



MEMORANDUM

TO: Water Resources Commission

FROM: Thomas. M. Byler, Director

SUBJECT: Agenda Item K, August 18, 2017
Water Resources Commission Meeting

Request for Adoption of Rules - OAR Chapter 690, Division 215, Maintenance, Repair and Deepening of Water Supply Wells

I. Introduction

Staff will request that the Commission adopt proposed well construction rule changes regarding back-siphon prevention devices and down well continuous water treatment (OAR Chapter 690, Division 215).

II. Background

The Well Construction and Compliance Section is responsible for ensuring compliance with the laws and regulations related to well construction. The Well Construction Program licenses well constructors, enforces well construction statutes and standards, and maintains the repository of well log reports for the State of Oregon.

In order to prevent potential contamination from entering an aquifer, groundwater irrigation systems that are used for the application of chemicals or fertilizers are currently required to have backflow prevention equipment installed. This equipment prevents chemicals or other fluids from flowing backwards into the well and aquifer if pressure is lost. The rules for this equipment reside in OAR Chapter 690, Division 215 - Maintenance, Repair and Deepening of Water Supply Wells. When these rules were first written in 1991, they were focused on larger irrigation systems. In recent years, field staff have observed these practices occurring with small irrigation systems where the current rules are not able to be applied.

The Department organized a rules advisory committee (RAC) to develop these rules. The RAC consisted of individuals from the following industries and organizations: backflow products, testing, and training; water conditioners, softeners, filtration, UV systems, and well construction; Oregon Health Authority – Drinking Water Services; an irrigator; and the Nature Conservancy. The RAC met to discuss the potential rule changes in March and April 2017.

The Department submitted a Notice of Proposed Rulemaking Hearing and Statement of Need and Fiscal Impact to the Secretary of State on April 14, 2017. The notice was published May 1, 2017, in the Oregon Bulletin. The hearing draft of the proposed rules is shown in Attachment 1. A public hearing was held in Salem on May 24, 2017. The public comment period was open from May 1 through June 30, 2017. No public comments, written or verbal, were received by the Department; however, changes to the hearing draft of the rules were made at the recommendation of the Groundwater Advisory Committee and staff as discussed in more detail below.

III. Discussion

A. Proposed Rule Changes

Staff proposed a number of changes aimed at updating and clarifying the existing well construction rules related to back-siphon prevention devices and down well continuous water treatment, including:

- Clarifying and cleaning-up existing rule language so that it is clear and easy to read. Staff worked with the RAC to craft language that is useful and precise.
- Adding rule specific definitions to make the requirements easier to understand. In order to provide clarity, definitions specific to the back-siphon rules were added. The rule changes include new terminology that was not previously defined. Definition language was crafted with assistance from the RAC.
- Clarifying requirements for back-siphon prevention device assemblies on groundwater irrigation systems with four-inch or *larger* mainlines. These assemblies have been required since 1991.
- Adding an authorized back-siphon prevention device assembly for groundwater irrigation systems with mainlines that are *smaller* than four-inches. An assembly has been required on all groundwater irrigation systems that are applying fertilizers or other chemicals through the irrigation system since 1991. However, previous assembly was not feasible for small applications. This rule describes an assembly that will work with small systems.
- Adding language that points to back-siphon requirements of other agencies.
- Clarifying device testing, maintenance and use requirements, as well as the responsibility of landowners or other parties.

B. Groundwater Advisory Committee Feedback and Modifications to Proposed Rules

The Groundwater Advisory Committee (GWAC), which advises the Commission on rules for development and protection of groundwater (ORS 536.090), met on June 30, 2017, to review and discuss the draft rules. GWAC held a lengthy discussion with staff about the proposed rule changes.

After discussions with staff and GWAC members, two specific recommendations were incorporated into the final proposed rules (Attachment 2). The changes include the removal of a sentence in OAR 690-215-0017(2) related to the use of water treatment systems to treat well water, and the addition of sentences to Figures 215-1 and 215-2. The additional sentences describe the proper location of chemical or fertilizer injection into the irrigation mainline. The changes clarify proposed rule language and diagrams, but do not modify the meaning or intent of the rules. GWAC unanimously recommended that the proposed rule changes be approved as discussed.

IV. Summary of Amended Proposed Final Rules

The final proposed rules were developed in conjunction with stakeholders and provide clear standards and guidance for well constructors, back-siphon prevention device installation professionals, landowners, and other responsible parties when installing, altering or maintaining back-siphon prevention devices on groundwater irrigation systems used to chemigate or fertigate.

The final proposed rules have been modified from the hearing draft by updating Figure 215-1 and Figure 215-2 to more accurately reflect the devices being represented. These changes were made based on discussions with staff and on comments from GWAC. In addition, minor text changes were made based on comments from staff and GWAC. The changes provide clarity and consistency, but do not modify the meaning or intent of the rules.

V. Alternatives

The Commission may consider the following alternatives:

1. Adopt the final proposed rules in Attachment 2.
2. Adopt modified final proposed rules.
3. Not adopt rules and request the Department to further evaluate the issues.

VI. Recommendation

The Director recommends Alternative 1.

Attachments:

1. Hearing Draft Proposed Rules – Chapter 690, Division 215
2. Final Proposed Rules – Chapter 690, Division 215

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**OREGON ADMINISTRATIVE RULES
WATER RESOURCES DEPARTMENT
CHAPTER 690
DIVISION 215**

MAINTENANCE, REPAIR AND DEEPENING OF WATER SUPPLY WELLS

690-215-0005

Prevention of Groundwater Contamination, Health Hazard, and Waste

(1) The landowner of the property on which the water supply well is constructed is ultimately responsible for the maintenance and use of the water supply well. All water supply wells should be disinfected following the installation of pumping equipment. Refer to OAR 690-210-0380, **Appendix 2** for recommendations on well disinfection.

(2) The landowner shall maintain all water supply wells in a condition where they are not a health threat, a health hazard, a source of contamination or a source of waste of the ground water resource by allowing loss of artesian pressure or commingling of aquifers. A pitless adapter may be attached to the casing to transmit water from the well into the delivery pipeline. The pitless adapter shall be installed in such a manner as to prevent the contamination of the ground water resource. The landowner is responsible to assure that the space between the side of the well borehole and the well casing is sealed as required by OAR 690-215-0025.

(3) If, in the opinion of the Director, a water supply well is a health threat, a health hazard, a source of contamination, or a source of waste of the ground water resource, the Director may order discontinuance of, or impose conditions upon, the use of the water supply well. In addition, the Director may order that the well be repaired or permanently abandoned in accordance with OAR chapter 690, divisions 215 and 220 of the Standards for Construction and Maintenance of Water Supply Wells in the State of Oregon.

[ED. NOTE: Appendices referenced are available from the agency.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Stats. Implemented:

Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 3-1983, f. & ef. 4-28-83; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0005; WRD 7-1988, f. & cert. ef. 6-29-88; WRD 21-1990, f. & cert. ef. 12-14-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0006

Well Alterations

(1) Well alterations as defined in OAR 690-200-0050(7) shall be performed by a licensed Water Supply Well Constructor, or a landowner with a Landowner's Well Construction Permit and bond.

(2) Water Supply Well Constructors or a permitted and bonded landowner shall record the following data, if available, on the Water Supply Well Report as required under OAR 690-205-0210 before completing alteration work on a well:

(a) Pre-alteration static water level and date taken.

- (b) Pre-alteration casing diameter.
- (c) Pre-alteration casing gauge.
- (d) Pre-alteration well depth.
- (e) Pre-alteration seal material.

(3) Well alteration work shall be completed in accordance with OAR 690-215. The Water Supply Well Constructor shall only be responsible for the alteration work they performed under OAR 690-215.

Stat. Auth.: ORS 536.090, 537.505 - 537.795
Stats. Implemented:
Hist.: WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0010

Maintenance of an Existing Well Following Construction of Replacement Well

Any time a new water supply well is constructed to replace an existing well which is a source of contamination, or is wasting the ground water resource by allowing loss of artesian pressure or commingling of aquifers, the existing well shall be repaired in compliance with these rules or abandoned in accordance with OAR 690-220-0030 through 690-220-0140.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795
Stats. Implemented:
Hist.: WRD 7-1988, f. & cert. ef. 6-29-88; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0016

Maintaining Well Setback Requirements

Within the boundaries of their own property, property owners are responsible for maintaining the applicable minimum setback distances for any well on their property. Refer to OAR 690-210-0030 for current minimum setback distances.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795
Stats. Implemented: ORS 536.090 & 537.505 - 537.795
Hist.: WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0017

Down Well Continuous Water Treatment and Back-Siphon Prevention Devices

(1) The following definitions apply solely to OAR 690-215-0017:

(a) "Backflow" means the flow of a mixture of water, fertilizer and/or chemicals in the opposite direction of that intended.

