State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Robert L. Morgan
State Engineer

1636 West North Temple, Suite 220
Salt Lake City, Utah 84116-3156
801-538-7240
801-538-7315 (Fax)

December 4, 1992

TO THE MILFORD WATER USERS:

As you know, this past year the State Engineer issued a distribution order which required operational water meters be installed at each well in the Milford area. The response to this order has been excellent and meters are now in place on all but a few wells. Steps are being taken to follow-up with those water users who have not complied.

However, as we inspected the installation of the water meters this past year we found that some are not installed correctly causing the water meters to function improperly or to not function at all. One problem in particular is the installation of the new flow sensor type of meters on wells which produce air. Unless the meters are properly installed, they will not register any flow at all. Enclosed are sketches showing two alternatives for the proper installation of water meters. These sketches show the installation of the flow sensor type of water meter, however, the sketches are also applicable to the installation of any type of water meter.

Pumping air is a wide spread problem, so air/vacuum relief valves should be installed at each well as shown on the sketches. Enclosed is a copy of some literature of a typical air/vacuum relief valve. This is not a recommendation of this particular brand but merely an explanation of the features that should be included in such a valve.

The proper operation of the meters is required under Section 73-5-4, Utah Code Annotated, 1953, as amended, which states in part:

> "Such controlling works or measuring device shall be of such design as the state engineer may approve...and such owner shall construct and maintain, when required by the state engineer, flumes or other measuring devices at such points along his ditch as may be necessary for the purpose of assisting the state engineer or his assistants in determining the amount of water that is to be diverted into his ditch from the stream or water source, or taken from it by the various users".

If your water meter installation does not conform to the guidelines shown in the sketches you should make the appropriate changes prior to the beginning of irrigation in 1993.

Accurate water meters are necessary for the proper regulation of ground water withdrawals in the Milford area. Proper management of ground water withdrawals will be a benefit to all the water users in the Milford area.

If you have any questions concerning this requirement, please contact me.

