



Linda S. Adams  
Secretary for  
Environmental Protection

# California Regional Water Quality Control Board Central Valley Region

Karl E. Longley, ScD, P.E., Chair



Arnold  
Schwarzenegger  
Governor

## Sacramento Main Office

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114  
Phone (916) 464-3291 • FAX (916) 464-4645  
<http://www.waterboards.ca.gov/centralvalley>

## FREQUENTLY ASKED QUESTIONS REGARDING WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035 FOR EXISTING MILK COW DAIRIES

### Backflow Prevention

24 April 2009

The Central Valley Regional Water Quality Control Board (Regional Board) adopted Waste Discharge Requirements General Order No. R5-2007-0035 for Existing Milk Cow Dairies (General Order) on 3 May 2007. The following Frequently Asked Questions (FAQs) are intended to answer questions regarding these new requirements. If you have additional questions, you may contact Regional Board staff. The FAQs will be continually updated to include answers to new questions that are asked. Please check the Regional Board website periodically at [http://www.waterboards.ca.gov/centralvalley/water\\_issues/dairies/index.html](http://www.waterboards.ca.gov/centralvalley/water_issues/dairies/index.html) for these updates.

***Please note that the Regional Water Quality Control Board, Central Valley Region, adopted an Order amending Order No. R5-2007-0035 at its 23/24 April 2009 meeting. The Order changed the due date for elements of the Waste Management Plan from 1 July 2009 to 1 July 2010. One of the elements that has been extended is the deadline for documentation that there are no cross-connections.***

### BACKFLOW QUESTIONS

Note: The following questions and answers address backflow issues in the land application area. Backflow issues for the production area will be handled in a separate document.

#### **Surface Water Issues:**

##### **1) What is Backflow?**

“Backflow is the undesirable reversal of flow of water or mixtures of water and other liquids, gases or other substances into the distribution pipes of the potable supply of water from any source.” Manual of Cross – Connection Control, ninth edition, University of Southern California.

**2) What are the basic requirements for prevention of backflow under the General Order?**

The backflow requirement in the General Order is a two-step process. By **1 July 2008**, a trained backflow professional must identify what backflow prevention is required at your facility, and determine if existing backflow measures are effective using the “Form for Documenting Backflow Prevention” that can be found at

[http://www.swrcb.ca.gov/rwqcb5/water\\_issues/dairies/complying\\_with\\_general\\_order/dairy\\_forms/backflow\\_prevention\\_form.pdf](http://www.swrcb.ca.gov/rwqcb5/water_issues/dairies/complying_with_general_order/dairy_forms/backflow_prevention_form.pdf). If professional evaluation indicates that additional backflow measures are needed, those measures must be installed by 1 July 2009.

Please note that dairy operators who don't have irrigation wells or any surface water pumps can self-document, and do not need to have a trained backflow professional evaluate their system. See #4 below for more information.

**3) When is it necessary to have a “trained professional” document that there are no cross-connections that would allow the backflow of wastewater into surface water?**

Backflow standards apply to enclosed systems only. Therefore, for surface water, a “trained professional” is required to document that there are no cross-connections only where a pipe is used to remove water from surface water, such as a canal or river. Documentation by a trained backflow professional is not necessary in an open ditch-to-open ditch system, where the connection between the two ditches is through a valve or valves (see #3 below for more information).

Please note that, even though backflow standards do not apply to open systems, Prohibitions A2 and A10 of the General Order prohibit discharges to surface water from the production area (A2) and from cropland (A10). To comply with these prohibitions, it is necessary to have effective valves between two open ditches. The General Order does not require anyone to certify the valves, but the valves must be effective to avoid violation of the General Order. If the valves are not effective, discharge will occur and the prohibition(s) will be violated.

At a minimum, valves must conform to whatever standards are set by the irrigation district that controls the ditch. If the valves fail to stop an off-property discharge of wastewater, the Regional Water Board then can, and probably will, impose additional requirements on the valves as part of the corrective actions required under a Notice of Violation for an off-property discharge.

**4) What practices are acceptable for backflow prevention in irrigation canal-to-pipe connection where there is no pump used? Does a person need to have backflow prevention for surface water irrigation sources?**

In such cases, the irrigation district should have determined which practices they deem acceptable and necessary. Check with the irrigation district for more information. Regional Board staff will assume that if the irrigation district is supplying a dairy operator water, then the dairy operator is in compliance with any irrigation district requirements for backflow prevention.

Again, if a discharge of wastewater to the irrigation canal occurs, Prohibitions A2 and A10 of the General Order will be violated and enforcement action will be taken.

**5) *What if a dairy does not have any irrigation wells and receives all water from an open ditch? What certification is necessary to prove backflow is being prevented?***

Dairy operators who do not have irrigation wells or pumps from the river, may submit instead the "Form for Self Documentation that All Irrigation Water Is Supplied from the District at Existing Milk Cow Dairies" that can be found on the Regional Water Board website. This form, signed by the dairy operator, basically says "I promise I **only** get irrigation district water". Therefore, there is no need for a trained backflow professional to come out to the dairy to evaluate for backflow prevention because there would be nothing that needs a professional's evaluation.

This form is not applicable to the production area. If the dairy operator has domestic supply wells in the production area they need to provide documentation that backflow prevention measures are in place for these wells.