(b) "Backpressure" means an elevation of pressure downstream of the distribution system that would cause, or tend to cause, water to flow opposite of its intended direction.

(c) "Back-siphonage" means a drop in distribution system pressure below atmospheric pressure (partial vacuum), that would cause, or tend to cause, water to flow opposite of its intended direction.

(d) "Reduced Pressure Principle Backflow Prevention Assembly (RP)" means an assembly containing two independently acting approved check valves, together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly. This assembly is designed to protect against a non-health hazard or a health hazard.

(e) "University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research (USC FCCCHR)" is an agency that conducts laboratory and field tests to evaluate and grant "Certificates of Approval" to backflow prevention assemblies meeting approved standards.

~~(24)~~ If a chemical is used to treat well water, it shall not be allowed to come into contact with the inside of the well casing above the water level. Down well treatment of well water will only be allowed if a commercial water treatment system is used. Delivery pipes or tubes designed for use with the treatment chemicals shall be used to place the chemicals into the water in the well. This rule does not apply when disinfecting the well and the pumping equipment. The use of a water treatment system to treat well water shall not result in contamination of the groundwater resource.

~~(32)~~ Only chemicals approved by the National Sanitation Foundation to treat drinking water may be allowed to enter a well. In no event shall agricultural ~~chemicals pesticides and or~~ fertilizers be allowed to enter a well.

~~(43)~~ Back-siphon prevention ~~devices equipment~~ shall be installed on any irrigation system connected to a ground-water source when ~~chemicals or fertilizers or any other chemicals~~ are applied through the system. The landowner or other responsible party~~ies~~ shall ~~be responsible for as~~ ensuring that the back-siphon prevention devices ~~are equipment~~ is installed and functions properly prior to the irrigation system being used for the application of chemicals or fertilizers. (See **Figure 215-1** and Figure 215-2.) The landowner or other responsible party~~ies~~ shall test the devices at the time of installation and inspect the device at least once per year, prior to the first use of ~~the each calendar year,~~ to ensure that the devices ~~are is~~ installed and functions properly. The Department may require the landowner or other responsible party to submit a copy of the back-siphon prevention device test results for review. The installation of chemical or fertilizer injection equipment into an irrigation system connected to a groundwater source shall not result in contamination of the groundwater resource.

(a) ~~The~~ irrigation systems with a mainline diameter 4-inches or greater shall contain:

(A) An automatic low-pressure drain or similar device approved by the Water Resources Department which shall:

(i) Be installed between the irrigation pump and the irrigation mainline check valve at the lowest point of the horizontal water supply ~~pipe~~mainline;

(ii) Be designed to drain all incidental leakage from the check valve out of the irrigation ~~pipe~~mainline before that leakage enters the groundwater supply;

(iii) Be at least 3/4 inch in diameter with a closing pressure of not less than 5 psi;

Hearing Draft – Proposed Rules

(iv) Use a corrosion-resistant tube, pipe, or similar conduit that is sloped to discharge the solution a distance of at least 20 feet away and down-~~gradientslope~~ from the irrigation groundwater source and any other groundwater sources. At the discharge point there shall be an air gap between the discharge pipe and the discharged solution. The air gap shall be a minimum of six inches;

(v) Not have any valves located on the outlet side of the drain tube; and

(vi) Have a dam, ~~or~~ collection reservoir or similar means to prevent the discharged solution from pooling and draining back toward the groundwater source.

(B) An inspection port or direct access point which shall:

(i) Be located on top of the pipemainline between the irrigation pump and the irrigation pipemainline check valve, directly overhead of the low-pressure drain; and

(ii) Have a minimum diameter opening of four inches from which the check valves and low-pressure drain shall be visible. If a four-inch inspection port or direct access point is not possible, a proposed alternative access system may be submitted for review and approval by the Department.

(C) An irrigation mainline check valve which shall:

(i) Consist of at least a single check valve;

(ii) Be located in the irrigation pipemainline between the irrigation pump and the point of chemical or fertilizer injection into the irrigation pipemainline, and downstream from athe vacuum relief valve and automatic low-pressure drain;

(iii) Be of heavy-duty construction with all materials compatible with and resistant to any chemicals or fluids that it is expected to come into contact with~~corrosion or protected to resist corrosion;~~

(iv) Be resistant to corrosion or protected to resist corrosion;

(iv) Be spring-loaded and provide and maintain a watertight seal against ~~reverse-back~~flow;

(vi) Be labeled with the following information: manufacturer's name and model number, working pressure in pounds per square inch (psi), maximum flow rate, and direction of flow;

(vii) Not consist of metal-to-metal seal surfaces; and

(viii) Be designed and rated for pressures expected to be encountered, including those caused by pumping, water hammers, back-pressure, or other sources. Installation, operation, maintenance and testing shall be according to design and manufacturer's specifications and recommendations.

(D) An air/vacuum relief valve which shall:

(i) Be located on top of the horizontal irrigation pipemainline between the irrigation pump and the irrigation mainline check valve; and

(ii) Have a total (individually or combined) orifice size of at least 3/4-inch diameter for a 4-inch pipe, a 1-inch diameter for a 5- to 8-inch pipe, a 2-inch diameter for 9- to 18-inch pipe, and a 3-inch diameter for a 19-inch and greater pipe.

(E) An automatic, quick-closing chemical injection line check valve which shall:

(i) Be attached to the irrigation mainline or located between the chemical injection ~~pump-unit~~ and the point of chemical or other fluid injection into the irrigation mainline;

(ii) Be made of material that is compatible with and resistant to any chemicals~~s-resistant material~~ or fluids to be injected;

(iii) Prevent backflow of irrigation water ~~under operating pressure from entering into~~ the chemical injection line; and

(iv) Prevent siphoning or seepage~~leakage~~ from the chemical supply tank ~~when the irrigation~~ system is either automatically or manually shut down.

(F) A system interlock which shall: mechanically or electrically connect the water supply pump and the chemical injection unit for the purpose of automatically shutting down the chemical injection unit in the event of water supply pump shutdown or failure. The landowner or other responsible party shall demonstrate system interlock operation if requested by the Department.

(G) An emergency shut-off that can be operated manually by the landowner or other responsible party so that the irrigation system or the chemical injection unit can be shut down in the event it becomes necessary.

(H) A pressure switch that will stop the chemical injection unit when the water pressure decreases to the point where chemical or fertilizer distribution is adversely affected.

(b) Irrigation systems with a mainline diameter less than 4-inches shall contain:

(A) A lead free reduced pressure principle backflow prevention assembly (RP) which shall:

(i) Be approved by the University of Southern California, Foundation for Cross-Connection Control and Hydraulics Research, or other equivalent testing laboratory;

(ii) Be installed horizontally, never vertically, unless they are specifically approved for vertical installation;

(iii) Be located in the irrigation mainline between the irrigation pump and the point of chemical or fertilizer injection into the irrigation mainline;

(iv) Be of heavy-duty construction with all materials compatible with and resistant to any chemicals or fluids that it is expected to come into contact with;

(v) Be resistant to corrosion or protected to resist corrosion;

(vi) Provide and maintain a watertight seal against reverse flow;

(vii) Be labeled with the following information: manufacturer's name and model number, working pressure in pounds per square inch (psi), maximum flow rate, and direction of flow;

(viii) Not consist of metal-to-metal seal surfaces;

(ix) Be designed and rated for pressures expected to be encountered, including those caused by pumping, water hammers, back-pressure, or other sources. Installation, operation, maintenance and testing shall be according to design and manufacturer's specifications and recommendations; and

(x) Include an approved air gap and drain line. The diameter of the drain line shall be at least as large as the mainline diameter. The drain line shall be sloped in such a manner as to drain all incidental leakage a distance of at least 20 feet away and down-gradient from the irrigation groundwater source and the RP assembly before that leakage enters the groundwater supply. The air gap shall be a minimum of one and one-half times the diameter of the mainline. The outlet side of the drain line shall have a dam, collection reservoir or similar means to prevent the discharged solution from pooling and draining back toward the groundwater source.

(B) An automatic, quick-closing chemical injection line check valve which shall:

(i) Be attached to the irrigation mainline or located between the chemical injection unit and the point of chemical or fertilizer injection into the irrigation mainline;

(ii) Be made of material that is compatible with and resistant to any chemicals or fluids to be injected;

(iii) Prevent backflow of irrigation water into the chemical injection line; and

(iv) Prevent siphoning or seepage from the chemical supply tank when the irrigation system is either automatically or manually shut down.

(C) A system interlock which shall: mechanically or electrically connect the water supply pump and the chemical injection unit for the purpose of automatically shutting down the chemical injection unit in the event of water supply pump shutdown or failure. The landowner or other responsible party shall demonstrate system interlock operation if requested by the Department.