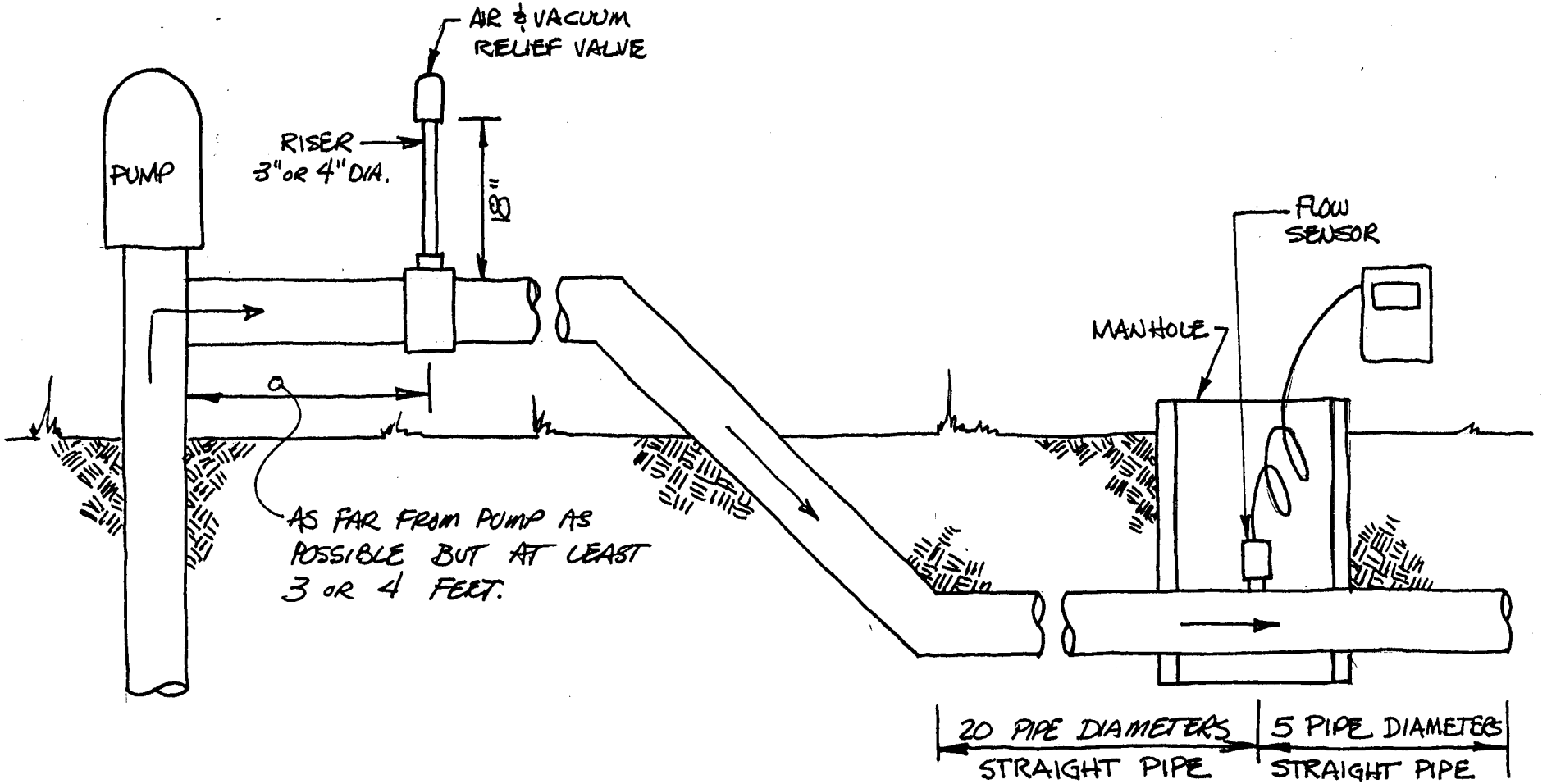
Sincerely,

Lee H. Sim, P.E.
Assistant State Engineer
for Distribution/Adjudication

LHS:bd

cc: Richard Jefferson, River Commissioner
Gerald Stoker, Regional Engineer
Robert L. Morgan, State Engineer

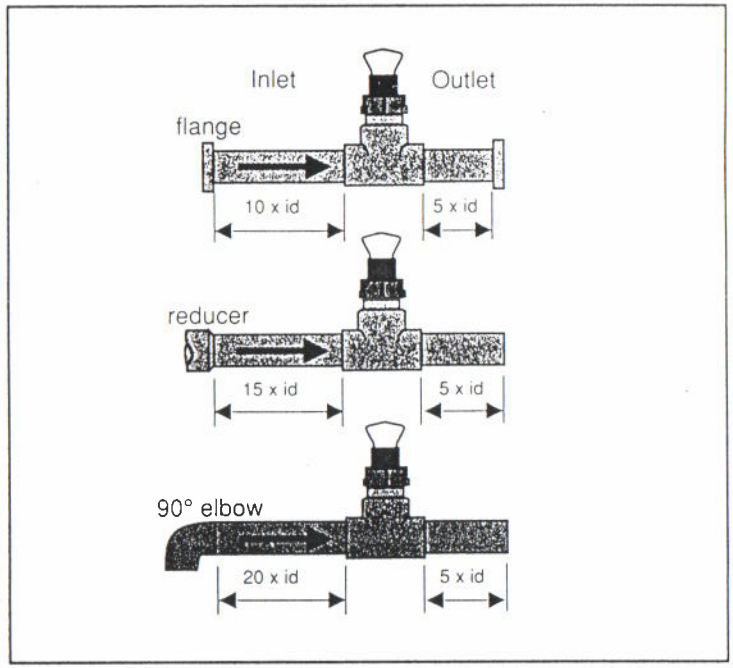
NATIONAL 42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE

