CITY OF GREELEY INDUSTRIAL PRETREATMENT PROGRAM

WASTEWATER FLOW METER ACCURACY VERIFICATION GUIDELINES

The City Industrial Pretreatment Program has developed requirements for verifying accuracy of wastewater flow.

The method for verifying the accuracy of a significant industrial user's flow monitoring equipment utilizes a calibrated water meter, supplied by the City, to measure controlled amounts of water from a fire hydrant or other source of water. The water is then fed through the wastewater flow monitoring equipment in the appropriate outfall. The known volume of water discharged from the fire hydrant will be checked against the recorded volume measurement of the wastewater flow monitoring equipment to determine its accuracy. The upstream wastewater flow must be plugged or ceased during the test.

The requirements for verification of the flow measurements from the wastewater flow monitoring equipment are as follows:

1. Flow accuracy verification shall be performed at least once per year. More frequent verification may be required by the Industrial Pretreatment Program as a random check.

2. The wastewater flow monitoring equipment shall exhibit an average accuracy of 95-105% with the City's calibrated flow meter at three (3) different flow rates. Accuracy shall be expressed with the following formula:

$$Recovery\ Factor = \left[\frac{(G_c - G_f)}{G_c}\right] \times 100$$

$$\%\ Accuracy = 100 - (Recovery\ Factor)$$

Where:

G_c *= Gallons discharged through City meter*

G_f *= Gallons discharged through flow meter*

3. The verification procedure used shall be documented. The information collected during the test procedure shall be documented on the wastewater flow meter accuracy verification worksheet (see Form 1), and authorized by a City representative who shall be present during the testing. A copy of the wastewater flow meter accuracy verification worksheet must be submitted to the City Industrial Pretreatment Program within 5 days. The significant industrial user shall keep the wastewater flow meter accuracy verification worksheet for 5 years.

4. The lack of proper documentation of flow meter accuracy verification records shall constitute invalid flow measurement data. Any data collected via invalid techniques or equipment, and any data collected during periods when the flow meter accuracy was not within the ranges identified in Table 1 of this letter, shall not be used for compliance determination or billing purposes.

5. Alternative or modified accuracy verification procedures must be submitted in writing for approval by the Industrial Pretreatment Program prior to implementation.

Table 1: Accuracy Tests for Open Channel Wastewater Flow Meters

Channel	Maximum Rate		Intermediate Rate		Minimum Rate	
Size	Rate of Flow (gpm)	Test Quantity (Gallons)	Rate of Flow (gpm)	Test Quantity (Gallons)	Rate of Flow (gpm)	Test Quantity (Gallons)
Velocity Modified Flow (VMF) Meters[1]						
6”	200	1000	100	500	25	125
8”	300	1500	150	750	25	125
Ultrasonic or Bubbler Flow Meters[2]						
4”	50	250	25	125	10	50
6”	100	500	50	250	25	125
8”	300	1500	150	750	25	125

Notes:

1. *Without use of a primary measuring device.*
2. *Palmer-Bowlus or Parshall flume used as a primary measuring device.*

Wastewater Flow Meter Accuracy Verification Worksheet

Date:	
Facility Name:	
Wastewater Flow Meter Brand:	
Wastewater Flow Meter Model:	
Wastewater Flow Meter Serial Number:	

$$Recovery\ Factor = \left[\frac{(G_c - G_f)}{G_c}\right] \times 100$$

$$\%\ Accuracy = 100 - (Recovery\ Factor)$$

Where:

G_c *= Gallons discharged through City meter*

G_f *= Gallons discharged through flow meter*

Wastewater meter as found

Volume through City meter (gallons, G_c)	Volume through flow meter (gallons, G_f)	Time period (minutes)	Percent accuracy
0	0	5	100

Wastewater meter as calibrated

Volume through City meter (gallons, G_c)	Volume through flow meter (gallons, G_f)	Time period (minutes)	Percent accuracy
0	0	5	100

AUTHORIZED SIGNATURE OF TESTER: _____