(D) An emergency shut-off that can be operated manually by the landowner or other responsible party so that the irrigation system or the chemical injection unit can be shut down in the event it becomes necessary.

(E) A pressure switch that will stop the chemical injection unit when the water pressure decreases to the point where chemical or fertilizer distribution is adversely affected.

~~(C) The Director may allow# modifications or changes in materials, design, technology, or irrigation practices, or other reasons warrant the use or placement of equipment in lieu of that specified herein, the Director may allow for such changes.~~ Requests for modifications or changes shall be in writing, detailing the current or proposed existing system and the desired changes uses, and shall include component specifications, a detailed drawing of the proposed system changes, and the system's uses. Once installed, the modified system shall provide at least as much protection to the ground-water resource as that is equal to or greater than that provided by the devices equipment required in this regulation;

(d) The injection of chemicals or fertilizers into an irrigation system connected to a groundwater source shall not occur within ten feet from a wellhead.

(e) An additional vacuum relief valve may be installed downstream of the irrigation mainline check valve to prevent potential collapse of the irrigation mainline in the event of rapid mainline drainage.

(f) The landowner or other responsible party shall ensure that additional inspections and testing of approved back-siphon prevention devices are conducted:

(A) At the time of any repair or relocation;

(B) More frequently than annually for back-siphon prevention devices that repeatedly fail; or

(C) After a backflow incident.

(eg) These regulations are in addition to equipment requirements for ~~chemical~~pesticide application under the Federal Insecticide, Fungicide and Rodenticide Act, and are not intended to replace those regulations;

(dh) Irrigation systems that are subject to OAR 690-215-0017(~~43~~) and are connected to:

(A) A public water system, shall also comply with ~~meet the Oregon Health Authority~~ cross-connection control requirements in OAR ~~Chapter 333~~ and backflow prevention requirements in the Oregon Plumbing Specialty Code. Contact the Oregon Health Authority and the Oregon Building Codes Division for more information;

(B) A private water system, shall also meet the backflow prevention requirements in the Oregon Plumbing Specialty Code. Contact the Oregon Building Codes Division for more information.

(i) Before each chemical application, the treatment site and surrounding area should be assessed to determine if the application will endanger or be a potential hazard to workers, bystanders, domestic animals, fish or wildlife, ground or surface water, or neighboring crops.

(5) Back-siphon prevention devices found not to be functioning properly shall be either repaired or replaced. Repair or replacement shall take place prior to the irrigation system being used for the application of chemicals or fertilizers.

(6) Bypass piping installed around approved back-siphon prevention devices must be equipped with approved back-siphon prevention devices and must:

(a) Afford at least the same level of protection as the approved back-siphon prevention devices being bypassed; and

(b) Comply with all other requirements.

(7) The landowner or other responsible party shall provide access and clearance for required operation, testing, maintenance, and repair of back-siphon prevention devices.

(8) In cold climate areas, back-siphon prevention devices shall be protected from freezing.

(9) Back-siphon prevention devices shall:

(a) Not be located in any area containing fumes that are toxic, poisonous, or corrosive;

(b) Be installed in a manner that precludes the possibility of continuous submersion of back-siphon prevention devices; and

(c) Be installed in a manner that precludes the possibility of any submersion of the air/vacuum relief valve.

(10) The Director may require a landowner or other responsible party to install a back-siphon prevention device on any water supply well, including wells which are exempted by ORS 537.545. The Director also may require a landowner or other responsible party to install a back-siphon prevention device as a condition of a water right permit. When required to be installed:

(a) Back-siphon prevention devices shall be specifically designed and manufactured to prevent backflow, back-siphonage, backpressure, siphoning, seepage, suction, or leakage and shall prevent used, unclean, polluted, or contaminated water, mixtures, or substances from entering the groundwater resource;

(b) The landowner or other responsible party shall test the back-siphon prevention devices at the time of installation and once per calendar year to ensure that they are functioning properly;

(c) The Department may require the landowner or other responsible party to test the back-siphon prevention devices more frequently than annually to ensure that they are functioning properly; and

(d) The Department may require the landowner or other responsible party to submit a copy of the back-siphon prevention device test results for review.

~~(e11)~~ Whenever the Director deems it appropriate, the Department may investigate alleged violation of statutes, standards or rules governing back-siphon prevention devices to determine whether a violation has occurred. Violations of OAR 690-215-0017 may be administered under ORS 536.900(1)~~(be)~~, 537.990(3), or OAR ~~e~~C chapter 690, ~~d~~Division 260, as appropriate to gain compliance.

(12) Additional Oregon Health Authority standards apply to wells used for public water systems. See OAR Chapter 333 or contact the Oregon Health Authority for more information.

(13) Additional requirements in the Oregon Plumbing Specialty Code apply to wells used for public or private water systems. Contact the Oregon Building Codes Division for more information.

[ED. NOTE: Figure referenced in this rule are available from the agency.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Stats. Implemented:

Hist.: WRD 7-1988, f. & cert. ef. 6-29-88; WRD 1-1991, f. & cert. ef. 2-8-91; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0020

Valves and Casing on Artesian Wells

Valves and casing on all artesian wells shall be maintained in a condition so that the flow of water can be completely stopped when the water is not being put to beneficial use. All casing, liner pipe, and casing seals shall be maintained in a condition that will prevent surface or subsurface leakage of ground water. Valves shall be closed when water is not being put to beneficial use. During periods of subfreezing temperatures, a valve may be partially opened to prevent damage due to freezing.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0010 by WRD

690-215-0025

Sealing Pitless Adapter and Pitless Units

The sealing area around pitless adapter or pitless unit installations shall be replaced with unhydrated bentonite as required by OAR 690-210-0330 and shall be at least one and one-half inches thick around the casing and pitless device.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0030

Casing and Casing Extensions

(1) All well casing used to extend a well head above land surface or used in the alteration, repair or deepening of water supply wells shall meet the minimum standards in OAR 690-210.

(2) The annular space surrounding the well casing used to extend the well head shall be sealed as required by OAR 690-210 and shall be at least four inches greater than the nominal inside diameter of the permanent well casing.

NOTE: Prior to extending the casing on public, community, municipal, or public utility water supply wells, contact the Department of Human Services. Additional requirements may apply.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-061-0221; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0035

Liner Pipe

All liner pipe used in the alteration, repair or deepening of water supply wells shall meet the minimum standards in OAR 690-210-0290.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0040

Casing and Sealing Wells after Disturbance

(1) If during the installation of casing, liner pipe, seals, packers, or during repair or deepening of a water supply well, the pre-existing casing is withdrawn, or moved as to compromise the annular seal, the well shall be cased and sealed in accordance with the rules set forth in OAR 690-210.

(2) If the annular seal is not compromised when cleaning out a water supply well or installing liner pipe, the water supply well shall not require re-casing or re-sealing.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-

061-0226; WRD 7-1988, f. & cert. ef. 6-29-88; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0045

Deepening of Wells

- (1) Only the following wells may be deepened without an approved special standard:
 - (a) Wells with well reports that describe the original construction. The original well report must be:
 - (A) Referenced on the deepening well report; or
 - (B) Attached to the deepening well report.
 - (b) Wells that are recased and resealed to meet the current minimum well construction standards.
- (2) The static water level shall be measured prior to and after deepening any well. Both readings shall be recorded on the well log.
- (3) If the deepening of an existing well results in access to a new aquifer then prior to completion of deepening work all previous aquifers, including previous aquifers that have gone dry or are low-producing, shall be cased and sealed off using the methods described in OAR 690-210.
- (4) The deepening of a water supply well shall not result in the commingling of aquifers.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2014, f. & cert. ef. 11-25-14

690-215-0050

Well Cover

All water supply wells shall be securely covered to prevent any foreign substance from entering the well, including any material which might contaminate the ground water. The well cover shall meet the requirements of OAR 690-220-0005.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0055

Well Identification Label Maintenance

The well identification label shall not be removed from the wellhead and shall be maintained by the landowner in an accessible location and in a readable condition. See OAR 690-200-0048 for well identification label placement methods and instructions.

