

Regulatory Awareness and Compliance: Water Quality Rules and Regulations

Purpose (Learning Objective): This module introduces the major water quality laws and regulations that apply to agriculture, with an emphasis on animal agriculture. Such regulations are becoming a major part of agricultural business management and also have implications in securing credit and obtaining insurance. After this presentation, students should have a basic understanding of how the Clean Water Act and other programs can apply to agriculture.

For extension staff or young farmer/rancher advisers, an additional theme of this module is that environmental regulations are often recognizable as good conservation practices farmers may already be doing. Understanding these rules will help producers manage their own operations and allow them to become involved in the policy that affects their livelihood through proactive outreach, joining ag organizations, and participating in public hearings and planning processes.

Why Is This Important?

As agriculture, especially animal agriculture, has intensified (fewer, larger, confined operations) it is no surprise that regulations have become a more prominent aspect of this business.

The primary regulations faced by animal agriculture are related to the [Clean Water Act \(CWA\)](#) of 1972, and versions amended since. In most cases, these rules are delegated to the [states](#) to enforce. In the almost 40 years since its inception, the CWA has addressed multiple activities with the potential to impact surface water quality. The first situation to be addressed was the prevalence of direct discharges of human sewage to waters of the U.S. In these early years of the CWA, many municipal, county or other publicly owned treatment works were designed, built or upgraded to only discharge a permitted and approved amount of treated wastewater. Moving into the 1980s, industrial dischargers of wastewater and pollutants were addressed. In both of these cases [point source discharges \[definition 14\]](#) to water, literally identifiable pipes, were addressed and diverted to treatment systems. Some agricultural systems can also be classified as point sources.

Now the CWA also has contingencies to address [non-point source water pollution](#), such as the collective runoff from an urban landscape including pavement, roofs and lawns. Non-point source pollution can also originate in agricultural lands, forest lands and where there are soil disturbing activities like construction. Though essential for all plant and animal life, nutrients and other compounds found in fertilizer or manure can result in water pollution when not managed properly. Likewise, organic matter, pathogens and erosion can pose threats to water quality. Though every citizen and business is beholden to the broad coverage of the CWA, and its familiar charge, “though shall not pollute waters of the U.S.”, specific regulations exist for [Animal Feeding Operations](#) (AFOs), and their larger counterparts [Concentrated Animal Feeding Operations](#) (CAFOs). These regulations DO NOT apply to pasture or range situations, only [animals in confinement](#).

The [National Pollutant Discharge Elimination System \(NPDES\)](#) administered by the U.S. Environmental Protection Agency (USEPA) addresses CAFOs with a permitting program and prescriptive practices to prevent pollution of water from manure and process waste water associated with livestock and poultry production. Some states have also implemented their own more stringent rules. The basis of all AFO and CAFO rules is a two part philosophy. One, keep clean water clean, and two, avoid direct contact of confined animals with water. This is primarily done through proper stormwater diversions, animal housing and [waste collection and](#)

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[storage](#). An opportunity in these regulations comes with the fact that a large part of the required practices and documentation promote beneficial of manure on farm land, as long as water quality is protected.

To do this, regulated and permitted animal feeding operations must describe their storm water and manure management systems, in addition to keeping detailed [records](#) on their manure and fertilizer inventories, use on crop land or pasture, or export from the property. The system is based on a [nutrient management plan](#) (NMP) that is best described as a “nutrient checkbook.” The balance of nutrients is debited for agronomic use on crops or pasture. At the end of year the balance should be zero. Based on crop potential, if a negative balance is predicted, commercial fertilizer can be added. If there is to be a positive balance or surplus of nutrients, manure should be exported.

Prior to this activity/program:

There is no pre-requisite knowledge or activity necessary for this module. It is desirable if students have some basic knowledge of the types of agriculture common in their area. Awareness of how different groups view water quality regulation (farmers, environmental groups, policy makers, etc.) is also helpful.

Suggested Presentation Outline:

Day 1

1. Activity (optional). Use sample quiz questions as “pre-test”/discussion (15 minutes)
2. Presentation. Use .ppt slides 1-36. (35-50 minutes)

Day 2 (Optional)

1. Debate or group discussion enrichment activity (50 minutes)

Instructional Materials:

Most of the materials are available in PDF (best if you want to use them as-is) or as RTF (best if you want to edit or customize) formats.

