943	223,643	2,446,129
9/1/03	1,895,543	326,943	223,643	2,446,129
9/2/03	1,895,543	326,943	223,643	2,446,129
9/3/03	1,895,543	326,943	223,643	2,446,129
9/4/03	1,711,186	282,271	203,100	2,196,557
9/5/03	1,711,186	282,271	203,100	2,196,557
9/6/03	1,711,186	282,271	203,100	2,196,557
9/7/03	1,711,186	282,271	203,100	2,196,557
9/8/03	1,711,186	282,271	203,100	2,196,557
9/9/03	1,711,186	282,271	203,100	2,196,557
9/10/03	1,711,186	282,271	203,100	2,196,557
9/11/03	1,923,144	320,733	215,078	2,458,955
9/12/03	1,923,144	320,733	215,078	2,458,955
9/13/03	1,923,144	320,733	215,078	2,458,955
9/14/03	1,923,144	320,733	215,078	2,458,955
9/15/03	1,923,144	320,733	215,078	2,458,955
9/16/03	1,923,144	320,733	215,078	2,458,955
9/17/03	1,923,144	320,733	215,078	2,458,955
9/18/03	1,923,144	320,733	215,078	2,458,955
9/19/03	1,923,144	320,733	215,078	2,458,955
9/20/03	1,794,500	336,980	218,780	2,350,260
9/21/03	1,794,500	336,980	218,780	2,350,260
9/22/03	1,794,500	336,980	218,780	2,350,260
9/23/03	1,794,500	336,980	218,780	2,350,260
9/24/03	1,794,500	336,980	218,780	2,350,260
9/25/03	1,584,914	282,771	197,157	2,064,842
9/26/03	1,584,914	282,771	197,157	2,064,842
9/27/03	1,584,914	282,771	197,157	2,064,842
9/28/03	1,584,914	282,771	197,157	2,064,842
9/29/03	1,584,914	282,771	197,157	2,064,842
9/30/03	1,584,914	282,771	197,157	2,064,842
10/1/03	1,584,914	282,771	197,157	2,064,842
10/2/03	1,640,786	260,157	190,086	2,091,029
10/3/03	1,640,786	260,157	190,086	2,091,029
10/4/03	1,640,786	260,157	190,086	2,091,029
10/5/03	1,640,786	260,157	190,086	2,091,029
10/6/03	1,640,786	260,157	190,086	2,091,029
10/7/03	1,640,786	260,157	190,086	2,091,029

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10/8/03	1,640,786	260,157	190,086	2,091,029
10/9/03	1,726,086	309,043	215,329	2,250,458
10/10/03	1,726,086	309,043	215,329	2,250,458
10/11/03	1,726,086	309,043	215,329	2,250,458
10/12/03	1,726,086	309,043	215,329	2,250,458
10/13/03	1,726,086	309,043	215,329	2,250,458
10/14/03	1,726,086	309,043	215,329	2,250,458
10/15/03	1,726,086	309,043	215,329	2,250,458
10/16/03	1,600,863	270,588	182,738	2,054,189
10/17/03	1,600,863	270,588	182,738	2,054,189
10/18/03	1,600,863	270,588	182,738	2,054,189
10/19/03	1,600,863	270,588	182,738	2,054,189
10/20/03	1,600,863	270,588	182,738	2,054,189
10/21/03	1,600,863	270,588	182,738	2,054,189
10/22/03	1,600,863	270,588	182,738	2,054,189
10/23/03	1,600,863	270,588	182,738	2,054,189
10/24/03	1,658,433	278,100	183,650	2,120,183
10/25/03	1,658,433	278,100	183,650	2,120,183
10/26/03	1,658,433	278,100	183,650	2,120,183
10/27/03	1,658,433	278,100	183,650	2,120,183
10/28/03	1,658,433	278,100	183,650	2,120,183
10/29/03	1,658,433	278,100	183,650	2,120,183
10/30/03	1,520,943	247,629	180,500	1,949,072
10/31/03	1,520,943	247,629	180,500	1,949,072
11/1/03	1,520,943	247,629	180,500	1,949,072
11/2/03	1,520,943	247,629	180,500	1,949,072
11/3/03	1,520,943	247,629	180,500	1,949,072
11/4/03	1,520,943	247,629	180,500	1,949,072
11/5/03	1,520,943	247,629	180,500	1,949,072
11/6/03	1,940,914	303,129	177,986	2,422,029
11/7/03	1,940,914	303,129	177,986	2,422,029
11/8/03	1,940,914	303,129	177,986	2,422,029
11/9/03	1,940,914	303,129	177,986	2,422,029
11/10/03	1,940,914	303,129	177,986	2,422,029
11/11/03	1,940,914	303,129	177,986	2,422,029
11/12/03	1,940,914	303,129	177,986	2,422,029
11/13/03	1,806,471	275,171	182,429	2,264,071
11/14/03	1,806,471	275,171	182,429	2,264,071
11/15/03	1,806,471	275,171	182,429	2,264,071
11/16/03	1,806,471	275,171	182,429	2,264,071
11/17/03	1,806,471	275,171	182,429	2,264,071
11/18/03	1,806,471	275,171	182,429	2,264,071
11/19/03	1,806,471	275,171	182,429	2,264,071
11/20/03	1,695,300	262,083	166,950	2,124,333
11/21/03	1,695,300	262,083	166,950	2,124,333
11/22/03	1,695,300	262,083	166,950	2,124,333
11/23/03	1,695,300	262,083	166,950	2,124,333
11/24/03	1,695,300	262,083	166,950	2,124,333
11/25/03	1,695,300	262,083	166,950	2,124,333
11/26/03	1,526,838	198,100	137,538	1,862,476
11/27/03	1,526,838	198,100	137,538	1,862,476
11/28/03	1,526,838	198,100	137,538	1,862,476

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11/29/03	1,526,838	198,100	137,538	1,862,476
11/30/03	1,526,838	198,100	137,538	1,862,476
12/1/03	1,526,838	198,100	137,538	1,862,476
12/2/03	1,526,838	198,100	137,538	1,862,476
12/3/03	1,526,838	198,100	137,538	1,862,476
12/4/03	1,567,225	246,863	161,650	1,975,738
12/5/03	1,567,225	246,863	161,650	1,975,738
12/6/03	1,567,225	246,863	161,650	1,975,738
12/7/03	1,567,225	246,863	161,650	1,975,738
12/8/03	1,567,225	246,863	161,650	1,975,738
12/9/03	1,567,225	246,863	161,650	1,975,738
12/10/03	1,567,225	246,863	161,650	1,975,738
12/11/03	1,567,225	246,863	161,650	1,975,738
12/12/03	1,637,800	258,833	155,733	2,052,366
12/13/03	1,637,800	258,833	155,733	2,052,366
12/14/03	1,637,800	258,833	155,733	2,052,366
12/15/03	1,637,800	258,833	155,733	2,052,366
12/16/03	1,637,800	258,833	155,733	2,052,366
12/17/03	1,637,800	258,833	155,733	2,052,366
12/18/03	1,524,640	215,360	139,680	1,879,680
12/19/03	1,524,640	215,360	139,680	1,879,680
12/20/03	1,524,640	215,360	139,680	1,879,680
12/21/03	1,524,640	215,360	139,680	1,879,680
12/22/03	1,524,640	215,360	139,680	1,879,680
12/23/03	1,537,100	181,956	118,056	1,837,112
12/24/03	1,537,100	181,956	118,056	1,837,112
12/25/03	1,537,100	181,956	118,056	1,837,112
12/26/03	1,537,100	181,956	118,056	1,837,112
12/27/03	1,537,100	181,956	118,056	1,837,112
12/28/03	1,537,100	181,956	118,056	1,837,112
12/29/03	1,537,100	181,956	118,056	1,837,112
12/30/03	1,537,100	181,956	118,056	1,837,112
12/31/03	1,537,100	181,956	118,056	1,837,112
1/1/04	1,465,600	219,329	131,371	1,816,300
1/2/04	1,465,600	219,329	131,371	1,816,300
1/3/04	1,465,600	219,329	131,371	1,816,300
1/4/04	1,465,600	219,329	131,371	1,816,300
1/5/04	1,465,600	219,329	131,371	1,816,300
1/6/04	1,465,600	219,329	131,371	1,816,300
1/7/04	1,465,600	219,329	131,371	1,816,300
1/8/04	1,501,763	265,138	175,388	1,942,289
1/9/04	1,501,763	265,138	175,388	1,942,289
1/10/04	1,501,763	265,138	175,388	1,942,289
1/11/04	1,501,763	265,138	175,388	1,942,289
1/12/04	1,501,763	265,138	175,388	1,942,289
1/13/04	1,501,763	265,138	175,388	1,942,289
1/14/04	1,501,763	265,138	175,388	1,942,289
1/15/04	1,501,763	265,138	175,388	1,942,289
1/16/04	2,213,440	419,160	229,660	2,862,260
1/17/04	2,213,440	419,160	229,660	2,862,260
1/18/04	2,213,440	419,160	229,660	2,862,260
1/19/04	2,213,440	419,160	229,660	2,862,260

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1/20/04	2,213,440	419,160	229,660	2,862,260
1/21/04	1,719,500	291,071	194,371	2,204,942
1/22/04	1,719,500	291,071	194,371	2,204,942
1/23/04	1,719,500	291,071	194,371	2,204,942
1/24/04	1,719,500	291,071	194,371	2,204,942
1/25/04	1,719,500	291,071	194,371	2,204,942
1/26/04	1,719,500	291,071	194,371	2,204,942
1/27/04	1,719,500	291,071	194,371	2,204,942
1/28/04	1,634,400	301,800	189,871	2,126,071
1/29/04	1,634,400	301,800	189,871	2,126,071
1/30/04	1,634,400	301,800	189,871	2,126,071
1/31/04	1,634,400	301,800	189,871	2,126,071
2/1/04	1,634,400	301,800	189,871	2,126,071
2/2/04	1,634,400	301,800	189,871	2,126,071
2/3/04	1,634,400	301,800	189,871	2,126,071
2/4/04	1,774,157	314,229	185,171	2,273,557
2/5/04	1,774,157	314,229	185,171	2,273,557
2/6/04	1,774,157	314,229	185,171	2,273,557
2/7/04	1,774,157	314,229	185,171	2,273,557
2/8/04	1,774,157	314,229	185,171	2,273,557
2/9/04	1,774,157	314,229	185,171	2,273,557
2/10/04	1,774,157	314,229	185,171	2,273,557
2/11/04	1,863,829	337,357	194,686	2,395,872
2/12/04	1,863,829	337,357	194,686	2,395,872
2/13/04	1,863,829	337,357	194,686	2,395,872
2/14/04	1,863,829	337,357	194,686	2,395,872
2/15/04	1,863,829	337,357	194,686	2,395,872
2/16/04	1,863,829	337,357	194,686	2,395,872
2/17/04	1,863,829	337,357	194,686	2,395,872
2/18/04	1,650,943	314,386	194,643	2,159,972
2/19/04	1,650,943	314,386	194,643	2,159,972
2/20/04	1,650,943	314,386	194,643	2,159,972
2/21/04	1,650,943	314,386	194,643	2,159,972
2/22/04	1,650,943	314,386	194,643	2,159,972
2/23/04	1,650,943	314,386	194,643	2,159,972
2/24/04	1,650,943	314,386	194,643	2,159,972
2/25/04	1,944,586	371,729	199,200	2,515,515
2/26/04	1,944,586	371,729	199,200	2,515,515
2/27/04	1,944,586	371,729	199,200	2,515,515
2/28/04	1,944,586	371,729	199,200	2,515,515
2/29/04	1,944,586	371,729	199,200	2,515,515
3/1/04	1,944,586	371,729	199,200	2,515,515
3/2/04	1,944,586	371,729	199,200	2,515,515
3/3/04	1,790,171	340,443	208,086	2,338,700
3/4/04	1,790,171	340,443	208,086	2,338,700
3/5/04	1,790,171	340,443	208,086	2,338,700
3/6/04	1,790,171	340,443	208,086	2,338,700
3/7/04	1,790,171	340,443	208,086	2,338,700
3/8/04	1,790,171	340,443	208,086	2,338,700
3/9/04	1,790,171	340,443	208,086	2,338,700
3/10/04	1,615,229	262,186	195,271	2,072,686
3/11/04	1,615,229	262,186	195,271	2,072,686

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3/12/04	1,615,229	262,186	195,271	2,072,686
3/13/04	1,615,229	262,186	195,271	2,072,686
3/14/04	1,615,229	262,186	195,271	2,072,686
3/15/04	1,615,229	262,186	195,271	2,072,686
3/16/04	1,615,229	262,186	195,271	2,072,686
3/17/04	1,561,214	270,786	203,614	2,035,614
3/18/04	1,561,214	270,786	203,614	2,035,614
3/19/04	1,561,214	270,786	203,614	2,035,614
3/20/04	1,561,214	270,786	203,614	2,035,614
3/21/04	1,561,214	270,786	203,614	2,035,614
3/22/04	1,561,214	270,786	203,614	2,035,614
3/23/04	1,561,214	270,786	203,614	2,035,614
3/24/04	1,496,988	257,288	201,413	1,955,689
3/25/04	1,496,988	257,288	201,413	1,955,689
3/26/04	1,496,988	257,288	201,413	1,955,689
3/27/04	1,496,988	257,288	201,413	1,955,689
3/28/04	1,496,988	257,288	201,413	1,955,689
3/29/04	1,496,988	257,288	201,413	1,955,689
3/30/04	1,496,988	257,288	201,413	1,955,689
3/31/04	1,496,988	257,288	201,413	1,955,689
4/1/04	1,520,950	277,850	197,150	1,995,950
4/2/04	1,520,950	277,850	197,150	1,995,950
4/3/04	1,520,950	277,850	197,150	1,995,950
4/4/04	1,520,950	277,850	197,150	1,995,950
4/5/04	1,610,756	272,433	164,622	2,047,811
4/6/04	1,610,756	272,433	164,622	2,047,811
4/7/04	1,610,756	272,433	164,622	2,047,811
4/8/04	1,610,756	272,433	164,622	2,047,811
4/9/04	1,610,756	272,433	164,622	2,047,811
4/10/04	1,610,756	272,433	164,622	2,047,811
4/11/04	1,610,756	272,433	164,622	2,047,811
4/12/04	1,610,756	272,433	164,622	2,047,811
4/13/04	1,610,756	272,433	164,622	2,047,811
4/14/04	1,627,100	264,322	195,889	2,087,311
4/15/04	1,627,100	264,322	195,889	2,087,311
4/16/04	1,627,100	264,322	195,889	2,087,311
4/17/04	1,627,100	264,322	195,889	2,087,311
4/18/04	1,627,100	264,322	195,889	2,087,311
4/19/04	1,627,100	264,322	195,889	2,087,311
4/20/04	1,627,100	264,322	195,889	2,087,311
4/21/04	1,627,100	264,322	195,889	2,087,311
4/22/04	1,627,100	264,322	195,889	2,087,311
4/23/04	1,907,900	304,000	176,220	2,388,120
4/24/04	1,907,900	304,000	176,220	2,388,120
4/25/04	1,907,900	304,000	176,220	2,388,120
4/26/04	1,907,900	304,000	176,220	2,388,120
4/27/04	1,907,900	304,000	176,220	2,388,120
4/28/04	1,810,029	303,271	198,200	2,311,500
4/29/04	1,810,029	303,271	198,200	2,311,500
4/30/04	1,810,029	303,271	198,200	2,311,500
5/1/04	1,810,029	303,271	198,200	2,311,500
5/2/04	1,810,029	303,271	198,200	2,311,500