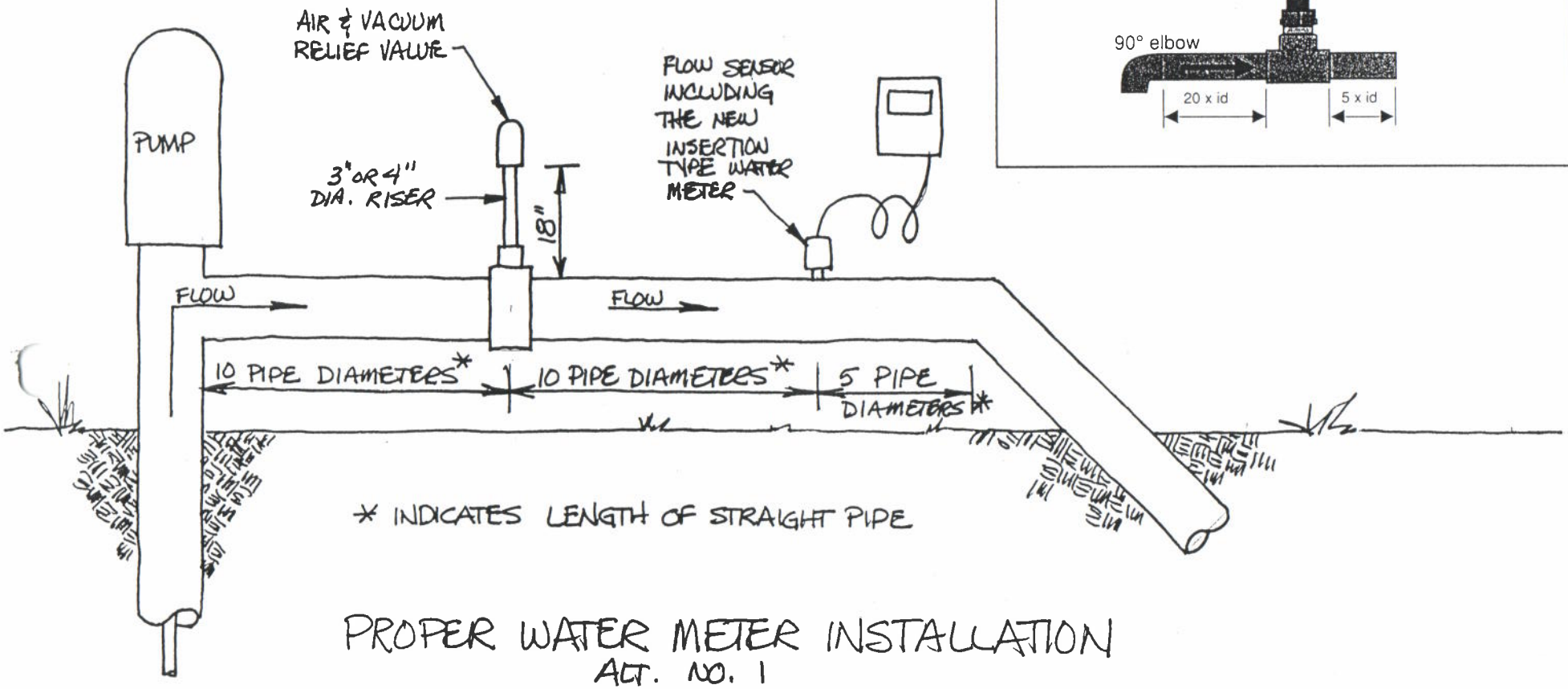


PROPER WATER METER INSTALLATION

ALT. NO. 2

FIGURE 1. Flow sensors, including insertion types, generally depend upon a "fully developed turbulent flow profile" for maximum linearity and accuracy. To achieve this requirement, the sensor must be located in a straight run of pipe. At least 10 pipe diameters of uninterrupted straight pipe upstream of the sensor and at least 5 pipe diameters of uninterrupted straight pipe downstream is required. Major obstructions such as pumps, throttled valves, etc. will require considerably longer straight runs. Take this into consideration when selecting a fitting location in your flow system.





PROPER WATER METER INSTALLATION
ALT. NO. 1

COMBINATION

Air & Vacuum Relief Valve

This valve provides a large orifice for air release as a line is filled and vacuum protection when drained. A small orifice bleed valve acts continuously to release small pockets of air which collect when line is operating.

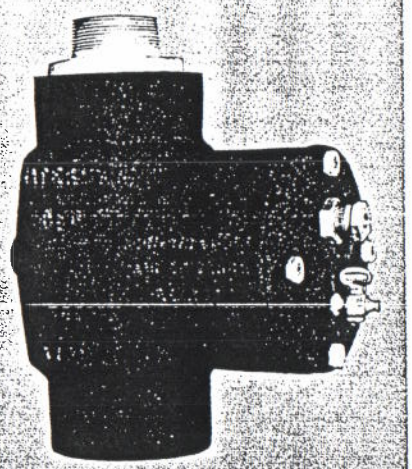
The use of these valves near the pump, at high point, and at the end of a line will protect a line from air damage, from "water hammer", will insure full line capacity, and will conserve pump horsepower.

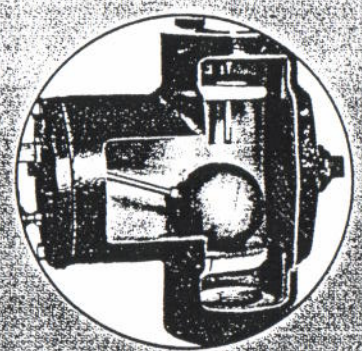
A plugged, tapped boss is provided in the body cap for easy installation of a test petcock. Standard units are painted. A fusion epoxy coating is available on special order for severe conditions.

- Continuous Acting
- 150 PSI Service
- Cast Iron Body
- Brass Poppet Valve
- Brass Bleed Valve
- Stainless Steel Float