[ED. NOTE: Appendices referenced are available from the agency.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795
Stats. Implemented: ORS 536.090 & 537.505 - 537.795
Hist.: WRD 7-2001, f. & cert. ef. 11-15-01; WRD 5-2016, f. & cert. ef. 9-6-16

690-215-0060

Access Ports, Dedicated Measuring Tubes or Airlines

- (1) All water supply wells, including wells that have been temporarily removed from service, temporarily abandoned due to a recess in construction, or temporarily abandoned before commencing service, shall be properly covered and shall be equipped with a usable access port with a minimum diameter of 1/2-inch for the purpose of determining the water level in the well at any time.
- (2) Dedicated measuring tubes are recommended to be installed on all water supply wells at the time of pump installation, pump repair, or pump replacement. Where required, dedicated measuring tubes shall be a minimum of 3/4-inch diameter schedule 40 PVC extending to the top of the pump. The 3/4-inch diameter dedicated measuring tube may be reduced in size to 1/2-inch where it goes through the watertight well cap, but shall not be reduced in size over the length of the pipe. Dedicated measuring tubes shall be vented above and below the well cap and shall be attached to the pump column at 10 foot intervals with 10 mil plastic tape. The lower five feet of the dedicated measuring tube shall be either 0.020 inch machine slotted well screen or the lower 20 feet of the dedicated measuring tube shall be extensively perforated with 1/8 inch holes. Dedicated measuring tubes shall be plugged or capped at the bottom (See Figure 200-5) and shall remain free from wire or other obstruction.
- (3) An airline is not a substitute for a required dedicated measuring tube and, if installed, must enter the well in a location other than the access port.
- (4) Access ports, dedicated measuring tubes or airlines on all water supply wells shall be capped and a minimum of twelve inches above finished ground surface or pumphouse floor. If the well has a pitless adaptor then the dedicated measuring tube shall terminate within six inches of the top of the well casing.
- (5) Access ports, airlines and dedicated measuring tubes on all water supply wells shall be maintained by the landowner in a condition that will prevent contamination of the groundwater resource.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0015; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 2-2008, f. 6-18-08, cert. ef. 7-1-08; WRD 5-2016, f. & cert. ef. 9-6-16

690-215-0070

Pressure Gauge

The pressure gauge and petcock valve required by OAR 690-210-0155 shall be maintained so that the artesian pressure can be accurately determined at any time. (See **Figure 210-7.**)

[ED. NOTE: Figures referenced in this rule are available from the agency.]

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0020; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0080

Flowmeters and Dedicated Measuring Tubes

The Director may require the landowner to install totalizing flowmeters or dedicated measuring tubes on any water supply well, either as a condition of a water right permit or at a later date as circumstances may warrant. The landowner may be required to install totalizing flowmeters or dedicated measuring tubes on existing permitted wells and on wells which are exempted by ORS 537.545.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 2-2008, f. 6-18-08, cert. ef. 7-1-08

690-215-0090

Conversion to an Artesian Well

If a water supply well becomes artesian upon deepening, the well shall be cased, sealed and completed in accordance with OAR 690-210-0155.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-061-0236; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0100

Drilling in a Dug Well

In no case shall a dug well be deepened by drilling methods.

Stat. Auth.: ORS 183, 536, 537 & 540

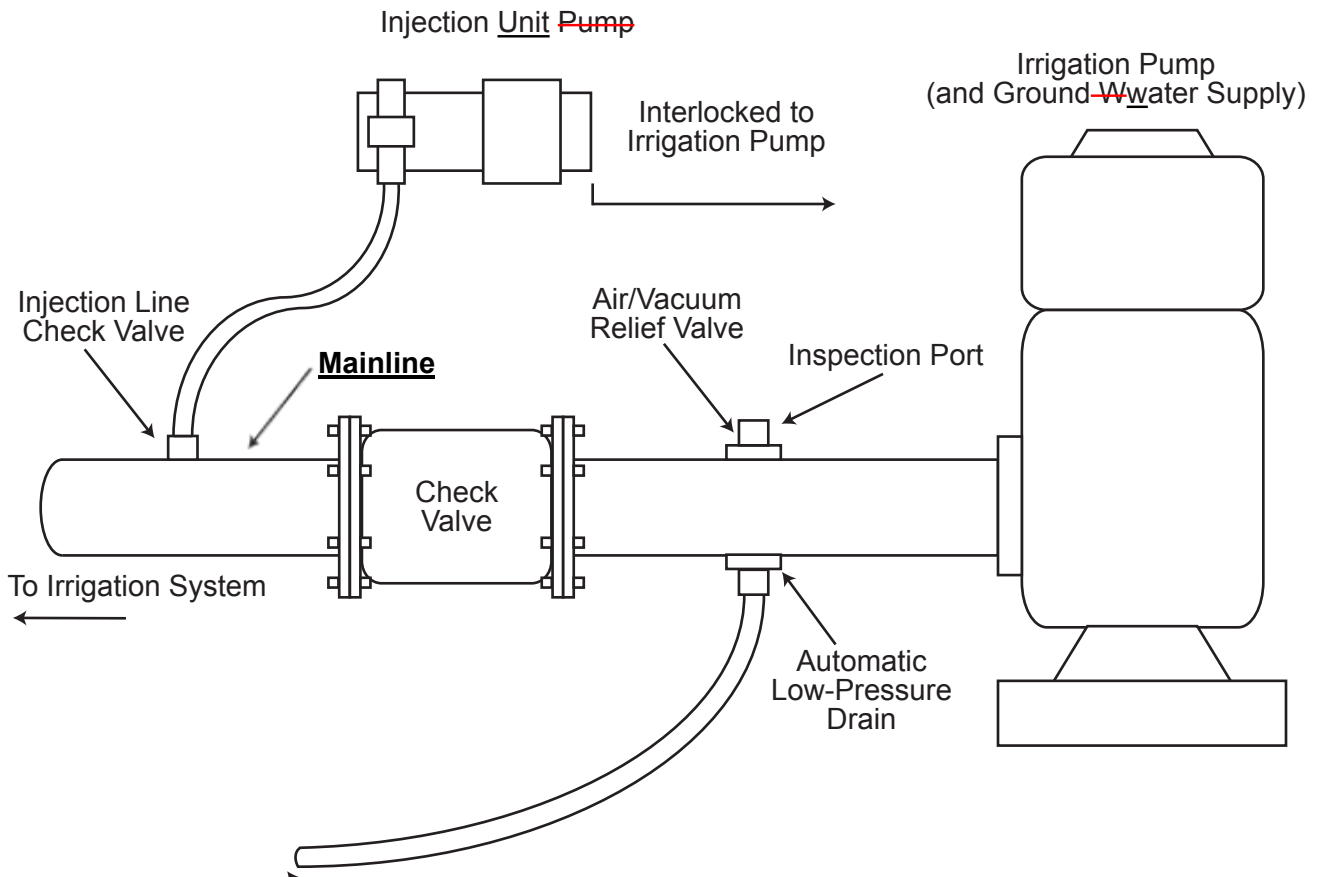
Stats. Implemented:

Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-061-0241

OAR 690-215-0017 - Larger Wells

Backflow Prevention Device

Figure 215-1



- Discharge solution ~~a minimum of 20 feet~~ **a distance of at least 20 feet** away and down-gradient ~~slope~~ from ~~well~~ water source
- Maintain an air gap between end of discharge pipe and the discharged solution

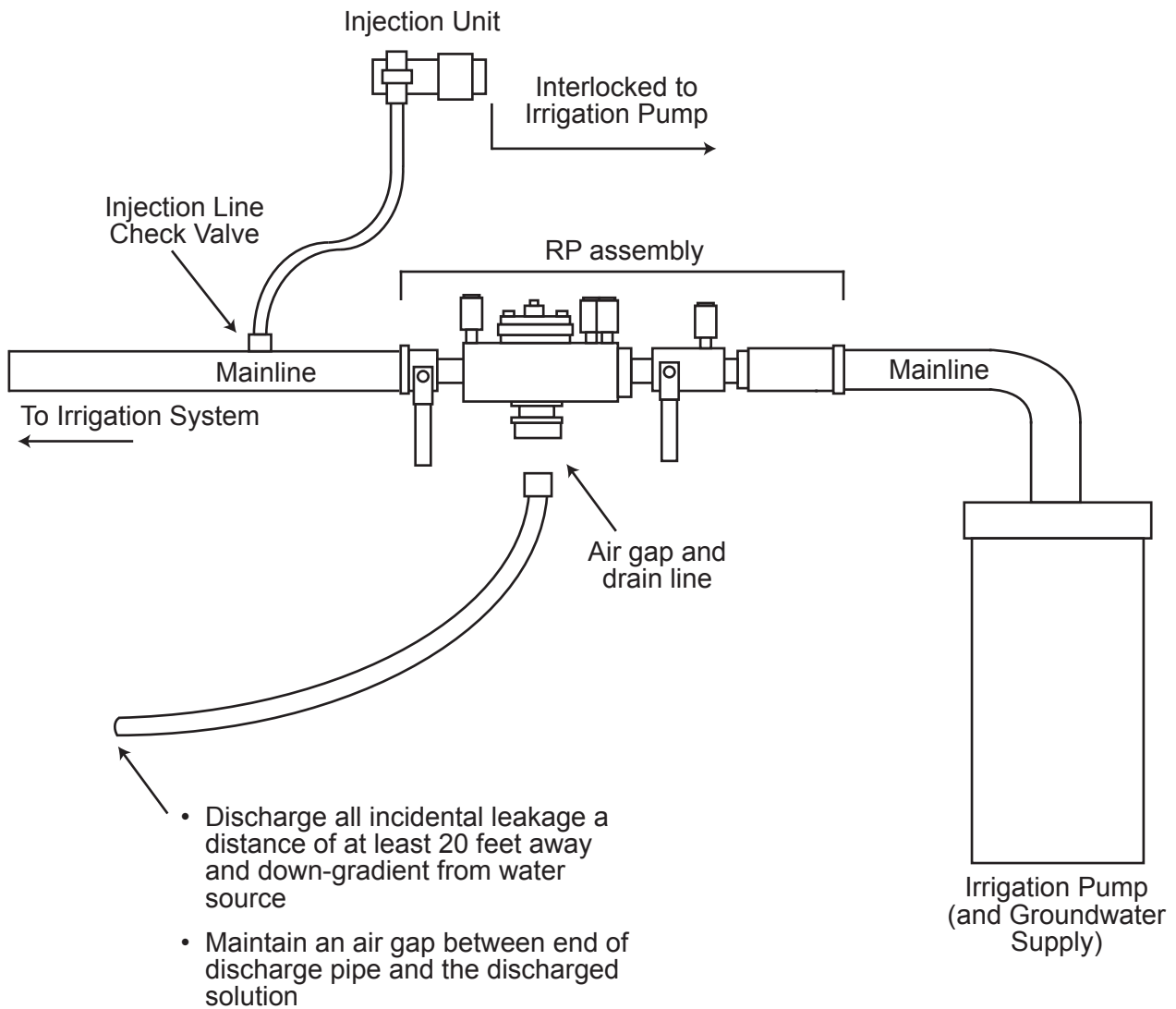
Backflow prevention device using check valve with vacuum relief and low pressure drain.