Presentation

Annotated, 36 slides in Powerpoint 97-2003 format

- The slides can be [previewed](#) and downloaded at: <http://slidesha.re/oRjFt6> Or
- <http://create.extension.org/sites/default/files/Environmental%20Regulations%20instructor%20presentation.ppt> 10 MB

Evaluation/Assessment:

Quiz Questions: Sample quiz questions <http://create.extension.org/sites/default/files/quiz%20questions.rtf>

These can be used as a pre-lecture discussion activity as well as an assessment.

Enrichment Activities/Independent Practice (Optional):

1. Class debate activity
<http://create.extension.org/sites/default/files/Water%20Quality%20Rules%20%20Debate.rtf>
2. Group discussion activity
<http://create.extension.org/sites/default/files/water%20quality%20regulations%20group%20discussion.rtf>
3. Research and identify the agency in your state that has the delegated authority to issue NPDES Permits and enforce CAFO rules.
4. Does your state have rules more stringent or that include more sizes and types of operations than the Federal rules?
5. Identify conservation practices used in your state to protect water quality in the context of animal feeding operations (hint: see what practices USDA-NRCS, or Conservation Districts, cost-shares in your state under EQIP and similar programs for AFOs and CAFOs).

Alignment with AFNR, SAE projects, and FFA Contests & Career Choices

National Agriculture, Food, and Natural Resources (AFNR) Career Cluster Content Standards:

The information contained, or referenced, in this module are cross-referenced to the following Performance Elements and Performance Indicators. In some cases, where the fit was most specific to single Performance Indicator sub-category, it was also referenced.

Life Knowledge and Cluster Skills

CS.06. Performance Element: Examine the importance of health, safety, and environmental management systems in organizations and their importance to performance and *regulatory* compliance.

CS.06.01. Performance Indicator: Observe required *regulations* to maintain/improve safety, health and environmental management systems.

CS.06.02. Performance Indicator: Develop a plan to maintain and improve health, safety and *environmental compliance* and performance.

CS.06.03 Performance Indicator: Provide health, safety, and *environmental operating guidelines*.

Agribusiness Skills

ABS.02. Performance Element: Utilize appropriate management planning principles in AFNR business enterprises.

ABS.02.01. Performance Indicator: Compose and analyze a business plan for an enterprise.

ABS.02.01.02.b. Observe appropriate *laws* and *regulations* in planning and operating AFNR businesses.

ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.

ABS.02.03.02.a. Identify appropriate local, state, federal, international and industry *regulations* for AFNR businesses.

ABS.03. Performance Element: Utilize *record keeping* to accomplish AFNR business objectives while complying with *laws* and *regulations*.

ABS.03.01. Performance Indicator: Prepare and maintain all files needed to accomplish effective *record keeping*.

Animal Systems

AS.08. Performance Element: Analyze environmental factors associated with animal production.

AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.

Environmental Service Systems

ESS.02. Performance Element: Assess the impact of policies and *regulations* on environmental service systems.

ESS.02.01. Performance Indicator: Interpret *laws* affecting environmental service systems.

ESS.04.04. Performance Indicator: Apply principles of wastewater treatment to manage wastewater disposal in keeping with rules and *regulations*.

Careers/Jobs: government agency inspector or policy specialist, environmental extension specialist, environmental policy specialist for ag lender/ag insurer, on farm/ranch environmental manager, livestock and poultry environmental consultant, ag policy specialist with a commodity association, ag policy writer/journalist, environmental/agricultural lawyer and other similar careers.

For More Information

In addition to the instructional material provided with this module, the following resources are recommended sources for additional reading.

