



# State of Idaho

## DEPARTMENT OF WATER RESOURCES

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CECIL D. ANDRUS  
GOVERNOR

R. KEITH HIGGINSON  
DIRECTOR

July 15, 1994

Tim O'Keefe  
Phil Jones  
Rangen Inc.  
P.O. Box 706  
Buhl, ID

Re: Installation of Flow Meter on Rangen Research Lab Pipeline from Curren Tunnel

Gentlemen:

This letter is being written to formally notify you that the Department wishes to install a flow meter on your pipeline which diverts water from the Curren Tunnel. The Department is prepared to purchase and install a meter as soon as possible. We seek your comments and permission to install a meter on this pipe.

As you know, the Department installed a water level instrument and data logger in the tunnel last September. IDWR has been monitoring water levels and discharge in the six foot diameter CMP pipe since that time. Attached to this letter are several graphs showing daily average flows in the tunnel for different periods of time. There are also several graphs showing individual raw water level readings over a recent time period. You will note from the graphs that water levels in the tunnel have fluctuated considerably over the past several months, a time period which appears to correspond with the irrigation season.

Monitoring of tunnel flow along with spot measurements of flow in the Rangen pipeline indicate that some of the fluctuations in the tunnel are due to flows in the Rangen pipe. The Department presently lacks data on the complete flow of the Curren Tunnel since the Rangen pipe is not fitted with a flow meter that can be logged or monitored along with the water levels or flows of the tunnel. Without monitoring the Rangen pipe, it will be very difficult to determine the cause of the water level fluctuations in the tunnel.

It is also important that the Department and local watermaster have knowledge of the pipe flow in order to deliver the water rights from the tunnel according to their priority dates. We are concerned at this time that the combined flow of the Rangen, Candy and Crandlemire diversions from the tunnel frequently exceed the decreed water right rate of diversion under right number 36-00134, with priority date of 10/9/1884 (the decreed rate of diversion is 3.2 cfs). If the rate of diversion under this right is exceeded, then there is less water available to fill the Musser-Morris water

right from the Curren Tunnel. It is our understanding that the water users have specifically requested that water from the tunnel be delivered according to the rights of prior appropriation. This is difficult to accomplish if there is no means in which to measure all of the diversions from the tunnel. The Candy, Crandlemire, and Musser pipelines are fitted with access ports which the watermaster can use to measure the flow in those pipes. The Rangen pipe does not have an access port and is not currently measured by the watermaster.

The Department is aware of your concerns about drilling into the Rangen pipe and potentially causing some problem with nitrogen or oxygen levels which may adversely impact hatchery fish. Although we do not fully understand these concerns at this time, we may be able to install temporary and more expensive equipment which is completely non-intrusive (i.e.; does not require drilling into the pipe.) This option may depend on whether there is a suitable location for use of such equipment. If this temporary equipment can be installed, the Department is still interested in installing a more permanent flow meter that would insert into the pipe. We would like to have the permanent meter in place for at least one to two years. Perhaps this meter could be installed this year at time that is more acceptable to your operations.

We ask that you please contact the Department no later than July 22, regarding your comments and concerns about the installation of a flow meter on your pipe diversion from Rangen Tunnel. You may contact Tim Luke, Scott King or Norm Young at this office.