Strikethrough text is to be deleted.
 Language to be added is underlined.

OAR 690-215-0017 - Smaller Wells

Backflow Prevention Device

Figure 215-2



Backflow prevention device using a reduced pressure principle backflow prevention assembly (RP).

~~Strikethrough text is to be deleted.~~
Language to be added is underlined.

**OREGON ADMINISTRATIVE RULES
WATER RESOURCES DEPARTMENT
CHAPTER 690
DIVISION 215**

MAINTENANCE, REPAIR AND DEEPENING OF WATER SUPPLY WELLS

690-215-0005

Prevention of Groundwater Contamination, Health Hazard, and Waste

(1) The landowner of the property on which the water supply well is constructed is ultimately responsible for the maintenance and use of the water supply well. All water supply wells should be disinfected following the installation of pumping equipment. Refer to OAR 690-210-0380, **Appendix 2** for recommendations on well disinfection.

(2) The landowner shall maintain all water supply wells in a condition where they are not a health threat, a health hazard, a source of contamination or a source of waste of the ground water resource by allowing loss of artesian pressure or commingling of aquifers. A pitless adapter may be attached to the casing to transmit water from the well into the delivery pipeline. The pitless adapter shall be installed in such a manner as to prevent the contamination of the ground water resource. The landowner is responsible to assure that the space between the side of the well borehole and the well casing is sealed as required by OAR 690-215-0025.

(3) If, in the opinion of the Director, a water supply well is a health threat, a health hazard, a source of contamination, or a source of waste of the ground water resource, the Director may order discontinuance of, or impose conditions upon, the use of the water supply well. In addition, the Director may order that the well be repaired or permanently abandoned in accordance with OAR chapter 690, divisions 215 and 220 of the Standards for Construction and Maintenance of Water Supply Wells in the State of Oregon.

[ED. NOTE: Appendices referenced are available from the agency.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Stats. Implemented:

Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 3-1983, f. & ef. 4-28-83; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0005; WRD 7-1988, f. & cert. ef. 6-29-88; WRD 21-1990, f. & cert. ef. 12-14-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0006

Well Alterations

(1) Well alterations as defined in OAR 690-200-0050(7) shall be performed by a licensed Water Supply Well Constructor, or a landowner with a Landowner's Well Construction Permit and bond.

(2) Water Supply Well Constructors or a permitted and bonded landowner shall record the following data, if available, on the Water Supply Well Report as required under OAR 690-205-0210 before completing alteration work on a well:

(a) Pre-alteration static water level and date taken.

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- (b) Pre-alteration casing diameter.
- (c) Pre-alteration casing gauge.
- (d) Pre-alteration well depth.
- (e) Pre-alteration seal material.

(3) Well alteration work shall be completed in accordance with OAR 690-215. The Water Supply Well Constructor shall only be responsible for the alteration work they performed under OAR 690-215.

Stat. Auth.: ORS 536.090, 537.505 - 537.795
Stats. Implemented:
Hist.: WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0010

Maintenance of an Existing Well Following Construction of Replacement Well

Any time a new water supply well is constructed to replace an existing well which is a source of contamination, or is wasting the ground water resource by allowing loss of artesian pressure or commingling of aquifers, the existing well shall be repaired in compliance with these rules or abandoned in accordance with OAR 690-220-0030 through 690-220-0140.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795
Stats. Implemented:
Hist.: WRD 7-1988, f. & cert. ef. 6-29-88; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0016

Maintaining Well Setback Requirements

Within the boundaries of their own property, property owners are responsible for maintaining the applicable minimum setback distances for any well on their property. Refer to OAR 690-210-0030 for current minimum setback distances.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795
Stats. Implemented: ORS 536.090 & 537.505 - 537.795
Hist.: WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0017

Down Well Continuous Water Treatment and Back-Siphon Prevention Devices

(1) The following definitions apply solely to OAR 690-215-0017:

(a) "Backflow" means the flow of a mixture of water, fertilizer and/or chemicals in the opposite direction of that intended.

(b) "Backpressure" means an elevation of pressure downstream of the distribution system that would cause, or tend to cause, water to flow opposite of its intended direction.

(c) "Back-siphonage" means a drop in distribution system pressure below atmospheric pressure (partial vacuum), that would cause, or tend to cause, water to flow opposite of its intended direction.

(d) "Reduced Pressure Principle Backflow Prevention Assembly (RP)" means an assembly containing two independently acting approved check valves, together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly. This assembly is designed to protect against a non-health hazard or a health hazard.

(e) "University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research (USC FCCCHR)" is an agency that conducts laboratory and field tests to evaluate and grant "Certificates of Approval" to backflow prevention assemblies meeting approved standards.

~~(24)~~ If a chemical is used to treat well water, it shall not be allowed to come into contact with the inside of the well casing above the water level. Down well treatment of well water will only be allowed if a commercial water treatment system is used. Delivery pipes or tubes designed for use with the treatment chemicals shall be used to place the chemicals into the water in the well. This rule does not apply when disinfecting the well and the pumping equipment.

~~(32)~~ Only chemicals approved by the National Sanitation Foundation to treat drinking water may be allowed to enter a well. In no event shall agricultural ~~chemicals pesticides and or~~ fertilizers be allowed to enter a well.

~~(43)~~ Back-siphon prevention ~~device~~equipment shall be installed on any irrigation system connected to a ground-water source when ~~chemicals or fertilizers or any other chemicals~~ are applied through the system. The landowner or other responsible party~~ies~~ shall ~~be responsible for as~~ensuring that ~~the~~ back-siphon prevention ~~devices are~~equipment is installed and functions properly prior to the irrigation system being used for the application of chemicals or fertilizers. (See **Figure 215-1 and Figure 215-2**.) The landowner or other responsible party~~ies~~ shall test the devices at the time of installation and inspect the device at least once per year, prior to the first use of ~~the each calendar~~ year, to ensure that the devices ~~are is~~ installed and functions properly. The Department may require the landowner or other responsible party to submit a copy of the back-siphon prevention device test results for review. The installation of chemical or fertilizer injection equipment into an irrigation system connected to a groundwater source shall not result in contamination of the groundwater resource.

(a) ~~The~~ irrigation systems with a mainline diameter 4-inches or greater shall contain:

(A) An automatic low-pressure drain or similar device approved by the Water Resources Department which shall:

(i) Be installed between the irrigation pump and the irrigation mainline check valve at the lowest point of the horizontal water supply ~~pipe~~mainline;

(ii) Be designed to drain all incidental leakage from the check valve out of the irrigation ~~pipe~~mainline before that leakage enters the groundwater supply;

(iii) Be at least 3/4 inch in diameter with a closing pressure of not less than 5 psi;

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(iv) Use a corrosion-resistant tube, pipe, or similar conduit that is sloped to discharge the solution a distance of at least 20 feet away and down-~~gradientslope~~ from the irrigation groundwater source and any other water sources. At the discharge point there shall be an air gap between the discharge pipe and the discharged solution. The air gap shall be a minimum of six inches;

(v) Not have any valves located on the outlet side of the drain tube; and

(vi) Have a dam, ~~or~~ collection reservoir or similar means to prevent the discharged solution from pooling and draining back toward the groundwater source.