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5/3/04	1,810,029	303,271	198,200	2,311,500
5/4/04	1,810,029	303,271	198,200	2,311,500
5/5/04	1,696,443	272,900	217,743	2,187,086
5/6/04	1,696,443	272,900	217,743	2,187,086
5/7/04	1,696,443	272,900	217,743	2,187,086
5/8/04	1,696,443	272,900	217,743	2,187,086
5/9/04	1,696,443	272,900	217,743	2,187,086
5/10/04	1,696,443	272,900	217,743	2,187,086
5/11/04	1,696,443	272,900	217,743	2,187,086
5/12/04	1,670,379	271,829	247,114	2,189,322
5/13/04	1,670,379	271,829	247,114	2,189,322
5/14/04	1,670,379	271,829	247,114	2,189,322
5/15/04	1,670,379	271,829	247,114	2,189,322
5/16/04	1,670,379	271,829	247,114	2,189,322
5/17/04	1,670,379	271,829	247,114	2,189,322
5/18/04	1,670,379	271,829	247,114	2,189,322
5/19/04	1,670,379	271,829	247,114	2,189,322
5/20/04	1,670,379	271,829	247,114	2,189,322
5/21/04	1,670,379	271,829	247,114	2,189,322
5/22/04	1,670,379	271,829	247,114	2,189,322
5/23/04	1,670,379	271,829	247,114	2,189,322
5/24/04	1,670,379	271,829	247,114	2,189,322
5/25/04	1,670,379	271,829	247,114	2,189,322
5/26/04	1,869,888	299,975	252,488	2,422,351
5/27/04	1,869,888	299,975	252,488	2,422,351
5/28/04	1,869,888	299,975	252,488	2,422,351
5/29/04	1,869,888	299,975	252,488	2,422,351
5/30/04	1,869,888	299,975	252,488	2,422,351
5/31/04	1,869,888	299,975	252,488	2,422,351
6/1/04	1,869,888	299,975	252,488	2,422,351
6/2/04	1,869,888	299,975	252,488	2,422,351
6/3/04	2,133,400	350,843	255,143	2,739,386
6/4/04	2,133,400	350,843	255,143	2,739,386
6/5/04	2,133,400	350,843	255,143	2,739,386
6/6/04	2,133,400	350,843	255,143	2,739,386
6/7/04	2,133,400	350,843	255,143	2,739,386
6/8/04	2,133,400	350,843	255,143	2,739,386
6/9/04	2,133,400	350,843	255,143	2,739,386
6/10/04	2,304,467	396,650	279,683	2,980,800
6/11/04	2,304,467	396,650	279,683	2,980,800
6/12/04	2,304,467	396,650	279,683	2,980,800
6/13/04	2,304,467	396,650	279,683	2,980,800
6/14/04	2,304,467	396,650	279,683	2,980,800
6/15/04	2,304,467	396,650	279,683	2,980,800
6/16/04	1,953,900	318,814	268,821	2,541,535
6/17/04	1,953,900	318,814	268,821	2,541,535
6/18/04	1,953,900	318,814	268,821	2,541,535
6/19/04	1,953,900	318,814	268,821	2,541,535
6/20/04	1,953,900	318,814	268,821	2,541,535
6/21/04	1,953,900	318,814	268,821	2,541,535
6/22/04	1,953,900	318,814	268,821	2,541,535
6/23/04	1,953,900	345,029	268,821	2,567,750

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6/24/04	1,953,900	345,029	268,821	2,567,750
6/25/04	1,953,900	345,029	268,821	2,567,750
6/26/04	1,953,900	345,029	268,821	2,567,750
6/27/04	1,953,900	345,029	268,821	2,567,750
6/28/04	1,953,900	345,029	268,821	2,567,750
6/29/04	1,953,900	345,029	268,821	2,567,750
6/30/04	2,127,529	360,671	238,286	2,726,486
7/1/04	2,127,529	360,671	238,286	2,726,486
7/2/04	2,127,529	360,671	238,286	2,726,486
7/3/04	2,127,529	360,671	238,286	2,726,486
7/4/04	2,127,529	360,671	238,286	2,726,486
7/5/04	2,127,529	360,671	238,286	2,726,486
7/6/04	2,127,529	360,671	238,286	2,726,486
7/7/04	2,228,700	306,657	241,300	2,776,657
7/8/04	2,228,700	306,657	241,300	2,776,657
7/9/04	2,228,700	306,657	241,300	2,776,657
7/10/04	2,228,700	306,657	241,300	2,776,657
7/11/04	2,228,700	306,657	241,300	2,776,657
7/12/04	2,228,700	306,657	241,300	2,776,657
7/13/04	2,228,700	306,657	241,300	2,776,657
7/14/04	2,834,086	334,914	251,071	3,420,071
7/15/04	2,834,086	334,914	251,071	3,420,071
7/16/04	2,834,086	334,914	251,071	3,420,071
7/17/04	2,834,086	334,914	251,071	3,420,071
7/18/04	2,834,086	334,914	251,071	3,420,071
7/19/04	2,834,086	334,914	251,071	3,420,071
7/20/04	2,834,086	334,914	251,071	3,420,071
7/21/04	3,168,000	318,500	259,029	3,745,529
7/22/04	3,168,000	318,500	259,029	3,745,529
7/23/04	3,168,000	318,500	259,029	3,745,529
7/24/04	3,168,000	318,500	259,029	3,745,529
7/25/04	3,168,000	318,500	259,029	3,745,529
7/26/04	3,168,000	318,500	259,029	3,745,529
7/27/04	3,168,000	318,500	259,029	3,745,529
7/28/04	3,226,414	364,286	252,757	3,843,457
7/29/04	3,226,414	364,286	252,757	3,843,457
7/30/04	3,226,414	364,286	252,757	3,843,457
7/31/04	3,226,414	364,286	252,757	3,843,457
8/1/04	3,226,414	364,286	252,757	3,843,457
8/2/04	3,226,414	364,286	252,757	3,843,457
8/3/04	3,226,414	364,286	252,757	3,843,457
8/4/04	3,226,414	322,900	258,629	3,807,943
8/5/04	3,226,414	322,900	258,629	3,807,943
8/6/04	3,226,414	322,900	258,629	3,807,943
8/7/04	3,226,414	322,900	258,629	3,807,943
8/8/04	3,226,414	322,900	258,629	3,807,943
8/9/04	3,226,414	322,900	258,629	3,807,943
8/10/04	3,226,414	322,900	258,629	3,807,943
8/11/04	3,226,414	337,843	226,043	3,790,300
8/12/04	3,226,414	337,843	226,043	3,790,300
8/13/04	3,226,414	337,843	226,043	3,790,300
8/14/04	3,226,414	337,843	226,043	3,790,300

1.5" Rain Aug

MeterArchive_Query1

8/15/04	3,226,414	337,843	226,043	3,790,300
8/16/04	3,226,414	337,843	226,043	3,790,300
8/17/04	3,226,414	337,843	226,043	3,790,300
8/18/04	3,226,414	386,200	234,971	3,847,585
8/19/04	3,226,414	386,200	234,971	3,847,585
8/20/04	3,226,414	386,200	234,971	3,847,585
8/21/04	3,226,414	386,200	234,971	3,847,585
8/22/04	3,226,414	386,200	234,971	3,847,585
8/23/04	3,226,414	386,200	234,971	3,847,585
8/24/04	3,226,414	386,200	234,971	3,847,585
8/25/04	3,226,414	358,950	252,413	3,837,777
8/26/04	3,226,414	358,950	252,413	3,837,777
8/27/04	3,226,414	358,950	252,413	3,837,777
8/28/04	3,226,414	358,950	252,413	3,837,777
8/29/04	3,226,414	358,950	252,413	3,837,777
8/30/04	3,226,414	358,950	252,413	3,837,777
8/31/04	3,226,414	358,950	252,413	3,837,777
9/1/04	3,226,414	358,950	252,413	3,837,777
9/2/04	3,226,414	370,400	218,686	3,815,500
9/3/04	3,226,414	370,400	218,686	3,815,500
9/4/04	3,226,414	370,400	218,686	3,815,500
9/5/04	3,226,414	370,400	218,686	3,815,500
9/6/04	3,226,414	370,400	218,686	3,815,500
9/7/04	3,226,414	370,400	218,686	3,815,500
9/8/04	3,226,414	370,400	218,686	3,815,500
9/9/04	3,226,414	347,433	214,017	3,787,864
9/10/04	3,226,414	347,433	214,017	3,787,864
9/11/04	3,226,414	347,433	214,017	3,787,864
9/12/04	3,226,414	347,433	214,017	3,787,864
9/13/04	3,226,414	347,433	214,017	3,787,864
9/14/04	3,226,414	347,433	214,017	3,787,864
9/15/04	3,226,414	346,186	251,457	3,824,057
9/16/04	3,226,414	346,186	251,457	3,824,057
9/17/04	3,226,414	346,186	251,457	3,824,057
9/18/04	3,226,414	346,186	251,457	3,824,057
9/19/04	3,226,414	346,186	251,457	3,824,057
9/20/04	3,226,414	346,186	251,457	3,824,057
9/21/04	3,226,414	346,186	251,457	3,824,057
9/22/04	3,226,414	319,371	237,443	3,783,228
9/23/04	3,226,414	319,371	237,443	3,783,228
9/24/04	3,226,414	319,371	237,443	3,783,228
9/25/04	3,226,414	319,371	237,443	3,783,228
9/26/04	3,226,414	319,371	237,443	3,783,228
9/27/04	3,226,414	319,371	237,443	3,783,228
9/28/04	3,226,414	319,371	237,443	3,783,228
9/29/04	3,226,414	300,002	233,300	3,759,716
9/30/04	3,226,414	300,002	233,300	3,759,716
10/1/04	3,226,414	300,002	233,300	3,759,716
10/2/04	3,226,414	300,002	233,300	3,759,716
10/3/04	3,226,414	300,002	233,300	3,759,716
10/4/04	3,226,414	300,002	233,300	3,759,716
10/5/04	3,226,414	300,002	233,300	3,759,716

1.5" Rain Sept

10/6/04	3,226,414	300,579	242,800	3,769,793
10/7/04	3,226,414	300,579	242,800	3,769,793
10/8/04	3,226,414	300,579	242,800	3,769,793
10/9/04	3,226,414	300,579	242,800	3,769,793
10/10/04	3,226,414	300,579	242,800	3,769,793
10/11/04	3,226,414	300,579	242,800	3,769,793
10/12/04	3,226,414	300,579	242,800	3,769,793
10/13/04	2,803,671	300,818	232,971	3,337,460
10/14/04	2,803,671	300,818	232,971	3,337,460
10/15/04	2,803,671	300,818	232,971	3,337,460
10/16/04	2,803,671	300,818	232,971	3,337,460
10/17/04	2,803,671	300,818	232,971	3,337,460
10/18/04	2,803,671	300,818	232,971	3,337,460
10/19/04	2,803,671	300,818	232,971	3,337,460
10/20/04	2,936,971	301,081	238,829	3,476,881
10/21/04	2,936,971	301,081	238,829	3,476,881
10/22/04	2,936,971	301,081	238,829	3,476,881
10/23/04	2,936,971	301,081	238,829	3,476,881
10/24/04	2,936,971	301,081	238,829	3,476,881
10/25/04	2,936,971	301,081	238,829	3,476,881
10/26/04	2,936,971	301,081	238,829	3,476,881
10/27/04	3,292,429	338,700	232,929	3,864,058
10/28/04	3,292,429	338,700	232,929	3,864,058
10/29/04	3,292,429	338,700	232,929	3,864,058
10/30/04	3,292,429	338,700	232,929	3,864,058
10/31/04	3,292,429	338,700	232,929	3,864,058
11/1/04	3,292,429	338,700	232,929	3,864,058
11/2/04	3,292,429	338,700	232,929	3,864,058
11/3/04	3,604,071	354,829	212,314	4,171,214
11/4/04	3,604,071	354,829	212,314	4,171,214
11/5/04	3,604,071	354,829	212,314	4,171,214
11/6/04	3,604,071	354,829	212,314	4,171,214
11/7/04	3,604,071	354,829	212,314	4,171,214
11/8/04	3,604,071	354,829	212,314	4,171,214
11/9/04	3,604,071	354,829	212,314	4,171,214
11/10/04	3,459,400	364,914	200,014	4,024,328
11/11/04	3,459,400	364,914	200,014	4,024,328
11/12/04	3,459,400	364,914	200,014	4,024,328
11/13/04	3,459,400	364,914	200,014	4,024,328
11/14/04	3,459,400	364,914	200,014	4,024,328
11/15/04	3,459,400	364,914	200,014	4,024,328
11/16/04	3,459,400	364,914	200,014	4,024,328
11/17/04	3,386,657	467,314	221,600	4,075,571
11/18/04	3,386,657	467,314	221,600	4,075,571
11/19/04	3,386,657	467,314	221,600	4,075,571
11/20/04	3,386,657	467,314	221,600	4,075,571
11/21/04	3,386,657	467,314	221,600	4,075,571
11/22/04	3,386,657	467,314	221,600	4,075,571
11/23/04	3,386,657	467,314	221,600	4,075,571
11/24/04	1,938,222	410,467	178,822	2,527,511
11/25/04	1,938,222	410,467	178,822	2,527,511
11/26/04	1,938,222	410,467	178,822	2,527,511

← Calibrated 13.1E

← Calibrated

Oct. 4.0" Rain

— 1" Rain
— 1.3" Rain

calibration Dates

13.1E

10-7-04 *

10-21-04

GPD

MeterArchive_Query1

11/27/04	1,938,222	410,467	178,822	2,527,511	
11/28/04	1,938,222	410,467	178,822	2,527,511	
11/29/04	1,938,222	410,467	178,822	2,527,511	-0.36" rain
11/30/04	1,938,222	410,467	178,822	2,527,511	-0.5" rain
12/1/04	1,938,222	410,467	178,822	2,527,511	
12/2/04	1,938,222	410,467	178,822	2,527,511	
12/3/04	1,715,520	393,280	198,140	2,306,940	
12/4/04	1,715,520	393,280	198,140	2,306,940	
12/5/04	1,715,520	393,280	198,140	2,306,940	
12/6/04	1,715,520	393,280	198,140	2,306,940	
12/7/04	1,715,520	393,280	198,140	2,306,940	