Livestock and Poultry Environmental Learning Center

<http://www.extension.org/animal+manure+management> (Select the “Regulations” topic area)

Specific Fact Sheets and Web Content:

- Overview of record Keeping for AFOs and CAFOs
http://www.extension.org/pages/Record_Keeping_and_Inspections_for_Animal_Feeding_Operations
- LPES Curriculum CAFO Fact Sheets
http://www.extension.org/pages/LPES_Curriculum_CAFO_Fact_Sheets

Recommended FAQs or searches at the <http://www.extension.org> site:

- [What is an AFO?](#)
- [What is a concentrated animal feeding operation \(CAFO\)?](#)
- [Under the 2008 federal regulations, is there still a requirement for CAFOs to seek permit coverage?](#)
- [Who is my state environmental regulatory authority for my livestock operation?](#)
- [How can my grazing operation avoid being subject to regulation?](#)
- [When could my pasture operation, barnyard, or open lot be subject to regulation?](#)
- [Will a CAFO whose only discharge is "agricultural stormwater" need to apply for an NPDES permit?](#)
- [How does a CAFO certify that it will not discharge and why should it if it isn't going to discharge?](#)
- [During a regulatory inspection, what is likely to be most scrutinized?](#)
- [What is the benefit to the CAFO owner/operator of having an NPDES permit?](#)
- [How much does it cost to update my livestock facility to meet permit requirements?](#)

Multi-media and social media:

- See the “webcasts” section of the Regulations topic area for the extension.org website listed above. These webcasts are presented when new regulations are developed and by national experts in the topic and recorded for on-demand viewing.
- eXtension Ask-an-Expert System <http://www.extension.org/ask>

Suggested contacts/references/resource people:

Land Grant/Agricultural University professor or Extension specialist that works with animal waste, local USDA Natural Resources Conservation Service engineer or water quality specialist, state environmental agency staff member dealing with water quality or animal feeding operations, state commodity association staff for policy (Farm Bureau, cattleman’s association, pork council, poultry association, dairy association...), watershed groups, USEPA office in the state or region.

Key Words:

These terms will help producers, young farmer advisors, ag teachers and students conduct their own research on these issues. *Clean Water Act (CWA), Environmental Protection Agency (EPA), National Pollutant Discharge Elimination Systems (NPDES), Animal Feeding Operation (AFO), Confined Animal Feeding Operation (CAFO), Permits, Regulations, Nutrient Management Plan (NMP), Comprehensive Nutrient Management Plan (CNMP), non-point source pollution, point source pollution, nutrient pollution, nitrogen, phosphorus, eutrophication, pathogens, organic matter, manure and animal waste.*

Environmental Protection Agency (EPA) resources:

- EPA “Agriculture Laws” page <http://www.epa.gov/oecaagct/llaw.html>, especially see “Major Laws ”
- EPA Animal Feeding Operation (AFO) Virtual Center <http://cfpub.epa.gov/npdes/afo/virtualcenter.cfm>
- EPA Watershed academy: Introduction to Clean Water Act (online educational module)
<http://www.epa.gov/owow/watershed/wacademy/acad2000/cwa/>

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- National Ag Compliance Assistance Center <http://www.epa.gov/agriculture>
- EPA Ag Law Matrix <http://www.epa.gov/agriculture/agmatrix.pdf>
- Find your state regulatory agency and look on their website for information. If you do not already know who that is, you can find out at: <http://www.epa.gov/aboutepa/states/> (select your state and look in the “state agencies” box)

Additional Resources:

Congressional Research Service report Agriculture and Environmental Regulations
<http://www.nationalaglawcenter.org/assets/crs/R41622.pdf>

Connect and Interact

The following are places you can interact with others utilizing these materials or having an interest in promoting environmental stewardship in agriculture.

Twitter: <http://twitter.com/envagleaders>

Facebook: <http://facebook.com/envagleaders>

Agriculture’s Promise blog: <http://agriculturepromise.wordpress.com/>

Livestock & Poultry Environmental Learning Center <http://www.extension.org/animal+manure+management>

YouTube <http://www.youtube.com/user/lpelc>

Your local extension office, soil & water conservation districts, USDA Natural Resource Conservation Service, zoning and planning commission, agricultural organizations, and others are also great sources of information.

Jill’s note: After review, information about these materials will be posted to the NAAE Communities of Practice <http://www.naae.org/communities>. This guide will be updated with that information.

Teaching Notes:

What would you keep the same, change, add, or remove the next time you teach this lesson?

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