(B) An inspection port or direct access point which shall:

(i) Be located on top of the ~~pipemain~~line between the irrigation pump and the irrigation ~~pipemain~~line check valve, directly overhead of the low-pressure drain; and

(ii) Have a minimum diameter opening of four inches from which the check valves and low-pressure drain shall be visible. If a four-inch inspection port or direct access point is not possible, a proposed alternative access system may be submitted for review and approval by the Department.

(C) An irrigation mainline check valve which shall:

(i) Consist of at least a single check valve;

(ii) Be located in the irrigation pipemainline between the irrigation pump and the point of chemical or fertilizer injection into the irrigation ~~pipemain~~line, and downstream from ~~athe~~ vacuum relief valve and automatic low-pressure drain;

(iii) Be of heavy-duty construction with all materials being compatible with and resistant to any chemicals or fluids that it is expected to come into contact with~~corrosion or protected to resist corrosion;~~

(iv) Be resistant to corrosion or protected to resist corrosion;

(iv) Be spring-loaded and provide and maintain a watertight seal against ~~reverse-back~~flow;

(vi) Be labeled with the following information: manufacturer's name and model number, working pressure in pounds per square inch (psi), maximum flow rate, and direction of flow;

(vii) Not consist of metal-to-metal seal surfaces; and

(viii) Be designed and rated for pressures expected to be encountered, including those caused by pumping, water hammers, back-pressure, or other sources. Installation, operation, maintenance and testing shall be according to design and manufacturer's specifications and recommendations.

(D) An air/vacuum relief valve which shall:

(i) Be located on top of the horizontal irrigation ~~pipemain~~line between the irrigation pump and the irrigation mainline check valve; and

(ii) Have a total (individually or combined) orifice size of at least 3/4-inch diameter for a 4-inch pipe, a 1-inch diameter for a 5- to 8-inch pipe, a 2-inch diameter for 9- to 18-inch pipe, and a 3-inch diameter for a 19-inch and greater pipe.

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(E) An automatic, quick-closing chemical injection line check valve which shall:

(i) Be attached to the irrigation mainline or located between the chemical injection ~~pump-unit~~ and the point of chemical or other fluid injection into the irrigation mainline;

(ii) Be made of material that is compatible with and resistant to any chemicals~~s-resistant material~~ or fluids to be injected;

(iii) Prevent backflow of irrigation water ~~under operating pressure from entering into~~ the chemical injection line; and

(iv) Prevent siphoning or seepage~~leakage~~ from the chemical supply tank ~~when the irrigation~~ system is either automatically or manually shut down.

(F) A system interlock which shall: mechanically or electrically connect the water supply pump and the chemical injection unit for the purpose of automatically shutting down the chemical injection unit in the event of water supply pump shutdown or failure. The landowner or other responsible party shall demonstrate system interlock operation if requested by the Department.

(G) An emergency shut-off that can be operated manually by the landowner or other responsible party so that the irrigation system or the chemical injection unit can be shut down in the event it becomes necessary.

(H) A pressure switch that will stop the chemical injection unit when the water pressure decreases to the point where chemical or fertilizer distribution is adversely affected.

(b) Irrigation systems with a mainline diameter less than 4-inches shall contain:

(A) A lead free reduced pressure principle backflow prevention assembly (RP) which shall:

(i) Be approved by the University of Southern California, Foundation for Cross-Connection Control and Hydraulics Research, or other equivalent testing laboratory;

(ii) Be installed horizontal unless they are specifically approved for vertical installation;

(iii) Be located in the irrigation mainline between the irrigation pump and the point of chemical or fertilizer injection into the irrigation mainline;

(iv) Be of heavy-duty construction with all materials compatible with and resistant to any chemicals or fluids that it is expected to come into contact with;

(v) Be resistant to corrosion or protected to resist corrosion;

(vi) Provide and maintain a watertight seal against reverse flow;

(vii) Be labeled with the following information: manufacturer's name and model number, working pressure in pounds per square inch (psi), maximum flow rate, and direction of flow;

(viii) Not consist of metal-to-metal seal surfaces;

(ix) Be designed and rated for pressures expected to be encountered, including those caused by pumping, water hammers, back-pressure, or other sources. Installation, operation, maintenance and testing shall be according to design and manufacturer's specifications and recommendations; and

(x) Include an approved air gap and drain line. The diameter of the drain line shall be at least as large as the mainline diameter. The drain line shall be sloped in such a manner as to drain all incidental leakage a distance of at least 20 feet away and down-gradient from the irrigation groundwater source and the RP assembly. The air gap shall be a minimum of one and one-half times the diameter of the mainline. The outlet side of the drain line shall have a dam, collection reservoir or similar means to prevent the discharged solution from pooling and draining back toward the groundwater source.

(B) An automatic, quick-closing chemical injection line check valve which shall:

(i) Be attached to the irrigation mainline or located between the chemical injection unit and the point of chemical or fertilizer injection into the irrigation mainline;

(ii) Be made of material that is compatible with and resistant to any chemicals or fluids to be injected;

(iii) Prevent backflow of irrigation water into the chemical injection line; and

(iv) Prevent siphoning or seepage from the chemical supply tank when the irrigation system is either automatically or manually shut down.

(C) A system interlock which shall: mechanically or electrically connect the water supply pump and the chemical injection unit for the purpose of automatically shutting down the chemical injection unit in the event of water supply pump shutdown or failure. The landowner or other responsible party shall demonstrate system interlock operation if requested by the Department.

(D) An emergency shut-off that can be operated manually by the landowner or other responsible party so that the irrigation system or the chemical injection unit can be shut down in the event it becomes necessary.

(E) A pressure switch that will stop the chemical injection unit when the water pressure decreases to the point where chemical or fertilizer distribution is adversely affected.

~~(bc) The Director may allow# modifications or changes in materials, design, or technology, irrigation practices, or other reasons warrant the use or placement of equipment in lieu of that specified herein, the Director may allow for such changes. Requests for modifications or changes shall be in writing, detailing the current or proposed existing system and the desired changes uses, and shall include component specifications, a detailed drawing of the proposed system changes, and the system's uses. Once installed, the modification system shall provide at least as much protection to the ground-water resource as that is equal to or greater than that provided by the devices equipment required in this regulation;~~

(d) The injection of chemicals or fertilizers into an irrigation system connected to a groundwater source shall not occur within ten feet from a wellhead.

(e) An additional vacuum relief valve may be installed downstream of the irrigation mainline check valve to prevent potential collapse of the irrigation mainline in the event of rapid mainline drainage.

(f) The landowner or other responsible party shall ensure that additional inspections and testing of approved back-siphon prevention devices are conducted:

(A) At the time of any repair or relocation;

(B) More frequently than annually for back-siphon prevention devices that repeatedly fail; or

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(C) After a backflow incident.

~~(eg)~~ These regulations are in addition to equipment requirements for ~~chemical~~~~pesticide~~ application under the Federal Insecticide, Fungicide and Rodenticide Act, and are not intended to replace those regulations;

~~(eh)~~ Irrigation systems that are subject to OAR 690-215-0017~~(43)~~ and are connected to:

(A) A public water system, shall also comply with meet the Oregon Health Authority cross-connection control requirements in OAR Chapter 333 and backflow prevention requirements in the Oregon Plumbing Specialty Code. Contact the Oregon Health Authority and the Oregon Building Codes Division for more information;

(B) A private water system, shall also meet the backflow prevention requirements in the Oregon Plumbing Specialty Code. Contact the Oregon Building Codes Division for more information.

(i) Before each chemical application, the treatment site and surrounding area should be assessed to determine if the application will endanger or be a potential hazard to workers, bystanders, domestic animals, fish or wildlife, ground or surface water, or neighboring crops.

(5) Back-siphon prevention devices found not to be functioning properly shall be either repaired or replaced. Repair or replacement shall take place prior to the irrigation system being used for the application of chemicals or fertilizers.

(6) Bypass piping installed around approved back-siphon prevention devices must be equipped with approved back-siphon prevention devices and must:

(a) Afford at least the same level of protection as the approved back-siphon prevention devices being bypassed; and

(b) Comply with all other requirements.

(7) The landowner or other responsible party shall provide access and clearance for required operation, testing, maintenance, and repair of back-siphon prevention devices.

(8) In cold climate areas, back-siphon prevention devices shall be protected from freezing.