* Jerry Davis & Ron Pelley Present

Capacity Flowing Full
14.4 mgd

MANNING FORMULA PIPE FLOW CHART

English/Metric Units

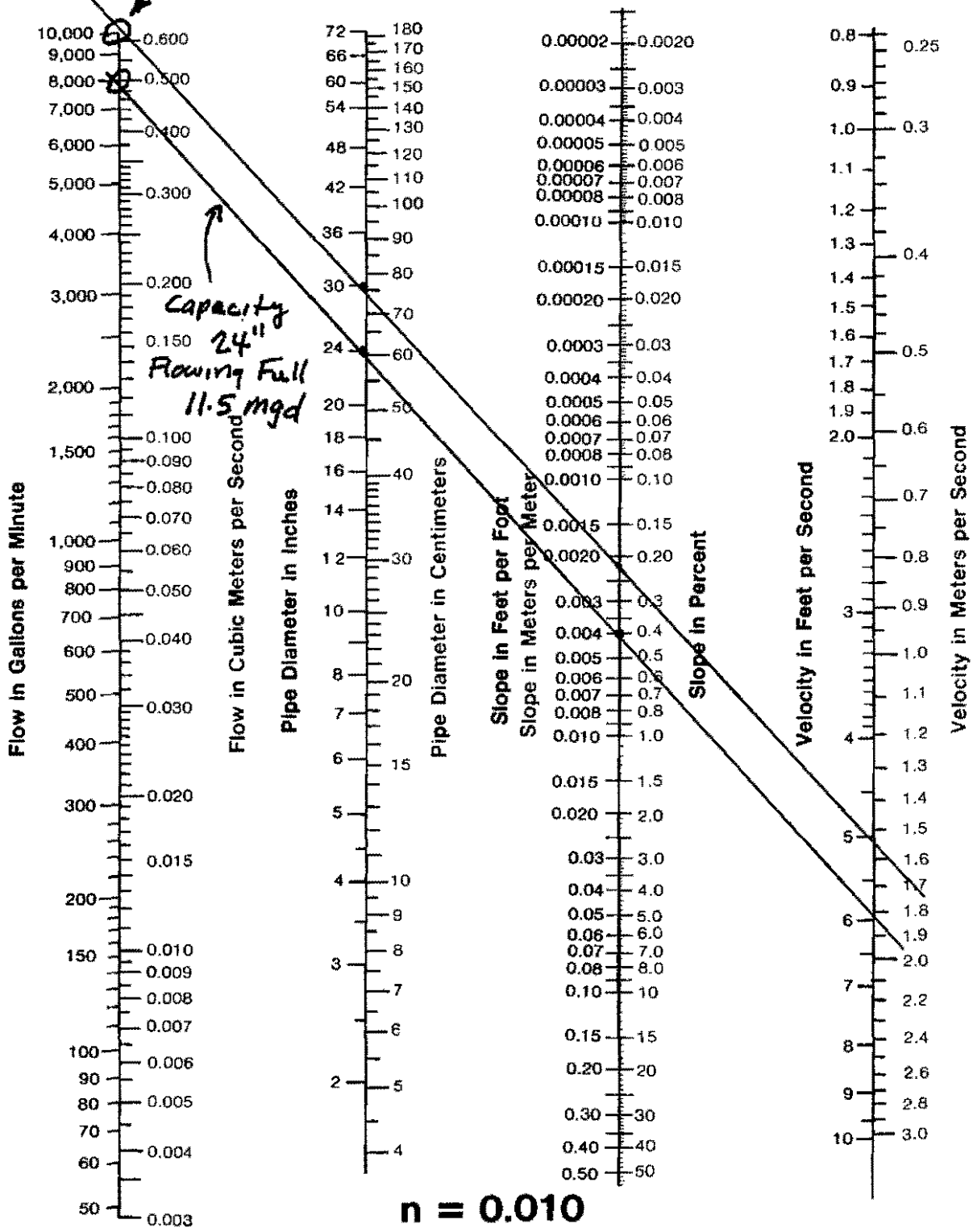
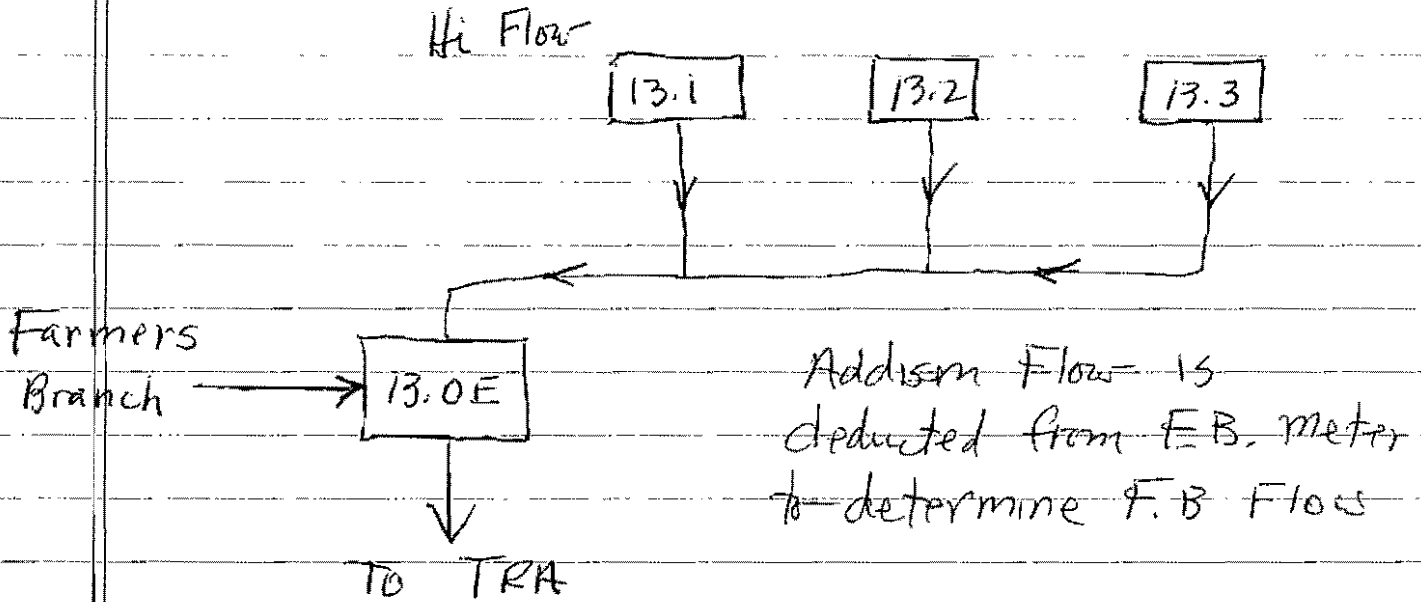


Chart based on the formula $Q = 1.486 \times A D^{8/3} \times S^{1/2}$ for pipe flowing full

Meeting with TRA

1-27-05

Mark Orbeck, JEP, Jerry D. David Dupey



On 10/7/04 TRA discovered a leaning sensor on 13-1E. This was followed by a calibration on 10-21-04 which showed no sign of recent flow differences. Mark continued to read water was flowing thru.

Mark: Find sensor leaning - recalibrated - trimmed off. The flat part of the graph. Chart run every Tuesday - Read Totalizer but a 7 day total flow. Divide by 7 to get daily flow. No charts. Also use Tel Log - it gives flow @ 5 min intervals - can be adjusted to show hourly flow and daily and weekly basis. Tellog is battery powered. Will show power failure meters calibrated quarterly. Verified no blockage. Plume has an 18" throat. Has 15 mgd. Capacity. Now calibrated for 8 mgd.

Bill Cyrus, Patty Cleveland, John Nelson had a problem with Farmers Branch 130E and Hutton Branch Meter.

Isco Open Channel Flow Measurement Handbook

Fifth Edition
Second Printing

by Douglas M. Grant & Brian D. Dawson

Isco, Inc.
Lincoln, Nebraska



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Price \$50.00
Printed in U.S.A.

1 ft. Parshall Flume Discharge Table with Head in Feet (continued)

Formulas: CFS = 4.000 H^{1.522} MGD = 2.585 H^{1.522}
 GPM = 1795 H^{1.522}

Where: H = head in feet

Head (feet)	CFS	GPM	MGD	Head (feet)	CFS	GPM	MGD
2.01	11.58	5194	7.480	2.26	13.84	6209	8.942
2.02	11.66	5234	7.537	2.27	13.93	6251	9.002
2.03	11.75	5275	7.594	2.28	14.02	6293	9.062
2.04	11.84	5313	7.651	2.29	14.12	6335	9.123
2.05	11.93	5352	7.708	2.30	14.21	6377	9.184
2.06	12.02	5392	7.765	2.31	14.30	6419	9.244
2.07	12.11	5432	7.823	2.32	14.40	6462	9.305
2.08	12.19	5472	7.880	2.33	14.49	6504	9.366
2.09	12.28	5512	7.938	2.34	14.59	6547	9.428
2.10	12.37	5552	7.996	2.35	14.68	6589	9.489
2.11	12.46	5593	8.054	2.36	14.78	6632	9.551
2.12	12.55	5633	8.112	2.37	14.87	6675	9.612
2.13	12.64	5674	8.171	2.38	14.97	6718	9.674
2.14	12.73	5714	8.229	2.39	15.07	6761	9.736
2.15	12.82	5755	8.288	2.40	15.16	6804	9.798
2.16	12.92	5796	8.346	2.41	15.26	6847	9.860
2.17	13.01	5837	8.405	2.42	15.35	6890	9.923
2.18	13.10	5878	8.464	2.43	15.45	6934	9.985
2.19	13.19	5919	8.523	2.44	15.55	6977	10.048
2.20	13.28	5960	8.583	2.45	15.64	7021	10.11
2.21	13.37	6001	8.642	2.46	15.74	7064	10.17
2.22	13.47	6042	8.702	2.47	15.84	7108	10.24
2.23	13.56	6084	8.762	2.48	15.94	7152	10.30
2.24	13.65	6126	8.821	2.49	16.04	7196	10.36
2.25	13.74	6167	8.881	2.50	16.13	7240	10.43

Table 13-7:

1 1/2 ft. Parshall Flume Discharge Table with Head in Feet

Formulas: CFS = 6.000 H^{1.536} MGD = 3.878 H^{1.536}
 GPM = 2693 H^{1.536}

Where: H = head in feet

Head (feet)	CFS	GPM	MGD	Head (feet)	CFS	GPM	MGD
0.01	0.51	2230	356.0	0.51	2230	985.0	1.377
0.02	0.52	2195	985.0	0.52	2195	985.0	1.418
0.03	0.53	2260	1014	0.53	2260	1044	1.461
0.04	0.54	2326	1044	0.54	2326	1074	1.503
0.05	0.55	2392	1074	0.55	2392	1104	1.546
0.06	0.56	2460	1104	0.56	2460	1134	1.590
0.07	0.57	2527	1134	0.57	2527	1165	1.634
0.08	0.58	2596	1165	0.58	2596	1196	1.678
0.09	0.59	2665	1196	0.59	2665	1228	1.723
0.10	0.1738	78.03	0.1124	0.60	2735	1259	1.768
0.11	0.2019	90.34	0.1301	0.61	2805	1291	1.813
0.12	0.2301	103.3	0.1487	0.62	2876	1323	1.859
0.13	0.2603	116.8	0.1682	0.63	2948	1356	1.905
0.14	0.2917	130.9	0.1885	0.64	3020	1388	1.952
0.15	0.3243	145.6	0.2096	0.65	3093	1421	1.999
0.16	0.3582	160.8	0.2315	0.66	3167	1455	2.047
0.17	0.3932	176.5	0.2541	0.67	3241	1488	2.095
0.18	0.4293	192.7	0.2775	0.68	3316	1522	2.143
0.19	0.4665	209.4	0.3015	0.69	3391	1556	2.192
0.20	0.5048	226.6	0.3263	0.70	3467	1590	2.241
0.21	0.5442	244.2	0.3517	0.71	3543	1625	2.290
0.22	0.5845	262.4	0.3778	0.72	3620	1660	2.340
0.23	0.6259	280.9	0.4045	0.73	3698	1695	2.390
0.24	0.6682	299.9	0.4319	0.74	3776	1730	2.441
0.25	0.7115	319.4	0.4599	0.75	3855	1766	2.491
0.26	0.7558	339.2	0.4885	0.76	3934	1802	2.543
0.27	0.8009	359.5	0.5177	0.77	4014	1838	2.594
0.28	0.8470	380.2	0.5474	0.78	4094	1874	2.646
0.29	0.8940	401.2	0.5778	0.79	4175	1911	2.699
0.30	0.9418	422.7	0.6087	0.80	4257	1948	2.751
0.31	0.9905	444.6	0.6402	0.81	4339	1985	2.805
0.32	1.040	466.8	0.6722	0.82	4422	2022	2.859
0.33	1.091	489.5	0.7048	0.83	4505	2060	2.912
0.34	1.142	512.4	0.7379	0.84	4589	2098	2.966
0.35	1.194	535.6	0.7715	0.85	4673	2135	3.020
0.36	1.247	559.5	0.8058	0.86	4758	2172	3.075
0.37	1.300	583.6	0.8404	0.87	4843	2210	3.130
0.38	1.355	608.1	0.8756	0.88	4929	2248	3.185
0.39	1.410	632.8	0.9113	0.89	5015	2286	3.242
0.40	1.466	658.0	0.9475	0.90	5102	2325	3.298
0.41	1.523	683.4	0.9842	0.91	5190	2364	3.354
0.42	1.580	709.2	1.021	0.92	5278	2403	3.411
0.43	1.638	735.4	1.059	0.93	5366	2442	3.468
0.44	1.697	761.8	1.097	0.94	5455	2481	3.526
0.45	1.757	788.6	1.136	0.95	5545	2520	3.584
0.46	1.817	815.8	1.175	0.96	5635	2559	3.642
0.47	1.878	843.2	1.214	0.97	5726	2600	3.701
0.48	1.940	870.9	1.254	0.98	5816	2641	3.759
0.49	2.003	899.0	1.295	0.99	5908	2682	3.819
0.50	2.066	927.4	1.335	1.00	6000	2693	3.878

13

11/5/05 calibration

"Current Head (After Cal)" = 10.31" Head
 = 0.26' Head

3.075 MGD
 per chart

13

TRINITY RIVER AUTHORITY OF TEXAS
METERING DEPARTMENT OF TECHNICAL SERVICES WORK ORDER

OPEN CHANNEL WORK ORDER

METER STATION #: 13.1 E MAPSCO #: 11113-B WORK ORDER #: 50 DATE: 1-9-04

INTERCEPTOR: Addison Int. ABBR: CF2R

WORK REQUESTED: Sched CAL.

