



DIVISION OF WATER RESOURCES

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June 1, 2009

TO: APPROVED WELL TESTERS

FROM: COREY T. DEANGELIS, CHIEF – WATER MEASUREMENT BRANCH
DIVISION OF WATER RESOURCES, **DIVISION 3**

SUBJECT: MEASUREMENT RULE POLICY 2008-3.1.A (AMENDED 06012009)

➤ **CLARIFICATION TO MEASUREMENT RULE 3.1**

- EQUIPMENT STANDARDS as well as REPAIR AND MAINTENANCE of TFM's
- Modified Reporting Form 3.1 - NOTICE OF TOTALIZING FLOW METER VERIFICATION, RE-VERIFICATION, OR REPLACEMENT

EFFECTIVE DATE: June 1, 2009

Amendments to POLICY 2008-3.1.A (AMENDED 06012009) are noted below. Additions are noted in italics and deletions are noted with a strikethrough, as follows (page 4):

1. Added requirement for Totalizer feature settings on Electrically Powered TFM's, as follows:

CLARIFICATION – ELECTRICALLY POWERED TFMs:

- *The TFM's Totalizing feature shall record the total diversions to one-hundredth of an Acre-Foot (two decimal places > #####.##).*

PURPOSE:

This MEASUREMENT RULE POLICY pertains to RULE 3.1 of the **RULES GOVERNING THE MEASUREMENT OF GROUND WEATER DIVERSIONS LOCATED IN WATER DIVISION NO. 3, THE RIO GRANDE BASIN (RULES).**

- Rule 3.1 concerns STANDARDS AND SPECIFICATIONS for TOTALIZING FLOW METERS (TFM's), including INSTALLATION, CALIBRATION, TESTING, REPAIR and MAINTENANCE.
- This POLICY addresses EQUIPMENT STANDARDS as well as REPAIR AND MAINTENANCE of TFM's.

BASIC STANDARDS:

- RULE 3.1 specifies basic requirements for all TOTALIZING FLOW METERS (TFMs):
 - “Any meter designed and manufactured for the purpose of measuring the flow of water, and which has a totalizing feature, shall be considered to be acceptable ...”
 - “ ... totalizing flow meters shall ... contain sufficient recording digits to assure that “roll over” to zero does not occur within three years ...”
- STATE STATUTE authorizes DIVISION STAFF to access all MEASURING DEVICES to monitor compliance with the RULES. Therefore, in addition to the basic requirements stated in RULE 3.1, **TFMs must be accessible and readable** when an inspection is made.

CLARIFICATION – TFM ACCURACY:

- TFMs shall be deemed to be in accurate operating condition when the flow measured by the meter UNDER ALL FLOW CONDITIONS is within plus or minus 5%.
- ALL FLOW CONDITIONS shall include all pumped and/or artesian flow through a TFM. This shall include both high and low flow conditions that the well/pump may operate under. This may require more than one test for a single TFM under differing operating discharge conditions. For example:
 - Wells that flow artesian (divert water without the use of mechanical device – pump) and are pumped. It is necessary to confirm that a full-pipe condition at the TFM is maintained under all conditions. Also, it is necessary to confirm that the TFM is accurate under both the pumped and artesian flow conditions, separately.
 - It is necessary to confirm that Wells with multiple discharge conditions, such as a pressurized discharge to a pond or sprinkler system as well as an open discharge, maintain a full-pipe condition at the TFM under all conditions. Also, it is necessary to confirm that the TFM is accurate under both discharge conditions.
- A variance may be granted by the Division of Water Resources, Division 3 for TFMs that are field certified by a Qualified Well Tester between 5 and 8 percent of actual flow. See POLICY 2008-3.1B.

CLARIFICATION – SUFFICIENT RECORDING DIGITS:

- The “**ROLL OVER**” frequency of a TOTALIZING REGISTER is based on **actual use**, not maximum potential use.

CLARIFICATION – REPLACEMENT OF TFM REGISTERS:

Anytime a REGISTER is changed on a PREVIOUSLY-VERIFIED TFM, the following procedure must be followed:

- REPLACEMENT of a TFM REGISTER must be performed by the MANUFACTURER or the MANUFACTURER’S REPRESENTATIVE or by an approved WELL TESTER.