(9) Back-siphon prevention devices shall:

(a) Not be located in any area containing fumes that are toxic, poisonous, or corrosive;

(b) Be installed in a manner that precludes the possibility of continuous submersion of back-siphon prevention devices; and

(c) Be installed in a manner that precludes the possibility of any submersion of the air/vacuum relief valve.

(10) The Director may require a landowner or other responsible party to install a back-siphon prevention device on any water supply well, including wells which are exempted by ORS 537.545. The Director also may require a landowner or other responsible party to install a back-siphon prevention device as a condition of a water right permit. When required to be installed:

(a) Back-siphon prevention devices shall be specifically designed and manufactured to prevent backflow, back-siphonage, backpressure, siphoning, seepage, suction, or leakage and shall prevent used, unclean, polluted, or contaminated water, mixtures, or substances from entering the groundwater resource;

(b) The landowner or other responsible party shall test the back-siphon prevention devices at the time of installation and once per calendar year to ensure that they are functioning properly;

(c) The Department may require the landowner or other responsible party to test the back-siphon prevention devices more frequently than annually to ensure that they are functioning properly; and

(d) The Department may require the landowner or other responsible party to submit a copy of the back-siphon prevention device test results for review.

~~(e11)~~ Whenever the Director deems it appropriate, the Department may investigate alleged violation of statutes, standards or rules governing back-siphon prevention devices to determine whether a violation has occurred. Violations of OAR 690-215-0017 may be administered under ORS 536.900(1)~~(be)~~, 537.990(3), or OAR ~~e~~Cchapter 690, ~~d~~Division 260, as appropriate to gain compliance.

(12) Additional Oregon Health Authority standards apply to wells used for public water systems. See OAR Chapter 333 or contact the Oregon Health Authority for more information.

(13) Additional requirements in the Oregon Plumbing Specialty Code apply to wells used for public or private water systems. Contact the Oregon Building Codes Division for more information.

[ED. NOTE: Figure referenced in this rule are available from the agency.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Stats. Implemented:

Hist.: WRD 7-1988, f. & cert. ef. 6-29-88; WRD 1-1991, f. & cert. ef. 2-8-91; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0020

Valves and Casing on Artesian Wells

Valves and casing on all artesian wells shall be maintained in a condition so that the flow of water can be completely stopped when the water is not being put to beneficial use. All casing, liner pipe, and casing seals shall be maintained in a condition that will prevent surface or subsurface leakage of ground water. Valves shall be closed when water is not being put to beneficial use. During periods of subfreezing temperatures, a valve may be partially opened to prevent damage due to freezing.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0010 by WRD

690-215-0025

Sealing Pitless Adapter and Pitless Units

The sealing area around pitless adapter or pitless unit installations shall be replaced with unhydrated bentonite as required by OAR 690-210-0330 and shall be at least one and one-half inches thick around the casing and pitless device.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0030

Casing and Casing Extensions

(1) All well casing used to extend a well head above land surface or used in the alteration, repair or deepening of water supply wells shall meet the minimum standards in OAR 690-210.

(2) The annular space surrounding the well casing used to extend the well head shall be sealed as required by OAR 690-210 and shall be at least four inches greater than the nominal inside diameter of the permanent well casing.

NOTE: Prior to extending the casing on public, community, municipal, or public utility water supply wells, contact the Department of Human Services. Additional requirements may apply.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-061-0221; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0035

Liner Pipe

All liner pipe used in the alteration, repair or deepening of water supply wells shall meet the minimum standards in OAR 690-210-0290.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0040

Casing and Sealing Wells after Disturbance

(1) If during the installation of casing, liner pipe, seals, packers, or during repair or deepening of a water supply well, the pre-existing casing is withdrawn, or moved as to compromise the annular seal, the well shall be cased and sealed in accordance with the rules set forth in OAR 690-210.

(2) If the annular seal is not compromised when cleaning out a water supply well or installing liner pipe, the water supply well shall not require re-casing or re-sealing.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-

061-0226; WRD 7-1988, f. & cert. ef. 6-29-88; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2008, f. 12-22-08, cert. ef. 1-2-09

690-215-0045

Deepening of Wells

- (1) Only the following wells may be deepened without an approved special standard:
- (a) Wells with well reports that describe the original construction. The original well report must be:
 - (A) Referenced on the deepening well report; or
 - (B) Attached to the deepening well report.
 - (b) Wells that are recased and resealed to meet the current minimum well construction standards.
- (2) The static water level shall be measured prior to and after deepening any well. Both readings shall be recorded on the well log.
- (3) If the deepening of an existing well results in access to a new aquifer then prior to completion of deepening work all previous aquifers, including previous aquifers that have gone dry or are low-producing, shall be cased and sealed off using the methods described in OAR 690-210.
- (4) The deepening of a water supply well shall not result in the commingling of aquifers.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 7-2001, f. & cert. ef. 11-15-01; WRD 3-2014, f. & cert. ef. 11-25-14

690-215-0050

Well Cover

All water supply wells shall be securely covered to prevent any foreign substance from entering the well, including any material which might contaminate the ground water. The well cover shall meet the requirements of OAR 690-220-0005.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0055

Well Identification Label Maintenance

The well identification label shall not be removed from the wellhead and shall be maintained by the landowner in an accessible location and in a readable condition. See OAR 690-200-0048 for well identification label placement methods and instructions.

[ED. NOTE: Appendices referenced are available from the agency.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795
Stats. Implemented: ORS 536.090 & 537.505 - 537.795
Hist.: WRD 7-2001, f. & cert. ef. 11-15-01; WRD 5-2016, f. & cert. ef. 9-6-16

690-215-0060

Access Ports, Dedicated Measuring Tubes or Airlines

- (1) All water supply wells, including wells that have been temporarily removed from service, temporarily abandoned due to a recess in construction, or temporarily abandoned before commencing service, shall be properly covered and shall be equipped with a usable access port with a minimum diameter of 1/2-inch for the purpose of determining the water level in the well at any time.
- (2) Dedicated measuring tubes are recommended to be installed on all water supply wells at the time of pump installation, pump repair, or pump replacement. Where required, dedicated measuring tubes shall be a minimum of 3/4-inch diameter schedule 40 PVC extending to the top of the pump. The 3/4-inch diameter dedicated measuring tube may be reduced in size to 1/2-inch where it goes through the watertight well cap, but shall not be reduced in size over the length of the pipe. Dedicated measuring tubes shall be vented above and below the well cap and shall be attached to the pump column at 10 foot intervals with 10 mil plastic tape. The lower five feet of the dedicated measuring tube shall be either 0.020 inch machine slotted well screen or the lower 20 feet of the dedicated measuring tube shall be extensively perforated with 1/8 inch holes. Dedicated measuring tubes shall be plugged or capped at the bottom (See Figure 200-5) and shall remain free from wire or other obstruction.
- (3) An airline is not a substitute for a required dedicated measuring tube and, if installed, must enter the well in a location other than the access port.
- (4) Access ports, dedicated measuring tubes or airlines on all water supply wells shall be capped and a minimum of twelve inches above finished ground surface or pumphouse floor. If the well has a pitless adaptor then the dedicated measuring tube shall terminate within six inches of the top of the well casing.
- (5) Access ports, airlines and dedicated measuring tubes on all water supply wells shall be maintained by the landowner in a condition that will prevent contamination of the groundwater resource.

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0015; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 2-2008, f. 6-18-08, cert. ef. 7-1-08; WRD 5-2016, f. & cert. ef. 9-6-16

690-215-0070

Pressure Gauge

The pressure gauge and petcock valve required by OAR 690-210-0155 shall be maintained so that the artesian pressure can be accurately determined at any time. (See **Figure 210-7.**)

[ED. NOTE: Figures referenced in this rule are available from the agency.]

Stat. Auth.: ORS 183, 536, 537 & 540
Stats. Implemented:
Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-062-0020; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0080

Flowmeters and Dedicated Measuring Tubes

The Director may require the landowner to install totalizing flowmeters or dedicated measuring tubes on any water supply well, either as a condition of a water right permit or at a later date as circumstances may warrant. The landowner may be required to install totalizing flowmeters or dedicated measuring tubes on existing permitted wells and on wells which are exempted by ORS 537.545.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86; WRD 7-2001, f. & cert. ef. 11-15-01; WRD 2-2008, f. 6-18-08, cert. ef. 7-1-08

690-215-0090

Conversion to an Artesian Well

If a water supply well becomes artesian upon deepening, the well shall be cased, sealed and completed in accordance with OAR 690-210-0155.

Stat. Auth.: ORS 183, 536, 537 & 540

Stats. Implemented:

Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-061-0236; WRD 7-2001, f. & cert. ef. 11-15-01

690-215-0100

Drilling in a Dug Well

In no case shall a dug well be deepened by drilling methods.