ASSIGNED TO: 122 TECHNICIAN(S): MW OR DMM SN: 106

TRUCK TIME (X \$7:00) = SAFETY TIME (X \$3:00) = TOTAL (TRK + SFTY) =

TECHNICIAN HOURS: COMMENTS -

EMP #	REG.	EXT.	COMMENTS
<u>6005</u>	<u>2</u>		<u>17.16</u> <u>34.32</u>
<u>4398</u>	<u>2</u>		
<u>1400</u>			
<u>5774</u>			

DUPOY 2103

4 - 20 Ma CALIBRATION			DIGITAL TOTALIZER CHECK				
TOTAL HRS.	ZERO	SPAN	BEFORE	AFTER	MULTIPLIER - <u>100</u>	COUNTS	TIME
<u>4.0</u>	<u>3.99</u>	<u>26.00</u>	<u>4.00</u>	<u>28.00</u>	<u>CALCULATED</u>	<u>10</u>	<u>17.18</u>
					<u>MEASURED</u>	<u>10</u>	<u>17.37</u>
					<u>ACCURACY</u>		<u>100.1%</u>
<u>TIME - 8:00</u>	<u>RANGE 16.77</u>	<u>9.10%</u>			<u>PRIMARY DEVICE 18" 24</u>		
<u>MANUFACTURER: Baldor</u>	<u>MODEL: 2100</u>	<u>SERIAL #: 4138</u>	<u>TELOG #: 11549</u>		<u>TOTALIZER READING</u>		<u>45870.961</u>

OPEN CHANNEL CALIBRATION

CALCULATED MEASUREMENTS				BEFORE			AFTER		
TARGET	ACT HT. *	CALC. FLOW	CALC. MA	IND. FLOW	IND. MA	% ACCUR.	IND. FLOW	IND. MA	% ACCUR.
<u>11</u>	<u>12.254</u>	<u>4.01</u>	<u>16.74</u>	<u>4.00</u>	<u>16.71</u>	<u>99.8</u>			
<u>9</u>	<u>10.254</u>	<u>3.05</u>	<u>13.69</u>	<u>3.04</u>	<u>13.65</u>	<u>99.7</u>			
<u>7.5</u>	<u>8.754</u>	<u>2.40</u>	<u>11.63</u>	<u>2.40</u>	<u>11.60</u>	<u>100%</u>			
<u>7</u>	<u>8.254</u>	<u>2.19</u>	<u>10.96</u>	<u>2.19</u>	<u>10.97</u>	<u>100%</u>			

ACCURACY: BEFORE: 99.7% AFTER:

7 - DAY CHECK START DATE: END DATE: TOTAL DAYS:

TOTAL GALLONS: TOTAL GALLONS / # OF DAYS = DAILY AVERAGE FLOW (MGD)

COMPLETED BY: MW CHECKED BY: OR

DATE COMPLETED: 1-29-03 DATE CHECKED: 2-9-04

**TRINITY RIVER AUTHORITY OF TEXAS
METERING DEPARTMENT OF TECHNICAL SERVICES WORK ORDER**

OPEN CHANNEL WORK ORDER

METER STATION #: 13.12 MAPSCO # DALLAS 13-B WORK ORDER # 168 DATE 3-10-04

INTERCEPTOR: ADDISON ABBR: ADD

WORK REQUESTED: Sched Cal

ASSIGNED TO: 122 TECHNICIAN(S): RCM DR DMM SN 120

TRUCK TIME (X \$7:00) = 14.00 SAFETY TIME (X \$3:00) = 6.00 TOTAL (TRK + SFTY) = 20.00

TECHNICIAN HOURS: _____ COMMENTS: _____

EMP #	REG.	EXT.
<u>Robles 9785</u>	<u>2</u>	
<u>Miller 4398</u>	<u>2</u>	
<u>Baker 1400</u>		
<u>Cortaz 5774</u>	<u>2</u>	
<u>DUPUY 2103</u>		

1.538 x 3.878

XDR HT - 49.00 USER HD - 14.16 OFFSET - 34.84 TGT - 1.254

TECHNICIAN HOURS		4 - 20 Ma CALIBRATION		DIGITAL TOTALIZER CHECK				
TOTAL HRS.	TOTAL \$	ZERO	SPAN	BEFORE	AFTER	MULTIPLIER - 100	COUNTS	TIME
<u>6</u>		<u>3.99</u>	<u>20.01</u>	<u>3.99</u>	<u>4.00</u>	<u>17.28</u>	<u>5</u>	<u>17.28</u>
				<u>20.00</u>	<u>20.00</u>	<u>17.31</u>	<u>5</u>	<u>17.31</u>
CURRENT HEAD (AFTER CALIBRATION) at Time - <u>6.52 in</u>		ACCURACY		PRIMARY DEVICE <u>18" PA</u>		TOTALIZER READING <u>46954910</u>		
TIME - <u>9:25A</u>	RANGE - <u>5.0 mGd</u>							
MANUFACTURER: <u>SADGER</u>	MODEL: <u>2100</u>	SERIAL #: <u>4138</u>	TELOG #: <u>11549</u>					

OPEN CHANNEL CALIBRATION

CALCULATED MEASUREMENTS				BEFORE			AFTER		
TARGET	ACT HT. "	CALC. FLOW	CALC. MA	IND. FLOW	IND. MA	% ACCUR.	IND. FLOW	IND. MA	% ACCUR.
<u>7-</u>	<u>8.254</u>	<u>2.18</u>	<u>10.98</u>	<u>2.25</u>	<u>11.14</u>	<u>103.2</u>	<u>2.19</u>	<u>10.98</u>	<u>100.5</u>
<u>9-</u>	<u>10.254</u>	<u>3.04</u>	<u>13.74</u>	<u>3.12</u>	<u>13.93</u>	<u>102.6</u>	<u>3.03</u>	<u>13.65</u>	<u>99.7</u>
<u>10-</u>	<u>11.254</u>	<u>3.51</u>	<u>15.24</u>	<u>3.59</u>	<u>15.42</u>	<u>102.3</u>	<u>3.52</u>	<u>15.18</u>	<u>100.3</u>
<u>12-</u>	<u>13.254</u>	<u>4.52</u>	<u>18.46</u>	<u>4.58</u>	<u>18.68</u>	<u>101.3</u>	<u>4.51</u>	<u>18.34</u>	<u>99.8</u>
ACCURACY:				BEFORE: <u>102.4</u>			AFTER: <u>100.1</u>		

7 - DAY CHECK START DATE: _____ END DATE: _____ TOTAL DAYS: _____
TOTALIZER: _____ TOTALIZER: _____

TOTAL GALLONS: _____ TOTAL GALLONS / # OF DAYS = DAILY AVERAGE FLOW (MGD) _____

COMPLETED BY: [Signature] CHECKED BY: C. Baker

DATE COMPLETED: 3-10-04 DATE CHECKED: 3-19-04

TRINITY RIVER AUTHORITY OF TEXAS
METERING DEPARTMENT OF TECHNICAL SERVICES WORK ORDER

OPEN CHANNEL WORK ORDER									
METER STATION #: <i>13.1 E</i>			MAPSCO #: <i>DA11 13-B</i>		WORK ORDER #: <i>383</i>		DATE: <i>6-25-04</i>		
INTERCEPTOR: <i>Addison</i>							ABBR: <i>EF2R</i>		
WORK REQUESTED: <i>Sched CALi</i>									
ASSIGNED TO: <i>122</i>			TECHNICIAN(S): <i>MM-DR</i>				DMM SN: <i>106</i>		
TRUCK TIME (X \$7:00) =			SAFETY TIME (X \$3:00) =			TOTAL (TRK + SFTY) =			
TECHNICIAN HOURS:			COMMENTS -						
EMP #	REG.	EXT.							
Robles 322	<i>2</i>								
Miller 176	<i>2</i>								
Baker 231									
Cortez 164									
DuPuy 161									
4 - 20 Ma CALIBRATION					Target				
TOTAL HRS. <i>4.2</i>			BEFORE	AFTER	MULTIPLIER	<i>-100</i>			
TOTAL \$			ZERO <i>4.01</i>	<i>4.00</i>	USER HEAD	<i>14.16</i>			
TOTAL JOB COST			SPAN <i>19.99</i>	<i>20.00</i>	OFFSET	<i>34.84</i>			
CURRENT HEAD (AFTER CALIBRATION) at Time - <i>7.35</i>			<i>9.86%</i>		XDCR hgt <i>119.0</i>				
TIME - <i>6:40</i>			RANGE - <i>5.03 M.G.D.</i>		PRIMARY DEVICE <i>18" PA</i>				
MANUFACTURER:	MODEL:	SERIAL #:	TELOG #	TOTALIZER READING					
<i>Badger</i>	<i>2100</i>	<i>4138</i>	<i>11599</i>	<i>48833517</i>					
OPEN CHANNEL CALIBRATION									
CALCULATED MEASUREMENTS				BEFORE			AFTER		
TARGET	ACT HT. "	CALC. FLOW	CALC. MA	IND. FLOW	IND. MA	% ACCUR.	IND. FLOW	IND. MA	% ACCUR.
<i>12</i>	<i>13.25</i>	<i>4.54</i>	<i>18.43</i>	<i>4.56</i>	<i>18.50</i>	<i>100.4</i>			
<i>9.</i>	<i>10.25</i>	<i>3.05</i>	<i>13.69</i>	<i>3.08</i>	<i>13.62</i>	<i>100.9</i>			
<i>7 3/4</i>	<i>9.0</i>	<i>2.51</i>	<i>11.97</i>	<i>2.53</i>	<i>12.07</i>	<i>100.8</i>			
<i>7.</i>	<i>8.25</i>	<i>2.19</i>	<i>10.96</i>	<i>2.20</i>	<i>10.99</i>	<i>100.5</i>			
ACCURACY:				BEFORE: <i>100.7%</i>			AFTER:		
7 - DAY CHECK		START DATE:			END DATE:			TOTAL DAYS:	
		TOTALIZER:			TOTALIZER:				
TOTAL GALLONS:			TOTAL GALLONS / # OF DAYS = DAILY AVERAGE FLOW (MGD)						
COMPLETED BY: <i>Miller</i>					CHECKED BY: <i>F. Cortez</i>				
DATE COMPLETED: <i>6-25-04</i>					DATE CHECKED: <i>7-16-04</i>				

TRINITY RIVER AUTHORITY OF TEXAS
METERING DEPARTMENT OF TECHNICAL SERVICES WORK ORDER

OPEN CHANNEL WORK ORDER

METER STATION #: <i>13.1E</i>	MAPSCO # <i>Dallas 13B</i>	WORK ORDER # <i>530</i>	DATE <i>10-21-04</i>
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INTERCEPTOR: <i>Addison Int.</i>	ABBR: _____
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WORK REQUESTED: *Scheduled Calibration*

ASSIGNED TO: <i>122</i>	TECHNICIAN(S): <i>CB, DR</i>	DMM SN <i>79596107</i>
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TRUCK TIME (X \$7:00) = <i>175⁰⁰</i>	SAFETY TIME (X \$3:00) = <i>75⁰⁰</i>	TOTAL (TRK + SFTY) = <i>25⁰⁰</i>
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TECHNICIAN HOURS:			COMMENTS
EMP #	REG.	EXT.	
<i>Robles 322</i>	<i>2.5</i>		<i>Changed Range from 5.03 MGD to 8.067 MGD</i>
<i>Miller 176</i>			<i>USER head changed from 14.16 to 19.32</i>
<i>Baker 231</i>	<i>2.5</i>		<i>offset changed from 34.84 to 29.68</i>
<i>Cortez 164</i>			<i>Measured 10.25" meter 10.20"</i>
<i>DuPuy 181</i>			

4 - 20 Ma CALIBRATION		Target	<i>1.25</i>
TOTAL HRS. <i>5</i>	BEFORE	AFTER	MULTIPLIER - <i>100</i>
TOTAL \$	ZERO <i>5.86</i>	<i>4.00</i>	USER HEAD <i>19.32</i>
TOTAL JOB COST	SPAN <i>19.99</i>		OFFSET <i>29.68</i>

CURRENT HEAD (AFTER CALIBRATION) at Time - *10.07 13.43 mA* XDCR hgt *49.00"*

TIME - *9:00 AM* RANGE - *8.067 MGD* PRIMARY DEVICE *18" PA*

MANUFACTURER: <i>Badger</i>	MODEL: <i>2100</i>	SERIAL #: <i>4138</i>	TELOG #: <i>4549</i>	TOTALIZER READING
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OPEN CHANNEL CALIBRATION

CALCULATED MEASUREMENTS				BEFORE			AFTER		
TARGET	ACT HT. "	CALC. FLOW	CALC. MA	IND. FLOW	IND. MA	% ACCUR.	IND. FLOW	IND. MA	% ACCUR.
<i>17.00</i>	<i>18.25</i>	<i>7.42</i>	<i>18.71</i>	<i>7.13</i>	<i>18.14</i>	<i>96.1</i>	<i>7.41</i>	<i>18.70</i>	<i>99.9</i>
<i>14.00</i>	<i>15.25</i>	<i>5.63</i>	<i>15.16</i>	<i>5.42</i>	<i>14.75</i>	<i>96.3</i>	<i>5.61</i>	<i>15.12</i>	<i>99.6</i>
<i>11.00</i>	<i>12.25</i>	<i>4.01</i>	<i>11.95</i>	<i>3.83</i>	<i>11.60</i>	<i>95.6</i>	<i>4.00</i>	<i>11.93</i>	<i>99.8</i>
<i>10.00</i>	<i>11.25</i>	<i>3.53</i>	<i>10.99</i>	<i>3.36</i>	<i>10.66</i>	<i>95.2</i>	<i>3.52</i>	<i>10.97</i>	<i>99.7</i>
<i>9.00</i>	<i>10.25</i>	<i>3.05</i>	<i>10.04</i>	<i>WASH</i>					

ACCURACY: BEFORE: *95.8%* AFTER: *99.8%*

7 - DAY CHECK	START DATE: _____	END DATE: _____	TOTAL DAYS:
	TOTALIZER: _____	TOTALIZER: _____	

TOTAL GALLONS:	TOTAL GALLONS / # OF DAYS = DAILY AVERAGE FLOW (MGD)
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COMPLETED BY: <i>CBaker</i>	CHECKED BY:
--------------------------------	-------------

DATE COMPLETED: <i>10-21-04</i>	DATE CHECKED:
------------------------------------	---------------

TRINITY RIVER AUTHORITY OF TEXAS
METERING DEPARTMENT OF TECHNICAL SERVICES WORK ORDER

972 716 0834 - FAX ATTN - Jerry

OPEN CHANNEL WORK ORDER

METER STATION #: 13.12	MAPSCO# DALLAS 13-13	WORK ORDER # 049	DATE 1-5-05
INTERCEPTOR: ADDISGAY Tst.		ABBR: ADD.	
WORK REQUESTED: Schalla			
ASSIGNED TO: 122	TECHNICIAN(S): GC CB mm	DMM SN. 120	
TRUCK TIME (X \$7:00) = 14.00	SAFETY TIME (X \$3:00) = 3.00	TOTAL (TRK + SFTY) = 17.00	

TECHNICIAN HOURS:			COMMENTS			
EMP #	REG.	EXT.				
Robles 322						
Miller 176	2					
Baker 231	2					
Cortaz 164	2					
DuPuy 161						
			4 - 20 Ma CALIBRATION		Target 1.25	
TOTAL HRS.	6		BEFORE	AFTER	MULTIPLIER - 100	
TOTAL \$			ZERO 5.98	4.00	USER HEAD	19.32
TOTAL JOB COST			SPAN 19.99	20.00	OFFSET	29.68
CURRENT HEAD (AFTER CALIBRATION) at Time - 10.31 in @ 10.18 mA			XDCR hgt		49.00	
TIME - 10:09 A			RANGE - 8.07 mgd		PRIMARY DEVICE 18" FA	
MANUFACTURER:	MODEL:	SERIAL #:	TELOG #	TOTALIZER READING		
BAUGER	2100	4138	11549	54515947		