**Air Gap Issues:**

**6) *What is an acceptable air gap for backflow prevention?***

An air gap is a physical separation between the discharge end of the water supply pipe and an open or non – pressure receiving vessel. To effectively prevent backflow, an air gap must be at least double the diameter of the water supply pipe, unless otherwise noted by the Natural Resources Conservation Services equation for determining air gap size. This equation can be viewed at: [http://www.cdga.org/wdr/binder\\_documents/june\\_2008/NRCS%20Air%20Gap%20Backflow%20Definition.pdf](http://www.cdga.org/wdr/binder_documents/june_2008/NRCS%20Air%20Gap%20Backflow%20Definition.pdf) . Additionally, if a wind shield is used, the air gap should be configured as noted in FAQ 8 below.

**7) *If a person already has air gaps, what actions are required by 1 July 2008? If a person doesn't feel that their facility has any backflow problems, do they still need to have the facility evaluated by 1 July 2008? Can the evaluation be done later? Does it need to be done at all?***

All dairies need to be evaluated for backflow issues by 1 July 2008. If the discharge system already has appropriate air gaps, the trained professional will be signing off that the air gap is there and that it is the appropriate size. If the trained professional does not identify any additional backflow problems, the dairy operator should submit the evaluation documenting that there are no air gap problems along with the 1 July 2008 paperwork. No additional work on backflow will be necessary once the evaluation documenting "no problems" is submitted. This means the last section of the Form for Documenting Backflow Prevention will not need to be submitted by 1 July 2009.

**8) If an irrigation district owns a well on dairy property, does the dairy operator need to have the air gap evaluated?**

No, the dairy operator does not need to have wells that are owned by an irrigation district evaluated for backflow prevention. Please note on any submittal which wells are owned by an irrigation district.

**9) What if I have an irrigation well that pumps into an open ditch - what backflow prevention do I need?**

An appropriate air gap will need to be in place.

**10) What are the air gap requirements for standpipes having a wind shield?**

Under the Uniform Plumbing Code 603.2.1, an effective air gap should be 3 times the water supply pipe diameter if a wind shield is attached.

**11) Are socks on the overhead pipe that drops water into the standpipe acceptable as windbreaks?**

If a sock is used, the air gap would need to be measured from the bottom of the sock to the top of the standpipe.

**12) If the overhead pipe that drops water into the standpipe is not cut at a flat angle, but rather a diagonal, how should the air gap be measured?**

The air gap should be measured from the lowest point of the overhead pipe to the top of the standpipe. The definition of an air gap is a complete separation between the two pipes, and that separation would not start until the lowest point of the overhead pipe is reached.

**Mechanical Backflow Device Issues:**

**13) What mechanical devices are acceptable for backflow prevention?**

Mechanical backflow devices need to be checked regularly to be sure they are functioning properly. Acceptable mechanical backflow devices include the Reduced Pressure Principle Backflow Prevention Assembly, the Double Check Valve Backflow Prevention Assembly, and the double anti-siphon chemigation check valve. Other devices may also be acceptable; contact Regional Board staff at number listed below for input on other types of devices.

***14) Is there a requirement for regular check/sign-off for mechanical backflow prevention devices?***

Chemigation valves need to be manually checked once a month when the wells are running. Dairy operators need to fill out the "Operation and Maintenance Plan for Double Chemigation Valve Assemblies" form found on the CDQAP website, <http://www.cdqa.org/wdr/index.htm>. For other American Water Works Association - approved mechanical backflow prevention devices, annual checks by a person trained to run the check are required.

**Other Backflow Issues:**

***15) Can a dairy operator do his/her own sign-off on backflow issues? Can a dairy operator photograph all wells and air gaps to document adequate backflow prevention is in place?***

No. This is a conflict of interest. A third party must sign off on backflow issues. In the case of an air gap, a trained professional must measure the air gap, and certify that it is adequate.

***16) If the irrigation district delivers water through a pipeline under really low head (2.5 ft.), what certification is necessary to prove backflow is being protected?***

This would fall under the jurisdiction of the irrigation districts. In these cases, the irrigation district should have determined which practices they deem acceptable and necessary. Check with the irrigation district for more information.

***17) A dairy has land that gets solid manure but no wastewater and has an irrigation well. What type of backflow protection is needed?***

No backflow protection is needed in this case because wastewater is not mixed with irrigation water. Backflow protection is needed on pipelines that carry both wastewater and fresh water. Note that setback requirements to protect the irrigation well are still necessary.

***18) The form for documenting backflow prevention requires a map showing information on conveyance structures, wastewater discharge points, and other information that doesn't need to be submitted until 1 July 2009, according to Table 1 in the General Order. The backflow documentation form, except for Part V, is due 1 July 2008. When is the map actually due?***

In our efforts to phase in the General Order requirements to reduce the workload on dairy operators, we inadvertently postponed to 1 July 2009 submittal of some of the information that is in fact critical to the evaluation of backflow prevention required by 1 July 2008. The map required as part of the backflow documentation form (see paragraph 3 on the first page of the form) does nevertheless need to be submitted by 1 July 2008, not 1 July 2009.

***19) If any of my water system is connected to a community water supply, do I have to do anything special?***

If any of your water system is connected to a community water supply, it is under the jurisdiction of the local water purveyor and they will let you know what is required. A water purveyor is the person or agency that has the authority to protect the public water supply in accordance with Title 17, California Code of Regulations. Please send us a statement that you are connected to a community water supply.

***20) Where should a wastewater line into a standpipe that receives well water be located?***

The wastewater line should feed directly into the standpipe and the well pipeline should feed into the top of the standpipe with an adequate air gap.

***21) Is there any requirement for documentation of backflow prevention if a standpipe receives only manure water and is not connected to a freshwater source?***

No.

***22) Whom should I contact if I have questions regarding backflow prevention measures and required documentation?***

Neena Moitoso at [nmoitoso@waterboards.ca.gov](mailto:nmoitoso@waterboards.ca.gov).