Stat. Auth.: ORS 183, 536, 537 & 540

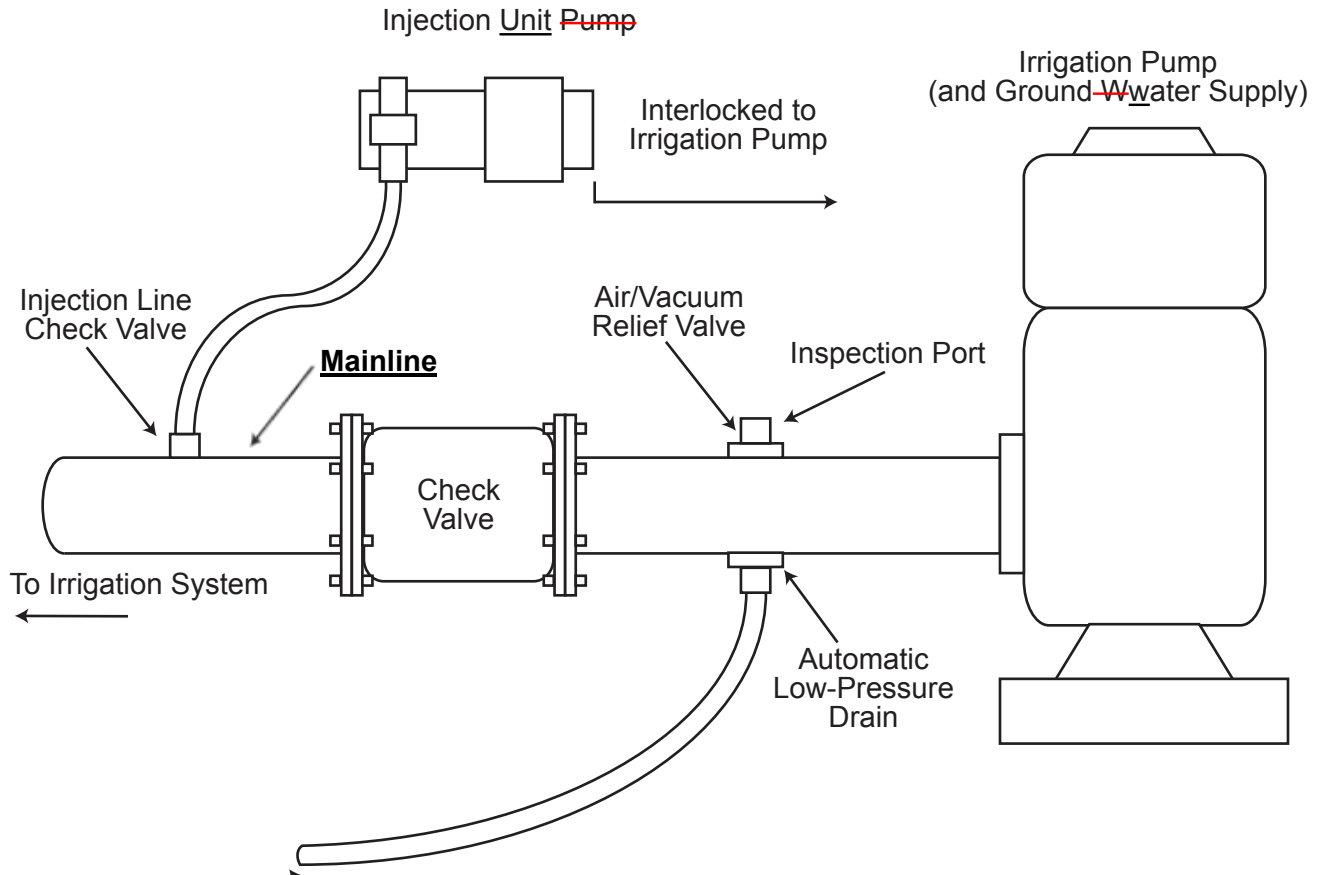
Stats. Implemented:

Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; WRD 13-1986, f. 10-7-86, ef. 11-1-86, Renumbered from 690-061-0241

OAR 690-215-0017 - Larger Wells

Backflow Prevention Device

Figure 215-1



- Discharge solution ~~a minimum of 20 feet~~ **a distance of at least 20 feet away** and down-gradient ~~slope~~ from ~~well~~ water source
- Maintain an air gap between end of discharge pipe and the discharged solution
- **Chemical or fertilizer injection shall not occur within ten feet from a wellhead**

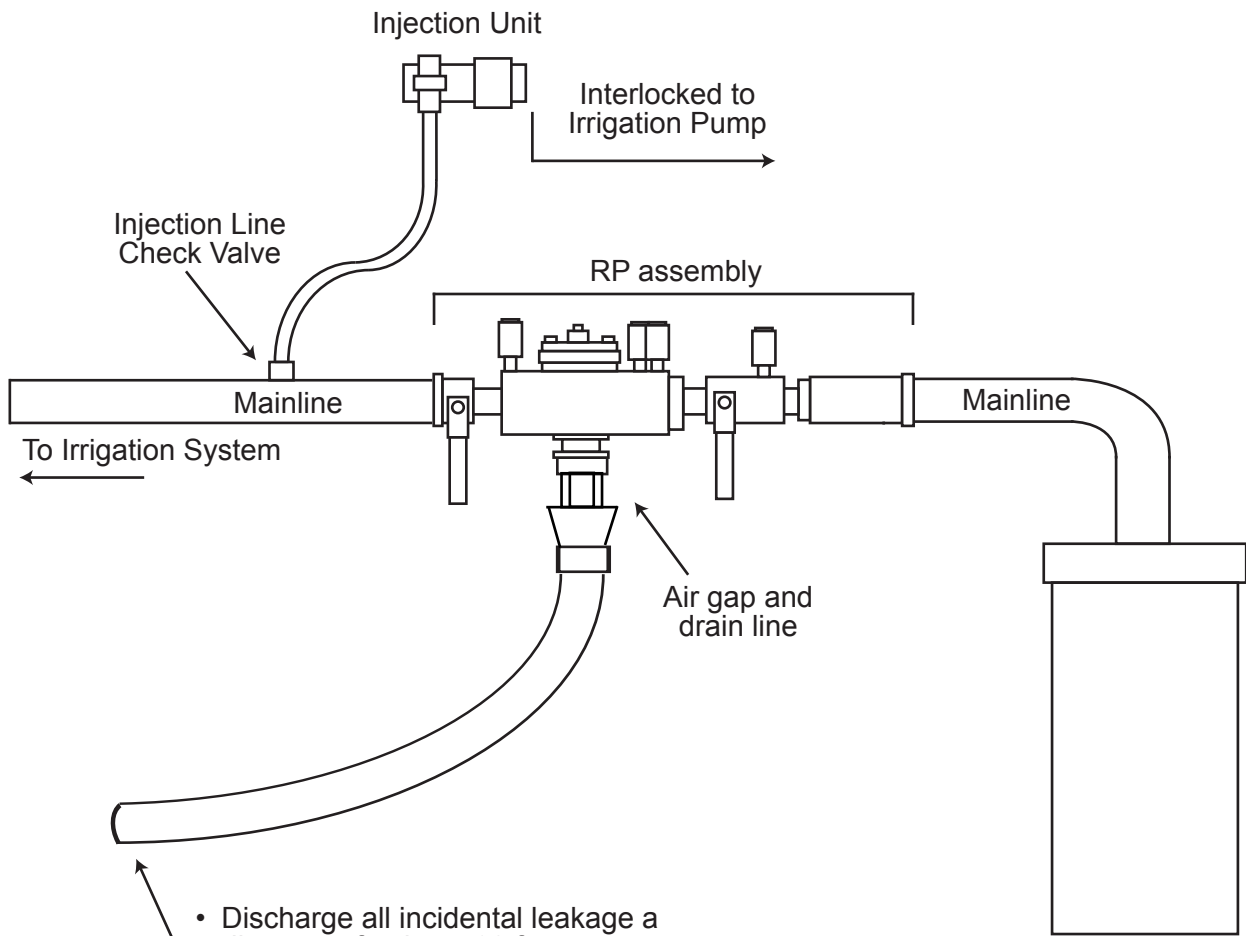
Backflow prevention device using check valve with vacuum relief and low pressure drain.

Strikethrough text is to be deleted.
 Language to be added is underlined.

OAR 690-215-0017 - Smaller Wells

Backflow Prevention Device

Figure 215-2



- Discharge all incidental leakage a distance of at least 20 feet away and down-gradient from water source
- Maintain an air gap between end of discharge pipe and the discharged solution
- Chemical or fertilizer injection shall not occur within ten feet from a wellhead

Backflow prevention device using a reduced pressure principle backflow prevention assembly (RP).

~~Strikethrough text is to be deleted.~~
Language to be added is underlined.