OPEN CHANNEL CALIBRATION

CALCULATED MEASUREMENTS				BEFORE			AFTER		
TARGET	ACT HT. "	CALC. FLOW	CALC. MA	IND. FLOW	IND. MA	% ACCUR.	IND. FLOW	IND. MA	% ACCUR.
8-	9.25	2.61	9.18	A WASH					
10-	11.25	3.53	11.00	3.37	10.70	95.5	3.54	11.00	100.3
12-	13.25	4.54	13.00	4.34	12.60	95.6	4.54	13.01	100.0
15-	16.25	6.19	16.28	6.05	15.97	97.7	6.21	16.34	100.3
17-	18.25	7.42	18.70	7.20	18.27	97.0	7.43	18.74	100.1

ACCURACY:		BEFORE: 96.4	AFTER: 100.2
7 - DAY CHECK	START DATE:	END DATE:	TOTAL DAYS:
	TOTALIZER:	TOTALIZER:	
TOTAL GALLONS:	TOTAL GALLONS / # OF DAYS = DAILY AVERAGE FLOW (MGD)		

COMPLETED BY: <i>[Signature]</i>	CHECKED BY: CBaker
DATE COMPLETED: 1-5-05	DATE CHECKED: 1-17-05

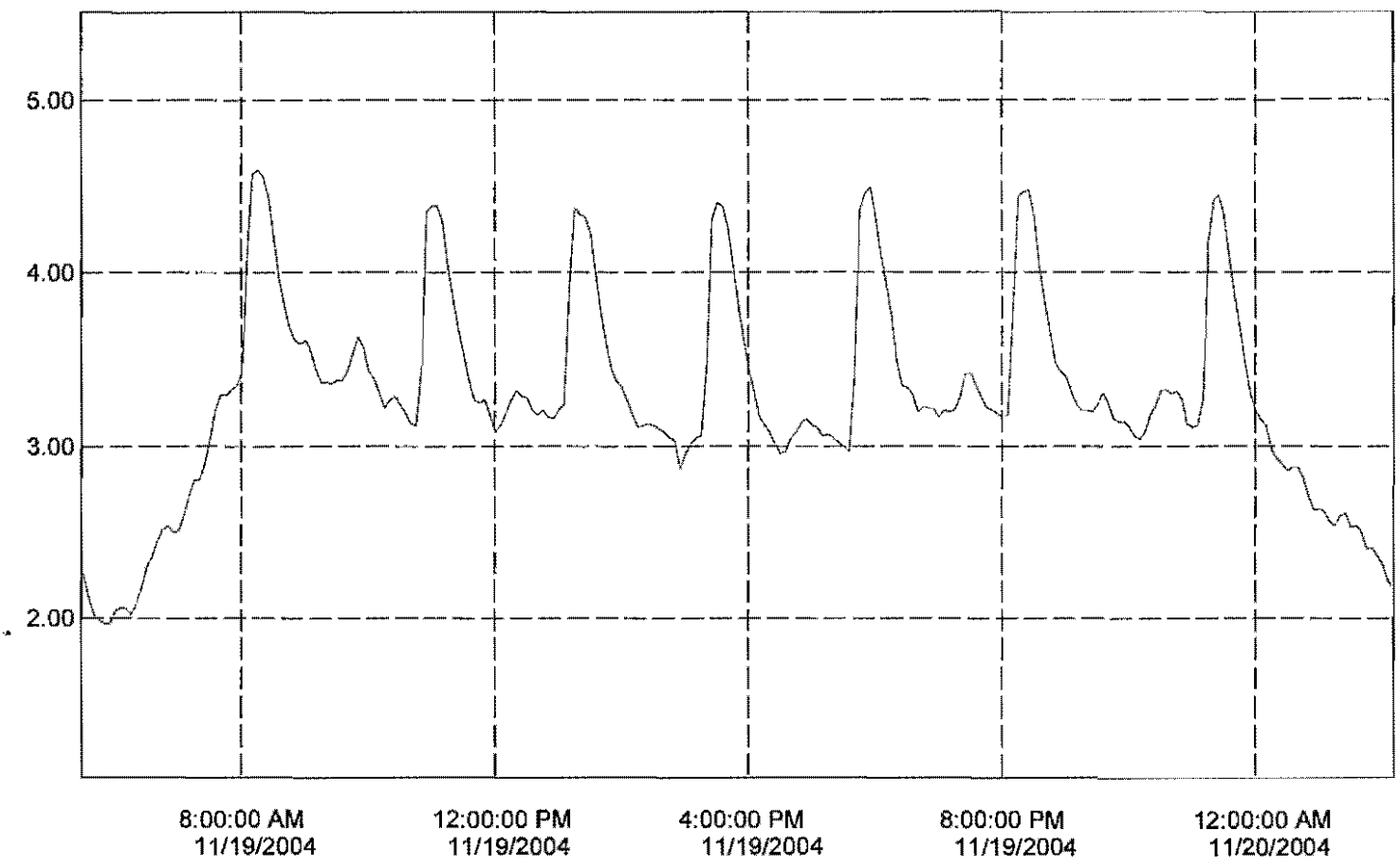
9.13" rain
 3.28" rain
 1.68" rain
 1.42" rain
 4.07" rain
 5.58" rain

ADDISON METERS FY 2004														
Station	2003													2004
	Y T D	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Y T D
13_1E	1.640	1.561	1.675	1.845	1.633	1.673	1.733	2.066	2.687	3.226	3.226	3.076	3.110	2.288
13_2E	0.265	0.221	0.290	0.340	0.288	0.279	0.282	0.348	0.334	0.353	0.343	0.307	0.395	0.314
13_3E	0.204	0.142	0.180	0.200	0.202	0.184	0.235	0.266	0.248	0.244	0.232	0.237	0.205	0.214

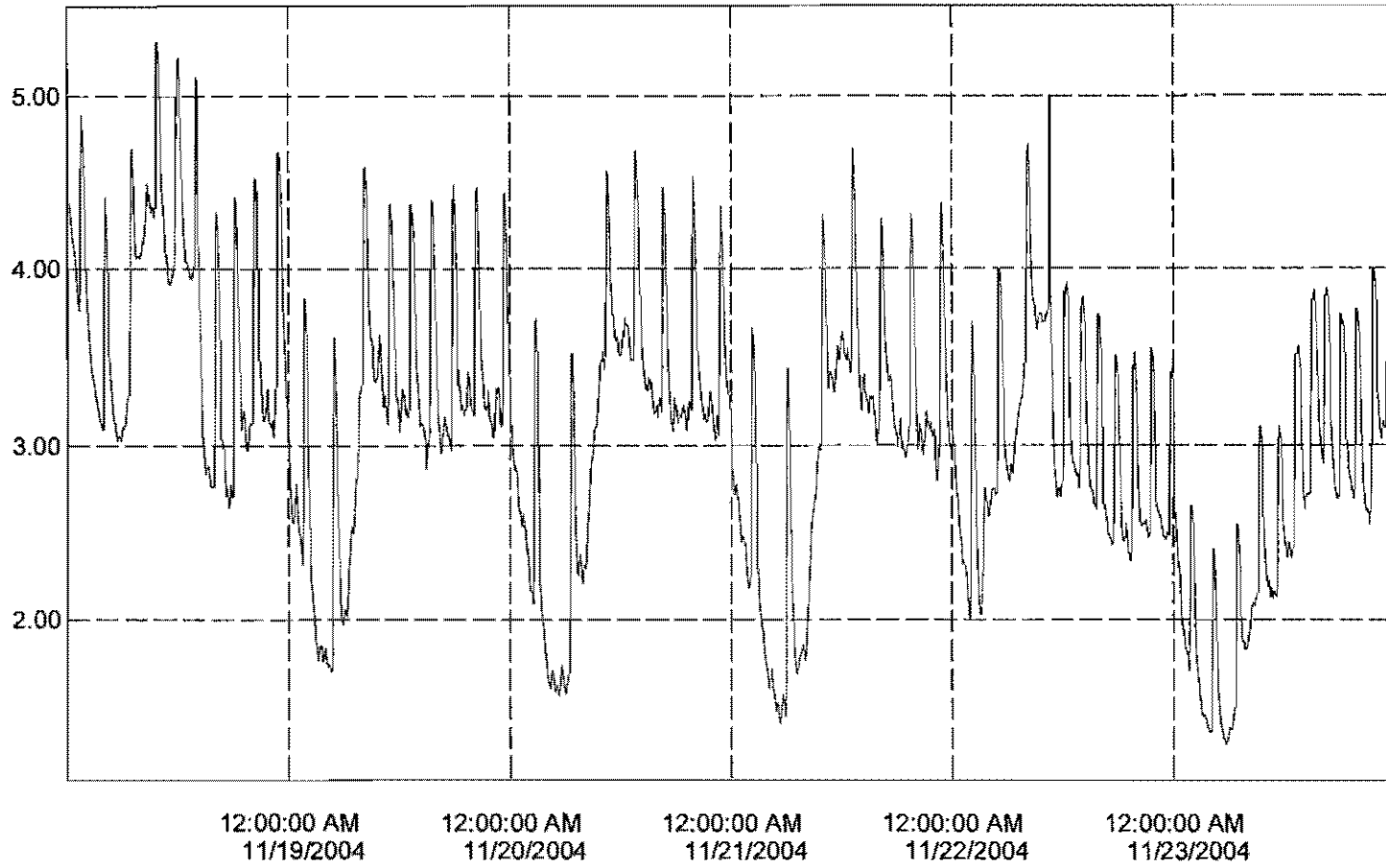
ADDISON METERS FY 2004														
<u>Station</u>	<u>2003</u>													<u>2004</u>
	<u>Y T D</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>July</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Y T D</u>
13_1E	1.640	1.561	1.675	1.845	1.633	1.673	1.733	2.066	2.687	3.226	3.226	3.076	3.110	2.288
13_2E	0.265	0.221	0.290	0.340	0.288	0.279	0.282	0.348	0.334	0.353	0.343	0.307	0.395	0.314
13_3E	0.204	0.142	0.180	0.200	0.202	0.184	0.235	0.266	0.248	0.244	0.232	0.237	0.205	0.214

*Pump close
to meter*

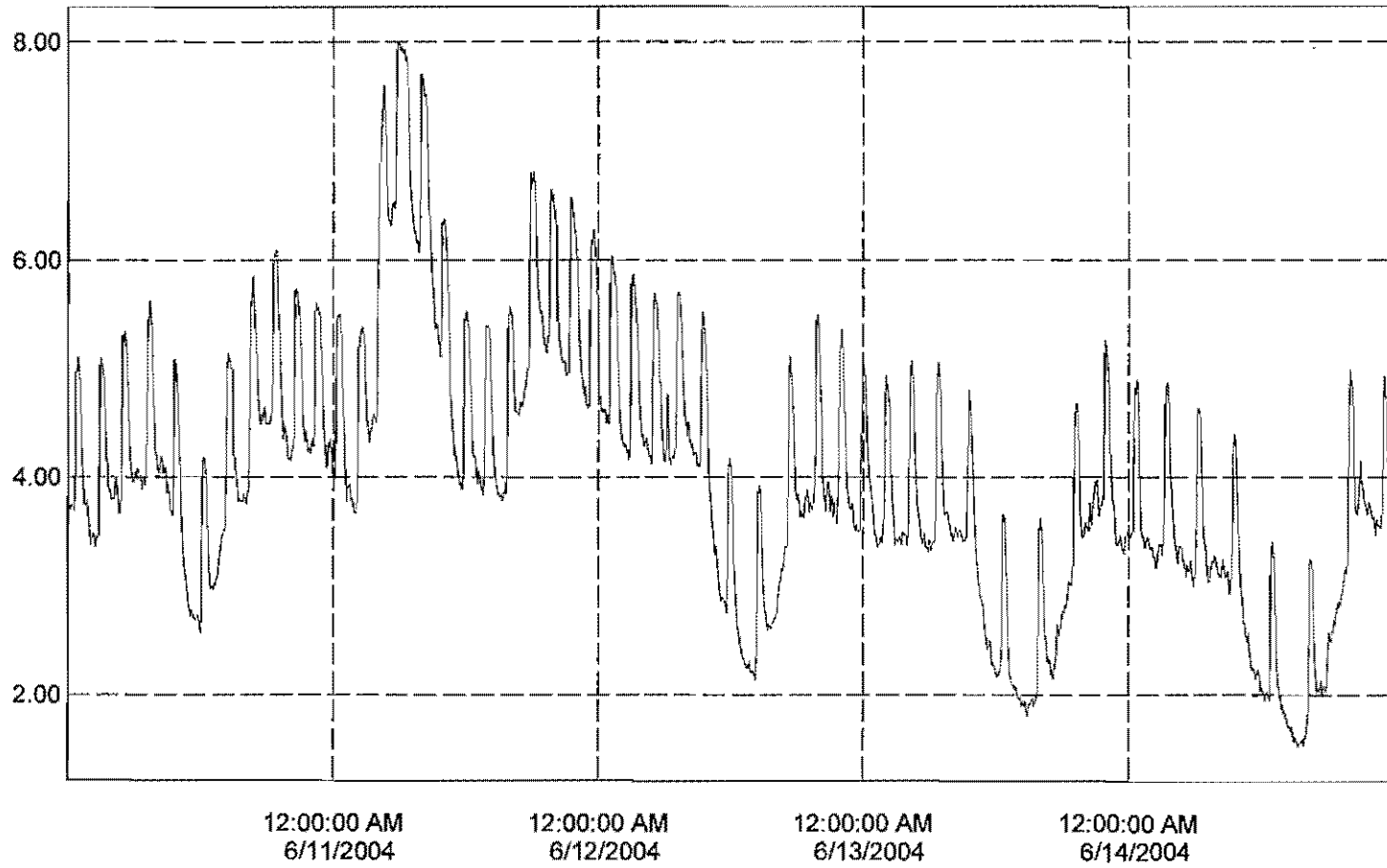
mgd vs. Time (131E Ch1)