MODEL

AVR-2





POPPET AND BLEED VALVE IN OPEN POSITION

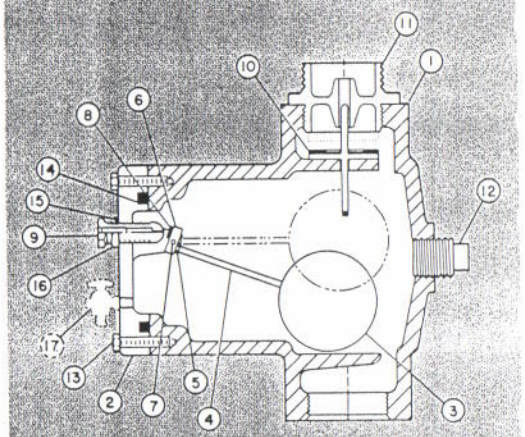
COMBINATION
AIR & VACUUM

Relief Valve

1. Body - Cast Iron
2. End Cap - Cast Iron
3. Float - Stainless Steel or Plastic
4. Float Stem - Stainless Steel
5. Lock Nuts - (2) - Stainless Steel
6. Hinge Block - Brass
7. Hinge Pin - Stainless Steel
8. Valve Seat - Neoprene Rubber
9. Bleed Valve Body - Brass
10. Vent Valve Poppet - Brass with Neoprene Seat & Bumper Tip
11. Vent Valve Body - Brass (2" N.P.T.)
12. Pipe Plug - Cast Iron
13. Cover Bolt
14. Gasket - Neoprene Rubber
15. O-Ring - Neoprene Rubber
16. Lock Nut - Brass
17. Test Valve - Optional

MODEL

AVR-2



SEE PRICE LIST FOR SIZES AND WEIGHTS. DISCHARGE CAPACITIES AVAILABLE UPON REQUEST.

INSTALLATION: The Waterman Model AVR-2 Combination Air and Vacuum Relief Valve should be installed in a vertical position, placed so that debris will not enter the unit, and where the small amounts of water expelled as the unit closes will not be objectionable. Threaded outlets permit this discharge to be piped away from the valve location if necessary. Where freezing may occur, or where it may be desirable to remove this valve for inspection or repair while a line is operating, a cut-off valve should be installed between it and the line.

COMBINATION

Air & Vacuum Relief Valve

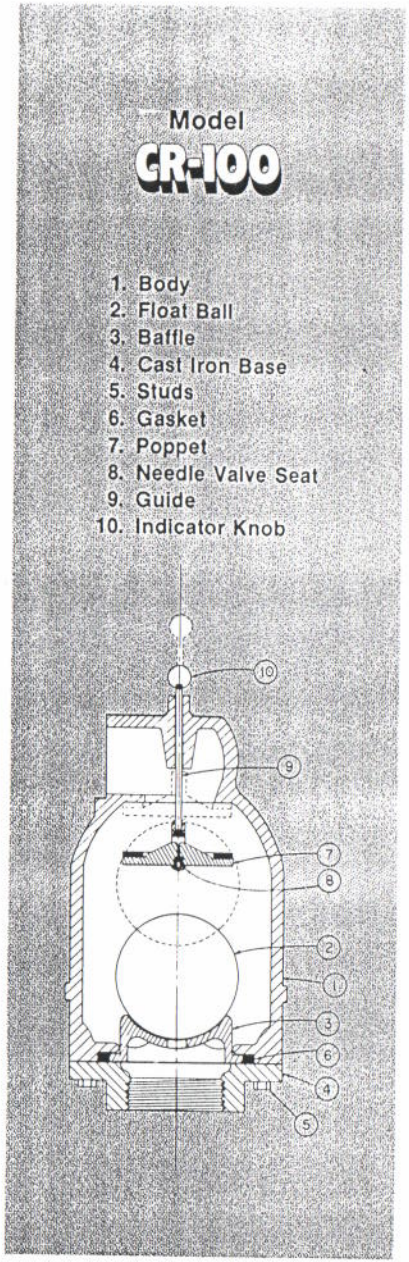
- Lightweight Aluminum Body
- Large volume exhaust as line is filled.
- Vacuum protection as line drains.
- Continuously releases small pockets of air while line is in operation.
- For line pressures to 100 p.s.i.

This continuous acting valve provides air and vacuum protection, insures full line capacity, and conserves pump horsepower.

The Model CR-100 has been especially designed to meet irrigation requirements of dependability, light weight and moderate price. Construction includes high strength aluminum alloy body, baffle, and rubber bonded poppet and flat ball. The small orifice valve seat, guide rod, and assembly hardware, are stainless steel. Cast iron is used for the threaded base to provide easy installation and removal without the thread damage which can occur with aluminum threads.

1179 — Printed in USA

COMBINATION

Air & Vacuum Relief Valve

Installation: The Model CR-100 continuous acting air and vacuum release valve should be installed in a vertical position. A riser (18" minimum) will minimize undesirable water discharge caused by line turbulance. Units should be placed so that debris will not enter the unit and where the small amounts of water expelled, as the unit closes, will not be objectionable. Installations are recommended near the pump or intake, on pressure boxes, near check valves, at all high points and at the ends of a line. Installations are often made using Model AV-75 or AV-150 Air and Vacuum Vents at some points, and the continuous acting CR-100 at other more critical positions on the line. See price list for sizes and weights.