Sincerely,

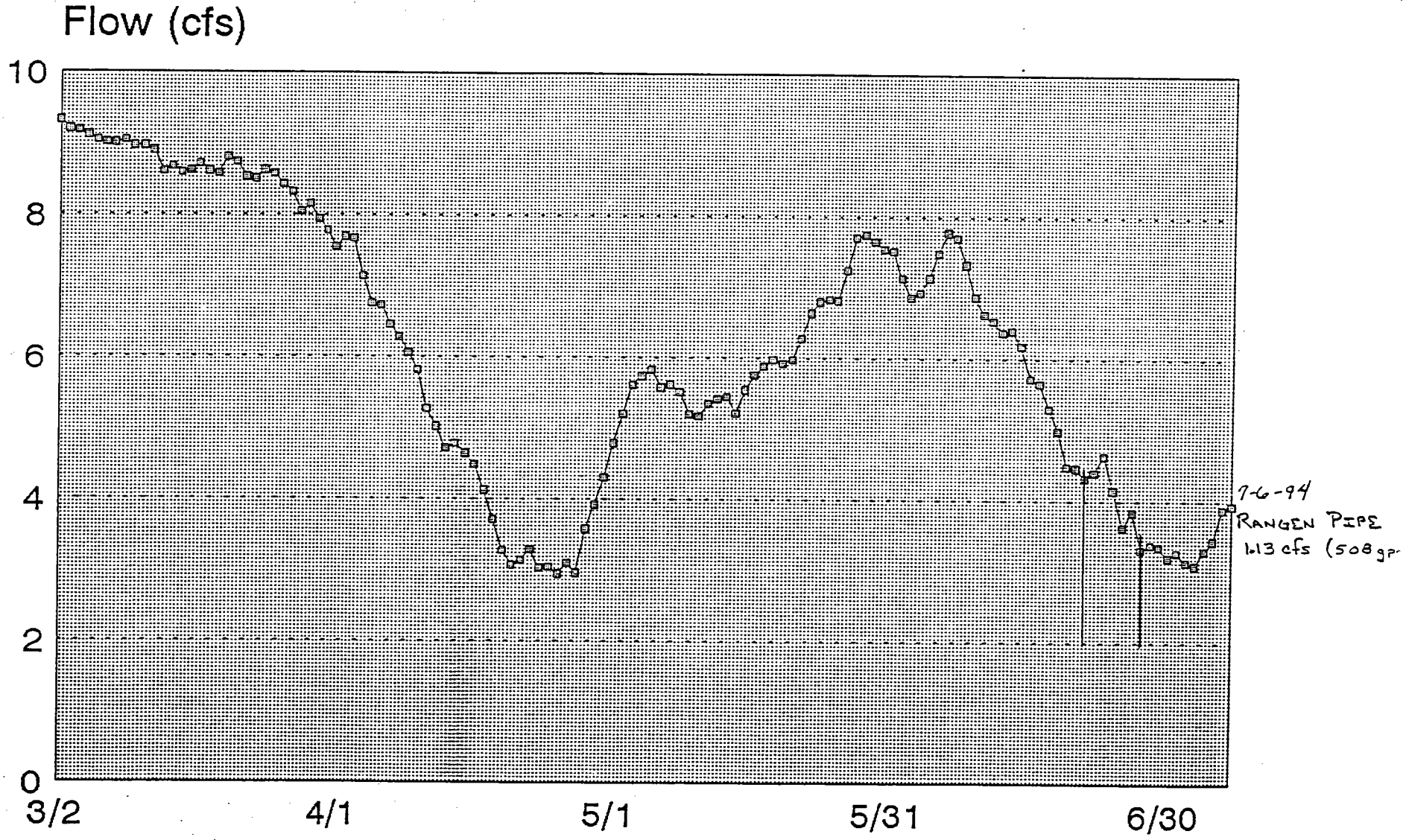


Tim Luke  
Water Allocations

cc: Bob Deisher  
J.D. May

# Curren Tunnel

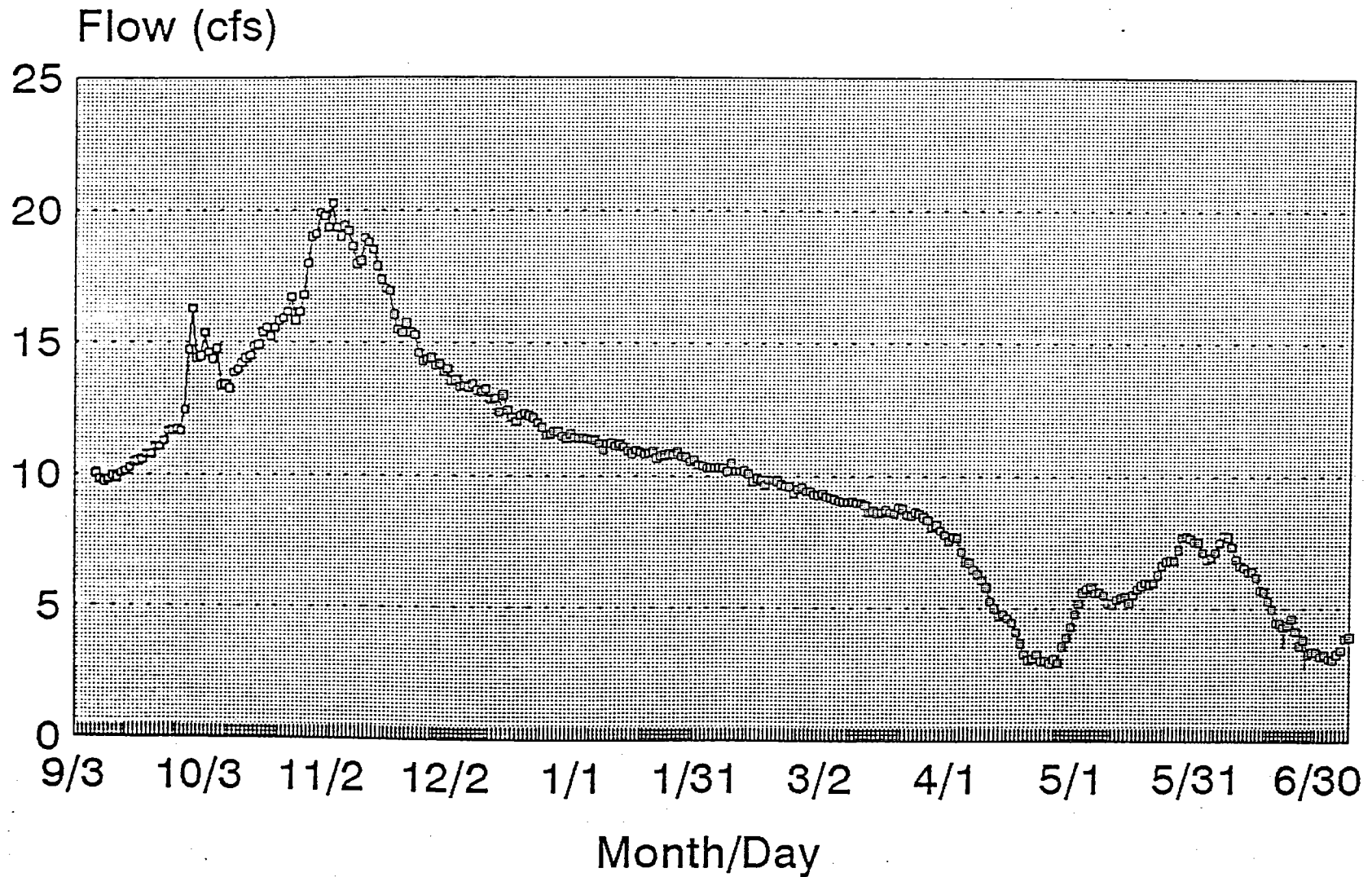
Average Daily Flow Rate  
Enlarged Version



Based on average daily water levels and rating table.

# Curren Tunnel

## Average Daily Flow Rate



Based on average daily water levels and rating table.

