



**Metering System Audit
North Springs Improvement District**

June 6, 2017

For:

Governing Board of Supervisors

Mark Capwell
President

Vincent Moretti
Secretary

Alen Hsu
Asst. Secretary

In cooperation with:

City of Parkland
City of Margate
City of Ft. Lauderdale
City of Clearwater

Background

North Springs Improvement District (NSID) has received complaints regarding water bill increases after NSID initiated its meter replacement program. NSID replaced about 14,000 water meters that were aged and provided new meters with accurate recordings. As a meter ages, it goes in favor of the homeowner. The District lost years of revenue and residents were receiving free water for some of their usage. The increased water bills from the accurate meters caused residents and outside public agencies to ask questions as to the accuracy of the meters.

NSID uses the badger meter system that is used by multiple utilities across the United States. A similar situation happened to the City of Odessa when they replaced their water meters. Water bills increased based on the new meters. The City of Odessa made the local news, which can be seen on YouTube here:

<https://www.youtube.com/watch?v=WhpiaCtSdXY&t=6s>

It was determined also in Odessa that the bill increases resulted from the replacement of meters with more accuracy.

Voluntary Audit

NSID agreed to enter into a voluntary audit of its metering system. Section 163.01, Florida Statutes, known as the "Florida Interlocal Cooperation Act of 1969" authorizes local governments to make the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual advantage and thereby to provide services and facilities that will harmonize geographic, economic, population and other factors influencing the needs of local communities.

NSID, in cooperation with The City of Parkland, City of Margate, City of Fort Lauderdale, and the City of Clearwater performed various functions of this voluntary audit described as follows:

- **City of Parkland:** Random addresses were selected by the City's Development Services Division, which became part of the audit list.
- **City of Ft. Lauderdale:** The City tested 10 metering systems for accuracy.
- **City of Margate:** The City tested 10 metering systems for accuracy.
- **City of Clearwater:** The City tested 10 metering systems for accuracy.

Audit Results

It was determined by all three agencies conducting tests that 29 meters resulted in a 100% accuracy rate and 1 meter resulted in a 97% accuracy rate. It was also determined that no meters would result in the over calculation of water consumption.

These results met industry standards of the American Water Works Association. All three agencies rendered the opinion that NSID has an accurate metering system, which meets industry standards.

The following attachments show letters, or data results from the various municipalities who conducted the testing on the NSID metering system:



100% accuracy rate for
metering systems tested



99.6% accuracy rate for
metering systems tested



100% accuracy rate for
metering systems tested

The above metering accuracy rates were based on the mean result of the meters tested. The total accuracy rate for the NSID metering system based on the mean of all meters tested is 99.86%



North Springs Improvement District
Governing Board of Supervisors
9700 NW 52 Street
Coral Springs, Florida 33076

June 7, 2017

Re: Audit of Metering System

On May 30-31, 2017, the City of Fort Lauderdale completed an inspection of the North Springs Improvement District (NSID) Water Metering System. The City of Fort Lauderdale's Public Works Department randomly tested several meters, which all met the standards of the American Water Works Association. It is in my opinion that NSID has an accurate metering system, which meets industry standards.

Keith Hutchison
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City Commission

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Anthony N. Caggiano
Lesa Peerman
Joanne Simone

Interim City Manager

Samuel A. May

City Attorney

Douglas R. Gonzales

City Clerk

Joseph J. Kavanagh

June 14, 2017

Rod Colon
North Springs Improvement District
Governing Board of Supervisors
9700 NW 52nd Street
Coral Springs, FL 33076

RE: BENCH TESTS

Dear Mr. Colon;

On May 23, 2017, the City of Margate, Department of Environmental and Engineering Services (DEES) performed bench tests on ten 5/8" x 3/4" Badger meters provided by North Springs Improvement District (NSID). Based upon the tests performed, nine of the meters provided were tested at 100% accuracy and one meter was tested at 97.4%.

Sincerely,



Samuel A. May
Interim City Manager

City Manager's Office

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North Springs Improvement District
Governing Board of Supervisors
9700 NW 52nd Street
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June 27, 2017

Re: Audit of Meters

The City of Clearwater on May 24, 2017 completed testing for flow accuracy of the North Springs Improvement District (NSID) Water Meters. The City of Clearwater's Public Works Department tested multiple random meters for flow accuracy at low, medium and high flow rates. All the tested meters met the standards as specified by the American Water Works Associations (AWWA). It is our opinion based on testing results from the City of Clearwater that the NSID water meters are accurate and meet the AWWA Industry Standards.

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Industry Standards & Standard Operating Procedures

The water/ sewer charges on the bills are based on the amount of usage, as measured by the water meter. NSID needs to charge customers to build and maintain infrastructure—the water storage tanks, treatment plants, and underground pipes that deliver water to homes and businesses. The revenue is also used to pay the workers who provide you with water service day and night.

NSID uses a combination of a fixed fee (base) and a variable fee (volume) for water rate structure. Fixed charges generally include the price the customer pays as a base charge to help cover costs for maintaining existing infrastructure and repaying loans and bonds used to build that infrastructure. Variable charges are the price the customer pays per volume of water used, which reflect the costs of providing water, such as costs for chemical treatment to provide safe water and energy to move and deliver water. Increasing block, which is a rate structure in which the unit price of each succeeding block of usage is charged at a higher unit rate than the previous block(s), is designed to promote conservation.

Water service is billed on a monthly basis. Water meters are normally read every month. There may be times when NSID cannot read the meter in time due to inclement weather, problems accessing the meter or for other situations beyond NSID's control. In the event that the service is interrupted through no fault of the customer, appropriate adjustments or refunds will be made.

In case of high water usage due to leaks, customers are responsible for the water service line or "pipe" from the public right-of-way into their home, including any outside meter pit, and are responsible for repairing any leaks on their portion of this service line. NSID is responsible only for that portion of the service line from the water main to the public right-of-way and is responsible for the meter itself.

Customers own the water pipe from their home up to the shut-off valve (usually at the property line). NSID owns the shut-off valve. The responsibility for a leak on private residential property can be determined by turning off the water at the shut-off valve. If the leak stops, repairing the leak is your responsibility. NSID does not trace private sewer or water pipes on public or private property. The customer is responsible to arranging for a licensed water contractor to make any necessary repairs and to pay for the repairs.

If the customer thinks that the meter is inaccurate, they may make a written request to NSID in order to send out for third party testing at a fee to equal the pass through cost. The meter test fee is refunded if the meter does not test within the limits outlined by the American Waterworks Association.

According to American Waterworks Association, water meters experience a degradation of accuracy over time. This degradation is a function of several factors, such as wear, water quality, water velocities, throughput volumes, and installation and handling. Both a thorough understanding of the factors that affect meter accuracy and the ability to pinpoint, if possible, the optimal lifespan of any particular type of water meter in a residential distribution system are desirable for improved system management.

In order to minimize the negative effect on accuracy and indicated consumption due to wear and tear, NSID has upgraded its meters to accurately bill customers for the water using Automated Meter Reading (AMR). The AMR system consists of small, low-power radio transmitters connected to individual water

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meters that send daily readings to a network of rooftop receivers throughout the city. In most cases, the transmitters are placed where water meter remote receptacles are currently located.

AMR technology sends readings to a computerized billing system up to four times a day and will largely eliminate the need for estimated bills. Since it is an automated system, AMR eliminates the need for meter reading personnel to visit customer properties.