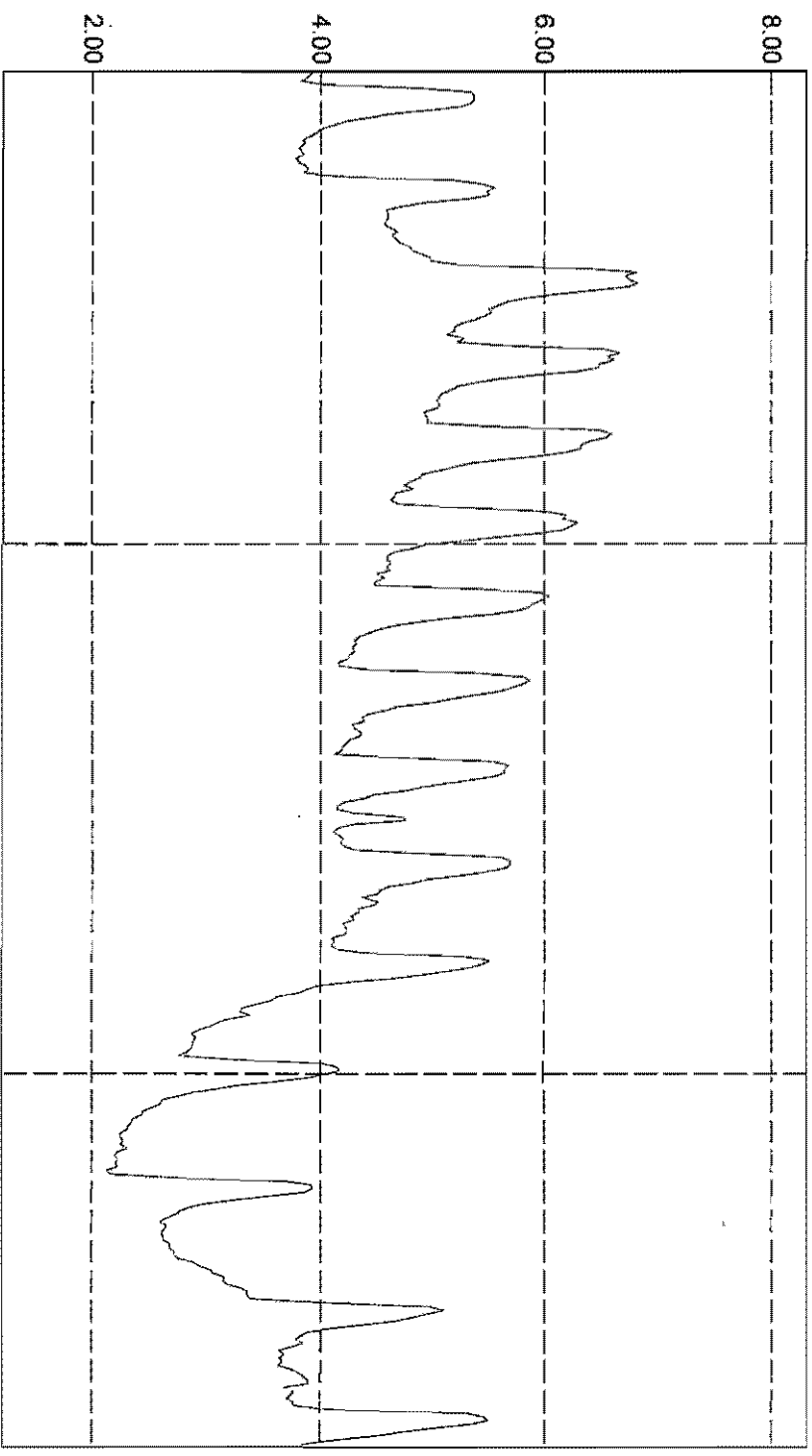
mgd vs. Time (131E Ch1)



mgd vs. Time (131E Ch1)



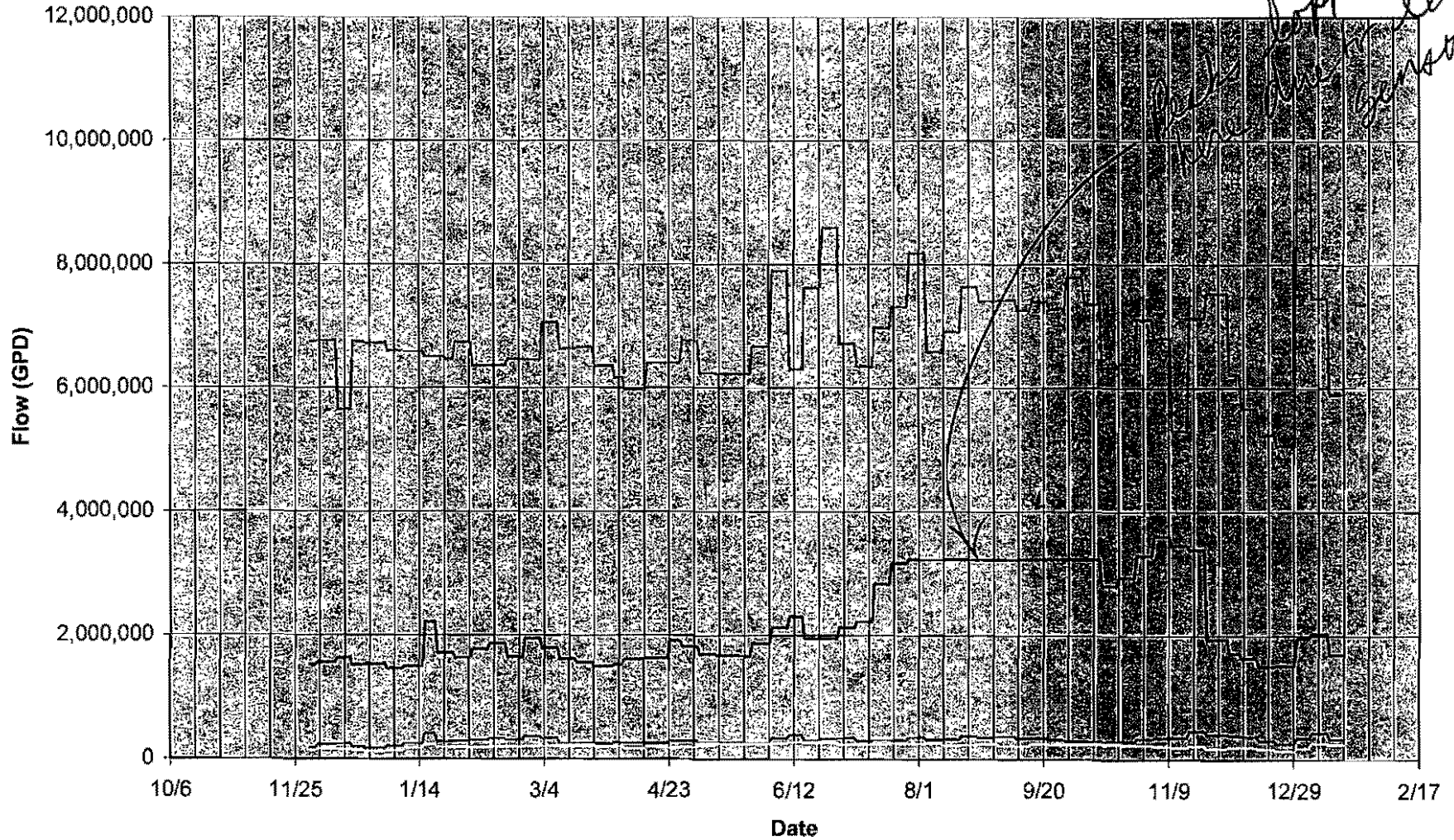
mgd vs. Time (131E Ch1)



12:00:00 AM
6/12/2004

12:00:00 PM
6/12/2004

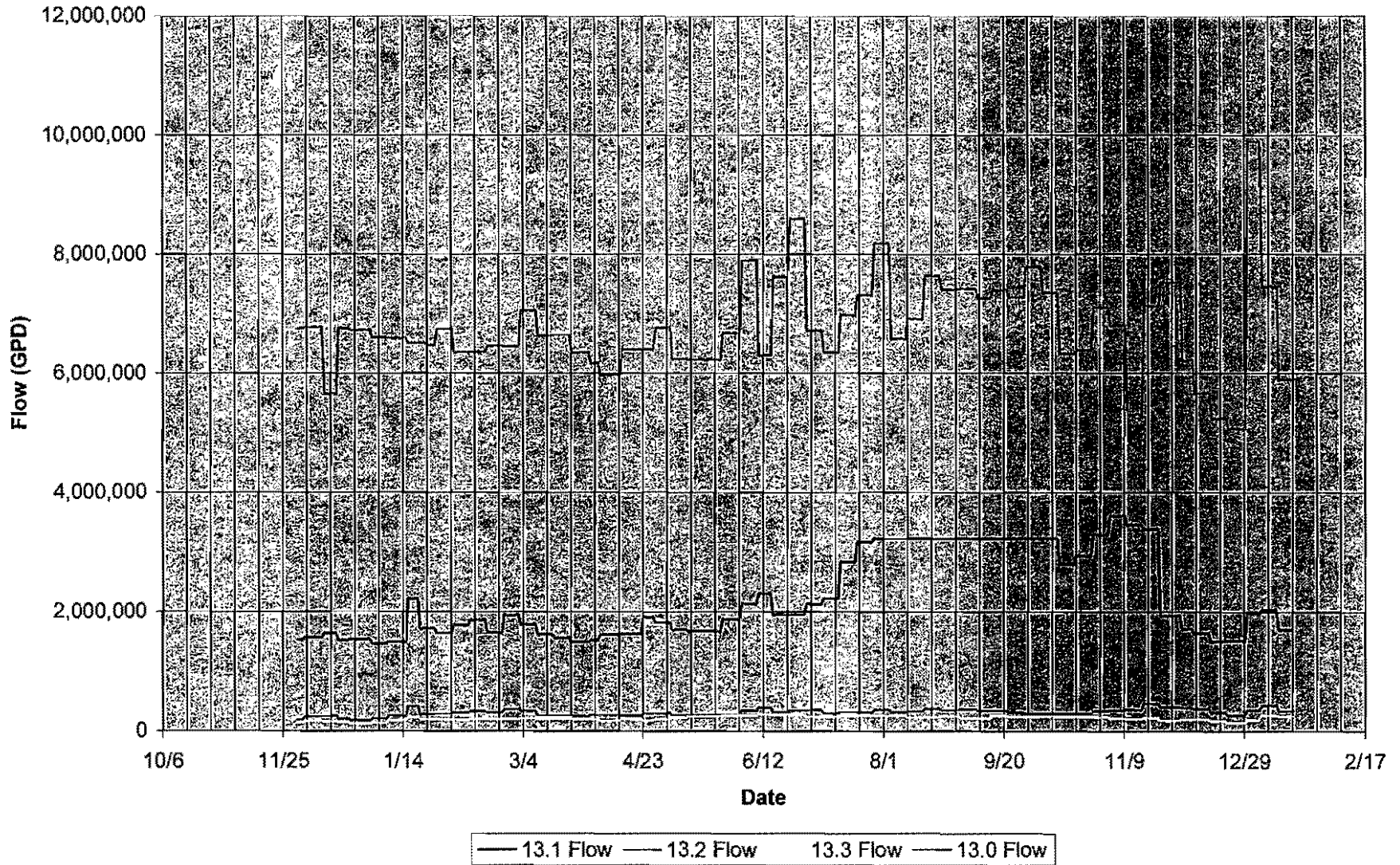
Addison Meters FY 2004



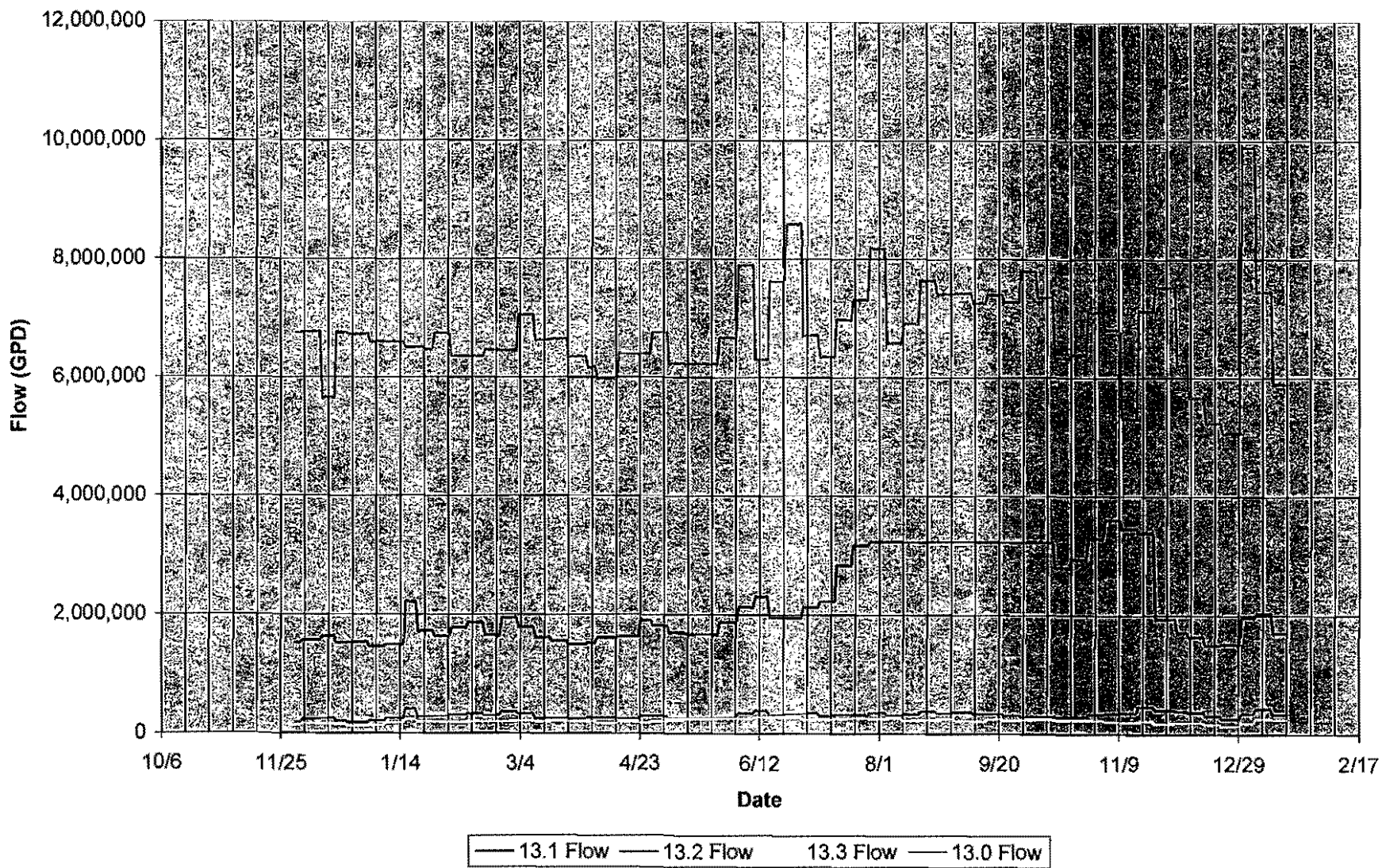
— 13.1 Flow — 13.2 Flow 13.3 Flow — 13.0 Flow