From 6-27-7-6 WK1

Curren Tunnel

Modified Raw Water Level Data

June 27 - July 6

Raw  
Water  
Level

4.25

4.23

4.21

4.19

4.17

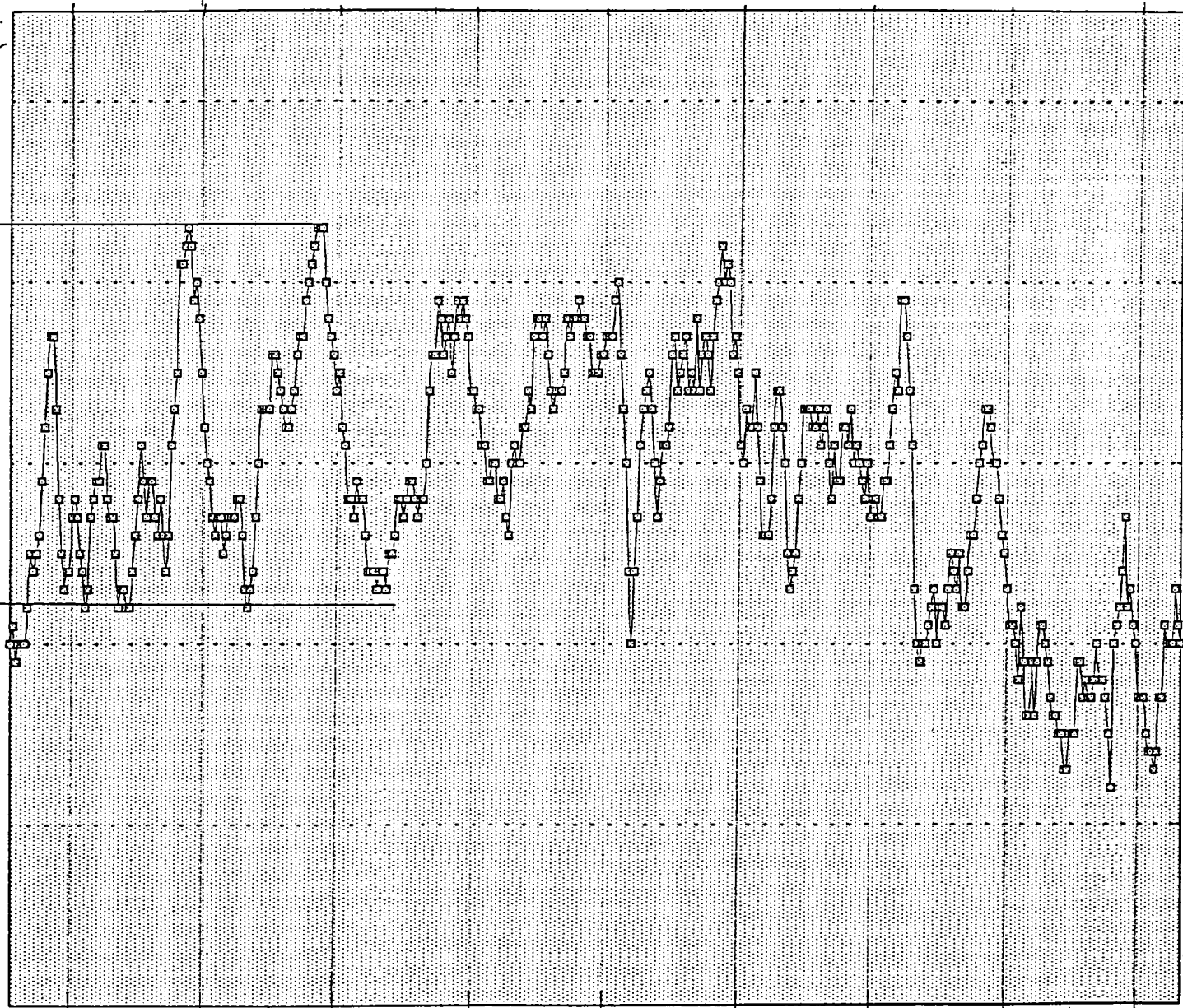
4.15

2.107 cfs      4.236'