- Before a REGISTER is changed, the MANUFACTURER must be contacted to determine the proper gear ratio (mechanical flow meters) so that the installation is in compliance with MANUFACTURER’S RECOMMENDATIONS and with the MEASUREMENT RULES and MEASUREMENT POLICIES requirements for accuracy.

- A verification of the TFM, with the new REGISTER in place, must be performed before any water is diverted by the WELL/PUMP. Additionally, Form 3.1 – NOTICE OF TOTALIZING FLOW METER VERIFICATION, RE-VERIFICATION, OR REPLACEMENT must be submitted to Division of Water Resources, Division 3.

- In addition to FORM 3.1, NOTICE OF TOTALIZING FLOW METER VERIFICATION, RE-VERIFICATION, OR REPLACEMENT, the WELL TESTER or the WELL OWNER/USER must supply the following information:
 - The name of the person performing the Replacement, along with a brief statement of that person’s qualifications if not an approved WELL TESTER,
 - Documentation MANUFACTURER’S RECOMMENDATIONS and certification that those recommendations were followed and
 - The Form 3.1 must provide both the reading from the TFM Register being replaced and the beginning readings of the new Register.

CLARIFICATION – ELECTRICALLY POWERED TFMs:

The following standards shall apply to **ELECTRICALLY-POWERED TFMs:**

EQUIPMENT STANDARDS:

- ELECTRICALLY-POWERED TFM’S **must be non-resettable and tamper-resistant.**
 - ALL Programmable Flow Meters must at all times be securely equipped with a tamper resistant cover. The tamper resistant cover shall be “sealed” in place with the use of a wire cable that is secured in place by a clamp or other mechanism. The clamp or “seal” shall contain a number or other identifying mechanism, which is recorded on Form 3.1. In order for the cover and seal to be considered adequate (tamper resistant) by the Division of Water Resources, it must not allow any modifications to the programmable functions of the flow meter without the breakage of the seal during access to the programmable functions of the flow meter.
 - A meter verification (Form 3.1) will NOT be considered complete by the Division of Water Resources unless the new and removed Seal Number are provided on Page 3 of the Form, verifying that the flow meter was “re-programmed”.

- ELECTRICALLY-POWERED TFM’S dependent upon **BATTERIES** as their principal source of power are **not allowed.**
 - BATTERIES may serve as a backup POWER SOURCE only.

- The TFM's DISPLAY must be readable **whether or not the WELL/PUMP is running.**
 - Artesian wells, or any well not requiring electrical power to supply the pump, must have a continuous power supply to the TFM's DISPLAY at ALL times, **whether or not the WELL/PUMP is running/flowing.**

- ***The TFM's Totalizing feature shall record the total diversions to one-hundredth of an Acre-Foot (two decimal places > #####.##).***

INSTALLATION REQUIREMENTS:

- TFM's dependent upon ELECTRICITY for operation must be hardwired to the ELECTRIC BOX.
 - There can be no splices, disconnects or switches between the TFM(s) and the ELECTRIC BOX.
 - The wire between the ELECTRIC BOX and the TFM must be encased in conduit or otherwise routed and attached in such a manner as to prevent breakage from livestock, wildlife and the elements.

- Any wire between a TFM and a REMOTE READOUT:
 - Must be a continuous wire with neither splices or disconnects.
 - Must be encased in conduit or otherwise routed and attached in such a manner as to prevent breakage from livestock, wildlife and the elements.

- **TFMs must be installed outside of electrical cabinets and/or appliances:**
 - The TFM's DISPLAY must be clearly visible without having to open or otherwise access ELECTRICAL CONTROL CABINETS.

- **Reporting TFM Verification (Form 3.1):**
 - All Required reporting for Field Verification of TFM's shall be completed on the MODIFIED Form 3.1- NOTICE OF TOTALIZING FLOW METER VERIFICATION, RE-VERIFICATION, OR REPLACEMENT. The modified Form 3.1 is identified by the text *Updated 04-01-2008* located at the bottom right-hand corner of each page of Form 3.1.

If you have any questions regarding this MEASUREMENT POLICY, contact DIVISION 3 GROUND WATER MEASUREMENT BRANCH at 719-589-6683: Corey T. DeAngelis (Ext. 3105).