L.F.B. plus Addison

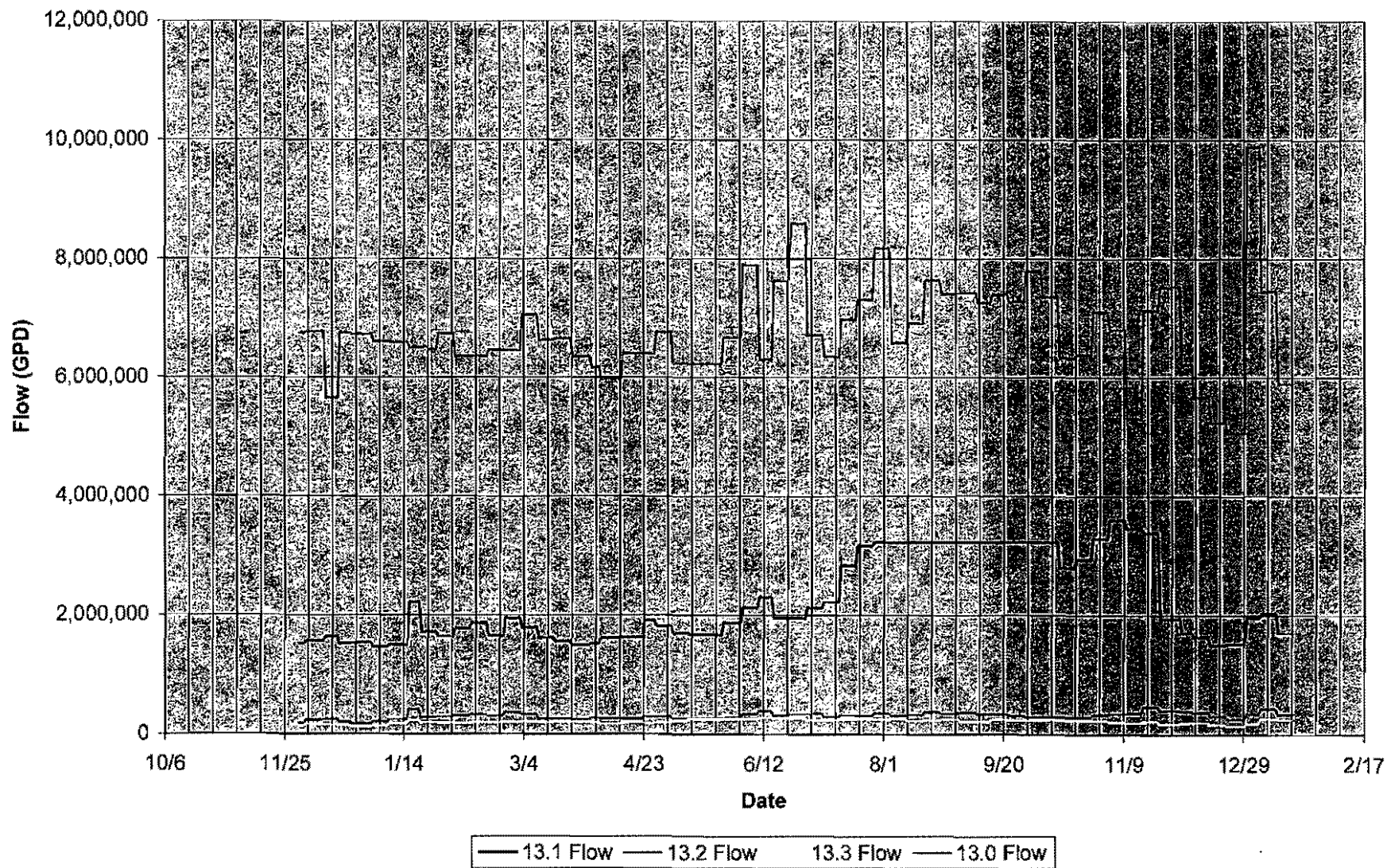
Addison Meters FY 2004



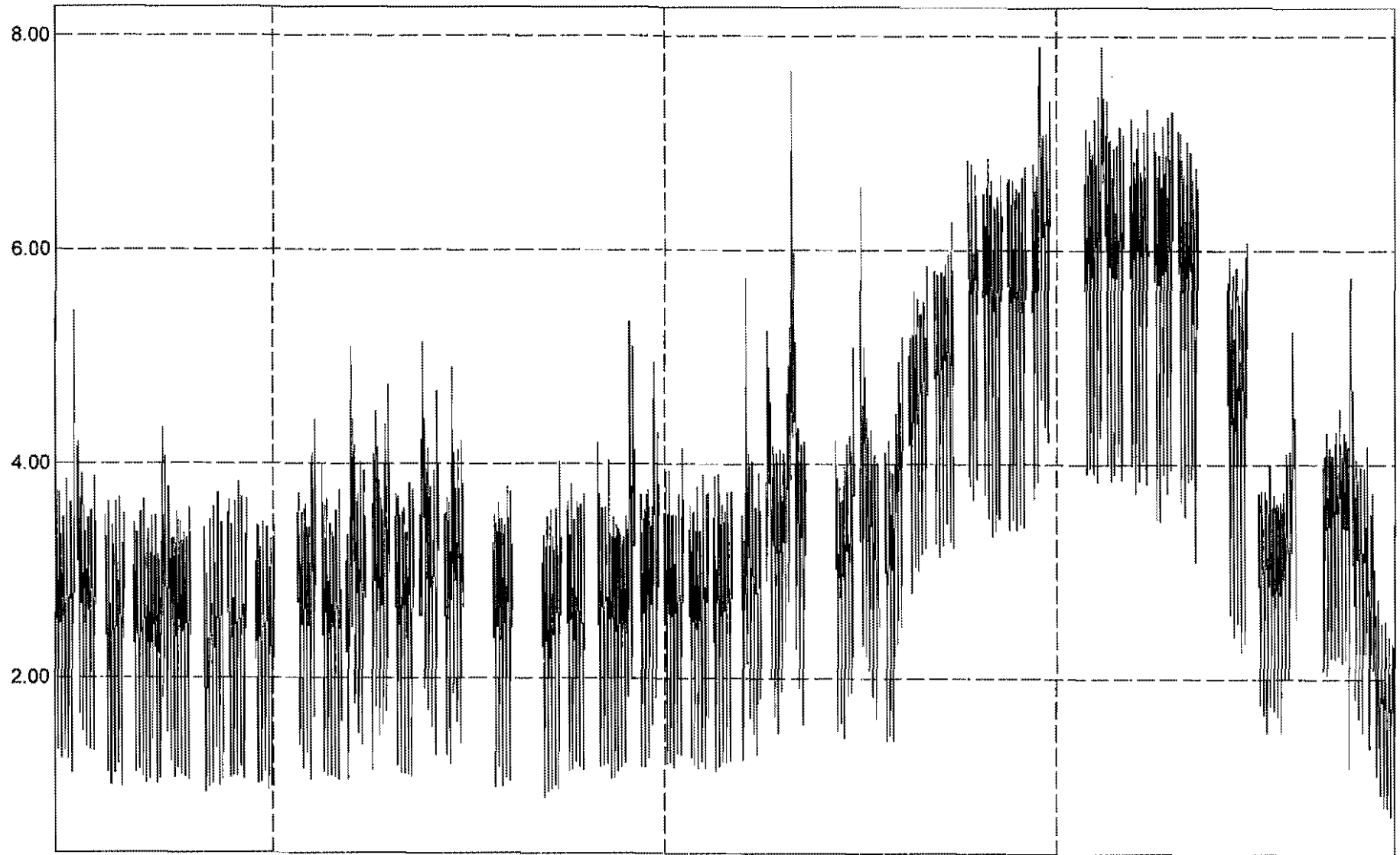
Addison Meters FY 2004



Addison Meters FY 2004



mgd (131E Ch1) vs. Time

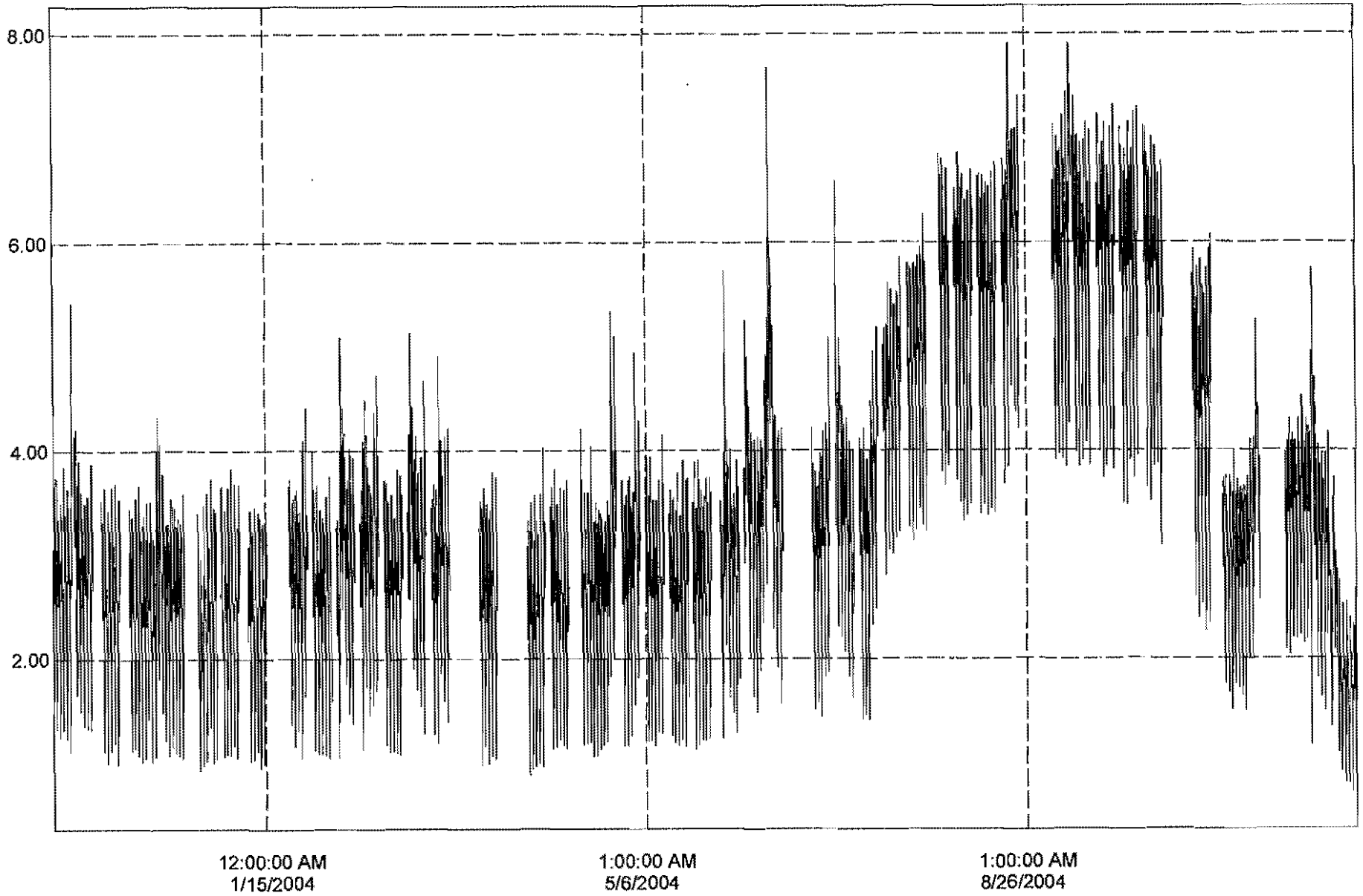


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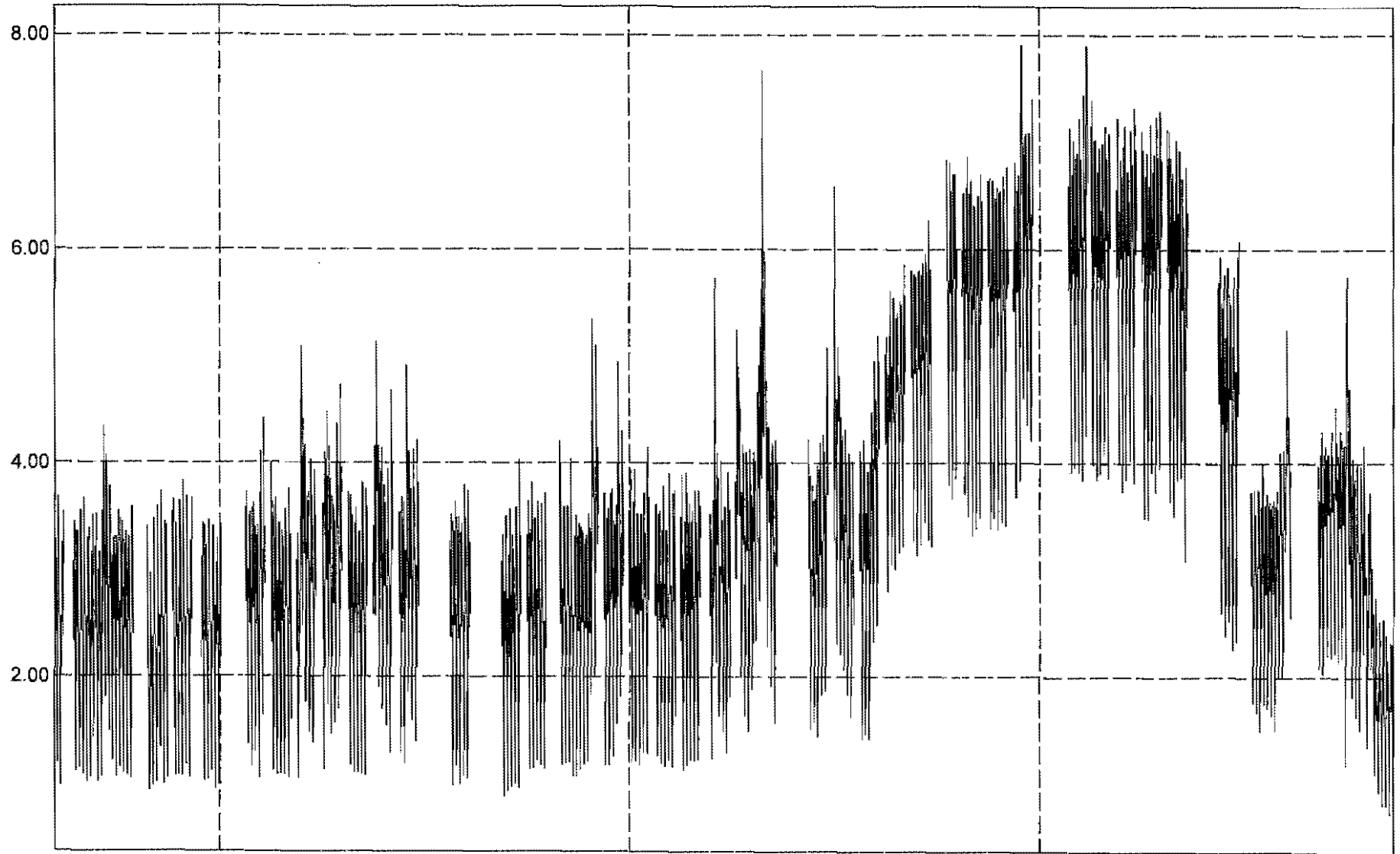
1:00:00 AM
5/6/2004