4.195

3.69 cfs

3.69 - 2.67 =  
Δ = 1.02 cfs



LOW FLOW ↑

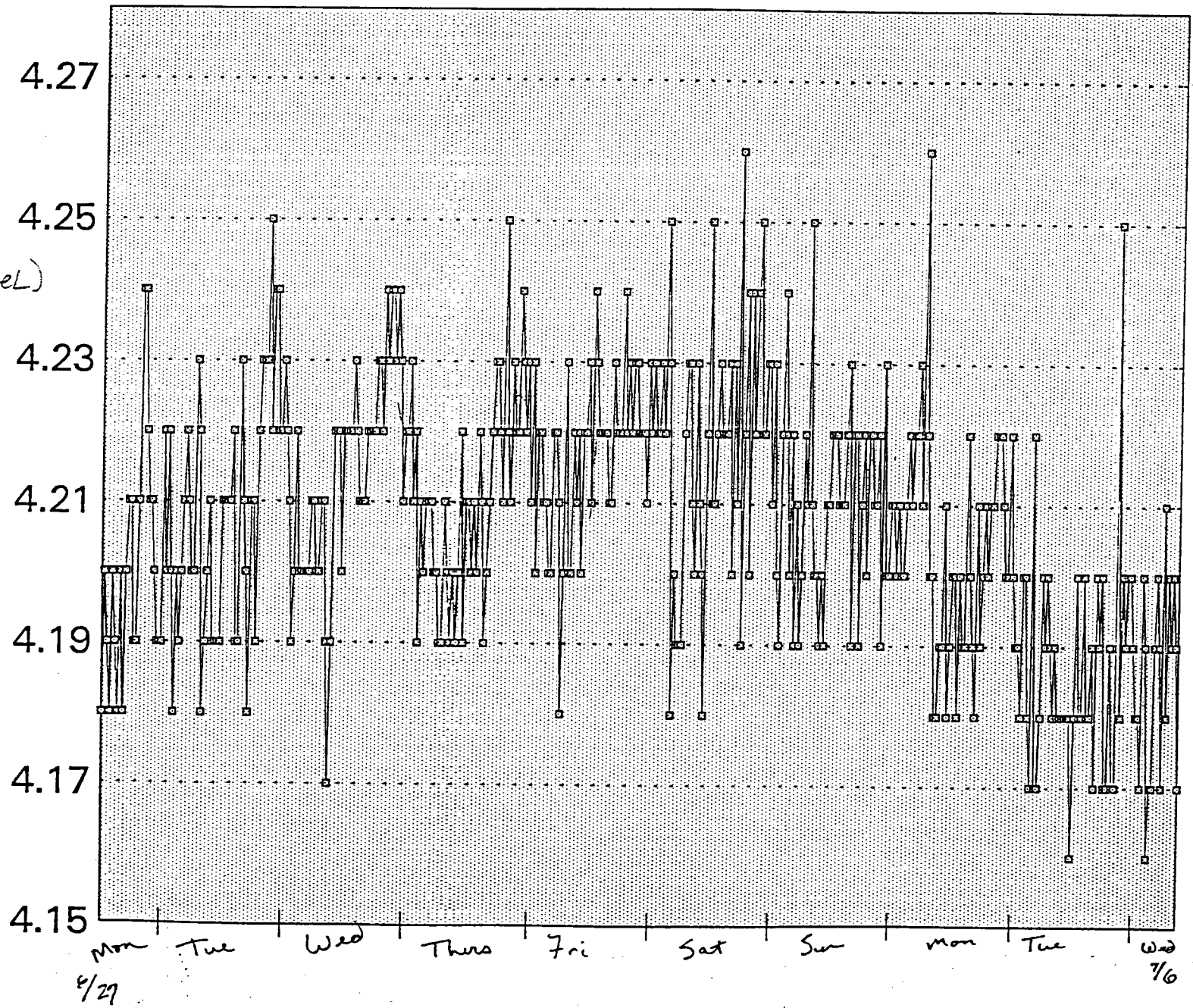
HIGH FLOW ↓

Mon June 27      PM AM  
 Tue 28th      PM AM  
 Wed 29th      PM AM  
 Thu 30th  
 FRI July 1  
 SAT 2nd  
 Sun 3rd  
 Mon 4th  
 TUE 5th  
 WED July 6

RAIN

RAW  
Water  
Level  
(ft)

Distance  
from sensor  
(water level)



Lower Q

Higher Q