1:00:00 AM
8/26/2004

mgd (131E Ch1) vs. Time



mgd (131E Ch1) vs. Time

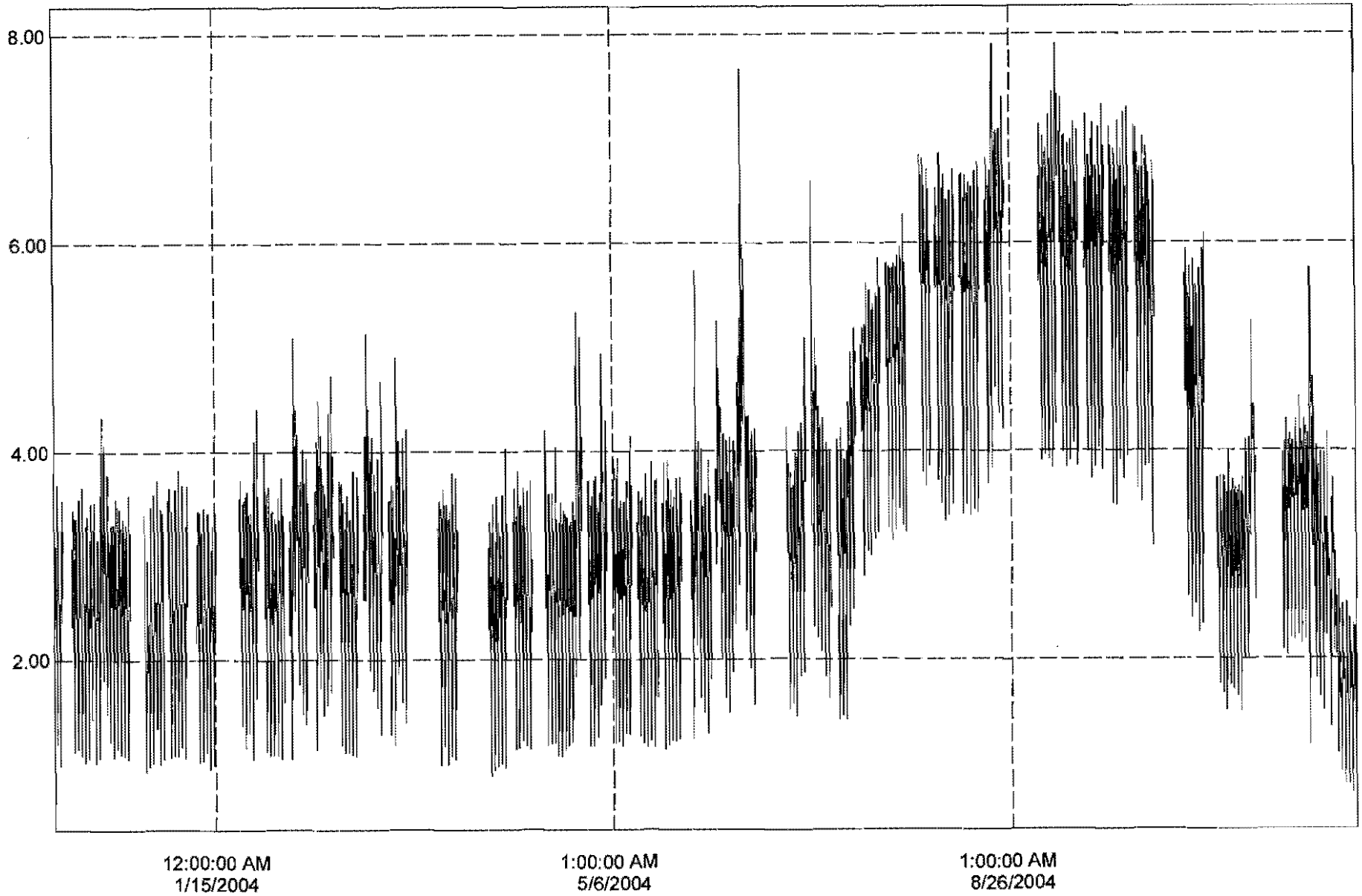


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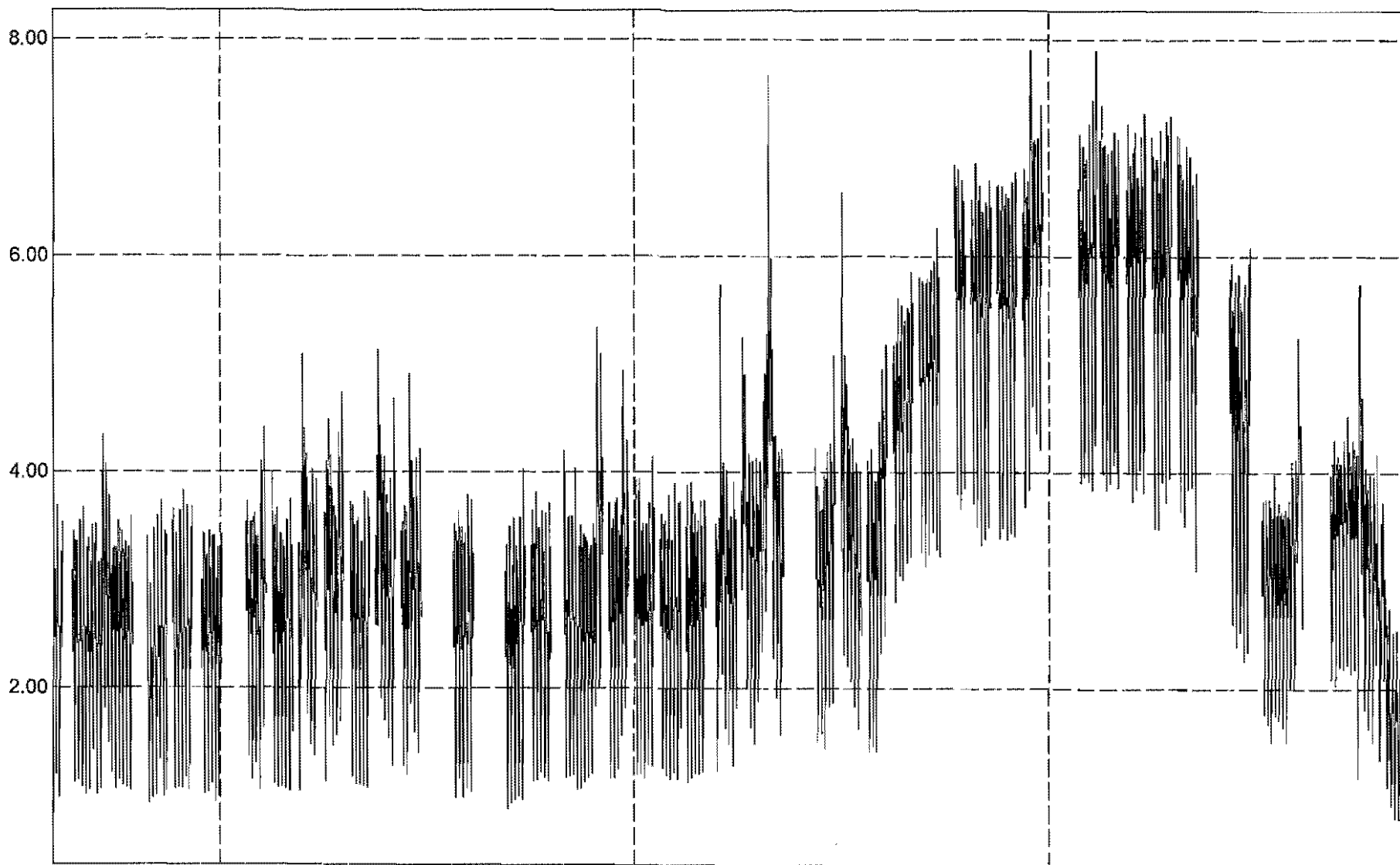
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5/6/2004

1:00:00 AM
8/26/2004

mgd (131E Ch1) vs. Time



mgd (131E Ch1) vs. Time

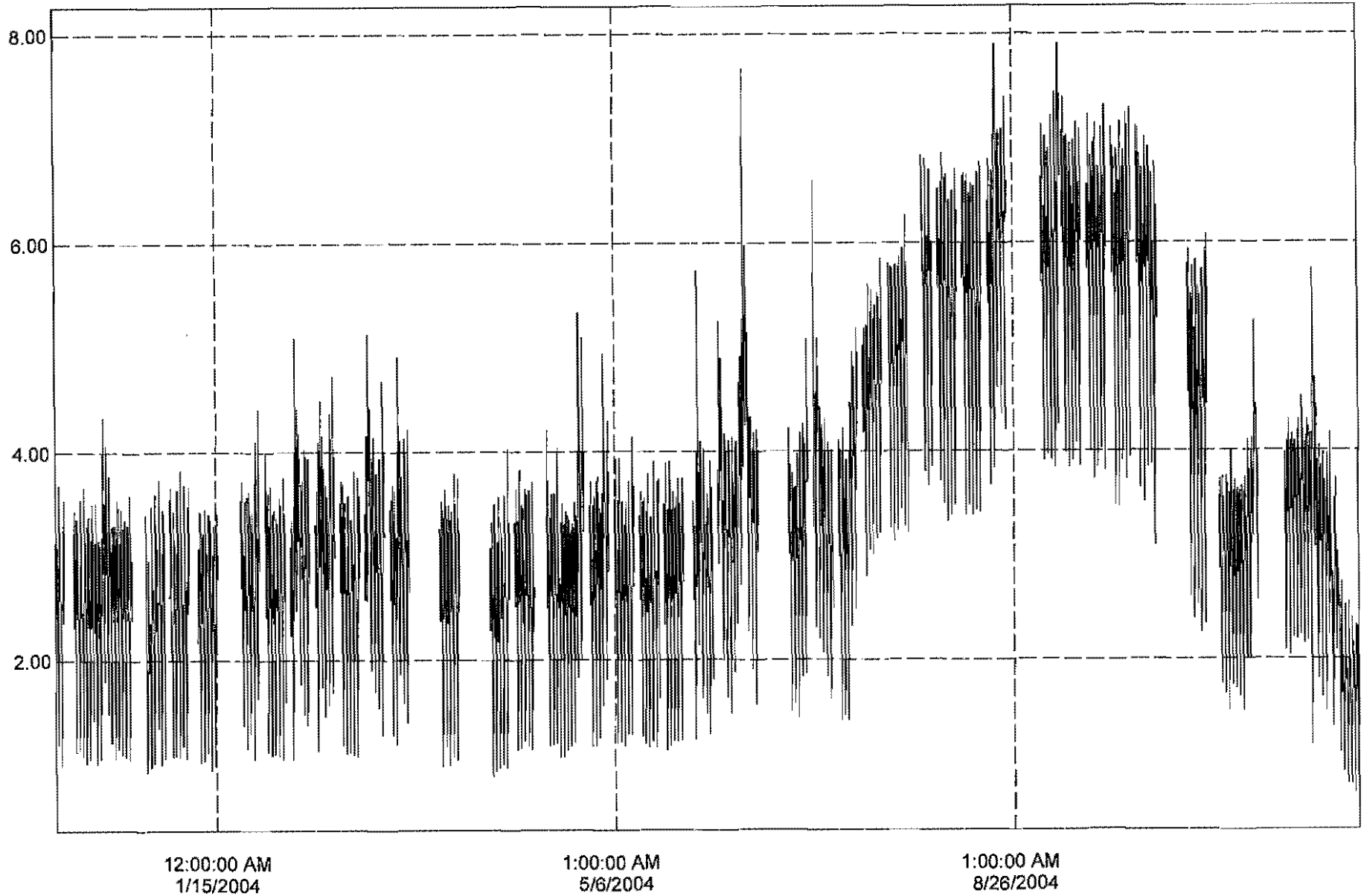


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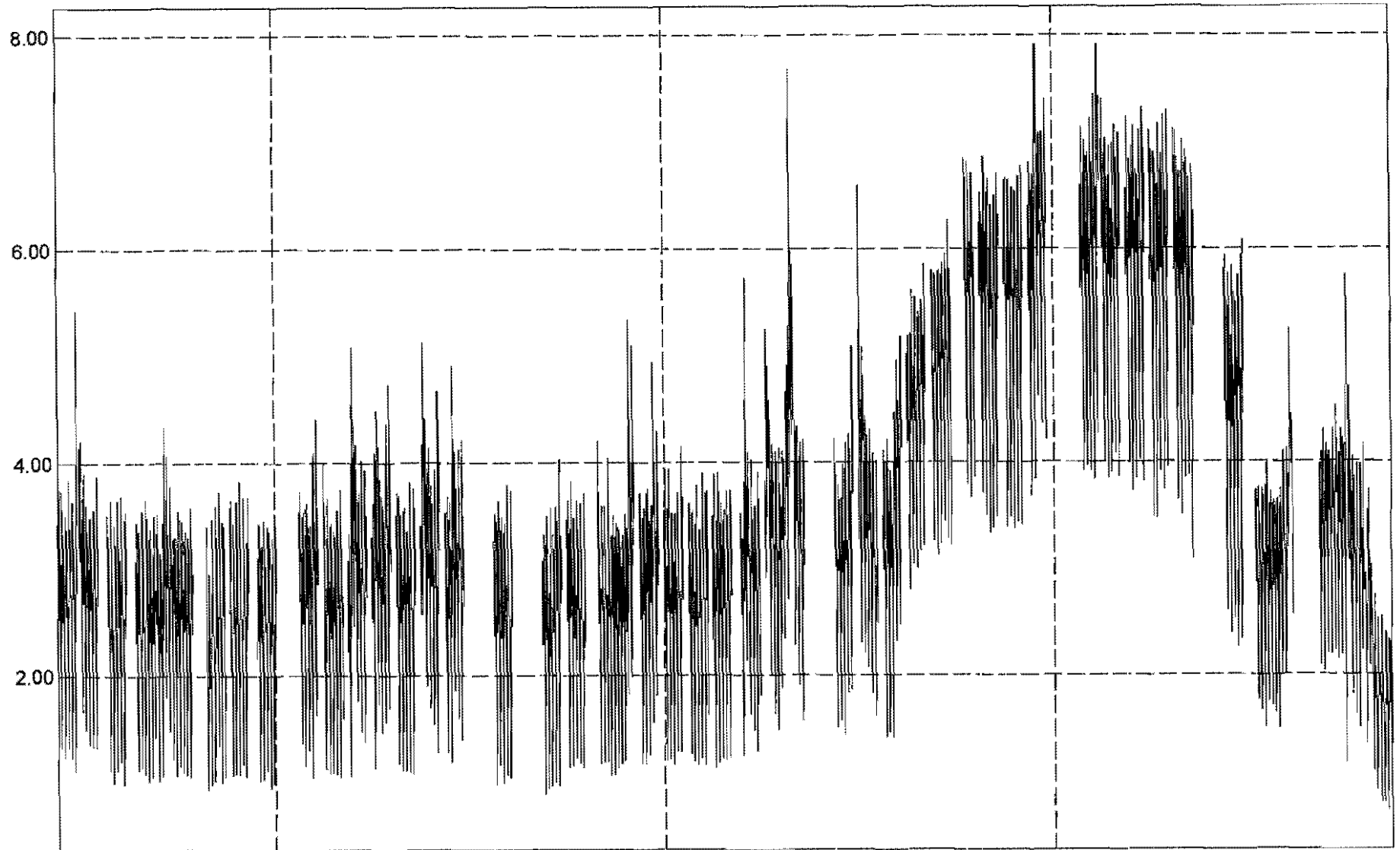
1:00:00 AM
5/6/2004

1:00:00 AM
8/26/2004

mgd (131E Ch1) vs. Time



mgd (131E Ch1) vs. Time



12:00:00 AM
1/15/2004

1:00:00 AM
5/6/2004

1:00:00 AM
8/26/2004